ENVIRONMENTAL IMPACT REPORT

FOR THE PROPOSED

SKY RANCH II RESIDENTIAL SUBDIVISION

IN UNINCORPORATED CONTRA COSTA COUNTY

PITTSBURG, CALIFORNIA

SCH #2004112092

Draft EIR
December 2005

Prepared for:

City of Pittsburg
Planning Department
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INTRODUCTION

Objective and Lead Agency
This Draft Environmental Impact Report aims to aid the City of Pittsburg Planning Department, Planning Commission, and City Council, as they consider the application of Discovery Builders, Inc., to pre-zone 156 acres to RS (Single Family Residential) District, and approve a tentative map for a 415 unit residential subdivision, Tract 8475, also known as Sky Ranch II for future annexation to the City. The City of Pittsburg is the designated Lead Agency, under the California Environmental Quality Act (CEQA), and is responsible, therefore, for processing the application and implementing environmental scoping, findings, mitigation measures, mitigation monitoring, and public notices as required under CEQA.

Form of the Environmental Document and Process
An Initial Study and Notice of Preparation (NOP) were prepared and circulated during November and December 2004. The Draft Environmental Impact Report (EIR) is intended to provide information in response to issues identified through the Initial Study and responses to the NOP by responsible agencies. The Draft EIR will be available for public and agency review during a 45-day review period. The Draft and Final Environmental Impact Report (EIR) will comprise the environmental documentation intended to meet the impact disclosure and public review requirements of CEQA.

The City of Pittsburg determined that preparation of an EIR is appropriate for addressing one or more areas of potential adverse environmental effect of the proposed project on the environment, as defined under CEQA Guidelines. The City of Pittsburg engaged Environmental Service to commence work on specified environmental evaluations and documentation in this EIR.

A Notice of Preparation (NOP) was prepared and issued by U.S. Certified Mail to Responsible Agencies and the State Office of Planning & Research, State Clearinghouse, on November 23, 2004. The NOP began a mandatory 30-calendar day response period, which ended December 23, 2004, during which the Responsible Agencies were given the opportunity to respond with comments on areas of concern to them and relevant to the environmental document. Agency letters received in response to the NOP and the Initial Study are presented in Chapter XIII.

Responsible Agencies subject to this notice included local agencies and districts and state agencies that may need to use the Draft EIR when considering subsequent permits or potential impacts of the proposed project or alternatives on facilities or environmental resources within their jurisdictions. The State Clearinghouse Number assigned to the EIR is SCH #2004112092.

After circulation of the Draft EIR to the Responsible Agencies and the general public for the mandated 45-day public review and comment period, a Final EIR will be prepared, which will address comments received during this review period. Publication of the Final EIR will allow an opportunity to clarify and amplify information published in this Draft EIR and, if necessary, to supplement information to aid decision-makers and members of the public in weighing the potential environmental effects of the proposed project and alternatives.

Inter-Agency Consultation

This Draft EIR includes information developed during inter-agency consultation with the California Department of Fish and Game, California Department of Transportation (Caltrans), City of Antioch, City of Concord, Contra Costa Water District, Contra Costa County Flood Control & Water Conservation District, Contra Costa County Fire Protection District, Delta Diablo Sanitation District, East Bay Regional Parks District, Pittsburg Unified School District, and inter-departmental coordination with the City of Pittsburg Engineering, Planning, Public Works, and Police Departments. The City of Antioch city limit adjoins Highlands Ranch and the project site on the east. The City of Antioch owns and maintains the portion of Buchanan Road and the built portion of the Buchanan Bypass within Antioch's city limits. The Black Diamond Ranch Residential subdivision which adjoins the project site on the east is located within Antioch's city limits.

California Department of Fish and Game

Mr. Carl Wilcox and Ms. Janice Gan were contacted by telephone. Mr. Wilcox provided certain information about the projected timing of the East Contra Costa County Habitat Conservation Plan and Environmental Impact Statement. In addition to technical information, Ms. Janice Gan provided technical guidance in regard to the assessment of special status species, including the California Red-legged frog, California tiger salamander, and San Joaquin kit fox

State of California Department of Transportation (Caltrans)

Caltrans owns and maintains State Highway 4 (SR4) right-of-way, ramps, and main line improvements, and commented on the NOP expressing Caltrans' concerns regarding increased traffic demand on SR4 and potential impact to state-owned storm drainage facilities.

Delta Diablo Sanitation District
DDSD identified that it collects capital Facility Capacity Charges for new development, to fund master plan improvements. The City's 2002 Wastewater Collection System Management Plan is used as a basis for DDSD's flow projections and planning of its conveyance system improvements. The proposed project apparently would generate additional flow from 132 houses more than assumed in the available 2002 projections, which considered 283 units rather than the proposed 415 units. DDSD was contacted by telephone and DDSD staff asked that routing to the Pittsburg-Antioch Interceptor, which is a DDSD pipeline, be confirmed. Project waste water flow in fact would be conveyed to the Pittsburg-Antioch Interceptor via a 15-inch diameter sewer beneath Buchanan Road (Isakson & Associates, September 14, 2005). Finally, DDSD recommended temporary isolation of sewers under construction with sewer plugs/temporary grates until new sewers are fully cleaned and accepted. DDSD's recommendation is intended to avoid potential sanitary sewer overflows caused by construction debris.

Contra Costa Water District
CCWD will require evidence of USFWS Section 7 or Section 10 consultation in order to process the annexation of the project site and inclusion of the project site in the Central Valley Project service area. CCWD also specifically commented that detained storm water from Highlands Ranch is discharged to existing stormwater conveyance facilities located under Buchanan Road and on the right-of-way of Contra Costa Canal. CCWD's letter implies that said stormwater conveyance facilities are currently deficient and could necessitate supplementation to convey existing Highlands Ranch storm water flow and additional stormwater flow from Sky Ranch II, the proposed project.

Contra Costa County Fire Protection District
The Contra Costa County Fire Protection District commented that fire station distances of 2.0 to 2.5 miles from the project site would exceed the desirable distance of 1.5 mile or less. Owing to response times, CCCFPD recommended in-home fire suppression sprinklers and Class A-rate roof assemblies.

Contra Costa County Flood Control & Water Conservation District
Many of CCCFCWCD's comments pertain to drainage areas DA 70 and DA 55. DA 70 is an unformed drainage area covering most of the project site, which is tributary to Kirker Creek. DA 55, a formed drainage area for which fees are established, and covering a relatively small 19-acre portion of the site, is tributary to Markley Creek. CCCFCWCD's comments

acknowledge drainage deficiencies in the Kirker Creek watershed downstream of the project site.

CCCFCWCD requested flood routing calculations be submitted by the Project Engineer in conjunction with the Draft EIR. Such calculations recently have been prepared and submitted to the City of Pittsburg. Among other factors, the calculations are intended to demonstrate proposed and existing detention basin storage capacities will be adequate for projected storm flows.

Particular recommendations of CCCFCWCD include the following:

- Establish a perpetual funding source for the proposed detention basin maintenance before allowing construction of the basin.
- Developer should provide an Operation and Maintenance Manual for the detention basin specifying, at a minimum, an annual inspection schedule.
- Designation of the party responsible for long-term operation and maintenance of the proposed basin. CCCFCWCD suggested either formation of a maintenance assessment district with legal obligation to maintain the basin through a Homeowners' Association (HOA) or else City-maintenance through its Clean Water Program.

CCCFCWCD advised that the proposed development through its proposed stormwater detention has a general potential to extend the duration of peak stormwater flows. Extended storm water flows can result in increased sedimentation in the natural stream channels located downstream of detention facilities.

East Contra Costa Transportation Planning (TRANSPLAN)
The TRANSPLAN Committee staff commented that the effect of the proposed project on Buchanan Road be evaluated in terns of traffic service objectives in the *East County Action Plan.* Buchanan Road is identified as a route of regional significance in said plan.

East Bay Regional Park District
The EBRPD commented that it seeks to create a buffer or transitional area between the proposed subdivision and open space. EBRPD further advised that such buffers are necessary to create fuel breaks that prevent spread of wildland fires into adjacent residential areas.

EBRPD expressed concern about the potential visual impact of proposed houses if visually prominent from Lougher Ridge and Arata Overlook

Trails in it s nature and historical preserve, the Black Diamond Mines Regional Preserve. EBRPD's letter suggests eliminating proposed houses that may be planned on ridgelines. EBRPD's comment letter did not acknowledge the Antioch Unified School District-owned parcel which adjoins the project site on the south and is approximately 2,600 feet in north-south width.

EBRPD commented that the East Contra Costa County HCP contains a wealth of information about special species and other biological resources in the area. Its letter recommends updating information about the California Red-legged Frog and San Joaquin kit fox.

Regarding traffic, EBRPD observed that Somersville Road provides primary access into its park, Black Diamond Mines. EBRPD continues to identify the planned Buchanan Bypass as a 4-lane expressway that would introduce additional traffic onto Somersville Road, thereby diminishing the desirability of park visitation during AM and PM commute periods. For bicyclists and walkers, EBRPD suggests a Class I grade-separated trail along the bypass route.

Antioch Unified School District
AUSD requested a copy of the Draft EIR.

City of Antioch
City of Antioch Community Development staff commented that the City of Antioch prefers connection and opening of the proposed segment of the Buchanan Bypass within the Sky Ranch II project. A corresponding segment of the Buchanan Bypass already has been constructed within the Black Diamond Ranch subdivision in Antioch. The proposed Sky Ranch II project, though it would construct a portion of the bypass, would include barricades on both ends, pending completion of the bypass as a continuous route for through-travel to Kirker Pass Road or another suitable road west of the project site.

City of Antioch staff also provided technical input for the traffic analysis. In particular, City of Antioch staff commented that the New Standard Oil Avenue is proposed in Antioch as a north-south route between the Buchanan Bypass and Buchanan Road and between Buchanan Road and East Leland/Delta Fair/Century Boulevard. Such a route, if available, could be expected to provide more direct access to East County Mall from Black Diamond Ranch, Highlands Ranch, and the proposed Sky Ranch II, thereby shifting some traffic off Somersville Road and Buchanan Road compared to the scenario without New Standard Oil Avenue.

City of Concord
The City of Concord Transportation Manager requested that potential impacts of the proposed project on Kirker Pass Road and Ygnacio Valley Road in the City of Concord be evaluated. In conjunction with completion and opening of the future Buchanan Bypass to through traffic between Somersville Road and Kirker Pass Road, the Transportation Manager noted that considerable traffic could be added Kirker Pass Road. The City of Concord opposes construction of the Buchanan Bypass if it would cause the use of Kirker Pass Road and Ygnacio Valley Road as an alternative route to Highways 4 and 242.

EIR Organization
This Draft EIR has thirteen chapters including the Appendix. The Table of Contents follows on page vii.

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LIST OF ACRONYMS & ABBREVIATIONS

AADT – annual average daily traffic volume

ABAG – Association of Bay Area Governments

ABWF – average base wastewater flow

AFY – acre feet per year

ATCM – Air Toxic Control Measures

AUSD – Antioch Unified School District

BAAQMD – Bay Area Air Quality Management District

BDMRP – Black Diamond Mines Regional Preserve

Caltrans – State of California Department of Transportation

CAP – Clean Air Plan

CBC – California Building Code

CCCFCWCD – Contra Costa County Flood Control and Water Conservation District

CCCFPD – Contra Costa County Fire Protection District

CC&Rs – covenants, codes, and restrictions

CCRCD – Contra Costa Resource Conservation District

CCTA – Contra Costa Transportation Authority

CCWD – Contra Costa Water District

CDF – California Department of Forestry and Fire Protection

CDFG – California Department of Fish and Game

CESA – California Endangered Species Act

CEQA – California Environmental Quality Act

cfs – cubic feet per second

CO – carbon monoxide

CoIWMP – County Integrated Waste Management Plan

CNDDB – California Natural Diversity Data Base

CPUC – California Public Utilities Commission

CRLF – California red-legged frog

CTS – California tiger salamander

CWA – Clean Water Act

dBA – A-weighted decibel

du – number of dwelling units

du/acre – number of dwelling units per acre of land

ECCC – East Contra Costa County

EBRPD – East Bay Regional Park District

EIR – Environmental Impact Report

EMF – Electromagnetic field

ESA – Endangered Species Act, federal unless annotated as "California ESA," or CESA

EVA – Emergency Vehicle Access

FEMA – Federal Emergency Management Agency

FHWA – Federal Highway Administration

FIRM – Flood Insurance Rate Map

GDI – groundwater dependent infiltration

GHAD – (pronounced "Gadd") Geologic Hazard Abatement District

GIS – Geographical Information System

gpad – gallons per acre per day

gpd/DU – gallons per day per dwelling unit

HCD –California Department of Housing and Community Development

HCP/NCCP – Habitat Conservation Plan/Natural Communities Conservation Plan

HEC – Hydrologic Engineering Center of the U.S. Army Corps of Engineers

HOA – Homeowners' Association

HPD – Hillside Planned District

Hz – hertz

ISO – National Insurance Service Office

JPA – Joint Powers Authority

L_{dn} – daytime-nighttime weighted 24-hour average community noise level

LOS – level of service

LAFCO – Local Agency Formation Commission

MCE – maximum credible earthquake

mgd – million gallons per day

mG – milli-Gauss, a unit of magnetic field strength

MMI – modified Mercalli intensity

msl – **mean sea level**

NAAQS – National Ambient Air Quality Standards

NEPA – National Environmental Policy Act

NOx – oxides of nitrogen

NPDES – National Pollutant Discharge Elimination System

O_3 – ozone

OS – Open Space

PG&E – Pacific Gas & Electric Company

PI – Plasticity Index

PM_{10} – particulate matter

pphm – part per hundred million by volume

ppm – part per million by volume

PRC – Public Resources Code

PUSD – Pittsburg Unified School District

PDWF – Peak Dry Weather Flow, in regard to wastewater

PWWF – Peak Wet Weather Flow, in regard to wastewater

RDI – rainfall dependent infiltration

ROG – Reactive Organic Gases

RS – single-family residential zoning

RWF – Recycled Water Facility

RWQCB – State of California Regional Water Quality Control Board

SFM – State Fire Marshal or Office of the State Fire Marshal

SR4 – State Highway 4

SRRE – Source Reduction and Recycling

SWPPP – Storm Water Pollution Prevention Plan

SJKF – San Joaquin kit fox

SOI – sphere of influence

TAC – toxic air contaminant

TNM – Traffic Noise Model

UBC – Uniform Building Code

ULL – urban limit line

URBEMIS – Urban Emissions, an air pollution emission model

USACE – U.S. Army Corps of Engineers

U.S. EPA – United States Environmental Protection Agency

USDA – U.S. Department of Agriculture

USFWS – U.S. Fish & Wildlife Service

USGS – U.S. Geological Survey

UWI – Urban Wildland Interface

v/c – volume-to-capacity ratio

vpd – vehicles per day

vph – vehicles per hour

VOC – Volatile Organic Compound

Attached housing is not proposed under the Alternative 2 (Proposed Project); however, construction of some attached housing along Buchanan Bypass at Low- or Medium-Density is considered under Alternative 1 (On-Site Conservation Alternatives) in Chapter VI.

Statewide, Regional, or Areawide Significance

Under the California Environmental Quality Act Guidelines, Section 15206 (b), the Lead Agency shall determine whether a proposed project is of statewide, regional, or areawide significance. A project is so designated if the project meets either of the following criteria (a partial list from the CEQA Guidelines): (i) A proposed residential development of more than 500 dwelling units; (ii) A project which would substantially affect sensitive wildlife habitats including but not limited to riparian lands, wetlands, bays, estuaries, marshes, and habitats for endangered, rare and threatened species as defined by Section 15380. Section 15380(c) defines endangered, rare and threatened species as a species of animal or plant listed in:

(1) Sections 670.2 or 670.5, Title 14, California Code of Regulations; or

(2) Title 50, Code of Federal Regulations Section 17.11 or 17.12 pursuant to the Federal Endangered Species Act as rare, threatened, or endangered.

The proposed project, therefore, is a project of regional significance because it would affect the habitat of the federally-listed threatened California tiger salamander, proposed critical habitat of the California red-legged frog, and annual grassland habiat of the San Joaquin kit fox. The effect would be substantial because all 163 acres of the project site, including the proposed 7.1-acre re-subdivided area of Highlands Ranch, have been characterized by a qualified herpetologist as CTS habitat, the southwestern corner of the project site is currently within an area of CRLF proposed critical habitat, the project site is within the range of the SJKF, and the proposed project is to mass grade and/or develop all on-site acreage.

Initial Environmental Review

Only one category of potential environmental effect evaluated in the Initial Study prepared by the City of Pittsburg Planning Department was determined not to be a potential significant effect of the proposed project. Mineral resources would not be affected by the proposed project, as no such resources are present on the project site.

Standards of Significance

A "significant effect on the environment" means a "substantial or potentially substantial adverse change in any of the physical conditions within the area

The foothills of Mount Diablo in the southeastern portion of the City's Planning Area tend to be susceptible to soil creep, landsliding on slopes greater than 15 percent, and debris flows on slopes greater than 20 percent. Debris flows can occur on any slope, but are more likely to occur where soil saturation, either naturally by stormwater runoff or else induced by landscape irrigation, is concentrated within swales and gullies (*General Plan*, pp. 10-3, -4, and -5).

The project site is not located within the 100-year floodplain (*General Plan*, Figure 10-3, p. 10-18). Most of the project site, except the eastern edge, is located within the Kirker Creek watershed away from any reach subject to flooding (*General Plan*, Figure 9-2, p. 9-17). The project site also is not located in an identified noise-affected area. State Highway 4 casts traffic noise over a broad corridor; however, the project site is located outside the noise corridor of State Highway 4 (*General Plan*, Figure 12-2, p. 12-9).

The project site has portions of an intermittent streambed and ephemeral streams, but does not have fresh water emergent wetlands. Such wetlands occur generally within the City of Pittsburg in Kirker Creek, Willow Creek, and several of the tributaries located in the Mount Diablo foothills but do not occur on the project site. The *General Plan* (Figure 9-1, page 9-5) illustrates seasonal wetland, California annual grassland, salt marsh and other vegetative communities. One seasonal wetland is illustrated in the *General Plan* as occurring within the western portion of the project site; however, detailed wetland study of the project site in 2004 identified 394 lineal feet of intermittent stream on the west and 163 lineal feet of wetland in the site's southeastern corner.

Adjacent Area

The project site adjoins the Black Diamond Planning Subarea on the south, the City of Antioch's approved Black Diamond Ranch single-family subdivision on the east, the new Highlands Ranch single-family residential subdivision on the north, older single-family residential development on Palo Verde Drive to the northwest, and Open Space designated land in the Black Diamond Planning Subarea on the west. The project site does not adjoin the Black Diamond Mines Regional Preserve whose northern limit is approximately 2,600 feet south of the southern boundary of the project site.

Description of the Project Site Design and Architecture

The proposed housing in general consists of detached single-family houses of 1-story or 2-stories, constructed on graded level pads. To create the level pads, mass grading is proposed in the amount of approximately 3.3 million cubic yards of fill and cut. Architectural elevations of the proposed housing are presented in Chapter V.D, Figure 17.

- Potential petroleum pipeline relocation (speculative project because the KM 10-foot wide easement and adjacent 100-foot wide PG&E easement also could be protected in remainder parcels)
- Buchanan Bypass within the project site's east and west limits
- Several off-site road or intersection improvements for traffic impact mitigation
- Several off-site sideyard fence or wall improvements for community sound impact mitigation

Description of the Proposed Project Site

The proposed project site is located within the Buchanan Planning Subarea in the southeastern part of the Pittsburg Planning Area within the City of Pittsburg's Sphere of Influence and Urban Limit Line. The Buchanan Planning Subarea is adjoined on the south by the Black Diamond Planning Subarea and on the east by the City of Antioch. The planning boundaries, Buchanan and Black Diamond Subareas are shown in the General Plan (*Pittsburg 2020: A Vision for the 21st Century*, pp. 2-12, 2-55 and 2-56, 2-73 and 2-73).

The project site consists of undeveloped grasslands on rolling hills, to a maximum elevation of approximately 500 feet above mean sea level (msl). The adjoining area to the south and southwest, within the Black Diamond Planning Subarea, consists of rolling hills at increasing elevations above 500 feet msl. The City of Pittsburg's *General Plan* identifies (p. 2-73) a relevant "off-site" resource, the Kirker Creek riparian corridor, which is located approximately two miles west of the project site. Kirker Creek traverses generally north-south through the Black Diamond and Buchanan Planning Subareas. According to the General Plan, Kirker Creek provides an opportunity for a trail linking Black Diamond Mines Regional Preserve with Buchanan Park. General Plan Policies 2-P-105, 2-P-106, and 2-P-107 apply to the general goal of preserving the rolling Black Diamond Hills as Open Space and present a particular challenge for transition at the fringe between residential development and open space.

Access to the Buchanan Planning Subarea currently is provided by Buchanan Road, Railroad Avenue and Kirker Pass Road, Loveridge Road, and Somersville Road. The future Buchanan Bypass is intended as an alternate parallel route to State Highway 4 and Buchanan Road. The future Buchanan Bypass is a conceptually planned facility shown on the City's General Plan Land Use Map and Roadway System, the construction of which has not been funded or partially funded.

Constraints mapped generally for the *General Plan* did not include any mapped areas overlapping the project site, except for mapped areas of steep, unstable slopes. The project site has slopes up to 30 percent in the southwestern, southern, and southeastern portions, characterized as moderately unstable or generally unstable.

I. SUMMARY

Proposed Project

The project is a 415-unit single-family residential subdivision bounded by the Highlands Ranch residential subdivision (Unit 2, Subd. 8258, and Unit 5, Subd. 8532) on the north; by the approved Black Diamond Ranch residential subdivision in the City of Antioch on the east, and by undeveloped land within the planning Area to the south and west. Required actions to develop this project include pre-zoning the site RS (Single-Family Residential) District, annexation of the property to the City and related service districts, and subdivision and design review approvals. The applicant, Discovery Builders, Inc., has filed for a Vesting Tentative Map, dated March 16, 2004, with the City of Pittsburg. With RS District pre-zoning of the site, the project would be consistent with the Low Density Residential land use designation as currently designated in the City of Pittsburg's *General Plan.*

The project site consists of approximately 163 acres total in APN 089-050-067 and 089-050-042 and portions of Highlands Ranch, Units 2 and 5. The terrain consists of rolling hills and north-south trending drainage swales. Cut and fill grading is proposed to remove unstable landslide and colluvial deposits and create single-family lots on graded benches with graded slopes and/or retaining walls between benches.

A 4.03 acre detention basin is proposed near the southwest corner of the main access road (Ventura Drive extension and "B" Street) and the proposed right-of-way dedication for the Buchanan Bypass. As proposed by the developer, the project includes construction of the Buchanan Bypass within the limits of the project site. The project also includes construction of two water reservoirs, one of 2-million gallon capacity and the other of 1-million gallon capacity. The 2-million gallon reservoir would be constructed on the project site.

Other Facilities and Construction Related to the Project

There would be various necessary infrastructure improvements and other construction projects related to the project but not proposed as part of the project. This EIR addresses these various other related projects (*e.g.*, potential petroleum pipeline relocation within the existing easement or within a new easement in the bypass right-of-way). Construction projects related to the proposed project include the following:

- Off-site Zone III/IV water storage reservoir and all-weather surface access road
- Water transmission main including the Buchanan Road and Buchanan Loop segments

affected by a project" (CEQA, Guidelines, Section 15382). "Standards or thresholds of significance" are not generally defined in the CEQA Guidelines but are left rather for consideration and determination by the Lead Agency.

In this EIR, thresholds of significance are based upon applicable planning policies or quantitative thresholds adopted by the City of Pittsburg and responsible agencies. These standards are discussed in Chapter V. In overview, a partial list of the sources of thresholds of significance applied in the EIR is provided below:

- City of Pittsburg, as described in its *General Plan*, including the *Growth Management Element*;
- City of Pittsburg, as described in its Municipal Code (Chapter 15.104 – *Storm Water Management Plan for Kirker Creek Watershed Drainage Area*);
- Transplan Committee, as described in its *East County Action Plan;*
- *Contra Costa Clean Water Program Storm Water Management Plan* (1999);
- The Contra Costa Resource Conservation District (RCD) in its *Kirker Creek Watershed Management Plan* (2004);
- Bay Area Air Quality Management District, as described in its guidelines or regulations;
- The U.S. Fish & Wildlife Service, *Endangered Species Act*;
- California Department of Fish and Game, *California ESA* and *Fish and Game Code Section 1601--Streambed Alteration*; and,
- U.S. Army Corps of Engineers, *Clean Water Act, Section 404.*

Applicable Agency Jurisdictions & Required Permits
Table 1 (next page) presents a summary of required agency consultations and permits, necessary for approval and implementation of the proposed project or alternatives.

Summary of Significant Environmental Effects and Mitigation Measures
Table 2 presents the summary of the potential significant impacts of the proposed project and mitigation measures. Chapter V presents a detailed analysis of the existing physical environment, evaluations of potential impacts, and recommended mitigation measures.

Chapter V.H is summarized from a traffic impact study conducted by Whitlock & Weinberger Transportation, Inc. The analysis is based upon recent traffic counts, trip generation research counts, and conservative trip distribution and assignment assumptions that are appropriate for the specific site. The full text of the Whitlock & Weinberger Transportation, Inc., traffic study is contained in a traffic impact study.

TABLE 1
REQUIRED AGENCY CONSULTATIONS OR PERMITS

AGENCY	APPROVAL OR PERMIT
U.S. Army Corps of Engineers (USACE)	Determination/concurrence with negative wetland delineation, nationwide or individual permit
U.S. Fish & Wildlife Service	Section 7 consultation or Section 10(a) permit
California Department of Fish and Game (CDFG)	Potential Section 1601-1603 Permit (Streambed Alteration) for grading fill in the ravines
State Water Resources Control Board (SWRCB)	NPDES General Permit (with requisite Storm Water Pollution Prevention Plan, Conceptual Storm Water Pollution Prevention Plan, and Permanent Control Measures)
San Francisco RWQCB	Potential Section 401 Permit Certification or Waiver
Caltrans/Federal Highway Administration (FHWA)	Approval of any recommended modifications to the ramp intersections of State Route 4
Local Agency Formation Commission (LAFCo)	Annexation
Metropolitan Transportation Commission (MTC)	None
Contra Costa County Transportation Agency (Congestion Management Agency)	Traffic Impact Study procedures will conform to CCCTA. Potential off-site mitigation (*e.g.*, BART parking and bike lanes) to maximize HOV and transit ridership.
Contra Costa Water District	For inclusion of the Sky Ranch II subdivision in the service area boundary of the U.S. Bureau of Reclamation's Central Valley Project. Section 7, Federal ESA, consultation with USFWS is required. CCWD has commented on a previous project on the project site.
Contra Costa County Fire Protection District	Approval of water supply, hydrants, access roads, and emergency vehicle access ways.
Contra Costa Flood Control and Water Conservation District	Altered storm flow to natural creeks with defined bed and banks is subject to CCCFCWCD review. CCCFCWCD has commented on a previous project on the project site.
Delta Diablo Sanitation District	Status of current off-site facilities and planned improvements is unknown.
Pittsburg Unified School District	The district will collect a school impact fee.
Bay Area Air Quality Management District	Permit or exemption from Asbestos Air Toxic Control Measures Asbestos Air Toxic (California Code of Regulations, Title 17, Section 93105)

SOURCE: Environmental Service, June 2005

The traffic impact study was independently reviewed by the principal author of the Draft EIR and City of Pittsburg's Engineering Department, and is available for review at the City's Planning or Engineering Department.

Chapter V.D is based, in part, on a photographic visual simulation prepared using AutoCad software by The Dahlin Group's Digital Imaging Studio. The photographic visual simulation was independently reviewed by the principal author of the Draft EIR and City of Pittsburg's Planning Department.

Alternatives

Alternatives are described and evaluated in Chapter VI. Alternatives must "feasibly attain the basic objectives of the project" (CEQA Guidelines, Section 15126.6(a)). "Feasible" means that the alternatives "are capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors" (CEQA Guidelines, Section 15126(f) (1) and Section 15364). The No Project alternative must be considered (CEQA Guidelines, Section 15126 (e) (1)). CEQA Guidelines Section 15126.6(e) (2) require identification of the environmentally superior alternative among the alternatives analyzed. If the No Project Alternative is the environmentally superior alternative, then the EIR must identify which of the remaining alternatives is environmentally superior.

A range of alternatives have been considered in this EIR, to provide decision-makers with information concerning the relative impacts of on-site conservation alternatives (Alternatives 1a, 1b, 1c, and 1d), the Proposed Project (Alternative 2), No Project (Alternative 3), and alternative site locations (Alternatives 4A and 4B). As required under CEQA, the City of Pittsburg has identified No Project (Alternative 3) as the environmentally superior alternative. Among the action alternatives, the City of Pittsburg has identified Alternative 1b (On-Site Conservation with Density Transfer) as environmentally superior.

Alternative 4 (Alternative Site Locations) cannot be characterized as feasible for achieving the project purpose for the following reasons:

1. Alternative 4A or 4B potentially could achieve 40 to 70 percent of the housing proposed on the project site, unless developed at an increased density above that allowed under the Open Space (OS) and Hillside Planned District (HPD) pre-zoning;

2. Both Alternative 4A and 4B sites contain annual grassland that is at the northern limit of the range of SJKF, CTS aestivation habitat, USFWS-proposed CRLF critical habitat, and intermittent streams; therefore, habitat and stream avoidance may not be possible on the alternative sites.

In view of the extensive annual grassland in the foothills in the Woodlands and Buchanan Planning Subareas at the southern edge of the City of Pittsburg, the apparent distribution of CTS sightings on the California Natural Diversity Data Base, and locations of USFWS-proposed CTS critical habitat (Units 14 and 15) and USFWS-proposed CRLF critical habitat, it is not clear that any alternative sites in the area of the project site could be expected to avoid SJKF, CTS, and CRLF habitat. Infill sites can potentially avoid SJKF, CTS, and CRLF habitat in the foothills area, but infill sites of 100 acres or more do not exist.

Conservation Alternative 1b involves elimination of approximately 66 lots in the southwestern portion of the site. In place of these lots, 115 townhouses would be built near the Buchanan Bypass, including 90 townhouses on 10 acres in the northwestern part of the site and 25 townhouses on 7.25 acres in the northeastern part of the site. Alternative 1b, therefore, would not require a General Plan amendment as the overall density would remain Low-Density Residential.

Alternative 1b could have the following environmental results compared to the Proposed Project:

- Achieves 406 of the 415 proposed housing units;
- Substantially reduces grading volume;
- Reduces exposures to off-site landslide hazard;
- Provides an opportunity for on-site rehabilitation of 1,686 lineal feet of intermittent stream
- Avoids filling of 394 lineal feet of intermittent stream but allows filling of 1,484 lineal feet of ephemeral stream;
- Reduces depletion of on-site CTS habitat by 29 acres;
- Maintains pre-development runoff rate and volume in Drainage Subareas 2 and 3;
- Reduces on-site noise exposures on second-story floors; and,
- Reduces PM peak hour project traffic by 63 vehicles per hour and daily project traffic by 513 trips per day.

Based on the *Traffic Impact Study for Sky Ranch II*, the Proposed Project's potential traffic intrusion impact to Ventura Drive in Highlands Ranch could be mitigated by limiting development to 353 dwelling units (du) on the site pending the completion opening of the Buchanan Bypass to through-traffic. Under Alternative 1b, 305 du (comprised of 115 attached townhouses and 190 detached houses) could be constructed before completion and opening of the bypass. All 406 units under Alternative 1b could be developed by that time when the Buchanan Bypass is completed and opened for though-traffic.

TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
V.A Biological Impacts			
IMPACT A1 **California tiger salamander (CTS)** Implementation of the proposed project would result in removal of 163 acres of aestivation and/or breeding habitat for the federally-listed threatened CTS. The CTS habitat on the project site currently is not designated or proposed by USFWS as CTS critical habitat. The footprint of the project as proposed encompasses the entire area of the project site; therefore, there is no opportunity for on-site mitigation for impacts to CTS habitat under the development plan as proposed. Development of the project as proposed would require a substantial off-site CTS mitigation proposal consisting of the purchase and preservation of up to 489 acres of occupied CTS habitat off-site or purchase of credits at an off-site agency-approved mitigation bank	Developer shall perform or retain a professional biologist to perform the following: • A CTS Mitigation Plan shall be developed in coordination with USFWS as part of the federal ESA Section 7 or Section 10 consultation. •Tentatively, the amount and kind of habitat compensation is 489 acres, calculated at a ratio of 3:1 for the 163 acres of on-site habitat. The habitat types to be mitigated are annual grassland, 0.11 acre of palustrine emergent seasonal wetland, and approximately 800 to 1,900 feet of riverine intermittent streambeds. •The CTS Mitigation Plan shall include provisions for relocation of CTS individuals from the project site, long-term conservation of the mitigation land, management activities to assure long-term protection of mitigation wetlands, and long-term maintenance of CTS breeding, refugial and dispersal habitats. •During construction, the applicant/developer shall employ qualified biological monitors during all construction or excavation activities associated with the project. The monitors shall hold appropriate permits from USFWS and shall implement provisions of the CTS Mitigation Plan including CTS trap-and-relocate as-needed. •Prior to and during construction, the applicant/developer shall employ a qualified biologist to deploy barriers to keep CTS that may be present in adjacent off-site areas out of developed areas of the project. **Residual effect after mitigation: LTS**	Project Proponent	The City of Pittsburg will ensure that the CTS Mitigation Plan is approved by USFWS prior to issuance of a Site Development Permit. Habitat acquisition must occur at a suitably early time in the development process, before initiation of grading on the project site, to enable implementation of conservation measures on the mitigation parcels. USFWS during Section 7, or Section 10, consultation will confirm the amount and kind of habitat compensation, and will identify specific mitigation parcels, timing of habitat acquisition, monitoring requirements, performance standards and contingency measures.
IMPACT A2 **California tiger salamander (CTS)** Human activities and population within the project site can indirectly affect CTS. These effects include water and light pollution, human disturbance, increased numbers of domestic predators (e.g., dogs and cats), increased vehicle-related disturbance, and increased risk of wildfire. Amphibians are susceptible to herbicides and pesticides. On breeding migrations, up to 15 to 20 CTS individuals per mile of road can be killed.	Developer shall construct, perform, or implement the following: • A permanent barrier that would keep CTS, which may be present on the adjacent Thomas and AUSD-owned parcels, out of the developed area. • Low-light measures for the outer perimeter of the project site, especially the site's southern boundary, and off-site water reservoir service road. • An information kiosk in the southern portion of the project site to foster resident and visitor awareness of wildlife needs. If a mini-park is constructed in the area south of "C" Court, as recommend in Chapter V.G, this mini-park would be an ideal location for a public information kiosk. • Access-restricting barriers to the off-site water reservoir and service road, and other EVA roads, to minimize wildlife disturbance and road kill. The recommended CTS barriers are intended to prevent CTS from entering the developed area. **Residual effect after mitigation: LTS**	Project Proponent	It is suggested that the CTS barrier be constructed along the southern and western boundaries during the grading phase. After buildout, Homeowners' Association will be responsible for long-term maintenance of the barrier and kiosk.

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(Continued)

TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
IMPACT A3 **San Joaquin kit fox (SJKF)** Implementation of the proposed project would result in removal of 163 acres of annual grassland at the northern limit of the range of the federally-listed endangered and California-listed threatened SJKF. The CTS habitat on the project site is not designated or proposed as critical habitat of SJKF; nevertheless it adjoins the SJKF movement corridors acknowledged in the Draft HCP.	Developer shall provide for, perform, or implement the following: • The CTS Mitigation Plan shall provide for long-term conservation and management and of approximately 489 acres of annual grassland habitat. This will compensate the same kind of habitat used by the SJKF. • During Section 7, or Section 10, consultation, the developer in coordination with USFWS/CDFG shall consider mitigation parcel locations that are within the range of the SJKF or adjoin its movement corridors. **Residual effect after mitigation: LTS**	Project Proponent	
IMPACT A4 **California red-legged frog (CRLF)** The project site was found not to contain permanent water habitat suitable for CRLF. Even so, the USFWS has proposed CRLF critical habitat which includes extensive area south of the project site and includes the southwestern corner of the project site. The USFWS-proposed CRLF critical habitat is pending a Final Rule, comment period ending February 1, 2006.	Developer shall provide for, perform, or implement the following: • Pending the Section 7, or Section 10, consultation and Final Rule due in November 2005, the developer shall not take any action that could preclude reasonable and prudent alternatives, including the conservation alternative for of the southwestern corner of the project site. **Residual effect after mitigation: LTS**	Project Proponent	
IMPACT A5 **Loggerhead Shrike** Loggerhead shrikes are resident in the area, and nesting season wildlife surveys conducted in April and June of 2004 detected loggerhead shrike foraging at both the northern and southern edges of the project site, indicating that the species may nest off-site in the project area. Preferred nesting habitat for loggerhead shrike (i.e., trees or shrubs with thick foliage) is limited to the few trees present on the project site. It is, therefore, unlikely that loggerhead shrikes nest on site.	Developer shall provide for the following professional service: • Retain a qualified biologist to perform pre-construction surveys necessary to be certain that the species is not nesting on-site during grading and construction. If nests of this species are found, biologist shall devise a construction plan that would allow successful nesting. **Residual effect after mitigation: LTS**	Project Proponent	
IMPACT A6 **California Horned Lark** California horned larks were present at the site during winter surveys, the species was not detected on the site during surveys conducted during the spring and summer, indicating that although the species winters at the site, it apparently does not nest.	Developer shall provide for the following professional service: • Retain a qualified biologist to perform pre-construction surveys necessary to be certain that the species is not nesting on-site during grading and construction. If nests of this species are found, biologist shall devise a construction plan that would allow successful nesting. **Residual effect after mitigation: LTS**	Project Proponent	
IMPACT A7 **Burrowing owl** Burrowing owl habitat was assessed not to be present at the time of surveys in view of the lack of ground squirrel burrows. Such conditions can change over time and are subject to various influences.	Developer shall provide for the following professional service: • Retain a qualified biologist to perform pre-construction surveys necessary to be certain that the species is not nesting on-site during grading and construction. If nests of this species are found, biologist shall devise a construction plan that would allow successful nesting. **Residual effect after mitigation: LTS**	Project Proponent	

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(Continued)

TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
IMPACT A8 **Relation with New Road and Increased Traffic** The proposed Buchanan bypass would be a new road in the HCP/NCCP inventory area and the predicted increase in local population also would increase vehicle traffic on roads generally in the HCP/NCCP inventory area. San Joaquin kit fox, covered birds, reptiles, and amphibians may be killed or disturbed by increased vehicular traffic.	• Developer shall prepare CC&Rs which shall include specific prohibitions to off-road travel around the site's perimeter and upland areas and prohibitions to travel on the service road. • Developer shall install street signs approved by City Public Works Department, indicating such prohibitions. **Residual effect after mitigation: LTS**	Project Proponent	
IMPACT A9 **Increased Human Presence** The proposed project could increase visitation at Black Diamond Mines Regional Preserve and off-site walking on the reservoir service road, resulting in potential indirect impacts on biological resources from collection and harassment, introduction of nonnative species, predation by pets or feral cats, and increased frequency of wildfire ignitions. Pets and feral cats pose a serious threat to native birds, especially those that nest on or near the ground, as well as to native amphibians and reptiles. Ornamental plants may spread to adjacent protected areas and out-compete native plant species.	Developer shall provide for, perform, or implement the following: • Kiosk (see IMPACT 2, above) literature shall include pamphlets about prohibited activities including collecting or harassing protected species. • Kiosk (see IMPACT 2, above) literature shall include pamphlets on designated walking trails in the area, restrictions on pets use of trails or non-designated areas off of designated trails. • Restrictions, if any apply, to hiking/walking on the reservoir service road shall be posted in accordance with requirements of CDFG and the City. • CC& Rs for this project shall include a list of invasive species of plant and shall prohibit planting of listed invasive species. • Landscape plans shall be subject to the City Landscaping Ordinance. **Residual effect after mitigation: LTS**	Project Proponent	
IMPACT A10 **Relation with an Approved Open Space Pocket** The proposed project would bound an island, or "pocket," of open space dedicated within Black Diamond Ranch. The proposed open space, Parcel A, on Black Diamond Ranch will be surrounded on three sides by streets, residential lots and houses, and will not be connected to nearby open space along Markley Creek. Parcel A is not a connection in any migratory corridor and is not an uplands refugial connected with wetlands on the project site.	None warranted in view of less-than significant effect. Avoidance of the western side of Parcel A, therefore, would not remedy any biological impact associated with the isolation of this open space parcel. **Residual effect after mitigation: LTS**	None	Not applicable
IMPACT A11 **Increased Pollution in Urban Runoff** The proposed project potentially could result in increased runoff of urban pollutants such as grease, oil, and lawn pesticides into local streams. Amphibians are particularly sensitive to pesticides and herbicides in urban runoff.	• City maintenance shall practice limited weed abatement on the service road and reservoir area, using only mechanical methods or approved pre-emergents. Herbicides shall not be applied. • Fire break maintenance shall be performed by HOA or individual owners generally within the project's limits and never off-site. **Residual effect after mitigation: LTS**	City HOA	

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(Continued)

TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
IMPACT A12 **Wetlands and other Waters of the U.S.** Implementation of the proposed project would result in removal of 1) an ephemeral stream reach of 163 lineal feet having defined bed and bank, which Albion Environmental further characterized as a wetland, 2) a west-east trending ephemeral stream and its south-north tributaries (945 to 1,484 lineal feet having defined bed and bank), and, 3) a south-north trending, disjunct, intermittent stream (394 lineal feet having defined bed and bank) in the southwest portion of the site. Because the footprint of the project encompasses the entire area of the project site, there is no opportunity for on-site mitigation for impacts to wetlands and other jurisdictional waters, under the proposed development plan. The required ratio of replacement acreage to impacted acreage will be decided by regulatory agencies on a site-specific basis, based on the functions and values present on the project site.	Developer shall prepare, apply and obtain the following maps and permits: • Prepare and submit the final wetlands delineation report for verification by the U.S. Army Corps of Engineers (USACE).For impacts to wetlands and other waters of the U.S., or waters of the state, authorization from USACE and RWQCB will be required. Appropriate wetland mitigation will be required by USACE and RWQCB to compensate for on-site impacts to waters under federal or state jurisdiction. • Prepare, in coordination with USACE, a compensatory Wetland Mitigation Plan. Jurisdictional areas must be replaced at a minimum 1:1 ratio through wetland compensation off-site, or wetland protection and creation on-site, to ensure that no net loss of acreage or functions and values to these areas occurs. • Apply for and obtain a Section 404 individual permit from USACE and a 1601 Streambed Alteration Agreement from CDFG. • Apply for and obtain the Section 401 water quality certification, or waiver, from the San Francisco Bay Regional Water Quality Control Board. • Apply for and obtain a 1601 Streambed Alteration Agreement from CDFG. **Residual effect after mitigation: LTS**	Project Proponent	USACE, CDFG, and RWQCB have permitting authority. The City of Pittsburg shall not issue any grading permit or building permit in advance of the Project Proponent's receiving these other permits.
IMPACT A13 General Plan Goal 9-G-1 and Policy 9-P-1 require that assessments be conducted prior to development approval within habitat areas of special status species such as the California tiger salamander (CTS). Biological Assessment for Sky Ranch II (Huffman Broadway Group, June 2005) satisfies this requirement.	None warranted. **Residual effect after mitigation: LTS**	none	Not applicable
IMPACT A14 The creekways and wetlands policies of the City of Pittsburg (General Plan Policies 9-P-9, -10, -11, and -12) could be applicable to the intermittent and ephemeral stream reaches on the project site. The proposed project would be inconsistent with policies 9-P-9 (requires a 100 to 300 foot wide buffer for creekways), 9-P-10 (requires no development within creek buffers), 9-P-11 (encourages, but does not require, re-establishment of creeks in the design of new development), and 9-P-12 (requires protection and restoration of wetlands).	In view of the proposed grading and fill, creekways and wetlands preservation would not be possible without modifications to the proposed subdivision and grading plan. In view of the occurrence of CTS and jurisdictional waters on site, on-site mitigation measures, off-site compensatory mitigation measures, and alternatives to the proposed project have been assessed herein (see also Appendix C, All Practicable Alternatives Analysis).	none	Not applicable

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(Continued)

TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
IMPACT A15 General Plan Goal 9-P-19 calls for protection or replacement of mature trees through Zoning Ordinance regulations. The project site contains some scattered buckeye trees, most located generally in the southwestern portion of the site.	Developer shall provide for, perform, or implement the following: • Retain an arborist prior to grading to mark and map trees classified as mature trees under the City's prevailing regulations at the time of application for grading permit or else, in the absence of a regulation, by applying a trunk diameter standard of 12 inches or greater. • Replace an equal number of trees in the immediate vicinity of the reservoir site, reservoir service road, and headwall areas. Tree species and siting shall be determined by the arborist. **Residual effect after mitigation: LTS**	Project Proponent	
IMPACT A16 **Draft HCP/NCCP** The Draft HCP/NCCP is a future plan that has not concluded environmental review, USFWS/CDFG approval, or implementation. In view of the regional importance of the Draft HCP/NCCP, however, a consistency assessment is provided herein (see Project Consistency with the Draft HCP/NCCP, page V-79). Based on this consistency assessment, it is concluded that unspecified land in HCP/NCCP Sub-Zone 1d, located directly south of the project site, is likely to be acquired to create a 300-foot wide urban-wildland buffer. The reservoir and service road potentially could be located in this future buffer. Off-site compensatory mitigation required for the proposed project (489 acres) exceeds the initial acquisition target of 406 acres in Sub-Zone 1d.	Developer shall provide for, perform, or implement the following: • Design and construct the off-site reservoir and service road so that they meet requirements of the USFWS/CDFG and do not become impediments to habitat functions used by covered species or barriers to the movement of covered species. • Perform pre-construction survey and construction monitoring in regard to development of the recommended off-site utility and service road. • The HCP Implementing Entity may, or may not, have to increase the land acquisition in Sub-Zone 1d above the proposed 25 percent, depending on where compensatory mitigation land is provided for the proposed project. This action, if necessary, is outside the jurisdiction of the City of Pittsburg. **Residual effect after mitigation: LTS**	Project Proponent Project Proponent JPA	
IMPACT A17 **San Joaquin kit fox** The annual grasslands on the project site are illustrated in as being located on the outer edge of core kit fox habitat. The project's impact to the kit fox, therefore, could be considered to be potentially significant. The proposed project, however, would not remove land from any of the identified key SJKF movement corridors.	• Developer shall implement a CTS Mitigation Plan which addresses mitigation for the loss of SJKF annual grassland habitat in conjunction with compensatory mitigation for CTS. **Residual effect after mitigation: LTS**	Project Proponent	

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(Continued)

TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
V.B Geological Impacts			
IMPACT B1 Seismically-induced ground shaking at the project site could have peak horizontal acceleration up to 0.6g, based on current regional mapping by USGS. This is not unique in the San Francisco Bay area, but is a higher peak horizontal acceleration than reported in ENGEO's geotechnical report dated January 2001 and revised February 2002. Ground shaking caused by earthquakes along the known active faults or fault zones near the site, including Concord-Green Valley fault, Pittsburg/Kirby fault, Antioch fault, Mount Diablo thrust fault zone, and Greenville fault, could place people and structures at risk.	Developer shall provide for, pay the costs of, perform or implement the following: • Before issuance of grading permits, a Seismic Analysis Update shall be prepared by a Certified Engineering Geologist retained by the developer, which presents peak horizontal ground acceleration based on current knowledge. All recommendations of ENGEO Incorporated in its geotechnical report dated February 2002 shall also be confirmed or else modified based on the Seismic Analysis Update. • The City Engineer independently, or acting upon the recommendation of an independent Certified Engineering Geologist, shall review, approve, or reject for modification, the seismic Analysis Update and recommendations. (NOTE: The cost of independent third-party review shall be paid by the developer.) **Residual impact after mitigation: LTS**	Project Proponent	The City of Pittsburg's General Plan policies 10-P-9 and 10-P-10 require study of geologic hazards and independent review before development approval.
IMPACT B2 The project site is located in a zone of seismic-induced ground shaking having peak horizontal acceleration up to 0.6g. Potential adverse impacts of ground shaking on development infrastructure, structures and people can be reduced to acceptable levels by completing the project seismic design and construction in accordance with current best standards for earthquake-resistant construction in accordance with the 2001 California Building Standards Code and City of Pittsburg Municipal Code Chapter 15.88 Grading, Erosion, and Sediment Control.	Developer shall provide for, perform, or implement the following: • Design proposed housing in accordance with provisions of the Building Code in effect at the future time of application for Building Permits • Geotechnical and Civil Engineer shall assign the appropriate "seismic design criteria" for the design of utilities including on-site and off-site water reservoirs. • Geotechnical and Civil Engineer in cooperation with PG&E shall assign and review seismic design criteria for cut and fill slopes that encroach within the PG&E easement or near power transmission towers. • Prepare and submit all final design and engineering plans to the City for review, approval, or rejection for modification by the City Engineer. **Residual effect after mitigation: LTS**	Project Proponent	The City Building Division and City Engineer shall review and approve o all designs in regard to housing and utilities on the project site, before issuing a Grading Permit or Building Permits.
IMPACT B3 Seismic-induced ground shaking and extensive grading cuts and fill to stabilize unstable slopes may in general have other indirect effects including ground lurching, liquefaction, densification, and lateral spreading. These risks were assessed and determined to be LTS effects owing to the nature of on-site soils, proposed grading concept and recommendations of the site-specific Geotechnical Exploration for Sky Ranch II.	None warranted as potential for ground lurching, liquefaction, and lateral spreading on the project site are LTS effects.	none	Not applicable

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(Continued)

TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
IMPACT B4 Many locations on the project site are susceptible to landslides and others are underlain by compressible colluvial deposits.	Developer shall provide for, perform, or implement the following: • Sub-excavate compressible colluvium and landslide deposits to bedrock, where feasible, and then backfill with engineered buttress fills, to allow for development of the proposed improvements without exposure of persons or property to avoidable risk of debris flow, compressible soils, and differential settlement. • Construct sub-surface keyways and benches as shown conceptually in Figure 12, through disrupted landslide materials and shear planes into underlying competent materials. • Install sub-drains, as shown conceptually in Figure 12, to drain water from engineered buttress fills. • Size and then construct debris benches or other intervening undeveloped spaces to provide sufficient run-out areas for unmitigated landslides located upslope of the proposed houses, roads, and other improvements • Construct the surface drainage facilities as determined by the developer's Civil Engineer to collect and control storm water runoff. **Residual effect after mitigation: LTS**	Project Proponent	
IMPACT B5 To ensure that landslide areas are properly repaired, site-specific designs will have to be developed and incorporated into the final design plans attached to the Vesting Tentative Map & Grading Plan for approval by the City.	Developer shall provide for, pay the costs of, perform or implement the following: • A complete design-level final geotechnical report and associated field work shall be completed by a Certified Engineering Geologist. The analysis presented in the geotechnical report shall conform to the California Geological Survey's recommendations presented in the "Guidelines for Evaluating Seismic Hazards in California." • Analysis and recommendations in the geotechnical report shall be incorporated into the project's final engineering and design plans and submitted to the City Engineer for review and approval. • The report shall identify building techniques appropriate for minimizing seismic damage. **Residual effect after mitigation: LTS**	Project Proponent	The City of Pittsburg's General Plan policies 10-P-9 , 10-P-10, and 10-P-17 apply.
IMPACT B6 Portions of Landslide areas #1, 2, 17, 18, 25 and 26 upslope of the proposed project would not be sub-excavated to bedrock and backfilled with engineered fill. In the event of a landslide, debris flow from these areas could run out over the perimeter lots and proposed headwalls on the project site.	Developer shall provide for, perform, or implement the following: • Size the width of the debris bench upslope of proposed Lots 95-106 to provide sufficient run-out area to protect Lots 95-106. • Perform additional test pits and/or bores, as recommended in its reports, to enable the actual design dimensions and depth of bedrock east of previous Test Pits TP-37 and TP-38. Additional cross-sections for the area beneath and upslope of Lots 95-106 shall be prepared and submitted with the Final Grading Plan. • Prepare and submit additional cross-sections (e.g., see E-E' in Figure 9) to address the debris volume and run-out area for the mapped landslides beneath and upslope of the eastern headwalls, Lots 181-183, and Lots 188-190. **Residual impact after mitigation: LTS**	Project Proponent	

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(Continued)

TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
IMPACT B7 Unstable slopes, landslide and colluvial deposits can be repaired and structures can be protected from off-site debris flows. However, debris benches, headwalls and storm water diversion pipelines, v-ditches, and re-graded slopes on the project site would warrant long-term monitoring, maintenance, and repair or supplementation to ensure their continuing function.	Developer shall provide for, pay the costs of, perform or implement the following: • Prepare and submit a Slope Management Plan to the City Engineer for review and approval prior to the approval of a revised Vesting Tentative Map or Final Subdivision Map. (1) The Slope Management Plan shall identify the kinds of hazards found on the site and areas subject to continuing monitoring, maintenance, repair or supplementation, including areas in private and public ownership. (2 Improvements (e.g., structures, roads, and storm water collection and systems) shall be designed to divert excessive storm water runoff water from on-site slopes and avoid excessive irrigation water on on-site slopes. (3) The Slope Management Plan shall include provisions for periodic inspection and long-term maintenance, episodic repair, and as-needed supplementation of the identified re-graded slopes, repaired landslides, debris benches, v-ditches and storm water diversion headwalls and pipelines. (4) The Slope Management Plan shall identify its purpose, implementing entity which is suggested to be a Hazard Abatement District, funding mechanism, and administration by the Homeowners Association (HOA), or by another mechanism approved by the City. (5) The Slope Management Plan shall be developed by a Registered Geotechnical Engineer or Certified Engineering Geologist, who shall be responsible for identification re-graded slopes, built structures, or other built or natural features essential for the long-term stability of the fills and cuts. (6) The Program shall include provisions for maintenance and timely remediation of any identified problems within the purview of the Plan, which shall be implemented and funded through the responsible entities. •The Slope Management Plan shall be consistent with the Natural Grassland Element (see Chapters V. D and V.G, p. V-153 and V-208). The Natural Grassland Element will designate where 1) introduced species landscaped areas will be allowed and 2) where natural grassland areas are to be maintained. The undeveloped slopes in the southern portion of the project site, generally above 390 feet msl, will be designated for maintenance as natural grassland in the Natural Grassland Element. Both the Slope Management Plan and Natural Grassland Element shall be incorporated into the Codes, Covenants & Restrictions (CC&Rs). • Deed restrictions, easements, or other appropriate legal instruments shall be placed on all re-graded slopes to allow monitoring, maintenance, and remedial activities, and to require the property owners to maintain appropriate landscaping and irrigation procedures. **Residual impact after mitigation: LTS**	Project Proponent	City Engineer shall review and approve the Slope Management Plan, before approving a Final Subdivision Map.

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(Continued)

TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
IMPACT B8 Approximately 107 proposed lots, and additional areas of proposed roads, are underlain by colluvium. ENGEO identified potential for "excessive total and differential settlement" at the project site from consolidation of compressible colluvial deposits in the swales where fill will be placed and from settlement of foundations where supported over compressible colluvial and alluvial deposits. ENGEO recommended complete removal and replacement with engineered fill.	• Same as above. See mitigation measure for IMPACT 4. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT B9 ENGEO also recommended supplemental exploration to characterize the compressibility of soil in the southwestern valley. The purpose of ENGEO's recommendation was to allow for partial removal of compressible landslide or colluvial deposits, if subsequent supplemental exploration and engineering findings demonstrate partial removal could be effective.	Developer shall provide for, pays the costs of, perform or implement the following: • Complete removal of landslide or colluvial deposits within the limits of the project site shall be performed during the remedial grading, unless subsequent supplemental exploration is performed and demonstrates that partial removal would be effective. • Final detailed geotechnical design documents shall be subject to review and approval of the City or independent Certified Engineering Geologist retained by the City, the cost of whose services are reimbursed by the Project Proponent. • Engineering solutions that should be included in the final geotechnical report include the following: (1) Complete removal (over-excavation) of the landslide deposits, colluvium and unengineered fill material, or else settlement estimates, engineering measures, and/or structural siting guidelines for lots on which underlying compressible materials are left in-place (2) Slope stabilization measures for potentially unstable landforms that are located upslope of proposed building pads (cross section D-D') (3) Calculations of upslope debris volumes and engineering backup for placement and size of debris benches for unrepaired off-site landslides (see Figures 9 or 11) (4) Cost-benefit analysis for re-construction of off-site unstable slope areas (5) Structural siting guidelines for lots located downslope from slopes that could remain unstable (avoidance). **Residual effect after mitigation: LTS**	Project Proponent	
IMPACT B10 Post-grading settlement of "deeper" fills and underlying compressible colluvial deposits may result over a long period after grading. Post-grading settlement and differential settlement have the general potential to cause gradual damage to roads, utilities, and occupied structures if not properly designed and constructed.	Developer shall provide for, pay the costs of, perform or implement the following: • See IMPACT B8 and mitigation measures above. • During project construction, mass grading and remedial over-excavation of landslide and colluvium shall be conducted under the supervision of a Registered Geotechnical Engineer or Certified Engineering Geologist and any design modifications necessitated by changes in field conditions shall be reviewed and approved by the City. **Residual effect after mitigation: LTS**	Project Proponent	

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(Continued)

TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
IMPACT B11 Soils on the project site are moderately to highly expansive, having a PI that ranges from 22 to 46. Soils underlying portions of the project site have moderate to high shrink/swell potential. Foundation damage, warping, and cracking of roads and sidewalks, and rupture of utility lines could potentially occur if on-site expansive soils, and the quality of engineered fill, is not considered during design and construction of improvements.	Developer shall provide for, pay the costs of, perform or implement the following: • In locations underlain by expansive soils and/or non-engineered fill, the design of proposed building foundations and other improvements (including sidewalks, roads, and utilities) shall reflect expansive soil conditions. • Design-level geotechnical work (for example, as required by Mitigation Measures for IMPACTS B5 and B6) shall include provisions to ensure that potential damage related to expansive soils and non-uniformly compacted fill are corrected. The potential effects of expansive soil conditions may be mitigated by removal of high Plasticity Index (PI) soils and replacement with lower PI soils, and also by design and construction of improvements to withstand the forces exerted during the expected shrink-swell cycles and settlements. • On lots, driveways and streets having both cut and fill, or cut without fill, foundation subgrade and road/driveway subgrade shall be prepared by undercutting and backfilling with a suitable depth of select base material. Undercutting shall extend outward a suitable distance from the road, driveway or foundation foot print. • All mitigation measures, design criteria, performance standards and specifications set forth in the geotechnical and soils report required by Mitigation Measure shall be implemented. **Residual effect after mitigation: LTS**	Project Proponent	
IMPACT B12 Increased erosion and sedimentation during the grading phase potentially could result from cut and fill operations, drainage pattern alteration, and general construction operations. Cut slopes and fill slopes have a general potential for erosion and sedimentation, especially if grading occurs during the rainy season. Long-term erosion and sedimentation can occur if grading and drainage systems are improperly constructed and landscaping is not adequately installed or maintained on slopes. Short-term and long-term erosion and sedimentation can be significantly reduced by developing and implementing a project-specific erosion and sediment control plan, by appropriate construction techniques, landscaping, and maintenance of graded slopes and subsurface drainage systems.	Developer shall provide for, pay the costs of, perform or implement the following: • The applicant shall prepare Storm Water Pollution Prevention Plan (SWPPP) to be submitted to the City for review and approved by the City prior to issuance of a grading permit. The following measures shall be considered and incorporated into the SWPPP as necessary to decrease erosion and sedimentation: • Grading activities shall be scheduled to avoid soil disturbance during the rainy season (October 15 – April 15). • Interim controls, such as water bars, mulching of exposed slopes, installation of temporary culverts, rock slope protection, sediment traps, silt fences and/or straw wattles consistent with the Association of Bay Area Governments Manual of Standards for Erosion and Sedimentation Control Measures or the San Francisco Bay Region Regional Water Quality Control Board Erosion and Sediment Control Field Manual shall be implemented. • Before grading is concluded, a positive gradient away from the slopes must be established to carry the runoff away from the slopes to areas where erosion and sedimentation can be controlled. **Residual effect after mitigation: LTS**	Project Proponent	

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(Continued)

TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
V.C Hydrology & Water Quality Impacts			
IMPACT C1 The proposed project would result in some loss of ground water recharge capability by filling of segments of unnamed intermittent and ephemeral stream channels. On-site infiltration basins and infiltration in the detention basin were considered but were assessed to be infeasible in view of the depth to groundwater and on-site soil conditions. Alternative recharge at the proposed detention basin, for example, by a groundwater recharge well, is not a current Best Management Practice (BMP).	In view of the LTS nature of the ground water recharge effect, mitigation is not required.	none	
IMPACT C2 Though the City of Pittsburg's two municipal wells could supply on an interim basis, the permanent water supply assumed in the City of Pittsburg 2000 Urban Water Management Plan is purchased water from CCWD. Inclusion of the project site in the Central Valley Project (CVP) is necessary to avoid potential overdraft of ground water from the two municipal wells.	• Developer shall provide all necessary documentation as shall be required by CCWD for its application for inclusion of the project site in the CVP. -City shall not issue grading or building permits pending receipt of a "Will Serve" letter from CCWD. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT C3 The proposed grading and construction of headwalls would necessitate permanent access for the purpose of periodic inspection and maintenance. The proposed alteration of natural drainageways creates potential for clogging of the bypass piping with debris and back-up of water on the Antioch Unified School District-owned parcel.	• Developer shall include provisions for permanent easements to enable access to drainage structures including headwalls, catchment basins, and outfalls. • See also mitigation measures for IMPACT C4. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT C4 The proposed grading and filling of segments of intermittent and ephemeral streams requires construction of graded slopes, concrete-lined V-ditches, headwalls, bypass pipe and two outfalls. After construction, potential siltation caused by erosion of the proposed detention basin's 3:1 sloped side walls, sloped headwall areas, and outfalls would remain a possibility and would require periodic monitoring and recurring maintenance for the life of the project. The drainage alteration, therefore, has the potential to result in long-term erosion and siltation of off-site receiving waters and man-made conveyance or detention systems.	Developer shall provide for, pay the costs of, or implement the following: • Headwalls will not be designed or constructed to act as detention basins. • Headwall areas shall be graded, restored, and then maintained in a manner as to provide natural filtration of the area around each headwall. • The headwall and the outfall will be designed with appropriate settlement, filtration and energy dissipation features. A trash rack at the headwall would prevent trash and larger debris from entering the pipelines. Dissipaters and plantings at the headwalls and outfall will minimize erosion and provide natural filtration and settling, Gabion dissipaters at the outfall will reduce velocity and minimize erosion. At the three proposed headwalls along the southern boundary of the project site, rip rap or gravel beds to reduce flow velocity and allow settling could be effective. A vegetated buffer area upslope of the headwall also will be required to assist filtration and settling. *(Continued)*	Project Proponent	

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(Continued)

TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
IMPACT C4 ***(Continued)***	Developer shall pay the costs of establishing and provide for the following: • A perpetual funding source shall be established for maintenance of the proposed on-site detention basin, headwalls and outfalls. Establishment of the latter fund is suggested prior to the City's issuance of a grading permit for construction of the headwalls, outfalls and, on-site detention basin. Therefore, the fund will be supported initially by the developer (e.g., through deposits to a Maintenance Assessment District account), which later may be assumed by a HOA or GHAD and supported through HOA dues or special assessments. • Developer shall prepare detailed plans for headwalls, outfalls and dissipaters to. **Residual impact after mitigation: LTS**	Project Proponent	The CCCFCWCD and City Engineer shall review and approve the detailed plans. City shall not issue grading or building permits pending review and approval by CCCFCWCD and establishment of the above fund.
IMPACT C5 Off-site, in Markley Creek, there is some potential that increased duration of storm water discharges could potentially contribute to stream bank erosion and turbidity. Storm water discharges from proposed Subarea 6 and the upstream tributary area would not be detained. Tributary area, addition of impervious surface, and slope of the man-made conveyance systems are accounted for in Drainage and Sewer Study, Addendum #1. Incremental rates of runoff in comparison to pre-project levels would not be substantial for 2-, 5-, 10-, 25-, 50-, and 100-year storms. For the 10-year, 24-hour recurrence storm, the peak flow (Q_{10}) would increase to 16 cfs from 13 cfs.	None required as these effects are LTS.	none	
IMPACT C6 Grading has an acknowledged potential to induce erosion and sedimentation owing to cut and fill, removal of native grasses, and creation of slopes without vegetative cover.	Developer shall provide for, pay the costs of, perform or implement the following: • Prepare a SWPPP will address specific grading activities on the project site, construction of headwalls, outfalls and dissipaters, and restoration of native grass cover on graded slopes. • Implement BMPs for erosion control as set forth in the SWPPP, including but not necessarily limited to application of soil stabilizers such as hydro-seeding, netting, erosion control mats, and rock slope protection. • Grading shall be performed only in the "dry season" as shall be defined in terms of the SWPPP and Grading Permit subject to City approval. • Prior to re-establishment of vegetative cover, the developer shall use such temporary measures as fiber rolls along slopes, and silt fences at the boundaries of the construction site adjoining drainageways, as necessary. • To prevent tracking of mud onto adjacent roads and airborne dust, developer shall construct temporary areas of aggregate "mats" over bare soil to create stable areas for off-road vehicles and construction employee vehicles. • Construction entrances and exits shall be equipped with water and temporary collection of rinse water for tire rinsing to remove mud as needed. **Residual impact after mitigation: LTS**	Project Proponent	

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TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
IMPACT C7 The rate of storm water runoff from the project site and Highlands Ranch would remain below the allowable pre-development peak rate (235 cfs) owing to the existing and proposed detention systems. On-site detention will limit critical flows from the proposed detention basin in Sky Ranch II to 15 cfs. Off-site detention will limit critical flows from the existing detention basin in Highlands Ranch to 79 cfs. The effect, therefore, is LTS.	None required.	none	
IMPACT C8 The amount of storm water runoff from the project site would increase above the pre-development volume owing to the addition of impervious surfaces such as roof tops, walkways, and road pavement. The proposed on-site detention basin in Sky Ranch II has been sized to accommodate the critical storage volume and avoid down stream flooding. The on-site storage volume adequate to detain runoff for the critical storm is 7 acre-feet at water surface elevation 244.5 feet above msl. The estimated available storage capacity in the proposed detention basin is 14 acre-feet.	• Developer shall submit to the City Engineering Department final detention basin design detail with 14-acre feet of storage, assuming 3:1 graded slopes, and 250-foot msl maximum surface water elevation. • Developer shall submit to the City Engineering Department final HEC-1 hydrological routing calculations for the 100-year, 12-hour, 6-hour, and 3-hour storms. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT C9 Storm water runoff from the project site would add to the pre-development volume detained in the Highlands Ranch detention basin. The existing detention basin in Highlands Ranch has been sized to accommodate the critical storage volume and avoid down stream flooding. For the critical storm, the off-site storage volume adequate to detain combined inflow from various tributary subareas upstream of the Highlands Ranch detention basin is 16 acre-feet. The estimated available storage capacity in the existing detention basin is 21 acre-feet at water surface elevation 117 feet above msl. This potential effect, therefore, is LTS.	None required.	none	
IMPACT C10 Storm water runoff from the project site, Highlands Ranch, and other tributary subareas would add to the pre-project volume detained in the CCWD detention basin north of Buchanan Road. For the critical storm, the storage volume adequate to detain combined inflow from various upstream tributary subareas is 4 acre-feet at a water surface elevation 88.3 feet above msl. The estimated available storage capacity in the existing detention basin is 6 acre-feet at water surface elevation 90.0 feet above msl.	None required as the potential effect on the CCWD-owned detention basin is LTS.	none	

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(Continued)

TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
IMPACT C11 Storm water runoff from the project site, Highlands Ranch, and other tributary subareas would add to the pre-project flows conveyed in off-site pipeline north of Buchanan Road. Capital improvement project SD-18 consists of 1,000 lineal feet of upsized storm sewer pipeline from Contra Costa Canal north to Los Medanos Community College has no committed funding sources.	• The applicant will pay the DA 70 drainage deficiency fund ($5,000 per gross acre) for development on the land within APN 089-050-067 which is located within DA 70. The fees paid would be used for design and construction of off-site drainage improvements in the Kirker Creek watershed. • The applicant will pay the Kirker Creek Impervious Surface Drainage Fee to the City of Pittsburg for the portion of the project site located within the Kirker Creek watershed. The Kirker Creek Impervious Surface Drainage Fee will be collected during the development process, prior to filing the Final Map, and will be used to fund Capital Improvements for drainage within the Kirker Creek watershed. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT C12 Grading and construction have an acknowledged potential to present a risk of unauthorized discharge of hazardous materials to storm sewers and natural drainageways. - Developer shall prepare a Spill Prevention and Contingency Plan (SPCP) which will be submitted to the City at the time of application for Grading Permit.	• Developer shall implement BMPs and provisions for emergency notification procedures and response contingencies, spill clean up kits, secure storage of hazardous materials, designated sanitary waste bins. • Developer agrees to use commercial equipment refueling on the project site and further agrees not to store diesel fuel or gasoline on-site. • Developer shall notify contractors and provide copies of the SWPPP and SPCP for all contractors. • Developer shall provide guidelines for contractor handling of waste paints, waste adhesives, and other hazardous materials. Such materials generally shall not be stored on the project site, or if stored, said storage shall be inside secure, covered storage structure and limited to compatible materials. Storage of hazardous materials above exempt quantities requires permit and Hazardous Materials Business Plan from Contra Costa County Department of Environmental Health. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT C13 Funding sources and the responsible parties are necessary for long-term monitoring, implementation of current BMPs and public awareness programs, and maintenance of constructed on-site drainage systems.	To provide for long-term maintenance and operation of proposed constructed drainage systems, developer shall provide for and pay the costs of establishing the following: • A perpetual funding source for periodic maintenance of the proposed detention basin, headwalls, and outfalls will be created through agreement between the developer and City of Pittsburg. • An Operation and Maintenance Manual for periodic monitoring and maintenance of the detention basin, headwalls, open channel and outfalls. The manual should be written clearly so it could function as a complete guide for any commercial or Public Works maintenance entity. • BMPs and public awareness to limit or reduce such potential pollution and prevent some from entering the drainage system. **Residual impact after mitigation: LTS**	Project Proponent	Project Engineer shall prepare and submit the O&M Manual to the City Engineer. Before construction of the detention basin, headwalls, and outfalls, the funding source (for long-term monitoring, implementation of BMPs and public awareness programs, and maintenance of passive treatment BMPs) will be established. The fund will be supported initially by the developer (*e.g.*, through deposits to a Maintenance Assessment District account), which later may be assumed by a HOA or GHAD.

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(Continued)

TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
V.D Visual Resources			
IMPACT D1 Light-colored, reflective stucco and reddish clay tile architectural design elements could potentially degrade the visual character and quality of adjacent southern hills. Light-colored stucco and reddish roof tones tend to contrast with the natural setting and hence, could potentially distract from key focal elements of the existing scenic vista (i.e., existing annual grassland and adjoining hills).	Developer shall provide for, pay the costs of, perform or implement the following: • Modify the roof color-palette to substitute natural, terrain-neutral color and restrict terra cotta or clay roof tiles on certain lots including Proposed Lots 126-136, 206, 268, 300-309, 344-346, and all other lots generally above 350 feet msl. Also, the palette for proposed lots north of the Buchanan Bypass should be consistent with Highlands Ranch. Require Codes, Covenants & Restrictions that prohibit or limit roofing color changes by future owners. • Modify the stucco and exterior trim color-palette to substitute more saturated terrain-neutral exterior colors and restrict white or light reflective exterior colors on certain lots. The palette for proposed lots north of the Buchanan Bypass should be consistent with Highlands Ranch. Require Codes, Covenants & Restrictions that prohibit or limit stucco or exterior paint color changes by future owners. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT D2 Through landscaping and introduction of non-native landscape species, the project could potentially degrade the natural setting and draw focal attention away from existing trees that accent the adjoining hills above 500 feet (msl). Policy 4-P-82 of the General Plan suggests new development be responsive to natural elements and maintain a sense of connection to surrounding uses.	Developer shall provide for, pay the costs of, perform or implement the following: • Prepare a design supplement, herein called a "Natural Grassland Element," to illustrate 1) where landscaped areas will be allowed and 2) where natural grassland areas are to be maintained as shown, for example, on Figure 19. Incorporate a Natural Grassland Element into the Codes, Covenants & Restrictions (CC&Rs) that prohibit introduced species on designated graded slopes and other designated as natural grassland areas. • Codes, Covenants & Restrictions shall control landscaping of slopes on specific lots (such as, for example, Lots 127-137, Lots 307, 308 and 379-381, and other undeveloped slopes in the southern portion of the project site generally above 390 feet msl) to achieve a sense of connection with the adjoining open grassy hills and ravines. To maintain an open quality, prohibition of introduced species such as ivy, ice plant, shrubs and trees on the slopes on these specific lots, could mitigate potential degradation of the existing quality of the view of the adjacent southern hills above 500 feet (msl). • Codes, Covenants & Restrictions shall control fences on the slopes on specific lots (such as, for example, Lots 127-137 and Lots 307, 308 and 379-381) to maintain an open look of continuous, uninterrupted grassy contours. To maintain an open quality, prohibition of opaque fences on the slopes on these specific lots, could mitigate potential degradation of existing visual character and quality. Transparent fences such as unfinished corral or open "iron bar" (not chain link) would be consistent with General Plan Policy 4-P-7. **Residual impact after mitigation: LTS**	Project Proponent	City Planning Director shall review during Design Review and shall assure CC&Rs are consistent with the stated mitigation measures and design requirements established in Design Review.
IMPACT D3 Reflective glare could potentially detract from the natural scenic vista of the southern hills and cumulatively could contribute to urban night glow. The houses on Lots 128-132 have specific potential to direct reflective glare from rear-facing windows toward the north near sunset (April-September).	Developer shall provide for, pay the costs of, perform or implement the following: • Rear elevations of proposed houses on Lots 128-132 shall incorporate reduced window area to assure consistency of proposed window area on rear elevations with the design objective of avoiding a new source of substantial glare. **Residual impact after mitigation: LTS**	Project Proponent	

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(Continued)

TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
IMPACT D4 Street lights on "A" Court, "D" Court, and other proposed streets, and home and backyard illumination have a general potential to add the light levels on the site. Street luminaires, flood lights, landscape lighting, and interior lighting have a potential to add multiple new visible light sources which could detract from the natural scenic vista of the southern hills and cumulatively could contribute to urban night glow.	Developer shall provide for, pay the costs of, perform or implement the following: • Use full cutoff street luminaires to direct light downward. "Full cutoff" luminaire means a luminaire that allows no direct light emissions above a horizontal plane through the luminaire's lowest light-emitting part. • Prepare a plan which shows the proposed height, location, and intensity of street lights on-site. The plan shall comply with minimum standards for roadway lighting, and shall be reviewed and approved by the City Planning and Public Works Department. • Codes, Covenants & Restrictions (CC&Rs) shall control flood lighting and landscape lighting on the slopes and yards of specific lots (such as, for example, Lots 127-137 and Lots 307, 308 and 379-381) to avoid light "trespass" or "spill" and excessive illumination levels. • CC&Rs shall prohibit continuous all-night exterior lighting throughout the project. **Residual impact after mitigation: LTS**	**Project Proponent**	City Planning and Public Works Departments will review street lighting plan and proposed CC&Rs and will consider allowing minimum street lighting illumination levels throughout the project site as the proposed subdivision is located on the urban edge in the foreground of the southern hills.
V.E Land Use & Planning			
IMPACT E1 Without retaining connected open space as common area under common ownership by a Homeowners' Association, or without using a single-loaded street design, there is relatively less opportunity for orientation of future homes toward open space. The design of the houses, proposed streets, sidewalks, lighting, and fencing will have considerable influence over the ultimate suburban atmosphere or rural atmosphere experienced within the project.	Developer shall provide for, pay the costs of, perform or implement the following design modifications to the extent that any such modifications are required during Design Review including, for example, the following: • Options such as modified front elevations to de-emphasize garage doors. • Staggered building setbacks in the southern portion of the project site. • Alternative street cross sections for the southern portions of "B" Street and "D" Street and for the entire length of "B" Court, "C" Court and "D" Court. Alternative street sections may not have conventional curbs and sidewalks in favor of a more rustic design with extra tree planting width. • A Fencing and Natural Grassland strategy to avoid visual interruption of prominent south facing slopes visible from Buchanan Road. • Reduced lighting requirements for the southern area of the site along the southern portions of "B" Street and "D" Street and for the entire length of "B" Court, "C" Court and "D" Court. **Residual impact after mitigation: LTS.**	Project Proponent	City shall consider design measures and options during Design Review.
IMPACT E2 The proposed project lacks connection to Black Diamond Ranch.	• The City shall consider requiring additional connections by means of pedestrian paths, which the developer shall build if required. **Residual impact after mitigation: LTS**	Project Proponent	City Planning and Public Works shall consider before approval of a Final Map.
IMPACT E3 The applicant proposes filling of identified stream channels; therefore, if filling were allowed, setback policies would not be observed. The stream alteration could be mitigated by means of off-site compensatory mitigation, but such mitigation could not accomplish the goals or policies of the General Plan.	None. Avoidance alternatives are discussed in Chapter VI. **Residual impact after mitigation: Unavoidable**	none	

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(Continued)

TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
V.E Land Use & Planning *(Continued)*			
IMPACT E4 The proposed project includes no open space; therefore, the land preservation calculation in the HCP/NCCP, which is based on about 80 developed acres rather than 160 developed acres on the project site, needs to be revised.	• The City shall coordinate during finalization of the HCP/NCCP and shall provide the revised developed acreage for the project site so that preservation goals and targets in the HCP/NCCP can be increased as necessary. **Residual impact after mitigation: LTS**	City	The City shall coordinate with JPA.
V.F Population, Housing, and Employment			
IMPACT F1 With lateral connections from the Buchanan Subarea Loop II this water transmission mitigation measure could potentially serve additional land development in the Buchanan Planning Subarea including, for example, the Thomas Ranch and Montreux parcels. Though the proposed project could not directly induce housing development or population growth, in conjunction with this water conveyance mitigation measure, provision of water to the project site indirectly could induce development on the nearby parcels. Such housing development in the Buchanan Planning Subarea and the associated population growth there have been considered as part of the General Plan adoption process.	None are available. **Residual impact after mitigation: Significant**	none	
V.G Community Services & Utilities			
IMPACT G1 Development of the project could lead to increased use of the nearest neighborhood parks including Highlands-Buchanan Road Park, Highlands Park, Marchetti Park.	• Developer will provide an on-site mini-park with swings and other play apparatus, and tennis courts. For reasons discussed in Chapter V. K, Public Health & Safety, a preferred location for on-site park facilities is the vicinity proposed Lots 181-190. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT G2 Development of the project is expected to increase visitation at Black Diamond Mines Regional Preserve (BDMRP) and also increase the use of Buchanan Park, Contra Loma Regional Park, and Stoneman Park.	• Developer will pay an in lieu park fee, or dedicate park land, or perform a combination of both, equivalent to 5.89 acres (1.42 acres per 100 dwelling units). In the event that open space is dedicated under one of the alternatives to the proposed project, such dedication of open space shall not be counted as park land dedication. • Developer will protect right-of-way across the entire 110-foot width of the combined PG&E and Kinder Morgan Energy Partners easements, for future development of an east-west trail connection with BDMRP. Protection of the trail right-of-way may be counted in the future as part of the developer's park land dedication requirement, only at that time when trail improvements are made, and only for that portion of the right-of-way on which trail improvements are actually made. **Residual impact after mitigation: LTS**	Project Proponent	

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(Continued)

TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
IMPACT G3 On-site park land dedication, or trail right-of-way protection on the project site, would have the same impact on wildlife species and their habitat as described for the proposed project in Chapter V.A, Biology & Wetlands. Coverage of any portion of the site with tot lots or tennis court, for example, would remove grassland habitat and introduce human presence.	Developer shall provide for, pay the costs of, and implement the following: • Perform compensatory mitigation measures as described in Chapter V.A, Biology & Wetlands. • Construct appropriate permanent barriers around all on-site park areas, to prevent movement of terrestrial wildlife across these areas. • Retain a qualified biologist to perform appropriate pre-construction or nesting surveys before constructing on-site park or trail improvements. **Residual impact after mitigation: Unavoidable**	Project Proponent	
IMPACT G4 Off-site trenching for construction of 9,600 lineal feet of 20-inch diameter water transmission pipe and 12,400 lineal feet of 16-inch diameter water transmission pipe will generate temporary diesel exhaust fumes, dust and noise along the construction corridor. Temporary traffic diversion potentially could result from construction detours or drivers changing routes to avoid the construction zone could cause temporary traffic intrusion, dust and in neighborhoods adjoining the construction corridor such as, for example, Ventura Drive north of Buchanan Road.	Developer shall provide for, pay the costs of, and implement the following: • Implement hours of construction to avoid nighttime construction through residential neighborhoods. • Use trench cover plates to maintain open lanes of travel on Buchanan Road during the peak commute hours. • Implement dust control and street cleaning measures to control fugitive dust. **Residual impact after mitigation: Unavoidable**	City	
IMPACT G5 Construction of the City-recommended Zone II/III water reservoir would impact approximately 1 acre of native annual grasslands, all within the acknowledged range of the SJKF, foraging habitat potentially used by protected species of bird, and proposed critical habitat of the CRLF.	Developer shall provide for, pay the costs of, and implement the following: • Retain a qualified biologist to perform appropriate pre-construction or nesting surveys before constructing the on-site Zone II/III water reservoir. • Perform compensatory mitigation measures, as described in Chapter V.A, Biology & Wetlands. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT G6 Construction and operation of the City-recommended Zone IV water reservoir would impact approximately 2.5 acres of native annual grasslands, all within the acknowledged range of the SJKF, foraging habitat potentially used by protected species of bird, and proposed critical habitat of the CRLF.	Developer shall provide for, pay the costs of, and implement the following: • Retain a qualified biologist to perform appropriate pre-construction or nesting surveys before constructing the off-site Zone IV water reservoir and service road improvements. • Perform compensatory mitigation measures, as described in Chapter V.A, Biology & Wetlands, for additional acreage estimated in the amount of 2.5 acres, or three times the acreage used for the reservoir and service road, whichever is less. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT G7 Operation of a public-dedicated sanitary sewer lift station has the potential to cause impact from pump noise or emergency back-up power generator noise, and odor from upset conditions. The pump station would require periodic maintenance and could result in temporary noise associated with maintenance or replacement activities.	Developer shall provide for, pay the costs of, and implement the following: •Provide sanitary connections on Lots 162-204 to connect to a lateral that has gravity flow to the collection system in Black Diamond Ranch. **Residual impact after mitigation: LTS**	Project Proponent	

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(Continued)

TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
IMPACT G8 Construction of the approximately 4-acre detention basin would have the same impact on wildlife species and their habitat as described for the proposed project in Chapter V.A, Biology & Wetlands. Excavation and filling in and around the basin, and proposed sound wall and lot fencing would remove grassland habitat and introduce human presence.	Developer shall provide for, pay the costs of, and perform the following: • Perform compensatory mitigation measures as described in Chapter V.A, Biology & Wetlands. • Construct appropriate permanent barriers around all on-site park areas, to prevent movement of terrestrial wildlife across these areas. • Retain a qualified biologist to perform appropriate pre-construction or nesting surveys before constructing on-site park or trail improvements. **Residual impact after mitigation: Unavoidable**	Project Proponent	
IMPACT G9 Construction and operation of new junior high and elementary schools could result in adverse impacts, which are dependent on school siting. The locations of the new schools are unknown; hence, the particular nature and extent of adverse effects are speculative and the potential impacts are not discussed further.	None	None	
IMPACT G10 Off-site construction of Station 85 will generate temporary diesel exhaust fumes, dust and noise in the vicinity of the station. construction site.	Developer shall provide for, pay the costs of, and implement the following: • Implement hours of construction to avoid nighttime construction. • Implement dust control and street cleaning measures to control fugitive dust. **Residual impact after mitigation: LTS**	City	
IMPACT G11 Construction of the Buchanan Bypass or Buchanan Road widening each could generate temporary diesel exhaust fumes, dust and noise along the construction corridor.	Developer shall provide for, pay the costs of, and implement the following: • Implement hours of construction to avoid nighttime construction. • Implement dust control and street cleaning measures to control fugitive dust. **Residual impact after mitigation: LTS**	City	
IMPACT G12 Operation of the Buchanan Bypass or a widened Buchanan Road each could generate long-term noise at sensitive receptors (see Chapter V.I, Community Noise).	Developer shall provide for, pay the costs of, and implement the following: •Construct or pay for the off-site improvements described in Chapter V.I, Community Noise. **Residual impact after mitigation: LTS** except along Ventura Drive in Highlands Ranch. Without the bypass, outdoor noise in the front yards of houses along Ventura Drive, between Rangewood Drive and Glen Canyon Circle/Drive, cannot be practically mitigated.	Project Proponent	
IMPACT G13 The project site would require annexation into the U.S. Bureau of Reclamation's CVP and a Will-Serve letter from CCWD. The annexation request cannot be processed by CCWD until CCWD has evidence of Section 7 or Section 10 consultation with USFWS and verification of wetlands delineation by USACE.	• Provide evidence of satisfactory completion of Section 7 or Section 10 consultation. **Residual impact after mitigation: LTS**	Project Proponent	No Building Permit shall be issued by the City pending CCWD's annexation of the site into the CVP. **Assurance** of the water supply for this site is pending Section 7, or Section 10, consultation and annexation actions.

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(Continued)

TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
IMPACT G14 The proposed project could contribute incrementally to a future need for new or expanded water treatment facilities, the construction of which potentially could cause significant environmental effects.	Section 375 (b) of the California Water Code authorizes the City to require, in connection with its water conservation program, the installation of water-saving devices that are designed to reduce water consumption. Developer shall provide for, pay the costs of, and implement the following: • Provide hot-water-pipe insulation and installation of a hot-water-recirculation device or other device or design to provide hot water to tap within 15 seconds. • Install 1.6 gallons-per-flush, ultra-low-flow toilets. This cuts the amount of water that goes down the drain with each flush by 50 percent or more.-Developer shall install water-saving showerheads using 2.5 gallons per minute or less. • Prepare a design supplement, herein called a "Natural Grassland Element," to illustrate 1) where landscaped areas will be allowed and 2) where natural grassland areas are to be maintained. Incorporate a Natural Grassland Element into the Codes, Covenants & Restrictions (CC&Rs) that prohibit introduced species on designated graded slopes and other designated as natural grassland areas. • Prepare CC&Rs to address landscape guidelines that feature water-conserving concepts and a list of drought-tolerant, low water use plants (see Appendix F). **Residual impact after mitigation: LTS**	Project Proponent	
V.H Traffic & Circulation			
IMPACT H1 Intersection #1 (California Avenue/SR 4 WB ramps) would be expected to operate at LOS E during the p.m. peak with the project but LOS D after mitigation. NOTE: This intersection also would operate deficiently without the project under the Existing Plus Approved Projects scenario.	•Developer shall pay a fair share for modification of the eastbound California Avenue approach to provide a separate left-turn lane to eliminate the split phasing. •Developer shall pay a fair share for provision of right-turn overlap phasing for the northbound right-turn movement. NOTE: These are the same mitigation measures as would be required at this intersection without the proposed project. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT H2 Intersection #2 (Loveridge Road/SR 4 EB Ramps) would be expected to operate at LOS E with the project but LOS C after mitigation. It should be noted that the intersection also would operate deficiently without the project under the Existing Plus Approved Projects scenario.	• Developer shall pay a fair share for modification of the northbound Loveridge Road approach at the ramps for provision of a separate right-turn lane. NOTE: This is the same mitigation measure as would be required at this intersection without the proposed project. **Residual impact after mitigation: LTS**		
IMPACT H3 Intersection #8 (Loveridge Road/Buchanan Road) would be expected to operate at LOS E during the a.m. peak hour with the project but LOS D after mitigation. NOTE: This intersection would be expected to operate acceptably in the LOS B range after completion of the Buchan Road Bypass.	• Developer shall pay for provision of two southbound left-turn lanes and lane striping on the east leg to accommodate the two left-turn lanes followed by a merge to one lane. • As an alternative to this mitigation, the developer shall limit the subdivision to no more than 207 units until the opening of the Buchanan Bypass for through-traffic connection. **Residual impact after mitigation: LTS**	Project Proponent	

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TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
IMPACT H4 Intersection #9 (Buchanan Road/Ventura Drive) would be expected to operate at LOS E with the project but LOS A after mitigation. It should be noted that the intersection also would operate deficiently without the project under the Existing Plus Approved Projects scenario. It should be noted also that this intersection would be expected to operate acceptably in the LOS B range after completion of the Buchan Road Bypass.	• Developer shall pay a fair share towards the following improvements: the eastbound approach should be restriped to accommodate two through lanes from west of Ventura Avenue to east of Meadows Drive followed by a merge back to one lane. This should fit within the existing pavement through the use of narrower travel lanes and a narrower bike lane. This striping should be considered permanent until the bypass is opened. NOTE: This is the same mitigation measure as would be required at this intersection without the proposed project. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT H5 Intersection #10 (Buchanan Road/Meadows Avenue) would be expected to operate at LOS F with the project but LOS A after mitigation. It should be noted that the intersection also would operate deficiently without the project under the Existing Plus Approved Projects scenario. NOTE: This intersection would be expected to operate acceptably in the LOS B range after completion of the Buchanan Road Bypass.	• See Mitigation Measure for IMPACT H4 above. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT H6 Intersection #11 (Somersville Road/Buchanan Road) would be expected to operate at LOS F with the project but LOS D after mitigation. NOTE: This intersection also would operate deficiently without the project under the Existing Plus Approved Projects scenario.	• Developer shall pay a fair share for modification of the northbound Somersville Road approach at Buchanan Road for provision of an additional left-turn lane and a southbound right-turn overlap phasing. NOTE: This is the same mitigation measure as would be required at this intersection without the proposed project. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT H7 The proposed project is expected to increase traffic volumes on the local street portion of Ventura Drive in Highlands Ranch beyond the City's local street carrying capacity of 5,000 vpd. Existing traffic on the block immediately south of Buchanan Road, is approximately 3,600 vpd. On the section of Ventura Drive with fronting houses, existing traffic is estimated at 2,500 vpd. It is estimated that the project would increase traffic volumes on Ventura Drive, between Meadows Avenue and Jensen Drive, by a range of 2,580 to 3,300 vehicles per day (which translates to 65 to 83 percent of the project traffic). Assuming the mid-point, that the project sends approximately 74 percent of its traffic on Ventura Drive, traffic will increase to 5,440 vehicles per day (vpd) from 2,500 vpd on the residential portion of the street. After the opening of the Buchanan Bypass, traffic would decrease below the 5,000 vpd level.	• Prior to opening of the Buchanan Bypass, developer shall not construct more than 353 units, unless an alternative access to Buchanan Road from the Buchanan Bypass is provided via Standard Oil Avenue. • Before additional building permits above 353 permits are issued, the developer shall construct the future Standard Oil Avenue between Buchanan Road and the Buchanan Bypass to the City's Minor Arterial Street Standards for four lanes with turn lanes. • To discourage use of Ventura Drive, the developer shall construct a Neighborhood Diverter on Ventura Drive near the mouth of Buchanan Bypass. The design shall be approved by the City of Pittsburg. • City shall not issue building permits for more than 353 units unless it is shown through professional traffic counting that the AADT on Ventura Drive, between Jensen/Rangewood and Meadows Avenue, will not exceed 5,000 vpd. **Residual impact after mitigation: LTS**	Project Proponent	City shall monitor issuance of building permits. Timing of the diverter shall be timed to coincide with construction and opening of Standard Oil Avenue.

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(Continued)

TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
IMPACT H8 The project may increase traffic volumes on Ventura Drive north of Buchanan Road. This section of Ventura Drive is residential and any increase in traffic from outside of the neighborhood may result in undesirable volume levels and safety issues given the alignment of the street.	• Developer shall pay up to 100 percent of the cost, or a fair share if other future projects could have a similar effect, for a Neighborhood Diverter which meets the City of Pittsburg's criteria, to discourage through traffic on Ventura Drive north of Buchanan Road. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT H9 Intersection #9 (Buchanan Road/Ventura Drive) has 100 feet of available stacking in the northbound left-turn lane on Ventura Drive. The proposed project would increase left-turn queuing to approximately 200 to 250 feet.	• Developer shall pay for modification of the northbound left-turn on the Ventura Drive approach at Buchanan Road for provision of 250 feet of stacking, appropriate deceleration length, and transitions. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT H10 Intersection #10 (Buchanan Road/Meadows Avenue) has 100 feet of available stacking in the westbound left-turn lane on Buchanan Road. The proposed project would increase left-turn queuing to approximately 200 to 250 feet.	• Developer shall pay for modification of the westbound left-turn on the Buchanan Road approach at Meadows Avenue for provision of 250 feet of stacking, appropriate deceleration length, and transitions. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT H11 The proposed project lacks connections to the adjoining Black Diamond Ranch residential subdivision. CCCFPD recommends provision of a 20-foot wide EVA through proposed Lot 191 to Markley Creek Drive.	• Developer shall construct a suitable EVA across Lot 191 as recommended by CCCFPD. • This EVA shall be accessible to emergency vehicles only and shall not be accessible to any other on road or off-road vehicular traffic. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT H12 Intersection #1 (California Avenue/SR 4 WB Ramps) would be expected to operate at LOS F with the project but LOS D after mitigation. NOTE: The California Avenue approaches to SR 4 WB ramps are planned to be widened by 2025. The intersection also would operate deficiently without the project under the Cumulative 2025, Without Bypass, scenario.	• See Mitigation Measures for IMPACT H1. NOTE: These are the same mitigation measures as would be required at this intersection without the proposed project. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT H13 Intersection #2 (Loveridge Road/SR 4 EB Ramps) would be expected to operate at LOS E with the project but LOS C after mitigation. NOTE: This intersection also would operate deficiently without the project under the Cumulative 2025, Without Bypass, scenario.	• See Mitigation Measure for IMPACT H2. NOTE: This is the same mitigation measure as would be required at this intersection without the proposed project. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT H14 Intersection #3 (Loveridge Road/Leland Road) would be expected to operate at LOS F with the project but LOS D after mitigation. NOTE: This intersection also would operate deficiently without the project under the Cumulative 2025, Without Bypass, scenario.	• Developer shall pay a fair share for modification of the northbound Loveridge Road approach to Leland Road for provision of a separate right-turn lane. Right-turn overlaps should also be provided on all approaches. **Residual impact after mitigation: LTS**		

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(Continued)

TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
IMPACT H15 Intersection #6 (Railroad Avenue/Buchanan Road) would be expected to operate at LOS F with the project but LOS D after mitigation. NOTE: This intersection also would operate deficiently without the project under the Cumulative 2025, Without Bypass, scenario.	• Developer shall pay a fair share for modification of the northbound Railroad Avenue approach at Buchanan Road for provision of two northbound right-turn lanes with overlap phasing. NOTE: This is the same mitigation measure as would be required at this intersection without the proposed project. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT H16 Intersection #7 (Harbor Street/Buchanan Road) would be expected to operate at LOS F with the project but LOS B after mitigation. NOTE: This intersection also would operate deficiently without the project under the Cumulative 2025, Without Bypass, scenario. This intersection would be expected to operate acceptably in the LOS A range after completion of the Buchanan Bypass.	• Developer shall pay a fair share for provision of two travel lanes in each of the eastbound and westbound directions. NOTE: This is the same mitigation measure as would be required at this intersection without the proposed project. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT H17 Intersection #8 (Loveridge Road/Buchanan Road) would be expected to operate at LOS E with the project but LOS D after mitigation. NOTE: This intersection also would operate deficiently without the project under the Cumulative 2025, Without Bypass, scenario. This intersection would be expected to operate acceptably in the LOS B range after completion of the Buchanan Bypass.	•Developer shall pay for provision of two southbound left-turn lanes and lane striping on the east leg to accommodate the two left-turn lanes followed by a merge to one lane. As an alternative to this mitigation, the developer can limit the subdivision to no more than 207 units until the opening of the Buchanan Bypass. NOTE: This is the same mitigation measure as would be required at this intersection without the proposed project. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT H18 Intersection #10 (Buchanan Road/Meadows Avenue) would be expected to operate at LOS E with the project but LOS A after mitigation.	• See Mitigation Measure for IMPACT H5. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT H19 Intersection #11 (Somersville Road/Buchanan Road) would be expected to operate at LOS F with the project but LOS C after mitigation. NOTE: This intersection also would operate deficiently without the project under the Cumulative 2025, Without Bypass, scenario.	• See Mitigation Measure for IMPACT H6. NOTE: This is the same mitigation measure as would be required at this intersection without the proposed project. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT H20 At the intersection of the Buchanan Road Bypass with "M" Street and "D" Street, traffic movements would be limited by a raised median to right-turn in/right-turn out. If full access (no median) is provided in the early phase before future opening of the bypass for through-traffic connection, residents of project may object if a median later is constructed.	• Developer shall construct the Buchanan Bypass with the median in place even in the early phase before future opening of the bypass for through-traffic connection. The section of the bypass built within the project should include provisions for U-turns west of "M" Street-"D" Street. **Residual impact after mitigation: LTS**	Project Proponent	

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TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
IMPACT H21 Intersection #1 (California Avenue/SR 4 WB Ramps) would be expected to operate at LOS F with the project but LOS D after mitigation. NOTE: The California Avenue approaches to SR 4 WB ramps are planned to be widened by 2025. The intersection also would operate deficiently without the project under the Cumulative 2025, With Bypass scenario.	• See Mitigation Measures for IMPACT H1. NOTE: These are the same mitigation measures as would be required at this intersection without the proposed project. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT H22 Intersection #2 (Loveridge Road/SR EB Ramps) would be expected to operate at LOS E with the project but LOS D after mitigation.	• See Mitigation Measure for IMPACT H2. NOTE: This is the same mitigation measure as would be required at this intersection without the proposed project. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT H23 Intersection #3 (Loveridge Road/Leland Road) would be expected to operate at LOS E with the project but LOS D after mitigation.	• See Mitigation Measures for IMPACT H3. NOTE: These are the same mitigation measures as would be required at this intersection without the proposed project. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT H24 Intersection #15 (Kirker Pass Road/Buchanan Road Bypass) would be expected to operate at LOS E (v/c=1.00) with the project. The recommended mitigation measure would result in LOS E (at improved v/c) which is acceptable on the Kirker Pass Road corridor. NOTE: This intersection also would operate deficiently without the project under the Cumulative 2025, With Bypass, scenario.	• Developer shall pay a fair share for re-construction of Kirker Pass Road to accommodate a new T-intersection with the future Buchanan Bypass. Reconstruction is recommended by the traffic engineer to assure that Buchanan Bypass and Kirker Pass Road (south) operate as the major legs and Kirker Pass Road (north to Buchanan Road) operates as the minor leg. • Developer shall pay a fair share for provision of two right-turn lanes with overlap phasing "westbound" (Bypass to Kirker Pass Road north). NOTE: These are the same mitigation measures as would be required at this intersection without the proposed project. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT H25 Project-related traffic added to the residential portion of Ventura Drive, between Meadows Avenue and Rangewood Drive, would create speed and volume impacts.	• The developer shall construct traffic-calming features on the five block section. Traffic-calming features shall be consistent with the measures listed in the City's Traffic-Calming Policy and their design shall be approved by the City Engineer. **Residual impact after mitigation: LTS**	Project Proponent	

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(Continued)

TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
IMPACT H26 The steepness of the grade and horizontal straightness of "B" Street will encourage excessive speeds that would be considered undesirable for streets having residential frontage with curb cuts.	• Developer shall not construct curb cuts for driveways along the frontage of "B" Street between the Buchanan Bypass and "J" Court/"A" Street or along Ventura Drive within 300 feet of the Buchanan Bypass. This means that proposed Lots 11-17 and proposed Lots 235 and 236, proposed Lots 257-262, and proposed Lot 297 may not be developed as shown on the Vesting Tentative Map, unless either 1) alternative access is provided, for example, by way of modified flag lot designs with shared driveways on "J" Court, "A" Street, or Canyon Oaks Court, or 2) "B" Street is re-designed for traffic calming. • Developer's redesign of "B" Street and Ventura Drive, and their related intersections at "K" Court, "J" Court, and the Buchanan Bypass, if one is submitted, may be considered at the discretion of the City within the "B" Street Traffic-Calming Design Zone (see Figure 26). • Developer's redesign for purpose of recovering land area for developable lots may be considered by the City only if redesign provides grade reduction below 14 percent, safety advantages, or other environmental benefits. • Developer shall pave "B" Street between the Buchanan Bypass and "J" Court/"A" Street with a scored concrete all-weather surface, with section details and scoring pattern and depth subject to the approval of the City Engineer. • Developer shall construct and sign all-way stops at the intersections of "B" Street with "A" Street/"J" Court and "K" Court. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT H27 Placement of curb cuts for driveways and on-street parking on "B" Street, "D" Street, "M" Street, and Ventura Drive, near the mouth with the Buchanan Bypass, would create vehicle conflicts and potential safety hazards. Curb cuts and on-street parking would interfere with queuing on approaches to the bypass.	• Developer shall not 1) construct any driveway curb cuts within 150 feet, or 300 feet in the case of "B" Street," from the edge of curb of the Buchanan Bypass or 2) allow any on-street parking within 150-feet of the edge of curb of the Buchanan Bypass, on "B" Street, "D" Street, "M" Street, and Ventura Drive. This would result in elimination of proposed Lots 11, 17, 18, 72, 73, 257, and 381 and review or adjustment of driveway locations for proposed Lots 12, 16, 19, 71, 74, 258, and 380. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT H28 Depending on the location of crosswalk, stop limit line, the proposed sound wall at Lot 257, privacy fencing, and landscaping, the sight distance from "B" Street to the outside eastbound travel lane of the bypass may be limited. Turnouts for the right-turns from Buchanan Bypass into "B" Street and Ventura Drive are not shown on the Vesting Tentative Map. Such turnouts are recommended for deceleration and to avoid a conflict with bicyclists continuing on the bypass across the intersection.	• Developer shall adjust the lot lines of proposed Lots 257, 258, and 259, to accommodate provisions for the "B" Street/Buchanan Bypass intersection as stated above. • Developer shall adjust proposed Lot 11, to accommodate additional right- of-way width for a right-turn turnout from the Buchanan Bypass into Ventura Drive. **Residual impact after mitigation: LTS**	Project Proponent	

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TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
V.I Community Noise			
IMPACT I1 **Receptor Location 1** On Autumnwind Court, the first stories of houses generally are shielded from Buchanan Road traffic noise by a solid masonry sound wall. The house at 1485 Autumnwind Court is partially shielded by the wall and a wooden "return" fence along the side yard. Houses at 1457, 1473, and 1485 Autumnwind Court have second-story windows exposures. The estimated outdoor Ldn currently is 69 dBA (second-story) and 65 dBA (first-story). The future outdoor Ldn at the first- and second-stories would increase by +0.6 dBA with the proposed project. Existing and future sound levels, therefore, would exceed the General Plan's normally acceptable level of 60 Ldn.	Developer shall provide for, pay the costs of, and implement the following off-site mitigation measures: • An improved side yard return segment, either a fence or wall, for the backyard at 1485 Autumnwind Court. • Sound-insulating windows for noise-exposed windows in the second-stories of 1457, 1473, and 1485 Autumnwind Court, if necessary to reduce the interior Ldn to 45 dBA, or below, as determined by a practicing INCE acoustical engineer. **Residual impact with mitigation: LTS** Prior to the opening of the Buchanan Bypass, a reduction in outdoor Ldn to 60-62 dBA.	Project Proponent	Mitigation measures shall be confirmed by the Building Division prior to City's issuance of building permits for the proposed project. Homeowners' agreement to fence and window retrofits is voluntary and can be waived. Independent acoustical engineer shall be paid by developer funds and report to the City.
IMPACT I2 **Receptor Location 3** On Ventura Drive north of Buchanan Road, 1566 Ventura Drive is shielded from Buchanan Road traffic noise by a solid masonry wall. The house across the street, at 1555 Ventura Drive, is next to a power line transmission tower, and is not shielded by a sound wall. The outdoor Ldn at 1555 Ventura Drive is estimated currently to be 64 dBA. The future outdoor Ldn would increase by approximately +0.5 dBA to 65 dBA with the proposed project. Existing and future sound levels, therefore, would exceed the General Plan's normally acceptable level of 60 Ldn.	Developer shall provide for, pay the costs of, and implement the following off-site mitigation measures: • A 6-foot tall overlapped board fence along the southern property line in the backyard of 1555 Ventura Drive. • Sound-insulating windows for noise-exposed windows in the 1-story, ranch-style house at 1555 Ventura Drive, if necessary to reduce the interior Ldn to 45 dBA as determined by a practicing INCE acoustical engineer. **Residual impact with mitigation: LTS** Prior to the opening of the Buchanan Bypass, a reduction in outdoor Ldn to 60 dBA could attained.	Project Proponent	See above.
IMPACT I3 **Receptor Location 4** Traffic from proposed units in Sky Ranch II could increase the existing Ldn in the front yards of seven (7) houses facing Ventura Drive, between Rangewood Drive and Glen Canyon Circle or Drive, and other houses having frontages along Ventura Drive in Highlands Ranch, by +3 dBA to 64 dBA from 60 dBA. Future sound levels, therefore, would exceed the General Plan's normally acceptable level of 60 Ldn.	Developer shall provide for, pay the costs of, and implement the following off-site mitigation measure for outdoor noise: • Outdoor noise in the front yards of houses along Ventura Drive, between Rangewood Drive and Glen Canyon Circle/Drive, cannot be practically mitigated. Curb cuts for driveways preclude the use of a continuous sound wall. Developer shall provide for, pay the costs of, and implement the following off-site mitigation measure for indoor noise: • Developer shall retrofit windows having a line-of-sight to Ventura Drive if interior noise (Ldn) exceeds 45 dBA as determined by professional measurement by a practicing INCE acoustical engineer. **Residual impact with mitigation: LTS**	None Project Proponent	See above.

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TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
IMPACT I4 **Receptor Location 5** At the east end of Silver Saddle Drive, the back yards of houses at 529 and 531 Silver Saddle Drive are partially shielded from Buchanan Road noise by the wall and a wooden "return" fence along the back yards. There is not a masonry return segment extending south from the masonry wall along the eastern property boundary. Houses at 9 Saddlehorn Court and 511, 529 and 531 Silver Saddle Drive have second story exposures, where the outdoor Ldn currently is estimated to be 65 dBA. The future outdoor Ldn at the second-stories would increase by approximately +0.4 dBA with the proposed project. Existing and future sound levels, therefore, would exceed the General Plan's normally acceptable level of 60 Ldn.	Developer shall provide for, pay the costs of, and implement the following off-site mitigation measure: • Developer shall construct an improved backyard return segment, either a matching masonry return wall or an improved fence. **Residual impact with mitigation: LTS** The backyard outdoor Ldn at 529 Silver Saddle Drive and 531 Silver Saddle Drive could be reduced by -3 dBA with such an improvement.	Project Proponent	Mitigation measure shall be implemented by project proponent and confirmed by the Building Division prior to City's issuance of building permits for the proposed project. Homeowners' agreement to fence and retrofit is voluntary and can be waived.
IMPACT I5 **Receptor Location 6** Receptor 6 is a mobile home park without shielding by a sound wall. There is a chain link fence with privacy slats, which provides negligible traffic noise reduction. The estimated outdoor Ldn currently is 73 dBA, and the future Ldn will increase by approximately +0.3 dBA with the proposed project and approved projects. This outdoor noise level is the level for the northernmost row of mobile homes along the fence and Buchanan Road. Existing and future sound levels, therefore, would exceed the General Plan's normally acceptable level of 60 Ldn.	The proposed project's impact is less-than-significant based upon its projected sound impact (+0.3 dBA). An off-site sound wall along Buchanan Road in the vicinity of the mobile home park could be effective; however, construction of a sound wall would require funding by the City of Antioch through impact assessment, the redevelopment plan, or by collection from members of a benefit assessment district. **Residual impact with mitigation: LTS** Measure is outside the jurisdiction of the City of Pittsburg.	City of Antioch	Measure is outside the jurisdiction of the City of Pittsburg.
IMPACT I6 **Receptor Location 6 (Chateau Mobile Park)** The portion of the mobile home park within approximately 100 feet of Buchanan Road is noise impacted with an existing Ldn in the range normally unacceptable for residential uses. The increase caused by the proposed project is forecast to be 0.3 dBA. Opening of the Buchanan Bypass would reduce the Ldn to 73 dBA, the pre-development level, but not below 70 dBA.	See above. **Project impact without sound wall: LTS** Sound wall construction is outside the jurisdiction of the City of Pittsburg.	City of Antioch	Measure is outside the jurisdiction of the City of Pittsburg.
IMPACT I7 **Receptor Location 4** Located along Ventura Drive in Highlands Ranch, 1707 and 1711 Ventura Drive, and five additional houses between Rangewood Road and Glen Canyon Circle or Drive, would experience a permanent increase of +3 dBA in day-night average noise level from the Sky Ranch II project. With the proposed Sky Ranch II project, the predicted Ldn at Receptor Location 4 would increase to 63 dBA from 60 Ldn.	Developer shall provide for, pay the costs of, and implement the following off-site mitigation measure for outdoor noise: • Outdoor noise in the front yards of houses along Ventura Drive, between Rangewood Drive and Glen Canyon Circle/Drive, cannot be practically mitigated. Interior noise, hypothetically if the Ldn were above 45 dBA, could potentially be mitigated by retrofitting windows having a line-of-sight to Ventura Drive. **Residual impact with mitigation: Unavoidable**	none	See next page.

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(Continued)

TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
IMPACT I7 **Receptor Location 4 (Continued)**	Developer shall provide for, pay the costs of, and implement the following off-site mitigation measure for indoor noise: • Developer shall install acoustic-rated windows or sliding glass doors on exposed first-story and second-story elevations, if necessary to assure interior sound levels would be less than 45 dBA, as determined by professional measurement by a practicing INCE acoustical engineer. **Residual impact with mitigation: LTS** The interior Ldn could meet the 45 dBA interior standard.	Project Proponent	Mitigation measure shall be confirmed by the Building Division prior to City's issuance of building permits for the proposed project. Homeowners' agreement to window retrofits is voluntary and can be waived.
IMPACT I8 Temporary noise increases will occur during construction. During construction the project will generate noise of variable loudness depending on the location, presence of receptors, and nature of construction. Construction at the boundary of existing neighborhoods could potentially affect the adjacent residents living off-site. The noisiest construction activities could potentially generate maximum noise levels ranging from 84 to 89 dBA at a distance of 50 feet from the noisiest equipment or machinery. Construction noise levels would decrease to 64 -69 dBA at a distance of 300 feet, 61-66 dBA at a distance of 400 feet, and 54-59 at a distance of 800 feet. Whether or not construction hours are limited, temporary construction noise generated by on-site equipment potentially could 1) expose sensitive on-site and off-site residential receptors to noise levels in excess of the applicable noise standards, 2) cause noticeable increases of 2-3 dBA over ambient noise levels, and 3) induce noise complaints owing to increases of 5-10 dBA over ambient levels. Such potential increases generally warrant mitigation to minimize noise disturbance.	Developer shall provide for, pay the costs of, and implement the following on-site mitigation measure: • The Project Applicant shall prepare Construction Specifications that will be become part of contractor documents and which could be enforced by the City of Pittsburg Building Division on an as-needed basis. The Construction Specifications will require that the Contractor to perform the following tasks: 1) Limit construction activities to the hours between 7:30 a.m. and 7:00 p.m. on weekdays, and between 9:00 a.m. and 6:00 p.m. on Saturdays and Sundays. No construction shall take place on federal holidays . 2) Locate fixed construction equipment such as compressors and generators as far as feasibly possible from sensitive receptors (i.e., existing houses). 3) Shroud or shield all impact tools, and muffle or shield all intake and exhaust ports on power construction equipment. **Residual impact with mitigation below: LTS**	Project Proponent	See above.
IMPACT I9 **Receptor Location 4** With development of approved projects, the proposed Sky Ranch II project, and opening of the Buchanan Bypass, the cumulative predicted Ldn in the front yards of seven (7) houses facing Ventura Drive between Rangewood Drive and Glen Canyon Circle or Drive would increase by +6 dBA to 66 dBA from 60 Ldn. Future cumulative sound levels, therefore, would exceed the General Plan's normally acceptable level of 60 Ldn.	Developer shall provide for, pay the costs of, and implement the following off-site mitigation measure: • Outdoor noise in the front yards of houses along Ventura Drive, between Rangewood Drive and Glen Canyon Circle/Drive, cannot be practically mitigated. • Developer shall retrofit windows having a line-of-sight to Ventura Drive with acoustic-rated sound-insulating windows if necessary to maintain an interior Ldn below 45 dBA, as determined by professional measurement by a practicing INCE acoustical engineer. **Residual impact with mitigation: Unavoidable increase outdoors.** The interior Ldn could meet the 45 dBA interior standard.	Project Proponent	See above note.

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(Continued)

TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
IMPACT I10 **Receptor Locations 7, 8, and 9A** Receptor Location 7 means proposed Lots 5, 6, and 7. Receptor Location 8 means proposed Lots 29-37 and similar lots on the south side of the bypass . Receptor Location 9A means proposed Lots 236 & 260 (and generally Lots 234-237, 256, 259- 262, and 297), along proposed "B" Street. On-site locations could have exposures to outdoor day-night average noise level (Ldn) in excess of 60 dBA resulting from implementation of the planned long-range transportation improvement, namely, the Buchanan Bypass. With the proposed 6-foot tall wall and opening of the Buchanan Bypass, the forecast Ldn is 59-65 dBA at the first-stories and 62-70 dBA at second-stories at Receptor Locations 7 and 8. At Receptor Location 9A, traffic on "B" Street is the principal noise source, and the height of the proposed sound wall along the Buchanan Bypass would not matter. The front yard Ldn at Receptor Location 9A is forecast to be approximately 62 dBA; however, backyard noise levels are forecast to be 60 dBA owing to the partial shielding provided by the houses and side yard fences. Therefore, mitigation measures would be warranted in the Buchanan Bypass corridor and along "B" Street in anticipation of implementation of the long-range transportation plan.	Developer shall provide for, pay the costs of, and implement the following on-site mitigation measure for outdoor noise: • Developer shall construct a taller sound wall than proposed, at least 8 feet in height. **Residual impact with mitigation at Receptor Location 7: LTS** An 8-foot tall sound wall could reduce the forecast noise at second stories by -9.5 dBA (-2 dBA incremental reduction compared to the proposed 6-foot wall), resulting in an outdoor Ldn of 56-60 dBA for first- and second-stories. **Residual impact with mitigation at Receptor Location 8: LTS** An 8-foot tall sound wall could reduce the forecast noise at second stories by -4.8 dBA (compared to no reduction provided by the proposed 6-foot tall wall), and could reduce forecast noise at the first-stories by -9.1 dBA (-2 dBA incremental reduction compared to the proposed 6-foot wall). The resulting Ldn would be of 61-65 dBA for first- and second-stories. Developer shall provide for, pay the costs of, and implement the following on-site mitigation measure for indoor noise: • Developer will install acoustic-rated windows, sliding glass doors or entryway doors, adequate to provide an interior noise level of 45 dBA, or lower. **Residual impact with mitigation: LTS**	Project Proponent	Wall mitigation measure shall be implemented by project proponent and confirmed by the Building Division prior to City's issuance of building permits. Acoustical analysis of proposed windows and doors in units on Lots 18, 29-37, 72, 234-237, 256, 259-262, and 297, shall be prepared by a qualified professional and shall be submitted at the time of application for Building Permit. Mitigation measure shall be confirmed by the Building Division prior to City's issuance of building permits for the proposed project. Acoustical engineer shall be paid by developer funds and report to the City.
IMPACT I11 **Receptor Location 8 (Lots 18, 29-37, and 72)** Located along the Buchanan Bypass corridor, Lots 18, 29-37, and 72 would experience an increase in day-night average noise level (Ldn) of +10 to +17 dBA with opening of the bypass. The Ldn would be 53 dBA before the opening, and after opening of the bypass the Ldn would be approximately 70 dBA (second-story) and 63 dBA (first-story). These forecasts are for the second-story and account for the presence of the proposed 6-foot tall sound wall. At the first-story level, the proposed sound wall would be relatively more effective and, after opening of the bypass, the Ldn would be 63 dBA.	On-site mitigation measure for outdoor noise: • Developer will increase the sound wall height to 8-feet. An 8-foot tall sound wall will reduce noise at the second-story level by approximately -4.8 dBA; therefore, increasing the wall height to 8 feet could provide an Ldn of 65 dBA at the second-story level and 61 dBA at the first-story level. **Residual impact with mitigation: LTS** Outdoor Ldn would exceed the 60 dBA compatibility criterion by 1-5 dBA. On-site mitigation measure for indoor noise: • The developer will disclose the noise forecast. For the specified lots, the developer will either 1) offer housing models having no second-story rear elevation exposures to the bypass, or else 2) provide acoustic-rated windows adequate to attain an interior Ldn of 45 dBA, or lower, for models having second-story rear elevation exposures. **Residual impact with mitigation: LTS** An interior Ldn of 45 dBA, or lower, will be achieved.	Project Proponent	Wall mitigation measure shall be implemented by project proponent and confirmed by the Building Division prior to City's issuance of building permits. Disclosures and floor plans/elevations shall be implemented by project proponent and confirmed by the Building Division prior to City's issuance of building permits.

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(Continued)

TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
IMPACT I12 **Lots 257 and 258** The siting of these two lots is problematic in terms of proximity to the proposed bypass and "B" Street, and the discontinuity of the proposed sound walls at the intersection of the bypass and "B" Street. Increasing the proposed wall height to 8-feet would provide a relatively minor incremental noise reduction compared to the reduction provided by the proposed 6-foot tall wall. The noise wall offset at "B" Street and grades of the proposed Buchanan Bypass in relation to pad elevations are constraining factors. With opening of the Buchanan Bypass, Lot 257 would experience an increase in average noise level (Ldn) of approximately +11 dBA, to 71 dBA (first-story). Lot 258 would experience an increase in average noise level (Ldn) of approximately +5 dBA, to 66 dBA (first-story). These are substantial increases, above the normally acceptable 60 dBA, but within the City of Pittsburg's conditionally acceptable range. This cumulative forecast accounts for the presence of proposed 6-foot tall sound walls east and west of "B" Street. Mitigation measures would be warranted specifically for Lots 257 and 258.	Developer shall provide for, pay the costs of, and implement the following on-site mitigation measure for outdoor noise: • The developer shall re-design proposed Lots 257 and 258 for location farther south from the proposed Buchanan Bypass and to extend a return wall segment south along "B" Street. Driver line-of-sight toward the west along the bypass could be maintained by realigning the proposed sound wall (western) with a taper from "B" Street to a suitable point in Parcel "A." Eastern and western ends of the two return walls then would match on opposite sides of "B" Street. **Residual impact with mitigation: LTS** An Ldn of 60-65 dBA could be achieved, depending on details of the re-design. Developer shall provide for, pay the costs of, and implement the following on-site mitigation measure for indoor noise: • Developer will install windows, sliding glass doors or entryway doors upgraded with acoustic-ratings adequate to provide an interior Ldn of 45 dBA, or lower, for the first- and second-stories of houses on Lots 257 and 258. **Residual impact with mitigation: LTS**	Project Proponent	Acoustical analysis of proposed return wall segment, and windows and doors in units on Lots 257 and 258 shall be prepared by a qualified professional and shall be submitted at the time of application for Building Permit. Design elements (e.g., return wall segment, acoustic-rated windows and doors) shall be implemented by project proponent and confirmed by the Building Division prior to City's issuance of building permits for houses on Lots 257 and 258.
IMPACT I13 **Receptor Location 9A (Lots 236, 237, 259 and 260)** Located next to "B" Street, and within the influence of noise from the Buchanan Bypass corridor, Sky Ranch II Lots 236, 237, 259, and 260 would experience an increase in day-night average noise level of +1 dBA with opening of the bypass. The Ldn would be 60 dBA before the opening of the Buchanan Bypass. After opening of the bypass, the Ldn would be approximately 61 dBA.	None warranted as ther projected increase is a LTS effect.	None	None
IMPACT I14 **Receptor Location 10** Located off-site along Westridge Court in Black Diamond Ranch, Receptor Location 10 would experience a permanent increase of +2 dBA in day-night average noise level (Ldn) would result with the Sky Ranch II project. With approved development, the proposed Sky Ranch II project, and opening of the Buchanan Bypass, the predicted Ldn at Receptor Location 10 would increase to 64 dBA (first-story) from 55 dBA without the bypass and from 53 dBA without the proposed project. At the second-story level, the forecast noise levels could be expected to be approximately 67 dBA after opening of the bypass.	Developer shall provide for, pay the costs of, and implement the following off-site mitigation measures: • A 6-foot tall sound wall or fence of overlapping boards shall be constructed generally at Lots 127-138 in Black Diamond Ranch. • At noise-exposed second stories, install acoustic-rated windows. **Residual impact with mitigation: LTS** With a wall or fence constructed adequately of overlapping boards, the noise reduction at the first-story level could readily be reduced to 60 dBA, or below, from 62 dBA without a fence. Installation of acoustic-rated windows could assure interior sound levels would be less than 45 dBA.	Project Proponent	The mitigation measures described above are outside the jurisdiction of the City of Pittsburg. However, the cities could cooperatively monitor implementation by the project proponent which is also the developer of Black Diamond Ranch.

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TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
V.J Air Quality			
IMPACT J1 Proposed project operations may include wood-burning which generates PM10 and PM2.5 emissions. Such emissions may cumulatively contribute to violation of the State of California ambient PM10 standard and federal ambient PM2.5 standard.	• Developer shall install natural gas-fired aesthetic fireplaces. City shall prohibit or severely restrict wood-burning in EPA-certified Phase II fireplace inserts, other EPA-certified Phase II appliances, or EPA-exempt pelletized-wood stoves. This restriction would be consistent with the City of Pittsburg's General Plan Policy 9-P-33. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT J2 During construction the proposed project will generate PM10 and PM2.5 emissions, and at times the areas of active grading will be close to existing or future houses in Black Diamond Ranch and Highlands Ranch. The following mitigation measures would reduce grading dust (PM10) by approximately 80 percent, but would not necessarily avoid dust nuisance under adverse conditions such as winds from the south or west.	• Developer shall perform active grading operations with watering at least 3 times per day including watering of any unpaved roads. • Developer shall limit off-road speeds to 15 mph on the project site. • Developer shall pave roads before deliveries of concrete or other construction materials are made to the lots. • Developer shall hydroseed or apply (non-toxic) soil stabilizer to inactive construction areas (previously graded areas inactive for ten days or more) or apply water daily. • Developer shall enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (soil, sand, cement, or aggregate materials.) • Developer shall install sandbags or other erosion control measures to prevent silt runoff to public roadways. • Developer shall replant suitable grassland vegetation in disturbed areas as soon as feasible. **Residual impact after mitigation: Significant, unavoidable.**	Project Proponent	
IMPACT J3 Even with the above mitigation measures, PM10 and PM2.5 emissions could create a dust nuisance if active grading is located within 500 feet of existing residences.	• Developer shall perform grading operations with more frequent watering than three time daily watering, including watering on demand to keep surface soil moist or crusted at all times. • Developer shall install and operate a temporary wind vane and anemometer during the grading. Developer shall suspend grading operations if adverse winds over 25 mph are blowing dust to any occupied residence. • Developer shall provide perimeter dust monitoring for grading operations within 500 feet of an occupied dwelling. Monitoring reports shall be prepared and submitted daily to the City's Engineering Department. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT J4 Even with the above mitigation measures, PM10 and PM2.5 diesel exhaust emissions would be emitted from the grading equipment at the annualized rate of 2.6 tons per year in the year of maximum cut and fill volume. Diesel soot is considered to be a Toxic Air Contaminant. The following additional mitigation measure, in conjunction with those measures listed above, would reduce diesel exhaust PM10 by approximately 2 tons per year in the year of maximum cut and fill volume.	• Developer shall require particle filters on diesel earthmoving equipment including excavators, earthmovers, and compactors. **Residual impact after mitigation: LTS**	Project Proponent	

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TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
IMPACT J5 Proposed project grading will include deep excavations to bedrock. Though serpentine, or other forms of naturally-occurring asbestos are not known to be present on the project site, application for exemption from the BAAQMD or compliance with dust control provisions of Section 93105 is required. The State of California Code of Regulations, Title 17, Section 93105, is an Asbestos Air Toxic Control Measures (ATCMs) to minimize or avoid naturally-occurring asbestos in grading dust.	• Developer shall comply with Asbestos ATCMs or exemption from the BAAQMD. • When applying for a general exemption from the ATCM via a geologic exemption, the developer shall contact the BAAQMD prior to submitting an exemption application. By doing so, the developer and the District will be able to discuss all of the information the District needs to consider the exemption request and ensure that a complete application is submitted. Failure to contact the District prior to submitting an exemption application may result in delays in processing the exemption request. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT J6 The proposed project will generate ROG that cumulatively, with other residential development and industrial sources, may contribute to a violation of the federal 8-hour and State of California 1-hour ambient ozone standards. The majority of the project's ROG emissions would originate from vehicular exhaust, area sources (e.g., space heating) in winter, and temporary construction sources in summer. Mitigation measures focus on reduction of ROG emissions from sources emitting ROG during the summer and fall ozone season.	• Developer shall design and construct garages with electrical hookups for recharging electric-powered or hybrid vehicles. Assure compliance at the time of Design Review, Plan Check, and Building Inspection. • Developer shall require and employ architectural coatings with reduced-VOC (5 percent reduction in emission of ROG from painting). Assure this at the time of Design Review, Plan Check, and Building Inspection. • Developer shall include as mandatory provisions of the CC&Rs restrictions to reduce on-site handling of gasoline. City shall require this as a condition of approval. • Developer shall encourage homebuyers to use push-reel or electric-powered lawn mowers through dissemination of air/water pollution information pamphlets. CC&Rs shall prohibit on-site refueling of vehicles or storage of gasoline in excess of 1-gallon. **Residual impact after mitigation: LTS**	Project Proponent	
V.K Public Health & Safety			
IMPACT K1 The proposed project potentially could expose residents and houses on "D" Street, "D" Court, and "C" Court to wildland fire risk on the Urban Wildland Interface.	• Developer shall include emergency service provisions on the recommended Zone III/IV reservoir service road. Such provisions include suitable driving surface, grade and turnaround for fire engines and hydrants. • Developer shall provide access to open space at the site's perimeter. To accommodate this access the developer shall provide additional EVAs at locations to be selected by the Contra Costa County Fire Protection District and City Engineering. One EVA location selected by CCCFPD is Lot 191 connecting to Markley Creek Drive in Black Diamond Ranch. • Developer shall disclose the Natural Hazard Disclosure (Fire) Map to home buyers, along with public information including PRC 4291 and/or landscape, defensible space, and fuel break requirements equivalent in content. **Residual impact after mitigation: LTS**	Project Proponent	

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(Continued)

TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
IMPACT K2 Proposed lot sizes and locations of Lots 89, 91, 104, 138-141, and 181-190 could place the future owners of these particular lots in a position of depending on adjoining land owners (currently, AUSD and Thomas) to comply with PRC 4291 on the "other side" of their property lines. If AUSD and Thomas failed to provide fuel breaks, the defensible spaces on proposed Lots 89, 91, 104, 138-141, and 181-190 would be limited to the distances from backs of houses to the backs property lines.	• Developer avoid siting the smallest-sized lots along the UWI. • In place of "C" Court, which is proposed as a double-loaded street, re-design "C" Court as a single-load street with Lots 176-180 along its north side and tennis courts, picnic area, or a tot park on its south side. The concept eliminates proposed Lots 181-190. With or without re-design and realignment of "C" Court, the available park space would be approximately 1.2 to 2.0 acres depending on the design and alignment. If "C" Court is re-designed or realigned, the size of Lots 176-180 could be increased. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT K3 The proposed project potentially could expose residents and houses to additional fire risk as response distance and time from the nearest CCCFPD fire stations exceeds 1.5 miles or 5 minutes.	• Developer shall construct all residences with residential fire sprinklers. Installation shall be as per NFPA #13D with the addition of sprinklers in the attics, garages, bathrooms, and closets. A four (4) head hydraulic calculation shall be used. • Developer shall construct all roofs with Class A rated roof assemblies. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT K4 The proposed project could expose residents of the project site to EMF locally near the existing power transmission lines.	• Developer shall avoid new development within the 2 milli-Gauss (mG) radius of influence. This will be accomplished by building setbacks. The 2 mG radius of influence shall be determined based upon modeling or measurement, or a combination of the two. In no case shall horizontal setbacks less than 100 feet be approved by the City. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT K5 Proposed Lot 76, proposed Lot 304-306, and proposed Lot 228-233 may have fill or fill slopes that encroach horizontally and vertically into PG&E's easement. This could be acceptable only if the 30-foot ground clearance standard is met.	• Developer shall comply with General Order 95 (30-feet ground clearance) by performing grading in a manner that preserves continuously a minimum of 30 feet from the ground to the power lines. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT K6 The easternmost power transmission towers in the back of proposed Lots 229 and 244 potentially could be rendered inaccessible.	• Developer shall provided access from "B" Street and avoid cross-fencing of the easement to permit unimpeded service access at all times. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT K7 Physical and visual access to the petroleum product pipeline easement potentially could be impaired by introduction of fences, dwellings, and landscaping. Physical and visual access are necessary for routine inspection, emergency response, and overall public safety.	• Developer shall modify lot lines of proposed Lot 77 and proposed Lots 228-233, 236, 260, 305-306, 309, 342-343, and 378, to avoid cross-fencing of the petroleum pipeline easement and preserve unimpaired physical and visual access. • Developer shall identify a relocation site for the relocated Zone II water reservoir near the end of "A" Court, in such a manner as to preserve physical and visual access to the petroleum product pipeline. **Residual impact after mitigation: LTS**	Project Proponent	

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(Continued)

TABLE 2. SUMMARY OF POTENTIAL IMPACTS & MITIGATION MEASURES FOR THE SKY RANCH II RESIDENTIAL DEVELOPMENT

Impact	Mitigation Measures	Action by	Notes
IMPACT K8 The petroleum product pipeline is a multi-purpose pipeline that may at times carry diesel, jet fuel, or gasoline. Upset conditions involving leakage and rupture by inadvertent act of a contractor or private landowner are reasonably foreseeable upset conditions. The pipeline easement and downslope area adjoining the pipeline easement would be best preserved as a buffer, outside of private back yards.	• Developer shall preserve the PG&E and Kinder Morgan Energy Partners easements outside of private lots. Infrastructure that overlaps the easements, such as the detention basin, water reservoir, "B" Street and "D" Street, common or parking areas, or a future trail, could be acceptable within the easement provided such infrastructure does not impair physical and visual access to the pipeline. • Developer shall provide suitable disclosures of the presence of the petroleum product pipeline to future buyers of lots within a specified distance of the pipeline, including all lots located downslope of the pipeline and additional lots to be determined by City staff. **Residual impact after mitigation: LTS**	Project Proponent	
IMPACT K9 Construction grading on the proposed project could expose nearby off-site residents to Toxic Air Contaminants including diesel exhaust.	• Developer shall require diesel exhaust particle filters on heavy grading equipment as described in Chapter V. J. **Residual impact after mitigation: LTS**	Project Proponent	
V.L Cultural Resources			
IMPACT L1 The project site is in a low sensitivity zone and the potential for encountering archaeological resources is considered low. In the event any cultural materials are encountered during subsurface grading, the following measure will be implemented by the developer.	• Upon discovery the grading contractor shall halt grading within a radius of 50 feet of the find and will call the Chief of Planning, a qualified archaeologist and the Native American Heritage Commission (or local California Indian). • Developer shall notify the Chief of Planning and Native American heritage Commission within 24 hours if any potentially significant cultural materials are encountered by the archaeologist. • Following examination of the find, the archaeologist will examine the find and make appropriate recommendations regarding the significance of the find and the appropriate mitigation. Recommendations could include collection, recordation and analysis of any significant cultural materials. A Report of Findings prepared by the archaeologist, documenting any data recovered during his/her monitoring, would be submitted to the City Planning Department on a monthly basis. **Residual impact after mitigation: LTS**	Project Proponent	Implementation of these procedures by Project Proponent shall be assured by the City as a condition of project approval and of the Grading Permit.
IMPACT L2 The project site is in a low sensitivity zone and the potential for encountering human skeletal remains is considered low. In the event any human skeletal remains are encountered during subsurface grading, the following measure will be implemented.	• In the event that human skeletal remains are encountered, the contractor shall immediately halt excavation or disturbance of the burial site or any nearby area reasonably suspected to overlie adjacent human remains and notify the County Coroner and Director of Planning. Excavation or disturbance shall remain suspended until the investigation of the County Coroner has been completed and recommendations of the coroner have been completely implemented including the conditional procedures outlined on the following page. **Residual impact after mitigation: LTS**	Project Proponent	Implementation of these procedures by Project Proponent shall be assured by the City as a condition of project approval and of the Grading Permit.

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(Continued)

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Impact	Mitigation Measures	Action by	Notes
V.L Cultural Resources			
IMPACT L2 ***(Continued)***	• Upon determination by the County Coroner that the remains are Native American, the coroner shall contact the California Native American Heritage Commission, pursuant to subdivision (c) of section 7050.5 of the Health and Safety Code and the County Coordinator of Indian Affairs. No further disturbance of the site may be made except as authorized by the County Coordinator of Indian Affairs in accordance with the provisions of State law and the Health and Safety Code. • The developer shall provide recommendations and appropriate mitigation measures prepared by a qualified archaeologist to the Director of Planning. The Director of Planning will ensure that a mitigation program, in conformance with measures recommended by the archaeologist, will be implemented during construction. **Residual impact after mitigation: LTS**	Project Proponent	

NOTES:

LTS Less-Than-Significant

S = Significant

SU = Significant Unavoidable

JPA = Joint Powers Authority

HOA = Homeowners' Association

II. REGIONAL AND LOCAL SETTING

The project site is located in the Carquinez Strait region in an unincorporated part of eastern Contra Costa County, within the San Francisco Bay Area (see Figure 1). The site has highway access from State Route 4 and its interchanges with Railroad Avenue, Harbor Street, California Avenue or Loveridge Road, and Somersville Road. The City of Pittsburg has public mass transportation access by Bay Area Rapid Transit (BART). Currently, BART service extends east to Bailey Road, Pittsburg's Bay Point/BART Station, but not east to Antioch.

The site is located within an urbanized region that includes portions of the East Bay cities of Concord and Martinez to the west, the City of Pittsburg, and the City of Antioch to the east. The area directly south and southeast of the project site is outside the current Urban Limit Line adopted by Contra Costa County and includes the Black Diamond Mines Regional Preserve.

City of Pittsburg
65 Civic Avenue
Pittsburg, CA 94656

No Scale

FIGURE 1
Regional Setting of the Proposed Project

The Black Diamond Mines Regional Preserve is located approximately 0.5 mile south of the project site. East Bay Regional Park District began acquiring land for the Black Diamond Mines Regional Preserve in the early 1970s and today owns approximately 5,985 acres. The preserve land contains diverse historical resources, natural habitat, and hiking trails with scenic vistas of the Carquinez Strait, Sacramento River Delta, and the urbanized bay plain.

The project site is part of the territory within the regional jurisdictions of the Association of Bay Area Governments, the Metropolitan Transportation Commission, Bay Area Rapid Transit District, the Regional Water Quality

Control Board - San Francisco Bay Region, Bay Area Air Quality Management District, and the California Department of Transportation (Caltrans). These regional agencies have adopted plans and programs, or have implemented and enforced state-mandated programs and regulations that affect the environmental quality of the region's air resources, water resources, and transportation systems. The Bay Area Air Quality Management District has developed and adopted an Air Quality Attainment Plan to achieve and maintain federal and State of California ambient air quality standards.

The project site also is part of the territory that called the "Inventory Area" and "Permit Area" of the proposed East Contra Costa County Habitat Conservation Plan/Natural Communities Conservation Plan (HCP/NCCP). The HCP/NCCP proponent is a consortium of local governments known collectively as the East Contra Costa Habitat Conservation Plan Joint Powers Association. A Draft HCP/NCCP has been circulated, and environmental review, finalization, and approval by the responsible resource agencies, U.S. Fish & Wildlife Service, U.S. Army Corps of Engineers, and California Department of Fish and Game, remains to be completed. As a draft, the HCP/NCCP has no current effect. Implementation by an Implementing Entity is not expected until 2006.

Measure J and Measure P

On November 2, 2004, 71 percent of Contra Costa County voters approved Measure J, which provides for the renewal of the County's half-cent transportation sales tax for 25 more years. Measure J approval assures funding for the 4th bore for the Caldecott Tunnel and the widening of the Route 4 East freeway. Measure J also provides for a Growth Management Program with a voter-approved urban growth boundary. In each city jurisdiction, the County Urban Limit Line (ULL) must be in place for the city to receive funding from Measure J.

In Pittsburg, Measure P was recently approved by the voters, which amends the ULL (2000) and adopts pre-zoning of certain lands within the new ULL (2005). The proposal approved by voters in November 2005 added certain land south of the current ULL (2000) directly west of the project site. In the vicinity of the project site, portions of the Buchanan, Black Diamond, and Woodlands Planning Subareas were added to the area within the ULL. The Thomas parcel, which adjoins the project site on the west, and the land directly west thereof, were added up to and including a portion of the Woodlands Planning Subarea. This addition, which generally includes the land adjacent to the Buchanan Bypass, is estimated to consist of a total of 880 acres, most of which is prezoned as Open Space and a smaller portion of which as Hillside Planned District.

Consistency with Growth Management Element
The proposed project must meet the performance standards of the Growth Management Element, Chapter 3, of the *General Plan*. The Growth Management Element contains traffic levels of service standards keyed to land use character, and performance standards for facilities such as fire, police, parks, sanitary sewer facilities, water service, flood control, and schools. The Growth Management Element policy for all public facilities condition approval of new development on meeting at least one of the following criteria:

a) Adopted performance standards (*e.g.*, roadway LOS) will be maintained after project implementation and occupancy;

b) Capital projects in the City's Five-Year Capital Improvement Plan, or else planned by special districts, would ensure maintenance of adopted performance standards after project implementation and occupancy; or,

c) Project-specific mitigation measures that ensure maintenance of adopted performance standards will be required as conditions of project approval.

The City's performance standards are contained in Chapter 3 of its *General Plan.* Assessment of project impacts relative to Growth Management Element performance standards is discussed in Chapter V of this EIR: Chapter V.C (Hydrology and Water Quality; Chapter V.H (Traffic & Circulation); and. Chapter V.G (Community Services & Utilities).

Neighborhood and Vicinity
The Proposed Site is south of State Highway 4 and east of Railroad Avenue or Kirker Pass Road, in the southeastern corner of the City's Planning Area and within the Urban Limit Line (ULL). The neighborhood of the project site is residential, partially framed by residential subdivisions to the northwest, north (Highlands Ranch), and east (Black Diamond Ranch) in the City of Antioch. To the west is the Thomas parcel, currently undeveloped and inside the new votore-approved ULL (2005). To the northeast is an area called Meadow Lands, a future residential site in the City of Antioch (see Figure 2,next page).

The City's southern hills extend south beyond the project site, increasing in elevation from generally lower than 500 feet msl on the project site to over 800 feet msl in the area of Black Diamond Mines Regional Preserve. The hills form a continuous scenic backdrop that, according to the City's *General Plan*, lends Pittsburg a sense of character in conjunction with another identifying feature, the Suisun Bay/Sacramento River Delta.

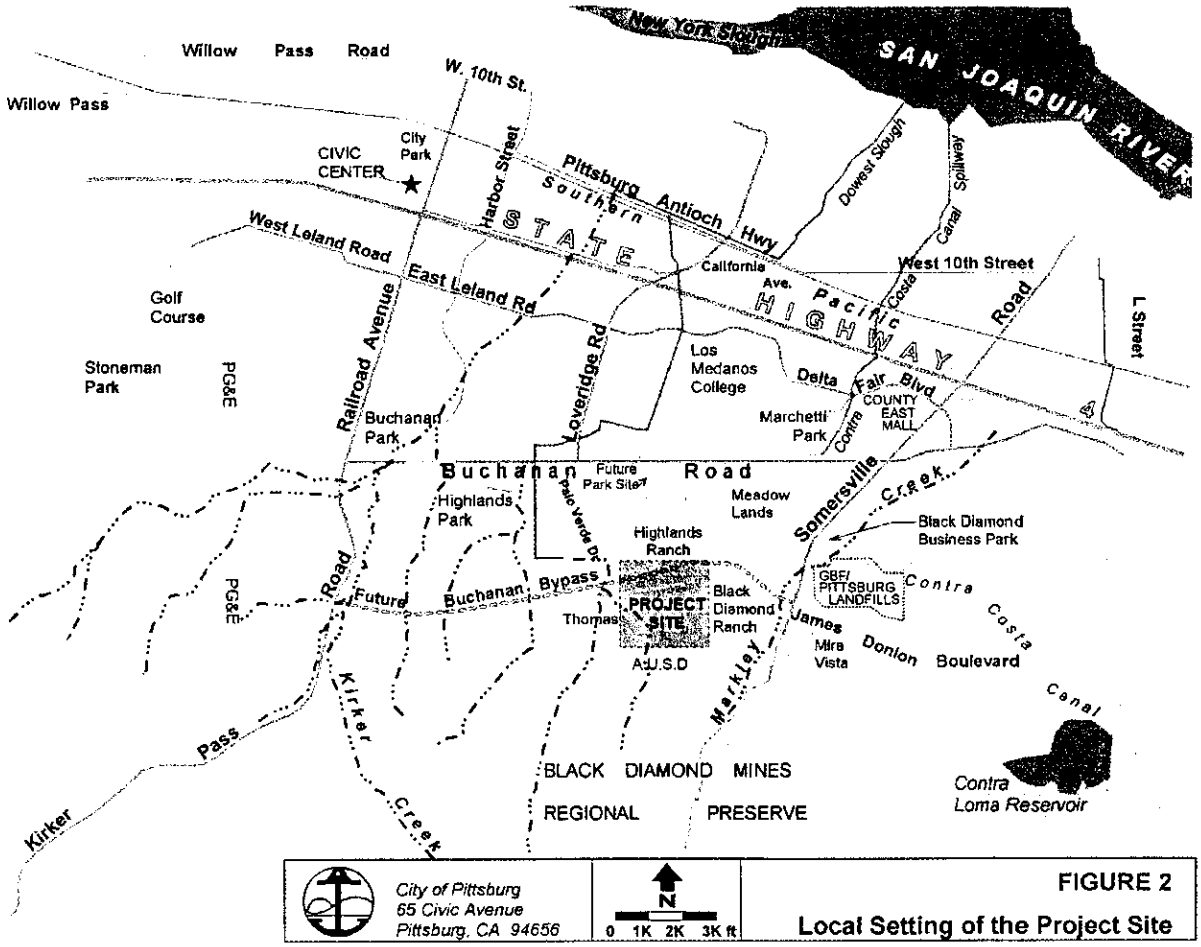


FIGURE 2
Local Setting of the Project Site

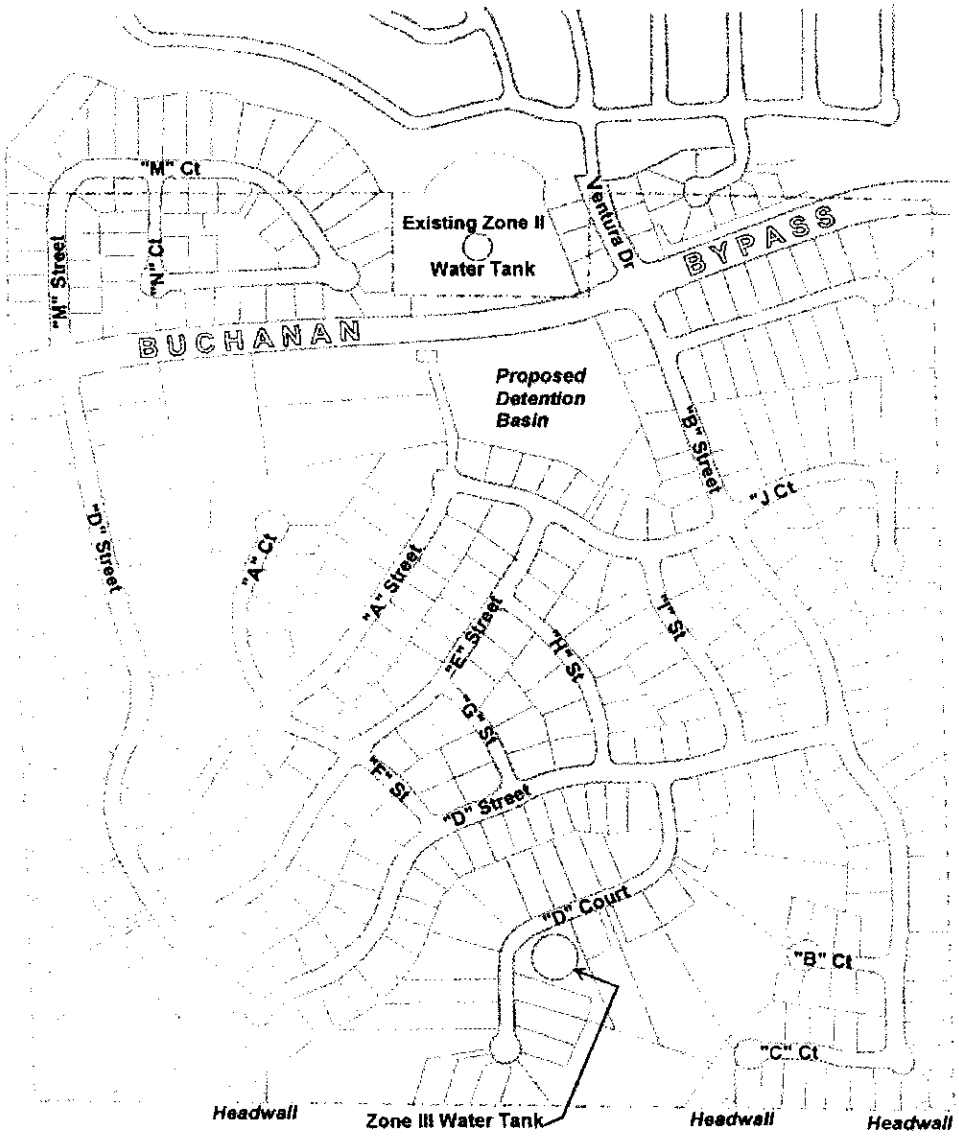
Existing single-family residential subdivisions are located north and south along Buchanan Road, from Railroad Avenue to Meadows Avenue. Buchanan Road is a 2-lane road that provides the sole east-west traffic flow through the southern portion of the City, between Railroad Avenue on the west and Somersville Road, in Antioch, on the east.

Noteworthy utilities in the neighborhood include above-ground power transmission lines, which transect the project site and the Contra Costa Canal located generally north of Buchanan Road, and a Kinder Morgan Energy Partners petroleum product pipeline, whose easement adjoins the Pacific Gas & Electric (PG & E) power line easement. On the project site, the PG & E facilities include several above-ground transmission lines and three towers, all located within an easement that is 100 feet wide. The adjoining petroleum product pipeline is 10 feet wide and includes the multipurpose underground fuel pipeline.

III. DESCRIPTION OF THE PROPOSED PROJECT

Proposed Project (Alternative 2)

As proposed the proposed project consists of 163 acres subdivided for development of single-family housing on 415 lots. The project site is located approximately two miles south of State Highway 4 (see Figure 3).



City of Pittsburg
65 Civic Avenue
Pittsburg, CA 94656

N

0 200 400 ft

FIGURE 3

Proposed Sky Ranch II Subdivision

Water Utilities—The project includes construction of one water reservoir of 2 million gallon capacity. This reservoir would be constructed on the project site at a location proposed near elevation 465 feet above msl. This proposed location is near the southern end of the project site.

Stormwater Collection & Conveyance—The project includes conventional curbs, gutters, and sidewalks, with catch basins and underground piping to collect and convey storm water to appropriate outlets. Storm water from approximately 80 acres of the site would be conveyed to a proposed 4.03 acre detention basin to be constructed within the project site. The proposed detention basin is located near the southwest corner of the main access road (Ventura Drive extension and "B" Street) and the proposed right-of-way dedication for the Buchanan Bypass. Storm water from other portions of the site would be conveyed east to the collection system in Black Diamond Ranch, west to an outfall at an intermittent stream, or north to the existing collection system and detention basin in Highlands Ranch.

Buchanan Bypass—The project includes construction of the Buchanan Bypass within the limits of the project site. Goal 2-G-25 and Policy 2-P-73 of the General Plan call for construction of the Buchanan Bypass as an alternative route for commuters traveling from Kirker Pass Road to destinations east of Pittsburg. The Buchanan Bypass is identified in *Pittsburg 2020: A Vision for the 21st Century* and *1997 Traffic Mitigation Fee Study* as a planned transportation facility to be funded by traffic mitigation fees. It is also identified as Project ST-4 and ST-36 in the City's current *Five-Year Capital Improvement Plan.* In the *Five-Year Capital Improvement Plan* the Buchanan Bypass is indicated as a 2-lane artery with a estimated design and construction cost of $56 million.

The proposed segment of the Buchanan Bypass within the boundaries of the project site would be constructed as a 4-lane artery with a median divider. It would remain closed to through-traffic at the eastern and western termini until completion of the entire bypass is completed west to Kirker Pass Road. In the interim, project-related traffic would use Ventura Drive through Highlands Ranch to Buchanan Road. There would be secondary access via "D" Street. At the intersection of "D" Street and the Buchanan Bypass, turning movements would be restricted to right-turns in and right-turns out as the proposed Buchanan Bypass would have a raised median divider there.

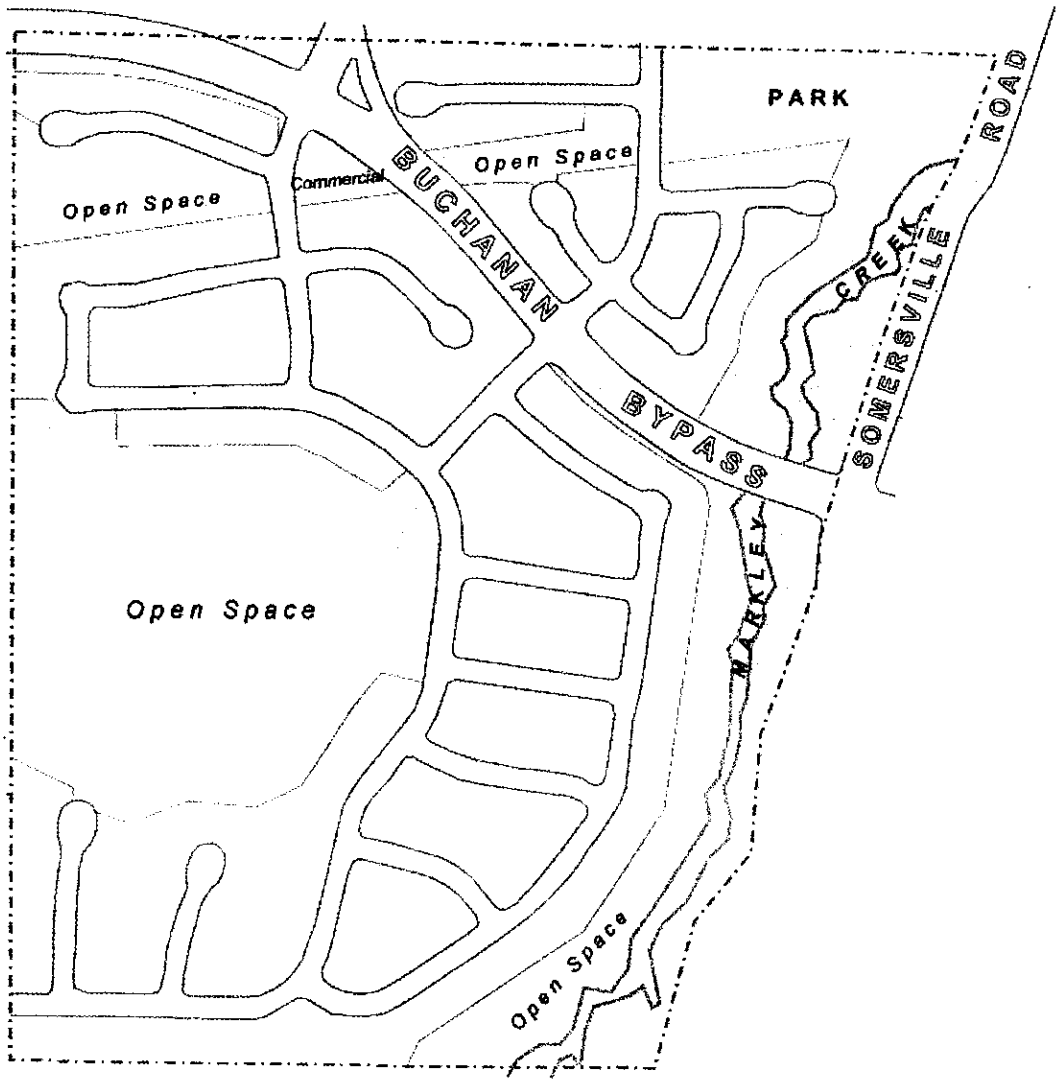
Minimum Lot Size— The minimum lot size, 8,000 square feet, is consistent with the RS Zoning District requirement. Lots are varied in size, averaging 14,500 square feet with a maximum lot size of 125,520 square feet (Lot 379). Lots of larger or smaller sizes are interspersed throughout the project site. There is no apparent pattern of larger lot sizes at higher elevations.

A number of lots shown on the Vesting Tentative Map are flag lots. There are twenty flag lots proposed within the project. A flag lot consists of a rectangular or irregular "flag" and a driveway or easement "stem" for access. Flag lots include Lots 89, 91, 92, 95, 96, 99, 100, 103, 104, 147, 148, 151, 152, 154, 160, 190, 190, 221, 222, and 301. Some of these are in tandem with smaller sized lots having conventional street frontage.

Access to the Proposed Site—Access to the project site would be via Buchanan Road and Ventura Drive. Pending completion and opening of the Buchanan Bypass to through-traffic between Kirker Pass Road and Somersville Road, the bypass would be closed by barricades at both ends. Some eastbound project-generated traffic may use Meadows Avenue in place of Ventura Drive, thereby avoiding the segment of Ventura Drive between Buchanan Road and Meadows Avenue. Minor project-generated traffic is expected to use Jensen Drive for access to Foothill Elementary School, none of which would be PM peak hour traffic.

Directly east of the project site, in the City of Antioch, is the approved Black Diamond Ranch residential subdivision, which is not to be confused with Black Diamond Mines Regional Preserve (see Figure 2, page II-47, and Figure 4, next page). Though a segment of the Buchanan Bypass is being constructed within the limits of Black Diamond Ranch, the bypass segments within the proposed project and the adjoining Black Diamond Ranch subdivision would not be connected until the bypass is opened to through-traffic for its entire planned length from Kirker Pass Road to Somerville Road. Residential streets within the two subdivisions also would not be connected.

Required Zoning and Other Actions—The proposed project requires City action to pre-zone the site to RS District to allow the development of the 415 single-family houses. The proposed density (2.55 du/gross acre) is consistent with the City of Pittsburg's *General Plan* residential land use designation and density (1-7 du/gross acre). The proposed project also requires annexation of the two parcels, APN 089-050-067 and APN 089-050-042, containing approximately 156 acres, into the City of Pittsburg.



City of Pittsburg
65 Civic Avenue
Pittsburg, CA 94656

N
0 200 400 ft

FIGURE 4
Black Diamond Ranch Subdivision

The project site currently is outside the service boundary of the Contra Costa Water District (CCWD). Annexation to CCWD would be processed as a boundary reorganization requiring approval of the Local Agency Formation Commission (LAFCo). CCWD would issue a "Will Serve" Letter to the City of Pittsburg in accordance with CCWD Code of Regulations 5.04.120. The provision of water service to annexed land is governed by this regulation, whether

by request directly to the CCWD or by application to LAFCo. Confirmation Letter issuance is contingent on 1) the applicant's compliance with Section 7 or 10 of the federal Endangered Species Act (written clearance or permit from U.S. Fish and Wildlife) and 2) U.S. Bureau of Reclamation's approval of the inclusion application submitted by CCWD. Evidence of Section 7 or 10 compliance must be submitted to CCWD prior to its submittal of the inclusion application.

IV. APPLICABLE PLANS & POLICIES

City of Pittsburg Plans & Policies

Applicable plans and policies of the City of Pittsburg are identified and discussed in Chapter V, and summarized herein. The proposed project is subject directly or indirectly to the provisions or influence of the following plans and policies:

- *General Plan* (2001) with amendments through December 2004
- Goals and policies for the Buchanan Planning Sub-Area as presented in the *General Plan's Land Use Element*
- Design Review (Policy 4-P-81)
- Pittsburg Municipal Code, Title 15 and Chapter 15.88 – *Grading, Erosion, and Sediment Control*
- City of Pittsburg *Zoning Ordinance* (Title 18 of Municipal Code)
- *5-Year Capital Improvement Plan 2004/5-2008/9*
- *2000 Urban Water Management Plan*
- Pittsburg Municipal Code, Chapter 15.104 – *Storm Water Management Plan for Kirker Creek Watershed Drainage Area.*
- *Wastewater Collection System Master Plan* (2002)
- *Parks Recreation and Open Space Master Plan*

Applicable planning goals, policies, and land use designations for the project site, and for the adjoining areas north south and west thereof, are set forth in the City of Pittsburg's *General Plan.* Areas east of the site, including Black Diamond Ranch and Meadow Lands are within the jurisdiction of the City of Antioch.
The project site is located in the Buchanan Planning Subarea. Goals and policies for this planning sub-area are provided in the City of Pittsburg's General Plan. The City of Pittsburg's General Plan also includes urban design and "Urban Edge" goals and policies. The urban edge refers to development at the limit of the City's incorporated area, for example, at the southern perimeter of the City adjacent to open space.

Though the project site is subject to the City of Pittsburg's *General Plan* goals and policies, it is not included in a specific plan or redevelopment plan. The project site does not contain farm land of local regional importance, does not contain USFWS-designated critical habitat, and is not located in an Alquist-Priolo earthquake fault hazard zone or 100-year flood zone.

Growth Management Element

The City of Pittsburg's *Growth Management Element* is contained within its *General Plan,* Chapter 3. The *Growth Management Element* is a blueprint for orderly growth in a manner that maintains defined service levels, not only for streets but also for community services (i.e., fire and police

response), utilities (i.e., sanitary sewer, storm sewer and water), parks and schools.

The proposed project must meet the performance standards of the *Growth Management Element* by satisfying at least one of the following criteria:

a) Adopted performance standards (*e.g.*, intersection LOS) will be maintained after project implementation and occupancy;

b) Capital projects in the City's Five-Year Capital Improvement Plan, or else planned by special districts, would ensure maintenance of adopted performance standards after project implementation and occupancy; or,

c) Project-specific mitigation measures that ensure maintenance of adopted performance standards will be required as conditions of project approval.

Applicable Plans & Policies of Others Having Jurisdiction

Applicable plans and policies of other agencies having jurisdiction over the project site are identified and discussed in Chapter V, and listed herein. Selected applicable plans also are summarized on the following pages. The proposed project is subject directly or indirectly to the provisions or influence of the following plans and policies:

- Bay Area Air Quality Management District, *Bay Area 2000 Clean Air Plan, 2001 Ozone Attainment Plan,* and *Bay Area Ozone Strategy*
- Contra Costa County, Measures E and J (2004)
- Contra Costa County, *7-Year Capital Improvement Program* (December 17, 2003), for the *2003 Update to the Contra Costa Congestion Management Plan*
- Contra Costa Transportation Authority (CCTA), *2004 Update to the Contra Costa Countywide Transportation Plan*
- Contra Costa Resource Conservation District (RCD), *Kirker Creek Watershed Management Plan* (January 2004)
- Contra Costa Clean Water Program, *Storm Water Management Plan* (1999)
- Contra Costa County *Countywide NPDES Municipal Storm Water Permit*
- Contra Costa County, *Countywide Integrated Waste Management Plan* (CoIWMP) and *Source Reduction and Recycling Element* (SRRE)
- Contra Costa Water District, *Future Water Supply Study* (1996)

- Delta Diablo Sanitation District, *Treatment Plant Master Plan* (2003) and *Conveyance System Master Plan* (2004)
- Joint Powers Association (JPA), *East Contra Costa County Habitat Conservation Plan/Natural Communities Conservation Plan* (pending potential approval and implementation, projected 2006)
- TRANSPLAN Committee, *East County Action Plan* (1997)
- U.S. EPA, *Clean Air Rules*, 2004

Measure J and Measure P – Mutually Agreed Upon Urban Limit Line
On November 2, 2004, 71 percent of Contra Costa County voters approved Measure J, which provides for the renewal of the County's half-cent transportation sales tax for 25 more years. Measure J approval assures funding for the 4th bore for the Caldecott Tunnel and the widening of the Route 4 East freeway. Measure J also provides for a Growth Management Program with a voter-approved urban growth boundary. In each city jurisdiction, the ULL must be in place for the city to receive funding from the measure. Measure P for creation of modified ULL was presented to voters in November 2005 and was approved. In Pittsburg, the voter-approved ULL was moved southward in the vicinity directly west of the project site.

Measure E—School Bond
Approved by 78 percent of voters in November 2004, Measure E is a $40.5 million school bond measure that will finance construction of a new elementary school and a new junior high school within the Pittsburg Unified School District.

Contra Costa Countywide NPDES Municipal Storm Water Permit
Federal regulations for storm water runoff discharges were issued by the U.S. EPA on November 16, 1990 pursuant to Section 402 (p) of the Clean Water Act. Locally, the regulations require National Pollutant Discharge Elimination System (NPDES) permits for runoff generated from construction, maintenance and operation of projects that discharge through storm sewer systems or tributary streams. An NPDES permit, issued jointly to the municipalities of Contra Costa County, regulates storm water runoff in the Kirker Creek watershed. This Permit derives its jurisdiction from the Clean Water Act; therefore, its objective is to minimize storm water pollution as opposed to volume, rate, or duration of runoff.

The current NPDES permit is implemented through the City of Pittsburg and Contra Costa Clean Water Program Storm Water Management Plans. Under the Permit as amended (tentative order), certain development projects must ensure that "...post-project runoff does not exceed estimated pre-project rates and/or durations, if increased storm water discharge rates

and/or durations would result in increased potential for erosion or other adverse impacts to beneficial water uses."

Contra Costa Water District

Implementation of the proposed project would require inclusion in the Central Valley Water Project, which is a federally owned water conveyance suystem. The Cotra Costa County Water Distrcit is the inclusion applixcatn to the U.S. Bureau of Reclamation. Inclusion requires evidence of Section 7 or Section 10 Endangered Species Act (ESA) consultation and permit. CCWD has responded to the Notice of preparation, stating that the applicant must submit a Section 7 or Section 10(a) permit from USFWS.

East Contra Costa County Habitat Conservation Plan

The East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan (HCP/NCCP) is under development by a Joint Powers Association (JPA). A Preliminary Draft Conservation Strategy was published in January 2003. A Notice of Intent and Notice of Preparation to prepare a joint EIS/EIR were circulated on June 5, 2003 (Federal Register / Vol. 68, No. 108 / Thursday) and June 30, 2003, and by the JPA and U.S. Fish & Wildlife Service (USFWS). Potential approval and implementation are possible by 2006. Additional details are provided in the Chapter V.A.

East County Action Plan

Buchanan Road is designated as a route of regional significance by the Transportation Planning Committee for the eastern Contra Costa County area (TRANSPLAN Committee). The adopted level of service goal for the intersections within the Buchanan Road corridor is mid-range LOS "D," which is 0.85 volume to capacity or lower. The adopted delay index goal for the Buchanan Road corridor is 2.0, meaning that travel time during the AM or PM periods should not exceed twice the travel time during off-peak periods.

Clean Air Rules of 2004

These rules, signed into law on May 11, 2004, by President George W. Bush, include provisions for non-road diesel exhaust. The U.S. EPA is implementing a comprehensive national program to reduce emissions from non-road diesel engines by 90 percent and reduce fuel sulfur content. The new emission standards apply to diesel engines used in most kinds of construction, agricultural, and industrial equipment. Because the emission control devices can be damaged by sulfur, U.S. EPA also will reduce the allowable level of sulfur in non-road diesel fuel by more than 99 percent.

V. AFFECTED ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATION MEASURES

A. BIOLOGY AND WETLANDS

SETTING

The disturbed annual grassland habitats on site support a variety of wildlife species. The site is almost entirely annual grassland, with sparse individual trees including California buckeye (*Aesculus californica*) and Fremont's cottonwoods (*Populus frenontii*) along the site's southern boundary. The southwestern corner of the project site has very steep terrain that supports a remnant of a chaparral shrub community, marked by silver bush lupine (*Lupinus albifrons*), deltoid balsom-root (*Balsamorhiza deltoidea*), prickly coyote-thistle (*Eryngium armatum*), cupped monolopia (*Monolopia grandiflora*), pale western larkspur (*Delphinium hesperium* ssp. *pallescens*), and native grasses including purple needlegrass (*Nasella pulchra*) and California melic (*Melica californica*). Cattle grazing is less intense in the southwestern corner than elsewhere on the site owing to the steepness of the terrain.

Botanical field surveys were conducted on March 18, April 14, and July 12, 2004. Vegetation community types discussed here and in the *Biological Assessment*, a separately-bound document which is Appendix D to the EIR, considered vegetation community types based on 1) *California Wildlife Habitat Relationships*, 2) *List of Natural Communities Recognized by the California Natural Diversity Data Base*, and 3) *Classification System for Wetland and Deepwater Habitats*. The project site contains one major habitat type: annual grassland (nearly 100 percent or 163 acres). According to the CNDDB this habitat is classified as California Annual Grassland. Wetland or chaparral shrub comprise well less than 1 acre (0.3 percent) of the site's acreage.

There are limited nesting and roosting sites for birds. Species of birds that could be present at the site are those adapted to grassland habitat or that could utilize these few trees including flycatchers, woodpeckers, warblers and finches. The vast grasslands provide foraging areas for species of mammals, reptiles, amphibians, and birds. Intermittent and ephemeral streams include the presence of water on a seasonal basis, and may serve as migration and movement corridors for wildlife.

Avian species found during a site-specific field reconnaissance conducted by The Huffman-Broadway Group, Inc., in October of 2004 included turkey vulture, red-tailed hawk, American kestrel, prairie falcon, rock dove, mourning dove, Say's phoebe, western bluebird, loggerhead shrike, northern mockingbird, savannah sparrow, western meadowlark and red-winged blackbird. Additional wintering

birds observed by WRA during surveys conducted in December 2001 included American pipit and California horned lark.

Reptiles and amphibians documented during the October 2004 survey included western fence lizard. Mammals documented at the site in spring 2004 included Botta's pocket gopher (*Thomomys bottae*). Black-tailed jackrabbit (*Lepus californicus*) was observed in October 2004. Additional mammals documented by WRA in December 2001 included deer (*Odocoileus hemionus*) and coyote (*Canis latrans*).

Other mammals expected to use or move across the project site include bobcat, broad-footed mole (*scapanus latimanus*), gray fox (*urocyon cinereoargenteus*), red fox (*Vulpes fulva*), opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), San Joaquin kit fox (*Vulpes macrotis mutica*), striped skunk (*Mephitis mephitis*), and others. The project site is not a nursery site for native wildlife or critical habitat link for larger ranging mammals such as deer, coyote, or mountain lion.

East Contra Costa County HCP/NCCP

The project site is part of the area whose habitats and species recently have been inventoried for the proposed East Contra Costa County Habitat Conservation Plan/Natural Communities Conservation Plan (the "Draft HCP"). The inventory area includes approximately 174,000 acres in several communities and unincorporated places around Mount Diablo, including much of the City of Pittsburg.

Figure 5 illustrates the boundary of the inventory area near the project site, the existing urban limit line (ULL), currently conserved territory, and candidate preservation territory. Figure 5 does not show the entire inventory area, all currently conserved territory, or all candidate preservation territory.

The project site is located in the inventory area, but it is outside any of the identified zones (Zones 1 through 6) or sub-zones of candidate preserve land, also called Acquisition Analysis Zones. The project site is located adjacent to Zone 1, Sub-Zone 1d, one of the areas encompassing land targeted for acquisition as preserve land (see Figure 5). Zone 1 consists of approximately 8,782 acres, mostly outside the Urban Limit Line, of which 7,955 acres are non-urbanized, including 7,297 acres of annual grasslands, 610 acres of oak woodland, 26 acres of riparian woodland/scrub, none of which is already protected. Zone 1d consists of approximately 1,624 acres. The project itself is part of the inventory area but is not identified as candidate preserve land in the Draft HCP/NCCP.

SAN JOAQUIN RIVER
Dowest Slough
Spillway
HIGHWAY 4
West 10th St
L Street
Railroad
Buchanan Rd
Buchanan Park
Highlands Park
Marchetti Park
Delta
Loveridge
Palo Verde
Ventura
Somersville
Creek
Kirker
Ponton Blvd
Zone 1d
Zone 1c
Zone 1b
Zone 2a
1d
14
15
Black Diamond to Mt. Diablo Regional Trail
Contra Loma Reservoir
PREWETT PARK
Lone Tree Way
KEY
Urban Limit Line (Nov. 2005)
HCP Inventory Area
Excluded by Final Rule (Proposed CTS Critical Habitat)
Proposed CRLF Critical Habitat
Kit Fox Corridor
Acquisition Zone 1
Existing or Planned Open Space or Park
City of Pittsburg
65 Civic Avenue
Pittsburg, CA 94656
N
0
3K ft
FIGURE 5
Acquisition Zones

The inventory area includes land within the urban limit lines and areas of potential future urban expansion; "protected lands," that is, lands on which species are protected and development of urban land uses is prohibited; and candidate preserve lands that would be added to existing protected lands in compensation for species impacts and habitat depletion in the urbanizing areas. Current protected lands include state and regional parks, for example.

The largest example of a protected land in the project vicinity is the Black Diamond Mines Regional Preserve managed by the East Bay Regional Park District (EBRPD). Several special-status species occur on EBRPD-managed lands: California red-legged frog, California tiger salamander, San Joaquin kit fox, and several rare plant species. Populations of listed species on EBRPD-managed lands are periodically monitored for size, condition, habitat, and reproductive success. Some but not all park acreage is specifically protected for species conservation. Vasco Caves, for example, contains a 169-acre kit fox conservation easement in the eastern portion of the Black Diamond Mines Regional Preserve (JPA, 2003).

In total, approximately 44,000 acres have been conserved in the inventory area through past state, county, and local planning and conservation efforts, funded through various sources and entities. In comparison, the urbanized land area is approximately 57,000 acres, which includes approximately 8,700 acres within the City of Pittsburg. The current ratio is 0.77 acres conserved to 1 acre developed. Under the Draft HCP, land in the additional amount of approximately 30,000 acres would be acquired for the Preserve System, assuming incremental development within the Permit Area in the approximate amount of 11,000 acres. The final ratio would be approximately 1.09:1 (74,000 acres conserved to 68,000 acres developed). The Draft HCP, if implemented, would have the effect of selectively identifying and protecting desirable habitat in an integrated and connected preserve system. The Draft HCP, if implemented, would not have the effect of increasing habitat for any species as habitat depletion is an unavoidable consequence of most development, other than infill, and expansion of urban limits.

If the Draft HCP is accepted by U.S. Fish & Wildlife Service and the California Department of Fish and Game, it would enable an integrated process for compliance with the federal and California Endangered Species Act (ESA/CESA) for development within the Permit Area. Most importantly, it would protect species and suitable habitat for those species in a manner that cannot be accomplished as well by project-specific, piecemeal actions. Land that would be protected is called the preserve land or the preserve system. Land on which development may occur is called the Permit Area. Initially, the Permit Area has approximately 11,000 acres, all within the existing Urban Limit Lines (ULL). For development on this territory, the Draft HCP requires conservation

measures including eventual acquisition and protection of approximately 27,000 to 35,000 additional acres.

Inventoried Resources at the HCP Planning Level

The project site in the Draft HCP is illustrated as being comprised of open space and future developed area. The southern portion of project site has areas of mapped landslides and hill slopes greater than 15 percent. The project site is located in Contra Costa County, in an unincorporated part thereof, and authors of the Draft HCP also may have assumed 65/35 development. In 1990, the voters of Contra Costa County approved Measure C (1990), the *65/35 Contra Costa County Land Preservation Plan.* Measure C (1990) requires, among other things, that not less than 65 percent of the land in the County is preserved for parks, open space, agriculture, wetlands, and other non-urban uses. Regardless of the reasons, the project site is illustrated in the Draft HCP with a substantial area of dedicated open space.

During formulation of the Draft HCP, existing resources were inventoried at a preliminary planning level. The Draft HCP sets forth a detailed inventory of habitat classes and acreages and other special features such as, for example, San Joaquin kit fox movement corridors. Owing to the size of the inventory area, site-specific surveys were not conducted. Also, wetlands greater than approximately one acre in size were tentatively identified using such methods as aerial photographic classification and area measurement. However, wetlands on individual sites, including the project site, were not formally delineated using USACE protocols.

For these reasons, the Draft HCP includes provisions for planning level surveys (Conservation Measures 1.2.1, 1.2.2, and 1.2.4); pre-construction surveys (Conservation Measure 1.2.5); and construction-phase monitoring (Conservation Measure 1.2.6). The Draft HCP also includes specific provisions for wetlands delineation and consideration of avoidance alternatives and on-site mitigation (Conservation Measures 1.2.3 and 2.2.1).

Site-Specific Biological Assessment

A biological assessment entails identification of biological resources by means of review, reconnaissance, or survey to assess kinds of habitat, flora, and fauna present on a site. The Biological Assessment for the project site was prepared by the Huffman-Broadway Group and is contained in a separate bound document, Appendix B to this EIR. The Huffman-Broadway Group, Inc., performed original on-site, flowering-season botanical surveys and raptor surveys. HBG additionally assessed the site for potential suitable habitat and evidence of burrowing owl. HBG performed an on-site habitat assessment for CTS and CRLF. Trapping surveys were not performed because 1) CTS have previously

been sighted on the project site and, therefore, are presumed present and 2) no suitable permanent water habitat for CRLF is present on the site.

Previous assessments of the project site have been performed by others, including Albion Environmental, Inc., and Wetlands Research Associates. The latter consulting companies prepared wetland delineations in 2004 (Albion) and 2001 (WRA) to locate and classify wetlands on the project site. In addition to the previous wetlands delineations, WRA in 2001 prepared a general habitat assessment of the project site.

Jurisdictional Wetlands and Other Jurisdictional Waters

Potential wetlands and other waters of the United States were independently reviewed by The Huffman-Broadway Group, Inc., ("HBG"), to assess their potential presence or absence on the project site and also to assess whether they could be jurisdictional or else disclaimed from Corps jurisdiction as isolated. This review and opinion conclude that there is a potential jurisdictional wetland and potential other jurisdictional waters on the project site. The jurisdictional wetland is 0.02 acre. This wetland and other jurisdictional waters on the project site would not likely qualify for exclusion from Corps jurisdiction based on the *Solid Waste Agency of Northern Cook County* decision.

The actual extent of potential on-site wetlands and other waters is not verified pending completion of the wetlands delineation verification by USACE. The actual jurisdictional status of these on-site wetlands and other waters is not determined pending a determination by USACE. The extent of potential on-site waters range from none, based on a delineation by Albion Environmental, Inc., to 1,878 lineal feet based on a delineation by Wetlands Research Associates. At the crux of this difference is the interpretation of whether identified intermittent and ephemeral streams and wetlands are isolated and, hence, not jurisdictional, or not isolated and, hence, jurisdictional. Independent review of both reports by The Huffman Broadway Group suggests that the ephemeral streams and a small wetland identified by Albion Environmental, Inc., could be considered as jurisdictional because their waters discharge to Kirker Creek or Markley Creek.

For the purpose of this EIR, therefore, the identified waters are considered as potentially jurisdictional pending verification and jurisdictional determination by USACE. This review and opinion are contained in *Biological Assessment Sky Ranch II Project, Pittsburg California,* dated November 2004, and summarized below.

Wetlands
One potential jurisdictional wetland of approximately 0.02 and one ephemeral drainage of approximately 0.09 acre were identified in the project site's southeastern corner. The wetland is classified as a palustrine emergent seasonal wetland. It is located with a north-south tributary to an east-west ephemeral stream on the project site, which discharges to Markley Creek. The wetland and ephemeral stream, in view of its tributary relation with Markley Creek, may not be considered as isolated, and instead could potentially be subject to Corps Section 404 Clean Water Act jurisdiction.

Seasonal Ponds
A seasonal pond along the reach of an intermittent stream is mapped by USGS within the project site boundaries. The Soil Survey of Contra Costa County illustrates the on-site pond with the symbol "*w,*" indicating presence of water, and the local soils are described as AcF, or Altamont-Fontana complex in an active stream channel depositional environment (USDA, 1977). Aerial photographs dated May 19, 2000; May 18, 1995; December 1, 1989; and March 4, 1974; all show the seasonal pond within the stream and in the western portion of the project site, over 1,000 feet north of the southern boundary of the project site. Additional review of historical topographic maps shows the seasonal pond and stream in 1973, 1968, and 1953. A historical topographic map for 1916 shows the intermittent stream only. The pond and stream, therefore, were present on the project site seasonally during 1953-2000.

As verified in field visits to the site by HBG in April, May, June, and August, 2004, the seasonal pond and associated stream bed are no longer present. The shallow basin in the area of the cattle watering trough shows positive indicators for wetland hydrology and hydric soils, attributed by Albion Environmental to a malfunctioning water valve. The seasonal pond, which is interpreted by HBG to have potentially provided historical breeding habitat for California tiger salamander (CTS), could potentially continue to do so today if still present on the project site.

Causes of the seasonal pond's disappearance are not known. Factually, ENGEO has documented unengineered fill coinciding with the location and course of the former seasonal pond and associated streambed (see Figure 10). Other past grading since 1916 (*e.g.*, off-site grading for the Standard Oil tank farm and the Pittsburg Railroad, and on-site grading for the PG& E power transmission towers and constructed unpaved agricultural roads) have to various degrees altered the original intermittent stream channels, ephemeral streams, and patterns of overland flow off-site. On-site the fact that both the intermittent stream channel with defined bed and bank and seasonal pond are

no longer present on the project site, after continuous presence during 1953-2000, suggests an abrupt change.

Streams

Other jurisdictional waters on the project site are classified as riverine intermittent streambeds. Intermittent and ephemeral streams serve the general functions of flood flow alteration, groundwater recharge, sediment stabilization, sediment/toxicant retention, nutrient removal/ transformation, production export, and wildlife habitat.

Intermittent and ephemeral streams and related tributaries with aggregate length up to 1,878 lineal feet have been identified on the project site (Albion Environmental, 2004; WRA, 2001). Mapped streams include:

1. a west-east trending ephemeral stream and its south-north tributaries (945 to 1,484 lineal feet having defined bed and bank), and an associated wetland, all in the southeast corner of the site; and,
2. a south-north trending, disjunct, intermittent stream (394 lineal feet having defined bed and bank) in the southwest portion of the site.

These streams or their tributaries enter the project site from the off-site, upslope area to the south. The difference in lengths derives from two different delineations in October 2001 and June 2004.

Boundaries of the west-east trending ephemeral stream its south-north tributaries, and an associated wetland, were mapped in the southeast corner of the project site (Albion Environmental, 2004; WRA, 2001). Albion Environmental mapped the west-east ephemeral stream as having a length of 782 linear feet having defined bed and bank and an associated south-north tributary ephemeral stream of 163 lineal feet having defined bed and bank. Albion Environmental further characterized this south-north tributary as a wetland, owing to presence of facultative wetland vegetation, positive wetland hydrology indicators, and positive hydric soil indicators. Wetlands Research Associates, ("WRA"), mapped the west-east ephemeral stream and its tributaries as 1,484 lineal feet combined. The west-east ephemeral stream and its tributaries areas where characterized by WRA as generally devoid of wetland hydrology indicators; however, WRA did identify a 3 foot by 5 foot area of the easternmost tributary as saturated with water from an unknown source, possibly ground water.

In 1916, the west-east ephemeral stream and its tributaries formed the headwaters to a mapped intermittent stream located just west of Markley Creek. This stream was separated from Markley Creek by the Pittsburg Railroad, and the stream's course generally followed the western edge of the

former Standard Oil tank farm. This intermittent stream joined a second intermittent stream in Highlands Ranch, whose headwater was located in Sky Ranch II. After 1953, the west-east stream and its two tributary areas discharged to Markley Creek by overland flow east of the project site. In 1953 and after, only the single reach in Highlands Ranch was mapped by USGS, and the two of the three reaches on Sky Ranch II and Black Diamond Ranch no longer were mapped as intermittent streams. With development of the Black Diamond Ranch residential subdivision in Antioch, storm water from this west-east ephemeral stream will be intercepted by a man-made storm water collection system, which will convey the discharge to Markley Creek.

An intermittent stream previously was mapped on-site and off-site as blue-dash-dot stream which historically discharged to Kirker Creek (USGS, 1980). The basis for previous mapping by USGS was aerial photography. With development of the adjacent subdivision northwest of the project site, stream flows from the intermittent stream were diverted by manmade storm drainage systems and conveyed to Kirker Creek and eventually to Dowest Slough.

In the southwestern portion of the project site, the former intermittent stream no longer has a continuous defined bed and bank. The causes are not precisely known, and one may speculate that erosion and siltation, disturbances by cattle grazing, landslides, grading, or a combination of the above, could have been factors in localized loss of the stream bed and bank. As recently as October 2001, WRA described the presence of a disjunct stream having 394 lineal feet with defined bed and bank, extending north from an unpaved road on the project site to another road and cattle watering trough, and another portion described as a "broad swale" (WRA, 2001). From the water trough northwest to the site's western boundary, there was no defined bed or bank as of October 2001, and the flow of storm water there was characterized as sheet flow within a broad swale.

HBG recently observed similar conditions on-site and also noted that off-site flow resumes within a defined channel having a bed and bank west of the project site. From there, storm water flows have been diverted by manmade storm drainage systems that ultimately discharge to Kirker Creek north of State Highway 4.

Future storm water flows from a 19-acre tributary area in the southeastern corner of the project site will be collected in the proposed storm water collection system and conveyed by the Black Diamond Ranch conveyance system to an outfall in Markley Creek. Future storm water flows from a 42-acre tributary area on the western edge of the project site will be collected and conveyed via a diversion pipe, storm sewer pipe, and V-ditch to the existing stream channel for eventual discharge to Kirker Creek

The on-site wetland and other waters of the U.S. would not likely be considered isolated by the Corps. The wetland area mapped by Albion Environmental at the southeastern corner of the Sky Ranch property has been affected by this grading on the adjacent Black Diamond Ranch, located in the City of Antioch, which was performed during 2004. The toe of a fill slope for the Black Diamond Ranch subdivision extends to the wetland or ephemeral stream on the project site.

Plants

Table 3 presents a list of special status plants having general potential to be present on the project site. No special status plants were found during the spring and summer 2004 plant surveys. Plant surveys of the Sky Ranch II site, conducted on March 18, April 14, and July 12, 2004, during appropriate flowering periods, the project site was walked and all habitats were visited. The open grassland habitats were easily observed on foot. Hill slopes of uniform vegetation were scanned with binoculars for differences in vegetation composition or pattern.

The plant surveys were timed to correspond with the flowering period of special status plants with the highest probability of occurring on the site.

According to results of the botanical surveys, the project site does not represent high quality habitat for special status plants that have some potential to be present on the project site based listing of the target plant in CNDDB for the Antioch South quadrangle (2004), CDFG (2001), or California Native Plant Society (CNPS 2001) and general habitat requirements of the listed plants.

Cattle grazing over many years time has altered habitats and made them less likely to support rare species. Introduction of alien species comes with prolonged grazing and these may compete with localized native plants. Enclaves of native species are found on the project site, however, and habitat for special-status plants can be found.

Wildlife Except Birds

California tiger salamander (*Ambystoma californiense*) The California tiger salamander (CTS) became federally-listed as a threatened species in 2004. The loss of the California tiger salamander's upland habitat is the single most important factor contributing to the species' status. An additional threat to the CTS is the loss of breeding pools and ponds and the conversion of upland habitat for agriculture and urban

TABLE 3
SPECIES OF PLANT EXAMINED FOR ON-SITE PRESENCE

Common Name *(Scientific name)*	Status[1] Fed/State/ CNPS	General Habitat Description	Habitat[2]
Large flowered fiddleneck *(Amsinckia grandiflora)*	FE/SE/1B	Valley and foothill grassland, oak woodland	P
Big Tarplant *(Blepharizonia plumosa ssp. Plumosa)*	SC/-/1B	Dry hills and plains in the annual grassland, clay to clay-loam solis, usually on slopes or burned areas	P
Round-leaved filaree *(Erodium macrophyllum)*	-/-/2	Clay soils of valley or foothill grassland	P
Diamond-petaled California poppy *(Eschscholzia rhombipetala)*	SC/-/1B	Alkaline clay slopes and flats.	P
Fragrant fritillary *(Fritillaria lilacea)*	SC/-/1B	Grasslands and woodlands, adobe clay soils	P
Showy madia *(Madia radiata)*	SC/-/1B	Adobe clay in Grassland or among shrubs	P
Caper-fruited tropidocarpum *(Tropidocarpum capparideum)*	SC/-/1A	Historic collection near Byron, in alkaline hills	P

NOTES:

1 Status

Fed: SC = USFWS Species of Concern
Fed: SLC=USFWS Species of Local Concern
Fed: E = U. S. Fish and Wildlife Service listed as Endangered
CA: E = State of California listed as Endangered
CA: R = State of California listed as Rare
CNPS 1B = California Native Plant Society list of plants rare and endangered in California and elsewhere
CNPS 2 = California Native Plant Society list of plants rare and endangered in California and more common elsewhere

2 Habitat

Habitat Type is Absent (A) or Present (P) on the project site

SOURCE: The Huffman-Broadway Group, Inc., June 2005.

development. If breeding pools dry before CTS have sufficiently matured, they have greatly reduced chances for survival to adulthood. Survival from metamorphosis to maturity (2-years) at a site in Monterey was less than 5 percent. CTS cannot dig their own burrows; therefore, CTS are co-dependent on burrowing mammals.

A Phase I habitat assessment for the California tiger salamander (CTS), in accordance with USFWS protocol, was conducted on March 20, 2004, by Ms. Gretchen Padgett-Flohr of Rana Resources, for The Huffman-Broadway Group, Inc. This assessment is part of the *Biological*

Assessment of the Sky Ranch II Project (Appendix D). The CTS habitat assessment acknowledges intermittent or ephemeral streams on the property, and indications of a past seasonal pond on the site. A second pond identified by the assessor subsequently was determined to be a recently created, artificial drainage feature that diverts storm water flow from the upland tributary area to a detention basin in Highlands Ranch At the time of the site visit by the assessor, the seasonal pond was dry. Botta's pocket gopher (*Thomomys bottae*) burrows were noted to be numerous across the site. The Phase I habitat assessment, therefore, identified suitable habitat for aestivation and/or breeding on the project site and recommended rainy season surveys to determine presence or absence (Rana Resources, June 13, 2004).

Since the time of the Phase I habitat assessment, it was learned that CTS individuals previously were sighted by others on the project site and also west of the project site on the adjacent Thomas parcel. Two adult CTS were sighted on the site. The record of sighting notes that the CTS individuals were found in a drainage marked by a failed stock pond and that upland refugial areas near a windmill, which is an obvious reference to a feature in the southwest portion of the project site. One CTS adult individual was sighted previously by others on the Thomas parcel, located directly west of the project site. Records of sightings have been submitted for entry into the California Natural Diversity Data Base (Gan, Janice, 2004). The project site is surrounded by other records of CTS sightings between 2 and 10 miles away (see Figure 6, next page).

Adult CTS inhabit grassland, savanna, or deciduous oak woodland habitats in conjunction with accessible natural ponds, vernal pools, intermittent streams, or stock ponds. CTS depend on combination of ponded water for breeding and surrounding upland having a predominant ground cover of grazed or ungrazed grassland. They spend 9-10 months of the year below ground, in rodent burrows, or other natural crevices, migrating to natal ponds for breeding once each year.

Breeding of adult CTS has been observed from late November through February, following the onset of rains. Nocturnal breeding migrations from upland subterranean refuge sites (*e.g.* small mammal burrows) are typically 1 to 2 miles. After spawning most CTS return to aestivation habitats where they spend approximately 9-10 months in their underground refuges during the hot summer and fall months. CTS have a high degree of site fidelity to their breeding or "natal" ponds, and also to the small mammal burrows they use for summer refuge, meaning they tend to remain within a 1-2 mile radius of their birth pond for their adult lifespan, up to 10 years.

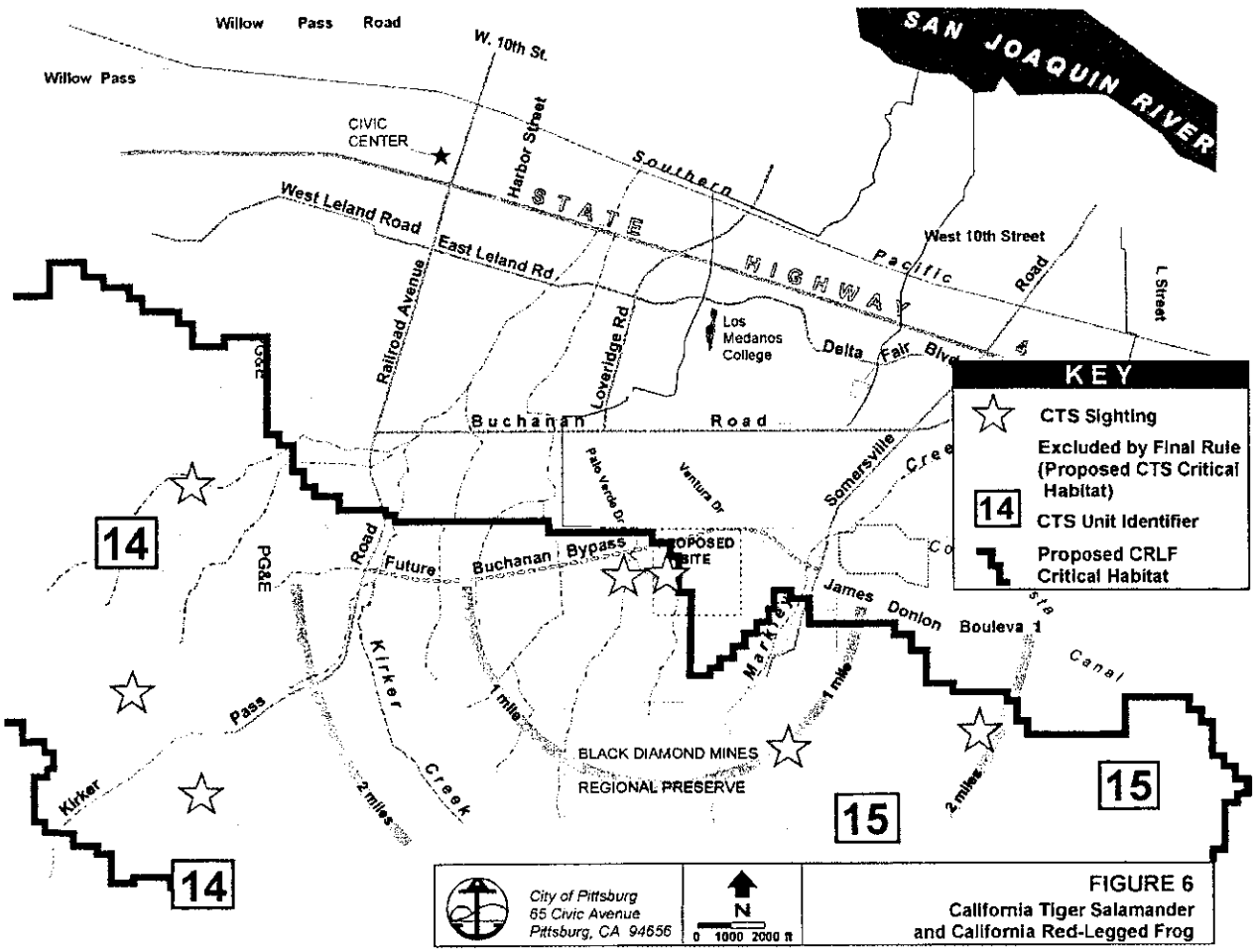


FIGURE 6
California Tiger Salamander and California Red-Legged Frog

A pond and intermittent or ephemeral streams historically occurred within the project site and in the immediate off-site vicinity, part of a lattice of seasonal streams tributary to Kirker Creek; therefore, the site is considered as a historical breeding site for CTS.

USFWS proposed critical habitat for CTS throughout its range in the so-called Central Valley Region. Units 14-17 in Contra Costa County were recently excluded by Final Rule because they are part of the Draft HCP and substantially protected. Nearest of the excluded CTS critical habitat units are located west and southeast of the project site (see Figure 6, above). Unit 14, Mulligan Hill Unit, Contra Costa County (5,895 acres) from Kirker Pass Road on the south to State Highway 4 on the north. The Department of Defense, Concord Naval Weapons Station, owns part of this proposed unit. Unit 15, Deer Valley Unit, Contra Costa County (7,353 acres), contains ten recorded occurrences of the CTS and is bounded by Mount Diablo to the west and Lone Tree Valley to the east.

California red-legged frog (*Rana aurora draytonii)* The California red-legged frog (CRLF) is a federally-listed threatened species and California species of special concern. Known populations of this species are found in Markley Creek on the adjoining Black Diamond Ranch subdivision in Antioch. For that subdivision, CDFG required creekside habitat conservation including approximately 20 acres dedicated as permanent open space along Markley Creek.

CRLF have been observed in a variety of aquatic environments, including stock ponds and other permanent, or near permanent, sources of water with little or no vegetation. Although they occur in ephemeral streams or ponds, CRLF are expected to thrive in permanent deep-water pools with dense stands of overhanging willows (*Salix* spp.) and emergent vegetation.

A Phase I habitat assessment was performed by Rana Resources for the Huffman-Broadway Group, in accordance with USFWS survey protocol, on March 20, 2004. During the habitat assessment, no wetland areas with inundation sufficient to support breeding by the California red-legged frog were observed at the site. The CRLF habitat assessment concluded that there is no potential for California red-legged frog to occur at the site.

The USFWS has proposed CRLF critical habitat areas, including CRLF critical habitat within the East Bay/Mount Diablo area. The USFWS, Sacramento office, web site contains an interactive map which is a compilation of proposed or final critical habitat areas for several different species. Using an electronic tracing method, the USFWS interactive map layer for USFWS-proposed CRLF critical habitat was overlaid on a base map showing the project site and surrounding area. The southwestern corner of the project site is shown to be located in an area of USFWS-proposed CRLF critical habitat as of November 2 (see Figure 6).

The USFWS-proposed CRLF critical habitat clearly includes the upper reaches of Kirker Creek, the unnamed tributaries on the project site and adjoining Thomas parcel, as well as much of the upper and middle reaches of Markley Creek, between the Contra Costa Canal and Black Diamond Mines Regional Preserve (see Figure 6). The USFWS public comment period on its proposed CRLF critical habitat will conclude February 1, 2006.

San Joaquin kit fox (*Vulpes macrotis mutica*) This species is listed as a federally endangered species and a California threatened species (FE/CT). The principal habitat for the San Joaquin kit fox is the native

alkali sink vegetation of the San Joaquin Valley. San Joaquin kit fox habitat occurs primarily in annual and alkali grassland. Secondary foraging habitat occurs in agricultural fields and row crops. Historically, the San Joaquin kit fox was distributed over a large portion of central California, extending roughly from southeastern Contra Costa County south along the eastern edge of the Interior Coast Range to the southern San Joaquin Valley, including major portions of western Kern County and Tulare County.

The San Joaquin kit fox is known to occur in eastern Alameda County and Contra Costa County. Until 1994 the northern portion of its range was believed to be limited to the southeastern portion of Contra Costa County extending approximately two miles north and four miles west of Byron, the northeastern corner of Alameda County, and east into western San Joaquin County in a strip parallel to Interstate 580. As a result of two sightings of San Joaquin kit fox by Bell in 1994, on the western border of Black Diamond Ranch Regional Park, the USFWS extended the known range of the species to include the greater south Antioch area. San Joaquin kit foxes have been observed in 53 locations in the Draft HCP/NCCP inventory area, including Black Diamond Mines Regional Park, Round Valley Regional Preserve, and the Los Vaqueros Watershed.

The California Sate University, Stanislaus, web site contains a map which is a compilation of California Natural Diversity Data Base (CNDDB) SJKF sightings and SJKF range map. Using an electronic tracing method, the CSU map was overlaid on a San Francisco Bay shoreline base map. The project site is shown to be located at the extreme northern range of the SJKF as portrayed on the SJKF range map by CSU Stanislaus.

This issue of the relation and value of the project site to SJKF resolves to an interpretation of whether suitable habitat for the SJKF is present on the project site and whether that habitat is located within or adjoins the currently acknowledged range of the species. In regard to the suitability of habitat on the project site, the annual grassland of the project site is a suitable habitat for SJKF. In regard to the location of the project site in relation to the currently acknowledged range of the SJKF, the SJKF range extends north to the project site (see Figure 7).

A controlling resource consideration in development of the Draft HCP/NCCP is the mobility and range of the kit fox. San Joaquin kit foxes occupy home ranges of 1 to 12 square miles and move up to 20 miles in a season for foraging or dispersal. Habitat fragmentation is a

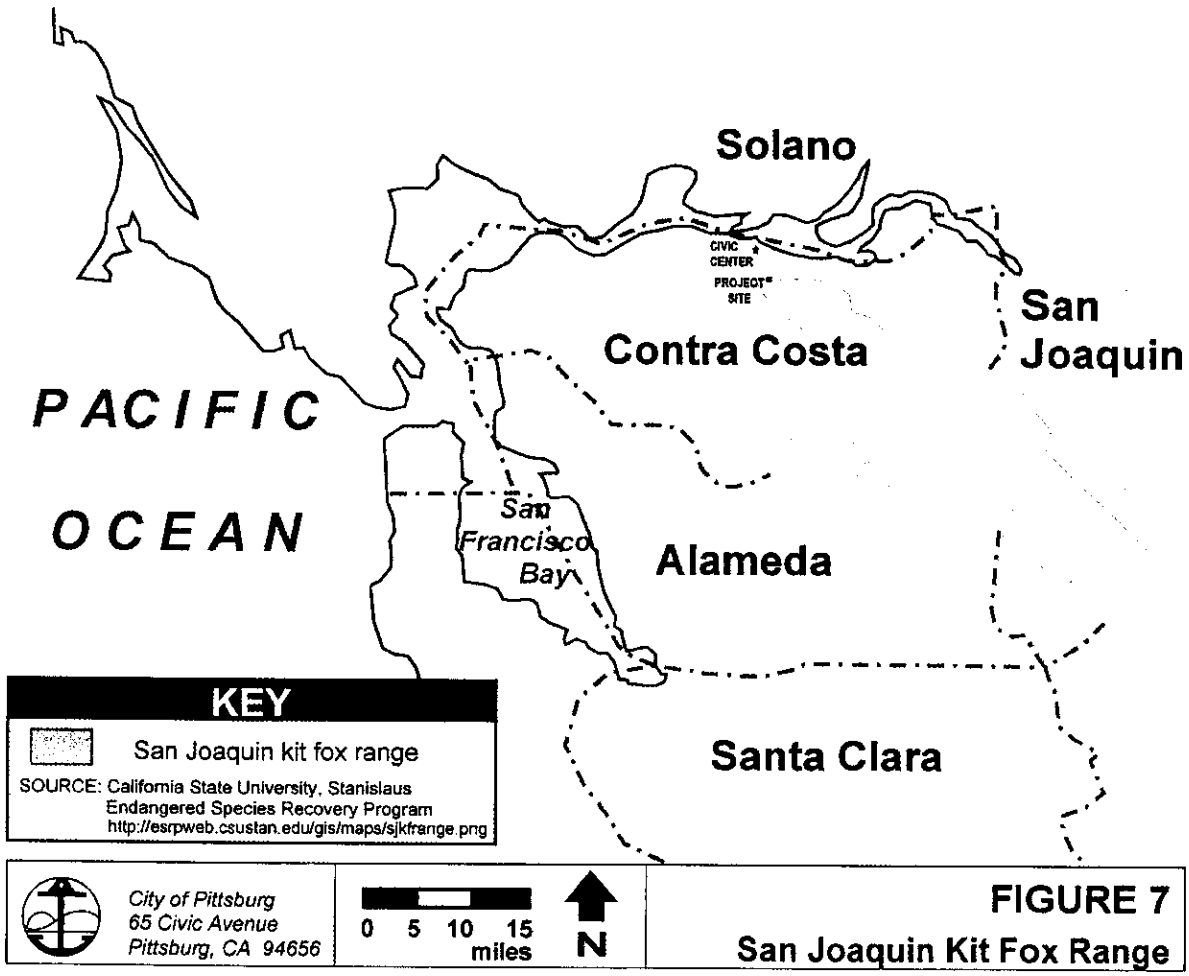


FIGURE 7
San Joaquin Kit Fox Range

significant threat to the persistence of kit fox; therefore, protection of movement corridors is essential.

Within the Draft HCP/NCCP inventory area, major movement corridors are identified, which are believed to join northern portions of kit fox habitat to the southern portions of its range in Contra Costa County. These corridors are illustrated in Figure 5.

According to the Draft HCP/NCCP, the existing protected lands are not large enough to support viable individual kit fox populations. For long-term survival of kit foxes within the HCP/NCCP inventory area, the Plan's authors consider to be essential 1) expansion of protected lands within the preserve, 2) maintenance of inter-connection among kit fox habitat, and connection to the larger kit fox populations in the San Joaquin Valley through Alameda County. The annual grasslands on the project site are illustrated as being on the outer edge of core kit fox habitat, and north of the kit fox movement corridors in Sub-Zone 1c/1d.

Sub-Zone 2a is considered as appropriate for a secondary corridor for movement of San Joaquin kit fox between Black Diamond Mines Regional Preserve and the Concord Naval Weapons Station, after portions of the Keller Canyon landfill first are closed and reclaimed (see Figure 5).

Birds

Table 4 summarizes the status of several bird species and their presence or absence on the project site based on surveys performed for the Biological Assessment.

Western burrowing owl (*Athene cunicularia*) -- both a federal and state species of special concern, burrowing owls are small terrestrial owls commonly found in open grassland topography ranging from western Canada to portions of South America. Burrowing owl habitat can be found in annual and perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. In California, burrowing owls most commonly use ground squirrel burrows, but they also may use man-made structures, such as cement culverts; cement, asphalt, or wood debris piles; or openings beneath cement or asphalt pavement. Burrowing owls may use a site for breeding, wintering, foraging, and/or migration stopovers during migration. Occupancy of suitable burrowing owl habitat can be verified at a site by an observation of at least one burrowing owl, or, alternatively, its molted feathers, cast pellets, prey remains, eggshell fragments, or excrement at or near a burrow entrance.

The site has no potential habitat for burrowing owls due to the absence of California ground squirrel burrows. No burrowing owls or signs indicating their presence were observed on-site by HBG during breeding season surveys in April and June 2004, or in the additional survey in October 2004.

Loggerhead shrike (*Lanius ludovicianus*) –individuals of this species were observed along the north edge of the site in April 2004), along the south edge of the site in June 2004), and along both the north and south edges of the site in October 2004. Loggerhead shrike individuals also were observed by WRA in their surveys conducted in December 2001. Individuals observed on the site during the nesting season were not observed exhibiting obvious nesting behavior such as carrying nesting material, defending territories or tending to young. As loggerhead shrikes have been observed at the site during all seasons of the year, it appears as though the species is resident in the project area, and likely nests somewhere near the project site. Loggerhead shrikes nest in trees and shrubs with thick foliage.

TABLE 4
SPECIES OF BIRD EXAMINED FOR ON-SITE PRESENCE FORAGING OR NESTING

BIRD SPECIES	SPECIES STATUS	PROTECTION STATUS GIVEN FOR	SITE CONDITIONS		
			On-site nesting habitat?	Winter foraging habitat on-site?	Sighted on site during survey?
Burrowing owl (*Athene cunicularia*)	FSC, CCSS	Resident species	No[a,c]	Yes	No
California horned lark (*Eremophila alpestris actia*)	CSSC	Resident species	Yes[a]	Yes	Yes
Cooper's hawk (*Accipiter cooperii*)	CSSC	Nesting	No[c]	No	No
Ferruginous hawk (*Buteo regalis*)	FSC, CSSC	Wintering	NA[d]	Yes	No
Golden eagle (*Aquila chrysaetos*)	federal[b] CSSC	Nesting & wintering	No[c]	Yes	No
Loggerhead shrike (*Lanius ludovicianus*)	CSSC	Resident species	No[c]	Yes	Yes
Merlin (*Falco columbarius*)	CSSC	Wintering	NA[d]	Yes	No
Northern harrier (*Circus cyaneus*),	CSSC	Nesting	No[c]	Yes	No
Prairie falcon (*Falco mexicanus*)	CSSC	Nesting	No[c]	Yes	Yes
Sharp-shinned hawk (*Accipiter striatus*)	CSSC	Nesting	No[c]	Yes	No
Tri-colored blackbird (*Agelaius tricolor*)	FSC, CSSC	Nesting colonies	No[c]	Yes	No
White-tailed kite (*Elanus caeruleus*)	CFPS	Nesting	No[c]	Yes	No

NOTES:
NA Not applicable; wintering species in California.
[a] nesting was not observed in nesting season surveys conducted in 2004.
federal Bald and Golden Eagle Protection Act of 1940
[c] appropriate nesting habitat not present on site; nesting unlikely
FSC Federal Species of Concern
CSSC California Species of Special Concern
CFPS California Fully Protected Species
SOURCE: The Huffman-Broadway Group, Inc., June 2005

California horned lark (***Eremophila alpestris actia)*** --a California species of special concern, California horned lark individuals have been observed by WRA in wintering flocks over the grassland within the project site in December 2001. California horned larks were not observed during surveys conducted during the nesting season (April and June of 2004) by HBG wildlife biologists, indicating that the species was not observed nesting at the site at the times of surveys.

Prairie falcon (***Falco mexicanus***) --California species of special concern with respect to nesting habitat, prairie falcons nest in scrapes on steep cliffs, bluffs, or rock outcrops and forage for prey over open country. Suitable foraging habitat occurs over the annual grassland habitat of the project site, but appropriate nesting habitat is not present on site. One prairie falcon (*Falco mexicanus*) was observed on the site by HBG in October 2004, and a previous sighting was reported by WRA in December 2001.

Other Bird Species

The golden eagle (*Aquila chrysaetos*) is a California species of special concern. The golden eagle is protected under the federal Bald and Golden Eagle Protection Act of 1940. Golden eagles typically frequent rolling foothills, mountain areas, sage-juniper flats and desert. Limited use of the site as foraging habitat may occur during winter.

White-tailed kite (*Elanus caeruleus*) is a California fully protected species with respect to nesting habitat. The northern harrier (*Circus cyaneus*), Sharp-shinned hawk (*Accipiter striatus*), and Cooper's hawk (*Accipiter cooperii*) are California species of special concern with respect to nesting habitat. For these species, the project site's annual grasslands were assessed not to be suitable habitat for nesting. These species likely forage on or near the site, especially during winter, but the special status assigned these species is relative to nesting.

The ferruginous hawk (*Buteo regalis*) is a federal species of concern and a California species of special concern with respect to wintering habitat, and the merlin (*Falco columbarius*) is a California species of special concern with respect to wintering habitat. Ferruginous hawks forage almost entirely over open grasslands. Merlin forage along the margins of wooden habitat, including riparian strips, and woodland, chaparral, and savanna borders to grasslands. Use of the project site as winter foraging habitat by ferruginous hawks may occur. Potential use of the site by merlin is considered limited or incidental by individuals passing through to primary foraging areas.

Tri-colored blackbird (*Agelaius tricolor*) nesting colonies are protected as both a federal and state species of special concern. Tri-colored blackbirds

breed near freshwater, usually in emergent wetlands with cattails or tules. No nesting colonies are expected on the project site due to the lack of suitable habitat. Limited use of the site as winter foraging habitat by tri-colored blackbird may occur, but the special status assigned nesting colonies is relative to nesting.

Applicable Regulatory Setting

Current Policies, Protective Laws and Regulations

Federal Endangered Species Act (Federal ESA)

The federal ESA of 1973, Section 7(c), requires a Biological Assessment if listed species or critical habitat may be present in the area affected by any major construction activity conducted by, or subject to issuance of a permit from, a federal agency as defined in Part 404.02. The federal ESA also outlines what constitutes unlawful taking, importation, sale, and possession of endangered species and specifies civil and criminal penalties for unlawful activities.

Under Section 7(a)(3), every federal agency is required to consult with the United States Fish and Wildlife Service (USFWS) or National Oceanic and Atmospheric Administration Fisheries Service (NOAA Fisheries) on a proposed action if the agency determines that its undertaking may affect an endangered or threatened species. The Secretary of the Interior and the Secretary of Commerce are responsible under the federal ESA for identifying endangered and threatened species and their critical habitats, carrying out programs for species conservation, and rendering opinions regarding the impact of proposed federal actions on endangered species

The purpose of the ESA is "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved" (16 USC 1531). The ESA establishes an official listing process for plants and animals considered to be in danger of extinction; requires development of specific plans of action for the recovery of listed species; and restricts activities perceived to harm or kill listed species or affect critical habitat (16 USC 1532, 1536). The U.S. Fish and Wildlife Service (USFWS) is responsible for implementing the Federal Endangered Species Act (ESA).

The ESA also requires federal agencies to ensure that their actions do not jeopardize the continued existence of listed species or adversely modify critical habitat (16 USC 1536). Therefore, the ESA is invoked when the property contains a federally listed threatened or endangered species that may be affected by a federal permit decision. In the event that listed species or designated critical habitat are involved and a USACE or "Corps" permit is required for impacts to jurisdictional waters, USACE must initiate consultation with USFWS (or the National Marine Fisheries Service, NMFS)

pursuant to Section 7 of the ESA (16 USC 1536; 40 CFR § 402). If formal consultation is required, USFWS or NMFS will issue a biological opinion stating whether the permit action is likely to jeopardize the continued existence of the listed species, recommending reasonable and prudent measures to ensure the continued existence of the species, establishing terms and conditions under which the project may proceed, and authorizing incidental take of the species.

USFWS also has responsibility for project review under the Fish and Wildlife Coordination Act. This statute requires that all federal agencies consult with USFWS, NMFS, and the state's wildlife agency (California Department of Fish and Game, CDFG) for activities that affect, control, or modify streams and other water bodies. Under the authority of the Fish and Wildlife Coordination Act, USFWS, NMFS, and CDFG review applications for permits issued under Section 404 and provide comments to USACE about potential environmental impacts.

California Endangered Species Act

In 1984, the State legislated the California Endangered Species Act (CESA, Fish and Game Code Sections 2050-2098). The basic policy objective is to conserve, protect, restore, and enhance any endangered or threatened species and its habitat. The Fish and Game Commission is charged with establishing a list of endangered and threatened species. State agencies must consult with the California Department of Fish and Game (CDFG) to determine if a proposed project is likely to jeopardize the continued existence of any state-listed endangered or threatened species.

The California Fish and Game Code defines "take" (Section 86) and prohibits taking of a species listed as endangered or threatened under CESA, except as the California Department of Fish and Game may issue a permit to authorize take for scientific, educational or management purposes or take that is incidental to otherwise lawful activities.

The State lead agency and/or project applicants must provide information to CDFG on the project and its likely impacts. CDFG then prepares written findings on whether the proposed action would jeopardize the continued existence of a listed species or would result in the direct take of a listed species. Because CESA does not have a provision for "harm," CDFG considerations pursuant to CESA are limited to those actions that would result in the direct take of a listed species. If a proposed project would result in impacts to a State-listed species, an incidental take permit pursuant to Section 2081 of the Fish and Game Code is necessary. State and Federal incidental take permits are issued on a discretionary basis and are typically only authorized if applicants are able to demonstrate that impacts to the listed

species in question are unavoidable, and can be mitigated to an extent that the reviewing agency can conclude that the proposed impacts would not jeopardize the continued existence of the listed species.

California Fish and Game Code Native Plant Protection Policy
The goals of Chapter 10 of the California Native Plant Protection Policy are to preserve, protect, and enhance endangered or rare native plants of this state (Section 1900). For purposes of this chapter, a "native plant" means a plant that grows in a wild, uncultivated state, which is normally found native to the plant life of the state (Section 1901). The California Fish and Game Commission may adopt regulations governing the taking, possession, propagation, transportation, exportation, importation, or sale of any endangered or rare native plants. All state departments and agencies are, in consultation with the CDFG, to use their authority in furtherance of the purposes of this chapter by carrying out programs for the conservation of endangered or rare native plants. Such programs include, but are not limited to, the identification, delineation, and protection of habitat critical to the continued survival of endangered or rare native plants (Section 1911).

Clean Water Act
Section 404 of the Clean Water Act regulates the discharge of dredged or fill material to wetlands and other waters of the United States. The U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency (U.S. EPA) are responsible for implementing Section 404. Section 404(a) authorizes the Corps to issue permits, after notice and opportunity for comment, for discharges of dredged or fill material into waters of United States. Section 404(b) requires that the Corps issue permits in compliance with U.S. EPA guidelines, which are known as the Section 404(b)(1) guidelines.

Wetlands include "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" [40 CFR '230.3(t); 33 CFR '328.3(b)] As established in Section 404 of the Clean Water Act (33 U.S.C. 1344), USACE has final authority over the identification of wetlands and other waters of the U.S., including its jurisdiction over wetlands and other waters, determination of area affected by the project, and the kind of permit and conditions required.

The Clean Water Act prohibits the discharge of dredged or fill material into wetlands and other waters of the United States without a permit from the USACE. Ditching, filling, or other activities that could alter the physical,

chemical, biological, or public interest values (as defined by 40 CFR 230 Subparts C-F) associated with wetlands and other waters of the U.S. are considered impacts under USACE authority. A "no net loss of wetland acreage or values" policy has been established within both the state and federal executive branches.

Specifically, the Section 404(b)(1) guidelines require that the Corps only authorize the "least environmentally damaging practicable alternative" and include all practicable measures to avoid and minimize impacts to the aquatic ecosystem. The guidelines also prohibit discharges that would cause significant degradation of the aquatic environment or violate state water quality standards.

Section 401 of the Clean Water Act prohibits discharges of dredged or fill material that violate state water quality standards. The statute requires federally-permitted discharges to obtain water quality certification from state water quality authorities. Corps Section 404 permits are not valid until the Regional Water Quality Control Board has been notified and the applicant has obtained a certification, or waiver, that the proposed discharge compiles with state water quality standards.

Streambed Alteration, California Fish and Game Code Section 1601-3
CDFG also regulates activities that may affect streambeds. Division 2, Chapter 6, Section 1601 of the California Fish and Game Code states that "...general plans sufficient to indicate the nature of a project for construction by, or on the behalf of, any government agency, state or local, and any public utility, of any project which will divert, obstruct or change the natural flow or bed, channel, or bank of any river, stream, or lake designated by the Department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit, or will use material from the streambeds designated by the Department, shall be submitted to the Department. Such actions are required to obtain an executed Streambed Alteration Agreement from CDFG.

Pursuant to Fish and Game Code Sections 1601-1603, CDFG regulates activities that use materials from any streambeds; or divert, obstruct, or change the natural flow or bed of any river, stream or lake. Sections 1601-1603 allow CDFG to review any proposed construction and to propose reasonable modifications for the protection and construction of a fish or game resource that might be substantially adversely affected by such construction. CDFG enters into a Streambed Alteration Agreement with a project applicant and can impose conditions on the agreement to prevent adverse impacts to fish and wildlife resources and ensure no net loss of wetlands. If mutual agreement between the CDFG and the affected agency is not reached,

agreement will be reached through an arbitration procedure to be completed prior to construction of the proposed project.

Future Policies

The East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan ("Draft HCP/NCCP" or "Draft HCP") is under development by a Joint Powers Association (JPA). Pending completion of environmental review, approval by USFWS and CDFG, and implementation, the Draft HCP has no force or effect.

The HCP/NCCP identifies a 174,000-acre "planning area," which here also is termed the "inventory area," that includes urbanized land, agricultural land, regional and local parks, designated open space and other undeveloped land located outside urban limit lines, and the watersheds and related riparian corridors and wetlands located therein. An objective of the planning effort is to balance growth with protection of plants and wildlife and preservation of their habitats in an integrated manner for the entire inventory area.

A Preliminary Draft Conservation Strategy was published in January 2003. Under the proposed strategy, preservation of approximately 30,000 acres would be assured in balance with urban development on approximately 11,000 acres, the "permit area," located within the "inventory area." Overall proposal would increase the ratio of protected lands to urbanized lands to approximately 1.09 acre protected for each acre developed in an urban use. The current ratio estimated by the JPA is 0.77 acres conserved for each 1 acre urbanized.

Members of the JPA intend to request Endangered Species Act (Act) permits for seven species federally listed as threatened or endangered and nineteen other species that are either listed as threatened or endangered under the California Endangered Species Act or identified as a Federal or State species of concern, including CRLF and CTS. The agencies responsible for species protection under these laws are the U.S. Fish and Wildlife Service and the California Department of Fish and Game.

Permits would be needed to authorize incidental take of listed species that could occur as a result of implementation activities covered under the HCP/NCCP, including, but not limited to, residential, commercial and industrial development. A Notice of Intent and Notice of Preparation to prepare a joint EIS/EIR were circulated on June 5, 2003 (Federal Register / Vol. 68, No. 108 / Thursday) and June 30, 2003, and by the JPA and U.S. Fish & Wildlife Service (USFWS).

The heart of the conservation strategy is preservation of land that is contiguous with other existing protected lands to form a connected network

of protected areas outside the permit area (the area where new development would be permitted under the HCP/NCCP). The conservation strategy provides for the establishment, enhancement, and long-term management of the preserved land for the benefit of "covered" vegetation communities, "covered" species, and overall biodiversity and ecosystem functions. "Covered resources " mean the resources that would be included in the permits sought by the JPA. The conservation strategy also includes measures for the maintenance of the "edge," that is, the border lands between protected lands and urban development.

The aim of the Draft HCP/NCCP is to establish an integrated process for permitting and mitigating the incidental take of endangered species, as an alternative to the current project-by-project approach. Rather than individually surveying, negotiating, and securing mitigation, project proponents whose projects lie within the permit area would receive an endangered species permit after paying a fee to the JPA. Fees collected by the JPA would be used to purchase the identified conservation lands or easements from willing sellers, monitoring, and habitat enhancement or management activities.

Conservation Strategy, Covered Activities and Projects, Incidental Take Permit Requirements

The Draft HCP, if approved, would provide for compensation, avoidance, and minimization of impacts for covered species. The Draft HCP is designed to accept limited reduction in lower-quality habitat in exchange for protection, enhancement, and restoration of higher-quality habitat located outside the urban areas.

Potential "covered" activities or projects mean those within the Permit Area for which an application for an Incidental Take Permit would be filed and might be issued by the local jurisdiction (city or County) and the Draft HCP's Governing Board. The Permit Area, initially approximately 11,000 acres, all within the ULL, may be expanded ultimately to 14,000 acres under the Draft HCP. Potential covered projects include:

- Residential commercial, or industrial development;
- Public service facilities such as police stations, fire stations, hospitals;
- Recreational facilities including neighborhood parks, golf courses, trails;
- Transportation facilities including sidewalks, bike paths, paved and unpaved roads;
- Public and private utilities including transmission lines;
- Water supply and delivery facilities including reservoirs and supply pipelines;
- Flood control facilities including dams, armored creeks, and streams; and,
- Waste water or solid waste facilities and landfills.

The range of project descriptions, even if not listed specifically above, is intended to be inclusive of general urban growth, and includes construction and maintenance of any typical urban facility, public or private, that is consistent with the local General Plan and local, state, and federal laws. Furthermore, an initial screening and determination by the local planning department would be made in regard to a proposed project's suitability for coverage.

Initial screening criteria are:

1) Project does not preclude achieving the biological goals and objectives of the Draft HCP;
2) Project effects are within the scope of impacts evaluated in Chapter 4 and in the Biological Objective issued for the Draft HCP;
3) Project does not substantially reduce the amount of take coverage available under the permit for other expected future activities and projects; and,
4) Project does not require a major or minor amendment to the Draft HCP.

Additionally, the local planning department would be responsible for screening developer applications in terms of compliance with "conservation measures." These are presented in Table 5.

"Conservation measures" mean the specific avoidance and minimization measures as described in the Draft HCP, which are required of all project applications submitted under the Draft HCP. In the local jurisdiction, these would become conditions on development. It is the responsibility of project proponents to design and implement their projects in compliance with these measures. The Implementing Entity will evaluate all projects to ensure that they have adopted these conservation measures prior to issuance of a permit under the Draft HCP. Participating local jurisdictions will be responsible for monitoring developer compliance with the conservation measures.

Goals of the conservation measures generally are:

- To avoid or minimize incidental take of covered species:
- To avoid incidental take that is prohibited by law; and,
- To minimize adverse effects of covered activities on covered vegetation communities and covered species that occur in preserves near the covered activities.

Each project would be evaluated for eligibility for coverage under the Draft HCP's permits based on its consistency, or inconsistency, with all relevant Draft HCP requirements. Applicants would submit a report that supplies the following information:

1. Definition of project area, including project footprint, extent of construction, and extent of ongoing maintenance activities;
2. Written description of project, including maps;

3. Results of planning surveys (see Conservation Measures 1.2.1 through 1.2.6);
4. Compliance with avoidance and minimization measures (see Conservation Measures 1.1.1 through 1.1.4); and,
5. Quantification of anticipated direct and indirect impacts on HCP/NCCP land cover types, covered species habitat, and other Draft HCP resources.

Specific Species Provisions under the Draft HCP

California Tiger Salamander

The Preserve System would protect an estimated 44 to 56 acres of potential CTS breeding habitat, the range representing protected resources under the initial Permit Area or maximum Permit Area. The Preserve System could protect an estimated 21,265 to 28,011 acres of migration/aestivation habitat under each Permit Area. Planning surveys (Conservation Measure 1.2.1) would be conducted to confirm habitat suitability and identify habitat occupied by CTS in potential preserve lands. The Preserve System would protect at least seven of the 13 ponds in Sub-Zone 2c, all of which potentially could provide breeding habitat for Tricolored Blackbird and CTS. Conservation Measure 3.10.1 would require removal of CTS individuals from impact areas before and during ground-disturbing activities.

San Joaquin Kit Fox

Under the Draft HCP a network of core preserves would protect a critical connection for San Joaquin kit fox, between its range outside Contra Costa County and most known locations in Contra Costa County. Habitat connections will be acquired and protected to ensure that kit foxes can continue to move between the Contra Costa/Alameda County line and the Concord Naval Weapons Station at the northwestern corner of the species range. This important regional connection will be made by connecting the following existing large protected areas known or assessed probably to support San Joaquin kit fox:

- Brushy Peak Regional Preserve and Bethany Reservoir State Recreation Area (Alameda County) with Vasco Caves Regional Preserve
- Byron Airport conservation easements and the Los Vaqueros watershed;
- Cowell Ranch/Los Vaqueros watershed and Black Diamond Mines Regional Preserve; and,
- Black Diamond Regional Preserve and the Concord Naval Weapons Station.

TABLE 5
HCP/NCCP IMPLEMENTING POLICIES & REQUIRED CONSERVATION MEASURES

Measure	Conservation Measure Goal	Implementing Policies Where Practicable
1.1.1. Minimize Development Footprint	Avoid and minimize direct impacts of new development on covered vegetation communities and covered species. This measure applies to all new development within the Permit Area. *It is, however, expected to be applied predominantly to establish buffers between development and preserves.*[a]	• Encourage project designs that cluster development • Increase development densities within allowable zoning • Reduce project footprints • Encourage infill
1.1.2. Urban-Wildland Interface	Projects will incorporate design elements (see list at right) at the urban-wildland interface to minimize the indirect impacts of development on the adjacent preserve. This measure will generally apply to projects that occur at the edge of the ULL or adjacent to areas with moderate or high priorities for land acquisition. The relevant city or County jurisdiction will determine which development projects are subject to this measure, with final approval given by the Plan's Implementing Entity.[b]	• Roads with permanent wildlife barriers at the edge of development rather than front-loaded lots; • Backyard fences designed to prevent pets from entering sensitive habitat of covered species; • Fencing of public roads adjacent to preserves to prevent unauthorized access; • Development footprints with straight edges at the boundary with preserves; • Buffers to minimize the length of the urban-wildland interface; • Drainage systems to protect preserves from urban runoff; • Low-glare or no lighting at the edge of development; • Non-invasive landscaping to avoid the escape of plants into adjacent preserves; • Fire-resistant landscaping that could also serve as a fire break; • Access restrictions or informational kiosks to educate residents about the adjacent preserve.
1.1.3. Maintain and Improve Hydrologic Conditions and Minimize Erosion	To ensure that new development permitted under the Plan does not have a significant adverse effect on downstream fisheries and to avoid take of fish listed under the ESA or California ESA. Avoid or minimize direct and indirect impacts of new development on local hydrological conditions and erosion by incorporating the applicable Provision C.3 Amendments to NPDES Permit (Order No. R2-2004-0061; Permit No. CAS002912, adopted by RWQCB on July 21, 2004).of the Contra Costa County Clean Water Program (CCCCWP). [c]	• Develop stormwater treatment controls such as detention basins sized, at a minimum, to treat runoff based on the criteria provided in the C.3 Provisions. • Implement a verification program for treatment controls to ensure that all installed controls are being appropriately operated and maintained. • Control peak runoff flows and volumes via creation and implementation of a Hydrograph Modification Management Plan subject to the C.3 Provisions • Provide compensatory mitigation for projects where meeting C.3 Provisions are physically impractical. • Limit the use of stormwater controls that function primarily as infiltration devices (to protect groundwater quality and local stream hydrograph).

Measure	Conservation Measure Goal	Implementing Policies Where Practicable
1.1.4. Avoid Direct Impacts on Extremely Rare Plants or Fully Protected Wildlife Species	To avoid all impacts on extremely rare plant species listed as *no-take* species.	**Plants** Large-flowered fiddleneck (*Amsinckia grandiflora*); Alkali milkvetch (*Astragalus tener* ssp. *Tener*); Mount Diablo buckwheat(*Eriogonum truncatum*); Diamond-petaled poppy(*Eschscholzia rhombipetala*);Contra Costa goldfields (*Lasthenia conjugens*); Caper-fruited tropidocarpum (*Tropidocarpum capparideum*) **Birds** White-tailed Kite (*Elanus leucurus*);Peregrine Falcon (*Falco peregrinus*); Golden Eagle (*Aquila chrysaetos*) **Mammals** Ringtail (*Bassariscus astutus*)
1.2.1 & 2. Surveys for Covered Plants , Wildlife and Suitable Habitat	To facilitate project designs that avoid and minimize impacts on biological resources as required under the HCP/NCCP and to ensure acquisition of preserve land that best meets HCP/NCCP goals and objectives. Planning surveys will be conducted at proposed project sites, and proposed Preserve System acquisition sites.	• At sites being considered for covered activities (*e.g.*, development sites) qualified biologists will conduct surveys on behalf of project proponents to assess the likelihood of impacts on covered species. • At sites being considered for the Preserve, after permission is received from the landowner, qualified biologists will conduct surveys to assess the suitability of the Preserve.
1.2.3. Delineation of Wetlands and Other Waters of the U.S.	To comply with Clean Water Act (CWA) requirements for impact avoidance or minimization based on the standard of *All Practicable Alternatives Analysis*. This conservation measure requires applicants to demonstrate All Practicable Alternatives to wetland loss have been considered and feasible measures will be implemented within the project to minimize wetlands loss. Required documentation to be provided by applicants also will provide a benchmark for the restoration of wetlands within the preserve system as compensation for loss within the permit area.[d]	• Project applicants will conduct a delineation of waters of the U.S. and waters of the State according to the accepted standards of USACE and CDFG. • Each jurisdictional delineation will include a report containing information about the wetlands and other waters to the current standards of USACE and CDFG. • The accompanying reports will document avoidance and minimization measures integrated into the project design and the net impact on the wetlands and waters that would result from the project. • Delineations/reports will be submitted to the Implementing Entity prior to approval of the project under the HCP/NCCP. • A project may not receive permit coverage under this HCP/NCCP until it has mitigated the impact on jurisdictional waters according to the terms of the Regional General Permit, the Programmatic Section 1602 agreement (Master Streambed Alteration Agreement), and this HCP/NCCP.

TABLE 5
(Continued)

Measure	Conservation Measure Goal	Implementing Policies Where Practicable
1.2.4. Planning Surveys for Vegetation Communities, are Vegetation Types, and Rare Landscape Features	To determine the occurrence of land-cover types, rare vegetation types, or rare landscape features. Rare vegetation types are defined as those vegetation alliances or associations listed as rare or worthy of special consideration by CDFG (California Department of Fish and Game 2003 or latest version).	• Prior to development, as part of the application process. These surveys are intended to assist in planning habitat types required within the preserve system for mitigation of development in the permit area.
1.2.5. Pre-Construction Surveys for Wildlife	To identify site-specific measures (see Vegetation Community Level Conservation Measures and Species-Level Conservation Measures) that will be required to avoid and minimize take of covered species.	• Immediately prior to initiating ground-disturbing activities associated with covered activities. project proponents will conduct pre-construction surveys to detect the presence of covered wildlife on project sites. • The need for pre-construction surveys will be based on results of planning surveys conducted for covered wildlife. • Techniques and specific requirements for pre-construction surveys for covered wildlife are found in species-specific conservation measures for California tiger salamander, Western burrowing owl, San Joaquin kit fox, and others if specified in the HCP/NCCP. • CDFG protocol surveys for CTS (1997) will apply during only one season instead of two.
1.2.6. Construction Monitoring	To ensure that measures required to avoid and minimize impacts on covered species and natural communities are implemented.	• Proponent will develop and submit a construction monitoring plan to the Implementing Entity for approval. • Construction monitoring will be conducted by qualified biologists, before implementing a covered activity. • Resources identified in planning or pre-construction surveys (Conservation Measures 1.2.1, 1.2.2, and 1.2.3) will be the focus of construction monitoring efforts.
3.10.1. Remove California Tiger Salamanders From Impact Areas	To minimize direct mortality associated with implementing covered activities in occupied CTS habitat, where covered activities cannot avoid the occupied habitat. [e]	• California tiger salamander egg masses, larvae, juveniles, and adults will be captured and removed from construction areas by qualified biologists using hand-capture, seine, and dip net methods.

TABLE 5
(Continued)

Measure	Conservation Measure Goal	Implementing Policies Where Practicable
2.2.1. Wetland, Pond, and Stream Avoidance and Minimization	To avoid and minimize impacts of covered activities on wetlands, ponds, streams, and riparian woodland/scrub. This conservation measure is not intended to create small, isolated mitigation sites for low-quality wetlands and ponds. Some impacts on aquatic land-cover types are expected under the Plan. In exchange, wetlands in areas away from urban development and within large preserves that are linked to existing protected areas will be protected, enhanced, and restored.	• All high-quality wetlands, ponds, and streams will be avoided on site to the maximum extent practicable. • Applicants for coverage under the HCP/NCCP, who preserve streams on site, must follow the stream buffer guidelines in Conservation Measure 1.3.3. • Applicants must follow the guidelines in Conservation Measure 1.1.3 to minimize the effects of urban development on downstream hydrology, streams, and wetlands. • All wetlands, ponds, streams, and riparian woodland/scrub to be avoided by covered activities will be staked in the field by a qualified biologist. • Temporary fencing will be erected around these resources and a suitable buffer zone of at least 20 feet. Buffer zones will vary depending on the resource extent, quality, site conditions, and planned activity. For example, construction activities using heavy equipment will require a wider buffer zone (*e.g.*, 50 or 300 feet) than an ongoing activity such as clearing vegetation for a fuel break (*e.g.*, 20 feet). • Personnel conducting ground-disturbing activities within 100 feet of wetlands, ponds, streams, or riparian woodland/scrub will be trained by a qualified biologist in these avoidance and minimization measures and the legal obligations of project proponents working under this HCP/NCCP.

NOTES:

[a] This conservation measure is intended to achieve compliance with the avoidance and minimization requirements of the ESA, NCCPA, and CWA. This measure is not intended to result in small, isolated habitats avoided on a project-by-project basis.

[b] New preserves, particularly in Zones 1 and 2, will border existing and proposed urban development that includes (or will include) areas highly unsuitable for covered species; such areas include single-family homes with back or side yards, cul-de-sacs, residential streets, or parking lots. This situation presents a management challenge to preserving the covered species and habitats in the adjacent preserves.

[c] This conservation measure is intended to achieve compliance with the avoidance and minimization requirements of the ESA, California ESA, and CWA.

[d] Jurisdictional delineations are necessary to identify regulated resources and support compliance with Section 404 of the CWA and Section 1602 of the California Fish and Game Code. The Regional General Permit and Master Streambed Alteration Agreement developed in parallel with the HCP/NCCP will require the delineation of waters subject to both federal and state jurisdiction.

[e] The only available method to minimize the likelihood for mortality of individuals is to capture, remove, and relocate individuals from project sites. However, the long-term success of relocating California tiger salamanders is not well known owing to potential "fidelity" to natal ponds.

SOURCE: ***East Contra Costa County Habitat Conservation Plan/Natural Communities Conservation Plan*****, Preliminary Working Draft, November 20, 2003.**

Reasonable and Prudent Alternatives

This EIR and the JPA's HCP/NCCP consider alternatives to avoid incidental take of California tiger salamander (CTS). Suitable habitat for CTS could be avoided by urban development to a greater degree than is proposed in the Draft HCP by requiring all development projects to avoid all suitable habitat for this species and to mitigate their impacts on site. This alternative approach, however, could also result in a patchwork of mitigation sites that do not function as well biologically as larger areas of contiguous protected lands within a Preserve System. This alternative conservation approach was rejected by the Draft HCP's authors because it would result in a biologically inferior outcome. This alternative approach is also more costly because land within the ULL is generally much more expensive than land outside the ULL.

Inspection of Figure 5 shows that most of the proposed CTS critical habitat Units 14 and 15 that was excluded by Final Rule, in fact, is located outside the ULL. The Draft HCP includes much of Units 14 and 15 within Acquisition Zone 1. USFWS excluded Units 14-17 by Final Rule in view of the substantial protection that is provided under the Draft HCP.

Required Permits

Federal Endangered Species Act, Section 7, Incidental Take Permit

The federally-listed threatened California tiger salamander (CTS) occurs on the project site and the entire site is considered as combined breeding and aestivation habitat. The acknowledged range of the federally endangered San Joaquin kit fox (SJKF) extends north to the project site. Therefore, a Section 7 consultation with the U.S. Fish & Wildlife Service pertaining to potential impacts to CTS and SJKF will be required. Section 7 consultation between USFWS and U.S. Army Corps of Engineers (USACE) would be enabled through the involvement of USACE in regard to on-site wetlands protection. In the absence of USACE jurisdiction in regard to wetlands, Section 10 consultation could be required directly between the developer and USFWS.

An incidental take permit is may be issued on a discretionary basis and is not an automatic consequence of Section 7 or Section 10 consultation. Federal and State of California incidental take permits are issued only after consultation, submittal of technical documentation, and evaluation of whether a project can be implemented in a manner that avoids or minimizes take and destruction or adverse modification of critical habitat. A non-jeopardy opinion can be made by USFWS/CDFG if the proposed action would not jeopardize the continued existence of a listed species or result in destruction or adverse modification of its critical habitat; otherwise, reasonable and prudent alternatives to the proposed action must be considered.

Habitat Conservation Plans are provisions under Section 10 (a) permit process of the ESA, to relieve restrictions on private landowners who want to develop land inhabited by endangered species. Private landowners who develop and implement an approved HCP provide for conservation of the species and thereby are eligible to receive an "incidental take permit" that allows a development project to go forward. To qualify for a Section 10(a) permit, the applicant's HCP must specify the impacts of the project, measures to minimize the impacts; and alternatives to the proposed taking. Mitigation measures may involve preservation of existing habitat, restoration of degraded or former habitat, creation of new habitat, the establishment of buffers around existing habitat, or restrictions on land use or access. The HCP also must provide a plan for funding and administration of the HCP,

Wetlands

The proposed project will require authorization from the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act. Nationwide Permit 39 authorizes "discharges of dredged or fill material into non-tidal waters of the U.S., excluding non-tidal wetlands adjacent to tidal waters, for the construction or expansion of residential, commercial, and institutional building foundations and building pads and attendant features that are necessary for the use and maintenance of the structures" provided the activities meet the following criteria:

- The discharge does not cause the loss of greater than 0.5-acre of non-tidal waters of the U.S.;
- The discharge does not cause the loss of greater than 300 linear feet of a stream (unless the criterion is waived by the District Engineer);
- The discharge is part of a single and complete project;
- The permittee avoids and minimizes discharges into waters of the U.S. to the maximum extent practicable;
- The discharge does not cause more than minimal degradation of water quality or more than minimal changes to stream flow characteristics; and,
- The permittee establishes and maintains vegetated buffers next to open water to the maximum extent practicable.

Impact to wetlands is within the 0.5-acre maximum of Nationwide Permit 39. However, Nationwide Permit 39 also has a maximum lineal limit of 300 feet of other waters (*e.g.*, streams). The project's impact to a disjunct intermittent stream, approximately 394 lineal feet of which have a defined bed and bank, approximately 782 linear feet of incised ephemeral stream with defined bed and bank, and up to approximately 702 additional feet of other ephemeral stream reach exceeds the limit of 300 feet. The extent of impact to potential jurisdictional areas suggests that the proposed project is likely to require an

Individual Permit from the Corps. If USACE determines that the project does not qualify for a Nationwide Permit 39, an Individual Permit would be required.

Clean Water Act, Section 401 Water Quality Certification
The project also will require Section 401 water quality certification from the San Francisco Bay Regional Water Quality Control Board (RWQCB) for the USACE permit to be valid. Prior to issuance of the water quality certification, RWQCB will require the applicant to demonstrate that a Final Environmental Impact Report has been certified by the City of Pittsburg pursuant to the California Environmental Quality Act (CEQA). Mitigation of wetlands will be required to obtain USACE and RWQCB approval.

Section 1603, Streambed Alteration Agreement
CDFG will be responsible for permit authorization, called a Streambed Alteration Agreement, pursuant to Section 1603 of the California Fish and Game Code, for any work that may take place within the on-site ephemeral streams. Like Section 401 water quality certification, CDFG requires proof of Final Environmental Impact Report certification prior to issuance of a Streambed Alteration Agreement.

BIOLOGICAL IMPACT ASSESSMENT

PROJECT EVALUATED

The project site is located in the southern Planning Area of the City of Pittsburg, outside the incorporated City Limits, and within the current ULL (2005). The proposed project would have 415 single-family houses constructed as a conventional single-family subdivision after mass grading to reduce slope steepness, filling existing intermittent and ephemeral streams, and stabilizing unstable landslide deposits. The proposed project has a looped internal circulation system and plottage is similar to that on the adjacent subdivisions. The proposed gross density is approximately 2.8 dwelling units per acre, and the average lot size is 14,000 square feet.

Alternatives to the proposed project are addressed in Chapter VI and Chapter XIII, Appendix C, of this EIR. This section discusses impacts of the applicant's proposed project.

STANDARDS OF SIGNIFICANCE

The project would be considered to have a significant impact on biological resources if it would:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service;

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or,

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

EVALUATION

Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service—

IMPACT 1
California tiger salamander (CTS) Implementation of the proposed project would result in removal of 163 acres of aestivation and/or breeding habitat for the federally-listed threatened CTS. The CTS habitat on the project site currently is not designated or proposed by USFWS as CTS critical habitat.

The footprint of the project as proposed encompasses the entire area of the project site; therefore, there is no opportunity for on-site mitigation for impacts to CTS habitat under the development plan as proposed. Development of the project as proposed would require a substantial off-site CTS mitigation proposal consisting of the purchase and preservation of up to 489 acres of occupied CTS habitat off-site or purchase of credits at an off-site agency-approved mitigation bank

Mitigation Measures:

- The applicant shall develop a CTS Mitigation Plan to address the potential impact to the California tiger salamander which includes compensatory mitigation for a loss of 163 acres of combined CTS breeding and aestivation habitat. The CTS Mitigation Plan shall be developed in coordination with USFWS as part of the federal ESA Section 7 or Section 10 consultation.

  Tentatively, the amount and kind of habitat compensation is 489 acres, calculated at a ratio of 3:1 for the 163 acres of on-site habitat. The habitat types to be mitigated are annual grassland, 0.11 acre of palustrine emergent seasonal wetland, and approximately 800 to 1,900 feet of riverine intermittent streambeds.

  The Section 7, or Section 10, consultation process will confirm the amount and kind of habitat compensation, and will identify specific mitigation parcels, timing of habitat acquisition, monitoring requirements, performance standards and contingency measures. Habitat acquisition must occur at a suitably early time in the development process, before initiation of grading on the project site, to enable implementation of conservation measures on the mitigation parcels.

- Applicant shall include in the CTS Mitigation Plan provisions for relocation of CTS individuals from the project site, long-term conservation of the mitigation land, management activities to assure long-term protection of mitigation wetlands (*e.g.*, restrictions to public access, domestic or feral animals), and long-term maintenance of CTS breeding, refugial and dispersal habitats.

- During construction, the applicant/developer shall employ qualified biological monitors during all construction or excavation activities associated with the project. The monitors shall hold appropriate permits from USFWS and would implement provisions of the CTS Mitigation Plan including CTS trap-and-relocate as-needed.

- Prior to and during construction, the applicant/developer shall employ a qualified biologist to deploy barriers to keep CTS that may be present in adjacent off-site areas out of developed areas of the project.

Residual impact after mitigation: Less-than-significant.

IMPACT 2
California tiger salamander (CTS) Human activities and population within the project site can indirectly affect CTS. These effects include water and light pollution, human disturbance, increased numbers of domestic predators (*e.g.*, dogs and cats), increased vehicle-related disturbance, and increased risk of wildfire. Amphibians in general are susceptible to herbicides and pesticides. As CTS cross roads on breeding migrations, up to 15 to 20 CTS individuals per mile of road can be killed.

Mitigations Measures:

- For the long-term, developer shall design and construct a permanent barrier shall be that would keep CTS, which may be present on the adjacent Thomas and AUSD-owned parcels, out of the developed area. It is suggested that this barrier be constructed along the southern and western boundaries during the grading phase.
- Developer shall design and construct low-light measures for the outer perimeter of the project site, especially the site's southern boundary, and off-site water reservoir road.
- Developer shall design, construct, and maintain an information kiosk in the southern portion of the project site to foster resident and visitor awareness of wildlife needs. If a mini-park is constructed in the area south of "C" Court, as recommend in Chapter V.G, this mini-park would be an ideal location for a public information kiosk.

- After buildout, Homeowners' Association will be responsible for long-term maintenance and wildlife informational bulletins posted in the kiosk.
- Developer to design and construct suitable access-restricting barriers to the off-site water reservoir and service road, and other EVA roads, to minimize wildlife disturbance and road kill. It is acknowledged that roads that would not carry daily traffic do not represent as substantial a risk of road kill as public thoroughfares. The recommended CTS barriers are intended to prevent CTS from entering the developed area.

Residual impact after mitigation: Less-than-significant.

IMPACT 3

San Joaquin Kit Fox (SJKF) Implementation of the proposed project would result in removal of 163 acres of annual grassland at the northern limit of the range of the federally-listed endangered and California-listed threatened SJKF. The SJKF habitat on the project site is not designated or proposed as critical habitat of SJKF; nevertheless it adjoins the SJKF movement corridors acknowledged in the Draft HCP.

Mitigation Measures:

- Developer shall prepare and implement a CTS Mitigation Plan, which shall provide for long-term conservation and management and of approximately 489 acres of annual grassland habitat. This will compensate the same kind of habitat used by the SJKF.
- During Section 7, or Section 10, consultation, the developer in coordination with USFWS/CDFG shall consider mitigation parcel locations that are within the range of the SJKF or adjoin its movement corridors.

Residual impact after mitigation: Less-than-significant.

IMPACT 4
California red-legged frog (CRLF) The project site was found not to contain permanent water habitat suitable for CRLF. Even so, the USFWS has proposed CRLF critical habitat which includes extensive area south of the project site and includes the southwestern corner of the project site. The USFWS-proposed CRLF critical habitat is pending a Final Rule due November 2005.

Mitigation Measures:

- Pending the Section 7, or Section 10, consultation and Final Rule due in November 2005, the developer shall not take any action that could preclude reasonable and prudent alternatives, including the conservation alternative for of the southwestern corner of the project site.

Residual impact after mitigation: Less-than-significant

IMPACT 5
Loggerhead Shrike Loggerhead shrikes are resident in the area, and nesting season wildlife surveys conducted in April and June of 2004 detected loggerhead shrike foraging at both the northern and southern edges of the project site, indicating that the species may nest off-site in the project area. Preferred nesting habitat for loggerhead shrike (*i.e.*, trees or shrubs with thick foliage) is limited to the few trees present on the project site. It is, therefore, unlikely that loggerhead shrikes nest on site.

Mitigation Measure:

- Developer shall retain a qualified biologist to perform pre-construction surveys necessary to be certain that the species is not nesting on-site during grading and construction. If nests of this species are found, biologist shall devise a construction plan that would allow successful nesting.

Residual impact after mitigation: Less-than-significant.

IMPACT 6
California Horned Lark California horned larks were present at the site during winter surveys, the species was not detected on the site during surveys conducted during the spring and summer, indicating that although the species winters at the site, it apparently does not nest.

Mitigation Measure:

- Developer shall retain a qualified biologist to perform pre-construction surveys necessary to be certain that the species is not nesting on-site during grading and construction. If nests of this

species are found, biologist shall devise a construction plan that would allow successful nesting.

Residual impact after mitigation: Less-than-significant.

IMPACT 7

Burrowing owl Burrowing owl habitat was assessed not to be present at the time of surveys in view of the lack of ground squirrel burrows. Such conditions can change over time and are subject to various influences including cattle grazing.

Mitigation Measure:

- Developer shall retain a qualified biologist to perform pre-construction surveys necessary to be certain that the species is not nesting on-site during grading and construction. If nests of this species are found, biologist shall devise a construction plan that would allow successful nesting.

Residual impact after mitigation: Less-than-significant.

IMPACT 8

Relation with New Road and Increased Traffic The proposed Buchanan bypass would be a new road in the HCP/NCCP inventory area and the predicted increase in local population also would increase vehicle traffic on roads generally in the HCP/NCCP inventory area. San Joaquin kit fox, covered birds, reptiles, and amphibians may be killed or disturbed by increased vehicular traffic.

Mitigation Measures:

- Developer shall prepare CC&Rs which shall include specific prohibitions to off-road travel around the site's perimeter and upland areas and prohibitions to travel on the service road.
- Developer shall install street signs approved by City Public Works Department, indicating such prohibitions.

Residual impact after mitigation: Less-than-significant.

IMPACT 9

Increased Human Presence The proposed project could increase visitation at Black Diamond Mines Regional Preserve and off-site walking on the reservoir service road, resulting in potential indirect impacts on biological resources from collection and harassment, introduction of nonnative species, predation by pets or feral cats, and increased frequency of wildfire ignitions.

Pets and feral cats pose a serious threat to native birds, especially those that nest on or near the ground, as well as to native amphibians and reptiles. Ornamental plants may spread to adjacent protected areas and out-compete native plant species.

Mitigation Measures:
The developer shall provide for, perform, or implement the following:

- Kiosk (see IMPACT 2, above) literature shall include pamphlets about prohibited activities including collecting or harassing protected species.
- Kiosk (see IMPACT 2, above) literature shall include pamphlets on designated walking trails in the area, restrictions on pets use of trails or non-designated areas off of designated trails.
- Restrictions, if any apply, to hiking/walking on the reservoir service road shall be posted by the City.
- CC& Rs for this project shall include a list of invasive species of plant and shall prohibit planting of listed invasive species.
- Landscape plans shall be subject to the City Landscaping Ordinance.

Residual impact after mitigation: Less-than-significant.

IMPACT 10
Relation with an Approved Open Space Pocket The proposed project would bound an island, or "pocket," of open space dedicated within Black Diamond Ranch. The proposed open space, Parcel A, on Black Diamond Ranch will be surrounded on three sides by streets, residential lots and houses, and will not be connected to nearby open space along Markley Creek. Parcel A is not a connection in any migratory corridor and is not an uplands refugial connected with wetlands on the project site. Avoidance of the western side of Parcel A, therefore, would not remedy any biological impact associated with the isolation of this open space parcel.

Mitigation Measure: None warranted in view of less-than significant effect.

IMPACT 11
Increased Pollution in Urban Runoff The proposed project potentially could result in increased runoff of urban pollutants such as grease, oil, and lawn pesticides into local streams. Amphibians are particularly sensitive to pesticides and herbicides in urban runoff.

Mitigation Measures:

- City maintenance shall practice limited weed abatement on the service road and reservoir area, using only mechanical methods or approved pre-emergents. Herbicides shall not be applied.

- Fire break maintenance shall be performed by HOA or individual owners generally within the project's limits and never off-site.

Residual impact after mitigation: Less-than-significant.

Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service—

The *Biological Assessment* and preliminary wetlands delineations identified wetlands and other waters of the U.S. that are potentially subject to USACE and CDFG jurisdiction. The vegetation of the project site, however, consists mostly of upland plant species and is generally classified as annual grassland. In 2001, no amount of facultative wetland vegetation was identified on the project site (WRA, December 2001). In 2004, approximately 0.02 acre of "isolated wetland" and another 0.09 acre of "isolated ephemeral drainage" were identified by as having facultative wetland vegetation including, for example, Italian rye grass and Mediterranean barley (Albion Environmental, Inc., July 2004). No substantial amount of the habitat on the project site, therefore, is classified as facultative wetland or riparian. The project site does not contain riparian woodland and is not located within 1,300 feet of riparian woodland. Sensitive natural communities, or special features such as rock outcrops, caves, or vernal pools, that could be subject to protection are not present on the project site. Much of the project site has been influenced by cattle grazing, resulting in a plant community dominated by non-native annual species including Italian ryegrass (*Lolium multiflorum*), barley (*Hordeum murinum*), rip-gut brome (*Bromus diandrus*), and wild oats (*Avena fatuam*).

Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means—

IMPACT 12
Wetlands and other Waters of the U.S. Implementation of the proposed project would result in removal of the following:

- an ephemeral stream reach of 163 lineal feet having defined bed and bank, which Albion Environmental further characterized as a wetland;
- a west-east trending ephemeral stream and its south-north tributaries (945 to 1,484 lineal feet having defined bed and bank); and,
- a south-north trending, disjunct, intermittent stream (394 lineal feet having defined bed and bank) in the southwest portion of the site.

The footprint of the project as proposed encompasses the entire area of the project site; therefore, there is no opportunity for on-site mitigation for impacts to wetlands and other jurisdictional waters under the development plan as proposed.

Mitigation Measures:

- The developer/applicant shall reconcile the available wetland delineations and submit the final report for verification by the U.S. Army Corps of Engineers (USACE).
- For impacts to wetlands and other waters of the U.S., or waters of the state, authorization from USACE and RWQCB will be required. Appropriate wetland mitigation will be required by USACE and RWQCB to compensate for on-site impacts to waters under federal or state jurisdiction.
- The developer/applicant shall apply and obtain for a Section 404 individual permit from USACE and a 1601 Streambed Alteration Agreement from CDFG as a condition of project approval.
- The developer shall apply for and obtain the Section 401 water quality certification, or waiver, from the San Francisco Bay Regional Water Quality Control Board.
- The developer shall apply for and obtain a 1601 Streambed Alteration Agreement from CDFG.
- The developer shall prepare, in coordination with USACE, a compensatory Wetland Mitigation Plan. Jurisdictional areas must be replaced at a minimum 1:1 ratio through wetland compensation off-site, or wetland protection and creation on-site, to ensure that no net loss of acreage or functions and values to these areas occurs. The required ratio of replacement acreage to impacted acreage will be decided by regulatory agencies on a site-specific basis, based on the functions and values present on the project site.

Residual impact after mitigation: Less-than-significant.

Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites—

The project site is located at the northern edge of the range of the SJKF. However, other undeveloped grassland habitat located south of the project site would remain that can serve as effective migration corridors, providing connections between important areas of SJKF habitat. The identified SJKF migration corridors are illustrated in Figure 5.

The project site has been evaluated in *Biological Assessment for Sky Ranch II, Pittsburg, California* (Appendix D). The assessment reported no evident use of the project site as a native wildlife nursery.

Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance—

IMPACT 13
General Plan Goal 9-G-1 and Policy 9-P-1 require that assessments be conducted prior to development approval within habitat areas of special status species such as the California tiger salamander (CTS). *Biological Assessment for Sky Ranch II* (Huffman Broadway Group, June 2005) satisfies this requirement.

Mitigation Measures: None warranted.

IMPACT 14
The creekways and wetlands policies of the City of Pittsburg (General Plan Policies 9-P-9, -10, -11, and -12) could be applicable to the intermittent and ephemeral stream reaches on the project site. The proposed project would be inconsistent with the following policies:

- 9-P-9 requires a 100 to 300 foot wide buffer for creekways;
- 9-P-10 requires no development within creek buffers;
- 9-P-11 encourages, but does not require, re-establishment of creeks in the design of new development; and,
- 9-P-12 requires protection and restoration of wetlands.

Ephemeral streams play a limited role in providing habitat. The primary function of the buffer for ephemeral streams is to filter out sediment and contaminants before they may enter and degrade downstream habitat.

In view of the proposed grading and fill, creekways and wetlands preservation would not be possible without modifications to the proposed subdivision and grading plan. In view of the occurrence of CTS and jurisdictional waters on site, on-site mitigation measures, off-site compensatory mitigation measures, and alternatives to the proposed project have been assessed herein (see also All Practicable Alternatives Analysis, Appendix C).

IMPACT 15
General Plan Goal 9-P-19 calls for protection or replacement of mature trees through Zoning Ordinance regulations. The project site contains some scattered buckeye trees, most located generally in the southwestern portion of the site.

Mitigation Measures:

- Developer shall retain an arborist prior to grading to mark and map trees classified as mature trees under the City's prevailing regulations at the time of application for grading permit or else, in the absence of a regulation, by applying a trunk diameter standard of 12 inches or greater.
- Developer shall replace an equal number of trees in the immediate vicinity of the reservoir site, reservoir service road, and headwall areas. Tree species and siting shall be determined by the arborist.

Residual impact after mitigation: Less-than-significant.

Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan —

IMPACT 16
Draft HCP/NCCP The Draft HCP/NCCP is a future plan that has not concluded environmental review, USFWS/CDFG approval, or implementation. In view of the regional importance of the Draft HCP/NCCP, however, a consistency assessment is provided herein (see Project Consistency with the Draft HCP/NCCP, page V-79).

Based on this consistency assessment, it is concluded that unspecified land south of the project site is likely to be acquired to create a 300-foot wide urban-wildland buffer. This land is located in HCP/NCCP Sub-Zone 1d. The reservoir and service road potentially could be located in this future buffer. Off-site compensatory mitigation required for the proposed project (489 acres) exceeds the initial acquisition target of 406 acres in Sub-Zone 1d. To provide the minimum recommended 300-foot urban edge buffer along the southern boundary of the Buchanan Planning Sub-area, along the eastern boundary of the Woodlands Planning Sub-area, and on the Sub-Zone 1d parcel adjacent to Contra Loma Reservoir, approximately 146 acres would be needed. After deducting 146 acres for urban buffer from the 406 acres proposed for acquisition in Zone 1d, there would be 260 acres for compensatory mitigation in the 25 percent proposed acquisition area within Sub-Zone 1d and additional land within Sub-Zone 1d not included in the 25 percent proposed acquisition area.

Mitigation Measures:

- The developer will design and construct the off-site reservoir and service road so that they meet requirements of the USFWS/CDFG and do not become impediments to habitat functions used by covered species or barriers to the movement of covered species.
- Developer will implement pre-construction survey and construction monitoring, as discussed herein, in regard to development of the recommended off-site utility and service road.
- The HCP Implementing Entity may, or may not, have to increase the percentage acquisition in Sub-Zone 1d, depending on where compensatory mitigation land is provided for the proposed project. This measure, if necessary, is outside the jurisdiction of the City of Pittsburg.

Residual impact after mitigation: Less-than-significant.

IMPACT 17

San Joaquin kit fox The annual grasslands on the project site are illustrated in as being located on the outer edge of core kit fox habitat. The project's impact to the kit fox, therefore, could be considered to be potentially significant. The proposed project, however, would not remove land from any of the identified key SJKF movement corridors.

Mitigation Measures:

- Developer shall implement a CTS Mitigation Plan which addresses mitigation for the loss of SJKF annual grassland habitat in conjunction with compensatory mitigation for CTS.

Residual impact after mitigation: Less-than-significant.

TABLE 6
ZONE 1 ACQUISITION GOALS

Sub-Zone	Annual Grassland Acquisition (acres)	Purpose
1a	367	To protect Lawlor Ridge and Lawlor Creek headwaters; to provide a secondary corridor for San Joaquin kit fox.
1b & 1c	1,100	To provide a primary corridor for San Joaquin kit fox, from Black Diamond Mines Regional Preserve and Concord Naval Weapons Station.
1d	406[a]	To create a buffer between new development and the Preserve System, with emphasis on acquisition in the northern portion of Zone 1d.
1e	0	No acquisition requirement
Total Zone 1	1,873	Acreage is for the initial permit area. Maximum permit area is 2,461 acres.

NOTE: [a] Approximately 25 percent of Sub-Zone 1d.
SOURCE: *Contra Costa County HCP/NCCP* Preliminary Working Draft, 2003.

PROJECT CONSISTENCY WITH THE DRAFT HCP/NCCP

The Draft HCP/NCCP (the "Draft HCP") has not been approved by USFWS or CDFG. Before a permit for the proposed project or any covered activity could be granted under the proposed HCP/NCCP, the Draft HCP would have to be finalized, approved by USFWS and CDFG, and then implemented by the Implementing Entity. Finalization, approval, and implementation steps are not expected to be concluded until 2006. In view of the timing of the proposed project, it is expected that the project applicant would apply for individual CWA and ESA permits through Section 404 (CWA) and Section 7, or Section 10, ESA consultation.

The following analysis considers consistency of the proposed project with the Draft HCP. The proposed project could require compensatory mitigation for 163 acres of CTS habitat, 0.02 acre of palustrine emergent seasonal wetland, and 782-1,878 feet of riverine intermittent streambeds.

Assuming 3:1 compensation for CTS habitat, 2:1 compensation for intermittent streams and seasonal wetlands, and 1:1 compensation for ephemeral streams, the proposed project could reduce the amount of take coverage available in the initial HCP/NCCP Permit Area by approximately 489 acres. This assumes that the three habitat types are all available within the 489 acres. This amount of land for compensatory mitigation represents approximately 26 percent of the Zone 1 acquisition area for the Initial Permit Area and 20 percent for the Maximum Permit Area (see Table 6) .

The initial land area targeted for acquisition in Sub-Zone 1d, approximately 25 percent of Sub-Zone 1d, is 406 acres. Acquisition in Sub-Zone 1d would be focused in the northern portion to secure annual grasslands that will serve as a buffer between future urban development in Pittsburg and the Preserve System.

The compensatory mitigation required for the proposed project (489 acres) exceeds the initial acquisition target of 406 acres in Sub-Zone 1d. To provide the minimum recommended 300-foot urban edge buffer along the southern boundary of the Buchanan Planning Sub-area, along the eastern boundary of the Woodlands Planning Sub-area, and on the Sub-Zone 1d parcel adjacent to Contra Loma Reservoir, approximately 146 acres would be needed. After deducting 146 acres for urban buffer from the 406 acres proposed for acquisition in Sub-Zone 1d, there would be 260 acres for compensatory mitigation in the 25 percent proposed acquisition area within Sub-Zone 1d and additional land within Sub-Zone 1d not included in the 25 percent proposed acquisition area.

In view of the distribution of existing CTS on the project site and east and west of the project site, it would be desirable to provide for compensatory mitigation for CTS within Sub-Zone 1d. However, USFWS has identified proposed CTS critical habitat and most of that proposed CTS critical habitat is located outside Sub-Zone 1d, with the exception of the Sub-Zone 1d parcel located adjacent to Contra Loma Reservoir (see Figure 6).

Hypothetically, if the developer submitted an application for project coverage under the HCP/NCCP, the developer would have to comply will all of its implementing provisions (see Table 5). To achieve consistency with the Draft HCP, the proposed project hypothetically could need modifications to its design and additional provisions for compliance with Conservation Measures 1.1.1, 1.1.2, 1.1.3, 1.2.3, or 2.2.1. For consistency with the Draft HCP, the proposed project potentially could require modification to reduce the development footprint, or else the Draft HCP potentially could require modification to target additional land acquisition in Zone 1d.

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B. GEOLOGY AND SEISMICITY

Setting

Regional Geology

The Sky Ranch II project site is located in northeastern Contra Costa County, north of Mount Diablo, on the southern edge of the Pittsburg-Antioch Plain. The Pittsburg-Antioch Plain is a floodplain of the Suisun Bay/Sacramento River system. The river channel was carved through the area during the Pleistocene epoch, a geologic epoch of much lower sea level and active redistribution of surface soils by the action of water on upland deposits. Alluvial materials were deposited along the perimeter of Mount Diablo in a series of fans that spread outward across the plain toward Suisun Bay.

Elevations are just under 200 feet above mean sea level (msl) to just over 500 feet above msl in the southwestern corner. The topography consists of rolling hills with areas of slopes greater than 15 percent or 6:1 (6 feet horizontal: 1 foot vertical). The project site is mapped to have moderately unstable slopes, including shallow surficial slides and deep-seated landslides.

The slope areas referenced above correspond approximately with the northern limit of Tulare formation surface materials in the plan area. Materials of this formation are described as poorly consolidated, non-marine sandstone, siltstone and conglomerate, with some tuff (volcanic ash deposits) included. According to the City's General Plan, sedimentary rocks in the hillside zone have variable composition, but generally are weak and susceptible to erosion. Landslide deposits occur at deeply incised stream channels, which in the vicinity of the project site, and west thereof, would include a historically dense lattice of streams tributary to Kirker Creek. Fracture planes occur throughout the southern hills; therefore, cuts made in these areas are subject to slope failure unless carefully engineered.

Surface Soils

The upper soils on the site consist primarily of Altamont-Fontana complex (AcF), in an active stream channel depositional environment (USDA, 1977). The AcF complex is a well-drained soil found on the foothills north and east of Mount Diablo. The surface soil is a dark grayish brown to very dark grayish brown clay. When located in depressions it is classified as hydric on the hydric soils list of Contra Costa County.

The northernmost portion of the site has Altamont clay complex (AbE), and a very minor portion at the southwestern corner has Lodo-Rock outcrop complex. Included in the Altamont clay complex are Capay clay and Rincon clay loam, neither of which is listed as hydric on the hydric soils list of Contra Costa

County. Capay clay and Rincon clay soils present high shrink-swell and subsidence potential.

Residual soils derived by in-place weathering of the parent bedrock where encountered along ridgelines and spur ridges are 3 to 5 feet thick. Residual soils were characterized by ENGEO as "dark brown silty clay with lesser amounts of sand." These residual soils have a Plasticity Index (PI) of 31 to 46 which is considered highly expansive. Native soil and bedrock generally were characterized by ENGEO as expansive. The clayey soil and clayey bedrock on the project site have PI indices of 22 to 39 (ENGEO, February 2002).

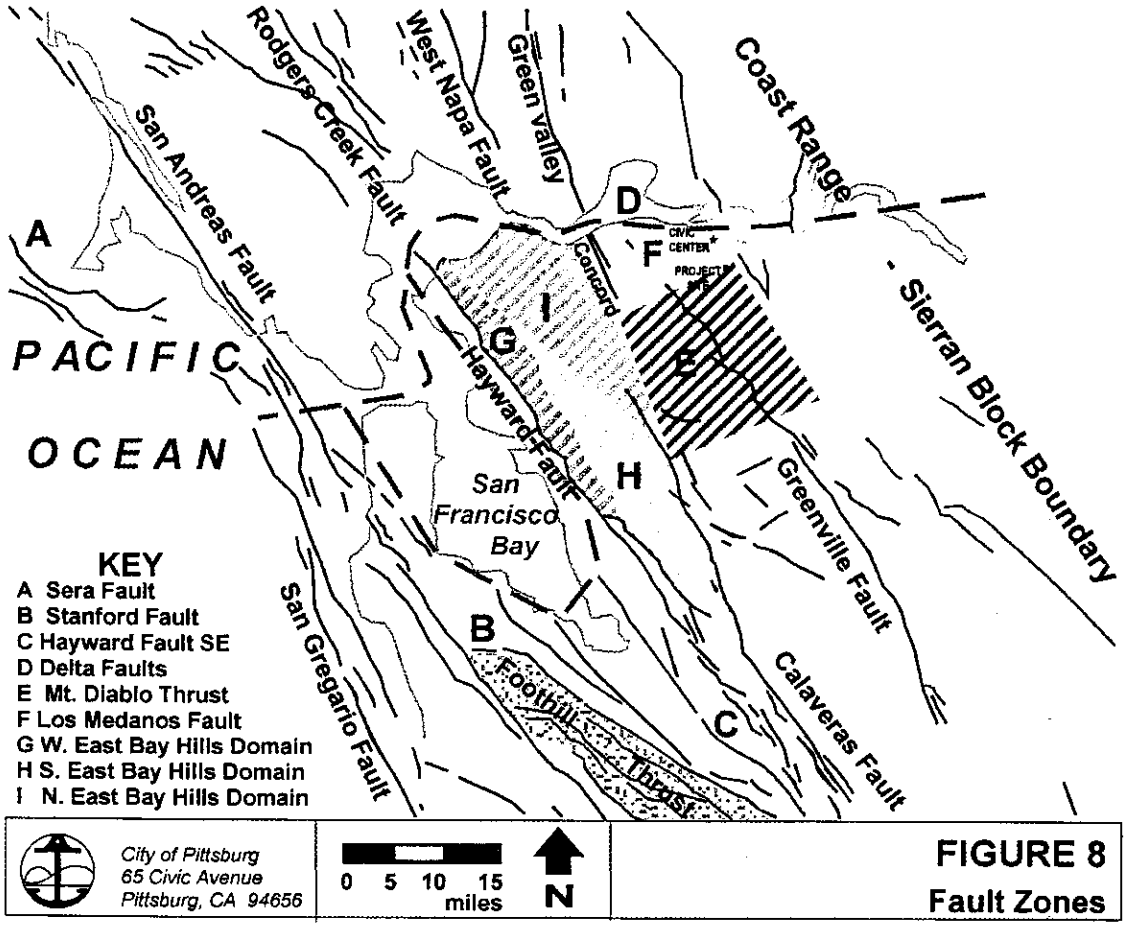
The project site also has areas of unengineered fill. Areas of unengineered fill, relatively loose colluvial deposits, and landslide deposits have been studied specifically by means of on-site exploratory boring and trenching. Mapping of the footprints of colluvium, shallow- or deep-seated landslide deposits, and unengineered fill is presented in *Geotechnical Exploration Sky Ranch II, Pittsburg, California* (ENGEO Incorporated, February 14, 2002) as summarized herein.

Faults and Seismicity

The entire San Francisco Bay Area is located in a region that is active seismically. Active faults in the region include the Calaveras, Pleasanton, Concord-Green Valley, Hayward, Rodgers Creek, and the San Andreas faults. As in other parts of the San Francisco Bay area, major active faults are close enough to the project site to cause intense ground shaking during earthquake events (see Figure 8, next page).

The Clayton-Greenville fault is located approximately 5 miles southwest, and the Antioch fault is located approximately 1 mile northeast of the project site. The Concord fault is located 11 miles west, the Calaveras fault is located 15 miles southwest, and the Hayward fault is located approximately 23 miles west of the project site. The main trace of the San Andreas fault is located approximately 42 miles west of the project site. No known active surface faults cross the project site; however, the site itself is located near the northeastern edge of the Mount Diablo Thrust fault. Potential manifestations of faults and seismicity are described as follows:

Surface Rupture Surface rupture means a break in the crust caused by fault movement during an earthquake. The location of surface rupture generally can be assumed to be along an active or potentially active major fault trace. No active faults have been mapped at the project site. Stereo-paired aerial photographs were studied by ENGEO Incorporated for presence of terrain features characteristic of fault zones, such as linear discontinuities in rock or soil, offset water courses, linear scarps, topographic lows, or



or breaks in slope. There were no apparent indications of these kinds of displacement faulting in the aerial photographs, and ENGEO concluded that in the absence of known active faults crossing the project site the likelihood of primary fault ground rupture is remote (ENGEO, February 2002).

Ground Shaking Ground shaking, which refers to any motion of the earth's surface caused by an earthquake, is a widespread hazard in the San Francisco Bay area. The extent of ground shaking depends on the magnitude or intensity of the earthquake, distance from the epicenter, and local soil conditions. Magnitude is a measure of the energy released by an earthquake, assessed by seismographs that measure the amplitude of seismic waves.

Magnitude, or intensity, can be described or measured as follows:

(1) Measurement using accelerometers (strong motion seismographs) that record ground acceleration at a specific location as a measure of force applied to a structure under seismic shaking. Acceleration commonly is expressed as a decimal fraction of the acceleration under gravity (g).

(2) Description using the Modified Mercalli Intensity Scale (MMI), a subjective index of the observable effects of earthquake intensity (see Table 7).

TABLE 7
Ground Motion for Modified Mercalli Intensities

MMI[a]	Peak Lateral Force[d] (g)	OBSERVED EFFECTS
III	<0.02g	Hanging objects swing. Though felt by persons indoors may not be recognized as an earthquake.
IV	<0.04g	Hanging objects swing. Vibration like passing of heavy trucks: or sensation of a brief jolt. Parked cars rock and car alarms activate. Windows, dishes rattle.
V	<0.10g	Light shaking[b] felt outdoors. Sleepers wakened. Liquids disturbed or spilled. Small unstable objects displaced or upset.
VI	0.10g to 0.18g	Moderate shaking[b] felt by all. Not sufficient to induce landslides.[c] Windows, dishes, glassware broken. Knickknacks, books off shelves. Furniture moved or overturned. Weak plaster and masonry cracked.
VII	0.18g to 0.34g	Strong shaking,[b] noticed by persons driving cars. Not strong enough to induce landslides.[c] Damage negligible in buildings of good design and construction. Waves seen on ponds.
VIII	0.34g to 0.65g	Very strong shaking.[b] Landslides may be induced on 1-2 percent of slopes having 6-15 percent grade[c]. Cracks in wet ground and steep slopes. Steering of cars affected. Fall of stucco. Tree branches broken.
IX	>0.65g	Violent shaking.[b] General panic. Landslides may be induced on 5-8 percent of slopes having 6-15 percent grade.[c] Conspicuous cracked ground. Underground pipes may be broken.
X	>1g	Very violent shaking[b] causes general panic. Landslides on 5-8 percent of slopes having 6-15 percent grade,[c] more on steeper slopes. Ground badly cracked. Some well-built wooden structures destroyed. Water splashing in ponds, slopped over river banks.

NOTES:
[a] Modified Mercalli Intensity (I, II, XI, and XII not shown.)
[b] Ground shaking description from ABAG.
[c] Landslide descriptions from ABAG, for Class A or B soils.
[d] Peak horizontal acceleration based on Wald et al.
SOURCES: Wald, David J. et al., 1999, and ABAG, 1998.

(3) Representation by the moment magnitude (M_W), a numeric value related to the spatial area of the rupture of the fault plane, the average displacement along the fault plane, and the resistance of the faulted rock to faulting. Moment magnitude is a logarithmic scale and each successively higher

magnitude reflects an increase of about 32 times the amount of energy released by an earthquake.

(4) The San Andreas fault is considered capable of producing a maximum credible earthquake (MCE) of magnitude 8.0. The Hayward and Calaveras faults each could produce MCEs of magnitude 7.5, and the Concord-Green Valley, the Clayton-Greenville, and the Antioch faults are capable of producing MCEs between magnitude 6.3 and 6.9. The intensity of ground shaking at the project site during an M_W 6.9 earthquake on the Greenville fault would be MMI VIII (very strong shaking).

After the 1994 Northridge earthquake in southern California, which occurred on a previously unknown blind thrust fault, similar blind thrust faults in the San Francisco Bay area were considered by the U.S. Geological Survey's Working Group on California Earthquake Probabilities (WG). Most faults in the Bay Area have "strike-slip" motion, in which the two sides of the fault slip horizontally past each other; however, blind thrust faults are ramp-like, with vertical slip. Because they do no reach the Earth's surface with visible signs of displacement, they are termed "blind" and relatively difficult to locate. Blind thrust faults are not zoned under the Alquist-Priolo Act. Of the potential blind thrust faults in the San Francisco Bay area, the Mount Diablo thrust fault was determined by the WG99 to have a high enough slip rate (2 mm/year) to be included in its probabilistic forecast for the San Francisco Bay area. The Mount Diablo thrust fault covers an area of approximately 8 miles north-south by 5 miles east-west (California Geological Survey, 2002).

Most recently, Working Group on California Earthquake Probabilities (WG02) estimated in 2002 that there is a 62 percent probability of at least one moment magnitude 6.7 or greater earthquake occurring on one of the major faults within the San Francisco Bay area during 2003-2032. A magnitude 6.7 earthquake is equivalent to the 1994 Northridge earthquake which killed 57 people and caused $20 billion in damage. The WG02 considers the Hayward–Rodgers Creek fault system to have the highest regional potential (27 percent) of producing a major earthquake. The San Andreas fault currently is considered to have the second highest regional potential (21 percent). The Calaveras fault and San Gregario fault each is considered to have third or fourth highest (11 percent and 10 percent) chance of producing a major earthquake. The Concord-Green Valley fault system and Mount Diablo thrust fault each has 3 or 4 percent chance of producing a major earthquake of magnitude 6.7, or greater, during 2003-2032.

The project site is located at the northeasternmost corner of the Mount Diablo thrust fault zone. No other active faults are mapped within the project site. There are no Alquist-Priolo Earthquake Fault Zones on the site.

Estimates of the peak horizontal ground acceleration have been made for the region and the project site based on probabilistic models that account for multiple seismic sources. The USGS has mapped the peak horizontal ground acceleration in the vicinity of the Sky Ranch II project site as up to 0.6 g (USGS, October 2002 revision). The expected peak horizontal ground acceleration, with a 10 percent chance of being exceeded in the next 50 years, was estimated by ENGEO Incorporated as 0.41g for the Greenville fault, 0.40g for the Great Valley fault, 0.27g for the Concord-Green Valley fault, 0.14g for the Calaveras fault, 0.12 g for the Hayward fault, and 0.10 for the San Andreas fault. However, the latter analysis did not include among the potential seismic sources the Mount Diablo thrust fault.

Recent geological research of the Mount Diablo-Livermore region indicate that structural trend of folds and thrust faults in the hills north of the Livermore Valley, the largest of which features is Mount Diablo, is a potential source of large magnitude earthquakes in the region. This feature has recently been interpreted to be large fold developed above a buried "'blind" thrust fault, the Mount Diablo blind thrust fault. Contraction of the earth's crust in this area is interpreted as the effect of the transference of slip along the Greenville fault on the southeast to the Concord fault on the northwest. The accumulation of strain on the Mount Diablo thrust fault presents specific potential for an earthquake along this structure.

The Mount Diablo thrust fault is not included among the active surface "displacement" faults recognized under the Alquist-Priolo Earthquake Fault Zone Act, but not owing to a lack of effect on the seismicity of the region. The Mount Diablo thrust fault is not covered under the Alquist-Priolo Earthquake Fault Zone Act, because an earthquake thereon would not be expected to cause fault rupture at the surface.

The USGS considers the Mount Diablo thrust fault capable of generating a M_W 6.7 earthquake with a 3 percent probability of occurring during the period 2003 to 2032. Recently, California Department of Water Resources completed a seismic analysis for the *In-Delta [Water] Storage Project Feasibility Study*. The In-Delta Water Storage Project is located 13 to 15 miles east of the project site on the Webb Tract in Contra Costa County, north of Bethel Island, and on Bacon Island in San Joaquin County. That analysis showed the hazard at the In-Delta Storage Project site is dominated by the nearby Mount Diablo thrust fault. The San Andreas, Hayward and Calaveras faults also contributed to a lesser degree (URS, January 2004). Their finding is relevant because it shows the seismic influence of the Mount Diablo blind thrust fault could reasonably be expected to dominate the project site as well.

Liquefaction. Liquefaction is the temporary change solid, water-saturated, granular sediments to a fluid state as a consequence of ground shaking. When liquefaction occurs, soil loses strength and ground failure occurs. Water is a necessary condition for liquefaction; therefore, areas of bedrock or deep groundwater have relatively lower liquefaction potential than other areas having sedimentary soils and shallow water.

The ABAG Geologic Information Systems (http://gis.abag.ca.gov) shows very low liquefaction over most of the project site except for a narrow band of very high liquefaction potential in the southwestern portion, which coincides with the location of the unnamed intermittent creek.

The risk of on-site liquefaction was assessed and described as "low risk." Subsurface investigation found that the project site does not have conditions generally conducive to liquefaction. Ground water was encountered in test bore B-3 at approximately 64 feet below grade surface (bgs). Test bore B-3 was located in an area of proposed fill. Ground water was not encountered in the three other test bores or 52 test pits throughout the project site (ENGEO, *Geotechnical Exploration Sky Ranch II Subdivision 8475*, February 14, 2002).

Slope Stability Downslope movement of earth materials under the force of gravity is called "mass wasting." Slope failure can occur as rapid movement of relatively large, discrete masses of soil and/or bedrock ("landslides") or slow, continuous movement ("creep"). Primary factors influencing susceptibility of a slope to landsliding are: 1) the nature of the bedrock and soil which underlie the slope, 2) height and steepness of the slope, 3) soil saturation by rainfall, and 4) the presence of older landslide deposits. The slopes at the project site are underlain by relatively competent sedimentary bedrock mantled by colluvium. The steepness of the slopes on the project site ranges from gentle (0 to 15 percent) to moderately steep (15 to 30 percent). A regional slope stability map presented in the City's General Plan characterizes the slopes at the project site and adjacent areas as "moderately unstable."

Site-specific geotechnical study identified a complex of multiple landslides in the southwest, south central, and southeastern portions of the project site (see Figure 9, next page). The landslides include both surficial and deep-seated landslides. Landslides mapped by ENGEO include 31 landslide areas on the project site. Landslide areas #1, 2, and 3 are deep-seated landslides in the southwestern corner, extending off-site to the southwest.

Landslide areas #7, 8, 9, and 10 are deep-seated landslides located centrally within the project site. The areas mapped by ENGEO, except Landslide areas #8 (portion), 10, 11, and 12, coincide generally with the ABAG GIS landslide map.

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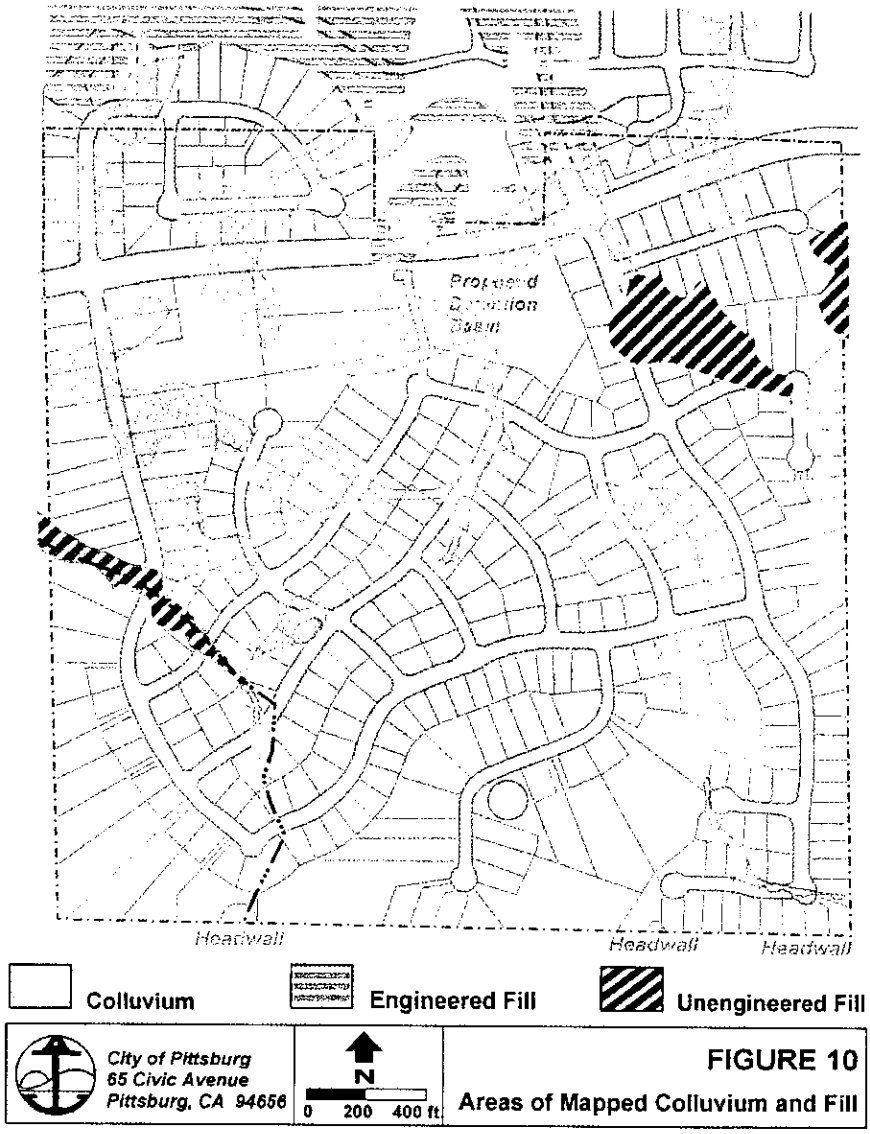
N
0 200 400 ft

FIGURE 9

Areas of Mapped Landslides

With regard to soil creep, the proposed 3:1 graded slopes at the northern boundary of the project site, on Lots 39-49 and Lots 62-66, adjoining Highlands Ranch, would be susceptible. Also, proposed Lots 127-135 and Lots 372 and 378 have proposed 3:1 graded slopes. Debris benches are shown on the Vesting Tentative Map at the toe of proposed 3:1 graded slopes.



Differential Settlement. Figure 10 (above) illustrates areas of mapped colluvium and fill on the project site. Subsidence and differential settlement could occur if buildings are built on low strength soils including colluvium and unengineered fill.

Differential settlement generally occurs slowly so that its effects are not generally dangerous to inhabitants but include building damage over time. Any areas of the project site that contain variable fill, fill and cut, or colluvium may be susceptible to settlement.

Potential for "excessive total and differential settlement" is present at the project site. Of concern is consolidation of compressible colluvial deposits in the swales where fill will be placed and from settlement of foundations where supported over colluvial and alluvial deposits. Settlement is possible in areas of previous unengineered, proposed fill, and compressible colluvium and landslide deposits. These issues are described in more detail as follows:

(1) **Post-Grading Settlement**—Post-grading settlement of "deeper" fills and underlying compressible deposits may result over a long period after grading. After initial settlement, about 1 to 2 inches of long-term heave may result once the [shallower] fills become wetted (ENGEO, 2002). In deeper portions of fill, some hydro-compression or settlement in the amount of 2 to 4 inches may result from long-term wetting by irrigation or rainwater (ENGEO, 2002). These figures do not include potential post-grading settlement caused by the fill surcharge placed on compressible colluvial or alluvial deposits in Landslide areas #1, 2, and 3 (see Figure 9).

(2) **Artificial Fill/Settlement**—Areas of "artificial" engineered and unengineered fills are found generally in the northeastern and southwestern portions of the project site and in the northern portion contiguous with Highlands Ranch (see Figure 10). In addition, there are existing engineered fills in the vicinity of the existing water reservoir.

An area of existing undocumented fill up to 40 feet thick is located in the northeastern portion of the project site. An existing gas pipeline crosses this artificial fill area. The prominent valley in the southwestern portion of the project site contains "relatively thin undocumented fill, probably five feet thick" (ENGEO, 2002).

(3) **Densification**—Settlement induced by earthquake shaking, also termed "densification," was assessed to be a minor hazard. Based upon assessment of soil types on the project site, and absence of loose granular deposits, the risk of densification minor (ENGEO, 2002).

Preliminary Grading Recommendations

As part of its geotechnical exploration, the project's geotechnical engineers have recommended measures to counter these potential hazards. Remedial excavation to remove landslides and compressible colluvial deposits is recommended, before restoring grade to finish grade elevations. The recommended grading consists of buttress fills with "toe keys" and subdrains. Even in areas of proposed cut slopes, landslide and colluvial deposits first would be over-excavated, keys would be constructed, and then backfilling would occur to restore the area of cut to finish grade elevation.

Toe keys are broad trenches at the toe of slope that are over-excavated below finished grade, often into bedrock, and then backfilled to finish grade elevation. Upslope from a toe key there may be additional keys and intermediate benches. Before backfilling, the toe key and intermediate keys appear to form a series of steps called a keyway.

Subdrains are recommended for the keyway, which are systems of perforated piping and drain rock placed before backfilling to convey infiltration and seepage water away from engineered cut slopes and fill slopes. Proper drainage is essential to minimize the additional loads (or, "sheer stresses") caused by saturated soil.

Figure 11 (next page) illustrates areas of proposed cut or fill. Figure 11 also illustrates several areas of off-site landslides that would not be removed Such landslides generally exist on the steep hillsides south of the site and extend into the site. In view of these off-site landslides and the off-site location of a Zone III/IV reservoir necessary to serve the project site, the area of Figure 11 has been extended outward to show off-site features.

Figure 11 illustrates off-site landslides that extend into the southwestern and southeastern corners of the project site. Landslides 1 and 2 in Figure 9 are shown to extend into the southwestern corner, and Landslides 17 and 18 in Figure 9 are shown to extend into the southeastern corner. The off-site portions of Landslides 1, 2, 17, and 18 would be left in-place.

At section D-D' (see Figure 11) a cut slope would be constructed having a maximum grade not to exceed 2:1. This cut slope, upslope of proposed Lots 94-104 would have benches typically 8 feet in width and a wider debris bench 20 feet in width. A wooden 3 foot tall retaining structure at the toe of cut slope (Lots 95, 96, 99, and 100) would be decorative and is not intended to be a functional part of the recommendations for slope stabilization. A typical cut slope (see Figure 12) would be created by over-excavating any landslide or colluvial deposits and then engineering the slope as described on page V-119.

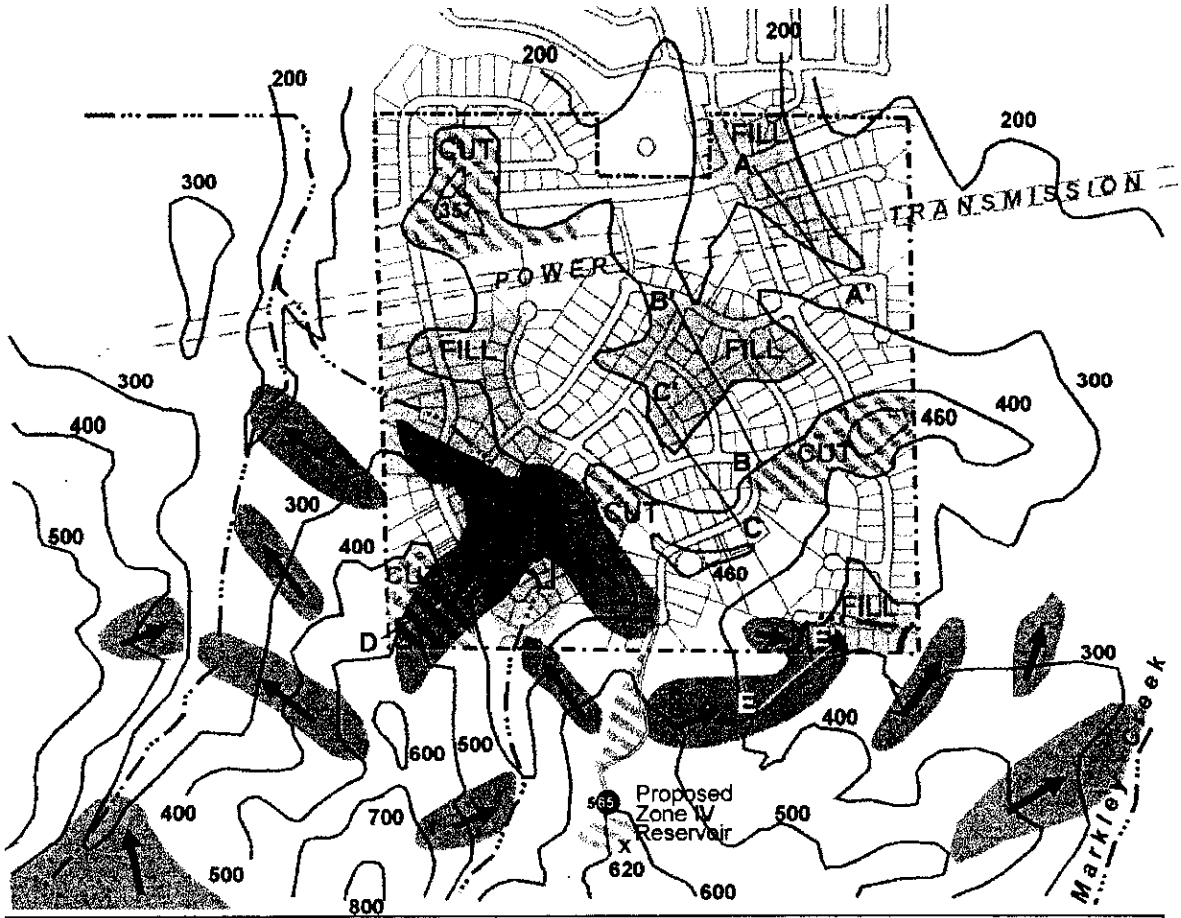


FIGURE 11
Existing Topography, Grading Cuts & Fills, and Off-Site Landslides

In the case of section D-D' (see Figure 11), the upslope area of the landslide would not be excavated; therefore, a debris bench would be constructed to catch potential debris flow in the event of a slide. A debris bench is not shown in the schematic (Figure 12), which instead shows a cut at hilltop elevation.

In the vicinity of the western headwall, to be created for diversion seasonal flow in the intermittent stream, presence of the off-site slide (Landslide 1 and/or 2) is noted to encroach into the vicinity of the headwall. The headwall area itself would be filled, with created slopes at 2:1 leading down to the headwall. Owing to the presence of the upslope landslide deposits, maintenance is a potential issue, to maintain the continuing function of diversion piping.

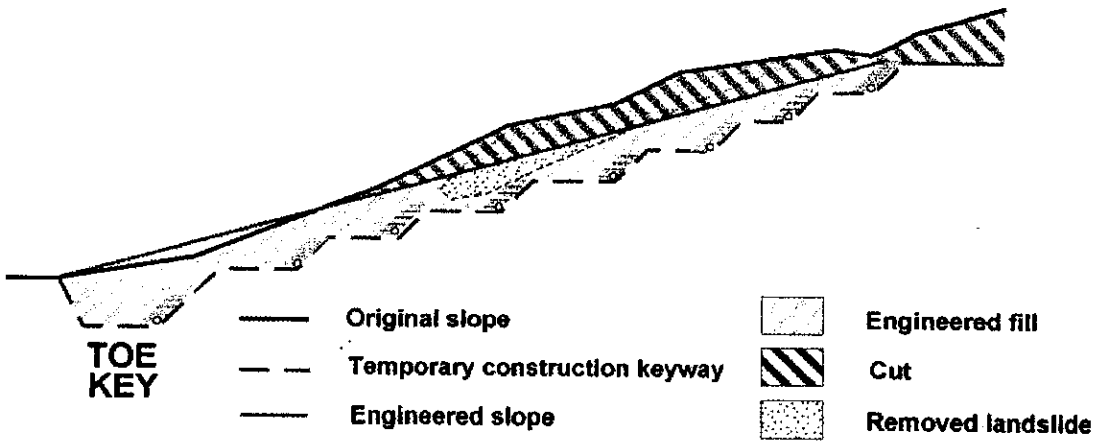


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FIGURE 12
Grading Concept
Cut Slope with Landslide Removal

In the southeastern corner of the project site, Landslide 17 extends from the west and also from the south onto proposed Lots 181-184. The western portion of Landslide 17 could be repaired within the area of a proposed fill slope adjacent to Lot 181. The preliminary grading plan shows a fill slope and a debris bench immediately west of Lot 181. The off-site portion of Landslide 17 would not be repaired under the proposed preliminary grading plan. Owing to the presence of the upslope landslide deposits, maintenance is a potential issue, to maintain the back yards and the continuing function of storm water diversion piping.

Applicable Policies and Regulatory Setting

State of California

The Alquist-Priolo Act of 1972 was legislated to minimize loss of life by prohibiting buildings for human occupation from being constructed across an active fault. This state law was a direct result of the 1971 San Fernando Earthquake, which was associated with extensive surface fault ruptures that damaged numerous homes, commercial buildings, and other structures. Under the act, earthquake fault zones (APEFZs) have been established along active faults in California. The Alquist-Priolo Act specifically addresses risk of surface rupture.

The Seismic Hazards Mapping Act of 1990 addresses non-surface fault rupture earthquake hazards including, for example, liquefaction and seismically induced landslides. Article 10 of the California Code of Regulations sets for the requirements for regional probabilistic ground shaking maps to show ground shaking levels which

have a 10 percent probability of being exceeded in 50 years. These maps define seismic hazard zones, where mitigation measures would be required, for the following hazards:

(1) Amplified shaking hazard zones
(2) Liquefaction hazard zones
(3) Earthquake-induced landslide hazard zones

City of Pittsburg Policies Related to Geology, Soils, and Seismicity

Pittsburg 2020: A Vision for the 21st Century sets forth the City's general goals and policies in regard to geology and seismicity. Chapter 10.1, Health & Safety Element of the General Plan, pages 10-2 through 10-13, includes the following policies that apply to proposed new development. These goals and policies are presented in Table 8 (next page).

Required Permits

In addition to project approval (*i.e.*, approval of the Vesting Tentative Subdivision Map, pre-zoning, and annexation), building permits would be required for each structure on the project site. Application for Building Permits entails submittal of design-level drawings and plans by the developer and plan check by the City's Engineering and Building Department. Structures would be designed to meet the requirements of the 2001 California Building Standards Code, effective November 1, 2002, or the building code in effect at the time of application for Building Permit. The standards periodically are updated and amended by the California Building Standards Commission.

Damage to structures in the planning area resulting from ground shaking would depend on the length of the fault break, distance from the fault, the nature of the underlying ground materials, and the type of structures, their materials, and construction quality. New construction on the project site would be required to

TABLE 8
GEOLOGY & SEISMICITY
General Plan Goals and Policies

GOAL 10-G-1	Minimize risk to life and property from geologic and seismic hazards.	
	Policies	• 10-P-1 City-approved engineer or geologist shall prepare a soils report or geotechnical study for new development. • 10-P-3 City to regulate grading to limit cut slopes to 3:1, ensure stabilization of cut-and-fill slopes, and ensure grading that blends with natural contours.
GOAL 10-G-2	Set and implement procedures and standards for geotechnical review of projects located in areas of steep slopes, unstable soils, of other geologic or seismic risks.	
	Policies	• 10-P-4 City-approved engineer or geologist shall prepare geotechnical study for proposed development located south of Buchanan Bypass. • 10-P-10 An independent Certified Engineering Geologist shall be available, at the City Engineer's discretion, to review applicant-submitted reports.
GOAL 10-G-3	Minimize potential for soil erosion.	
	Policies	• 10-P-5 Enforce requirements of the BAAQMD in regard to dust mitigation. • 10-P-6 For large-area construction sites, encourage the use of frequent watering by water-sprinkling trucks. • 10-P-7 For large-area sites, approve grading in phases where feasible. An exception where this could be infeasible is remedial grading for slope stabilization or creek restoration. • 10-P-8 Avoid grading that would concentrate storm water runoff in swales or gullies where cut-and-fill has occurred.
GOAL 10-G-4	Mitigate potential seismic hazards during design & construction of new development.	
	Policies	• 10-P-9 Geotechnical studies shall be required prior to development approval in geologic hazard areas. • 10-10-15 The City shall ensure compliance with the current Uniform Building Code.
GOAL 10-G-5	Limit new development in geotechnical risk areas.	
	Policies	• 10-P-11 Form geologic hazard abatement districts to ensure long-term maintenance of geotechnical mitigation measures and private funding for inspection, maintenance, repair or supplementation. • 10-P-17 City shall require detailed analysis and mitigation of seismic hazards for new developments proposed on unstable slopes.
SOURCE: City of Pittsburg , 2001.		

Conform to the 2001 CBC. The objective of the 2001 CBC/1997 UBC is to protect the life safety of building occupants and the public. For large earthquakes, the 2001CBC/1997 UBC aims to ensure that buildings will not collapse; however, some structural and non-structural damage may be expected.

The 2001 California Building Code and 1997 Uniform Building Code incorporate standard response spectra (*i.e.*, the response of structures with different frequencies to specific ground motions) as a basis for structural design. The response spectra establish the minimum strength for which a building must be designed. The 2001 CBC/1997 UBC consider primary lateral seismic forces and general soil type. Incorporation of vertical forces into code design is being considered currently.

Currently proposed changes to Section 1629A (Earthquake design) would establish that the procedures for the design of structures shall be determined considering seismic zoning, site characteristics, occupancy, configuration, structural system and height. Structures shall be designed with adequate strength to withstand the lateral displacements induced by the Design Basis Ground Motion. The minimum design strength shall be based on the Design Seismic Forces determined in accordance with the static lateral force procedure of Section 1630A and Section 1631A. Under currently proposed CBC revisions, the maximum probable ground motion representation shall be *at least* the one having a 10-percent probability of being exceeded in 50 years. Additionally, Section 1631A.2.2 requires generally that 1) every structure have sufficient ductility and strength to undergo the displacement caused by the upper bound earthquake motion without collapse and, specifically, that 2) structures be designed to sustain the upper bound earthquake motion without forming a story collapse mechanism along any frameline. The "upper bound earthquake" ground motion is defined as the motion having a 10 percent probability of being exceeded in a 100-year period, or the maximum level of motion which may ever be expected at the building site within the known geological framework (California, DHCD, September 14, 2004).

Designing structures for the peak accelerations to which they could be subjected is necessary to minimize a direct hazard risk, namely, personal injury and property damage from ground shaking. Even with the site-specific geotechnical investigation and construction in accordance with California Building Code, direct hazard from seismically-induced ground shaking can be reduced but cannot be completely eliminated. Exposure to ground-shaking is a generally accepted part of living in the San Francisco Bay area; therefore, compliance with the California Building Code and mitigation measures can reduce the potential direct hazard from ground-shaking to a less-than-significant level but cannot, within economic reason, avoid all risk of personal injury and property damage.

GEOLOGICAL IMPACT ASSESSMENT

PROJECT EVALUATED

The project site is located in the southern Planning Area of the City of Pittsburg, outside the incorporated City Limits, but within the current ULL (2000). The proposed project would have 415 single-family houses constructed as a conventional single-family subdivision after mass grading to reduce slope steepness, fill existing ephemeral drainages, and stabilize unstable landslide deposits. The average lot size is 14,000 square feet. Building pads are proposed as graded level pads, without construction on piers and with crib walls.

The proposed grading consists of cut and fill, with "toe keys" and subdrains. The cut slope volume is estimated to be 1.75 million cubic yards. The fill volume is estimated to be 1.56 million cubic yards. The above volumes do not include any of the additional remedial earthwork recommended in the geotechnical engineering study as necessary for the repair of deep-seated landslides. The net cut volume is 190,000 cubic yards, which would be exported off site together with any additional soil deemed unsuitable for reuse in remedial cut-and-fill.

Other alternatives are addressed in Chapter VI. This section discusses impacts of the applicant's proposed project.

STANDARDS OF SIGNIFICANCE

The proposed project would be considered to have a significant geologic impact if it would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.
  - ii) Strong seismic ground shaking
  - iii) Seismic-related ground failure, including liquefaction
  - iv) Landslides
- Result in substantial soil erosion or the loss of topsoil.
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on-site or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.

- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1997), creating substantial risks to life or property.
- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water

EVALUATION

The geotechnical evaluation is based upon site-specific geologic exploration performed by ENGEO Incorporated and independent review performed by Mr. Mark Armstrong, R.G. 6134. Geologic hazards identified in ENGEO's 2002 geotechnical report, including steep slopes, mapped landslide and colluvial deposits, areas of unengineered fill, expansive soils and differential settlement. In general, geologic conditions at the project site can be mitigated through engineering design and construction specifications.

Rupture of a Known Earthquake Fault

Based on *Geotechnical Exploration Sky Ranch II, Pittsburg, California*, the project site is not located an Alquist-Priolo Special Studies Zone and there were no apparent indications of displacement faulting in the aerial photographs viewed (ENGEO, February 2002). Therefore, in the absence of known active faults crossing the project site, the likelihood of primary fault ground rupture is remote. Mitigation measures are not warranted, because potential for ground rupture is remote in the absence of a active displacement fault.

Exposure to Strong Seismic Ground Shaking

IMPACT 1

Seismically-induced ground shaking at the project site could have peak horizontal acceleration up to 0.6 g, based on current regional mapping by USGS. This is not unique in the San Francisco Bay area, but is a higher peak horizontal acceleration than reported in ENGEO's geotechnical report dated January 2001 and revised February 2002. Ground shaking caused by earthquakes along the known active faults near the site, including Concord-Green Valley fault, Pittsburg/Kirby fault, Antioch fault, Mount Diablo thrust fault, and Greenville fault, could place people and structures at risk unless properly mitigated. The City of Pittsburg's General Plan policies 10-P-9 and 10-P-10 require such study of geologic hazards and independent review before development approval.

Mitigation Measures:

- Before issuance of grading permits, a Seismic Analysis Update shall be prepared by a Certified Engineering Geologist retained by the developer, which presents peak horizontal ground acceleration based on current knowledge. All recommendations of ENGEO Incorporated in its geotechnical report dated February 2002 shall also be confirmed or else modified based on the Seismic Analysis Update.
- The City Engineer independently, or acting upon the recommendation of an independent Certified Engineering Geologist, shall review, approve, or reject for modification the Seismic Analysis Update and recommendations. (NOTE: The cost of independent third-party review shall be paid by the developer.)

Residual impact after mitigation: Less-than-significant.

IMPACT 2

The project site is located in a zone of seismic-induced ground shaking having peak horizontal acceleration up to 0.6g. Potential adverse impacts of ground shaking on development infrastructure, structures and people can be reduced to acceptable levels by completing the project seismic design and construction in accordance with current best standards for earthquake-resistant construction in accordance with the 2001 California Building Standards Code and City of Pittsburg Municipal Code Chapter 15.88 Grading, Erosion, and Sediment Control.

Mitigation Measures:

- The developer shall design proposed housing in accordance with provisions of the Building Code in effect at the future time of application for Building Permits.
- The developer's Geotechnical and Civil Engineer shall assign the appropriate "seismic design critieria" for the design of utilities including on-site and off-site water reservoirs.
- The developer's Geotechnical and Civil Engineer in cooperation with PG&E shall assign and review seismic design critieria for cut and fill slopes that encroach within the PG&E easement or near power transmission towers.
- Developer shall prepare and submit all final design and engineering plans to the City for review, approval, or rejection for modification by the City Engineer.

Residual impact after mitigation: Less-than-significant.

Seismic-Related Ground Failure, Including Liquefaction, Densification, and Other Kinds of Failure

IMPACT 3
Seismic-induced ground shaking and extensive grading cuts and fill to stabilize unstable slopes may in general have other indirect effects including ground lurching, liquefaction, densification, and lateral spreading. These risks were assessed and determined to be less-than-significant effects owing to the nature of on-site soils, proposed grading concept and recommendations of the site-specific *Geotechnical Exploration for Sky Ranch II, Pittsburg, California.*

Mitigation Measures: None warranted as potential for ground lurching, liquefaction, and lateral spreading on the project site are less-than-significant effects.

Landslides

Approximately 156 proposed lots, and portions of proposed roads, are sited on or at the edge of mapped landslides. If not properly engineered, the project could exacerbate landslides, resulting in substantial damage to proposed development.

A preliminary grading plan has been submitted, but a final grading plan has not been prepared or submitted to the City. The site-specific geotechnical report by ENGEO Incorporated presents mitigation measures for the areas of existing slope failures on the project site. In general, ENGEO's 2002 report proposes that landslide and colluvial deposits would be over-excavated then backfilled with engineered buttress fill and sub-drains. Debris benches would be constructed upslope of off-site slide areas. On the project site landslides would be removed and systems of toe keys and intermediate keys would be excavated and then backfilled in uniform level lifts. Sub-drains would control infiltration and seepage water. These measures are standard and effective landslide mitigation measures.

In particular, the southwestern portion of the project site is located in an area having moderately unstable slopes, mapped landslides, and compressible colluvium. *Preliminary Assessment and Mitigation Concepts* (ENGEO, June 14, 2004), for cross section D-D', identifies remedial measures to stabilize Landslide areas #1, 2 and 3 (see Figure 9). Cross-section D-D' is similar in concept to Figure 12, and *Preliminary Assessment and Mitigation Concepts* clarifies that landslide deposits would be sub-excavated, as deemed necessary from a slope stability and compressibility standpoint, removed to landslide deposits down to underlying bedrock beneath proposed lots. The mapped

landslide deposits run off-site beyond the project site's southern boundary. At elevation above 380 feet msl, the remedial excavation is partial, and above 425 feet msl Landslide area #1 deposits would not be excavated. For the remaining upslope landslide deposits, a 20-foot wide debris bench would be graded at elevation 425 feet msl behind proposed Lots 95-105.

IMPACT 4
Many locations on the project site are susceptible to landslides and others are underlain by compressible colluvial deposits.

Mitigation Measures:

- Developer will sub-excavate compressible colluvium and landslide deposits to bedrock, where feasible, and then backfill with engineered buttress fills, to allow for development of the proposed improvements without exposure of persons or property to avoidable risk of debris flow, compressible soils, and differential settlement.
- Developer will construct sub-surface keyways and benches as shown conceptually in Figure 12, through disrupted landslide materials and shear planes into underlying competent materials.
- Developer will install sub-drains, as shown conceptually in Figure 12, to drain water from engineered buttress fills.
- Developer shall adequately size and then construct debris benches or other intervening undeveloped spaces to provide sufficient run-out areas for unmitigated landslides located upslope of the proposed houses, roads, and other improvements.
- Developer shall construct the surface drainage facilities as determined by the developer's Civil Engineer to collect and control surface drainage.

Residual impact after mitigation: Less-than-significant.

IMPACT 5
To ensure that landslide areas are properly repaired, site-specific designs will have to be developed and incorporated into the final design plans attached to the Vesting Tentative Map for approval by the City. The mitigation measures described below would ensure that these geotechnical and engineering measures are incorporated into the final design plans and implemented during construction.

Mitigation Measures:
To ensure that the existing landslides are properly repaired and areas of unstable soils are addressed per City General Plan policies 10-P-9, 10-P-10, and 10-P-17, the developer shall provide for, pay the costs of, perform or implement the following:

- A complete design-level final geotechnical report and associated field work shall be completed by a Certified Engineering Geologist for review and approval by the City Engineer and an independent Certified Engineering Geologist retained by the City. The analysis presented in the geotechnical report shall conform to the California Geological Survey's recommendations presented in the "Guidelines for Evaluating Seismic Hazards in California."
- Analysis and recommendations in the geotechnical report shall be incorporated into the project's final engineering and design plans and submitted to the City Engineer for review and approval.
- The report shall identify building techniques appropriate for minimizing seismic damage.

Residual impact after mitigation: Less-than-significant.

IMPACT 6
Portions of Landslide areas #1, 2, 17, 18, 25 and 26 upslope of the proposed project would not be sub-excavated to bedrock and backfilled with engineered fill. In the event of a landslide, debris flow from these areas could run out over the perimeter lots and proposed headwalls on the project site.

Mitigation Measures:
- Developer's Geotechnical and Civil Engineers shall size the width of the debris bench upslope of proposed Lots 95-106 to provide sufficient run-out area to protect Lots 95-106.
- Developer's Geotechnical Engineer shall perform additional test pits and/or bores, as recommended in its reports, to enable the actual design dimensions and depth of bedrock east of previous Test Pits TP-37 and TP-38. Additional cross-sections for the area beneath and upslope of Lots 95-106 shall be prepared and submitted with the Final Grading Plan.
- Developer's Geotechnical Engineer shall prepare and submit additional cross-sections (*e.g.*, see E-E' in Figure 11) to address the debris volume and run-out area for the mapped landslides beneath and upslope of the eastern headwalls, Lots 181-183, and Lots 188-190.

Residual impact after mitigation: Less-than-significant.

IMPACT 7
Unstable slopes, landslide and colluvial deposits can be repaired and structures can be protected from off-site debris flows. However, debris benches, headwalls and storm water diversion pipelines, v-ditches, and re-graded slopes on the project site would warrant long-term monitoring,

maintenance, and repair or supplementation to ensure their continuing function.

Mitigation Measures:

- Developer/applicant shall prepare and submit a Slope Management Plan to the City Engineer for review and approval prior to the approval of a Final Map.
  (1) The Slope Management Plan shall identify the kinds of hazards found on the site and areas subject to continuing monitoring, maintenance, repair or supplementation, including areas in private and public ownership.
  (2) Improvements (*e.g.*, structures, roads, and storm water collection and systems) shall be designed to divert excessive storm water runoff water from on-site slopes and avoid excessive irrigation water on on-site slopes.
  (3) The Slope Management Plan shall include provisions for periodic inspection and long-term maintenance, episodic repair, and as-needed supplementation of the identified re-graded slopes, repaired landslides, debris benches, v-ditches and storm water diversion headwalls and pipelines.
  (4) The Slope Management Plan shall identify its purpose, implementing entity which is suggested to be a Hazard Abatement District, funding mechanism, and administration by the Homeowners Association (HOA), or by another mechanism approved by the City.
  (5) The Slope Management Plan shall be developed by a Registered Geotechnical Engineer or Certified Engineering Geologist, who shall be responsible for identification re-graded slopes, built structures, or other built or natural features essential for the long-term stability of the fills and cuts.
  (6) The Program shall include provisions for maintenance and timely remediation of any identified problems within the purview of the Plan, which shall be implemented and funded through the responsible entities.

- The Slope Management Plan shall be consistent with the Natural Grassland Element (see Chapters V. D and V.G, p. V-153 and V-208). The Natural Grassland Element will designate where 1) introduced species landscaped areas will be allowed and 2) where natural grassland areas are to be maintained. The undeveloped slopes in the southern portion of the project site, generally above 390 feet msl, will be designated for maintenance as natural grassland in the Natural Grassland Element. Both the Slope Management Plan and

Natural Grassland Element shall be incorporated into the Codes, Covenants & Restrictions (CC&Rs).

- Deed restrictions, easements, or other appropriate legal instruments shall be placed on all re-graded slopes to allow monitoring, maintenance, and remedial activities, and to require the property owners to maintain appropriate landscaping and irrigation procedures.

Residual impact after mitigation: Less-than-significant.

Location on Soil that is Unstable or That Could Become Unstable

IMPACT 8
Approximately 107 proposed lots, and additional areas of proposed roads, are underlain by colluvium. ENGEO identified potential for "excessive total and differential settlement" at the project site from consolidation of compressible colluvial deposits in the swales where fill will be placed and from settlement of foundations where supported over compressible colluvial and alluvial deposits. ENGEO recommended complete removal and replacement with engineered fill.

Post-grading settlement of "deeper" fills and underlying compressible deposits may result over a long period after grading. After initial settlement, about 1 to 2 inches of long-term heave may result once the [shallower] fills become wetted. In deeper portions of fill, some hydro-compression or settlement in the amount of 2 to 4 inches may result from long-term wetting by irrigation or rainwater (ENGEO, February 2002, p. 14). These figures do not include potential post-grading settlement caused by the fill surcharge placed on compressible colluvial or alluvial deposits in the area of Landslides #1, 2, and 3

Mitigation Measures:

- Same as above. See mitigation for IMPACT 4.

Residual impact after mitigation: Less-than-significant.

IMPACT 9
ENGEO also recommended supplemental exploration to characterize the compressibility of soil in the southwestern valley. The purpose of ENGEO's recommendation was to allow for partial removal of compressible landslide or colluvial deposits, if subsequent supplemental exploration and engineering findings demonstrate partial removal could be effective.

Mitigation Measures *(continued next page)*

The developer shall provide for, pay the costs of, perform or implement the following:

- Unless subsequent supplemental exploration is performed, complete removal of landslide or colluvial deposits within the limits of the project site shall be assumed as the remedial grading concept.
- Detailed final geotechnical design documents shall be reviewed and approved by the City or independent Certified Engineering Geologist retained by the City. Based upon the City's adopted General Plan policies 10-P-4, 10-P-9, 10-P-10, and 10-P-17, these detailed analyses and opportunity for independent review are required before development approval. Engineering solutions that should be included in the geotechnical report include the following:

  (1) Complete removal (over-excavation) of the landslide deposits, colluvium and unengineered fill material, or else settlement estimates, engineering measures, and/or structural siting guidelines for lots on which underlying compressible materials are left in-place;
  (2) Slope stabilization measures for potentially unstable landforms that are located upslope of proposed building pads (cross section D-D');
  (3) Calculations of upslope debris volumes and engineering backup for placement and size of debris benches for unrepaired off-site landslides (see Figures 9 or 11);
  (4) Cost-benefit analysis for re-construction of off-site unstable slope areas; and,
  (5) Structural siting guidelines for lots located downslope from slopes that could remain unstable (avoidance).

  Detailed final geotechnical design documents shall be reviewed and approved by the City Engineer and independent certified Geotechnical Engineer or Certified Engineering Geologist.

Residual impact after mitigation: Less-than-significant.

IMPACT 10

Post-grading settlement of "deeper" fills and underlying compressible colluvial deposits may result over a long period after grading. Post-grading settlement and differential settlement have the general potential to cause gradual damage to roads, utilities, and occupied structures if not properly designed and constructed.

Mitigation Measures:

- See IMPACT 8 and mitigation measures above.
- During project construction, mass grading and remedial over-excavation of landslide and colluvium shall be conducted under the supervision of a Registered Geotechnical Engineer or Certified

Engineering Geologist and any design modifications necessitated by changes in field conditions shall be reviewed and approved by the City.

Residual impact after mitigation: Less-than-significant.

Location on Expansive Soil

IMPACT 11
Soils on the project site are moderately to highly expansive, having a PI that ranges from 22 to 46. Soils underlying portions of the project site have moderate to high shrink/swell potential. Foundation damage, warping, and cracking of roads and sidewalks, and rupture of utility lines could potentially occur if on-site expansive soils, and the quality of engineered fill, is not considered during design and construction of improvements.

Mitigation Measures
The developer shall provide for, pay the costs of, perform or implement the following:

- In locations underlain by expansive soils and/or non-engineered fill, the design of proposed building foundations and other improvements (including sidewalks, roads, and utilities) shall reflect expansive soil conditions.
- Design-level geotechnical work (for example, as required by Mitigation Measures for IMPACTS 5 and 6) shall include provisions to ensure that potential damage related to expansive soils and non-uniformly compacted fill are corrected. The potential effects of expansive soil conditions may be mitigated by removal of high Plasticity Index (PI) soils and replacement with lower PI soils, and also by design and construction of improvements to withstand the forces exerted during the expected shrink-swell cycles and settlements.
- On lots, driveways and streets having both cut and fill, or cut without fill, foundation subgrade and road/driveway subgrade shall be prepared by undercutting and backfilling with a suitable depth of select base material. Undercutting shall extend outward a suitable distance from the road, driveway or foundation foot print.
- All mitigation measures, design criteria, performance standards and specifications set forth in the geotechnical and soils report required by Mitigation Measure shall be implemented.

Residual impact after mitigation: Less-than-significant.

Soil Erosion

IMPACT 12

Increased erosion and sedimentation during the grading phase potentially could result from cut and fill operations, drainage pattern alteration, and general construction operations. Cut slopes and fill slopes have a general potential for erosion and sedimentation, especially if grading occurs during the rainy season. Long-term erosion and sedimentation can occur if grading and drainage systems are improperly constructed and landscaping is not adequately installed or maintained on slopes. Short-term and long-term erosion and sedimentation can be significantly reduced by developing and implementing a project-specific erosion and sediment control plan, by appropriate construction techniques, landscaping, and maintenance of graded slopes and subsurface drainage systems.

Mitigation Measures

the developer shall provide for, pay the costs of, perform or implement the following:

- The applicant shall prepare Storm Water Pollution Prevention Plan (SWPPP) to be submitted to the City for review and approved by the City prior to issuance of a grading permit. The following measures shall be considered and incorporated into the SWPPP as necessary to decrease erosion and sedimentation:
- Grading activities shall be scheduled to avoid soil disturbance during the rainy season (October 15 – April 15).
- Interim controls, such as water bars, mulching of exposed slopes, installation of temporary culverts, rock slope protection, sediment traps, silt fences and/or straw wattles consistent with the Association of Bay Area Governments *Manual of Standards for Erosion and Sedimentation Control Measures* or the San Francisco Bay Region Regional Water Quality Control Board *Erosion and Sediment Control Field Manual* shall be implemented.
- Before grading is concluded, a positive gradient away from the slopes must be established to carry the runoff away from the slopes to areas where erosion and sedimentation can be controlled.

Residual impact after mitigation: Less-than-significant.

Soils Incapable of Adequately Supporting the Use of Septic Tanks

Septic service is not proposed, and all lots will be served by connection to the municipal system.

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C. HYDROLOGY & WATER QUALITY

Introduction

Floods in urban areas can cause property damage and threaten public safety. Urbanization of a watershed cumulatively over time can change the hydrology and flooding 1) by increasing impervious surfaces and thereby increasing peak flows, 2) creating culverts, channels or pipes to divert flows around development or to cross roads, and 3) accelerating erosion and siltation of streambeds, culverts and pipes. Peak flow is the highest rate of storm water runoff during a storm event, expressed in cubic feet per second (cfs). During a storm, the rate of runoff is typically low during the early stage of the storm, and increases as the ground saturates and more water runs off the surface. A Drainage Study was prepared for the project by Isakson and Associates, Inc.

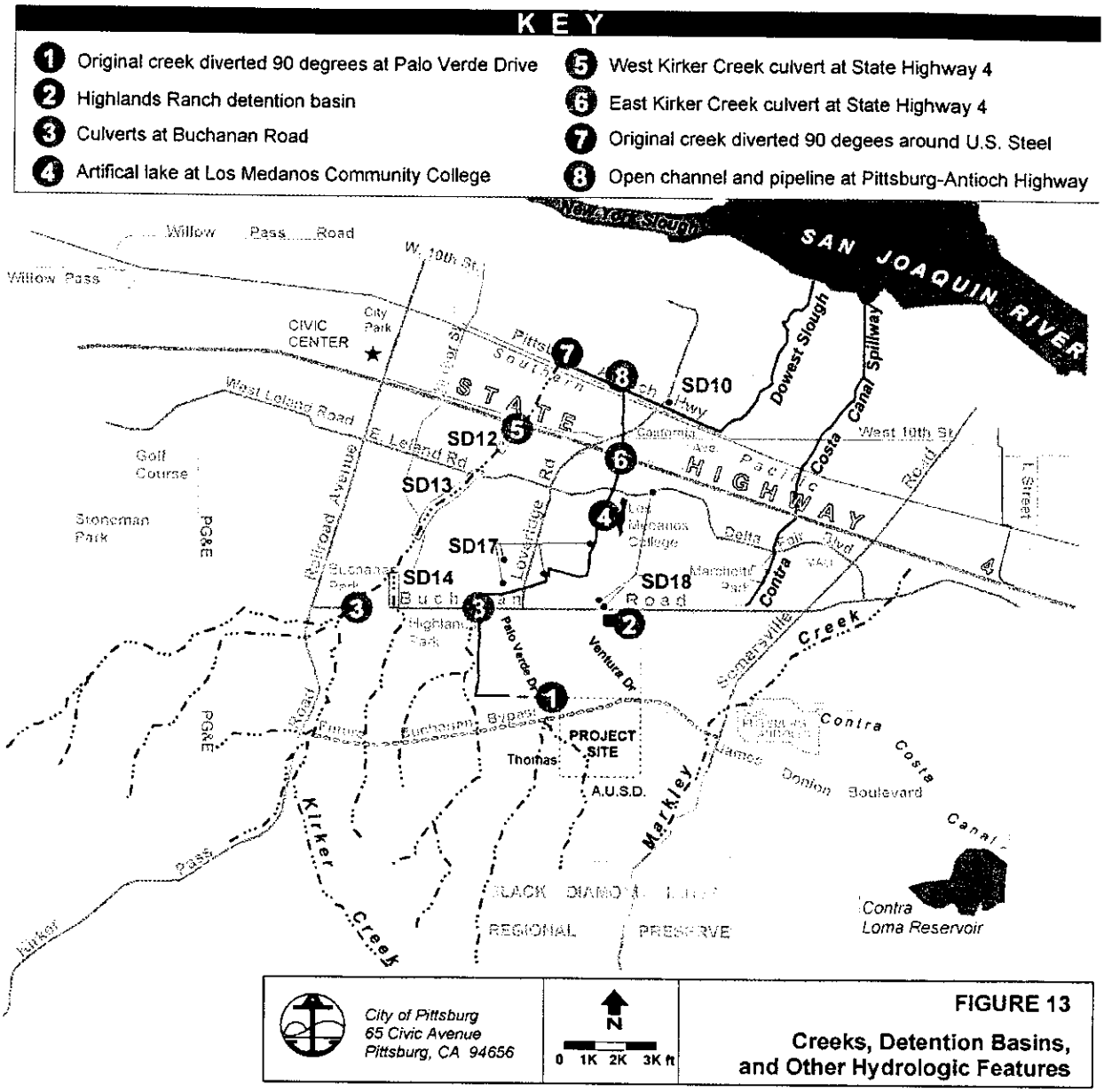
GROUND WATER SETTING

Ground water levels in the Pittsburg Plain Groundwater Basin have remained stable over the period of record, with the exception of static water level drops and subsequent recovery associated with the 1976-1977 and 1987-1992 drought periods (DWR, 2003). The source of ground water for the Pittsburg Plain Groundwater Basin is rainwater absorbed through pervious bedrock deposits in stream channels located in the southern hills. Ground water flows in a northerly direction following the slope of the land, and eventually into an aquifer that is part of the San Joaquin/Sacramento ground water system (*City of Pittsburg General Plan Draft EIR*, p. 4-115).

HYDROLOGY AND FLOODWAYS SETTING

The project site area is located in the Kirker Creek and West Antioch Creek sub-basins. Surface waters in the Kirker Creek sub-basin consist of West Kirker Creek, East (or Old Kirker Creek, Los Medanos Wasteway, unnamed natural or manmade open channels, and detention basins. Surface waters in the West Antioch Creek sub-basin consist of Markley Creek, West Antioch Creek, the east tributary of East Antioch Creek, unnamed natural or manmade open channels, two surface reservoirs, and detention basins. Except for the reservoirs and detention basins, the waterways serve as floodways and generally flow northerly, from the foothills of Mount Diablo, crossing State Highway 4, and then continuing north to Suisun Bay.

The lower reaches of the Kirker Creek and West Antioch Creek watersheds have been substantially urbanized during 1916-2005, most notably during 1940-2005, resulting in increased storm water runoff and culminating in cumulative needs for increased conveyance capacity or relief of constrictions downstream of the project site. Channels of West Kirker Creek, East Kirker Creek, and West Antioch Creek have been altered. Many of the channels are open, except where culverts divert the creeks underground at road crossings and along a few reaches such as the segment of West Kirker Creek near the Pittsburg-Antioch Highway.



FEMA Floodplain Designations

The Flood Insurance Rate Maps (FIRMs) for the cities of Pittsburg and Antioch, were viewed to identify areas that would be inundated by a 100-year flood. A 100-year flood is a flood event that is expected to recur not more than once each 100 years. Review of FIRMs indicates that the Sky Ranch II project site is not located within a flood zone. The 100-year flood zone near Loveridge Road area encompasses portions of State Highway 4 between West Kirker Creek and East Kirker Creek. There is also a narrow strip of 100-year flood zone on State Highway 4 at the immediate location of the Los Medanos Wasteway, Markley Creek, West Antioch Creek, and East Antioch Creek.

Existing Off-Site Drainage Conditions

West Kirker Creek

West Kirker Creek or "Old Kirker Creek" is the branch visible from Kirker Pass Road and flowing northward through Buchanan Park. Today, West Kirker Creek flows to New York Slough via Dowest Slough. Before the effects of urbanization, West Kirker Creek conjoined New York Slough west of Dowest Slough. West Kirker Creek was diverted away from the property of U.S. Steel (now USS-POSCO), to a west-east channel parallel to Pittsburg-Antioch Highway to the Dowest Slough and the Los Medanos Wasteway. The channel along the Pittsburg-Antioch Highway, generally open, was widened in 2002 to accommodate flows from the 100-year recurrence storm.

Kirker Creek is mostly intermittent, flowing from November through April, although some of the lower reaches of the creek are perennial due to artificial inputs such as irrigation return water and urban runoff. The lower reaches of the creek and its tributaries have been culverted, concreted, and redirected in reaches to accommodate residential and industrial uses.

West Kirker Creek's cross-section is undersized for the runoff that drains to it each winter. As development has occurred in the watershed, West Kirker Creek has flooded more regularly, forcing flood waters to back up into the depressed section of State Highway 4 at its interchange with Loveridge Road. State Highway 4 is lower in elevation at the interchange than in the surrounding area, and it requires pumping to discharge runoff that drains to the low point at the interchange. The pumped water ultimately discharges into West Kirker Creek. Pumping is not effective during heavy storms until the water level of the creek at the creek outfall returns to a pre-storm level. The City of Pittsburg completed improvements to West Kirker Creek downstream of State Highway 4 in December 2004.

East Kirker Creek

East Kirker Creek is located generally east of Kirker Pass Road, and flows in channels from the vicinity of south of the power transmission lines northward to West Kirker Creek. All except approximately 20 acres of the project site currently drains to the East Kirker Creek watershed. Upslope from the project site, the dividing line between the Kirker Creek and West Antioch Creek sub-basins is shown in Figure 14.

The streambed west of the project site and headwaters in Black Diamond Mines Regional Preserve are natural, unmodified. On the project site, an unnamed tributary is shown on the U.S.G.S. Antioch

South 7.5-minute topographic map. West of the project site, reaches of another unnamed tributary have been modified to flow around or between adjacent residential subdivisions. This diversion *circa* 1968-1973 changed the East Kirker Creek crossing from original crossing of Buchanan Road east of Loveridge Road to a relocated crossing of Buchanan Road near Suzanne Drive east of Highlands Park. North of the Contra Costa Canal, East Kirker Creek flows in a channel between Los Medanos Community College and Loveridge Road. East Kirker Creek continues to a culverted crossing of State Highway 4 located approximately 820 feet east of the highway interchange with Loveridge Road. North of Highway 4, East Kirker Creek flows in channels into West Kirker Creek near the Pittsburg-Antioch Highway.

Downstream of the project vicinity East Kirker Creek has flooded during major storms. A 1999 study conducted by Camp Dresser & McKee indicated that downstream constrictions in East Kirker Creek, north of State Highway 4, contribute to this flooding. The critical constriction limits storm flows to 390 cubic feet per second (cfs).

East Kirker Creek is not part of the City's current improvement program, although planning studies are under way. Upgraded culverts at Buchanan Road or State Highway 4 would not alleviate flood water from the downstream constriction. The City of Pittsburg is currently evaluating alternatives to address the downstream constraints in East Kirker Creek north of the State Highway 4 interchange with Loveridge Road.

Detention Basins

Detention basins and surface reservoirs are created, not natural, yet play an important role in the area's hydrologic function and flooding. There are four existing or planned detention and retention basins within the Kirker Creek sub-basin.

- Los Medanos College (existing): The lake on campus serves as a perennial detention basin and discharges to a tributary of Kirker Creek via a storm drain (pipeline) to an open channel on the north side of Leland Road.

- Highlands Ranch (existing): This housing development includes an approximately 5-acre detention basin, located adjacent to a proposed 5-acre park. The detention basin is designed to be a recreational amenity of the development, with future trails and attractive plantings. Its capacity is 21 acre-feet.

• Carpino Way/Pittsburg-Antioch Highway (existing): This detention basin is a component of the City's State Highway 4 flood relief project. When flows in Kirker Creek exceed 1,500 cfs, water would overflow into the proposed 6.2- acre, 40 acre-foot detention basin.

• Dowest Slough (planned): This proposed detention basin on the Dowest Slough is a Dow Chemical-sponsored project to be designed as a wetland habitat area.

West Antioch Creek

West Antioch Creek flows in a south to north direction with State Highway 4 constructed at the natural boundary between the flatland and the foothills. State Highway 4 is substantially higher in elevation than the surrounding land. Markley Creek, which is part of the West Antioch Creek drainage system, drains into West Antioch Creek, which discharges to the Dow Wetlands and Delta. Contra Loma Reservoir and Antioch Reservoir, which are located east of the Sky Ranch II project site and outside the area of the affected environment, have altered the hydrology of West Antioch Creek. These reservoirs intercept substantial storm water flows from the foothills area.

The West Antioch Creek watershed has recently experienced substantial growth, resulting in increased storm water runoff. Expansion of the existing West Antioch Creek culvert crossing of State Highway 4 has recently been completed. The culverts have been capped pending completion of additional downstream drainage improvements by the City of Antioch necessary to avoid potential flood damage downstream.

REGULATORY SETTING

The Sky Ranch II project site is located in Contra Costa County, outside the incorporated city limits of Antioch and Pittsburg, within the City of Pittsburg's Planning Area and the County's current Urban Limit Line. The region's flood control systems are under the purview of the Contra Costa County Flood Control and Water Conservation District (CCCFCWCD). The project site straddles two drainage sub-basins known as Kirker Creek Sub-Basin and West Antioch Creek Sub-Basin. These sub-basins consist of multiple tributaries or smaller watersheds East Kirker Creek, West Kirker Creek, Markley Creek, West Antioch Creek, and East Antioch Creek, and unnamed tributaries. The City of Pittsburg currently is implementing a program to improve the storm water conveyance capacity of Kirker Creek downstream of State Highway 4. Much of the West Antioch Creek sub-basin, including reaches of Markley Creek, is located within the City of Antioch.

Pittsburg Municipal Code and Storm Water Management Plan
Under the Pittsburg Municipal Code (Chapter 15.104 – *Storm Water Management Plan for Kirker Creek Watershed Drainage Area*), new development over 6,000 square feet must either:

> (1) Construct permanent on-site detention facilities to prevent any increase in runoff from pre-development conditions; or else,
> (2) Construct temporary on-site or off-site detention measures (*e.g.*, temporary ponding in parking lots, conveying runoff to temporary cistern/tank) that would remain in place until downstream improvements under the City's storm water management plan are completed, and pay a drainage fee towards those downstream improvements. The drainage fee is a one-time charge to the developer.

This provision of the municipal code is intended to address a current constriction in the area downstream from Sky Ranch II and Highlands Ranch. Several projects currently identified in the City's 5-Year Capital Improvement Plan for 2004/5-2008/9 do not have committed funding sources. Necessary improvements identified for the area immediately downstream of the project site include:

> **SD-17** (p. 268) Kirker Creek Watershed from Stoneman Avenue south to the Contra Costa Canal. The drainage improvement project includes 245 lineal feet of upsized culvert and 1,350 lineal feet of upsized pipeline, with an estimated construction cost of $830,000.
>
> **SD-18** (p. 268) Kirker Creek Watershed from Los Medanos Community College south to the Contra Costa Canal. The drainage improvement project includes 1,000 lineal feet of upsized pipeline, with an estimated construction cost of $515,000.

Both projects would be funded using the Impervious Surface Drainage Fees collected from developers.

Many culverts in the Kirker Creek watershed north of State Highway 4 and south to the Contra Costa Canal are undersized or partially filled with silt (Pittsburg, *Storm Water Management Plan*, 1999). The City's Storm Water Management Plan recommends improving all of the undersized pipes, culverts and channels upstream of the Pittsburg-Antioch Highway. These programs have been prioritized as Stage 1 (highest), Stage 2 (secondary), and Stage 3 (tertiary).

> **Stage 1 Flood Relief Projects**
> The segment of Kirker Creek between the Pittsburg-Antioch Highway and Highway 4, has been modified as part of the State Highway 4 flood relief project. The Loveridge Road interchange has experienced periodic flooding since the 1950s. Floodwaters backed up at the highway, where culverts were too small to accommodate flows. This

water would then overflow down the railroad tracks east along State Highway 4 and fill the underpass at Loveridge Road. In intense storms in 1997 and 1998, floods caused closures of State Highway 4.

In 1998, Caltrans installed double 8- by 10-foot box culverts under State Highway 4 and California Avenue to supplement the 6-foot pipe culvert at Kirker Creek. The new Caltrans box culverts remain gated closed until the City of Pittsburg completes downstream work to prevent the additional water from flooding the neighborhood north of California Avenue.

City-sponsored Stage 1 projects include the following elements:

- Two 14-foot x 7-foot concrete box culverts from California Avenue to El Pueblo Avenue
- Earthen channel (80 feet wide at base) from El Pueblo Avenue to the Pittsburg-Antioch Highway
- 5-acre detention basin south of Pittsburg-Antioch Highway and east of Kirker Creek.
- Six (6) 7-foot diameter concrete pipe culverts under the railroad tracks and Pittsburg-Antioch Highway
- Rock slope protection at the 90 degree bend north of the Pittsburg-Antioch Highway
- Earthen channel (92 feet wide at base) along north side of Pittsburg-Antioch Highway
- 12-foot diameter steel pipe culvert under Loveridge Road north of State Highway 4
- New wetland/detention basin on Dowest Slough (to be built by Dow Chemical)

Stage 2 Flood Relief Projects

Stage 2 projects include pipes, culverts and channels that have less than 50 percent of the required capacity and risk of causing flood damage. These areas are all on the main stem of Kirker Creek, between Highway 4 and Buchanan Road, including the following for total length of 2,765 feet:

- Channel between Garcia Avenue and Highway 4
- Pipe between Mokelumne Aqueduct (DeAnza Trail) and Contra Costa Canal
- Contra Costa Canal crossing (pipe)
- Buchanan Road crossing (culvert)
- Channel along Quercus Lane (south of Buchanan Road)

Stage 3 Flood Relief Projects

Stage 3 projects include augmentation of a number of undersized pipes and culverts are throughout the Kirker Creek sub-basin.

Contra Costa Countywide NPDES Municipal Storm Water Permit
Federal regulations for storm water runoff discharges were issued by the U.S. EPA on November 16, 1990, pursuant to Section 402 (p) of the Clean Water Act. Locally, the regulations require National Pollutant Discharge Elimination System (NPDES) permits for runoff generated from construction, maintenance and operation of projects that discharge through storm sewer systems or tributary streams. An NPDES permit, issued jointly to the municipalities of Contra Costa County, regulates storm water runoff in the Kirker Creek watershed.

The current NPDES permit is implemented through the Contra Costa Clean Water Program Storm Water Management Plan (1999). Under the Permit as amended (tentative order), certain development projects must ensure that "...post-project runoff does not exceed estimated pre-project rates and/or durations, if increased storm water discharge rates and/or durations would result in increased potential for erosion or other adverse impacts to beneficial water uses." The intent is to prevent adverse impacts of erosion and silt pollution on water quality.

Protection of receiving waters during construction is subject to a Storm Water Pollution Prevention Plans (SWPPPs) that address specific activities on construction sites covered by the Statewide National Pollutant Discharge Elimination System (NPDES) General Permit (California Regional Water Quality Control Board, *Guidelines for Construction Projects*, pp. 37-47). Much of the protection during grading is intended to limit on-site erosion and off-site siltation of receiving waters.

Water Quality
The project site is located within the jurisdiction of the San Francisco Bay Regional Water Quality Control and lies within the Suisun Basin Hydrologic Planning Area. Regulations for discharges in this area are addressed in the Water Quality Control Plan for the San Francisco Bay Basin (June, 1995). The State Water Resources Control Board has also instituted a Water Quality Control Plan for the San Francisco Bay/San Joaquin Delta Estuary (May 1995), which encompasses the entire area.

Beneficial uses for the Suisun Basin Hydrologic Planning Area include groundwater (referring to the Pittsburg Plain), which has general potential use for municipal and domestic, agricultural, industrial service, and industrial process supplies. Municipal and domestic water is supplied by the Contra Costa Water District through the treatment of raw water from the Central Valley Project, which is conveyed via the Contra Costa Canal. The Contra Costa Canal is fed by surface waters located off-site away from the project site. Specific beneficial uses have not been listed in the San Francisco Bay Basin Plan for East or West Kirker Creek, Markley Creek, East or West Antioch Creek, or the Los Medanos Wasteway.

Kirker Creek Watershed Management Plan

The Contra Costa Resource Conservation District (RCD) has published a *Kirker Creek Watershed Management Plan* (January 2004), which identifies existing conditions, issues, goals and objectives and has made specific recommendations for implementing programs (see Table 9).

Stream and Wetlands Regulation

Discharges to jurisdictional waters are within federal jurisdiction of U.S. Army Corp of Engineers. Alteration of streambeds also is within state jurisdiction of the California Department of Fish and Game. The Rivers and Harbors Act of 1899 protects waters useful for interstate commerce, including waters subject to the ebb and flow of the tide, navigable rivers and streams. Section 404 of the Clean Water Act of 1972 expands the definition of jurisdictional waters to protect wetlands, tributaries to "Waters of the U.S.," and other impoundments of waters (*e.g.*, intrastate lakes and natural ponds).

TABLE 9
KIRKER CREEK WATERSHED MANAGEMENT
Plan Goals and Objectives

GOAL	Create places for outdoor activities inviting for humans and instilling a sense of regional awareness and history.	
	Objectives	• Enhance recreation opportunities throughout the watershed.[a)] • Integrate opportunities for watershed education & interpretation with local parks and trails.
GOAL	Encourage development proposals that incorporate best management practices for water conservation and storm water, and represent the best use of land.	
	Objective	• Minimize negative impacts of development on water quality and flooding through proactive planning.[b)]
GOAL	Retain, rehabilitate, or enhance existing watershed habitat, consistent with environmental, economic, land use goals.	
	Objectives	• Preserve and enhance natural habitat throughout the Kirker Creek Watershed. • Increase knowledge of urban and agricultural habitat areas. • Provide opportunities for community education and enjoyment of wildlife habitat in the watershed. • Balance habitat-preservation goals with property-owner rights to develop new uses.
GOAL	Retain and enhance the natural ecology of streams & other wetlands and reduce construction of man-made channels.	
	Objectives	• Maintain and enhance existing creek and wetland resources. • Restore altered creek and wetland areas. • Increase awareness of creek and wetland issues in the community.
GOAL	Reduce flood damage in the Kirker Creek watershed.	
	Objectives	• Use natural features for flood storage (*e.g.*, wetlands, ponds). • Ensure maintenance of channels to remove silt. • Address runoff impacts of new development.

NOTES:
Recommendations in *the Kirker Creek Watershed Management Plan* include:

[a)] Encourage storm water detention basins having additional benefits as park space or wildlife habitat.

[b)] Ensure that new development meets standards for storm water management, monitor compliance with rules in effect, and educate property owners about best management practices.

SOURCE: Contra Costa Resource Conservation District, 2004.

HYDROLOGY, WATER QUALITY, AND FLOODWAY IMPACTS

According to Pittsburg General Plan Policy 9-P-21 (*Pittsburg 2020: A Vision for the 21st Century*, p. 9-16):

As part of CEQA documentation, require an assessment of downstream drainage creeks and channels and City storm water facilities impacted by potential project runoff.

> *Calculate potential sedimentation and runoff based upon the maximum storm event and determine necessary capacity of the downstream drainage system. If the project presents potential downstream sedimentation, runoff or flooding issues, require additional mitigation including, but not limited to, 1) limitations on grading and construction in dry season only and 2) funding for downstream improvements, maintenance, and repairs.*

PROPOSED PROJECT

Approximately 137 acres of the project site are located in the East Kirker Creek watershed, and the remaining 26 acres are located in the watershed of Markley Creek. The proposed project includes a 4-acre on-site detention basin bounded by the proposed Buchanan Bypass, residential lots, PG&E tower access road, and a driveway. The access road would be constructed on a filled dike forming the northern side of the basin. The project site area tributary to the proposed on-site detention basin is 81 acres, and an additional 35 acres of the project site is tributary to the existing detention basin in Highlands Ranch. The remaining project site area (47 acres) would continue to drain east to Markley Creek of west to East Kirker Creek via the diversion at Palo Verde Drive.

At the southern site limits, three headwalls are proposed to intercept and divert storm water from the upslope area through pipelines to off-site receiving waters or man-made conveyance systems. Owing to the proposed grading of the Buchanan Bypass segment constructed within the project site limits, storm water runoff from the bypass would be collected for on-site detention or routed off-site for detention in the Highlands Ranch detention basin.

FUTURE STORM WATER RUNOFF

DRAINAGE AND RUNOFF

The proposed project would include re-grading of the site, on-site collection and detention systems, headwalls and diversion pipelines. With the preliminary grading as shown on the Vesting Tentative Map, the project site can be divided into six drainage sub-areas (see Figure 14 and Table 9).

Sub-area 6 drains to the Markley Creek watershed. With development of the project, a reduced-area shown as Sub-area 6 would continue to drain to Markley Creek through the

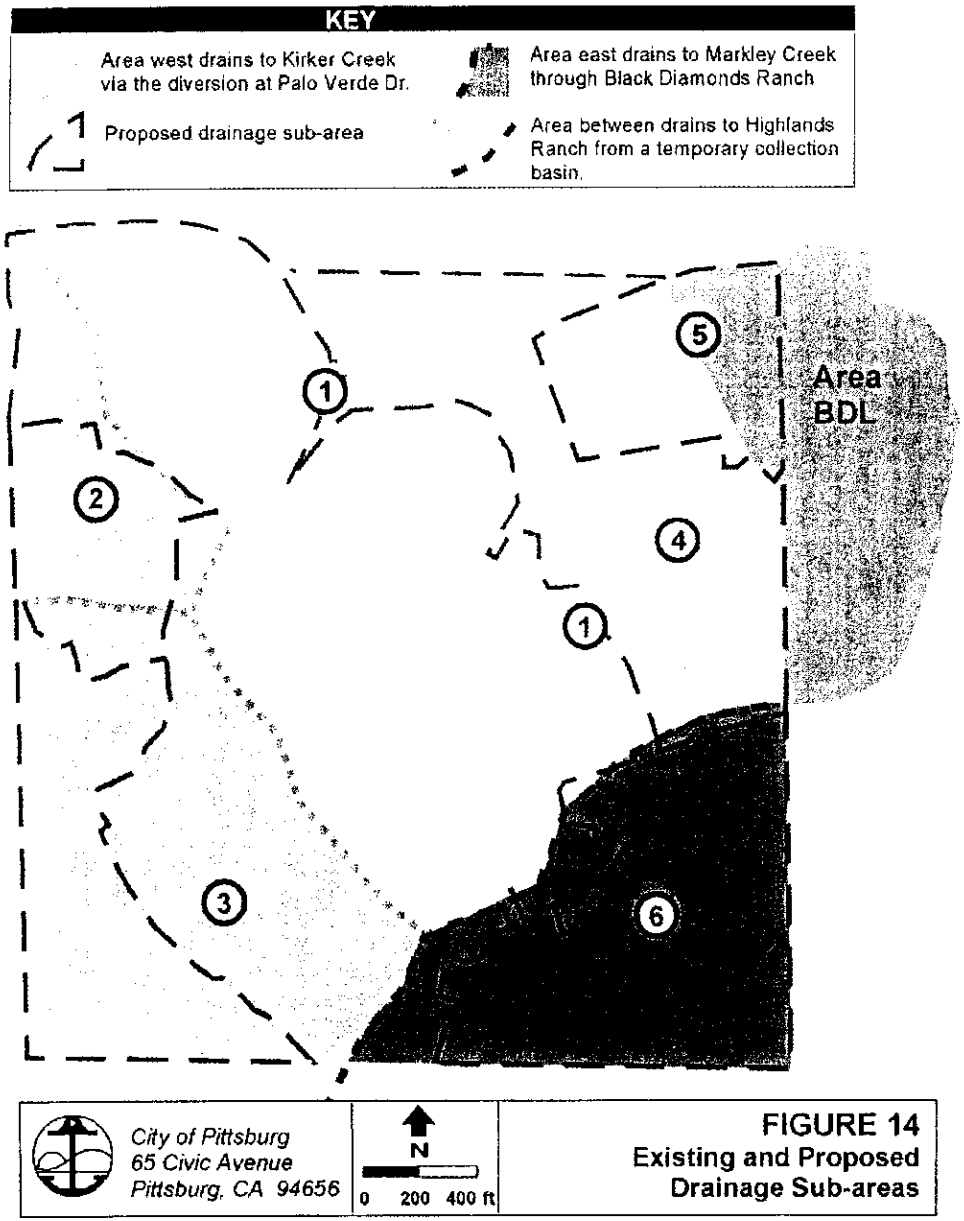


FIGURE 14
Existing and Proposed
Drainage Sub-areas

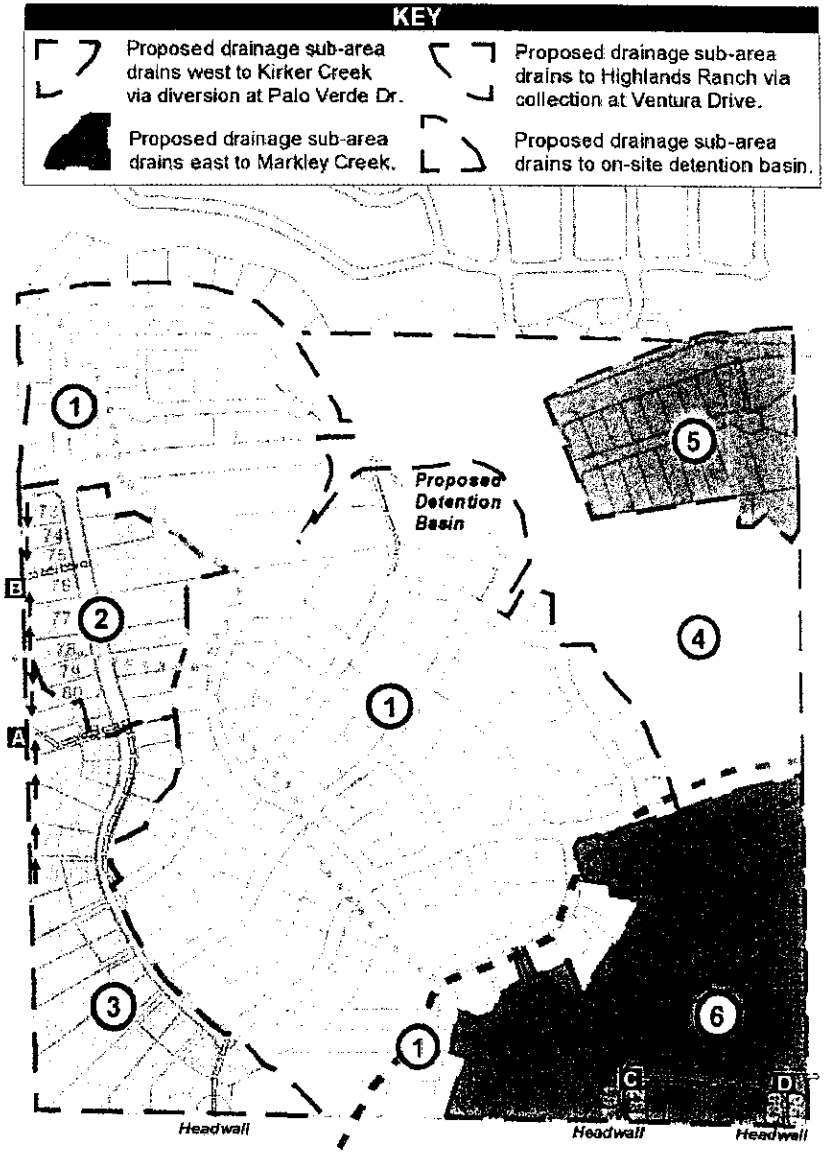


TABLE 10
ON-SITE STORM WATER RUNOFF
Pre-Development and Post-Development

Drainage Area Identification	Drainage Sub-area	Land Area		Proposed Destination and Conveyance of Storm Water Runoff	Will the discharge be detained?	Runoff Rates (cfs)	
		Pre-Project	Post-Project			Pre-Project	Post-Project
West to Kirker Creek	#2	13	9.2	To East Kirker Creek via off-site discharge west to an unnamed intermittent creek and the diversion at Palo Verde Drive	N		6
	#3	37	15.5		N		11
	SUM	50	25		N	27[c]	18[c]
Sky Ranch/ Highlands Ranch	#1	87	80	To East Kirker Creek via the proposed on-site detention basin, connection to the storm sewer at Ventura Drive, and secondary detention in the Highlands Ranch detention basin	Y	70	124[d] 15[2]
Highlands Ranch	HR	144	142	To East Kirker Creek via off-site storm sewer (Ventura Drive or Black Diamond Ranch) and detention in Highlands Ranch, without initial detention in the proposed Sky Ranch II detention basin	Y[b]		
	#1	87	0		NA		
	#4/5	0[a]	39		Y[b]		
	BDL	27	27		Y[b]		
	HRP2	29	25		Y[b]		
	SUM	287	233		Y[b]	205	362[e] 79[2]
East to Markley Creek	#6	24	22	To Markley Creek via off-site discharge east to the collection system in Black Diamond Ranch	N	13[c]	16[c]

NOTES:

[a] Before development, this area is included in Sub-area 1 or Sub-area BDL.

[b] Storm water from this sub-area is or will be detained in the existing detention basin on Highlands Ranch and not in the proposed detention basin on Sky Ranch II.

[c] Q_{10}, 24-hour

[d] Q_{100}, 12-hour, (1) inflow into the proposed detention basin on the Sky Ranch II site and (2) discharge from the basin.

[e] Q_{100}, 12-hour, (1) inflow into the existing detention basin on the Highlands Ranch site and (2) discharge from the detention basin. Inflow and discharge include the additional runoff conveyed from the tributary sub-areas and the Sky Ranch II detention basin.

SOURCE: Isakson and Associates, March 22, 2005.

conveyance system in Black Diamond Ranch. Sub-areas 2 and 3 drain west to East Kirker Creek without detention. The remainder of the project site currently drains to the East Kirker Creek watershed after detention in the Highlands Ranch detention basin and, with development of the proposed project, would continue to do so.

Sub-area 6, east of the divide (see Figure 14), currently drains to Markley Creek. With development of the proposed project, the slightly contracted Sub-area 6 would continue to drain to Markley Creek via the conveyance system in Black Diamond Ranch, and four acres formerly in Sub-area 6 would become part of Sub-areas 1 or 4.

Sub-areas 2 and 3, west of the divide (see Figure 14), currently drain to the diversion south of the residential subdivision near Palo Verde Drive and ultimately to Kirker Creek (see Figure 13, #1). With development of the proposed project, contracted Sub-areas 2 and 3 would continue to drain to the diversion, and 23 acres formerly in Sub-areas 2 or 3 would become part of proposed Sub-area 1 and would drain to the on-site detention basin.

Upgradient of the project site, three proposed headwalls would maintain existing drainage patterns. The proposed project would not detain storm flows from Sub-area 2, Sub-area 3, or Sub-area 6. The off-site upland area would continue to generate storm flow volumes equal to the pre-development volumes. After development, peak flow rates would be attained earlier in storm events owing to the addition of impervious cover. The total rate of discharge to the diversion at Palo Verde Drive or to Black Diamond Ranch would remain similar to the existing condition owing to the reductions in contributory drainage areas, despite the addition of impervious surfaces. For Sub-areas 2 and 3 there would be a decrease in runoff rate to 18 cfs from 27 cfs pre-development. For Sub-area 6 there would be an increase to 16 cfs from 13 cfs pre-development. Table 9 (next page) presents pre-development and post-development discharge rates.

Sub-area 1, Sub-area 4, and Sub-area 5, and additional area east Sub-areas 4 and 5 currently drain to a temporary storm water collection area, from which storm water is conveyed by piping to the conveyance system and detention basin in Highlands Ranch directly north of the project site. After development, storm water flow from Sub-area 1 would be collected in on-site systems and detained in the proposed on-site detention basin on the Sky Ranch II site. Storm water flows from Sub-areas 4 and 5 would continue to be collected and detained off-site in systems that drain ultimately to the existing detention basin on Highlands Ranch.

Analytical Methods

Isakson and Associates, Inc. calculated on-site storm water runoff rates from the Sky Ranch II project site. Isakson and Associates, Inc., used the following calculation tools and assumptions:

- HEC-1, a program developed by the U.S. Army Corps of Engineers, Hydrologic Engineering Center, and the Contra Costa County Unit Hydrograph;

- 100-year recurrence, 12-hour storm was used for design including adequate volume in the detention basin to hold the 100-year flood volume with 2 feet of freeboard. Off-site, downstream of the project site, cumulative storm water runoff rates were recently calculated independently by Caltrans for the State Highway 4 improvement project. Caltrans used the following calculation tools and assumptions:
- Contra Costa County Flood Control and Water Conservation District's HYDRO 6 Rainfall/Runoff Program
- 25-year recurrence storm was used for design of culvert crossings not requiring pumping
- 50-year recurrence storm was used for design of crossings under depressed roadway sections where pumping is necessary.
- Existing and future (year 2020) storm runoff were calculated based on the Cities (Pittsburg's and Antioch's) General Plans and buildout of future land uses.

On-Site Drainage Systems Evaluation

Isakson and Associates, Inc., considered several tributary drainage areas including Highlands Ranch, 119 acres in Sky Ranch II that would be tributary to existing of proposed detention basins in Highlands Ranch and Sky Ranch II, and 52 acres of off-site tributary areas east and southeast of Highland Ranch and tributary to the detention basin in Highlands Ranch. Portions of Sky Ranch II not included currently drain west to the diversion at Palo Verde Drive or east to Markley Creek. A 0.6 square mile (400-acre) drainage area was studied, including areas north and south of Buchanan Road.

Flood routing calculations were performed to test the adequacy of three existing or proposed detention basins including BD-1 on CCWD-owned property north of Buchanan Road, HR on Highlands Ranch at the corner of Meadows Avenue and Buchanan Road, and SK2 on the project site. The pre-development peak discharge from Highlands Ranch, 235 cubic feet per second (cfs), represents the allowable pre-development peak discharge leaving Highlands Ranch from the entire drainage area, calculated for the 100-year, 12-hour duration storm, as noted in *Drainage Study for Sky Ranch 2 Subdivision 8475* (Isakson and Associates, Inc., June 2001, Table 1, page 2).

Based upon the HEC-1 flood routing calculations from the revised May 2005, the peak inflow at the proposed detention basin (SK2) in Sky Ranch II is 124 cfs and the total volume for the 100-year, 12-hour storm is 14 acre-feet. Allowing for discharge during the storm, the peak outflow at SK2 is 15 cfs, the peak stored volume is 7 acre-feet, and the peak water surface elevation is 244.5 feet. The calculation assumed bottom of basin elevation at 234 feet and a tributary area of 80 acres.

The emergency spillway is intended to convey water from the detention basin in the event of storm inflow that exceeds the assumed design storm. "Design" storm means the storm producing the highest inflows or discharges used for design of storm water

collection, detention and conveyance facilities. Outflow from a spillway is not supposed to be metered or constrained, and would equal the peak inflow 124 cfs.

The current basin design assumes grading at 3:1 slopes along the north, west and south sides of the basin. Near its eastern end and the existing power transmission line tower, the bank would be left at the natural grade above 252 feet above msl, which is the top of basin elevation. The estimated available storage volume with 2 feet of freeboard and proposed 3:1 grading is approximately 14 acre-feet.

Off-Site Drainage Systems Evaluation

Deficiencies were identified by Caltrans at East Kirker Creek, east of Loveridge Road (see Figure 13, #6), under both existing and future 2020 conditions; however, these deficiencies are caused by downstream constrictions. No deficiencies were identified for Markley Creek, Los Medanos Wasteway, or West Antioch Creek. Other deficiencies identified by Caltrans at East Antioch Creek, and minor watersheds located immediately to the west, are outside the area of impact of the proposed project.

In addition to the Caltrans identified deficiencies, the City of Pittsburg has identified maintenance or improvement requirements along the diversion at Palo Verde Drive at the culvert beneath Buchanan Road, and at the culvert beneath East Leland Road (Figure 13, #1, #3 east and #4). Siltation that reduces culvert capacity and under-sized culverts are among the deficiencies.

STANDARDS OF SIGNIFICANCE

Impacts of the Sky Ranch II project on-site and off-site were evaluated in terms of the California Environmental Quality Act significance criteria. Pursuant to the findings of an Initial Study this project was evaluated to assess potential "significant" effects as could be characterized by any of the following consequences:

a) Violate any water quality standards or waste discharge requirements.

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table (*e.g.*, the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on-site or off-site.

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on-site or off-site.

STANDARDS OF SIGNIFICANCE (*Continued*)

e) Create or contribute runoff water which would exceed the capacity of an existing or planned storm water drainage system or provide substantial additional sources of polluted runoff.

f) Otherwise substantially degrade water quality.

g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows.

i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

j) Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow.

The proposed project was evaluated in the Initial Study and, relative to criteria g) through j) above, the projected was determined to have a less-than-significant effect. Therefore, the reader may wish to consult Chapter XIII, Appendix A, as flood hazard, seiche, tsunami and mudflow are not addressed further in Chapter V.C.

Violate any water quality standards or waste discharge requirements

The potential impact of the proposed project on water quality standards was determined in the Initial Study to be a less-than-significant effect. Construction of the project, because it would involve more than 5 acres, would require an NPDES General Permit (with requisite Storm Water Pollution Prevention Plan, Conceptual Storm Water Pollution Prevention Plan, and Permanent Control Measures) and a Section 401 Permit ("Water Quality Certification") or Waiver. Water Quality Certifications are required for filling projects. Contra Costa County Flood Control and Water Conservation District. County Ordinance 89-27 requires a drainage permit for most drainage work. In general, a permit is required for the purposes of reviewing and inspecting proposed drainage work. These processes should assure that measures are enforced to mitigate potential erosion and sedimentation of receiving waters as wells as accidental spills or discharges to drainageways during construction.

Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table

Based on the Initial Study prepared for the proposed project, the project would result in some loss of ground water recharge capability by filling of segments of unnamed intermittent and ephemeral stream channels; however, this particular effect was determined to be less-than-significant. Portions of the project site within the Kirker Creek and Markley Creek watersheds would continue to drain to these watersheds via a pair of outfalls and the storm water collection system being developed in the adjoining Black Diamond Ranch residential subdivision. Outside of the stream channels, the existing soil types on the project site are clayey, not pervious, and the hilly terrain is not conducive to ground water recharge.

Proposed grading cuts are not so deep as to be likely to encounter an aquifer, though the proposed cuts potentially could encounter shallow ground water. Subsurface springs were not encountered by the geotechnical staff during Geotechnical Exploration in October and November 2000 (ENGEO, *Geotechnical Exploration Report, Sky Ranch II Subdivision 8475*, p. 11). Ground water was encountered in test bore B-3 at approximately 64 feet below grade surface (bgs). B-3 was located in an area of proposed fill. Ground water was not encountered in the three other test bores or 52 test pits throughout the project site. In comparison, the maximum proposed cut is 100 feet in the vicinity of Lots 161-162, 204-206, and 270. The second deepest proposed cut is 70 feet in the vicinity of Lots 28-29 and 381.

Inclusion of the project site in the Central Valley Project is necessary to supply water from surface water sources and avoid potential overdraft of ground water from the City's two municipal wells. These two wells are projected in *City of Pittsburg 2000 Urban Water Management Plan* (November 20, 2000) to provide a safe yield of 1,600 acre-feet per year (Ibid., p. 11). While the safe yield is held constant through the planning horizon, 2020, water purchases from CCWD are projected to increase to 14,671 acre-feet in 2020 from 9,937 acre-feet in 2003. Though the City of Pittsburg municipal wells could supply on an interim basis, the permanent water supply assumed in the *City of Pittsburg 2000 Urban Water Management Plan* and necessary for the proposed project is purchased water from CCWD.

> **IMPACT 1:** The proposed project would result in some loss of ground water recharge capability by filling of segments of unnamed intermittent and ephemeral stream channels. On-site infiltration basins and infiltration in the detention basin were considered but were assessed to be infeasible in view of the depth to groundwater and on-site soil conditions. Alternative recharge at the proposed detention basin, for

example, by a groundwater recharge well, is not a current Best Management Practice (BMP). In view of the less-than-significant nature of the ground water recharge effect, mitigation is not required.

Mitigation Measures:

- None required.

IMPACT 2: Inclusion of the project site in the Central Valley Project (CVP) is necessary to avoid potential overdraft of ground water from the two municipal wells. The project's water demand is estimated at 200 to 250 acre-feet per year. Though the City of Pittsburg's two municipal wells could supply on an interim basis, the permanent water supply assumed in the *City of Pittsburg 2000 Urban Water Management Plan* is purchased water from CCWD.

Mitigation Measures:

- Developer shall provide all necessary documentation as shall be required by CCWD for its application for inclusion of the project site in the CVP.
- City shall not issue grading or building permits pending receipt of a "Will Serve" letter from CCWD.

Residual impact after mitigation: Less-than-significant.

Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on-site or off-site

Alteration of Existing Drainage Patterns

The proposed project would fill reaches of three drainageways including one drainageway that is illustrated as an intermittent stream on the U.S. Geological Survey's Antioch South 7.5-minute topographic map. Existing storm flows in the filled reaches of the intermittent stream and ephemeral drainageways would be diverted through underground pipelines. Filling and diversion would be subject to a 1601/03 Streambed Alteration Agreement from CDFG. Pending verification of the wetlands delineation and jurisdictional determination by USACE, the proposed filling also could require an individual Section 404 Permit.

At the project's southern boundary, storm water flows in the existing intermittent stream and ephemeral drainageways would be intercepted at three headwalls. The intermittent creek's headwall would be in the back of Lot 104 at an elevation of approximately 360 feet. Because this is an area of proposed fill, a radial graded 2:1 slope would be created from the creek bed to an

elevation of approximately 390 feet. This headwall and graded slope should be located on the project site within an easement on Lot 104. The ephemeral drainageways would enter the project site at headwalls proposed in the backs of Lots 181 and 189.

These headwalls should be located within easements on Lots 181 and 189. The ground in the vicinity of the headwalls would receive some fill within the limits of the proposed site. A 3-foot tall retaining wall would be built along the western property line of Lot 182. The upslope ground surfaces off-site would retain the natural contours.

The intermittent stream's bypass flow and storm water runoff from Sub-area 3, except for the runoff from the graded slopes in the back of Lots 78-89, would be conveyed by underground bypass pipeline to a 48-inch diameter outfall pipe at the project site's western boundary (see Figure 14, box labeled "A"). This outfall would be located at the back of Lot 81. At the back of Lots 78-89, within the project site, storm water runoff from the graded slopes would travel in concrete-lined V-ditches, to the outfall.

Storm water runoff from Sub-area 2, except for the runoff from the grade slopes in the back of Lots 74-77, would be directed to a storm drain catch basin in "D" Street, from there being conveyed by underground pipeline to the 18-inch diameter outfall at the back of Lot 75/76 (Figure 14, box labeled "B"). At the back of Lots 73-77, within the project site, storm water runoff from the graded slopes would travel in-concrete lined V-ditches to the 18-inch diameter outfall pipe. From there, the storm water flow would be overland to the diversion at Palo Verde Drive.

IMPACT 3: The proposed grading and construction of headwalls would necessitate permanent access for the purpose of periodic inspection and maintenance. The proposed alteration of natural drainageways creates potential for clogging of the bypass piping with debris and back-up of water on the Antioch Unified School District-owned parcel.

Mitigation Measures:

- Developer shall include provisions for permanent easements to enable access to drainage structures including headwalls, catchment basins, and outfalls.

- See also mitigation measures following IMPACT 4.

Residual impact after mitigation: Less-than-significant.

Erosion & Siltation

Undisturbed natural grasslands stabilize the soil, provide natural filtering, reduce flow velocity and allow settling of suspended silt. Immediately after proposed fill and grading, bare soil areas would lack these natural capacities.

Erosion of the graded slopes near the proposed headwalls and outfalls, and silt conveyed in the storm water runoff, would have a general potential to cause siltation of the intermittent creek, catch basins, and pipelines. New cut or fill slopes would be particularly susceptible to erosion. The proposed outfalls could potentially concentrate storm flows and cause erosion. However, the developer has proposed dissipaters for the two outfalls located at the backs of proposed Lots 75/76 and 82.

The dissipaters are sized and designed to eliminate concentrated storm water flows from entering the Thomas parcel. The dissipaters can reduce flow velocity by allowing storm water from the outfall pipe to spread laterally over a rock slope protection pad. For the 48-inch diameter outfall, this pad would be approximately 20 feet wide at the downslope edge and 15 feet long. For the 18-inch diameter outfall, this pad would be approximately 10 feet wide at the downslope edge and 6 feet long. The dissipaters also can provide some amount of settlement for capture of suspended silt; however, silt capture will also occur in multiple catchment basins or, "clean-out boxes," located at various points along the concrete-lined V-ditches.

IMPACT 4: The proposed grading and filling of segments of intermittent and ephemeral streams requires construction of graded slopes, concrete-lined V-ditches, headwalls, bypass pipe and two outfalls. After construction, potential erosion and siltation of the proposed detention basin's 3:1 sloped side walls, sloped headwall areas, and outfalls would remain a possibility and would require periodic monitoring and recurring maintenance for the life of the project. The drainage alteration, therefore, has the potential to result in long-term erosion and siltation of off-site receiving waters and man-made conveyance or detention systems.

Mitigation Measures:

- Headwalls will not be designed or constructed to act as detention basins.

- Headwall areas shall be graded, restored, and then maintained in a manner as to provide natural filtration of the area around each headwall.

- The headwall and the outfall will be designed with appropriate

settlement, filtration and energy dissipation features. A trash rack at the headwall would prevent trash and larger debris from entering the pipelines.

- Dissipaters and plantings at the headwalls and outfall will minimize erosion and provide natural filtration and settling, Gabion dissipaters at the outfall will reduce velocity and minimize erosion. At the three proposed headwalls along the southern boundary of the project site, rip rap or gravel beds to reduce flow velocity and allow settling could be effective. A vegetated buffer area upslope of the headwall also will be required to assist filtration and settling.

- A perpetual funding source shall be established for maintenance of the proposed on-site detention basin, headwalls and outfalls. Establishment of the latter fund is suggested prior to the City's issuance of a grading permit for construction of the headwalls, outfalls and, on-site detention basin. Therefore, the fund will be supported initially by the developer (e.g., through deposits to a Maintenance Assessment District account), which later may be assumed by a HOA or GHAD and supported through HOA dues or special assessments.

- Developer shall submit plans for headwalls, outfalls and dissipaters to the CCCFCWCD and City for review and approval by these responsible agencies.

- City shall not issue grading or building permits pending completion of review by CCCFCWCD and establishment of the above fund.

Residual impact after mitigation: Less-than-significant.

IMPACT 5: Off-site, in Markley Creek, there is some potential that increased duration of storm water discharges could potentially contribute to stream bank erosion and turbidity. Storm water discharges from proposed Sub-area 6 and the upstream tributary area would not be detained.

Tributary area, addition of impervious surface, and slope of the man-made conveyance systems are accounted for in *Drainage and Sewer Study, Addendum #1*. Incremental rates of runoff in comparison to pre-project levels would not be substantial for 2-, 5-, 10-, 25-, 50-, and 100-year storms. For the 10-year, 24-hour recurrence storm, the peak flow

(Q_{10}) would increase to 16 cfs from 13 cfs. The effect, therefore, is less-than-significant.

Mitigation Measures:

- None required.

IMPACT 6: Grading has an acknowledged potential to induce erosion and sedimentation owing to cut and fill, removal of native grasses, and creation of slopes without vegetative cover.

Mitigation Measures:

- Developer will prepare a SWPPP to address specific grading activities on the project site, construction of headwalls, outfalls and dissipaters, and restoration of native grass cover on graded slopes.
- Developer will implement BMPs for erosion control as set forth in the SWPPP, including but not necessarily limited to application of soil stabilizers such as hydro-seeding, netting, erosion control mats, and rock slope protection.
- Grading shall be performed only in the "dry season" as shall be defined in terms of the SWPPP and Grading Permit subject to City approval.
- Prior to re-establishment of vegetative cover, the developer shall use such temporary measures as fiber rolls along slopes, and silt fences at the boundaries of the construction site adjoining drainageways, as necessary.
- To prevent tracking of mud onto adjacent roads and airborne dust, developer shall construct temporary areas of aggregate "mats" over bare soil to create stable areas for off-road vehicles and construction employee vehicles.
- Construction entrances and exits shall be equipped with water and temporary collection of rinse water for tire rinsing to remove mud as needed.

Residual impact after mitigation: Less-than-significant.

Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on-site or off-site

Drainage and Sewer Study, Addendum #1, evaluates storm flow and routing system-wide from the project site north to Los Medanos Pond. The HEC-1 flood routing calculations show that proposed on-site and existing off-site

detention basins are adequately sized for the most critical storm conditions. For the proposed on-site detention basin the critical storm is the 100-year recurrence, 12-hour storm. For off-site detention facilities such as the CCWD detention basin north of Buchanan Road the critical storm is the 100-year recurrence, 12-hour storm.

South of Buchanan Road the area tributary to either of the Highlands Ranch or Sky Ranch II detention basins includes approximately 313 acres. All of the storm water runoff from Drainage Sub-areas 1, 4, and 5 on the project site (see Figure 14) would be collected and detained on-site in the proposed detention basin, or off-site in the existing Highlands Ranch detention basin, or sequentially in both. Proposed Drainage Sub-area 1 is an 80-acre area that would be tributary to the proposed on-site detention basin. After initial collection and detention in the proposed detention basin on the project site, the discharge would be routed via underground storm sewer piping under Ventura Drive for secondary detention in the existing detention basin in Highlands Ranch.

Storm water flows from Drainage Sub-area 4 (29 acres) and Sub-area 5 (10 acres) would be routed via off-site conveyance for detention in the existing Highlands Ranch detention basin. In *Drainage and Sewer Study, Addendum #1*, storm water flows from Sub-areas 4 and 5 are combined with other existing and future flows, Highlands Ranch (142 acres), Sub-area BDL (27 acres) in the northeast corner of Black Diamond Ranch, Sub-area HRP2 (25 acres) east of Highlands Ranch, and the discharge from the Sky Ranch II detention basin.

Proposed Sub-areas 2, 3, and 6, which are portions of watersheds that currently drain west to the Palo Verde diversion or east to Markley Creek, are not tributary to Los Medanos Pond, the existing CCWD detention basin, or the existing Highlands Ranch detention basin (see Figure 13). Sub-areas 2, 3, and 6 would be reduced in acreage. Sub-areas 2 and 3 combined would be reduced in acreage to 25 acres from 48 acres, and Sub-are 6 would be reduced in acreage to 22 acres from 24 acres.

HEC-1 calculations in *Drainage and Sewer Study, Addendum #1*, account for tributary acreage and impervious surface area. For the 10-year, 24-hour recurrence storm, the combined peak flow (Q_{10}) from Sub-areas 2 and 3 would decrease to 18 cfs from 27 cfs. The peak flow (Q_{10}) from Sub-area 6 would increase slightly to 16 cfs from 13 cfs. The increase in runoff from Sub-areas 2,3, and 6, therefore, is not a substantial increase. The peak storm flow (Q_{100}) discharged from the Highlands Ranch detention basin would be 79 cfs, and the peak discharge from the proposed detention basin on the project site would be 15 cfs, both for the critical 100-year recurrence, 12-hour storm.

IMPACT 7: The rate of storm water runoff from the project site and Highlands Ranch would remain below the allowable pre-development peak rate (235 cfs) owing to the existing and proposed detention systems. On-site detention will limit critical flows from the proposed detention basin in Sky Ranch II to 15 cfs. Off-site detention will limit critical flows from the existing detention basin in Highlands Ranch to 79 cfs. The effect, therefore, is less-than-significant.

Mitigation Measures:

- None required.

Create or contribute runoff water that would exceed the capacity of an existing or planned storm water drainage system or provide substantial additional sources of polluted runoff

IMPACT 8: The amount of storm water runoff from the project site would increase above the pre-development volume owing to the addition of impervious surfaces such as roof tops, walkways, and road pavement. The proposed on-site detention basin in Sky Ranch II has been sized to accommodate the critical storage volume and avoid down stream flooding. The on-site storage volume adequate to detain runoff for the critical storm is 7 acre-feet at water surface elevation 244.5 feet above msl. The estimated available storage capacity in the proposed detention basin is 14 acre-feet.

Mitigation Measures:

- Developer shall submit, for review and approval by the City Engineer, the revised detention basin design with 14-acre feet of storage, assuming 3:1 graded slopes, and 250 foot msl maximum surface water elevation.
- Developer shall submit, for review and approval by the City Engineer, revised HEC-1 hydrological routing calculations for the 100-year, 12-hour, 6-hour, and 3-hour storms.

Residual impact pending verification: Less-than-significant.

IMPACT 9: Storm water runoff from the project site would add to the pre-development volume detained in the Highlands Ranch detention basin. The existing detention basin in Highlands Ranch has been sized to accommodate the critical storage volume and avoid down stream flooding. For the critical storm, the off-site storage volume adequate to detain combined inflow from various tributary sub-areas upstream of the Highlands Ranch detention basin is 16 acre-feet. The estimated available storage capacity in the existing detention basin is 21 acre-feet at water surface elevation 117 feet above msl. This potential effect, therefore, is less-than-significant.

Mitigation Measures:

- None required.

IMPACT 10: Storm water runoff from the project site, Highlands Ranch, and other tributary sub-areas would add to the pre-project volume detained in the CCWD detention basin north of Buchanan Road. For the critical storm, the storage volume adequate to detain combined inflow from various upstream tributary sub-areas is 4 acre-feet at a water surface elevation 88.3 feet above msl. The estimated available storage capacity in the existing detention basin is 6 acre-feet at water surface elevation 90.0 feet above msl. The potential effect on the CCWD-owned detention basin is less-than-significant.

Mitigation Measures:

- None required.

IMPACT 11: Storm water runoff from the project site, Highlands Ranch, and other tributary sub-areas would add to the pre-project flows conveyed in off-site pipeline north of Buchanan Road. Capital improvement project SD-18 consists of 1,000 lineal feet of upsized storm sewer pipeline from Contra Costa Canal north to Los Medanos Community College has no committed funding sources.

Mitigation Measures:

- The applicant will pay the DA 70 drainage deficiency fund ($5,000 per gross acre) for development on the land within APN 089-050-067 which is located within DA 70. The fees paid would be used for design and construction of off-site drainage improvements in the Kirker Creek watershed.

- The applicant will pay the Kirker Creek Impervious Surface Drainage Fee to the City of Pittsburg for the portion of the project site located within the Kirker Creek watershed. The Kirker Creek Impervious Surface Drainage Fee will be collected during the development process, prior to filing the Final Map, and will be used to fund Capital Improvements for drainage within the Kirker Creek watershed.

Residual impact after mitigation: Less-than-significant.

Otherwise substantially degrade water quality

Construction-Phase

During construction, water quality of the storm water flows discharged from the

project site will depend upon temporary control measures implemented during grading and construction. Grading and construction have an acknowledged potential to induce erosion and also present a risk of unauthorized discharge of hazardous materials to storm sewers and natural drainageways. Construction-phase storage of hazardous materials including fuel, paint, and other materials will be subject to structural and non-structural Best Management Practices (BMPs) to control spills leakage and dumping, as will be expressed in Spill Prevention and Contingency Plan submitted with the Grading Permit. Discharges of hazardous materials are prohibited by law.

IMPACT 12: Grading and construction have an acknowledged potential to present a risk of unauthorized discharge of hazardous materials to storm sewers and natural drainageways.

Mitigation Measures:

- Developer shall prepare a Spill Prevention and Contingency Plan (SPCP) which will be submitted to the City at the time of application for Grading Permit.
- Developer shall implement BMPs and provisions for emergency notification procedures and response contingencies, spill clean up kits, secure storage of hazardous materials, designated sanitary waste bins.
- Developer agrees to use commercial equipment refueling on the project site and further agrees not to store diesel fuel or gasoline on-site.
- Developer shall notify contractors and provide copies of the SWPPP and SPCP for all contractors.
- Developer shall provide guidelines for contractor handling of waste paints, waste adhesives, and other hazardous materials. Such materials generally shall not be stored on the project site, or if stored, said storage shall be inside secure, covered storage structure and limited to compatible materials. Storage of hazardous materials above exempt quantities requires permit and Hazardous Materials Business Plan from Contra Costa County Department of Environmental Health.

Residual impact after mitigation: Less-than-significant.

Long-Term

Storm water runoff from the project will ultimately be conveyed to Kirker Creek, Dowest Slough, and the Suisun Bay. Off-site receiving waters would be susceptible to non-point source pollution generated by urban uses such as the proposed project, including motor vehicles and streets. Potential pollutants found on streets include heavy metals, oil and grease (petroleum hydrocarbons), polycyclic aromatic hydrocarbons (PAHs), heavy metals, sediments, trash, and

debris. Concentrations of such pollutants are generally highest during the first "flush" of an initial storm, after which concentrations generally decrease.

Passive treatment BMPs include vegetated swales or detention basins such as the detention basin proposed. Passive treatment BMPs reduce velocity of storm water flows and erosion, and also limit off-site transport of sediments carrying absorbed petroleum hydrocarbons, pesticides or herbicides.

Even though residents would not be permitted to store hazardous materials or hazardous waste other than household hazardous waste, residents or commercial landscape crews would be expected to use fertilizers, herbicides, pesticides, gasoline, and other common maintenance products. Chapter 13.28 of the Pittsburg Municipal Code prohibits discharges of soaps, paint, and other household products to the gutter or storm drain inlets. Public awareness programs can limit or reduce such potential pollution and prevent some from entering the drainage system.

IMPACT 13: Funding sources and the responsible parties are necessary for long-term monitoring, implementation of current BMPs and public awareness programs, and maintenance of constructed on-site drainage systems. To provide for long-term maintenance and operation of proposed constructed drainage systems, funding sources and responsible parties are identified below.

Mitigation measures:

- A perpetual funding source for periodic maintenance of the proposed detention basin, headwalls, and outfalls will be created through agreement between the developer and City of Pittsburg. Establishment of this funding source will occur before construction of the detention basin, headwalls, and outfalls. Therefore, the fund will be supported initially by the developer (e.g., through deposits to a Maintenance Assessment District account), which later may be assumed by a HOA or GHAD and supported through HOA dues or special assessments.

- Developer's Project Engineer shall prepare and submit an Operation and Maintenance Manual for periodic monitoring and maintenance of the detention basin, headwalls, open channel and outfalls. The manual should be written clearly so it could function as a complete guide for any commercial or Public Works maintenance entity.

- BMPs and public awareness can limit or reduce such potential pollution and prevent some from entering the drainage system. The funding source for long-term monitoring, implementation of BMPs and public awareness programs, and maintenance of passive treatment BMPs initially will be the developer and later will be the HOA or GHAD.

Residual impact after mitigation: Less-than-significant.

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D. VISUAL RESOURCES

Introduction

The purpose of the visual resources section is to identify and evaluate key visual resources in the project area, to determine the degree of visual impact that would be attributable to the project, and to identify potential cumulative effects of the project in conjunction with actual and planned development in the project area. Existing conditions in this visual resources section are based on the General Plan and General Plan Draft and Final EIR, site-specific reconnaissance and photo- documentation. Computerized visual simulation is used as a tool to evaluate and communicate potential visual change and, hence, degree of impact.

VISUAL SETTING

The site is located on the urban fringe, also called an "urban edge" in the General Plan of the City of Pittsburg, in an unincorporated area generally referred to as the "southern hills." The southern hills and the Suisun Bay/Sacramento Delta to the north frame the City of Pittsburg, are key visual assets in the Planning Area, and provide a sense of identity.

The southern hills are highly visible and prominent, generally above the 500 foot elevation above mean sea level (msl). From the flatlands the transitional area leading into the southern hills is characteristically rolling grassy slopes classified as California annual grasslands with sparse buckeye or oak trees. In the vicinity of the project site the vast majority of existing trees are located above the 500 feet elevation.

Views of the southern hills include open panoramic views from certain viewing locations such as parks, panoramic views from certain north-south oriented streets, and interrupted views from Highway 4 and other east-west streets.

The elevation of the site ranges from approximately 180 feet above msl to just over 500 feet msl in the southwestern corner. The City of Pittsburg's Hillside Development Standards apply to land above 500 msl and, therefore, do not generally apply to the project site.

Even though the site is not subject to the City's Hillside Development Standards, there are a number of Urban Edge policies that do apply (see Table 11). Primarily, the General Plan policies that are applicable to the site include the so-called Urban Edge policies and Neighborhood Design policies. A discussion of these policies is presented in Chapter XIII, Appendix E.

TABLE 11
GENERAL PLAN EIR VISUAL POLICIES

Policy	Policy Statement	Discussion
4-P-5	Suggests development of entry features at the entrances into incorporated Pittsburg.	One such entry would be the entry at the Buchanan Road Bypass.
4-P-6	Suggests tree plantings along collectors and arteries to maintain a sense of "rural" or open space.	As discussed on pages 17-19 herein, there are proposed graded slopes on the site that would remain visually open and natural if left un-landscaped.
4-P-7	Suggests development maintain a rural feeling through rustic material selection, avoidance of linear and opaque fencing, and orientation toward open space.	Figure 18, a photo-simulation, was created based on assumptions in regard to landscaping and fencing. Landscaping is generally near the houses on the graded level building pads, but less on the graded slopes. Opaque fences are not shown. If landscaping and fences were shown on the graded slopes visible in the photo-simulation, the open natural look in the foreground would be compromised.
2-P-72	Specifically applies in the Buchanan Subarea and suggests protection of north-south creek corridors.	Although the site has an intermittent creek, it has been transformed by siltation and cattle grazing. Storm water flow from the unnamed creek is intercepted near the south end of Palo Verde Drive.
4-P-82	Suggests development be responsive to natural elements, maintain a sense of connection to surrounding uses, and protect of creek corridors Feathering from urban to rural intensities at the urban edge is to be ensured.	Figure 17, model home elevations, shows some models with saturated earth tones, single-story design, and wood clapboard accents. These models are potentially most-rustic and distract least focal attention from the natural visual elements.

SOURCE: ***Pittsburg 2020: A Vision for the 21st Century*** **(policy statements only)**

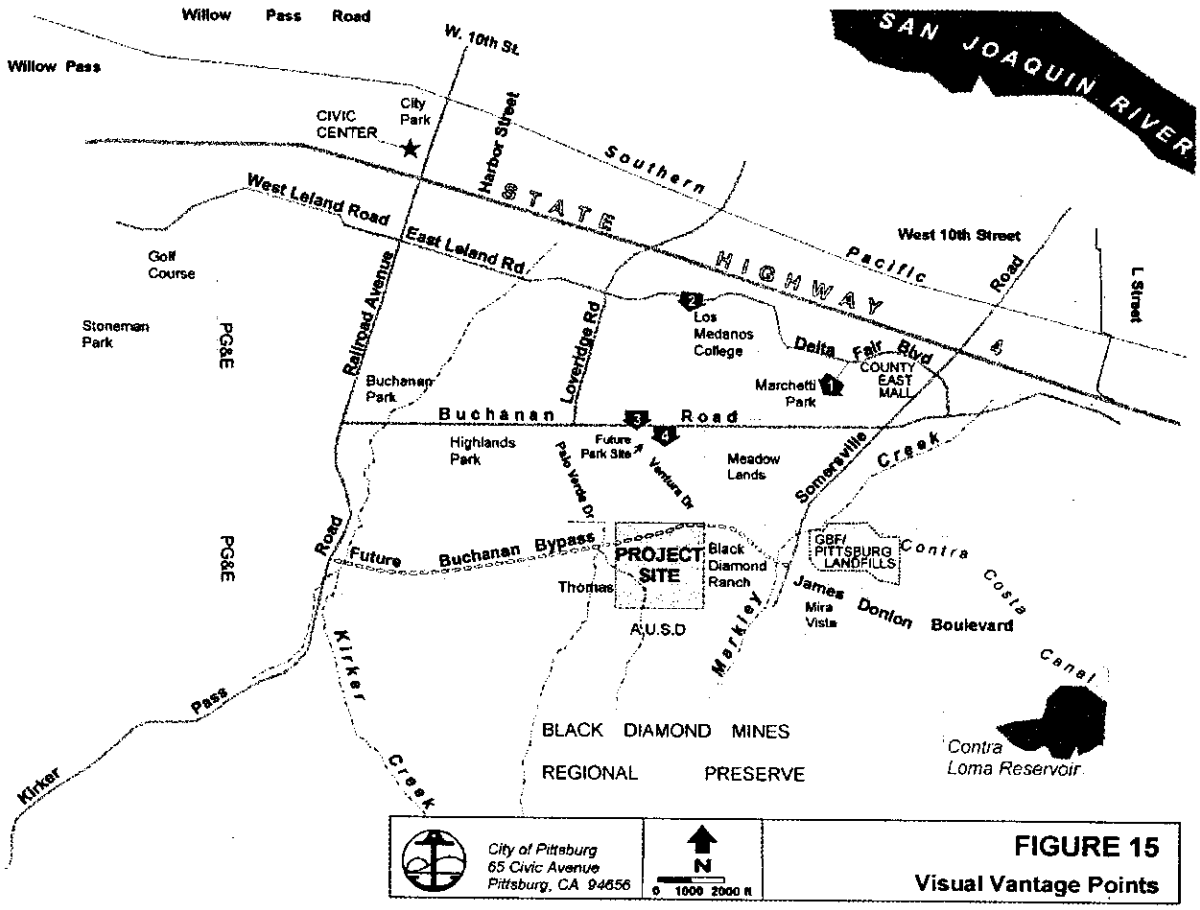


FIGURE 15
Visual Vantage Points

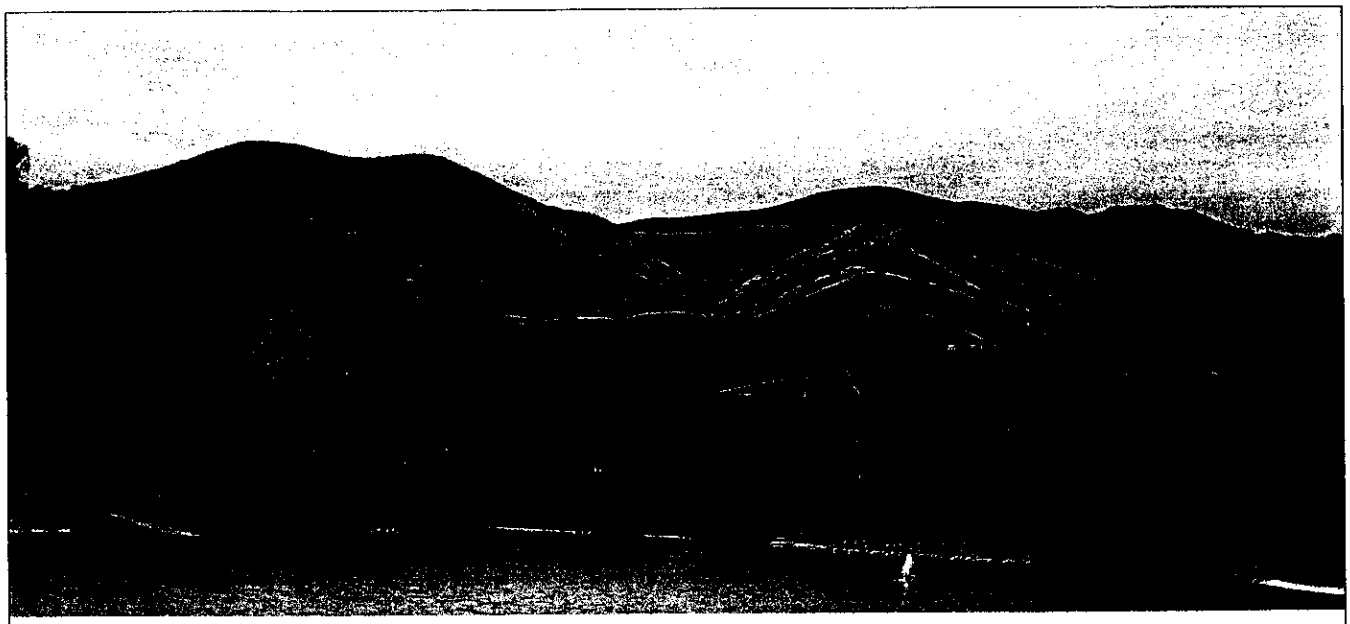
Photographs Showing Existing Conditions

Photographs of the site were taken from four vantage points in Spring 2004. These viewing locations are shown in Figure 15. VIEW 1 shows the site as viewed from Marchetti Park, and VIEW 2 shows the site as viewed from Los Medanos College. VIEW 3 shows the site and Highlands Ranch from Ventura Drive just north of Buchanan Road. VIEW 4 shows the site and Highlands Ranch from Buchanan Road at the future park site.

The site is generally lower than the 500-foot elevation contour. As can be seen Figure 16, VIEW 1, there is a distinctive "two-peaked" hill, having a crest elevation over 600 feet above msl, and sparse oak trees, located off-site, define a band along the northern and eastern face of this prominent hill, at an elevation of approximately 400 to 500 feet above msl. The ridge shown right of the two-peaked hill in Figure 16, VIEW 1, cascades north-to-south from an elevation of approximately 300 feet above msl on the site to an elevation of 800 feet off-site to the south. There are sparse oak trees on the ridge and in the ravine generally at elevation 300-feet or higher. The ravine formed by the two-peaked hill and the cascading ridge contains the intermittent creek and drainageway in the southwestern portion of the site.

FIGURE 16
EXISTING VIEWS 1, 2, 3, AND 4 OF THE SITE

VIEW 1: Marchetti Park - Existing



VIEW 2: East Leland Road at Los Medanos College - Existing

FIGURE 16
EXISTING VIEWS 1, 2, 3, AND 4 OF THE SITE

VIEW 3: Ventura Street and Buchanan Road - Existing

VIEW 4: Buchanan at future park site - Existing

Figure 16, VIEW 2, reveals more of the ravine between the two-peaked hill and the cascading north-to-south ridge. In VIEW 2 it is clear that sparse oak trees extend into the ravine. The minor hill in the foreground in front of the ravine has a crest elevation of 357 feet above msl. As shown in VIEW 2, the crest of the minor hill in the foreground transitions southeast through a saddle to a minor crest (further identified by the transmission tower) at elevation 400 feet above msl and, from there, upward along the north slope of the two-peaked hill.

Figure 16, VIEW 3, provides a slightly transverse view of the southwestern ravine, looking at the site slightly easterly of a direct north-to-south line of sight. Less of the ravine is revealed in VIEW 3 than in VIEW 2. Instead, VIEW 3 shows Highlands Ranch in the foreground and the minor hill (elevation 357 feet) and minor crest (elevation 400 feet, further identified by the transmission tower) in the middle ground. The saddle between the minor hill and minor crest itself is not visible. In the background VIEW 3 shows both the two-peaked hill, the upper elevation portion of the southwestern ravine, and the cascading north-to-south ridge.

VIEW 4, from the future park site along the south side of Buchanan Road, is similar to VIEW 3, because they are both views from Buchanan Road. VIEW 4 is nearly along a north-to-south line of sight. As in VIEW 3 the undulating contours are visible in the foreground with a scenic backdrop consisting of the horizon, two-peaked hill, ravine, and native trees.

FUTURE VIEWS

Visual Simulation Methods

One of the four existing views of the site was selected from which to create a computer-aided photo-simulation, to show the future appearance of the site and surrounding area after construction of the project. The proposed grading, future houses and streets, are shown in the photo-simulation to illustrate how the project would affect the visual character of the area.

Photographic simulation was performed to represent a future view of the project from Ventura Drive just north of Buchanan Road. The simulation was performed by an independent architectural firm, the Dahlin Group's Digital Imaging Studio, using AutoCad and digital data including vertical elevations of proposed pads and streets. AutoCad enables a variety of effects including color alteration by sunlight or shadow depending on the time of day.

The simulation is for a 5-year post development scenario, with three trees per lot all being generally less than 25 feet in height. Drawings submitted for design review

by the City of Pittsburg were examined to select comparable sized 2-story buildings from a digital library. The time of day is mid-morning, 11 AM, in May.

The colors shown in the simulation include a neutral-light color palette, and a mix of cement fiber and clay tile roofs. The overall hues are earth-toned and light, without dark or saturated colors except for the roofs. The photographic simulation shows 3,000 to 4,000 square foot houses, or footprints that are 1,500 to 2,000 square feet., located on the lots as shown in the Vesting Tentative Map dated March 16, 2004.

PHYSICAL FEATURES OF THE PROJECT

Key project features include the proposed housing, lots, roads, and graded slopes . Graded pads vary in elevation: approximately elevation 181 feet at Lots 1 and 10 along Canyon Oaks Court in the northeast, elevation 305-330 feet at Lots 181-190 along "C" Court in the southeast, elevation 260-265 feet at Lots 38-48 along "M" Court in the northwest, elevation 390 feet at Lots 104-106 in the southwest, elevation 367 feet at Lots 161 and 205-206 at the intersection of "B" Street and "D" Street, and elevation 460 feet at Lots 138-145 and the water reservoir along "D" Court. The basic grading, lots, and street layout are incorporated into the computer-aided simulation. Housing and landscaping then are added over this skin or layer.

Architectural Design Elements

The proposed housing consists of conventional 1-story and 2-story units, having footprints of 1,500 to 2,000 square feet. Proposed exterior materials are stucco and roof materials include cement fiber and clay tiles. Proposed exterior stucco colors generally are light earth tones except for some white trim and white garage doors. Figure 16 shows the elevations, color palette, and materials.

KTGY Group is the project architect. Models 2408C and 2357B appear to be 1-story models. Model 3588C includes a wood siding element between the porch/entryway and garage. All models feature earth tones or light gray and optional terra cotta clay tile roof. Front elevations with color schemes, windows and roof eave treatments, porches or entries, and garages are illustrated in Figure 16 (next page).

FIGURE 17
FRONT ELEVATIONS OF FIVE PROPOSED MODELS

Models 2408C, 3013A, and 3923BR (Left to Right)

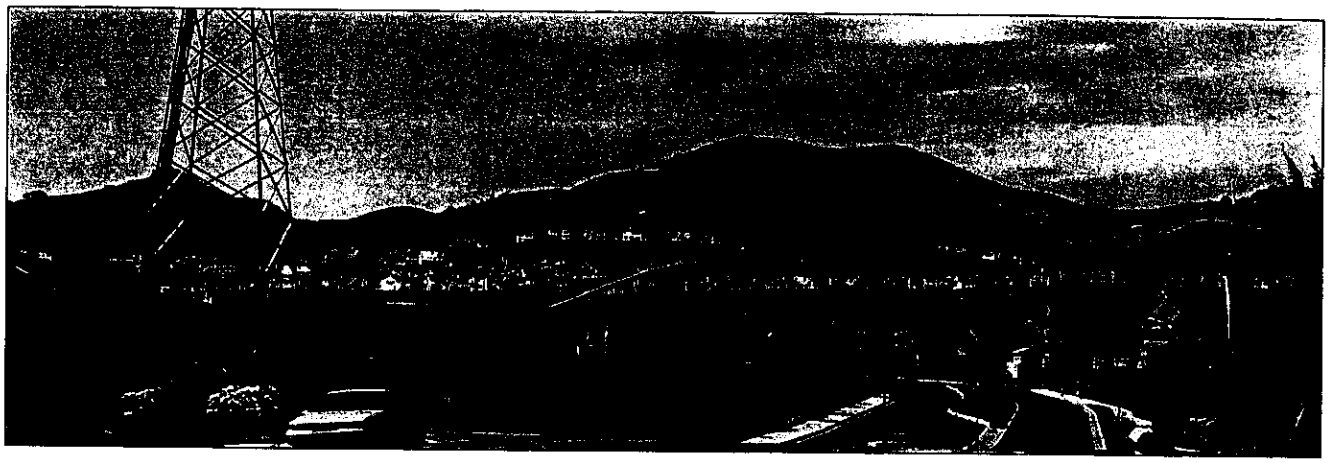
Models 3588C (Left) and Model 2357B (Right)

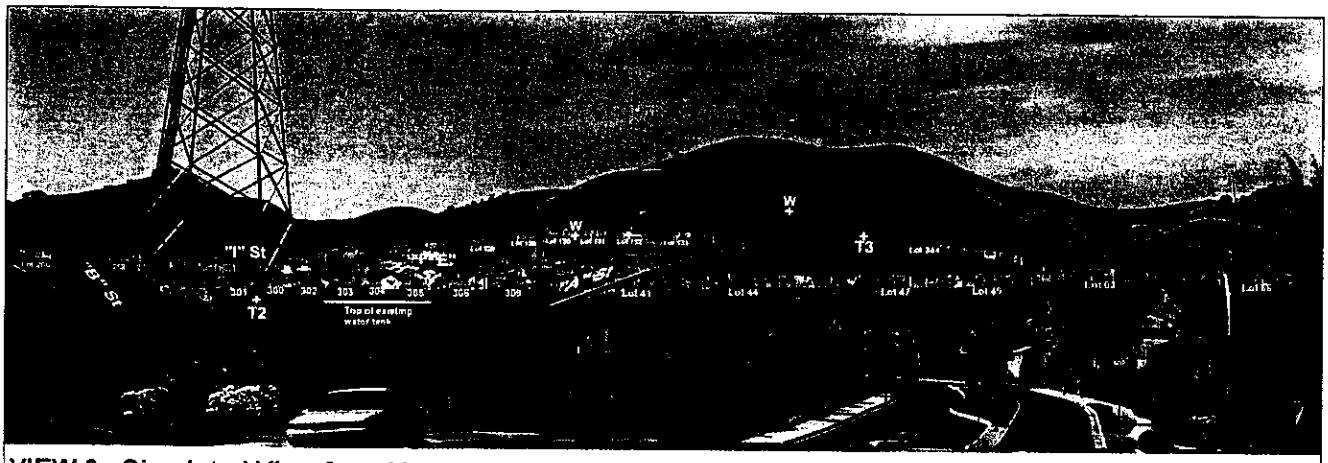
PHOTOGRAPHIC SIMULATION (VIEW 3) -- Figure 18 shows the simulated view of the project from a public viewing location near the mouth of Ventura Drive just north of Buchanan Road. Discussion of the significance of visual change caused by the project relative to the significance criteria follows.

Other Assumptions - It is noted that the view in Figure 18 labeled as "Proposed" is really a simulated view based not only on proposed physical features such as the proposed grading, street and lot locations and elevations, but also on other assumptions in regard to such factors as the landscaping and privacy fences.

In the simulated view, trees are generally less than 25 feet in height and are intended to represent conditions at 5 years after development. The density of plantings is assumed. The particular sparse planting on the graded slopes is intentional and assumed. In particular, inspection of Figure 18 (Proposed) shows that the graded slope downslope from "D" Court is left primarily as a grassy slope with trees generally near the top on or near the level graded pads. Proposed lots would be in private ownership, as the project as proposed does not include dedicated open space. Another factor contributing to the open look of the land (*e.g.*, on Lots 307-308 and 379-381, and the area downslope of "D" Court, Lots 128-132) is that privacy fences are not shown.

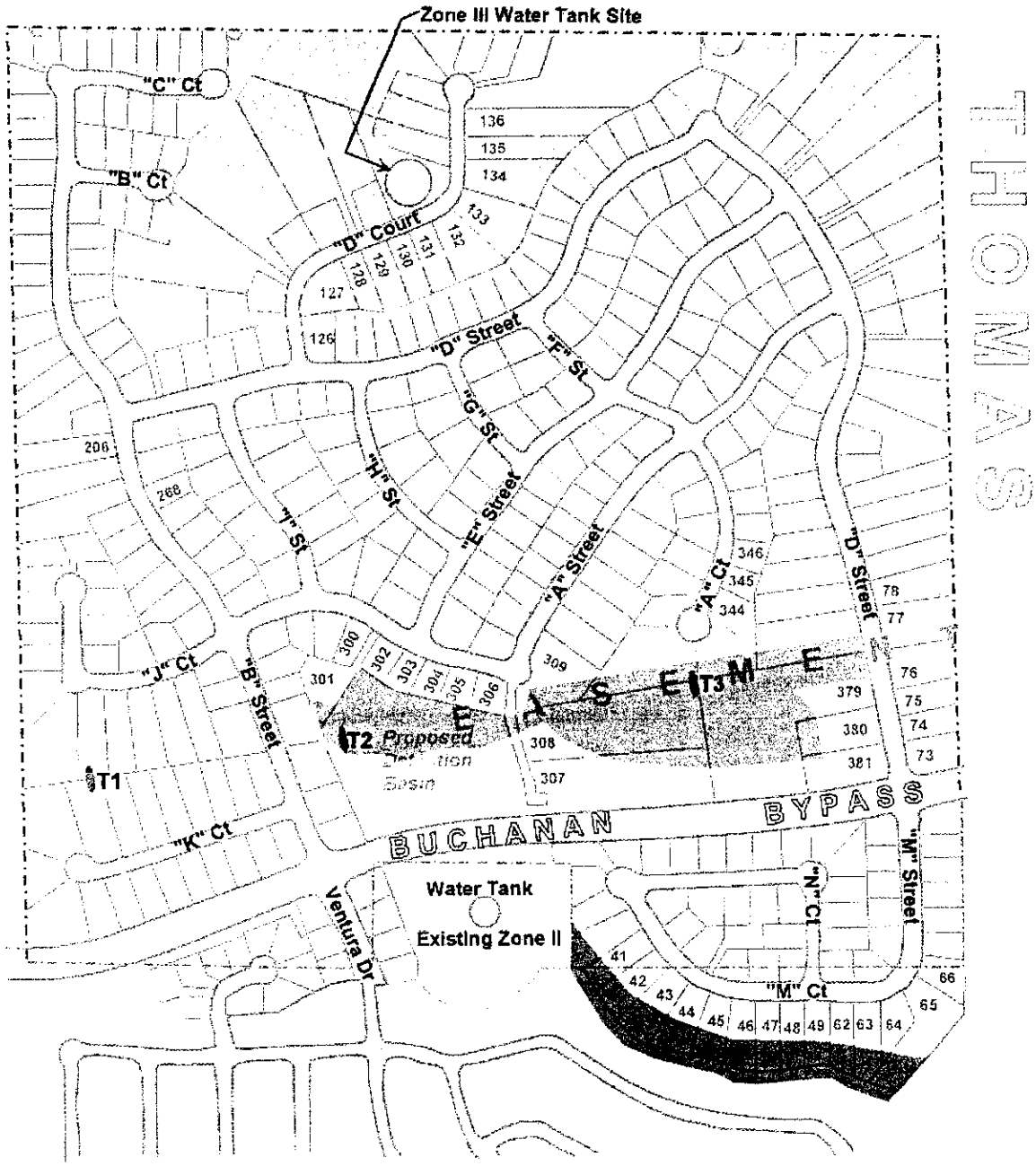
FIGURE 18
SIMULATED VIEW OF THE PROJECT SITE





VIEW 3: Simulated View from Ventura Drive and Buchanan Road

A. U. S. D.



City of Pittsburg 65 Civic Avenue Pittsburg, CA 94656	N 0 200 400 ft	**FIGURE 19** **Visually Prominent Slopes**

IMPACT ASSESSMENT

In accordance with the requirements of CEQA and the City of Pittsburg Planning Department, visual impacts of the project were evaluated in the context of the existing visual setting, applicable policies, and compatibility with adjoining land uses. A photographic simulation of the project was used as a tool for considering the significance of visual the change caused by the project.

The photo-simulation was evaluated relative to standards of significance to describe the degree of visual change. The discussion of potential visual impact of the project addresses the existing natural setting and built environment, compatibility of proposed development with the existing natural setting and development, massing of structures, the kinds of building materials being used, and the overall style and character of the houses.

STANDARDS OF SIGNIFICANCE

Would the project:

- Have a substantial adverse effect on a scenic vista?
- Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, or historic buildings within a scenic highway?
- Significantly degrade the existing visual character or quality of the site and its surroundings?
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Effect on Scenic Vistas

Panoramic views of the southern hills and the project site are available from several off-site vantage points: Buchanan Road (Loveridge to Somersville Road, Ventura Drive north of Buchanan Road, Los Medanos College near East Leland Road, Marchetti Park (Antioch), and Mokelumne Trail. It is possible to characterize the rolling hills and swales comprising the site, the adjoining land east and west of the site, and the higher elevation (above 500 feet) hills and ridges south of the site, as key visual elements as seen from these listed public viewing locations. Even from the Civic Center, views of the project site are possible, though at ground level generally are blocked by intervening buildings and trees. State Highway 4 is not designated as a scenic highway. Views of the project site from State Highway 4 are limited, or brief and fleeting, owing to intervening buildings, trees, and highway depression.

Figure 16, VIEW 3, (existing), and Figure 18, VIEW 3, (the photo-simulation of conditions with the project), assist in the evaluation of the scenic vista before and after development. After development of the project, visual change would be apparent but higher-elevation hills and ridges above 500 feet msl would be preserved as the scenic backdrop. As shown in Figure 18, the backdrop of the southern hills would remain the prominent feature, uninterrupted by the project. In particular, the prominent two-peaked hill with crest elevation over 600 feet above msl (SHOWN AT CENTER) and the cascading ridge (SHOWN AT EXTREME RIGHT) would remain visually dominant. Sparse oak woodlands which are located off-site at the elevation above 500 feet above msl would remain as a visual skirt around the slopes of this two-peaked hill and in the ravine. The ravine to the west would remain visually prominent and unaffected by the cut and fill grading on the site.

In the foreground to the ravine, on the western side of the site, many of the houses south of "A" Court and "M" Street would not be visible. On the north-facing slope of the two-peaked hill, the houses along the north side of "D" Court at pad elevation 460 msl, would be visible. The service road to the water reservoir would be visible, but the reservoir itself would be cut and cover and, therefore, not visually prominent. On the eastern flank of the two-peaked hill, in the southeastern corner of the site, houses on "B" Court and "C" Court at pad elevation 305 to 335 feet msl would not be visible.

Views from the southern hills in general include vistas of the cityscape and Suisun Bay beyond (*Pittsburg 2020: A Vision for the 21st Century*, August 2001, p. 4-2). There currently are no trails or other public viewing locations on the project site.

The project, therefore, would not affect an outward view of a scenic vista. Panoramic views of the southern hills and the project site, are available from several off-site vantage points, and the backdrop of the southern hills would remain the prominent feature, uninterrupted by the project.

> **Mitigation Measures:** None required as the effects of the project are less-than-significant.

Effects on Scenic Resources such as Trees and Rock Outcroppings

Scenic resources on a site may include such features as trees, rock outcrops, and historic buildings. The project site, characterized as annual grasslands and pasture, has no prominent visual features or scenic resources. The site is traversed at its lower elevation by power transmission lines. South of the

site, prominent off-site visual features include the two-peaked hill and a band of trees.

The project site is characterized as annual grasslands and historically has been used for cattle grazing. It has no prominent visual features or scenic resources. As can be seen by comparison of the existing and proposed conditions in Figures 16 and 18, the two-peaked hill banded by trees would remain visually prominent and unaffected by the project.

> **Mitigation Measures:** None required as the effects of the project are less-than-significant.

Effects on Visual Character and Quality of the Site or Its Surroundings
In general, a project's design,--that is, a site plan, preliminary grading plan grading, houses and their proposed architecture,-- has the potential to create a significant impact if project elements significantly degrade the existing visual character or quality of the site or its surroundings. Existing off-site visual elements include the horizon, identifiable hill form and ridge, and trees. Existing on-site visual elements include rolling contours covered with native annual grasses. There is no unique vegetative cover or other prominent feature on the site that is identifiable in VIEW 3 or in any of the other views of the site.

Figures 16 and 18, VIEW 3, assist in the evaluation of the visual character and quality of the site and its surrounding. The horizon, identifiable hill forms and ridges, and trees, are the key visual elements comprising the scenic vista. The character and quality of the public view of the site and surroundings derive primarily from the background of a continuous horizon line, two-peaked hill form, and a cascading ridge. These forms are accented by distinctive trees that skirt the north-, west- and east-facing slopes, generally above the 500-foot (msl) elevation contour.

On-site rolling contours covered with native annual grasses comprise the foreground but not the scenic vista. Inspection of Figure 16, VIEW 3 (Existing), shows that the foreground lacks identifiable hill forms, articulated ridges, trees, or rock outcrops. The project, in conjunction with other assumptions made in the photo-simulation, would alter the foreground but in a way that could potentially preserve the overall visual quality of existing on-site visual elements, in particular, the sense of seasonal native grasses and rolling hills.

As can be seen by inspection of Figure 18 (Proposed), the proposed project would replace the rolling contours covered with annual grasses with level pads, intermediate graded slopes, houses, and landscaping in the foreground

of the adjacent southern hills. The proposed houses would comprise less than approximately 25 percent of the field of view (VIEW 3). The particular houses along "A" Court and 'D" Court become relevant in the field of view and juxtaposed with existing native trees that are visual elements of the scenic vista.

IMPACT 1: Light-colored, reflective stucco and reddish clay tile architectural design elements could potentially degrade the visual character and quality of adjacent southern hills. Light-colored stucco and reddish roof tones tend to contrast with the natural setting and hence, could potentially distract from the natural setting by drawing attention away from key focal elements of the existing scenic vista (*i.e.*, existing annual grassland and adjoining hills).

Mitigation Measures:

- Modify the roof color-palette to substitute natural, terrain-neutral color and restrict terra cotta or clay roof tiles on certain lots including Proposed Lots 126-136, 206, 268, 300-309, 344-346, and all other lots generally above 350 feet msl. Also, the palette for proposed lots north of the Buchanan Bypass should be consistent with Highlands Ranch. Require Codes, Covenants & Restrictions that prohibit or limit roofing color changes by future owners.

- Modify the stucco and exterior trim color-palette to substitute more saturated terrain-neutral exterior colors and restrict white or light reflective exterior colors on all lots. The palette for proposed lots north of the Buchanan Bypass should be consistent with Highlands Ranch. Require Codes, Covenants & Restrictions that prohibit or limit stucco or exterior paint color changes by future owners.

Residual impact after mitigation: Less-than-significant.

In the foreground, the proposed grading would create modified slopes, such as the slope on Lots 307, 308 and 379-381, and the slope on Lots 127-137, which may eventually be landscaped with shrubs. In the photo-simulation green grassy slopes are shown, by assumption. Dense stands, rows, or clusters of planted trees, shrubs, or ground covers are not shown. Privacy fences are not shown. If the graded slopes covered with native grasses, as shown in Figure 18, VIEW 3 (Proposed), and Figure 19, were altered to slopes landscaped with introduced species of trees and shrubs and dissected with opaque fences, the visual character of the site and surroundings could potentially be substantially altered. With introduced landscaping, the

foreground would not look as open or natural as the scene shown in Figure 18, which preserves native annual grasses.

IMPACT 2: Through landscaping and introduction of non-native landscape species, the project could potentially draw focal attention away from existing trees that accent the adjoining hills above 500 feet (msl). Policy 4-P-82 of the General Plan suggests new development be responsive to natural elements and maintain a sense of connection to surrounding uses.

Mitigation Measures:

- Developer shall prepare a design supplement, herein called a "Natural Grassland Element," to illustrate 1) where landscaped areas will be allowed and 2) where natural grassland areas are to be maintained as shown, for example, on Figure 19. Incorporate a Natural Grassland Element into the Codes, Covenants & Restrictions (CC&Rs) that prohibit introduced species on designated graded slopes and other designated as natural grassland areas.

- Codes, Covenants & Restrictions shall control landscaping of slopes on specific lots (such as, for example, Lots 127-137, Lots 307, 308 and 379-381, and other undeveloped slopes in the southern portion of the project site generally above 390 feet msl) to achieve a sense of connection with the adjoining open grassy hills and ravines. To maintain an open quality, prohibition of introduced species such as ivy, ice plant, shrubs and trees on the slopes on these specific lots, could mitigate potential degradation of the existing quality of the view of the adjacent southern hills above 500 feet (msl).

- Codes, Covenants & Restrictions shall control fences on the slopes on specific lots (such as, for example, Lots 127-137 and Lots 307, 308 and 379-381) to maintain an open look of continuous, uninterrupted grassy contours. To maintain an open quality, prohibition of opaque fences on the slopes on these specific lots, could mitigate potential degradation of existing visual character and quality. Transparent fences such as unfinished corral or open "iron bar" (not chain link) would be consistent with *General Plan* Policy 4-P-7.

Residual impact after mitigation: Less-than-significant.

A New Source of Substantial Light or Glare

The standard of significance is that new development creates a source of substantial light or glare which would adversely affect daytime or nighttime views in the area. Viewed from points east or northeast there could potentially be some reflective glare from windows in certain early morning hours at certain times of the year. In the morning and evening, potential glare would be associated with low solar altitude (20 degrees or less), solar azimuth between 50 degrees and 90 degrees east of north or solar azimuth between 270 and 300 degrees east of north. At higher solar altitudes reflection from windows would be directed to the ground.

General conditions conducive to reflective glare directed to the east exist during March–September, from sunrise to 7:30 AM, and less at other times or months of the year. Reflective morning glare would be limited after sunrise, to unspecified locations generally east or northeast of the site.

There are limited conditions conducive to potential glare directed toward the west or north. Near sunset, the maximum solar azimuth (approximately 300 degrees east of north) occurs on June 21, and solar azimuths during April to September 1 range from 280 to 300 degrees east of north. From the west (270 degrees east of north) there are limited lines-of-sight owing to the topography. General conditions conducive to reflective glare directed to the west or north, therefore, would be even more limited.

The potential effect is a transient one. Based upon review of the Vesting Tentative Map, the proposed streets and lots have an organic layout as opposed to a grid. The maximum number of consecutive lots having a common orientation or axis (between 50 degrees and 100 degrees east of north) is five lots. The number of east-facing or northeast-facing facades would be limited and, therefore, the number of facades that could cause temporary reflective glare from windows will not exceed five in a group at any given time in the morning.

Lines-of-sight from the west are interrupted by the topography; therefore, glare from west-facing windows should be absent. Glare from rear-facing windows of houses on Lots 128 to 132 on "D" Court could potentially be directed northward at limited times, April to September, near sunset. The number of houses that could cause temporary reflective glare from windows will not exceed five in a group at any given time in the evening.

Inspection of Figure 17 shows that the front elevations of the houses as proposed do not have large cathedral windows or extensive glazed areas for panoramic viewing. The models having the most glazing on the front facades (Models 3923BR and 3588C) have average glazed areas. The

models having the least glazing on the front facades (Models 2408C, 3013A, and 2357B) have lower than average glazed areas, resulting in a very private and rustic look that would also minimize potential reflective glare.

A project is not assessed to create a substantial glare impact in the morning or evening if the number of windows, glazed area, and duration of the effect appear to be limited. Rear elevations, especially of proposed houses on Lots 128 to 132 on "D" Court, should be checked during Design Review to assure consistency of proposed windows on rear elevations with the design objective of not creating a new source of substantial glare.

IMPACT 3: Through the addition of new windows reflective glare could potentially detract from the natural scenic vista of the southern hills and cumulatively could contribute to urban night glow. The houses on Lots 128-132 have specific potential to direct reflective glare from rear-facing windows toward the north near sunset (April-September).

Mitigation Measures:

- Rear elevations of proposed houses on Lots 128-132 shall incorporate reduced window area to assure consistency of proposed window area on rear elevations with the design objective of avoiding a new source of substantial glare.

Residual impact after mitigation: Less-than-significant.

IMPACT 4: Street lights on "A" Court, "D" Court, and other proposed streets, and home and backyard illumination have a general potential to add the light levels on the site. Street luminaires, flood lights, landscape lighting, and interior lighting have a potential to add multiple new visible light sources which could detract from the natural scenic vista of the southern hills and cumulatively could contribute to urban night glow.

Mitigation measures:

- Developer shall use full cutoff street luminaires to direct light downward. "Full cutoff" luminaire means a luminaire that allows no direct light emissions above a horizontal plane through the luminaire's lowest light-emitting part.

- Developer shall prepare a plan which shows the proposed height, location, and intensity of street lights on-site. The plan shall comply with minimum standards for roadway lighting, and shall be reviewed and approved by the City Planning and Public Works Department. City will consider allowing minimum street

lighting illumination levels throughout the project site as the proposed subdivision is located on the urban edge in the foreground of the southern hills.

- Developer shall prepare Codes, Covenants & Restrictions that control flood lighting and landscape lighting on the slopes and yards of specific lots (such as, for example, Lots 127-137 and Lots 307, 308 and 379-381) to avoid light "trespass" or "spill" and excessive illumination levels.

- Developer shall prepare CC&Rs that prohibit continuous all-night exterior lighting throughout the project.

Residual impact after mitigation: Less-than-significant.

REFERENCES

Dahlin Group, Digital Imaging Studio, May 2004. Digital photographs and photographic simulation for Sky Ranch II, Pittsburg, California.

Environmental Service, July 8, 2004. *Draft Visual Impact Assessment of the Proposed Sky Ranch II Subdivision in Pittsburg, California.*

KTGY Group, 2004. Front elevations for Models 2408C, 2357B, and Model 3588C, and Models 3013A, and 3923BR, and 2357B.

Isakson & Assoc. Inc., March 16, 2004. *Vesting Tentative Map & Preliminary Grading Plan Sky Ranch II, Pittsburg, California.* (Note: Digital CAD files with z-coordinate elevations were provided to Dahlin Group.)

Pittsburg, City of, August 2001. *Pittsburg 2020: A Vision for the 21st Century General Plan* (Hearing Draft).

Pittsburg, City of, June 1998. *Pittsburg General Plan Update: Existing Conditions and Planning Issues. Also called the "Existing Conditions Report."*

U.S. Naval Observatory, Astronomical Applications Department, 2004. *Sun or Moon Altitude/Azimuth Table for One Day.*
http://aa.usno.navy.mil/data/docs/AltAz.html

E. LAND USE AND PLANNING

SETTING

The Sky Ranch II project site consists of rolling hills located on currently unincorporated territory in Contra Costa County, within Pittsburg's Sphere of Influence (SOI) and Planning Area. Annexation and pre-zoning to RS, in addition to other actions, would be required City actions necessary for implementation of the proposed project.

Existing Land Use of the Project Site

The site has been used for cattle grazing and has no buildings. Review of historic aerial photographs and topographic maps shows no evidence of houses or barns on the site during the past 80 years. Review of these same reference sources confirms that the site was never used as part of the past oil tank farm to the north and northeast.

Resources and Constraints on the Project Site

Environmental resources and constraints are numerous and are discussed at length in other sections of this EIR. The terrain of the project is rolling annual grassland, characteristic of the foothills of Mount Diablo, which locally in Pittsburg are known as the "southern hills." The project site has rolling hills with a 340-foot elevation relief along its western boundary. That relief, typical of the southern hills, translates to an average slope of 13 percent.

Elevations on the project site increase generally from north to south, ranging from approximately 190 feet above mean sea level (msl) near Highlands Ranch to a maximum of 530 feet above msl at the tip of the site's southwestern corner. In comparison, some of the trails (*e.g.*, Lougher Ridge Trail and Arata Overlook Trail) in the Black Diamond Mines Regional Preserve are at elevation 700 feet above msl and peaks attain elevations of 968 to 1,506 feet above msl. Though there are scattered buckeye trees on the project site, denser stands of trees occur off-site to the south on the Antioch Unified School District-owned and East Bay Regional Park District-owned land.

The site is part of a lattice of north-south drainages originating in Black Diamond Mines Regional Preserve, which include the headwaters of Kirker Creek. Most of the site is located in the Kirker Creek watershed, and a 24-acre portion of the site drains east to Markley Creek.

The site has stream resources and a wetlands resource as delineated in available studies conducted in 2001 and 2004. Formal wetlands and other jurisdictional water delineations have not completed verification or determination steps with the U.S. Army Corps of Engineers, the responsible agency.

Adjacent and Nearby Off-Site Land Uses
The area is being inventoried as part of the East Contra Costa County Habitat Conservation Plan/Natural Communities Conservation Plan. Previous investigations on-site and off-site have identified suitable habitat for special status species including the California tiger salamander and other species. California tiger salamander have been sighted on the project site and on the adjacent Thomas parcel. USFWS-designated CTS critical habitat is located off-site west and south of the project site.

The site is adjacent to the developing Black Diamond Ranch subdivision in Antioch, Highlands Ranch residential subdivision in Pittsburg, and an existing residential community in Pittsburg around Palo Verde Drive. In Black Diamond Ranch to the east of the site, grading has been completed but houses have not yet been constructed. In Highland Ranch to the north of the site, 407 units of 590 units had been constructed and occupied as of August 2004. The land adjoining the project site along its southern boundary is unimproved land owned by the Antioch Unified School District, and is outside the County Urban Limit Line (ULL) but within the Pittsburg Planning Area. The land west of the site is the Thomas parcel, located outside the ULL but within the Pittsburg Planning Area. The land northeast of the project site and east of Highlands Ranch, formerly part of the Standard Oil tank farm, is undeveloped land called the "Meadow Lands," and is located in the City of Antioch Planning Area, in unincorporated county.

Approximately 2,600 feet south and southeast of the project site is the Black Diamond Mines Regional Preserve, owned and operated by the East Bay Regional Park District. Black Diamond Mines Regional Preserve consists of approximately 5,985 acres that encompass five former coal mining townships. Part of the BDMRP is located in Pittsburg's Planning Area, outside the ULL. Today, the park is used for hiking, picnicking, as well as for its scenic, naturalist, and historic resources.

Applicable Plans & Policies
The reader is directed also to Chapter IV for a list and summary of key applicable plans.

> **City of Pittsburg's *General Plan*** -- The project is located in the Buchanan Planning Subarea and is subject to policies of the City of Pittsburg's *General Plan*, including the *Land Use Element, Growth Management Element,* and *Urban Design Element*. The adopted *General Plan* land use designation for the project site is Low Density Residential (1-7 dwelling units/gross acre), and the land use designation of the adjoining Thomas parcel is Low Density Residential and Open Space. Adjoining the project site on the south, the Black Diamond Planning Subarea is designated for Open Space and Park land uses. The City's *General Plan* does not designate any part of the project site for Hillside

Low Density Residential (less than 5 du/gross acre), Open Space, or Park. Hillside Development policies do not apply as the site's elevation is generally lower than 500 feet above msl.

The adjoining land to the west of the project site has been designated in the City of Pittsburg's *General Plan* for Low Density Residential and Open Space uses. A small portion of this particular land shown to be "Farmland of Local Importance" (*Pittsburg General Plan Update: Existing Conditions Report*, June 1998, p. 254) is not contiguous with the site. In the interim, before application for non-renewal of Williamson Act contract and conversion, the adjoining land to the west could be used for cattle grazing.

In conjunction with the foreseeable through-connection of the bypass west to Kirker Pass Road, or to Buchanan Road via another road, cumulative development in the Buchanan Planning Subarea could eventually influence conversion of this Farmland of Local Importance. The Black Diamond Ranch residential subdivision and the proposed project each would implement construction of segments of the Buchanan Bypass. The Buchanan Bypass segment west of the project site, continuing toward Kirker Pass Road, would pass along the southern tip of the specific Farmland of Local Importance. The ultimate conversion of this farmland, however, appears to have been considered in the City of Pittsburg's *General Plan*, which shows a planned Low Density Residential use of this specific farmland.

Measure J and Measure P – Mutually Agreed Upon Urban Limit Line
On November 2, 2004, 71 percent of Contra Costa County voters approved Measure J, which provides for the renewal of the County's half-cent transportation sales tax for 25 more years. Measure J approval assures funding for the 4th bore for the Caldecott Tunnel and the widening of the Route 4 East freeway. Measure J also provides for a Growth Management Program with a voter-approved urban growth boundary. In each city jurisdiction, the ULL must be in place for the city to receive funding from the measure. Creation of a ULL is currently in progress.

In November 2005 Pittsburg, voters approved Measure P, which modified the previous ULL As modified, certain land south of the previous ULL (2000) has been added and portions of the added land have been pre-zoned for Hillside Planned District (HPD) and Open Space (OS).

In the vicinity of the project site, portions of the Buchanan, Black Diamond, and Woodlands Planning Subareas were added to the are within the ULL (2005). The Thomas parcel, and the land directly west thereof,

was added up to and including a portion of the Woodlands Planning Subarea. This addition west of the project site, which generally includes the land adjacent to the future Buchanan Bypass, is estimated to consist of a total of approximately 900 acres.

Growth Management Element – Project development must meet the performance standards of the *Growth Management Element*, Chapter 3, of the City of Pittsburg's *General Plan*. The *Growth Management Element* contains traffic levels of service standards keyed to land use character, and performance standards for facilities such as fire, police, parks, sanitary sewer facilities, water service, flood control, and schools. The *Growth Management Element* policy for all public facilities condition approval of new development on meeting at least one of the following criteria:

a) Adopted performance standards (*e.g.*, roadway LOS) will be maintained after project implementation and occupancy;

b) Capital projects in the City's Five-Year Capital Improvement Plan, or else planned by special districts, would ensure maintenance of adopted performance standards after project implementation and occupancy; or,

c) Project-specific mitigation measures that ensure maintenance of adopted performance standards will be required as conditions of project approval.

The City's *Growth Management Element* goals and policies are presented in Table 12. Assessment of project impacts relative to *Growth Management Element* performance standards is discussed in Chapter V.C (Hydrology & Water Quality); Chapter V.H (Traffic & Circulation); and. Chapter V.G (Community Services & Utilities).

In 1988, County voters approved Measure C, the Contra Costa Transportation Improvement and Growth Management Program. In compliance with Measure C requirements, and in accordance with the guidelines issued by the Contra Costa Transportation Authority in 1990, Pittsburg prepared and adopted a *Growth Management Element* in 1992. Adoption of a *Growth Management Element* was a necessary condition for Pittsburg to receive Measure C funding. In 2004, County voters approved Measure J, renewal and extension of the half-cent transportation sales tax for 25 more years.

TABLE 12
GROWTH MANAGEMENT ELEMENT
Goals and Policies

GOAL 3-G-1	Balance development of housing options and job opportunities, protection of open space and habitat, construction of transportation improvements, and maintenance of high quality public facilities.	
	Policies	• **3-P-1** Allow urban development only in areas that are served or where service can be provided. • **3-P-2** Before project approval, ensure that existing and planned roads will have adequate capacity to accommodate existing and proposed development.
GOAL 3-G-2	Maintain traffic levels of service consistent with adopted standards.	
	Policies	• **3-P-3** Assure Basic Routes and Routes of Regional Significance will operate at adopted Level of Service (LOS) standards. • For Buchanan Road and the future Buchanan Bypass, from Railroad Avenue-Kirker Pass Road to Somersviille Road, this means LOS "D" or better, less than 85 percent capacity. • For Kirker Pass Road, this means LOS "E" or better, less than 95 percent capacity. • **3-P-5 & 7** The City will periodically review its transportation impact fee and Five-Year Capital Improvement Plan to assure capital projects necessary to maintain or improve LOS are funded. • **3-P-8** Coordinate with CCTA and TRANSPLAN to implement action plans for Routes of Regional Significance. • **3-P-10** Approve proposed development projects generating over 100 commute hour trips only if the project is consistent with adopted traffic LOS standards.
GOAL 3-G-3	Maintain comprehensive police service and timely response.	
	Policies	• 3-S-1 Maintain 3- to 5-minute response for emergency calls. • 3-S-2 Maintain 1.8 sworn officers per 1,000 residents.

SOURCE: City of Pittsburg, *General Plan*, 2001.

The *Growth Management Element* of the *General Plan* establishes policies and standards for traffic levels of service and performance standards for fire, police, parks, sanitary facilities, and water and flood control. Compliance with the *Growth Management Element* is to ensure that public facilities are provided consistent with adopted standards. The element is part of the City's long-range program to balance the demand for public facilities and services created by new development with provision of those services. In general, balance is accomplished by means of the City's adopted service level standards and its capital improvement program, requirements for new developments to mitigate impacts, and assessment and collection of developer-paid impact fees.

An objective of the City's *Growth Management Element* is to ensure that new development will occur in a balanced manner that maintains adequate services to protect the health, safety, and welfare of existing and future residents. During the recently concluded *General Plan* update process, provision of services and service level standards were considered in conjunction with the *Land Use Element*. Population and housing that may be realized under the adopted *General Plan* buildout were evaluated and programs were included in the *General Plan* update process so that new development can proceed in a manner that will not negatively affect facilities and traffic service standards for existing or future land uses.

To execute the goals and objectives of the *Land Use Element* and *Growth Management Element* of the City of Pittsburg's *General Plan*, new development must demonstrate that the level of service standards of the *Growth Management Element* will be met. A development project may be found to be consistent with the adopted traffic LOS standards if 1) transportation improvements included in the Five-Year Capital Improvement Plan would mitigate impacts sufficiently to achieve the standards or 2) Findings of Special Circumstances, including project sponsored mitigation measures, are adopted by the City and CCTA.

LAND USE & PLANNING IMPACTS

STANDARDS OF SIGNIFICANCE

According to CEQA Guidelines, the proposed project would be considered to have a significant impact on land use if it would:

- . Physically divide an established community;
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the *General Plan*, a specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental impact; or,
- Conflict with any applicable habitat conservation plan or natural community conservation plan.

EVALUATION

Physical Division of an Established Community

The project would adjoin Highlands Ranch to the north in the City of Pittsburg, Black Diamond Ranch to the east in the City of Antioch, and the existing residential community around Palo Verde Drive to the northwest. Construction of the Buchanan Road segment, which is part of the proposed project, would be accomplished on right-of-way that is entirely within the boundaries of the project site. In view of the proposed location of the site and Buchanan Bypass, the project could not physically divide any of these established or developing communities.

IMPACT: less-than-significant.

Consistency with an Applicable Land Use Plan, Policies, or Regulations

General Plan Land Use Designation and Density—The proposed project is consistent with the designated residential land use and density standard. The number of proposed lots is 415 lots including 20 lots in the re-subdivided area. The proposed density based on total acreage within the site is 2.55 du/gross acre, which is within the density range (1 to 7 du/gross acre) and consistent with the buildout assumption applied in the *General Plan* (3 du/gross acre)

The total acreage in the site is approximately 163 acres including the re-subdivided area and 156 acres excluding the re-subdivided area. The total acreage includes the existing PG& E transmission line corridor (7.5 acres) but excludes the existing water reservoir and land around it. The project includes re-subdivision of approximately 20 lots in the Highlands Ranch residential subdivision (Tract 7217). The acreage involved in re-subdivision in Highlands

Ranch is approximately 7.1 acres. The effective density in the re-subdivided area is approximately 2.8 du/gross acre, which also is consistent with the density standard (1 to 7 du/gross acre).

Originally, Highlands Ranch was approved for development of 590 lots on a site of 174 acres. With the potential addition of 21 lots on a portion of the previously designated school and park site, and 20 lots in the re-subdivided area, the density of Highlands Ranch would remain less than 3.63 du/gross acre, which also is consistent with the Low Density Residential density standard. Therefore, the proposed re-subdivision on 7.1 cares in Highlands ranch would not cause any inconsistency with the General Plan land use designation or density.

RS Zoning—The Low Density Residential land use designation and RS Zoning District are intended primarily for detached single-family dwellings on lots typically not smaller than 6,000 square feet. In comparison, the minimum lot size in the project is 8,000 square feet and the average lot size is 14,500 square feet, which is consistent with the RS Zoning District Property Development Regulations minimum lot size of 6,000 square feet. The minimum lot width of 60 feet also is consistent with the RS Zoning District Property Development Regulations.

Graded pads are shown but precise foundations are not shown on the Vesting Tentative Map & Preliminary Grading Plan; therefore, side yards, corner side yards, and rear yards cannot be evaluated relative to RS District Property Development Regulations. Based upon the lot widths, suitable side yards should be attainable provided that the building footprint is sized and sited to accommodate lot-specific conditions. No variances from the RS District standards have been requested to accommodate the project.

General Plan Goals and Policies— The site is located on the urban edge. Adopted General Plan goals 4-G-3, 4-G-17, and 8-G-15 apply generally to development on the urban edge, neighborhoods, open space and trails. Policy 4-P-7 suggests development maintain a rural feeling and orientation toward open space. Policy 4-P-82 suggests development be responsive to natural elements, maintain a sense of connection to surrounding uses, and protect of creek corridors. Policy 2-P-72 specifically applies in the Buchanan Planning Subarea and suggests protection of north-south creek corridors. Open space and trail Policy 8-P-20 suggests development of trails and trail heads and connections to regional and local open space. Additional details are presented in Appendix A, *Urban Design & Policy Analysis*.

> **Goal 4-G-3:** Ensure that new residential development in the southern hills provides a transition from urban to open space on the City's edge.

The project as shown on the Vesting Tentative Map (March 2004) would provide for slopes free of buildings on private-owned lots. A connected open space transition in common ownership is not proposed . The grass-covered slopes free of buildings, as illustrated in the photographic simulation, Chapter V.D, Figure 17, could provide a sense of open space. A challenge would be to preserve these slopes in a natural condition without interruption by obtrusive fencing or structures.

Policy 4-P-7: As proposed, the project potentially could afford a general sense of rural character through its large private lots and by requiring substantial landscaping along streets. The current design mixes 0.2-acre lots and 1-acre lots near the southern boundary of the site. At the southern and southeastern edges of the project there would be a mix of large 2-acre lots (*e.g.*, Lots 137, 142, 151), smaller 0.25-acre lots (e.g., Lots 138-141), and even 0.20-acre lots (*e.g.*, Lots 107-125, 161-180, and 182-200). Lots 89, 91, 92, 95, 96, 99, 100, 103 and 104 would range in size from approximately 0.5 to approximately 1 acre and would be in tandem, paired with smaller 0.2-acre lots (*i.e.*, Lots 88, 90, 93, 94, 97, 98, 101, 102, and 105).

Alternatives to the proposed lot layout: 1) organize the largest lots for the southern edge and relatively smaller lots for the area closest to the Buchanan Bypass, or 2) reserve open space in common ownership on portions of the site, or 3) use a single-loaded street near the site's southern edge.

IMPACT 1: Without retaining connected open space as common area under common ownership by a Homeowners' Association, or without using a single-loaded street design, there is relatively less opportunity for orientation of future homes toward open space. The design of the houses, proposed streets, sidewalks, lighting, and fencing will have considerable influence over the ultimate suburban atmosphere or rural atmosphere experienced within the project.

Mitigation measures:

- During Design Review the City shall consider options such as modified front elevations to de-emphasize garage doors.
- During Design Review the City shall consider staggered building setbacks in the southern portion of the project site.

- During Design review the City shall consider alternative street cross sections for the southern portions of "B" Street and "D" Street and for the entire length of "B" Court, "C" Court and "D" Court. Alternative street sections may not have conventional curbs and sidewalks in favor of a more rustic design with extra tree planting width.
- During Design Review the City shall consider a Fencing and Natural Grassland strategy to avoid visual interruption of prominent south facing slopes visible from Buchanan Road.
- During design Review the City shall consider reduced lighting requirements for the southern area of the site along the southern portions of "B" Street and "D" Street and for the entire length of "B" Court, "C" Court and "D" Court.

Residual impact after mitigation: Less-than-significant.

Goal 2-G-24: Project integration with the existing residential subdivisions could be met nominally.

Policy 2-P-69 and 4-P-84: Street and pedestrian connections to adjacent residential areas could be nominally met by the project as designed; however, supplemental street and pedestrian connections should be considered. There are three proposed fire access points show on the Black Diamond Ranch which terminate at the common boundary shared with the project. Connections may be possible by creating connection in the vicinity of Lot 190 or 191, Lot 200, and Lot 226. At these locations fire access ways are noted on the Vesting Tentative Map on the Black Diamond Ranch side only

IMPACT 2: The proposed project lacks connection to Black Diamond Ranch..

Mitigation measure:

- During Design Review the City shall consider adding connections by means of pedestrian paths.

Residual impact after mitigation: Less-than-significant.

Goal 9-G-5: The *General Plan* calls for preservation of Pittsburg's creeks for their visual and habitat values and drainage capacity. Development standards would address natural creeks, swales, and wetlands that convey or detain hillside storm water. On the site, USGS has mapped one intermittent creek (USGS, 1980). The wetlands experts have identified approximately 400 feet of this intermittent stream as having defined bed and bank (WRA, 2001; Albion Environmental, 2004).

Policy 2-P-72: Preserve and enhance north-south creeks in the Buchanan Planning Subarea.

Policy 9-P-9: Establish creek setbacks of 50 feet (minimum) and 150 feet (maximum) on each side of a creekbed. These requirements may be augmented as needed to preserve ecological resources, for example, wetlands, special status species and their habitat (Policies 9-P12 and 9-P-13).

Policy 9-P-11: Encourages re-establishment of creeks in the design of new development.

IMPACT 3: The applicant proposes filling of identified stream channels; therefore, if filling were allowed, setback policies would not be observed. The stream alteration could be mitigated by means of off-site compensatory mitigation, but such mitigation could not accomplish the goals or policies of the *General Plan.*

Mitigation measures: Unavoidable impact. Avoidance alternatives are discussed in Chapter VI.

Consistency with Applicable Habitat Conservation Plan

East Contra Costa County Habitat Conservation Plan—The East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan (HCP/NCCP) is under development by a Joint Powers Association (JPA). A Preliminary Draft Conservation Strategy was published in January 2003. A Notice of Intent and Notice of Preparation to prepare a joint EIS/EIR were circulated on June 5, 2003 (Federal Register / Vol. 68, No. 108 / Thursday) and June 30, 2003, by the JPA and U.S. Fish & Wildlife Service (USFWS). A Draft HCP/NCCP was published in June 2005. A Notice of Availability for the Draft EIS/EIR was issued in September 2005. Additional details are provided in the Chapter V.A.

The Draft HCP/NCCP assumes open space acreage on the project site based on either the City's August 2001 Hearing Draft *General Plan* land use diagram or Contra Costa County's *65/35 Contra Costa County Land Preservation Plan.*

Measure C (1990) requires, among other things, that not less than 65 percent of the land in the County is preserved for parks, open space, agriculture, wetlands, and other non-urban uses

IMPACT 4: The proposed project includes no open space; therefore, the land preservation calculation in the HCP/NCCP, which is based on about 80 developed acres rather than 160 developed acres on the project site, needs to be revised.

Mitigation measure:

- The City shall coordinate during finalization of the HCP/NCCP and shall provide the revised developed acreage for the project site so that preservation goals and targets in the HCP/NCCP can be increased as necessary.

Residual impact after mitigation: Less-than-significant.

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F. POPULATION, HOUSING, AND EMPLOYMENT

SETTING

Growth Management

The Sphere of Influence (SOI) has been expanded fairly recently in anticipation of the projected demand for land necessary for new residential and non-residential uses. In 1990, 1,237 acres in the Southwest Hills Planning Area were annexed and an additional 842 acres were added to the SOI. The San Marco subdivision was approved on part of this 1990 annexation area. Later, in 1997, the City annexed the 274-acre Highlands Ranch, which is part of the former Chevron property, and added the 163-acre Sky Ranch II site to the SOI. The remainder of the former Chevron property, labeled "Meadow Lands" in Figure 2, is outside the Planning Area. In 1998, during preparation of its General Plan update, the City expected total demand for 3,500 acres for new land uses during 1998 to 2020 (City of Pittsburg, June 1998, *Existing Conditions and Planning Issues*, p. 59). Approximately 1,100 acres were expected to be available within City limits, with much of the remainder being located outside City limits, but within the SOI and Planning Area, on the hilly land south of the City.

There are about 27,000 acres within Pittsburg's SOI, including 10,000 acres within the City limits and 17,000 acres outside the City limits within the SOI and Planning Area. Of the 17,000 acres, 2,300 acres are in Bay Point, 6,700 acres are in wetlands or the Sacramento River/Suisun Bay lands, and 8,000 acres are in the southern hills. Fewer than 2,000 acres of the 8,000 acres have slopes less than 15 percent. The land resource therefore, is severely constrained and its utility for housing is limited in a practical sense.

Competing demands for housing, non-residential land uses, and open space preservation in the Planning Area have shaped growth management by the City. Annexations have occurred when necessary and only when full urban services could be provided. The City has levied and continues to levy capital improvement fees on new development where there is a nexus between necessary improvements and demand created by new development.

Existing Population and Projections

As of 2000, the City of Pittsburg's SOI, including both incorporated and unincorporated places, had an estimated population of 77,749 persons. The Association of Bay Area Governments (ABAG) currently projects that population in Pittsburg's SOI will reach 112,300 persons by the year 2020, which represents a 44 percent increase over the year 2000 population (see Table 13). When the City's General Plan update was written, the year 2020 population, within the incorporated City limit and Bay Point, was forecast to increase to 99,300 persons (City of Pittsburg, *Pittsburg 2020: A Vision for the 21st Century*; City of Pittsburg, January

2001, Draft EIR City of Pittsburg General Plan, SCH No. 1999072109, page 5-7; City of Pittsburg, June 1998. *Existing Conditions and Planning Issues*, p. 17). The projections during 1998 to 2001 are somewhat lower than ABAG's current projections which reflect the City's General Plan update.

Housing

As of April 1998, the City had approved 4,211 new housing units, and 873 more units were acknowledged as potential new housing in Highlands Ranch (590 units) and Sky Ranch II (283 units). By the time of the General Plan update in 2001, the number of new houses anticipated at full buildout was 10,300 units, including 9,000 new units within the SOI and an additional 1,300 new units already approved as of 1999.

TABLE 13
FUTURE POPULATION AND HOUSING

YEAR	PITTSBURG SOI				PROJECT POPULATION
	NUMBER OF PERSONS	NUMBER OF HOUSEHOLDS	ADDED NUMBER OF HOUSEHOLDS	PERSONS PER HOUSEHOLD	
2000	77,479	24,000	--	3.20	0
2005	83,000	25,560	--	3.22	0
2010	90,400	27,970	2,410	3.21	1,332
2015	101,500	31,540	5,980	3.20	1,332
2020	112,300	35,100	9,540	3.18	1,332
2025	119,900	37,910	12,350	3.14	1,332
2030	129,100	40,730	15,170	3.15	1,332

NOTES:
SOI Sphere of Influence, which Includes incorporated areas, Bay Point and other unincorporated land.
Within the incorporated city limit, Pittsburg's population was 61,500 persons in 2004 and 56,769 persons in 2000.
SOURCES: CCCCD, June 2003. *County Demographics and Projections by District Service Areas; US. Census, 2000:* California Department of Finance, 2004. *Table E-1.*

The City has five percent of the County's overall housing stock, and about nine percent of the County's mobile homes. During 1990-1998, the number of multi-family housing units in the City decreased owing to removal of dilapidated units. Detached houses comprise approximately 64 percent of total housing supply, and multi-family units and mobile homes comprise the remaining 36 percent.

Household Size

In Pittsburg's SOI, average household size has reached 3.20 persons per household, among the highest in Contra Costa County. Pittsburg's larger household size may reflect 1) attraction of family households, 2) younger families with children, 3) relative housing affordability, and 4) other factors. Higher-than-County share of family households and household size were considerations in the General Plan process for *Pittsburg 2020: A Vision for the 21st Century.*

When the City's General Plan update was written, the year 2020 household size was forecast to be 3.00 person per household in the SOI (City of Pittsburg, June 1998. *Existing Conditions Report*, p. 19). An increase to 3.15 from 3.00 persons per household is a substantial increase, as the average applies to the entire housing stock, existing and projected.

Jobs/Housing Balance

Like other East Contra Costa County cities, Pittsburg tends to serve as a bedroom community to employment centers in West County and the San Francisco Bay Area. Contra Costa County with 0.71 jobs per employed resident has a jobs/housing imbalance, and the Pittsburg SOI with 0.55 jobs per employed resident has an even larger imbalance (see Table 14). Numbers can be deceptive; so, it is noted that at least part of apparent jobs imbalance in Pittsburg is explained by the preponderance of younger, larger family households, with two wage-earners.

TABLE 14
FUTURE EMPLOYMENT AND JOBS

YEAR	PITTSBURG SOI EMPLOYMENT & JOBS				
	NUMBER OF JOBS	NUMBER OF EMPLOYED RESIDENTS	NUMBER OF HOUSEHOLDS	JOBS PER EMPLOYED RESIDENT	JOBS PER HOUSEHOLD
2000	19,490	35,420	24,000	0.55	0.81
2005	21,260	38,050	25,560	0.56	0.83
2010	23,820	43,310	27,970	0.55	0.85
2015	26,080	49,420	31,540	0.52	0.83
2020	28,340	55,310	35,100	0.51	0.81
2025	32,000	60,520	37,910	0.53	0.84
2030	36,420	64,950	40,730	0.56	0.89

NOTES:
SOI Sphere of Influence
Includes incorporated areas, Bay Point and other unincorporated land.

SOURCE:
CCCCD, June 2003. *County Demographics and Projections by District Service Areas.*

Jobs per household in the Pittsburg SOI is projected by ABAG to increase during 2005-2030 to 0.89 jobs per household from 0.83 jobs per household. This would be a substantial increase in jobs provided by Pittsburg employers, as the ratio applies to all households, existing and projected. If East Contra Costa County follows the national and California trend, with softening of jobs creation in the aftermath of the 2001-2004 recession, this forecast may have to be modified.

IMPACT ASSESSMENT

SIGNIFICANCE CRITERIA

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure);
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere; or,
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere

The Initial Study determined that the proposed Sky Ranch II project could potentially induce substantial population growth in the Buchanan Planning Subarea directly by constructing new homes and indirectly by extension of roads and other infrastructure. However, the Initial Study also found that the proposed project could not displace people or housing.

Induce substantial population growth in an area, either directly or indirectly

Direct: Project Population Growth
With 415 units and an average household size of 3.21 persons per household, the estimated population added to the Planning Area by the project is 1,332 persons. The average household size in Pittsburg during 2005-2010 is based upon ABAG *Projections 2003 (Contra Costa Community College District, June 2003).*

Population growth associated with the Sky Ranch II development was compared to ABAG projections data. In comparison, ABAG *Projections 2003* estimate 29,300 persons will be added to the Pittsburg SOI's population during 2005-2020. The project, therefore, represents approximately 4.5 percent of forecast population increase during 2005-2020. This effect is less-than-significant.

Housing added by the Sky Ranch II project also was compared to ABAG projections and also was compared to the allowable density under the City's adopted General Plan. The number of proposed lots is 415 lots. In comparison, ABAG *Projections 2003* estimate 9,540 housing units will be added to Pittsburg's housing stock during 2005-2020. This proposed project housing, therefore, represents approximately 4.4 percent of the projected housing added within the Pittsburg SOI during 2005-2020.

The project site is designated Low Density Residential (1 to 3 du/acre) in the adopted General Plan. The number of proposed lots is 415 lots,

including 20 lots in the re-subdivided area, and the proposed density based on 163 acres within the site, including the re-subdivided area, is 2.55 du/gross acre. The proposed land use and density are consistent with the adopted General Plan; therefore, this effect is less-than-significant.

Indirect: Off-Site Population Growth from Services Extension

WATER & SEWER The proposed Sky Ranch II project would extend water and sewer service into the project site via extensions from Ventura Drive. Upsizing of sanitary sewer lines is not proposed or required as a mitigation measure.

Water storage and conveyance mitigation measures being required by the City of Pittsburg include a pair of water reservoirs and a water transmission pipeline. One reservoir is a replacement 2-million gallon water reservoir at elevation 381 feet msl. This mitigation measure is to alleviate an existing and potential future low-pressure issue and to implement the City's Water System Master Plan and Five-Year Capital Improvement Plan for 2004/5-2008/9. The existing Zone II reservoir, located at elevation 220 feet, requires pressure-sustaining pumps when the pumps at the water treatment plant are not operating. With the replacement reservoir at elevation 381 feet on the project site, pressure-sustaining pumps would not be needed.

The second reservoir is an off-site 1-million gallon reservoir at elevation 540 feet msl on a spur ridge south of the project site. This second reservoir would be in place of the proposed reservoir shown on the Sky Ranch II Vesting Tentative Map at elevation 465 feet. This mitigation measure is necessary to provide water service to the proposed houses at elevation 365 to 460 feet without pressure-sustaining or "booster" pumps.

The two reservoirs are intended to serve the Sky Ranch II project only, and the reservoir elevations and capacities will not support new development off-site or at elevations above 500 feet. These two mitigation measures would not support or induce population growth on land outside the project boundaries. The growth-inducing effect of the reservoirs, therefore, is less-than-significant.

A third mitigation measure is a water conveyance capital improvement project. The water conveyance improvement consists 20-inch diameter water transmission main pipeline from the Water Treatment Plant east to Harbor Street and 16-inch diameter transmission main east to Highlands Ranch via Buchanan Road, and the Buchanan Subarea Loop II, which is name of the route along Suzanne Drive and Kingsly Drive. This water conveyance improvement is needed to serve the Southeast Hills Area

with sufficient pressure to fill recommended reservoirs. According to City Engineering staff, any incremental development in the Southeast Hills area exceeds the existing water transmission system's capacity and ability to fill proposed Zone III and IV water reservoirs without pumping.

IMPACT 1: With lateral connections from the Buchanan Subarea Loop II this water transmission mitigation measure could potentially serve additional land development in the Buchanan Planning Subarea including, for example, the Thomas Ranch and Montreux parcels. Though the proposed project could not directly induce housing development or population growth, in conjunction with this water conveyance mitigation measure, provision of water to the project site indirectly could induce development on the nearby parcels. Such housing development in the Buchanan Planning Subarea and the associated population growth there have been considered as part of the General Plan adoption process.

Mitigation measures: None are available.

Residual impact after mitigation: Significant.

BUCHANAN BYPASS The proposed project includes construction of a segment of the future Buchanan Bypass within project boundaries. This segment of the Buchanan Bypass has a counterpart in the approved Black Diamond Ranch to the east. Pending completion of the entire bypass from Somersville Road on the east to Kirker Pass Road on the west, the bypass would remain closed, barricaded at boundary shared with Black Diamond Ranch on the east and at Thomas Ranch on the west.

The contemplated future connection of the on-site segment of the bypass with other segments of the bypass and opening of the Buchanan Bypass for through-traffic would complete a new east-west circulation route. This ultimate connection is conceptual and will not occur until the bypass is completed west to Kirker Pass Road or possibly to Buchanan Road via another road west of the project site.

The bypass is included in the City's General Plan. Preliminary Engineering, Design, and Construction of the Buchanan Bypass are included as Projects ST-4 and ST-36 in the current Five-Year Capital Improvement Plan 2004/5-2008/9 (page 100, 122). In the Five-Year Capital Improvement Plan the bypass is described generally as a 2-lane arterial. However, the segment approved in Black Diamond Ranch in the City of Antioch and the segment proposed within the Sky Ranch II project site would have four lanes.

The bypass was conceived as an alternative route parallel to State Highway 4 to accommodate off-highway east-west travel to destinations between Kirker Pass in Concord and Somersville Road in Antioch. Construction of the Buchanan Bypass would serve areas already developed, approved for development, or designated for potential development under the adopted General Plans of the cities of Antioch and Pittsburg. The 4-lane arterial Buchanan Bypass contemplated here is consistent with the City's General Plan; however, conformity with the General Plan is not sufficient basis for a finding that this element of the proposed project could have not have significant environmental effects including a potential growth-inducing effect.

CCTA's regional transportation model includes the Buchanan Bypass. Year 2025 traffic projections in CCTA's model are based on forecast land uses consistent with the adopted General Plans. The PM peak hour volumes forecast in CCTA's regional transportation model are approximately 3,500 vph at Ventura Road/ "B" Street in the Sky Ranch II project site. Approximately 700 vph of the 3,500 vph in the PM peak hour represents traffic shifted from Buchanan Road, and the remainder (2,800 vph) represents other traffic. The forecast future traffic volume on the bypass is at or near the capacity of a 4-lane arterial; therefore, the proposed 4-lane section is interpreted to accommodate planned development and relieve existing congestion on Buchanan Road. Contrary interpretation as growth-inducing infrastructure having excess capacity is not supported by CCTA's regional transportation model. The effect, therefore, is less-than-significant.

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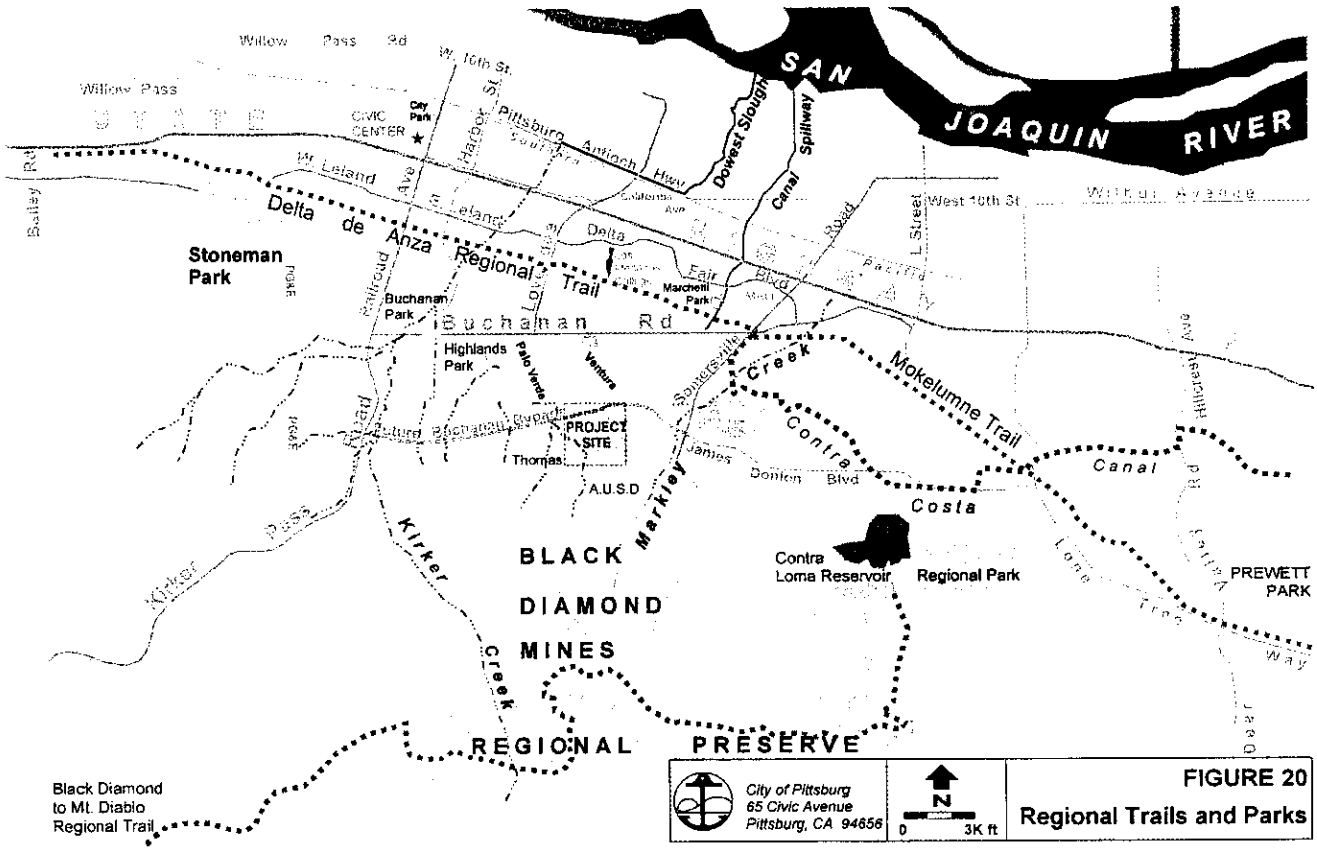
G. COMMUNITY SERVICES & UTILITIES

SETTING

Parks

The City's Public Services Department manages the maintenance of municipally owned parks. Parks are classified as mini-parks, neighborhood parks, community parks and regional parks, depending generally on size and amenities. The neighborhood park nearest the project site is planned in Highlands Ranch next to Ventura Drive and Buchanan Road. There is also an existing neighborhood park called Highlands Park, located west of the site. The nearest community park is Buchanan Park, a 16-acre park, located west of the site, near Kirker Creek, Harbor Street and Buchanan Road. Farther west is another community park, Stoneman Park (see Figure 20).



In addition, Pittsburg residents have access to trails and regional parks in near the project site. South and southeast of the project site, Black Diamond Mines Regional Preserve is a regional park owned and operated by East Bay Regional Park District (EBRPD). Black Diamond Mines Regional Preserve features 65 miles of hiking trails on a rugged 5,985 acres. Contra Loma Reservoir and Park is a regional park located east of the project site.

Delta De Anza Regional Trail traverses east-west across Pittsburg from the Pittsburg-Bay Point BART to Somersville Road. Mokelumne Trail is a 5-mile trail within the City of Antioch that intersects with Delta De Anza Regional Trail at Somersville Road. Black Diamond to Mount Diablo Regional Trail connects Mount Diablo State Park, Black Diamond Mines Regional Preserve, and Contra Loma Regional Park in Antioch.

General Plan Policies Related to Parks

The Pittsburg General Plan addresses parks through goals, policies, and service standards including:

- 8-P-1 City shall maintain 5 acres per 1,000 resident as community and neighborhood park.
- 8-P-4 Consider park accessibility, use, and character over size in park siting decisions. Parks should be within reasonable walking distance of residential development.
- 8-P-5 For new developments, City shall maintain the park standard either by developer-dedication of park land or else by developer payment of *in-lieu* park fees to be used by the city for park development or enhancement.
- 8-P-6 In each new residential neighborhood, create not less than 2 acres of usable park space.
- 8-P-14 City shall create a maintenance funding plan for all City parks and shall consider parkland maintenance districts as a condition of development approval for new residential subdivisions.
- 8-P-15 City shall work with PG&E to obtain ownership of lands within the power transmission corridor south of Highway 4.
- 8-P-17 City shall cooperate with EBRPD to develop a "Bay to Black Diamond" trail through the City.

The Quimby Act authorizes local agencies to establish an ordinance requiring new development to pay a fee or dedicate land for park and recreation facilities. The City of Pittsburg has adopted provisions for collection from developers involved in residential subdivision, of either an *in lieu* fee or land dedication, or a combination of both, for park and recreational purposes. Chapter 17.32.020 of the Subdivision Ordinance sets forth the park land standard of 1.42 acres per 100 dwelling units (based on single family residential use less than 15 du/net acre).

Water

The Contra Costa Water District (CCWD) serves over 500,000 people, major industries, smaller industries and businesses, and about 50 agricultural users throughout northern, central, and eastern Contra Costa County. CCWD operates raw water distribution facilities, water treatment plants, and treated water distribution facilities. CCWD currently provides approximately 150,000 AFY throughout its service boundary, of which approximately 10,000 AFY (raw water) currently is supplied to the City of

Pittsburg. Raw water supplied to the City generally is blended from the Delta intake, Old River intake, and Los Vaqueros Reservoir.

CCWD supplies raw and treated water to Antioch, Concord, Diablo Water District (DWD), Pittsburg, California Cities Water Company (CCWC), Martinez, and parts of Pleasant Hill and Walnut Creek. The treated water service area for CCWD encompasses all or part of the cities of Concord, Clayton, Pleasant Hill, Walnut Creek, and Martinez, and the unincorporated areas of Clyde and Port Costa . It excludes Pittsburg, which provides its own treatment, Bay Point, for which area treatment is provided by CCWC, and Oakley, for which treatment is provided by DWD.

CCWD is entirely dependent on the Delta for its water supply. The Contra Costa Canal and CCWD's recently completed Los Vaqueros Project make up CCWD's principal water supply and delivery system. Los Vaqueros Reservoir, completed in 1998 and filled January 1999, is a 100,000 AF reservoir located south of Brentwood. The primary conveyance facility for CCWD's raw water is the Contra Costa Canal, which conveys water from the Delta intake at Rock Slough. Currently, selective pumping in winter and spring is performed to fill Los Vaqueros Reservoir with higher quality Delta water. CCWD diverts unregulated flows and regulated flows from storage releases from Shasta, Folsom, and Clair Engle reservoirs into the Sacramento River as a contractor of the U.S. Bureau of Reclamation's Central Valley Project (CVP). Under Water Service Contract I75r-3401 (amended) with the Bureau, CCWD can divert and re-divert up to 195,000 acre-feet per year (AFY) of water from Rock Slough and the new Old River intake.

Currently, CCWD supplies 150,000 AFY throughout its service boundary. The actual amount of water supplied is subject to regulatory or temporary restrictions that may be imposed during drought conditions or other conditions. CCWD, exercising Water Rights License No. 3167 and Permit No. 19856, can divert up to 26,780 AFY of water from Mallard Slough when water quality is acceptable (*i.e.*, generally under 100 mg/l chloride); however, when this supply is used it must be deducted from the CVP supply.

CCWD provides raw water to the City of Pittsburg, and sells wholesale raw and treated water to the California Cities Water Company (CCWC). The Contra Costa Canal traverses the City of Pittsburg east-west generally north of Buchanan Road in the vicinity of the project. The canal conveys raw water from the San Joaquin River Delta to CCWD's Bollman Treatment Plant for treatment and distribution in central Contra Costa County, Bay Point, and to CCWD's raw water customers. The City of Pittsburg provides water to properties within the City limit, and operates its own water treatment plant and distribution facilities. CCWC provides treated water service to Bay Point. Each entity must treat the raw water prior to distributing it.

The Pittsburg water treatment plant operates at 16 to 18 mgd for City accounts, but has a theoretical maximum capacity of 32 mgd. The effective maximum capacity currently is 28 mgd owing to constraints imposed by the City's State Health Department permit. Treated water is distributed throughout the City through a 122-mile pipeline system. Seven reservoirs have a combined capacity of 16.9 million gallons. The City supplements its CCWD water supply with two municipal wells, located at City Park and at Dover Road and Frontage Road, and also with recycled water from Delta Diablo Sanitation District's Recycled Water Facility. The combined safe yield for the two wells is approximately 1,600 AFY, and the feasibility of a third to replace the Ball Park well is being studied by the City. In addition, recycled water from Delta Diablo Sanitation District is available for non-potable cooling water and landscape irrigation uses in an amount estimated to be 7,000 to 9,000 AFY.

Recycled Water

Recycled water from DDSD is conveyed to the two Calpine power generating plants: Los Medanos Energy Center and Delta Energy Center, and to the City for various landscape irrigation uses. Delta Energy Center is located immediately adjacent to the DDSD Recycled Water Facility (RWF), and Los Medanos Energy Center receives recycled water via a pipeline extending 3 miles from the RWF. Three city parks that are located adjacent to the existing recycled water pipeline currently receive recycled water for irrigation. These parks include a baseball field at Central Park, and two linear parks, one along 8th Street and the other along Santa Fe and Columbia Streets. Landscaping surrounding the RWF is also irrigated with recycled water from the plant.

The RWF is sized to deliver a peak flow of 12.8 million gallons per day (mgd) of recycled water to the power plants. The average demand has been approximately 7 mgd. Peak flows of up to 12 mgd have occurred for less than 10 percent of the year. Therefore, there is significant reserve capacity in the RWF to deliver recycled water for additional uses.

To accomplish this, a new recycled water pipeline is proposed for construction from the existing recycled water pipeline near the DDSD RWF, to several users including the Delta View Golf Course. The pipeline will be constructed using an existing 10-inch pipeline that extends along Power Avenue as part of the design to minimize the length of new piping installed, and an existing 20-inch pipeline that runs the length of the Pacific Gas & Electric utility corridor from Power Avenue to the Contra Costa Canal at the Delta View Golf Course. The proposed pipeline would provide recycled water to the Delta View Golf Course, Stoneman Park, City Hall, and City Park; and would be constructed in 2005. Eventually, other users such as Pittsburg High School and Parkside Elementary School would be served from the pipeline.

Historic and Projected Water Use in Pittsburg

Table 15 shows historic and projected water demand and supplies for 2000–2020 (Pittsburg Finance Department, 2000). Year 2000 water purchases by the City were

TABLE 15
FUTURE WATER PROJECTIONS
CITY OF PITTSBURG, CALIFORNIA

PROJECTIONS	Estimated Water Demand and Supply or Number of Service Connections				
	2000	2005	2010	2015	2020
Citywide number of single-family residential water service connections	13,194	14,000	14,500	15,000	15,500
Project water service connections	0	0	166[c]	415	415
Citywide residential demand (AFY)[b]	7,359	8,956	9,829	10,703	11,576
Project water demand (AFY)	0	0	104[c]	278	293
Citywide total demand (AFY)	10,343	12,587	13,815	15,043	16,271
Equivalent Daily Volume (MGD)[d]	9.3	11.3	12.4	13.5	14.6
Future supply without planned industrial and municipal landscape uses of recycled water (AFY)	15,000	16,000	17,000	18,000	19,000
Equivalent Daily Volume (MGD)	13.5	14.4	15.3	16.2	17.1
Demand/Supply Ratio[e]	69 %	79 %	81%	84%	86 %
Projected supply including recycled water supply (AFY)	10,343	22,945	24,315	26,043	27,771

NOTES:
AFY acre-feet per year MGD million gallons per day
Equivalent Daily Volume is simply a conversion from acre-feet per year to millions of gallons per day.

[a] Pittsburg Department of Finance estimates except for project demand.
[b] Residential water demand includes single- and multi-family.
[c] Assumes 40 percent (166 units) of project housing is built and occupied.
[d] Daily volumes are averages. Maximum daily demand during the peak season is estimated as 2.1 times the Equivalent Daily Volume.
[e] Citywide water demand divided by future supply without recycled water supply.

SOURCE: *Pittsburg 2000 Urban Water Management Plan*

8,790 acre-feet per year (AFY), and year 2003 water purchases by the City were 9,937 AFY. Population growth has been and will continue to be the primary factor affecting water demand in the City of Pittsburg.

Future annual water demand is estimated using an average volume of water used per person per day, multiplied by the population projection for a given year. Historically, water use in Pittsburg has varied depending not only on the rate of population increase but also on drought conditions and conservation measures. Voluntary compliance with conservation measures adopted in 1991, during a drought period, temporarily reduced per

capita water demand. In 2000, water use by single-family residences in the City of Pittsburg averaged approximately 155 gallons per capita per day and 6,748 AFY.

In the post-drought period, per capita water demand so far has remained at reduced conservation levels, but is forecast to return gradually to pre-drought levels during 2005-2020. For these water demand estimates a range of water use was assumed, from 155 gpcd (conservation, low-moderate) increasing to 165, 175, 185, and 195 gpcd (pre-drought, high) in years 2005, 2010, 2015, and 2020.

Water use by single-family residences is projected to increase to 10,615 acre-feet per year (AFY) in 2020 from 8,212 AFY in 2005. During 2005-2020 the number of single-family residential water connections is projected to increase to 15,500 in 2020 from 14,000 in 2005, which is an increase of 1,500 connections or 100 connections per year. Water use is projected to increase each year by 160 acre-feet per year (160 AFY) for new single-family dwellings built during 2005-2020.

To meet demand projected City water purchases are forecast to be 12,215 AFY in 2010 and 14,671 AFY in 2020. Projected water purchases equal the demand forecasts less 1,600 AFY from two municipal wells.

Water Conveyance

The *2000 Water System Master Plan, Amendment No. 2*, identifies water transmission main improvements necessary to serve projected water needs in the Southeast Hills area. This proposed water transmission pipeline project consists of 9,600 lineal feet of 20-inch diameter pipe from the water treatment plant (WTP) along Crestview Drive and Buchanan Road to Harbor Street, a 12,400 lineal feet of 16-inch diameter pipe from Harbor Street to Suzanne Drive, and a 16-inch diameter pipe for the "Buchanan Subarea Loop II," from Buchanan Road along Suzanne Drive and Kingsly Drive to Highlands Ranch. According to City Engineering staff, any incremental development in the Southeast Hills area exceeds the existing transmission system's capacity and ability to fill proposed Zone III and IV water reservoirs without pumping.

Water Storage

Current water storage in enclosed reservoirs throughout the City is approximately 16.9 million gallons. With projected water use, required storage capacity is expected to increase to approximately 24 million gallons by 2020 under the General Plan buildout assumptions. Included among the storage recommendations of the City-wide storage analysis are proposed 2.0 MG Zone II Highlands tank and 1.0 MG Zone IV Sky Ranch tank. These are shown in the *2000 Water System Master Plan, Amendment No. 2*, at the 381 and 620 foot elevations (City of Pittsburg, August 2004).

Planning the Future Water Supply

In 1996, CCWD completed a *Future Water Supply Study* to assess its existing and future ability to provide water to its customers. Passage of the Central Valley Project (CVP) Improvement Act of 1992 set new operating parameters for the CVP that may reduce the amount of water available to CCWD by as much as 15 percent. Increasing water demand and environmental regulations may also reduce water deliveries to the Delta in order to preserve habitat for federally-listed endangered species *(e.g.*, the Delta smelt, Chinook salmon, and other species). These factors created the need for CCWD to examine alternative ways to meet future water demand.

CCWD's *Future Water Supply Study* concluded that water demand would likely be met through a combination of CCWD's existing water supply, conservation programs, and additional supplies as such opportunities arise. CCWD identified a preferred alternative that calls for an expansion of CCWD's current conservation efforts to encompass wholesale as well as retail customers. It would achieve an overall reduction of five percent by the year 2040. CCWD identified this alternative as the preferred option because it ensures a more reliable water supply, and because it allows for exploring future opportunities to increase conservation and water reclamation projects

General Plan Policies and Other Programs Related to Water

Pittsburg's current General Plan addresses water supply and infrastructure issues through General Plan policies.

- Policy 3-S-11 of the General Plan requires availability of 180 gpcd of treated water for every resident. This rate represents a midpoint between pre-drought consumption of 200 gpcd and conservation low-moderate consumption of 150 gpcd. In the City's *2000 Urban Water Management Plan*, the assumed per capita rates are 175 gpcd in year 2010, 185 gpcd in year 2015, and 195 gpcd in year 2020.
- Policy 3-S-12 requires adequate water service pressure for all residents.

Water conservation is addressed in the Zoning Ordinance through the requirement that landscaping plans include energy-efficient and drought-tolerant plant material. Demand reduction also is addressed in the *2000 Urban Water Management Plan*. Supply and reliability of the supply are being addressed through the City's recycled water program and budgeting of programs in the City's *Five-Year Capital Improvement Plan 2004/5-2008/9*.

In association with DDSD, the City of Pittsburg is in the process of extending pipelines to enable greater use of recycled treated wastewater for non-potable applications for landscape irrigation at public facilities. The Proposed Draft Initial Study/Negative Declaration was circulated in January 2005.

State of California Policy

Water conservation is state policy and is implemented through local water districts and the Department of Water Resources. Specifically, the state codes require:

- All local jurisdictions to adopt a landscape water conservation ordinance, AB 325, Statutes of 1990, California Code of Regulations, Title 23, Chapter 2.7, Sections 490-495.

- Water recycling and reuse regulations, California Health and Safety Code, Division 13, Part 1.5, Chapter 2, Section 17921.3 and California Code of Regulations, Title 20, Division 2, Chapter 4, Article 4, Section 1604 and California Code of Regulations Titles 22 and 17.

DDSD and City of Pittsburg were selected in April 2005 by the Department of Water Resources to receive $880,000 for expansion of their joint recycled water project. This project funding will enable construction conveyance pipelines to provide reclaimed waster water for irrigation of the Delta View Golf Course and landscape irrigation at Stoneman Park, City Park and City Hall.

In 2002, voters approved Proposition 50, which provided $42 million in construction grant funding for recycled water projects in California. The Pittsburg/Delta Diablo regional distribution system project was ranked high in the state's priority list, and it was the only project in Contra Costa County to receive funding. In addition to the grant of $800,000, the City of Pittsburg is contributing over half of the construction costs.

Wastewater Treatment & Conveyance

Sanitary sewer service in the vicinity of the project is provided by the Delta Diablo Sanitation District (DDSD) and the City of Pittsburg. DDSD treats wastewater for unincorporated Bay Point (Zone 1), City of Pittsburg (Zone 2), and City of Antioch (Zone 3). The City maintains and owns its local sewage collection system, and is responsible for the collection and conveyance of wastewater to the DDSD's treatment plant located north of the Pittsburg-Antioch Highway east of the City limit. DDSD currently discharges its treated wastewater effluent into the New York Slough. Wastewater dischargers are facing increasingly stringent regulations in terms of total mass load limits. Diversion of recycled water from the discharge will help DDSD to comply with the total mass load limits by reducing the amount of effluent discharged.

DDSD's *Conveyance System Master Plan Update* (2004), DDSD's *Treatment Plant Master Plan Update* (2004); and the City's *Wastewater Collection System Master Plan* (2002), address the ability of current and planned systems to provide service to City of Pittsburg customers. The DDSD treatment plant has a treatment capacity of 16.5 million gallons of raw sewage per day. In 2003, 2004 and 2005, the plant treated an average flow of approximately 14 to 15 mgd, average dry weather flow (ABWF), which is the inflow measured at the plant's headworks from the entire service area.

Raw wastewater inflow at the treatment plant and flow in conveyance systems is reported in a variety of terms, depending on time or peaking. As one can imagine, flow in a pipeline or inflow at the plant's headworks is not constant. Average base wastewater flow (ABWF) and peak wet weather flow (PWWF) are among the flow representations. ABWF is equivalent to average dry weather flow (ADWF).

To assess future treatment capacity requirements, DDSD developed projected wastewater flows based on the conveyance master plans for the Cities of Pittsburg and Antioch and the District's *Bay Point Capacity Assessment Report* (dated June 11, 2002). Wastewater flow projections in these reports were based on population growth estimates. ABWF is projected to increase to approximately 23.6 mgd in 2025 from 15.5 mgd in 2005, and PWWF is projected to increase to approximately 42.5 mgd in 2025 from 31 mgd in 2005 (DDSD, 2004).

To meet this projected need for more treatment capacity, the first step in plant expansion is secondary clarifier upgrade. By changing the existing secondary clarifier mechanisms to modern mechanisms DDSD will achieve better solids removal at higher flow rates. Secondary clarification has been identified in DDSD's *Five-Year Capital Improvement Program 2004/5-2008/9* as the process that currently limits the plant's capacity to 16.5 mgd. Improved secondary clarifiers, and other improvements, will provide better treatment and removal efficiencies and ultimately will increase plant's capacity to approximately 24 mgd (ABWF) under the master planned improvements (Delta Diablo Sanitation District, June 28, 2005).

Ultimate wastewater treatment plant capacity, 24 mgd, follows implementation of all phases of master planned improvements. Phase 5 capacity improvements during 2005-2009 will increase treatment capacity to 19 mgd, which compares to the projected ABWF inflow to the plant of 18.3 mgd in year 2010. Capacity is scheduled to serve the combined demand of new developments in the cities of Pittsburg, Antioch, and unincorporated Bay Point.

The DDSD *Treatment Plant Master Plan Update* includes a phased expansion of the treatment plant capacity. Addition of a fifth primary clarifier (2007/8), expansion of New York Slough outfall capacity (2007/8), addition of a sixth aeration basin (2008/9), addition of a sixth secondary clarifier (2008/9), and replacement and upsizing of the existing Return Activated Sludge/Waste Activated Sludge pumping facility are planned. Planned expansion would accommodate anticipated General Plan buildout in the service area. DDSD projections assume approximately 1,000 new connections per year. "New connections,"--including residential, commercial, industrial, and other connections,--are expressed as equivalent residential units.

City-wide Collection and Conveyance

Wastewater is conveyed in a network of underground piping. In the year 2005, PWWF through the City of Pittsburg's entire collection system to the wastewater treatment plant is estimated by the City to be approximately 25.6 mgd. This flow includes Bay Point

sewage flow, groundwater infiltration, and rainfall infiltration/inflow as calculated using the City's method (DDSD, February 10, 2004). On the basis of ABWF, the year 2005 estimated flow to the wastewater treatment plant from the west (*i.e.*, from Pittsburg and Bay Point) is 6.7 mgd. However, for the consideration of conveyance capacity of pipes, PWWF is the appropriate measure as pipes that cannot convey raw wastewater and infiltration water in wet weather will back up.

Local Collection and Conveyance—The project's wastewater would be conveyed by new sanitary sewer pipes to the existing Highlands Ranch system and from the Highlands Ranch system to the Pittsburg-Antioch interceptor via a 15-inch diameter trunk main beneath Buchanan Road. The Highlands Ranch system was sized to accommodate combined flows from the two developments. Based on the original study design, as presented in *Sewer Study for Sky Ranch II* (Isakson & Associates, Inc., April 2001), the critical pipes are:

1. 12-inch diameter pipe in the vicinity of Silver Saddle Drive whose capacity is 1.67 cfs; and,
2. segment of 10-inch diameter sewer pipe beneath Meadows Avenue near Glen Canyon Drive, where slope limits that pipe's capacity to 1.10 cfs.

Modified wastewater flows were calculated after adjustments for the proposed project, inclusion of 415 units in Sky Ranch II and 598 units in Highlands Ranch, elimination of the school site, and modifications of GWI and RDI factors for new construction. Tributary acreages were used in conjunction with 40 gpad for the calculation of GWI and 400 gpad for the calculation of RDI. Modified design wastewater flows (PWWF) were the chosen to be larger of ABWF + GWI + RDI or PDWF +GWI, where PDWF was estimated from ABWF following the original method of applying a peaking factor. The modified method yields wastewater flows considered to be representative of new construction.

The combined wastewater flow from Sky Ranch II and Highlands Ranch would be 0.97 cfs, compared to the 12-inch diameter sewer main pipe's capacity of 1.67 cfs. The sewer main pipe beneath Silver Saddle Drive in the northeast corner of Highlands Ranch, therefore, would be at 60 percent of capacity. Intermediate wastewater flow within Highlands Ranch would be 0.53 cfs, compared to the 10-inch diameter sewer pipe's capacity of 1.10 cfs. This critical segment of 10-inch diameter pipe, therefore, would operate at 50 percent of capacity. In comparison, General Plan Policy 3-S-14 recommends that sewer main pipelines be designed and constructed to convey wastewater flows up to 60 percent of pipe capacity.

The 15-inch diameter trunk main beneath Buchanan Road has a capacity of 3.54 cfs (Isakson & Associates Inc., September 14, 2005). With development of the proposed project there would be approximately 70 percent or 2.57 cfs available capacity remaining in the 15-inch diameter trunk main for Black Diamond Ranch and other development south of Buchanan Road.

Pittsburg-Antioch Interceptor—Before raw wastewater from the vicinity of the project site reaches the treatment plant, it travels through a DDSD-owned facility known as the Pittsburg-Antioch interceptor. Approximately 900 feet east of Silver Saddle Drive in Highlands Ranch, the Pittsburg-Antioch interceptor extends along Buchanan Road to Sheppard Way, and from there extends north, crossing beneath Delta Fair Boulevard and SR 4, to Century Boulevard. The interceptor follows Century Boulevard east to Century Court and from there extends north toward West 10th Street and the wastewater treatment plant.

The Pittsburg-Antioch interceptor receives flows from a portion of Pittsburg on the west and from a portion of Antioch on the east. It is a gravity line having a 12-inch to 15-inch diameter and variable slope and, hence, variable capacity. The minimum capacity in the pipe, 2.3 mgd, occurs in three segments of 15-inch diameter pipe whose lengths are 1,212 feet, 1,092 feet, and 1,051 feet (DDSD, revised February 10, 2004).

The Pittsburg-Antioch interceptor in 2005 conveys a PWWF estimated by DDSD to be 1.1 mgd, the combined flow from the portions of Pittsburg and Antioch served by this conveyance facility. DDSD forecasts that the PWWF in the Pittsburg-Antioch interceptor in 2025, the ultimate buildout year, will increase to 2.05 mgd, which will approach the Pittsburg-Antioch interceptor's current capacity limit of 2.3 mgd.

General Plan Polices Related to Wastewater

General Plan policies related to wastewater include:

- 3-S-13 Ensure that adequate sewage collection and treatment facilities will be available to serve existing and planned development.
- 3-S-14 Design and construct sewer main pipelines to convey wastewater flows at 60 percent of capacity. Design and construct trunk sewer pipelines to convey wastewater flows at 100 percent of capacity.
- 11-P-12 City will pursue replacement and/or expansion of the City's trunk sewer system south of Highway 4.
- 11-P-13 City will address deficiencies in the capacity and reliability of the collection system as identified in the City's Collection System Master Plan.
- 11-P-18 City will ensure new residential development will pay a fair share of the cost of providing waste water services.

DDSD Programs Related to Wastewater

DDSD's Board of Directors established a Capital Expansion Fund in March 1994, to construct wastewater collection, conveyance and treatment facilities for future annexation and growth within the service area. Capital facilities are funded from revenues and fees collected from development. DDSD's financial plan allocates

revenues and fees for necessary facilities to meet growth projections within the service area and areas to be annexed into the service area.

In addition to the service area annexation fee, DDSD collects a Capital Facilities Capacity Charge of $4,975 per dwelling unit in Zone 2 (Pittsburg). This aggregate fee, which replaces the former treatment plant development, connection, and Pittsburg-Antioch Interceptor Fees, is used to fund capital improvements.

Schools

The project site is located in the Pittsburg Unified School District (PUSD). The nearest elementary schools are Foothill Elementary, Highlands Elementary, and Stoneman Elementary. The nearest junior high school is Central Junior High School.

PUSD's elementary and junior high schools are serving more students than they were designed to serve (see Table 16). Projections indicate that the number of students will continue to grow over the next five years, increasing the need for additional classroom space.

TABLE 16
DISTRICT STUDENT ENROLLMENT

SCHOOL	Design Capacity	2003 Enrollment	Over/Under Capacity
Foothill	590	616	+26
Heights	555	614	+59
Highlands	659	720	+61
Los Medanos	640	682	+42
Parkside	587	655	+68
Stoneman	475	662	+187
Willow Cove	672	653	-19
Central Jr. High	1,098	1,221	+123
Hillview Jr. High	802	1,076	+274
Pittsburg High	2,574	2,353	-221
Riverside High	195	339	+144
Total	8,847	9,591	+744

SOURCE: Pittsburg Unified School District, 2004

Measure E, approved by 78 percent of voters in November 2004, is a $40.5 million school bond measure that will finance construction of a new elementary school and a new junior high school within the PUSD. The fiscal impact of the District bond on individual property owners will be $41 a year per $100,000 of assessed valuation. Under Proposition 39, unified school districts are permitted to levy up to $60 per $100,000 of assessed valuation.

Future enrollment in PUSD is forecast to reach 11,610 pupils by 2020. The forecast is based upon a student yield ratio of 0.509 pupils per household, 35,100 households in the Pittsburg SOI, and 65 percent attendance at school in PUSD, and 35 percent attendance at

schools in the Mount Diablo Unified School District. In comparison, student enrollment in the PUSD as projected in the General Plan is only 9,000 pupils, in grades K-12, in 2020. The General Plan projection is less than current enrollment of 9,591 pupils and is inconsistent with the current projection.

City of Pittsburg General Plan Policies Related to Schools
The City's General Plan contains goals and implementing policies that encourage the location of public schools at sites accessible to resident

- 3-S-18 Ensure new development provides funding or equivalent capital facilities so that enrollment does not exceed capacity.

Solid Waste

Solid waste collection and disposal for the City of Pittsburg, and a small portion of Bay Point, is provided by the Pittsburg Disposal Services. Residential and commercial solid waste is disposed at Potrero Hills Landfill, located in Solano County east of Suisun City.

Non-recyclable industrial waste is transported to Keller Canyon Landfill, located southeast of the Pittsburg City limits and south of the Specific Plan area. The Potrero Hills and Keller Canyon landfills replace the closed Contra Costa Sanitary Landfill.

Potrero Hills Landfill is a Class III sanitary landfill that began operation in 1986 and has a projected remaining life of 17 to 20 years. The total estimated permitted capacity is 21.5 million cubic yards, with 7.7 million cubic yards (36 percent) used and 13.8 million cubic yards (64 percent) remaining (CIWMB, 2004). Without expansion it has a projected remaining lifespan of 17 to 20 years. The Potrero Hills Landfill Company owns adjacent acreage that could be used for facility expansion if necessary.

Adjacent acreage owned by Potrero Hills Landfill Company may allow for future expansion of landfill capacity (*Pittsburg 2020: A Vision for the 21st Century*, August 2001, p. 11-12). The proposed expansion of the existing Potrero Hills Landfill onto a 260-acre area owned by Potrero Hills Landfill, Inc., would increase the disposal life of the landfill by approximately 35 years. Both the existing landfill and the proposed expansion site are located within the secondary management area of the Suisun Marsh. The proposed expansion would add approximately 61.6 million cubic yards of fill capacity, for a total landfill capacity of approximately 83 million cubic yards. Solano County submitted the Notice of Preparation (NOP) of its Draft EIR to the California Office of Planning and Research on March 24, 2003.

Keller Canyon Landfill opened on May 7, 1992, as a Class II facility with a minimum 40-year lifespan. The facility accepts municipal solid waste, non-liquid industrial waste, contaminated soil, ash, grit, and sludges that are at least 50 percent solids. Active landfill operations occur on 244 acres of the 2,600-acre Keller Canyon property. Its service area includes eastern and central Contra Costa County. The landfill is permitted to receive up to 2,750 tons per day and is open six days per week from 7:00 a.m. to 7:00 p.m. Pittsburg disposes approximately 3,000 tons of industrial solid waste annually at this site.

Pittsburg Curbside Recycling
A voluntary curbside recycling program is in place in Pittsburg, operated by Pittsburg Disposal Services. Materials accepted for recycling include plastic, glass, aluminum, tin, and newspaper. Recyclables are collected once a week with regular waste, then processed at a facility owned by Pittsburg Disposal Services. In 1990, the curbside recycling program diverted 10.5 percent (2,350 tons) of residential waste and 5 percent of waste generated by all uses. The City's 1992 Source Reduction and Recycling Element includes both short- and medium-term objectives. In the short term, the City seeks to divert 10.4 percent of total waste through recycling, continue existing programs, and establish new programs.

Countywide Integrated Waste Management Plan, Source Reduction and Recycling
Contra Costa County has adopted a Countywide Integrated Waste Management Plan (CoIWMP), and a Source Reduction and Recycling Element (SRRE) as required by the California Integrated Waste Management Act. The CoIWMP establishes the County's waste management goals, objectives, and policies related to solid waste facility siting, and household hazardous waste collection and disposal, and establishes programs designed for plan implementation. The SRRE establishes policies and goals for source reduction, recycling, composting, special waste, public information and education, and programs to help the County achieve these goals.

The SRRE establishes policies and goals related to source reduction, recycling, composting, special waste, and public information and education, and programs designed to achieve SRRE goals.

Household Hazardous Waste Program
DDSD has operated a household hazardous waste (HHW) program since July 1996. The program began with a recycle-only facility at the south end of the wastewater treatment plant. In 1999, DDSD implemented one-day Saturday collection events to enable residents to dispose of non-recyclable waste (*e.g.*, pesticides, oil-base paint, and household cleaners). In 2003, DDSD opened a permanent facility and expanded hours to Fridays and Saturdays. In 2004, mercury thermometer exchange and fluorescent tube outreach programs were initiated. The HHW program meets the AB 939 requirements for the cities and Contra Costa County and NPDES requirements.

General Plan Policies Related to Solid Waste
The City of Pittsburg has ongoing programs to implement various policies established in the CoIWMP. The City adopted a SRRE in 1992 that includes short- and medium-term recycling objectives. The City operates a voluntary curbside recycling program operated by Pittsburg Disposal, and in July 1996 began operation of the East County Community Collection Center within the Delta Diablo Sanitation District. Applicable General Plan policies include the following:

- 11-P-19 City will support implementation of Source Reduction and Recycling (SRRE).
- 11-P-22 City will distribute information to the public regarding residential waste reduction opportunities.
- 11-P-23 City shall encourage builders to incorporate interior and exterior storage areas for recyclables.

Fire Protection Service

The Contra Costa County Fire Protection District (CCFPD) provides fire protection and suppression services for the City of Pittsburg and surrounding Bay Point community. In addition, the District also provides primary fire protection service to the majority of the County, including Antioch, Oakley, Concord, Clyde, Pacheco, Martinez, Walnut Creek, Lafayette, areas of West County, and some unincorporated areas. CCFPD also provides fire prevention services to Orinda, Moraga, Brentwood, and Bethel Island. CCFPD operates out of thirty fire stations located throughout its jurisdictional area. CCFPD maintains mutual aid agreements with the East Diablo Fire Protection District, East Bay Regional Park District, California Department of Forestry, and private industrial companies located within its jurisdiction. These agreements provide the CCFPD with emergency response assistance on an as-needed basis.

Fire Protection Facilities & Equipment

Battalion 8 of the CCCFPD provides fire protection services for Pittsburg, Antioch, Oakley, and surrounding unincorporated areas such as Bay Point. There are a total of nine stations in the battalion, including two reserve stations located in Oakley. Three fire stations—Stations 83, 84, and 85—currently serve Pittsburg and Bay Point. The stations located nearest the project site are: Fire Station 83, located at 2717 Gentrytown Drive, Fire Station 84, located at 200 East Sixth Street, and Fire Station 85, currently located at 2555 Harbor Drive but relocating to Loveridge Road/East Leland Road. Fire Station 83 and 85 are located approximately 2.0 to 2.5 miles from the project site.
Continuing growth within the CCCFPD places an increasing demand for fire protection and suppression services; however, the growth in revenue is at a much slower pace. The District maintains mutual aid agreements with the East Diablo Fire Protection District, East Bay Regional Park District, California Department of Forestry, and private industrial companies located within its jurisdiction. These agreements provide the District with emergency response assistance on an as-needed basis.

CCCFPD has improved its wildland fire engine fleet over a three-year period and now has modern equipment to address the urban interface issues prevalent in Contra Costa County. Five Type III wildland fire engines were placed in service over the past year to replace an aged and outdated fleet.

On June 10, 2003, County Board of Supervisors adopted Resolution No. 2003/371 determining to consummate the land purchase for the relocation of Fire Station 85 on

Loveridge Road. Substantial progress has been made to replace Station 85 in Pittsburg with a new station on Loveridge Road/East Leland Road, such that the relocated station would be available to serve the proposed project.

Response Standard and ISO Rating
The response time goal for the CCFPD is to provide service within five minutes of notification. Generally, service can be provided in this time frame to areas located within 1.5 miles of a fire station. The National Insurance Service Office (ISO) has developed a rating system to identify the level of service and risk of substantial fire loss for fire protection districts. The ratings are insurance classifications that range from one to ten, one being best and ten being worst, based on a number of factors, including personnel, facilities, response times, fire flow capacities, and the general character of development in the area. CCFPD currently has a Class Three ISO rating. In 2003, the average time for dispatch to arrival for fire suppression calls was 6 minutes 34 seconds. Average time for receipt of dispatch until on-the-way to the incident was 1 minute 43 seconds. Total sworn full-time personnel was 0.61 sworn full-time personnel per 1,000 population.

City Policies Related to Fire Protection
The Pittsburg General Plan addresses fire protection through service standards including:

- 3-S-3 Provide service within a 5 minute response time for 90 percent of calls, to locations within 1.5 miles of a fire station.
- 3-S-4 & 5 Provide stations located within 1.5 miles of development.

Police Services

The City of Pittsburg Police Department provides police services to the City of Pittsburg, and the Contra Costa County Sheriff's Department provides police services to the unincorporated area of Bay Point. BART provides police services to the Pittsburg/Bay Point BART Station. Law enforcement officers from the County Sheriff are stationed at the main headquarters in Martinez.

The Pittsburg Police Department is located at 65 Civic Avenue in Pittsburg. The number of sworn officers is 74 officers, as of July 2005. The Department currently is budgeted for 72 sworn officers and expects to receive grant funds for two additional officers. With an incorporated area population of 61,500 persons, the current staffing level is approximately 1.20 officers per 1,000 residents.

The mission of the Pittsburg Police Department's Patrol Division is to maintain the peace and provide a response to calls for service The mission of the Traffic Division is to make the streets of Pittsburg as safe as possible for all vehicles, bicyclists, and pedestrians. To achieve this goal, the Traffic Division consists of: 1 sergeant, 4 full-time officers, and 1 full-time parking enforcement assistant. The Code Enforcement Division enforces codes, laws and regulations for the abatement of substandard housing conditions and zoning

violations, blight issues, and the abatement of abandoned, dismantled, or inoperative vehicles. The Code Enforcement Division participates in the Contra Costa County's Abandoned Vehicle Abatement Program.

The Patrol Division uses a "beat" system, without community substations, so that officers are continuously available within the territory covered by each beat. The proposed project would become part of the beat defined by Railroad Avenue on the west, the Pittsburg-Antioch city limit on the east, Yosemite Drive and Ventura Drive on the north, and the southern hills on the south. The beat system assures rapid response to emergency calls within each beat.

General Plan Policies Related to Police Protection

The Pittsburg General Plan addresses police protection through service standards including:

- 3-S-1 City shall maintain response times as listed below:
  - Emergency: 3 to 5 minutes
  - Priority (non-emergency): 5 to 8 minutes
  - Non-emergency: 10 to 20 minutes

- 3-S-2 City shall strive to maintain 1.8 sworn officers per 1,000 residents.

IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

According to the CEQA Guidelines, Appendices G, the proposed project could be considered to have a significant impact on community services and utilities if:

- The project could increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.
- The project would include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.
- The project could result in substantial adverse physical impacts associated with the operation or construction of new or physically altered governmental facilities necessary to maintain acceptable service ratios, response times or other performance objectives for any public services (e.g., water treatment and conveyance, wastewater treatment and conveyance, water storage, schools, storm drainage, solid waste disposal, fire protection services, and police protection services).

- Water supplies available to serve the project from existing entitlements and resources are insufficient, or new or expanded entitlements are needed.
- Project could require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.
- Project could cause violations of wastewater treatment requirements of the applicable Regional Water Quality Control Board.
- Project could result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.
- Project could require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.
- Project is not served by a landfill having sufficient permitted capacity to accommodate the project's solid waste disposal needs.
- Project does not comply with federal, state, and local statutes and regulations related to solid waste.

In addition, the proposed project could be considered inconsistent with the City's *General Plan* if the various services are not available or cannot be provided (Policy 3-P-1), or cannot be provided to existing land uses, the proposed project, and other foreseeable development, at the City's adopted standards for adequate service. Also, as consistent with provision of the General Plan, before project approval, the City is to ensure that the existing and planned transportation system will have adequate capacity t0 accommodate new urban development (Policy 3-P-2).

EVALUATION

The following discussion of impacts and mitigation measures is based on the standards of significance, recent environmental documents and planning documents, and interviews with individuals knowledgeable about provisions of services to the site.

The project could, or could not, increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

Off-Site Parks & Trails

IMPACT 1: Development of the project could lead to increased use of the nearest neighborhood parks including Highlands-Buchanan Road Park, Highlands Park, and Marchetti Park.

Mitigation Measure:

- Developer will provide an on-site mini-park with swings and other play apparatus, and tennis courts. For reasons discussed in Chapter

V. K, Public Health & Safety, a preferred location for on-site park facilities is the vicinity proposed Lots 181-190.

Residual impact after mitigation: Less-than-significant.

IMPACT 2: Development of the project is expected to increase visitation at Black Diamond Mines Regional Preserve (BDMRP) and also increase the use of Buchanan Park, Contra Loma Regional Park, and Stoneman Park.

Mitigation Measures:

- Developer will pay an *in lieu* park fee, or dedicate park land, or perform a combination of both, equivalent to 5.89 acres (1.42 acres per 100 dwelling units). In the event that open space is dedicated under one of the alternatives to the proposed project, such dedication of open space shall not be counted as park land dedication.
- Developer will protect right-of-way across the entire 110-foot width of the combined PG&E and Kinder Morgan Energy Partners easements, for future development of an east-west trail connection with BDMRP. Protection of the trail right-of-way may be counted in the future as part of the developer's park land dedication requirement, only at that time when trail improvements are made, and only for that portion of the right-of-way on which trail improvements are actually made.
  (***EXAMPLE**: Developer may improve 1,200 lineal feet of the trail, assuming 2 acres of mini-park elsewhere on the project site, to complete 5 acres of park land dedication.*)

Residual impact after mitigation: Less-than-significant.

The project would include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

On-Site Park or Trail

Development of the project would generate demand for mini-park and/or neighborhood park space on the project site. The minimum on-site park land, as required under the City's *General Plan* service standard, is 2 acres, with a desirable or target size being 5 acres. The City's Subdivision Ordinance requires dedication of 1.42 acres per 100 dwelling units, or payment of a fee instead, or a combination of both. Open space dedication generally is not counted toward the service standards. For 415 dwelling

units, the total required park land dedication, or *in lieu* fee equivalent, is 5.89 acres.

Creation of a mini-park in the vicinity of proposed Lots 181-190 could replace existing native grassland with sod, pavement, and other improvements and could not avoid filling of the ephemeral stream or wetland in that vicinity. The alignment of "C" Court generally is in the path of the subject ephemeral stream and wetland; therefore, avoidance of filling would be possible only by eliminating "C" Court.

The nearest existing neighborhood park, called Highlands Park, and the nearest planned neighborhood park at Highlands Ranch-Buchanan Road Park would not meet the park development standard of "location within reasonable walking distance." A pesdestrian and bicyclist overcross over the Buchanan Bypass would not decrease the walking distance, and the associated costs for such an overcross make this optional mitigation measure ineffective and infeasible. This impact, therefore, may be considered as potentially significant and unavoidable.

IMPACT 3: On-site park land dedication, or trail right-of-way protection on the project site, would have the same impact on wildlife species and their habitat as described for the proposed project in Chapter V.A, Biology & Wetlands. Coverage of any portion of the site with tot lots or tennis court, for example, would remove grassland habitat and introduce human presence.

Mitigation Measures:

- Developer shall perform compensatory mitigation measures as described in Chapter V.A, Biology & Wetlands.
- Developer shall construct appropriate permanent barriers around all on-site park areas, to prevent movement of terrestrial wildlife across these areas.
- Developer shall have a qualified biologist perform appropriate pre-construction or nesting surveys before constructing on-site park or trail improvements.

Residual impact after mitigation: Unavoidable impact. Compensatory mitigation will be performed by the developer to compensate for depletion of on-site habitat.

For one of more of the following categories of infrastructure, the project could result in substantial adverse physical impacts associated with the operation or construction of new or physically altered governmental facilities. Such facilities may be necessary to maintain acceptable service ratios, response times or other performance objectives for any of the public services (*e.g.*, water or wastewater treatment and conveyance, storm drainage, schools, solid waste disposal, fire and police protection, or streets).

	Yes	No
Raw Water Supply	☐	☒
Water Treatment Capacity	☐	☒
Treated Water Conveyance	☒	☐
Treated Water Storage	☒	☐
Wastewater Treatment Capacity	☐	☒
Raw Wastewater Conveyance	☐	☒
Storm Drainage Facilities	☒	☐
Schools	☐	☒
Solid Waste	☐	☒
Fire Protection Service	☒	☐
Police Services	☐	☒
Streets	☒	☐

Raw Water Supply –
The proposed project could be annexed into CCWD's service area pending approval of the inclusion application by the U.S, Bureau of Reclamation. This is a ministerial action without operation or construction of new or physically altered infrastructure. CCWD and the U.S, Bureau of reclamation will require evidence of Section 7 or Section 10 consultation with USFWS and USACE to assure that the impacts of the proposed project on biology and wetland resources within the annexation area are adequately mitigated.

Water Treatment Capacity–
General Plan Policy 3-S-11 requires treated water in the amount of 180 gpcd. The City's water service area population in 2020 is projected to be 76,964 persons, and the project's resident population is projected to be 1,332 persons. The City's WTP treatment capacity (28 mgd) is sufficient to treat the projected water demand of the project, and other forecast growth, without new plant construction. Provision of treated water at increased daily volumes is predicted to increase the use of electrical power and water treatment chemicals.

Treated Water Conveyance –
The proposed project will necessitate off-site construction of 20-inch and 16-inch diameter water transmission pipes from the WTP to Highlands Ranch area.

Future water demand in *2000 Water System Master Plan, Amendment No. 2*, was projected based on geographic area and elevation service zone. In the Southeast Hills area, the zones included "Zone III: Hillview" and "Zone IV: Sky Ranch." "Hillview" includes approximately 774 projected housing units in Zone III in Montreux, Thomas Ranch, and Sky Ranch II. "Sky Ranch" includes approximately 1,082 projected housing units in Zone IV within Sky Ranch II and in additional areas in Zone IV outside Sky Ranch II. In proportion to total demand for supplemental water conveyance capacity for 1,886 du in the Southeast Hills area, the 415 du in Sky Ranch II represent a 22 percent *pro rata* share of the total demand.

IMPACT 4: Off-site trenching for construction of 9,600 lineal feet of 20-inch diameter water transmission pipe and 12,400 lineal feet of 16-inch diameter water transmission pipe will generate temporary diesel exhaust fumes, dust and noise along the construction corridor. Temporary traffic diversion potentially could result from construction detours or drivers changing routes to avoid the construction zone could cause temporary traffic intrusion, dust and in neighborhoods adjoining the construction corridor such as, for example, Ventura Drive north of Buchanan Road.

Mitigation Measures:

- City shall implement hours of construction to avoid nighttime construction through residential neighborhoods.
- City shall use trench cover plates to maintain open lanes of travel on Buchanan Road during the peak commute hours.
- City shall implement dust control and street cleaning measures to control fugitive dust.

Residual impact after mitigation: Significant and unavoidable. Mitigation measures are available to minimize these effects but are not expected to avoid these effects entirely.

Treated Water Storage –

General Plan Policy 3-S-12 requires adequate water service pressure for all residents. Water pressure in service Zones III and IV is assured by means of siting water storage reservoirs at sufficient elevation. The City's *2000 Water System Master Plan, Amendment No. 2*, Figure 2, calls for one (1) 1-million gallon Zone IV reservoir at elevation 620 feet msl and one (1) 2-million gallon Zone III reservoir at 381 feet msl, both on or in the vicinity of the project site. Provision of adequate water pressure without pumping will necessitate off-site construction of a 1-million gallon Zone IV water reservoir and service road on the Antioch Unified School District-owned parcel.

The existing Zone II water reservoir, or "tank," on Highlands Ranch is located at an elevation of approximately 230 feet above mean sea level (msl) that does not enable adequate pressure without constant operation of pressure-sustaining pumps. Sky Ranch II Lots 237-256 are proposed at elevation 224-231 feet above msl, which is too close to the elevation of the existing Zone II water tank for adequate pressure. To provide adequate pressure, the City recommends a water tank located near Lots 341-342 or 343, near the end of "A" Court in the proposed Sky Ranch II subdivision. The existing elevation there is approximately 380-390 feet above msl.

Both the City-recommended Zone II/III water reservoir site and its recommended Zone IV water reservoir and service road consist of annual grasslands. The Zone IV tank site and service road are located on a minor ridge that is upslope from intermittent or ephemeral streams.

At the City-recommended Zone II/III site, there are no stands of trees. Stands of trees are located near the Zone IV water reservoir site with the associated potential for nearby nesting by protected bird species. The off-site Zone IV water reservoir site is located in proposed critical habitat for the CRLF. Also, it is within the acknowledged range of the SJKF. Owing to the required security fencing, and pavement for the service road, the entire acreage of the Zone II/III and Zone IV water reservoir sites would be removed from existing grassland habitat usable by the SJKF.

IMPACT 5: Construction of the City-recommended Zone II/III water reservoir would impact approximately 1 acre of native annual grasslands, all within the acknowledged range of the SJKF, foraging habitat potentially used by protected species of bird, and proposed critical habitat of the CRLF.

Mitigation Measures:

- Developer shall have a qualified biologist perform appropriate pre-construction or nesting surveys before constructing the on-site Zone II/III water reservoir.
- Developer shall perform compensatory mitigation measures, as described in Chapter V.A, Biology & Wetlands.

Residual impact after mitigation: Less-than-significant.

IMPACT 6: Construction and operation of the City-recommended Zone IV water reservoir would impact approximately 2.5 acres of native annual grasslands, all within the acknowledged range of the SJKF, foraging habitat potentially used by protected species of bird, and proposed critical habitat of the CRLF.

Mitigation Measures:

- Developer shall have a qualified biologist perform appropriate pre-construction or nesting surveys before constructing the off-site Zone IV water reservoir and service road improvements.
- Developer shall perform compensatory mitigation measures, as described in Chapter V.A, Biology & Wetlands, for additional acreage estimated in the amount of 2.5 acres, or three times the acreage used for the reservoir and service road, whichever is less.

Residual impact after mitigation: Less-than-significant.

Wastewater Treatment Capacity –
The project site could be annexed into the DDSD's service boundary. The City of Pittsburg has an agreement with DDSD that provides for concurrent annexation of new urban lands into both the City and DDSD boundaries and authorizes the City to collect annexation fees on the District's behalf. Annexation fees are used by DDSD to fund master planned improvements.

Future treatment capacity is scheduled to come on-line to serve the combined demand of new developments in the cities of Pittsburg, Antioch, and unincorporated Bay Point. DDSD has capital improvements in place to increase the plant's capacity in steps. Phase 5 capacity improvements during 2005-2009 will increase treatment capacity to 19 mgd, which compares to the projected ABWF inflow of 18.3 mgd to the plant in year 2010. "Ultimate" wastewater treatment plant capacity is planned as approximately 24 mgd, following implementation of all phases of master planned improvements.

Sufficient capacity is programmed in the master plan update to serve ultimate planned development, including the proposed project. Potential construction and operation impacts of the proposed expansion of DDSD wastewater treatment plant are addressed by DDSD for its capital improvement program.

Raw Wastewater Conveyance –
Raw wastewater would be conveyed from the proposed project through underground sanitary sewer piping to the Highlands Ranch system. The Highlands Ranch system has been adequately sized to convey the combined flow from Sky Ranch II and Highlands Ranch at 50 to 60 percent of capacity. Upsizing of existing pipes in Highlands Ranch, therefore, would not be necessary.

Off-site, the combined wastewater flow from Highlands Ranch and the proposed project wastewater would be conveyed to the Pittsburg-Antioch interceptor. The current 2005 peak wet weather flow in the Pittsburg-Antioch interceptor is 1.1

mgd, which is the combined flow from the portions of Pittsburg and Antioch served by this conveyance facility. DDSD forecasts that the PWWF in the Pittsburg-Antioch interceptor in 2025, the ultimate buildout year, will increase to 2.05 mgd, which will approach the Pittsburg-Antioch interceptor's current capacity limit of 2.3 mgd.

The incremental flow from 70 du, the additional housing proposed in Highlands Ranch and Sky Ranch II since the time of DDSD's most recent wastewater projection update, would be approximately 0.04 mgd (PWWF). The interceptor's capacity has been projected by DDSD to approach 91 percent of capacity, accounting for the increment. Upsizing of the Pittsburg-Antioch interceptor, therefore, is not expected in the planning horizon.

A wastewater lift station is proposed by the applicant on the project site to pump wastewater generated by 43 houses, on Lots 162-204, to a manhole at the intersection of "B" and "D" Streets. City Engineering staff reviewed this component of the project and potential alternatives to accommodate gravity flow, including possible connection to the adjoining Black Diamond development.

IMPACT 7: Operation of a public-dedicated sanitary sewer lift station has the potential to cause impact from pump noise or emergency back-up power generator noise, and odor from upset conditions. The pump station would require periodic maintenance and could result in temporary noise associated with maintenance or replacement activities.

Mitigation Measure:

- Developer shall provide sanitary connections on Lots 162-204 to connect to a lateral that has gravity flow to the collection system in Black Diamond Ranch.

Residual impact after mitigation: Less-than-significant.

Storm Drainage Facilities –
Storm drainage impacts are addressed in Chapter V.C, Hydrology & Water Quality. On-site detention is proposed. Operation or construction of new or altered off-site storm drainage facilities are not expected to be necessary to accommodate storm flows contributed by the project.

IMPACT 8: Construction of the approximately 4-acre detention basin would have the same impact on wildlife species and their habitat as described for the proposed project in Chapter V.A, Biology & Wetlands. Excavation and filling in and around the basin, and proposed sound wall and lot fencing would remove grassland habitat and introduce human presence.

Mitigation Measures:

- Developer shall perform compensatory mitigation measures as described in Chapter V.A, Biology & Wetlands.
- Developer shall construct appropriate permanent barriers around all on-site park areas, to prevent movement of terrestrial wildlife across these areas.
- Developer shall have a qualified biologist perform appropriate pre-construction or nesting surveys before constructing on-site park or trail improvements.

Residual impact after mitigation: Unavoidable impact. Compensatory mitigation will be performed by the developer to compensate for depletion of on-site habitat.

Schools –
The proposed project would add 415 dwelling units, and future year 2020 student enrollment from the project would be approximately 211 pupils in grades K-12 (see Table 17). Total enrollment in the PUSD in 2020 is projected to be 11,610 pupils. The project's student yield represents 2 percent of projected district enrollment of 11,610 pupils and 10 percent of the projected additional enrollment 2,010 pupils.

TABLE 17
PROJECT STUDENT ENROLLMENT

Grade Level	Student Yield Ratio	Proposed Number of Housing Units	Enrolled Pupils from Project
K-5	0.279	415	116
6-8	0.129	415	53
9-12	0.100	415	42
ALL	0.0589	415	211

SOURCE: environmental service, 2005.

Measure E funds would be used to construct a junior high school and an elementary school. Assuming a 1,200-student junior high school and a 700-student elementary school, the addition of new schools would enable PUSD to house 10,747 pupils at design capacity, or 11,500 pupils above capacity. Existing and Measure E schools would be sufficient to house 93 to 99 percent of the forecast enrollment of 11,610 pupils.

IMPACT 9: Construction and operation of new junior high and elementary schools could result in adverse impacts, which are dependent on school siting. The locations of the new schools are unknown; hence,

the particular nature and extent of adverse effects are speculative; therefore, the potential impacts are not discussed further.

Solid Waste Disposal –
Potrero Hills Landfill has a total estimated permitted capacity of 21.5 million cubic yards, with 7.7 million cubic yards (36 percent) used and 13.8 million cubic yards (64 percent) remaining. Without expansion it has a projected remaining lifespan of 17 to 20 years (CIWMB, 2004).

Municipal solid waste generated by the project will contribute cumulatively to the region's need for landfill capacity. The projected population generated by the proposed project is 1,332 persons. Based on annual per capita disposal rate of 0.72 tons per person per year (from CoIWMP), the project would generate 959 tons of solid waste per year. This amount represents less than 2 percent of the waste generated and disposed citywide. Both Potrero Hills Landfill and Keller Canyon Landfill are presently well within their remaining life spans; therefore, this impact may be considered to be less-than-significant.

Fire Protection Service –
General Plan Policies 3-S-3 and 3-S-4 are service standards to ensure that CCCFPD can respond to an emergency call within 5 minutes and locate a fire station within 1.5 miles of all development. Relocation of Station 85 to Loveridge Road/East Leland Road, as approved by the County Board of Supervisors, would place the project site at approximately 1.8 miles from Station 85. The proposed project is among the past, approved and future land development projects that contribute to a need for relocation of Fire Station 85.

IMPACT 10: Off-site construction of Station 85 will generate temporary diesel exhaust fumes, dust and noise in the vicinity of the station construction site.

Mitigation Measures:

- City/County shall implement hours of construction to avoid nighttime construction.
- City/County shall implement dust control and street cleaning measures to control fugitive dust.

Residual impact after mitigation: Less-than-significant.

Police Services –
General Plan Policy 3-S-2 directs the City to strive to maintain 1.8 sworn police officers per 1,000 residents. Policy 3-S-1 establishes an emergency service response time of 3 to 5 minutes. The proposed project would become part of the

beat defined by Railroad Avenue on the west, the Pittsburg-Antioch city limit on the east, Yosemite Drive and Ventura Drive on the north, and the southern hills on the south; therefore, addition of a substation would not be necessary to maintain response times.

The City Police Department staffing level is 74 sworn officers. Based on the General Plan staffing standard, this staffing level is projected to increase by 64 additional sworn officers, to 138 sworn officers, during 2005-2020. The proposed project would add to the need for 2 to 3 of these additional sworn officers. Adverse impacts from operation or construction of new or physically altered police buildings are not expected as such buildings are not planned or projected to be necessary.

Streets –
General Plan Policy 3-P-2 directs the City to maintain adequate capacity on its streets before approving new urban development. Street capacity standards, as set forth in Chapter 3.2 of the General Plan and other regional transportation planning documents, are subjects of Chapter V.H, Traffic & Circulation, and Appendix G, Traffic Impact Study.

The proposed project includes construction of a segment of the future Buchanan Bypass. The traffic analysis shows that completion and opening of the bypass for continuous through-traffic connection will necessary to accommodate projected future year 2020 traffic volumes. An inadequate level of service (LOS) could result along Buchanan Road in the absence of the bypass connection or widening of Buchanan Road.

Without the bypass, future cumulative noise levels at sensitive receptors along the Buchanan Road corridor are forecast to increase by 0.6 to 1.2 dBA (see Chapter V.I, Community Noise). Although a widened Buchanan Road is not specifically evaluated, its noise consequences in the absence of the bypass can be reasoned to be similar or greater to the forecast noise levels, owing to increased pavement width, travel speeds, and volumes.

> **IMPACT 11:** Construction of the Buchanan Bypass or Buchanan Road widening each could generate temporary diesel exhaust fumes, dust and noise along the construction corridor.
>
> **Mitigation Measures:**
> - City shall implement hours of construction to avoid nighttime construction.
> - City shall implement dust control and street cleaning measures to control fugitive dust.

Residual impact after mitigation: Less-than-significant.

IMPACT 12: Operation of the Buchanan Bypass or a widened Buchanan Road each could generate long-term noise at sensitive receptors (see Chapter V.I, Community Noise).

Mitigation Measures:

- Developer construct or pay for the off-site improvements described in Chapter V.I, Community Noise.

Residual impact after mitigation: Less-than-significant except along Ventura Drive in Highlands Ranch. Without the bypass, outdoor noise in the front yards of houses along Ventura Drive, between Rangewood Drive and Glen Canyon Circle/Drive, cannot be practically mitigated.

Water supplies available to serve the project from existing entitlements and resources are sufficient, or insufficient, or new or expanded entitlements are needed.

Raw Water Supply

IMPACT 13: The project site would require annexation into the U.S. Bureau of Reclamation's CVP and a Will-Serve letter from CCWD. The annexation request cannot be processed by CCWD until CCWD has evidence of Section 7 or Section 10 consultation with USFWS and verification of wetlands delineation by USACE. Therefore, assurance of the water supply for this site is pending Section 7, or Section 10, consultation and annexation actions.

Mitigation Measure:

- Developer shall provide evidence of satisfactory completion of Section 7 or Section 10 consultation. No Building Permit shall be issued by the City pending CCWD's annexation of the site into the CVP.

Residual impact after mitigation: Less-than-significant.

Project could require or result in, or could not require or result in, the construction of new water treatment or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

Water Treatment Capacity

The City of Pittsburg previously determined that the 32 mgd water treatment plant capacity is theoretically sufficient to meet the maximum daily water use expected

under General Plan buildout; however, the General Plan also acknowledges that 32 mgd is a theoretical hydraulic capacity, and the water treatment plant is actually restricted to 24 mgd by current permit. The current maximum daily water use in the peak season currently is close to 24 mgd. The City's 2000 *Urban Water Management Plan* is near the end of its shelf-life as a planning document, and the City will be preparing a 2005 *Urban Water Management Plan* to incorporate current growth projections, household size, and water conservation measures including reuse of treated wastewater from the DDSD's RWF.

The project would add 415 dwelling units and is estimated to add an ultimate water demand of 204-257 AFY (conservation, low-moderate) to 260-325 AFY (pre-drought, high). This is equivalent to an incremental increase of 15-20 AFY each year during 2005-2020. These estimates assume 155 gpcd (conservation, low-moderate), 195 gpcd (pre-drought, high), and 2.85 to 3.59 persons per household connection. In comparison, the adopted General Plan service level is 180 gpcd. ABAG's projection of future household size, 3.21 persons per household, represents the midpoint between 2.85 and 3.59 persons per household connection.

Future reliability of the treated water supply in Pittsburg depends, in part, on water conservation measures and reuse of recycled water for municipal and industrial applications. Demand management measures are important in reducing demand in the event of a supply emergency or periodic dry years.

IMPACT 14: The proposed project could contribute incrementally to a future need for new or expanded water treatment facilities, the construction of which potentially could cause significant environmental effects.

Mitigation Measures: Section 375 (b) of the California Water Code authorizes the City to require, in connection with its water conservation program, the installation of water-saving devices that are designed to reduce water consumption.

- Developer shall provide hot-water-pipe insulation and installation of a hot-water-recirculation device or other device or design to provide hot water to tap within 15 seconds.
- Developer shall install 1.6 gallons-per-flush, ultra-low-flow toilets. This cuts the amount of water that goes down the drain with each flush by 50 percent or more.
- Developer shall install water-saving showerheads using 2.5 gallons per minute or less.
- Developer shall prepare a design supplement, herein called a "Natural Grassland Element," to illustrate 1) where landscaped areas will be

allowed and 2) where natural grassland areas are to be maintained. Incorporate a Natural Grassland Element into the Codes, Covenants & Restrictions (CC&Rs) that prohibit introduced species on designated graded slopes and other designated as natural grassland areas.

- Developer shall prepare CC&Rs to address landscape guidelines that feature water-conserving concepts and a list of drought-tolerant, low water use plants (see Appendix F).

Residual impact after mitigation: Less-than-significant. Potential savings realized from the installation of hot-water-recirculation devices alone is estimated to be 13,000 gallons of water per year, per household (City of Oceanside, 2005). Over a one-year period, for 415 new residential connections, this would yield savings of 5 million gallons to 6 million gallons, which is equivalent to 5 to 6 percent of project water use.

Wastewater Treatment Capacity

The plant's current treatment capacity is 16.5 mgd. In 2003, 2004 and 2005, the plant treated an average flow of approximately 14 to 15 mgd, average dry weather flow (ABWF), which is the inflow measured at the plant's headworks from the entire service area. Future treatment capacity is scheduled to come on-line to serve the combined demand of new developments in the cities of Pittsburg, Antioch, and unincorporated Bay Point. DDSD has capital improvements in place to increase the plant's capacity in steps. Phase 5 capacity improvements during 2005-2009 will increase treatment capacity to 19 mgd, which compares to the projected ABWF inflow of 18.3 mgd to the plant in year 2010. "Ultimate" wastewater treatment plant capacity is planned as approximately 24 mgd, following implementation of all phases of master planned improvements. Potential construction and operation impacts of the proposed expansion of DDSD wastewater treatment plant are addressed by DDSD for its capital improvement program.

Project could, or could not, cause or contribute to violations of wastewater treatment requirements of the applicable Regional Water Quality Control Board.

DDSD has an excellent historical record of meeting discharge standards of its NPDES Permit No. CA0038547. Treated, disinfected and de-chlorinated effluent from the treatment plant is discharged into New York Slough. The effluent is discharged through a deep water outfall equipped with a diffuser, 400 feet from shore at approximately 46 feet below msl (RWQCB, May 2004). There is no information to suggest that new residential development, including the proposed project, could cause or contribute to violations of the wastewater treatment requirements as set forth in the discharge standards of the NPDES permit.

Project could, or could not, result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

DDSD has received the Notice of Preparation and has expressed a concern in regard to the conveyance capacity of the Pittsburg-Antioch interceptor; however, DDSD has expressed no similar concern in regard to wastewater treatment capacity as programmed in its *Five-Year Capital Improvement Program 2005/5-2008/9*. The programmed capacity is sufficient to treat existing and expected urban development through the planning horizon, to the year 2025. Incremental wastewater flow from 70 dwelling units not previously included in DDSD's forecasts are approximately 0.02 mgd (ABWF) and 0.04 mgd (PWWF). These incremental flows are not substantial in relation to the "ultimate," year 2025 projections of inflow to the plant, which are 23.6 mgd (ABWF) and 44.4 mgd (PWWF).

Project could require or result in, or could not require or result in, the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

Storm drainage impacts are addressed in Chapter V.C, Hydrology & Water Quality. On-site detention is proposed. See IMPACT 8, for a discussion of environmental effects caused by the proposed on-site detention basin. Operation or construction of new or altered off-site storm drainage facilities are not expected to be necessary to accommodate storm flows contributed by the project.

Project is served, or is not served, by a landfill having sufficient permitted capacity to accommodate the project's solid waste disposal needs.

Potrero Hills Landfill has a total estimated permitted capacity of 21.5 million cubic yards, with 7.7 million cubic yards (36 percent) used and 13.8 million cubic yards (64 percent) remaining. Without expansion it has a projected remaining lifespan of 17 to 20 years (CIWMB, 2004). The proposed project, therefore, is served by a landfill having sufficient permitted capacity.

Project can, or cannot, comply with federal, state, and local statutes and regulations related to solid waste.

There is no information to suggest that new residential development, or the proposed project in particular, could not comply with regulations related to solid waste.

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H. TRAFFIC & CIRCULATION

EXISTING SETTING

The location of the project site in relation to the study area intersections and roadways is shown in Figure 21.

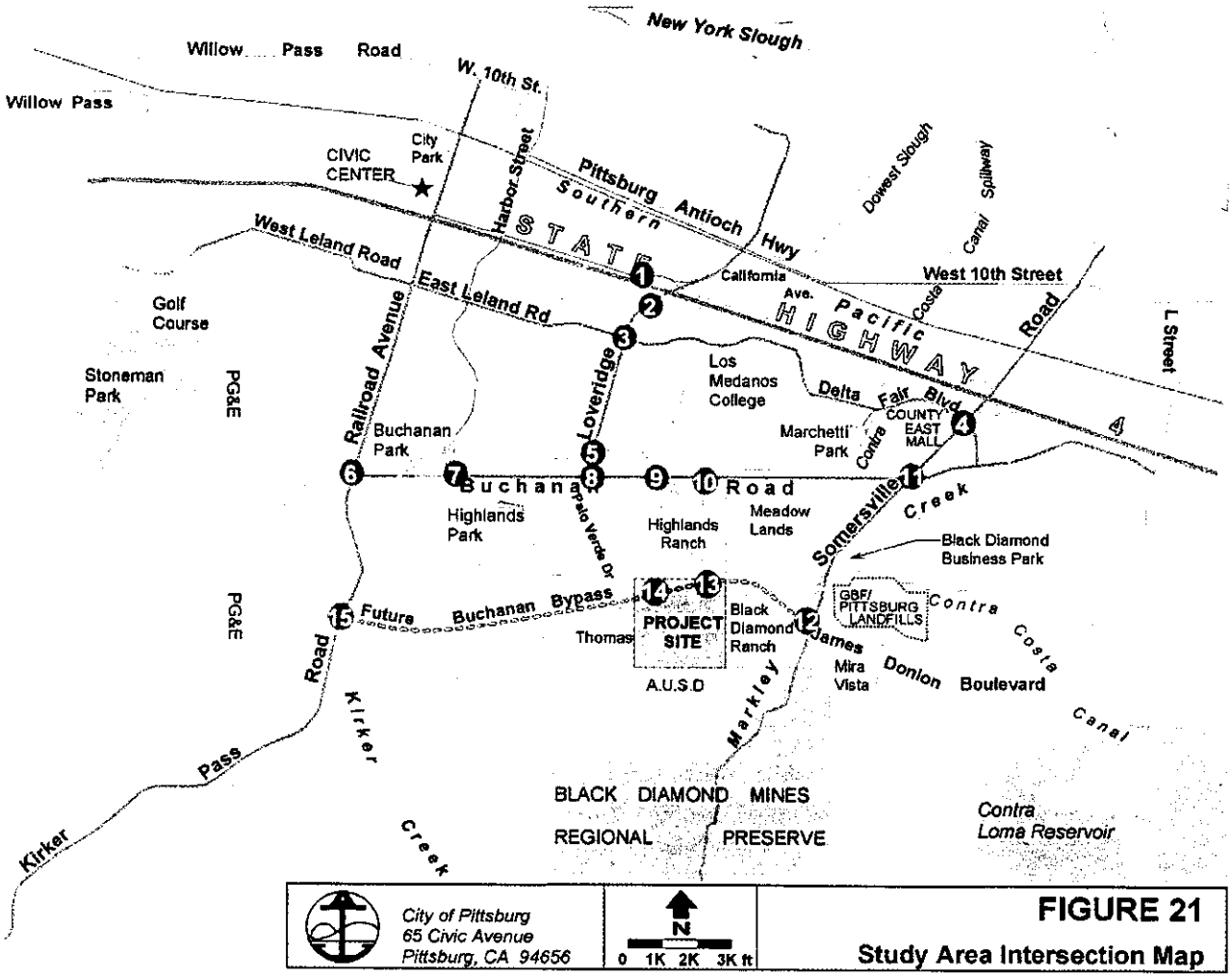
State Highway 4 (SR 4)
SR 4 between the Railroad Avenue and Bailey Road interchanges is being widened to eight lanes, four in each direction. In the westbound direction, following the construction zone west of Railroad Avenue, SR 4 was widened from two to three lanes and then to four lanes before the Bailey Road interchange. In the eastbound direction, SR 4 merges from four lanes to three lanes and then to two lanes east of the Bailey Road interchange, and traverses through the construction zone west of Railroad Avenue.

Widening of the segment of SR 4 between Railroad Avenue and Loveridge Road currently is under construction. Widening of this segment is scheduled to be completed in Spring 2006.

Caltrans and the Federal Highway Administration, in cooperation with the Contra Costa Transportation Authority (CCTA), propose to widen State Route 4 (SR 4), its interchanges and affected local roadways, from approximately 0.8 mile west of Loveridge Road in Pittsburg to approximately 0.7 mile east of Hillcrest Avenue in Antioch. The widening is intended to ease traffic congestion, accommodate future travel demand, and improve traffic operations along SR 4. The SR widening project (Loveridge Road to Highway 160) would include the following elements:

- Widen SR 4 from the existing four lanes to eight lanes consisting of one high occupancy vehicle (HOV) lane and three mixed-flow lanes in each direction.
- Preserve sufficient width in the SR 4 median through the Loveridge interchange to accommodate possible future public transit (e.g., BART) improvements.
- Reconstruct SR 4 interchanges at Loveridge Road, Somersville Road, Contra Loma Boulevard/L Street, Lone Tree Way/A Street, Hillcrest Avenue to accommodate the freeway widening.

SR 4 carries approximately 7,700 vph to 8,800 vph in the hours of peak traffic volumes, depending on the location on SR 4 in the study area. SR 4 carries approximately 109,000 to 122,000 vpd, the annual average daily volume (AADT) in the study area.



Buchanan Road is a 3-lane east-west "Route of Regional Significance" with one travel lane in each direction and center turn lanes. West of the intersection with Somersville Road, Buchanan Road opens to four lanes. In the vicinity of Ventura Drive, Buchanan Road carries an average of 1,600 vehicles per peak hour, and has an AADT of approximately 20,400 vehicles per day (vpd).

Railroad Avenue-Kirker Pass Road is a north-south "Route of Regional Significance" with two travel lanes in each direction. Railroad Avenue begins north of Buchanan Road and changes name to Kirker Pass Road to the south of Buchanan Road. Railroad Avenue-Kirker Pass Road carries an average of 1,800 vehicles per peak hour, and has an AADT of approximately 19,600 vpd.

Loveridge Road is a north-south "Basic Route" with two travel lanes in each direction. Loveridge Road carries an average of 915 vehicles per peak hour, and has an AADT of approximately 9,700 vpd in the vicinity of Buchanan Road.

Somersville Road is a north-south "Route of Regional Significance" with two travel lanes in each direction. Somersville Road carries an average of 3,000 vehicles per peak hour, and has an AADT of approximately 32,300 vpd in the vicinity of Buchanan Road.

Ventura Drive provides access to the existing residential neighborhood north of the proposed Sky Ranch II project. There are about 15 to 20 homes which front on Ventura Drive with driveway access. There are some sections of the street which have side facing residential units. Based on criteria contained in the Pittsburg General Plan, Ventura Drive classification would be a blend of a collector street and a local street since it provides circulation within the neighborhood (collector) and provides access to abutting properties (local). Table 7-1 of the General Plan suggests that collector streets carry a maximum of 15,000 vpd and local streets carry a maximum of 5,000 vpd. South of the intersection with Buchanan Road, Ventura Drive carries approximately 300 vehicles during the p.m. peak hour and has an AADT of approximately 3,600 vpd.

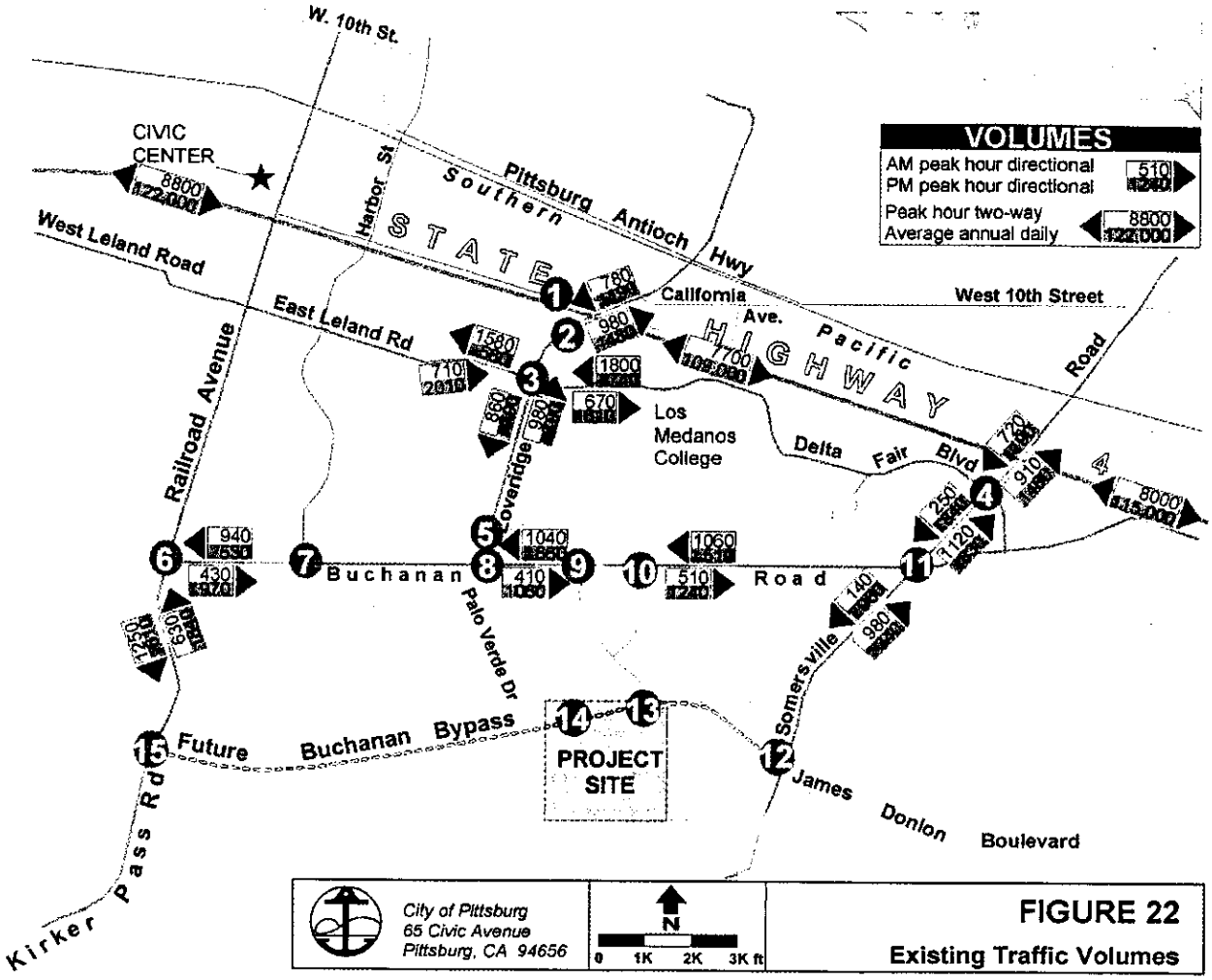
California Avenue extends in an east-west direction on the north side of SR 4, connecting Railroad Avenue to the west with Loveridge Road to the east. It provides one travel lane in each direction and has an AADT volume of approximately 12,000 vpd.

East Leland Road/Delta Fair Boulevard. East Leland Road extends in an east-west direction south of SR 4 through the City of Pittsburg, changing to Delta Fair Boulevard in the City of Antioch. It connects Bailey Road on the west with Somersville Road and Buchanan Road on the east. East Leland Road provides two travel lanes in each direction and has an AADT volume of approximately 25,000 vpd east of Railroad Avenue. It serves as an alternate parallel route to SR 4 when SR 4 is congested.

DIRECTIONAL TRAFFIC VOLUMES

Figure 22 illustrates morning and evening directional traffic volumes on local roads and two-way traffic volumes on SR 4. On SR 4 and several surface streets in the study area, the direction of predominant travel is pronounced in peak commute periods. During the morning peak hour, about 5,500 vehicles can be served on SR 4 in the westbound direction. During the evening peak hour, over 6,000 vehicles can be served in the eastbound direction. Peak-hour demand exceeding capacity causes congestion, generating queues of 'stop-and-go' vehicles and lowering freeway throughput.

Overflow demand, which includes all vehicles that would travel in the peak hour but cannot fit given capacity constraints, "spreads" into the adjacent hours. Overflow demand for SR 4 creates a congested westbound morning peak period of three to four hours and a congested eastbound evening peak period of three hours.



In the morning and evening commute hours, the predominant direction of travel on Buchanan Road, Kirker Pass Road and Railroad Avenue, East Leland and Delta Fair Boulevard is pronounced. On Buchanan Road over 1,000 vph travel westbound in the AM and eastbound in the PM. In the counterflow direction, that is, eastbound in the AM and westbound in the PM, the hourly volume is one-half the peak directional volume. A similar pattern prevails on Kirker Pass Road and Railroad Avenue, which has a direction of peak traffic flow northbound in the evening commute hours and southbound in the morning commute hours.

East Leland Road and Delta Fair Boulevard serves as a parallel route alternative to SR 4 when SR 4 is congested. As illustrated in Figure 22, the predominant direction of travel on East Leland Road and Delta Fair Boulevard is the same as on SR 4. In the AM, he hourly traffic volume westbound on East Leland Road and Delta Fair Boulevard is 1,580 to 1,800 vph. In the PM, the hourly traffic volume eastbound on

East Leland Road and Delta Fair Boulevard is 1,610 vph to 2,010 vph. In the counterflow direction, hourly volumes are less than one-half the volumes in the peak direction.

DESCRIPTIONS OF LEVELS OF SERVICE

Level of Service (LOS) refers to the operating characteristics of highways, ramps, roads, or intersections, typically during conditions of peak traffic volumes, such as the morning or afternoon commute hour. The latter conditions are termed AM Peak and PM Peak. Figure 23 illustrates the various conditions characteristic of each LOS, A through F.

Free flow or forced flow, vehicle stopped delay, and volume-to-capacity are all terms or measures used to characterize LOS. LOS is used to rank traffic operations on various kinds of facilities based on traffic volumes and road capacities using a series of letter designations ranging from A to F. Generally, Level of Service A represents free flow conditions and Level of Service F represents forced flow or breakdown conditions (see Figure 23).

In accordance with the Contra Costa Transportation Authority's (CCTA) *Technical Procedures*, the signalized intersections in the study area were evaluated using the CCTA Methodology, which is similar to the Circular 212 Planning Method except that the capacity for through movements has been increased from 1,500 vehicles per hour to 1,800 vehicles per hour. LOS is calculated by critical movement with lower capacities assumed for turning movements. The LOS service thresholds are stated in Table 18.

Existing Operations

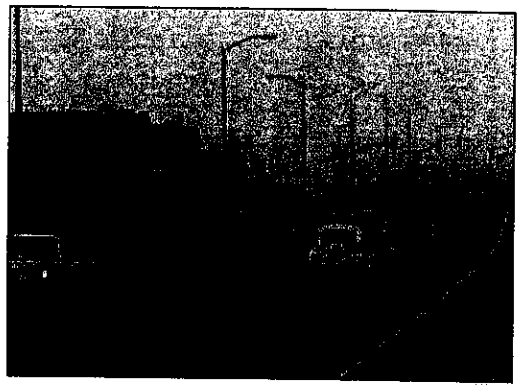
Highway 4 -- Currently, in the morning, westbound, east of Loveridge Road, SR 4 operates at LOS F. In the evening, eastbound, east of Loveridge Road, SR 4 operates at LOS E or F.

During the morning peak hour, about 5,500 vph can be served in the westbound direction. During the evening peak hour, over 6,000 vph can be served in the eastbound direction.

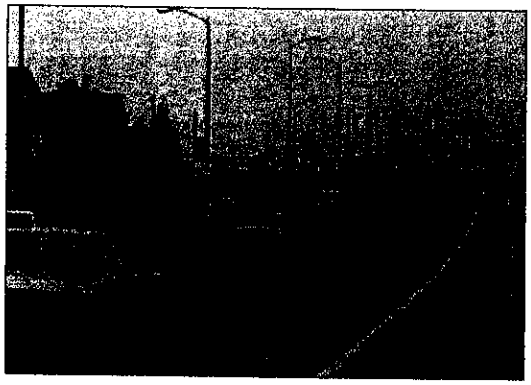
Peak-hour demand exceeding capacity causes congestion, with queues of "stop-and-go" vehicles and reduced freeway throughput. Overflow demand, which includes all vehicles that would travel in the peak hour but cannot fit given capacity constraints, "spreads" into the adjacent hours. Overflow demand for SR 4 creates a congested westbound morning peak period of three to four hours duration and a congested eastbound evening peak period of three hours duration.

FIGURE 23
LEVELS OF SERVICE PORTRAYED

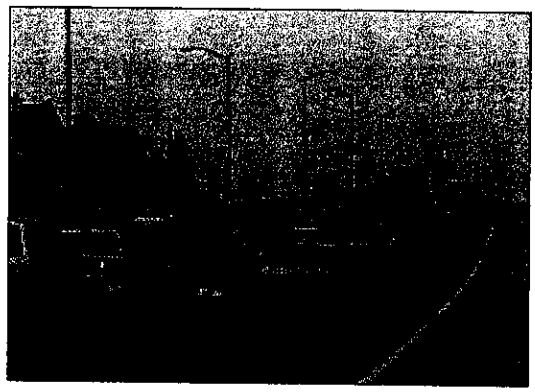
Level of Service A *Insignificant delays.*



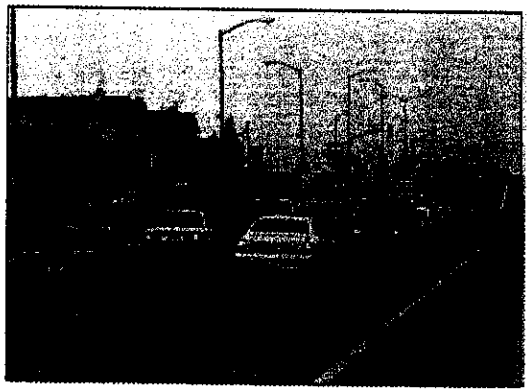
Level of Service D *Queues develop but dissipate rapidly.*



Level of Service B *Minimal delays.*



Level of Service E *Drivers wait through several signal cycles. Long queues.*



Level of Service C *Acceptable delays.*

Level of Service F *Represents jammed conditions.*

TABLE 18
Descriptions of Levels of Service for Intersections

LOS	Description of Vehicle Delay and Flow	Volume-to-Capacity (V/C ratio)
A	Delay of 0 to 10 seconds. Most vehicles arrive during the green phase, so do not stop at all.	0.60
B	Delay of 10 to 20 seconds. More vehicles stop than with LOS A, but many drivers still do not have to stop.	0.61-0.70
C	Delay of 20 to 35 seconds. The number of vehicles stopping is significant, although many still pass through without stopping.	0.71-0.80
D	Delay of 35 to 55 seconds. The influence of congestion is noticeable, and most vehicles have to stop.	0.81-0.90
E	Delay of 55 to 80 seconds. Most, if not all, vehicles must stop and drivers consider the delay excessive.	0.91-1.00
F	Delay of more than 80 seconds. Vehicles may wait through more than one cycle to clear the intersection.	>1.01

SOURCES
Technical Procedures, Contra Costa Transportation Authority
Highway Capacity Manual, Transportation Research Board, 2000.

Intersections --
Currently, the 11 existing study intersections are all operating acceptably at LOS D or better during both peak periods evaluated. A summary of the level of service calculations is contained in Table 19.

TABLE 19
Existing Intersection Levels of Service

INTERSECTION	EXISTING LEVEL OF SERVICE	
	AM	PM
1. California Ave/SR 4 WB Ramps	0.66/B	0.86/D
2. Loveridge Rd/SR 4 EB Ramps	0.50/A	0.74/C
3. Loveridge Rd/Leland Rd	0.70/B	0.71/C
4. Delta Fair Blvd/Somersville Rd	0.46/A	0.67/B
5. Loveridge Rd/Ventura Dr	0.43/A	0.37/A
6. Railroad Ave/Buchanan Rd	0.53/A	0.62/B
7. Harbor St/Buchanan Rd	0.67/B	0.64/B
8. Loveridge Rd/Buchanan Rd	0.70/B	0.62/B
9. Buchanan Rd/Ventura Dr	0.69/B	0.77/C
10. Buchanan Rd/Meadows Ave	0.67/B	0.77/C
11. Somersville Rd/Buchanan Rd	0.87/D	0.73/C
12. Somersville Rd/Buchanan Road Bypass-James Donlon Boulevard	N/A	N/A
13. Ventura Dr-"B" St/Buchanan Bypass	N/A	N/A
14. "M" St-"D" St/Buchanan Bypass	N/A	N/A
15. Kirker Pass/Buchanan Bypass	N/A	N/A

NOTES: CCTA
SOURCE: W-Trans, 2005

Traffic LOS Standards
The City of Pittsburg *General Plan* identifies two primary route categories: Routes of Regional Significance and Basic Routes. Routes of Regional Significance located in the study area include State Route 4, Leland Road, Buchanan Road, Somersville Road, Railroad Avenue and Kirker Pass Road. All other roads within the study area are classified as Basic Routes.

As part of the City of Pittsburg's *General Plan,* the Level of Service (LOS) standards for intersections formed by one or more route of regional significance are as follows:

- LOS D or better at signalized intersections along non-freeway State Route 4.
- LOS E or better at unsignalized intersections along non-freeway State Route 4.
- LOS E or better on non-freeway State Route 4 from Balfour Road to the San Joaquin County line.
- LOS E or better (95% capacity) on Kirker Pass Road.
- LOS D or better (85% capacity) on intersections along major arterials, except for intersections along Bailey Road.
- LOS E or better at intersections along Bailey Road

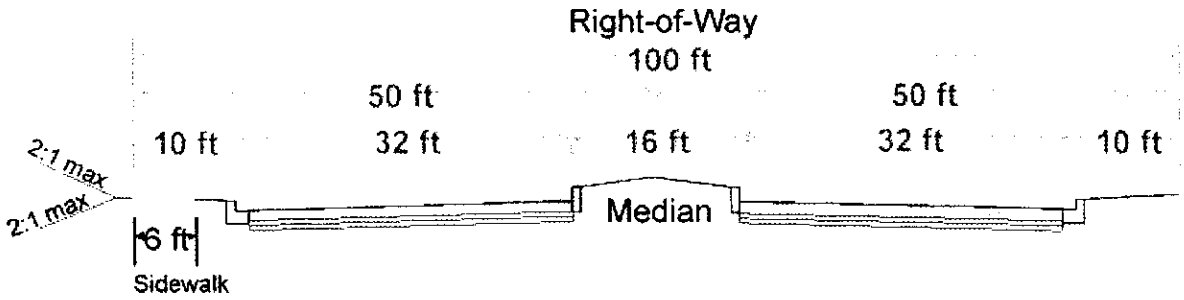
Planned Buchanan Road Bypass

As shown on Figures 21 and 22, the proposed Buchanan Road Bypass is proposed to extend from Railroad Avenue-Kirker Pass Road, or from another north-south connection east of Railroad Avenue, to the intersection of Somersville Road/James Donlon Boulevard. As shown in the figures the future Buchanan Bypass would be oriented generally east-west as is Buchanan Road.

The *2004 Update to the Contra Costa Countywide Comprehensive Transportation Plan*, May 19, 2004, indicates that implementation of the Buchanan Road Bypass is an adopted action for East County. The City of Pittsburg's General Plan indicates that funding for the Buchanan Road Bypass will be funded by both the Pittsburg Traffic Mitigation Fee and the Regional Traffic Mitigation Fee (TRANSPLAN).

Historically, the proposed Buchanan Bypass has been shown as a 2-lane artery (1995 CCTA Countywide Comprehensive Transportation Plan & East County Action Plan, Regional Traffic Mitigation Fee) or as a 4-lane artery (1997 Pittsburg Traffic Mitigation Fee Study. The Buchanan Bypass appears in the City of Pittsburg's *the Five-Year Capital Improvement Plan 2003/4-2008/9*, Projects ST-4 (Preliminary Engineering) and ST-36 (Design & Construction). A combination of Regional Transportation Development Impact Mitigation (RTDIM) fees and Local Traffic Mitigation Fees (TMF) would pay for ST-4, and a combination of RTDIM fees, local TMF, Regional TMF, developer contributions, Measure J funds, and transportation grant funds would pay for ST-36. So far, $727,842 has been committed for either ST-4.

The current proposal includes constructing pavement, curb, gutters, sidewalks, median and landscaped area, and striping for two travel lanes, one in each direction, all within a 100-foot wide right-of-way. Temporary barricades would be constructed at the project's eastern and western limits to restrict use of the bypass segment to local project traffic. At its western end, access would be provided to enable the left-turn out from "M" Street, which provides access to the area north of the Buchanan Bypass. Figure 24 shows the cross-section.



City of Pittsburg
65 Civic Avenue
Pittsburg, CA 94656

FIGURE 24

Buchanan Bypass Cross-Section

TRAFFIC IMPACT ASSESSMENT

PROJECT EVALUATED

The proposed project includes 415 single-family lots and construction of the segment of the Buchanan Bypass within the limits of the Proposed Site.

PROJECT TRIP GENERATION

The proposed project would generate traffic from 415 single-family residences during the lifetime of the project (Table 20).

TABLE 20
Project Trip Generation

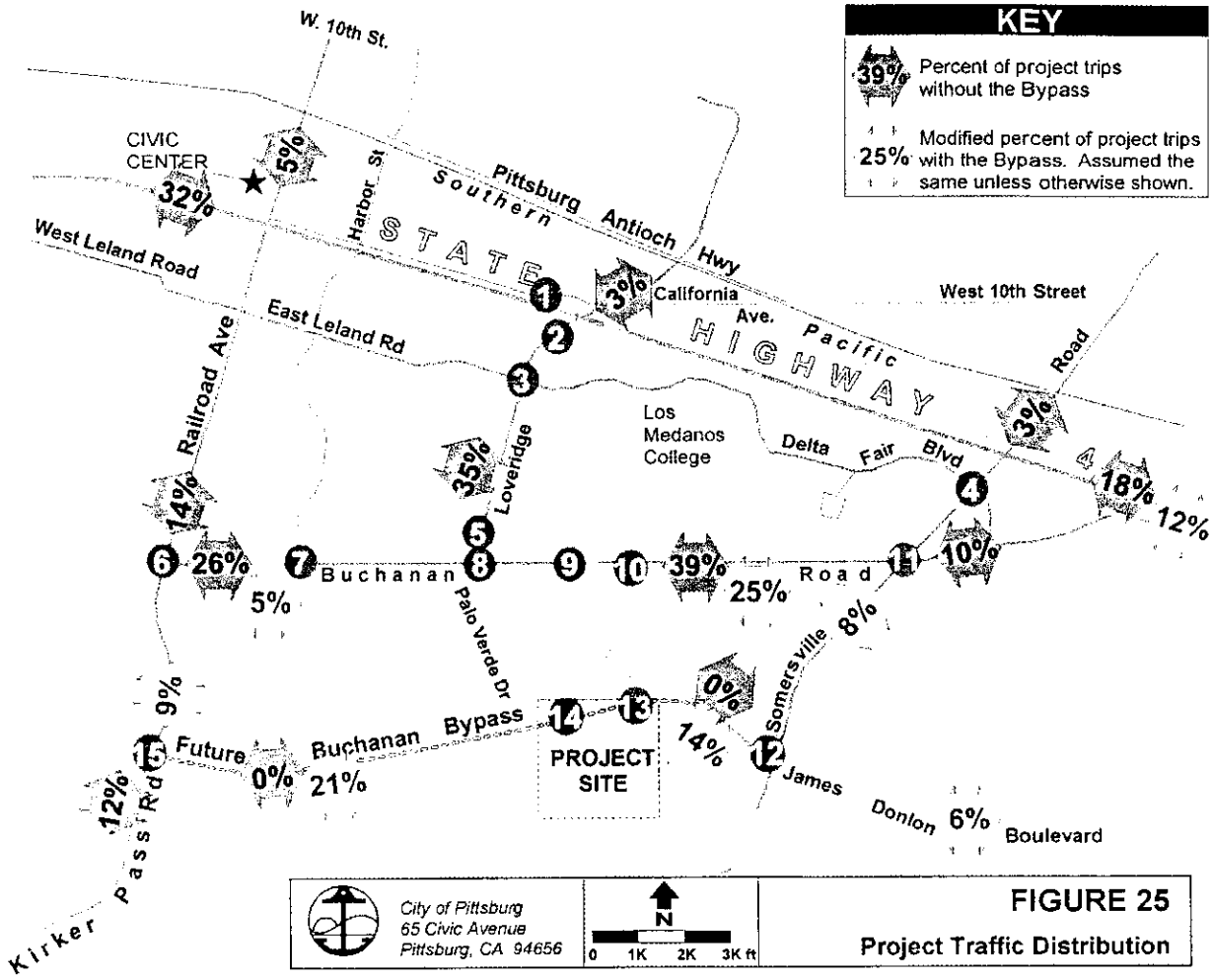
Number Dwelling Units (du)	Daily		AM Peak Hour				PM Peak Hour			
	Trip Rate /du	Total Trips (vpd)	Trip Rate /du	AM Trips (vph)	Trips In	Trips Out	Trip Rate /du	PM Trips (vph)	Trips In	Trips Out
415	9.57	3,972	0.75	311	78	233	1.01	419	264	155

NOTES:
All trips are one-way, as opposed to round trips, and may either begin or end at the project site. "Trips in" means trips inbound into the project site. "Trips out" means outbound trips leaving the project site.

PROJECT TRIP DISTRIBUTION

Figure 25 illustrates the assumed pattern of project-related travel, otherwise known as the trip distribution. The distribution of project-generated vehicle trips traveling to and from the proposed site was based on current turning movement counts at the study area intersections. Approximately 60 percent of the project-related traffic, the portion having origins or destinations from/to the east, was assumed to use Meadows Avenue rather than Ventura Drive to access Buchanan Road. For the cumulative 2025 scenario, two distributions were assumed, one without the Buchanan Bypass and one with the Buchanan Bypass. With the "Buchanan Bypass" means with the opening of the bypass for through-connection between Somersville Road and Kirker Pass Road.

After opening of the bypass, there would be some modification of preferred routes. A shift from Buchanan Road to/from the east (39 percent) decreasing to 25 percent with the remaining 14 percent shifting to the bypass, Somersville Road (8 percent), and James Donlon Boulevard (6 percent) is assumed. One part of this change to the distribution is a shift in traffic from SR 4 to/from the east (18 percent) decreasing to 12 percent with the remaining 6 percent shifting to the alternate route that consists of the bypass and James Donlon Boulevard. Another change is a shift in traffic from Buchanan Road to/from the west (26 percent) decreasing to 5 percent with the remaining 21 percent shifting to the bypass and Railroad Avenue.



STANDARDS OF SIGNIFICANCE

The potential impact of the proposed project was evaluated in terms of the California Environmental Quality Act significance criteria listed below:

a) Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (*i.e.*, result in a substantial increase in the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections);

b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways;

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;

d) Substantially increase hazards due to a design feature (*e.g.*, sharp curves or dangerous intersections) or incompatible uses (*e.g.*, farm equipment);

e) Result in inadequate emergency access;

f) Result in inadequate parking capacity; and,

g) Conflict with adopted policies, plans, or programs supporting alternative transportation (*e.g.*, bus turnouts, bicycle racks).

EVALUATIONS

Approved Projects

This two-fold evaluation assesses consequences to traffic operations of traffic added by approved projects in combination with existing traffic. Table 21 summarizes these consequences in terms of LOS. The evaluation is two-fold, meaning that it is performed with approved project traffic added, but without the proposed project's traffic, and then is repeated with the addition of project-related traffic. For this evaluation, it was assumed that the Buchanan Road Bypass would not be open for through-traffic connection. This scenario also assumes that State Route 4 widening through the City of Pittsburg is not completed. The following list shows the approved projects that were incorporated into the traffic analysis. This list represents projects, or the portions thereof, which were not generating traffic at the time of the traffic counts in mid-2004.

- Los Medanos College, 4130 students/120 staff
- Highlands Ranch, 600 Residential Units
- Stanford Place, 100 Residential Units
- Buchanan Road Starbucks, 2,900 square feet of coffee restaurant
- Delta Gateway, 9,100 square feet of commercial/retail space
- Gomez Bros. Auto Center, 7,600 square feet of auto repair center
- Pittsburg Medical Center, 8,362 square feet of medical office
- Security Public Storage, 78,200 square feet of self-storage space
- Heritage Pointe, 125 Residential Units
- Lawlor Estates, 50 Residential Units
- Oak Hills South, 120 Residential Units
- San Marco, 1200 Residential Units
- Willow Heights, 120 Residential Units
- Presidio Village, 104 Senior Citizen Residential Units
- San Marco Development, 1526 Residential Units
- Empire Business Park I, 104,433 square feet of industrial park space
- Faith Worship Center, 17,500 square feet of church space
- Fire Station #84 with Administration Center, 10,942 square feet
- First Baptist Church, 26,400 square feet of church space
- Loveridge Commercial Center, 236,000 square feet of commercial space
- Mira Vista, 264 single-family residences
- Black Diamond Ranch, 289 single-family residences

Details of the Approved Projects trip generation, distribution and assignment are included in the technical appendix. All level of service calculations are also included in the technical appendix.

With the addition of approved project traffic and the proposed project-related trips to existing traffic volumes, the following study intersections will operate with deficient levels of service during one or both peak periods evaluated. The volume-to-capacity increase caused by the project is shown in (parentheses).

1. California Avenue/SR 4 WB Ramps (0.01)
2. Loveridge Road/SR 4 EB Ramps (0.04)
8. Loveridge Road/Buchanan Road (0.06)
9. Buchanan Road/Ventura Drive (0.01)
10. Buchanan Road/Meadows Avenue (0.09)
11. Somersville Road/Buchanan Road (am=0.06, pm=0.08)

Cumulative Year 2025 Traffic Conditions

This four-fold evaluation assesses consequences to traffic operations of cumulative land development. It is based on year 2025 traffic volumes predicted by the County's Year 2025 regional traffic model. Traffic projections from the County's traffic model were adjusted to account for differences between existing traffic counts and existing base traffic projected by the model. Also, year 2025 projections assume that the State Route 4 freeway widening through Pittsburg is complete, therefore, traffic conditions on parallel routes, such as Buchanan Road, for example, are slightly better under year 2025 conditions (without the Buchanan Bypass) compared to Existing plus Approved conditions (without the Buchanan Bypass). Table 22 summarizes these consequences in terms of LOS. The evaluation is four-fold meaning that it is performed using the year 2025 forecast volumes with and without the Buchanan Bypass, and then is repeated with the addition of project-related traffic, again with and without the Buchanan Bypass. Level of service calculations are included in the technical appendix.

Under projected year 2025 baseline conditions, without the Buchanan Bypass, and also without the Project, the following study intersections would operate with deficient levels of service during one or both peak periods evaluated.

1. California Avenue/SR 4 WB Ramps
2. Loveridge Road/SR 4 EB Ramps
3. Loveridge Road /Leland Road
6. Railroad Avenue/Buchanan Road
7. Harbor Street/Buchanan Road
8. Loveridge Road/Buchanan Road
11. Somersville Road/Buchanan Road

TABLE 21
Predicted Near-Term Traffic Impacts

Intersection	Existing Conditions CCTA		Existing Plus Approved Projects CCTA		Existing Plus Approved Plus Project CCTA	
	AM	PM	AM	PM	AM	PM
1. California Avenue/SR 4 WB Ramps	0.66/B	0.86/D	0.66/B	0.94/E	0.67/B	0.95/E
2. Loveridge Road/SR 4 EB Ramps	0.50/A	0.74/C	0.68/B	0.91/E	0.70/B	0.95/E
3. Loveridge Road/Leland Road	0.70/B	0.71/C	0.84/D	0.82/D	0.86/D	0.84/D
4. Delta Fair Blvd/Somersville Road	0.46/A	0.67/B	0.53/A	0.72/C	0.53/A	0.73/C
5. Loveridge Road/Ventura Drive	0.43/A	0.37/A	0.47/A	0.42/A	0.48/A	0.44/A
6. Railroad Avenue/Buchanan Road	0.53/A	0.62/B	0.61/B	0.76/C	0.62/B	0.80/C
7. Harbor Street/Buchanan Road	0.67/B	0.64/B	0.81/D	0.81/D	0.86/D	0.87/D
8. Loveridge Road/Buchanan Road	0.70/B	0.62/B	0.87/D	0.71/C	0.93/E	0.80/C
9. Buchanan Road/Ventura Drive	0.69/B	0.77/C	0.82/D	0.95/E	0.87/D	0.96/E
10. Buchanan Road/Meadows Avenue	0.67/B	0.77/C	0.79/C	0.92/E	0.84/D	1.01/F
11. Somersville Road/Buchanan Road	0.87/D	0.73/C	1.01/F	0.86/D	1.07/F	0.94/E
12. Somersville Rd/Buchanan Bypass	N/A	N/A	N/A	N/A	N/A	N/A
13. Ventura Dr-"B" St/Buchanan Bypass	N/A	N/A	N/A	N/A	N/A	N/A
14. "M" St-"D" Street/Buchanan Bypass	N/A	N/A	N/A	N/A	N/A	N/A
15. Kirker Pass Road/Buchanan Bypass	N/A	N/A	N/A	N/A	N/A	N/A

NOTES:
LOS means Level of Service
Shaded areas show deficient Level of Service relative to adopted LOS standards.

SOURCE: Whitlock & Weinberger Transportation, Inc., September 2005

TABLE 22
Predicted Year 2025 Cumulative Traffic Impacts

Intersection	NO PROJECT				PROJECT			
	Without Bypass CCTA		With Bypass CCTA		Without Bypass CCTA		With Bypass CCTA	
	AM	PM	AM	PM	AM	PM	AM	PM
1. California/SR4 WB Ramp	1.07/F	0.95/E	1.07/F	0.94/E	1.07/F	0.94/E*	1.07/F	0.93/E*
2. Loveridge/SR4 EB Ramp	0.66/B	0.93/E	0.61/B	0.88/D	0.68/B	0.96/E	0.64/B	0.93/E
3. Loveridge Rd/Leland Rd	1.02/F	0.95/E	0.90/D	0.86/D	1.02/F	0.96/E	0.91/E	0.87/D
4. Delta Fair Bld/Somersville	0.80/C	0.77/C	0.81/D	0.77/C	0.81/D	0.77/C	0.82/D	0.78/C
5. Loveridge Rd/Ventura Dr	0.59/A	0.70/B	0.47/A	0.63/B	0.60/A	0.71/C	0.48/A	0.64/B
6. Railroad Av/Buchanan Rd	0.80/C	1.09/F	0.41/A	0.55/A	0.80/C	1.11/F	0.42/A	0.56/A
7. Harbor St/Buchanan Rd	0.97/E	1.05/F	0.55/A	0.54/A	1.03/F	1.11/F	0.57/A	0.56/A
8. Loveridge/Buchanan Rd	0.91/E	0.83/D	0.61/B	0.54/A	0.97/E	0.90/D	0.64/B	0.60/A
9. Buchanan Rd/Ventura Dr	0.73/C	0.80/C	0.62/B	0.62/B	0.74/C	0.81/D	0.63/B	0.63/B
10. Buchanan Rd/Meadows	0.72/C	0.87/D	0.55/A	0.59/A	0.77/C	0.96/E	0.59/A	0.65/B
11. Somersville/Buchanan	1.07/F	0.84/D	0.85/D	0.75/C	1.13/F	0.88/D	0.89/D	0.75/C
12. Somersville Rd/Bypass	N/A	N/A	0.84/D	0.79/C	N/A	N/A	0.84/D	0.80/C
13. Ventura -"B" St/Bypass	N/A	N/A	N/A	N/A	N/A	N/A	0.67/B	0.91/E
14. "M" St-"D" Street/Bypass	N/A	N/A	N/A	N/A	N/A	N/A	0.64/B	0.81/D
15. Kirker Pass Rd/Bypass	N/A	N/A	0.99/E	0.82/D	N/A	N/A	1.00/E	0.85/D

NOTES:
Without Bypass means without opening of the Buchanan Bypass for through-traffic connection.
LOS means Level of Service.
Shaded areas show deficient Level of Service relative to adopted LOS standards.
* Notes that v/c ratio decreases from No Project condition due to increased NB right-turn on red volume reduction as a result of increased volume in WB left-turn lane.

SOURCE: Whitlock & Weinberger Transportation, Inc., September 2005

An effect of the future opening of the Buchanan Bypass for through-traffic connection would be to shift traffic (including project-related and other non-project traffic) onto alternate routes consisting of the bypass and Railroad Avenue, the bypass and Somersville Road, or the bypass and James Donlon Boulevard. Without the project, but with the Buchanan Bypass, study area intersections generally would not operate with deficient levels of service, with the two exceptions of Kirker Pass Road/Buchanan Bypass and California Avenue/SR4 westbound ramps.

Addition of the proposed project's traffic to the year 2025 baseline, without the Buchanan Bypass, essentially would result in the same deficiencies as listed above, but with the addition of the Buchanan Road/Meadows Avenue. The following intersections would operate at deficient LOS during one or both of the AM and PM peak hours:

1. California Avenue/SR 4 WB Ramps
2. Loveridge Road/SR 4 EB Ramps
3. Loveridge Road/Leland Road
6. Railroad Avenue/Buchanan Road
7. Harbor Street/Buchanan Road
8. Loveridge Road/Buchanan Road
10. Buchanan Road/Meadows Avenue
11. Somersville Road/Buchanan Road

With opening of the bypass for through-traffic, the effect of the bypass again would be to restore LOS at some but not all of the affected intersections. With addition of project traffic to year 2025 baseline volumes, and with opening of the Buchanan Bypass for through-traffic connection, the following intersections would operate at deficient LOS during one or both of the AM and PM peak hours. The volume to capacity increase caused by the project is shown in (parentheses).

1. California Avenue/SR 4 WB Ramps (0.01)
2. Loveridge Road/SR 4 EB Ramps (0.05)
3. Loveridge Road/Leland Road (0.01)
15. Kirker Pass Road/Bypass (0.01)

IMPACTS AND MITIGATION MEASURES

The following specific mitigation measures for the impacts described herein generally can be enforced by the City of Pittsburg. In some limited number of instances cases (see, for example, Impact 6), off-site mitigation measures are outside the jurisdiction of the City of Pittsburg.

Near-Term Impacts and Mitigation Measures for Adopted LOS Standards

IMPACT 1: Intersection #1 (California Avenue/SR 4 WB ramps) would be expected to operate at LOS E during the p.m. peak with the project. ***It should be noted that the intersection also would operate deficiently without the project under the Existing Plus Approved Projects scenario.***

Mitigation measures:

- Developer shall pay a fair share for modification of the eastbound California Avenue approach to provide a separate left-turn lane to eliminate the split phasing.
- Developer shall pay a fair share for provision of right-turn overlap phasing for the northbound right-turn movement.

Residual impact after mitigation: These modifications would result in LOS D. ***These are the same mitigation measures as would be required at this intersection without the proposed project.***

IMPACT 2: Intersection #2 (Loveridge Road/SR 4 EB Ramps) would be expected to operate at LOS E with the project. ***It should be noted that the intersection also would operate deficiently without the project under the Existing Plus Approved Projects scenario.***

Mitigation measure:

- Developer shall pay a fair share for modification of the northbound Loveridge Road approach at the ramps for provision of a separate right-turn lane.

Residual impact after mitigation: This modification would result in LOS C. ***This is the same mitigation measure as would be required at this intersection without the proposed project.***

IMPACT 3: Intersection #8 (Loveridge Road/Buchanan Road) would be expected to operate at LOS E during the a.m. peak hour with the project. It should be noted that this intersection would be expected to operate acceptably in the LOS B range after completion of the Buchanan Road Bypass.

Mitigation measure:

- Developer shall pay for provision of two southbound left-turn lanes and lane striping on the east leg to accommodate the two left-turn lanes followed by a merge to one lane.
- As an alternative to this mitigation, the developer shall limit the subdivision to no more than 207 units until the opening of the Buchanan Bypass for through-traffic connection.

Residual impact after mitigation: This modification would result in LOS D.

IMPACT 4: Intersection #9 (Buchanan Road/Ventura Drive) would be expected to operate at LOS E with the project. ***It should be noted that the intersection also would operate deficiently without the project under the Existing Plus Approved Projects scenario.*** It should be noted also that this intersection would be expected to operate acceptably in the LOS B range after completion of the Buchan Road Bypass.

Mitigation measure:

- Developer shall pay a fair share towards the following improvements: the eastbound approach should be restriped to accommodate two through lanes from west of Ventura Avenue to east of Meadows Drive followed by a merge back to one lane. This should fit within the existing pavement through the use of narrower travel lanes and a narrower bike lane. This striping should be considered permanent until the bypass is opened.

Residual impact after mitigation: This modification would result in LOS A. ***This is the same mitigation measure as would be required at this intersection without the proposed project.***

IMPACT 5: Intersection #10 (Buchanan Road/Meadows Avenue) would be expected to operate at LOS F with the project. ***It should be noted that the intersection also would operate deficiently without the project under the Existing Plus Approved Projects scenario.*** It should be noted also that this intersection would be expected to operate acceptably in the LOS B range after completion of the Buchanan Road Bypass.

Mitigation measure:

- See Mitigation Measure for IMPACT 4 above.

  Residual impact after mitigation: This modification would result in LOS A.

IMPACT 6: Intersection #11 (Somersville Road/Buchanan Road) would be expected to operate at LOS F with the project. ***It should be noted that the intersection also would operate deficiently without the project under the Existing Plus Approved Projects scenario. This impact would occur in the City of Antioch; therefore, provisions and arrangements will be made between the cities regarding fair share payment to enable implementation of the mitigation measure.***

Mitigation measure:

- Developer shall pay a fair share for modification of the northbound Somersville Road approach at Buchanan Road for provision of an additional left-turn lane and a southbound right-turn overlap phasing.

  Residual impact after mitigation: This modification would result in LOS D. ***This is the same mitigation measure as would be required at this intersection without the proposed project.***

Near-Term Impacts and Mitigation Measures for Local Street Volume Standard

IMPACT 7: The proposed project is expected to increase traffic volumes on the local street portion of Ventura Drive in Highlands Ranch beyond the City's local street carrying capacity of 5,000 vpd. Existing traffic on the block immediately south of Buchanan Road, is approximately 3,600 vpd. On the section of Ventura Drive with fronting houses, existing traffic is estimated at 2,500 vpd. It is estimated that the project would increase traffic volumes on Ventura Drive, between Meadows Avenue and Jensen Drive, by a range of 2,580 to 3,300 vehicles per day (which translates to 65 to 83 percent of the project traffic). Assuming the mid-point, that the project sends approximately 74 percent of its traffic on Ventura Drive, traffic will increase to 5,440 vehicles per day (vpd) from 2,500 vpd on the residential portion of the street. After the opening of the Buchanan Bypass, traffic would decrease below the 5,000 vpd level.

Mitigation measures:

- Prior to opening of the Buchanan Bypass, developer shall not construct more than 353 units, unless an alternative access to Buchanan Road from the Buchanan Bypass is provided via Standard Oil Avenue. This measure also requires elimination of the barricade on the project site at the eastern terminus of the bypass.

- Before additional building permits above 353 permits are issued, the developer shall construct the future Standard Oil Avenue between Buchanan Road and the Buchanan Bypass to the City's Minor Arterial Street Standards for four lanes with turn lanes.

- To discourage use of Ventura Drive (or to encourage preferential use of Standard Oil Avenue), the developer shall construct a Neighborhood Diverter on Ventura Drive near the mouth of Buchanan Bypass. The design shall be approved by the City of Pittsburg. This volume-control measure shall be timed to coincide with construction and opening of Standard Oil Avenue.

- City shall not issue building permits for more than 353 units unless it is shown through professional traffic counting that the AADT on Ventura Drive, between Jensen/Rangewood and Meadows Avenue, will not exceed 5,000 vpd.

Residual impact after mitigation: Less-than-significant.

IMPACT 8: The project may increase traffic volumes on Ventura Drive north of Buchanan Road. This section of Ventura Drive is residential and any increase in traffic from outside of the neighborhood may result in undesirable volume levels and safety issues given the alignment of the street.

Mitigation measure:

- Developer shall pay up to 100 percent of the cost, or a fair share if other future projects could have a similar effect, for a Neighborhood Diverter which meets the City of Pittsburg's criteria, to discourage through traffic on Ventura Drive north of Buchanan Road.

Residual impact after mitigation: Less-than-significant.

Near-Term Impacts and Mitigation Measures for Stacking/Rear-End Collision Hazard

IMPACT 9: Intersection #9 (Buchanan Road/Ventura Drive) has 100 feet of available stacking in the northbound left-turn lane on Ventura Drive. The proposed project would increase left-turn queuing to approximately 200 to 250 feet.

Mitigation measure:

- Developer shall pay for modification of the northbound left-turn on the Ventura Drive approach at Buchanan Road for provision of 250 feet of stacking, appropriate deceleration length, and transitions.

Residual impact after mitigation: Less-than-significant.

IMPACT 10: Intersection #10 (Buchanan Road/Meadows Avenue) has 100 feet of available stacking in the westbound left-turn lane on Buchanan Road. The proposed project would increase left-turn queuing to approximately 200 to 250 feet.

Mitigation measure:

- Developer shall pay for modification of the westbound left-turn on the Buchanan Road approach at Meadows Avenue for provision of 250 feet of stacking, appropriate deceleration length, and transitions.

Residual impact after mitigation: Less-than-significant.

Near-Term Impacts and Mitigation Measures for Inadequate Emergency Vehicle Access (EVA)

IMPACT 11: The proposed project lacks connections to the adjoining Black Diamond Ranch residential subdivision. CCCFPD recommends provision of a 20-foot wide EVA through proposed Lot 191 to Markley Creek Drive.

Mitigation measure:

- Developer shall construct a suitable EVA across Lot 191 as recommended by CCCFPD.
- This EVA shall be accessible to emergency vehicles only and shall not be accessible to any other on road or off-road vehicular traffic.

Residual impact after mitigation: Less-than-significant.

Cumulative Year 2025, Without Buchanan Bypass, Impacts and Mitigation Measures for Adopted LOS Standards

IMPACT 12: Intersection #1 (California Avenue/SR 4 WB Ramps) would be expected to operate at LOS F with the project. ***It should be noted that the California Avenue approaches to SR 4 WB ramps are planned to be widened by 2025. The intersection also would operate deficiently without the project under the Cumulative 2025, Without Bypass, scenario.***

Mitigation measure:

- See Mitigation Measures for IMPACT 1.

Residual impact after mitigation: These modifications would result in LOS D. ***These are the same mitigation measures as would be required at this intersection without the proposed project.***

IMPACT 13: Intersection #2 (Loveridge Road/SR 4 EB Ramps) would be expected to operate at LOS E with the project. ***It should be noted that the intersection also would operate deficiently without the project under the Cumulative 2025, Without Bypass, scenario.***

Mitigation measure:

- See Mitigation Measure for IMPACT 2.

Residual impact after mitigation: This modification would result in LOS C. ***This is the same mitigation measure as would be required at this intersection without the proposed project.***

IMPACT 14: Intersection #3 (Loveridge Road/Leland Road) would be expected to operate at LOS F with the project. ***It should be noted that the intersection also would operate deficiently without the project under the Cumulative 2025, Without Bypass, scenario.***

Mitigation measure:

- Developer shall pay a fair share for modification of the northbound Loveridge Road approach to Leland Road for provision of a separate right-turn lane. Right-turn overlaps should also be provided on all approaches.

Residual impact after mitigation: This modification would result in LOS D.

IMPACT 15: Intersection #6 (Railroad Avenue/Buchanan Road) would be expected to operate at LOS F with the project. ***It should be noted that the intersection also would operate deficiently without the project under the Cumulative 2025, Without Bypass, scenario.***

Mitigation measure:

- Developer shall pay a fair share for modification of the northbound Railroad Avenue approach at Buchanan Road for provision of two northbound right-turn lanes with overlap phasing.

Residual impact after mitigation: These modifications would result in LOS D. ***This is the same mitigation measure as would be required at this intersection without the proposed project.***

IMPACT 16: Intersection #7 (Harbor Street/Buchanan Road) would be expected to operate at LOS F with the project. ***It should be noted that the intersection also would operate deficiently without the project under the Cumulative 2025, Without***

Bypass, scenario. This intersection would be expected to operate acceptably in the LOS A range after completion of the Buchanan Bypass.

Mitigation measure:

- Developer shall pay a fair share for provision of two travel lanes in each of the eastbound and westbound directions.

  Residual impact after mitigation: These modifications would result in LOS B. ***This is the same mitigation measure as would be required at this intersection without the proposed project.***

IMPACT 17: Intersection #8 (Loveridge Road/Buchanan Road) would be expected to operate at LOS E with the project. ***It should be noted that the intersection also would operate deficiently without the project under the Cumulative 2025, Without Bypass, scenario. This intersection would be expected to operate acceptably in the LOS B range after completion of the Buchanan Bypass.***

Mitigation measure:

- Developer shall pay for provision of two southbound left-turn lanes and lane striping on the east leg to accommodate the two left-turn lanes followed by a merge to one lane. As an alternative to this mitigation, the developer can limit the subdivision to no more than 207 units until the opening of the Buchanan Bypass.

  Residual impact after mitigation: These modifications would result in LOS D. ***This is the same mitigation measure as would be required at this intersection without the proposed project.***

IMPACT 18: Intersection #10 (Buchanan Road/Meadows Avenue) would be expected to operate at LOS E with the project.

Mitigation measure:

- See Mitigation Measure for IMPACT 5.

Residual impact after mitigation: This modification would result in LOS A.

IMPACT 19: Intersection #11 (Somersville Road/Buchanan Road) would be expected to operate at LOS F with the project. ***It should be noted that the intersection also would operate deficiently without the project under the Cumulative 2025, Without Bypass, scenario.***

Mitigation measure:

- See Mitigation Measure for IMPACT 6.

Residual impact after mitigation: This modification would result in LOS C. ***This is the same mitigation measure as would be required at this intersection without the proposed project.***

Cumulative Year 2025, without Buchanan Bypass, Impact and Mitigation Measure for Limited-Access Design Objective

IMPACT 20: At the intersection of the Buchanan Road Bypass with "M" Street and "D" Street, traffic movements would be limited by a raised median to right-turn in/right-turn out. If full access (no median) is provided in the early phase before future opening of the bypass for through-traffic connection, residents of project may object if a median later is constructed.

Mitigation measure:

- Developer shall construct the Buchanan Bypass with the median in place even in the early phase before future opening of the bypass for through-traffic connection. The section of the bypass built within the project should include provisions for U-turns west of "M" Street-"D" Street.

Residual impact after mitigation: Less-than-significant.

Cumulative Year 2025, with Buchanan Bypass, Impacts and Mitigation Measures for Adopted LOS Standards

IMPACT 21: Intersection #1 (California Avenue/SR 4 WB Ramps) would be expected to operate at LOS F with the project. ***It should be noted that the California Avenue approaches to SR 4 WB ramps are planned to be widened by 2025. The intersection also would operate deficiently without the project under the Cumulative 2025, With Bypass, scenario.***

Mitigation measure:

- See Mitigation Measures for IMPACT 1.

Residual impact after mitigation: These modifications would result in LOS D. ***These are the same mitigation measures as would be required at this intersection without the proposed project.***

IMPACT 22: Intersection #2 (Loveridge Road/SR 4 EB Ramps) would be expected to operate at LOS E with the project.

Mitigation measure:

- See Mitigation Measure for IMPACT 2.

  Residual impact after mitigation: This modification would result in LOS D. ***This is the same mitigation measure as would be required at this intersection without the proposed project.***

IMPACT 23: Intersection #3 (Loveridge Road/Leland Road) would be expected to operate at LOS E with the project.

Mitigation measure:

- See Mitigation Measures for IMPACT 14.

  Residual impact after mitigation: This modification would result in LOS D. ***These are the same mitigation measures as would be required at this intersection without the proposed project.***

IMPACT 24: Intersection #15 (Kirker Pass Road/Buchanan Road Bypass) would be expected to operate at LOS E (v/c=1.00) with the project. ***It should be noted that the intersection also would operate deficiently without the project under the Cumulative 2025, With Bypass, scenario.***

Mitigation measures:

- Developer shall pay a fair share for re-construction of Kirker Pass Road to accommodate a new T-intersection with the future Buchanan Bypass. Reconstruction is recommended by the traffic engineer to assure that Buchanan Bypass and Kirker Pass Road (south) operate as the major legs and Kirker Pass Road (north to Buchanan Road) operates as the minor leg.

- Developer shall pay a fair share for provision of two right-turn lanes with overlap phasing "westbound" (Bypass to Kirker Pass Road north).

  Residual impact after mitigation: This modification would result in LOS E (v/c=0.91), which is acceptable on the Kirker Pass Road corridor. ***These are the same mitigation measures as would be required at this intersection without the proposed project.***

Near-Term Impacts and Mitigation Measures for Substantial Increases in Hazards due to Design Features (*e.g.*, Limited Sight Distance, Speed, and Bicyclist Hazards)

IMPACT 25: Project-related traffic added to the residential portion of Ventura Drive, between Meadows Avenue and Rangewood Drive, would create speed and volume impacts.

Mitigation measure:

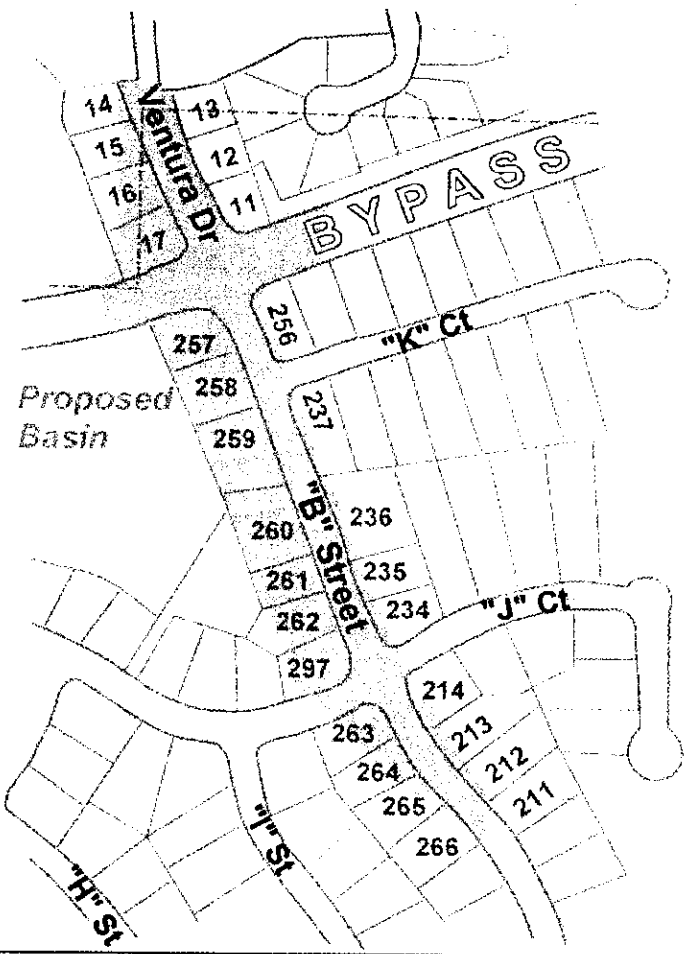
- The developer shall construct traffic-calming features on the five block section. Traffic-calming features shall be consistent with the measures listed in the City's Traffic-Calming Policy and their design shall be approved by the City Engineer.

Residual impact after mitigation: Less-than-significant.

IMPACT 26: The steepness of the grade and horizontal straightness of "B" Street will encourage excessive speeds that would be considered undesirable for streets having residential frontage with curb cuts.

Mitigation measures:

- Developer shall not construct curb cuts for driveways along the frontage of "B" Street between the Buchanan Bypass and "J" Court/"A" Street or along Ventura Drive within 300 feet of the Buchanan Bypass. This means that proposed Lots 11-17 and proposed Lots 235 and 236, proposed Lots 257-262, and proposed Lot 297 may not be developed as shown on the Vesting Tentative Map, unless either 1) alternative access is provided, for example, by way of modified flag lot



City of Pittsburg
65 Civic Avenue
Pittsburg, CA 94656

N

0 100 200 ft

FIGURE 26
"B" Street Traffic-Calming Design Zone

designs with shared driveways on "J" Court, "A" Street, or Canyon Oaks Court, or 2) "B" Street is re-designed for traffic calming.

- Redesign of "B" Street and Ventura Drive, and their related intersections at "K" Court, "J" Court, and the Buchanan Bypass, may be considered at the discretion of the City within the "B" Street Traffic-Calming Design Zone (see Figure 26). Redesign for purpose of recovering land area for developable lots may be considered by the City only if redesign provides grade reduction below 14 percent, safety advantages, or other environmental benefits.

- Developer shall pave "B" Street between the Buchanan Bypass and "J" Court/"A" Street with a scored concrete all-weather surface, with section details and scoring pattern and depth subject to the approval of the City Engineer.

- Developer shall construct and sign all-way stops at the intersections of "B" Street with "A" Street/"J" Court and "K" Court.

Residual impact after mitigation: Less-than-significant.

IMPACT 27: Placement of curb cuts for driveways and on-street parking on "B" Street, "D" Street, "M" Street, and Ventura Drive, near the mouth with the Buchanan Bypass, would create vehicle conflicts and potential safety hazards. Curb cuts and on-street parking would interfere with queuing on approaches to the bypass.

Mitigation measures:

- Developer shall not 1) construct any driveway curb cuts within 150 feet, or 300 feet in the case of "B" Street," from the edge of curb of the Buchanan Bypass or 2) allow any on-street parking within 150-feet of the edge of curb of the Buchanan Bypass, on "B" Street, "D" Street, "M" Street, and Ventura Drive. This would result in elimination of proposed Lots 11, 17, 18, 72, 73, 257, and 381 and review or adjustment of driveway locations for proposed Lots 12, 16, 19, 71, 74, 258, and 380.

Residual impact after mitigation: Less-than-significant.

Cumulative Year 2025, with Buchanan Bypass, Impacts and Mitigation Measures for Substantial Increases in Hazards due to Design Features (*e.g.*, Limited Sight Distance, Speed, and Bicyclist Hazards)

IMPACT 28: Depending on the location of crosswalk, stop limit line, the proposed sound wall at Lot 257, privacy fencing, and landscaping, the sight distance from "B" Street to the outside eastbound travel lane of the bypass may be limited. Turnouts for the right-turns from Buchanan Bypass into "B" Street and Ventura Drive are not shown on the Vesting Tentative Map. Such turnouts are recommended for deceleration and to avoid a conflict with bicyclists continuing on the bypass across the intersection.

Mitigation measures:

- Developer shall adjust the lot lines of proposed Lots 257, 258, and 259, to accommodate provisions for the "B" Street/Buchanan Bypass intersection as stated above.
- Developer shall adjust proposed Lot 11, to accommodate additional right-of-way width for a right-turn turnout from the Buchanan Bypass into Ventura Drive.

Residual impact after mitigation: Less-than-significant.

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LSA, February 2004. "Los Medanos College Traffic Impact Analysis."

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I. COMMUNITY NOISE

EXISTING SETTING

Noise is unwanted or detrimental sound. Sound level is measured and reported in decibels (dB), which have a logarithmic scale so that an increase of 10 dB sounds twice as loud. When measuring community noise levels, an adjustment is applied to discount high-pitched and low-pitched sounds better to represent human perception of sound. The weighting is known as "A-weighted decibels" (dBA).

In many community environments, traffic is a pervasive source of noise. Noise from traffic can be disruptive to people both outdoors and indoors by causing sleep disturbance, speech interference, and general annoyance. Traffic noise level varies with distance from the highway (or road), vehicle volume and speed, and presence of trucks or buses.

The Federal Highway Administration (FHWA) has developed a Traffic Noise [Prediction] Model, TNM, which was originally developed in 1977 and recently updated (Source: http://www.epa.gov/otaq/transp/modlmeth.pdf, "Modeling and Forecasting Methods," adapted and expanded from the FHWA's Toolbox for Regional Policy Analysis, http://www.fhwa.dot.gov/planning/toolbox/index.htm).

Tolerance for noise varies greatly from person to person and tends to develop based on past exposure and adaptation. Important predictors of a community's response, therefore, are the existing or "ambient" community nose level and change in the noise level. In general, the more a noise level exceeds the previously existing noise level, the less acceptable the new noise will be judged by those hearing it. With regard to increases in A-weighted noise levels, a 2 dBA change is considered barely perceptible, a 5 dBA change is sufficient to elicit a response and could be perceived as an adverse change, and a 10 dBA change is perceived as a doubling in loudness.

Communities set acceptable noise levels based upon the existing degree of quiet, or noise in the community, sensitivity of land uses, and other factors. Some land uses are considered more sensitive to changes in ambient noise level than others. Residential land uses generally are more sensitive to noise than commercial and industrial land uses. Some land uses, including residential, transient lodging, nursing homes, hospitals, libraries, and schools, are acknowledged in *Pittsburg 2020: A Vision for the 21st Century,* which is the City of Pittsburg's General Plan, to be sensitive to ambient noise environment. Implementing policies 12-P-5, 12-P-6, 12-P-7, 12-P-8, 12-P-9, and 12-P-10 call for protection of sensitive land uses by incorporating mitigation measures into new noise-sensitive uses, creating noise abatement programs for existing residential areas, limiting noise on construction sites to 8 AM to 5 PM, and limiting truck traffic in residential areas.

Where noise-sensitive land uses are proposed in areas that are subject to noise generators producing day-night average (Ldn) noise levels greater than 65 dBA, implementing policy 12-P-5 requires an acoustical analysis and design of mitigation measures as part of the environmental review process.

GENERAL PLAN NOISE STANDARDS

Pittsburg 2020: A Vision for the 21st Century, which is the City of Pittsburg's General Plan, contains goals and policies that relate to noise issues. In general, a goal of the City of Pittsburg is to incorporate noise considerations into land use decisions, and guide the location and design of transportation facilities to minimize the effects of noise on adjacent land uses. Figure 27 presents selected land use compatibility guidelines from the *General Plan* (Source: City of Pittsburg, *Pittsburg 2020: A Vision for the 21st Century*, 2001, Figure 12-3).

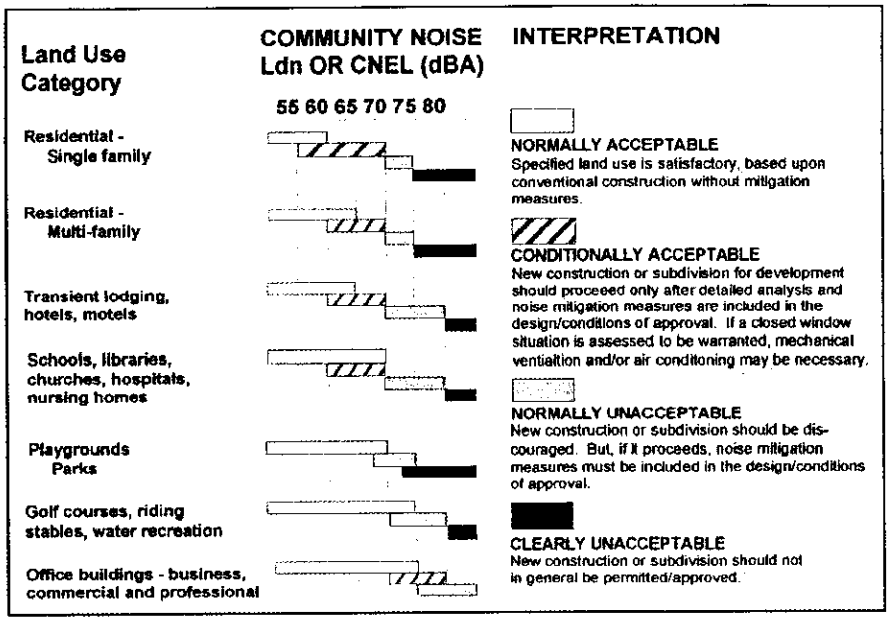

Figure 27

Land Use Compatibility For Community Noise Environments Pittsburg, California

The City of Pittsburg *General Plan* and State of California further establish an indoor noise environment of not more than 45 dBA as suitable for a residential, school, hospital and church land uses (see *General Plan* Policy 12-P-6). This standard in conjunction with the outdoor noise level implies the necessary noise reduction, which may be attained by buffers or building setbacks, noise walls, structural design (*e.g.*, glazed area, acoustic-rated windows and doors), or other mitigation measure, to achieve the stated interior noise level.

EXISTING NOISE

The Sky Ranch II site is located near the southern end of the Planning Area Boundary of the City of Pittsburg. The Sky Ranch II project consists of 415 proposed single-family lots. The northernmost and easternmost edges of the site adjoin the existing Highlands Ranch residential subdivision and future Black Diamond Ranch residential subdivision.

Existing Noise-Sensitive Areas

The nearest existing residences are located on Palo Verde Drive northwest of the Sky Ranch II site and in the Highlands Ranch subdivision north of the site. There are no proximate public schools. The nearest parks include the future park site, located in the southeastern corner of

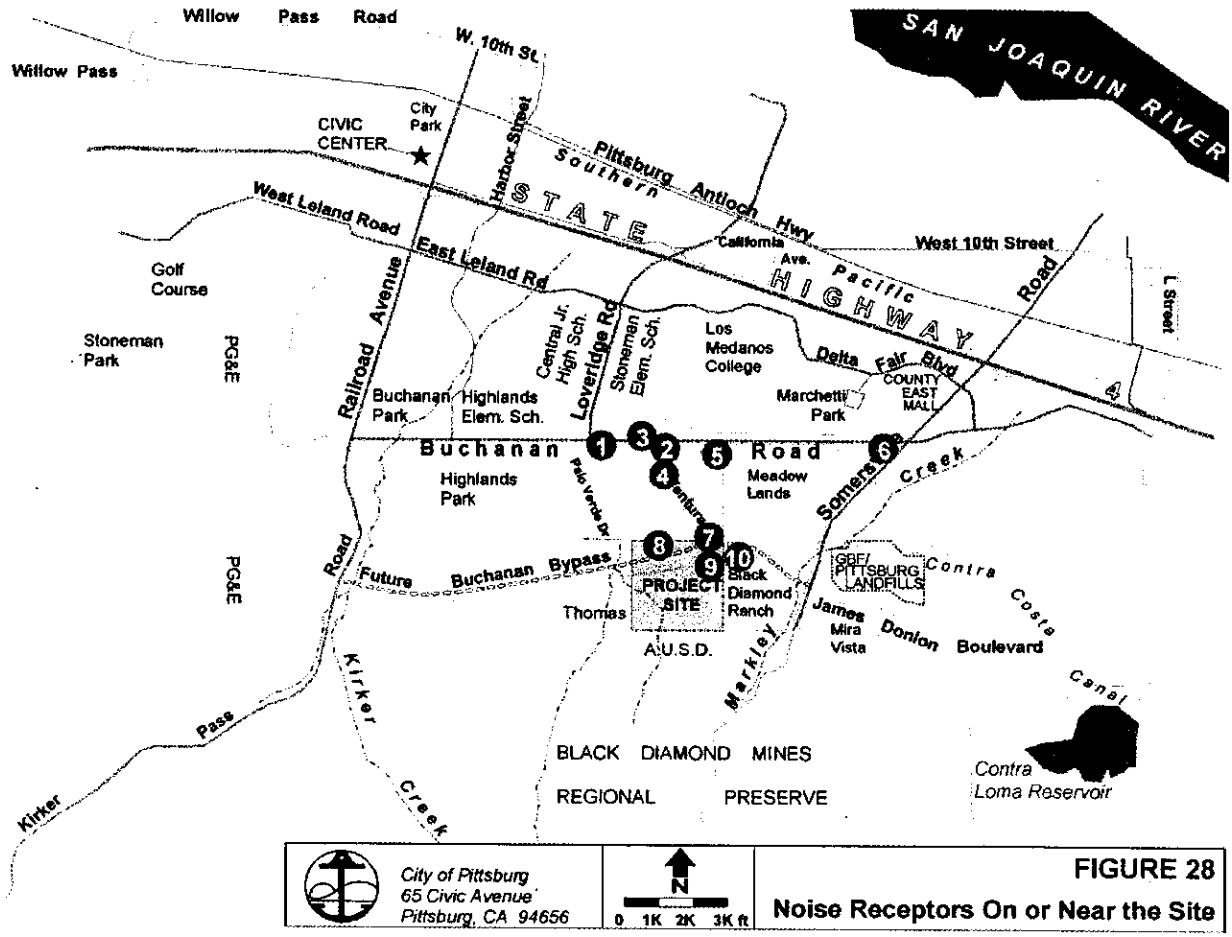

FIGURE 28
Noise Receptors On or Near the Site

Buchanan Road and Ventura Drive (between Meadows and Ventura), Highlands Park, and Buchanan Park. Highlands Elementary School is located west, near Buchanan Park. Central Junior High School and Stoneman Elementary School are located along Loveridge Road.

This Community Noise Assessment considers residential and park receptor locations that would be representative of existing and future noise environments in the areas listed below and illustrated in Figure 28: These include:

1. Back yards of houses on Autumnwind Court
2. Future park site in Highlands Ranch
3. First houses on Ventura Drive north of Buchanan Road (1566 and 1555 Ventura Drive). The house and yard at 1566 Ventura Drive is shielded by a 6-foot tall sound wall; the house and yard at 1555 Ventura Drive are not shielded by a wall.
4. Houses on Ventura Drive south of Buchanan Road, between Jensen Drive and Glen Canyon Drive
5. Back yards of houses on Saddlehorn Court and Silver Saddle Drive, east of Meadows Avenue

6. Chateau Mobile Park southwest of Buchanan Road and Somersville Road
7. Proposed Lots 5, 6, and 7 in Sky Ranch II
8. Proposed Lots 29-37 in Sky Ranch II
9. Proposed Lots 236 & 260 (9A) and Lots 257 & 258 (9B) in Sky Ranch II
10. Westridge Court Lot 127 in Black Diamond Ranch

On-Site Locations (Sky Ranch II Receptors)—
As shown in Figure 28, on-site locations include Receptor Locations 7, 8, and 9A and 9B. Receptor Location 7 is located near the intersection of Ventura Drive and Buchanan Bypass adjacent to the re-subdivided portion of Highlands Ranch.

Off-Site Locations—
As shown in Figure 28, off-site locations include Receptor Locations 1, 2, 3, 4, 5, 6, and 10. Locations within the adjacent Highlands Ranch residential subdivision include Receptor Locations 2 and 4. Receptor Location 2 is located within the future park site near the intersection of Ventura Drive and Buchanan Road. Receptor Location 4 is located in the front yard of a house on Ventura Drive, between Jensen Drive and Glen Canyon Drive.

Receptor Locations 1, 2, 3, 5, and 6, as shown in Figure 28, are located within the Buchanan Road corridor and, therefore, are affected by traffic noise from traffic on Buchanan Road and its cross-streets. Receptor Location 10 is located within the Black Diamond Ranch residential subdivision and within the future Buchanan Bypass corridor.

Existing and predicted future noise levels are specific for the receptors listed in Table H-3 of Appendix H. In the case of houses or proposed lots, existing and predicted future noise levels are representative of levels at specific locations in the front or back yards. For a large area like a park, existing and future predicted noise levels represent the noise levels at a specific location with in the park. Receptor locations, described generally above, are situated at certain specified distances from the centerlines of adjacent or nearby roads as tabulated in the Table H-3 of Appendix H.

Existing Vehicle Traffic Noise
Day-night average noise levels (Ldn) are based on measurements and modeling of existing traffic volumes on Buchanan Road, Ventura Drive, Meadows Avenue, Loveridge Road, and Somersville Road. Measurements were performed by Environmental Service in January 2005. Appendix H describes the methods and other details of the community noise assessment.

> ***Existing On-Site Noise Levels at Sky Ranch II Receptor Locations—***
> The existing Ldn on much of the Sky Ranch II site is 50-53 dBA, depending on the influence of non-transportation noise sources in the absence of substantial proximate transportation noise sources (see Table 23). At a distance of 7,500 feet, noise on the Sky Ranch II site is outside the influence of Highway 4.

TABLE 23
Existing Ldn Noise Levels in Pittsburg, California

Receptor Identification	General Descriptions of Receptor Location	Existing Conditions
1	Back yards of houses on Autumnwind Court	65
2	Future park site in Highlands Ranch	65
3	First houses on Ventura Drive north of Buchanan Road (1566 and 1555 Ventura Drive)	62
4	Houses on Ventura Drive south of Buchanan Road, between Rangewood Drive and Glen Canyon Drive	60
5	Back yards of houses on Silver Saddle Drive, east of Meadows Avenue	59
6	Chateau Mobile Park southwest of Buchanan Road and Somersville Road	73
7	Proposed Lots 5, 6, and 7 in Sky Ranch II	52
8	Proposed Lots 29-37 in Sky Ranch II	52
9	Proposed Lots 236 and 260 in Sky Ranch II	52
10	Westridge Court Lot 127 in Black Diamond Ranch	52

SOURCE: environmental service, 2005

Existing Off-Site Noise Levels—
At various off-site locations, existing community noise levels are influenced by transportation sources of noise. There are no industrial sources of noise at the off-site receptors considered. Existing sources of community noise in the general off-site area include surface traffic.

In Highlands Ranch (Receptor Location 4), the existing Ldn in front yards along the east side of Ventura Drive, between Jensen Drive and Glen Canyon Drive, is approximately 60 dBA. In Black Diamond Ranch (Receptor Location 10), the existing Ldn in the future back yards along the north side of Westridge Court is 52 dBA. Because Black Diamond Ranch is new, there currently are no houses or traffic on the constructed portion of the Buchanan Bypass.

At various residential receptors in the Buchanan Road corridor and at the future park site in Highlands Ranch (Receptor Locations 1, 2, 3, and 5), the existing Ldn is 59-66 dBA, depending on the presence or absence of sound walls and their effectiveness. Receptor Locations 1, 3, and 5 are shielded by sound walls. Receptor Location 1, located along Autumnwind Court, along the south side of Buchanan Road, and has an existing Ldn of 66 dBA which includes -4 dBA sound reduction from the sound wall. The sound reduction in the backyards would be as much as -7 dBA if the existing sound wall had an effective return wall along Woodborough Place. Without the sound reduction of the existing walls, the Ldn along the Buchanan Road corridor generally would be 65 dBA at 100 feet from the centerline.

At the Chateau Mobile Park in Antioch (Receptor Location 6), Buchanan Road widens to three lanes plus and acceleration lane, and carries a higher volume of traffic. Even with the existing sound wall, the Ldn there is assessed to be 69 dBA at approximately 100 feet from the centerline of Buchanan Road.

COMMUNITY NOISE IMPACT ASSESSMENT

PROJECT EVALUATED

The project site is located in the southern Planning Area of the City of Pittsburg, outside the incorporated City Limits. The project has proposed 415 single-family houses. The Project has a looped internal circulation system formed by "B" Street, "A" Street , and "D" Street, with access from Ventura Drive. The proposed "B" Street, "D" Street, and "M" Street can accommodate access to/from the future Buchanan Bypass, one of the City's long-ranged planned transportation improvements.

FUTURE NOISE LEVELS

A lasting noise source continuing long after construction has concluded is vehicular traffic. This community noise assessment considers 1) near-term future noise with the current transportation system and 2) long-term future noise with construction and opening of the Buchanan Bypass as a 4-lane artery providing a continuous through-connection from Somersville Road to Kirker Pass Road. Pending its continuous through-connection, the Buchanan Bypass Segment would be constructed within project limits but would only provide internal circulation of project-related traffic.

Future community noise levels were estimated based upon cumulative year 2025 traffic forecasts with and without the Sky Ranch II project and Buchanan Bypass. The FHWA's Traffic Noise Model was used to estimate PM peak hour sound levels (Leq) generated by traffic. Traffic generated by all future development within the planning area was estimated by a traffic engineer, Whitlock & Weinberger Transportation, Inc., (W-Trans). W-Trans estimated traffic generated by the proposed Sky Ranch II project and approved projects in Antioch and Pittsburg. Dowling Associates, Inc., for the Contra Costa Transportation Agency's (CCTA's) modeled 2025 traffic volumes with and without the Buchanan Bypass. Traffic volumes related to approved projects, the proposed project, and cumulative 2025 conditions are documented in a separate report titled *Traffic Impact Study for Sky Ranch II* (W-Trans, October 2004).

PROJECT NOISE EFFECTS

Table 24 summarizes the predicted change in day-night average noise levels (Ldn) caused by operation of the Sky Ranch II project 1) on the current transportation system and 2) on the long-term future transportation system including opening of the Buchanan Bypass as a 4-lane artery providing a continuous through-connection from Somersville Road to Kirker Pass Road. Future noise levels presented in Table 24, "Cumulative 2025 with Project," represent the cumulative future noise levels with the Sky Ranch II project but without Buchanan Bypass.

On-Site Noise Levels— As presented in Table 24, future noise levels on the Sky Ranch II site will depend not only on forecast project-related and cumulative traffic volumes but also on the City's planned long-range road improvements. Before the opening of the Buchanan Bypass as a continuous through-connecting artery, with the Sky Ranch II project, the future on-site Ldn would increase to 53-60 dBA from 52 dBA.

TABLE 24
Future Ldn Noise Levels for the Project and Cumulative Conditions in Pittsburg, California

Receptor Identification	Modeled Ldn (dBA)				Changes in Leq (dBA)			
	Existing Conditions	Cumulative 2025 without Project	Cumulative 2025 with Project	Cumulative with Project and Buchanan Bypass	Change Caused by Other Development	Change Caused by Project	Change Caused by Buchanan Bypass	Overall Change from Existing Conditions
1	65	66	67	65	+0.6	+0.6	-2.1	-0.9
2	65	65	66	64	+0.2	+0.6	-1.9	-1.1
3	62	62	63	62	+0.3	+0.5	-0.4	+0.4
4	60	61	64	66	+0.8	+3.4	+1.4	+5.6
5	59	60	60	58	+0.8	+0.4	-2.0	-0.8
6	73	73	74	72	+0.3	+0.3	-1.6	-1.0
7	52	53	55	62	+1.0	+2.0	+7.1	+10
8	52	52	53	70	±0.0	+1.4	+17	+18
9A	52	52	61	62	±0.0	+9.0	+1.0	+10
257	52	52	61	71	±0.0	+9.2	+9.5	+19
258	52	52	61	66	±0.0	+9.2	+5.4	+14
10	52	53	55	64	+1.1	+2.1	+8.8	+12

NOTES:

1. Noise levels are representative of a specific location called the "receptor location." Modeled peak hourly noise levels (Leq), not shown, are representative of a specific time called the weekday "PM Peak Hour."
2. Modeled noise levels are based on traffic volumes, vehicle speeds, and receptor distances from roads, and other assumptions.
3. Ldn is approximated by adding 1-2 dBA to the PM Peak Hour Leq sound level.

SOURCE: environmental service, 2005

Sky Ranch II's contribution to the increase in noise levels on-site would be approximately 2 to 9 dBA.

Off-Site Noise Levels— The Sky Ranch II project would introduce additional vehicular traffic which, in conjunction with other existing and forecast traffic, also would increase the Ldn off- site in the Buchanan Road corridor to 60–67 dBA, from 59-66 dBA. Sky Ranch II's contribution to the increase in noise levels off-site in the Buchanan Road corridor would be approximately 0.3 to 0.6 dBA, which is an imperceptible increase.

At Receptor Location 6, the future Ldn is forecast to increase by 0.2 dBA to 69 dBA with the project. Receptor Location 6 has an existing Ldn of 69 dBA. At Receptor Location 4, along Ventura Drive in Highlands Ranch, the future Ldn is forecast to increase by 3.4 dBA to 64 dBA with the Sky Ranch II project. Receptor Location 4 has an existing Ldn of 60 dBA.

TRANSPORTATION SYSTEM NOISE EFFECTS

On-Site Noise Levels— With the opening of the Buchanan Bypass as a continuous through-connecting artery, parallel east-west traffic capacity would be added to the existing system. A portion of the traffic on State Highway 4 and Buchanan Road would shift onto the Buchanan Bypass. With the Sky Ranch II project, after opening of the Buchanan Bypass, future on-site Ldn would increase to 62-70 dBA from 53-61 dBA. The Buchanan Bypass would increase on-site noise levels up to 17 dBA, depending on distance of the location.

Future on-site Ldn is estimated with the proposed 6-foot tall masonry sound walls. Proposed sound walls will provide relatively less noise reduction for second-stories. With the proposed walls, the future Ldn at on-site Receptor Location 7 would be 62 dBA at a second-story receptor and 57 dBA at a ground-level receptor. The future Ldn at on-site Receptor Location 8 would be 70 dBA at a second-story receptor and 63 dBA at a ground-level receptor. At on-site Receptor Location 9A, where the proposed sound walls would not be a factor, and the future Ldn with the Buchanan Bypass would be 61 dBA.

At Lots 257 and 258, the proposed sound walls along Buchanan Road east and west of "B" Street would have variable benefit owing to the bypass grade and pad elevations. Located near the mouth of "B" Street, the houses on Lots 257 and 258 are projected to have a future Ldn in the range of 65-70 dBA upon opening of the bypass to through traffic.

Off-Site Noise Levels— Off-site in the Buchanan Road corridor, opening of the Buchanan Bypass would shift some traffic on Buchanan Road onto the bypass. Future off-site noise levels in the Buchanan Road corridor would decrease generally by approximately 2 dBA. With opening of the Buchanan Bypass, the future Ldn would decrease to 64-65 dBA from 66-67 dBA without the bypass.

At Receptor Location 4 in Highlands Ranch, opening of the Buchanan Bypass would add traffic shifted from Buchanan Road onto Ventura Drive. The predicted Ldn at Receptor Location 4 would increase to 66 dBA from 64 dBA without the bypass. At Receptor Location 10 in the Black Diamond Ranch residential subdivision, opening of the Buchanan Bypass would introduce a new transportation noise source. Pad elevations of Lot 127 on Westridge Court, and generally of Lots 127-138 along Westridge Court, is elevated approximately 10 feet above the grade of the Buchanan Bypass. The future Ldn at receptor Location 10, with the proposed Sky Ranch II project and opening of the Buchanan Bypass, is forecast to be 64 dBA, which includes a -5 dBA noise reduction for a solid backyard fence.

CITY POLICIES

Chapter 12 of the City of Pittsburg's General Plan contains goals and implementing policies to reduce or eliminate the effects of excessive noise in the community. Selected policies are presented in Table 25. Policy 12-P-4 encourages programs for new development exposed to noise above normally acceptable levels, such as wider landscaped setbacks and building soundproofing, preferentially over the use of sound walls.

STANDARDS OF SIGNIFICANCE

Impacts of the Sky Ranch II project on-site and off-site were evaluated in terms of the California Environmental Quality Act significance criteria. A project can be considered to have a significant effect if it would result in any of the following conditions:

(a) Exposure of persons to or generation of noise levels above standards established in the *General Plan* or noise ordinance, or applicable standards of other agencies?

(b) Exposure of persons to or generation of excessive ground borne vibration or airborne noise levels?

(c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

(d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

(e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

(f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

Criteria (e) and (f) do not apply as the proposed project is not located within an airport land use plan or within two miles of a public use airport, or near a private airstrip.

TABLE 25

Community Noise Policies
City of Pittsburg

POLICY	POLICY STATEMENT
12-P-4	Require noise abatement programs for new development that would be exposed to noise above normally acceptable levels. Encourage programs that avoid visible sound walls.
12-P-5	Require technical analysis and design of mitigation measures for noise-sensitive development, including housing, in areas subject to day-night average noise levels (Ldn) above 65 dBA.
12-P-6	Assure that new noise-sensitive land uses, including housing, in areas by roads producing a day-night average noise level (Ldn) greater than 65 dBA, incorporate mitigation measures so that interior noise levels do not exceed 45 dBA.
12-P-8	For mitigation of noise adjacent to existing residential areas, develop noise abatement programs including, for example, wider setbacks, dense landscaping, acoustic-rated windows, and building orientation that muffles the noise source.
12-P-9	On construction sites adjacent to existing development, limit construction noise to normal business hours between 8 AM and 5 PM.
12-P-10	Reduce the impact of truck-related noise in residential areas by limiting truck traffic to appropriate designated routes and times in noise-sensitive areas.

SOURCE: Pittsburg, City of, *Pittsburg 2020: A Vision for the 21st Century,* Chapter 12.

EVALUATION

Exposure of persons to or generation of noise levels in excess of standards established in the *General Plan* or noise ordinance, or applicable standards of other agencies —

Houses in the Buchanan Road corridor generally are exposed to Ldn in excess of 60 dBA except where shielding by embankments or sound walls is sufficient to reduce the Ldn. Under the General Plan, the community noise level normally acceptable for new residential construction is 60 dBA (Ldn), and the community noise level normally acceptable for parks is 70 dBA (Ldn). The future Ldn sound level at the Highlands Ranch Park would not exceed 70 dBA.

IMPACT 1

Receptor Location 1 On Autumnwind Court, the first stories of houses generally are shielded from Buchanan Road traffic noise by a solid masonry sound wall. The house at 1485 Autumnwind Court is partially shielded by the wall and a wooden "return" fence along the side yard. Houses at 1457, 1473, and 1485 Autumnwind Court have second-story windows exposures. The estimated outdoor Ldn currently is 69 dBA (second-story) and 65 dBA (first-story). The future outdoor Ldn at the first- and second-stories would increase by +0.6 dBA with the proposed project. Existing and future sound levels, therefore, would exceed the *General Plan's* normally acceptable level of 60 Ldn.

Off-site mitigation measures:

- Developer shall construct an improved side yard return segment, either a fence or wall, in the backyard at 1485 Autumnwind Court.

- Developer shall retrofit with sound-insulating windows for the noise-exposed windows in the second-stories of 1457, 1473, and 1485 Autumnwind Court, if necessary to reduce the interior Ldn to 45 dBA, as determined by a practicing acoustical engineer.

Residual impact with mitigation: Less-than-significant. Prior to the opening of the Buchanan Bypass, a reduction in outdoor Ldn to 60-62 could attained.

IMPACT 2

Receptor Location 3 On Ventura Drive north of Buchanan Road, 1566 Ventura Drive is shielded from Buchanan Road traffic noise by a solid masonry wall. The house across the street, at 1555 Ventura Drive, is next to a power line transmission tower, and is not shielded by a sound wall. The outdoor Ldn at 1555 Ventura Drive is estimated currently to be 64 dBA. The future outdoor Ldn would increase by approximately +0.5 dBA to 65 dBA with the proposed project. Existing and future sound levels, therefore, would exceed the *General Plan's* normally acceptable level of 60 Ldn.

Off-site mitigation measures:

- Developer shall construct a 6-foot tall overlapped board fence in the backyard along the southern property line at 1555 Ventura Drive.

- Developer shall retrofit noise-exposed windows with sound-insulating windows in the 1-story, ranch-style house at 1555 Ventura Drive, if necessary to reduce the interior Ldn to 45 dBA as determined by a practicing acoustical engineer.

Residual impact with mitigation: Less-than-significant. Prior to the opening of the Buchanan Bypass, a reduction in outdoor Ldn to 60 dBA could attained.

IMPACT 3

Receptor Location 4 Traffic from proposed units in Sky Ranch II could increase the existing Ldn in the front yards of seven (7) houses facing Ventura Drive, between Rangewood Drive and Glen Canyon Circle or Drive, and other houses having frontages along Ventura Drive in Highlands Ranch, by +3 dBA to 64 dBA from 60 dBA. Future sound levels, therefore, would exceed the *General Plan's* normally acceptable level of 60 Ldn.

Off-site mitigation measure:

- Outdoor noise in the front yards of houses along Ventura Drive, between Rangewood Drive and Glen Canyon Circle/Drive, cannot be practically mitigated. Curb cuts for driveways preclude the use of a continuous sound wall.

- Developer shall retrofit windows having a line-of-sight to Ventura Drive if interior noise (Ldn) exceeds 45 dBA, as determined by professional measurement by a practicing acoustical engineer.

Residual impact with mitigation: Less-than-significant.

IMPACT 4

Receptor Location 5 At the east end of Silver Saddle Drive, the back yards of houses at 529 and 531 Silver Saddle Drive are partially shielded from Buchanan Road noise by the wall and a wooden "return" fence along the back yards. There is not a masonry return segment extending south from the masonry wall along the eastern property boundary. Houses at 9 Saddlehorn Court and 511, 529 and 531 Silver Saddle Drive have second story exposures, where the outdoor Ldn currently is estimated to be 65 dBA. The future outdoor Ldn at the second-stories would increase by approximately +0.4 dBA with the proposed project. Existing and future sound levels, therefore, would exceed the *General Plan's* normally acceptable level of 60 Ldn.

Off-site mitigation measure:

- Developer shall construct an improved backyard return segment, either a matching masonry return wall or an improved fence, for the backyards at 529 Silver Saddle Drive and 531 Silver Saddle Drive

Residual impact with mitigation: The backyard outdoor Ldn could be reduced by -3 dBA. Less-than-significant.

IMPACT 5

Receptor Location 6 Receptor 6 is a mobile home park without shielding by a sound wall. There is a chain link fence with privacy slats, which provides negligible traffic noise reduction. The estimated outdoor Ldn currently is 73 dBA, and the future Ldn will increase by approximately +0.6 dBA with the proposed project and approved projects. This outdoor noise level is the level for the northernmost row of mobile homes along the fence and Buchanan Road. Existing and future sound levels, therefore, would exceed the *General Plan's* normally acceptable level of 60 Ldn, but the project's contribution (+0.3 dBA) is less than significant.

Off-site mitigation measure:

- Construction of a sound wall would require funding by the City of Antioch through impact assessment, the redevelopment plan, or a benefit assessment district, which are outside the jurisdiction of the city of Pittsburg. The project's share of the cumulative impact (+0.3 dBA) is less than significant.

Residual impact with mitigation: Less-than-significant. Measure is outside the jurisdiction of the City of Pittsburg.

Exposure of persons to or generation of excessive ground borne vibration or airborne noise levels —

IMPACT 6

Receptor Location 6 (Chateau Mobile Park) The portion of the mobile home park within approximately 100 feet of Buchanan Road is noise impacted with an existing Ldn in the range normally unacceptable for residential uses. The increase caused by the proposed project is forecast to be +0.3 dBA.

Mitigation measure:

- Construction of a sound wall would require funding by the City of Antioch through impact assessment, the redevelopment plan, or a benefit assessment district, which are outside the jurisdiction of the city of Pittsburg. The project's share of the cumulative impact (+0.3 dBA) is less than significant.

Residual impact with mitigation: Less-than-significant. Measure is outside the jurisdiction of the City of Pittsburg.

A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project —

Substantial permanent increases in ambient noise levels above levels existing without the project generally are forecast to occur along the Buchanan bypass, at the future time of opening of the bypass. In the interim, the proposed project would increase noise along Ventura Drive, between Rangewood Drive and Glen Canyon Drive, by 3 dBA. Along the Buchanan Road corridor the proposed Sky Ranch II project would increase day-night average noise levels (Ldn) by 0.2 to 0.6 dBA, which is not a substantial increase in Ldn. A 2 dBA change would be barely perceptible. A change of 3 dBA, or more, is a perceptible change.

IMPACT 7
Receptor Location 4 Located along Ventura Drive in Highlands Ranch, 1707 and 1711 Ventura Drive, and five additional houses between Rangewood Road and Glen Canyon Circle or Drive, would experience a permanent increase of +3 dBA in day-night average noise level from the Sky Ranch II project. Receptor Location 4 has an existing Ldn of 60 dBA. With the proposed Sky Ranch II project, the predicted Ldn at Receptor Location 4 would increase to 63 dBA from 60 Ldn.

Off-site mitigation measure for outdoor noise:

- Outdoor noise in the front yards of houses along Ventura Drive, between Rangewood Drive and Glen Canyon Circle/Drive, cannot be practically mitigated. Interior noise, hypothetically if the Ldn were above 45 dBA, could potentially be mitigated by retrofitting windows having a line-of-sight to Ventura Drive.

Residual impact with mitigation: Unavoidable increase.

Off-site mitigation measure for indoor noise:

- Noise-exposed first-story and second-story elevations shall be allowed by the City, but for any such elevations the developer shall install acoustic-rated windows or sliding glass doors, if necessary to assure interior sound levels would be less than 45 dBA as determined by a practicing acoustical engineer.

Residual impact with mitigation: The interior Ldn would meet the 45 dBA interior standard.

A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project—

IMPACT 8

Temporary noise increases will occur during construction. During construction the project will generate noise of variable loudness depending on the location, presence of receptors, and nature of construction. Construction at the boundary of existing neighborhoods could potentially affect the adjacent residents living off-site. The noisiest construction activities could potentially generate maximum noise levels ranging from 84 to 89 dBA at a distance of 50 feet from the noisiest equipment or machinery. Construction noise levels would decrease to 64 -69 dBA at a distance of 300 feet, 61-66 dBA at a distance of 400 feet, and 54-59 at a distance of 800 feet.

Whether or not construction hours are limited, temporary construction noise generated by on-site equipment potentially could 1) expose sensitive on-site and off-site residential receptors to noise levels in excess of the applicable noise standards, 2) cause noticeable increases of 2-3 dBA over ambient noise levels, and 3) induce noise complaints owing to increases of 5-10 dBA over ambient levels. Such potential increases generally warrant mitigation to minimize potential noise disturbance.

On-site mitigation measure:

- The Project Applicant shall prepare Construction Specifications that will be become part of contractor documents and which could be enforced by the City of Pittsburg Building Division on an as-needed basis. The Construction Specifications will require that the Contractor to perform the following tasks:

    1. Limit construction activities to the hours between 7:30 a.m. and 7:00 p.m. on weekdays, and between 9:00 a.m. and 6:00 p.m. on Saturdays and Sundays. No construction shall take place on federal holidays.
    2. Locate fixed construction equipment such as compressors and generators as far as feasibly possible from sensitive receptors (*i.e.*, existing houses). Shroud or shield all impact tools, and muffle or shield all intake and exhaust ports on power construction equipment.

Residual impact with mitigation below: Less-than-significant.

CUMULATIVE EFFECTS

Exposure of persons to or generation of noise levels in excess of standards established in the *General Plan* or noise ordinance, or applicable standards of other agencies —

In the long-term, with the opening of the Buchanan Bypass, traffic shifted from Buchanan Road to the Buchanan Bypass would add to the traffic volume and traffic-related noise along Ventura Drive. Opening of the bypass also would increase the traffic volume and speed on the segment of the bypass located within the proposed project, thereby increasing traffic-related noise along the bypass.

Opening the future Buchanan Bypass would provide a complete through-connection from Somersville Road to Kirker Pass Road and could shift traffic from Buchanan Road onto the bypass. With opening of the bypass, the traffic volume along Buchanan Road would decrease, resulting in sound level reductions for sensitive receptors in the Buchanan Road corridor. Predicted day-night average noise levels in the Buchanan Road corridor after opening of the Buchanan Bypass would be approximately 1 dBA lower than the existing levels.

IMPACT 9

Receptor Location 4 With development of approved projects, the proposed Sky Ranch II project, and opening of the Buchanan Bypass, the cumulative predicted Ldn in the front yards of seven (7) houses facing Ventura Drive between Rangewood Drive and Glen Canyon Circle or Drive would increase by +6 dBA to 66 dBA from 60 Ldn. Future cumulative sound levels, therefore, would exceed the *General Plan's* normally acceptable level of 60 Ldn.

Off-site mitigation measure:

- Outdoor noise in the front yards of houses along Ventura Drive, between Rangewood Drive and Glen Canyon Circle/Drive, cannot be practically mitigated.
- Developer shall retrofit windows having a line-of-sight to Ventura Drive with acoustic-rated sound-insulating windows if necessary to maintain an interior Ldn below 45 dBA, as determined by professional measurement by a practicing acoustical engineer.

Residual impact with mitigation: Unavoidable increase.

IMPACT 10

Receptor Locations 7, 8, and 9A Receptor Location 7 means proposed Lots 5, 6, and 7. Receptor Location 8 means proposed Lots 29-37 and similar lots on the south side of the bypass . Receptor Location 9A means proposed Lots 236 & 260 (and generally Lots 234-237, 256, 259- 262, and 297), along proposed "B" Street.

On-site locations could have exposures to outdoor day-night average noise level (Ldn) in excess of 60 dBA resulting from implementation of the planned long-range transportation improvement, namely, the Buchanan Bypass. With the proposed 6-foot tall wall and opening of the Buchanan Bypass, the forecast Ldn is 59-65 dBA at the first-stories and 62-70 dBA at second-stories at Receptor Locations 7 and 8. At Receptor Location 9A, traffic on "B" Street is the principal noise source, and the height of the proposed sound wall along the Buchanan Bypass would not matter. The front yard Ldn at Receptor Location 9A is forecast to be approximately 62 dBA; however, backyard noise levels are forecast to be 60 dBA owing to the partial shielding provided by the houses and side yard fences. Therefore, mitigation measures would be warranted in the Buchanan Bypass corridor and along "B" Street in anticipation of implementation of the long-range transportation plan.

On-site mitigation measure for outdoor noise:

- Developer shall construct a taller sound wall than proposed, at least 8 feet in height.

Residual impact with mitigation at Receptor Location 7: An 8-foot tall sound wall could reduce the forecast noise at second stories by -9.5 dBA (-2 dBA incremental reduction compared to the proposed 6-foot wall), resulting in an outdoor Ldn of 56-60 dBA for first- and second-stories.

Residual impact with mitigation at Receptor Location 8: An 8-foot tall sound wall could reduce the forecast noise at second stories by -4.8 dBA (compared to no reduction provided by the proposed 6-foot tall wall), and could reduce forecast noise at the first-stories by -9.1 dBA (-2 dBA incremental reduction compared to the proposed 6-foot wall). The resulting Ldn would be of 61-65 dBA for first- and second-stories.

On-site mitigation measure for indoor noise:

- Developer shall install acoustic-rated windows, sliding glass doors or entryway doors, adequate to provide an interior noise level of 45 dBA, or lower. Acoustical analysis of proposed windows and doors in units on Lots 18, 29-37, 72, 234-237, 256, 259-262, and 297, shall be prepared by a qualified professional and shall be submitted at the time of application for Building Permit.

Residual impact with mitigation: Less-than-significant.

A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project —

IMPACT 11

Receptor Location 8 (Lots 18, 29-37, and 72) Located along the Buchanan Bypass corridor, Lots 18, 29-37, and 72 would experience an increase in day-night average noise level (Ldn) of +10 to +17 dBA with opening of the bypass.

The Ldn would be 53 dBA before the opening, and after opening of the bypass the Ldn would be approximately 70 dBA (second-story) and 63 dBA (first-story). These forecasts are for the second-story and account for the presence of the proposed 6-foot tall sound wall. At the first-story level, the proposed sound wall would be relatively more effective and, after opening of the bypass, the Ldn would be 63 dBA.

On-site mitigation measure for outdoor noise:

- Developer will increase the sound wall height to 8-feet. An 8-foot tall sound wall will reduce noise at the second-story level by approximately -4.8 dBA; therefore, increasing the wall height to 8 feet could provide an Ldn of 65 dBA at the second-story level and 61 dBA at the first-story level.

Residual impact with mitigation: Outdoor Ldn would exceed the 60 dBA compatibility criterion by 1-5 dBA.

On-site mitigation measure for indoor noise:

- The developer will disclose the noise forecast. For the specified lots, the developer will either 1) offer housing models having no second-story rear elevation exposures to the bypass, or else 2) provide acoustic-rated windows adequate to attain an interior Ldn of 45 dBA, or lower, for models having second-story rear elevation exposures.

Residual impact with mitigation: An interior Ldn of 45 dBA, or lower, will be achieved

IMPACT 12

Lots 257 and 258 The siting of these two lots is problematic in terms of proximity to the proposed bypass and "B" Street, and the discontinuity of the proposed sound walls at the intersection of the bypass and "B" Street. Increasing the proposed wall height to 8-feet would provide a relatively minor incremental noise reduction compared to the reduction provided by the proposed 6-foot tall wall. The noise wall offset at "B" Street and grades of the proposed Buchanan Bypass in relation to pad elevations are constraining factors.

With opening of the Buchanan Bypass, Lot 257 would experience an increase in average noise level (Ldn) of approximately +11 dBA, to 71 dBA (first-story). Lot 258 would experience an increase in average noise level (Ldn) of approximately +5 dBA, to 66 dBA (first-story). These are substantial increases, above the normally acceptable 60 dBA, but within the City of Pittsburg's conditionally acceptable range. This cumulative forecast accounts for the presence of proposed 6-foot tall sound walls east and west of "B" Street. Mitigation measures would be warranted specifically for Lots 257 and 258.

On-site mitigation measure for outdoor noise:

- The developer shall re-design proposed Lots 257 and 258 for location farther south from the proposed Buchanan Bypass and to extend a return wall segment south along "B" Street. Driver line-of-sight toward the west along the bypass could be maintained by realigning the proposed sound wall (western) with a taper from "B" Street to a suitable point in Parcel "A." Eastern and western ends of the two return walls then would match on opposite sides of "B" Street.

Residual impact with mitigation: An Ldn of 60-65 dBA could be achieved, depending on details of the re-design.

On-site mitigation measure for indoor noise:

- The developer will install windows, sliding glass doors or entryway doors upgraded with acoustic-ratings adequate to provide an interior Ldn of 45 dBA, or lower, for the first- and second-stories of houses on Lots 257 and 258. Acoustical analysis of proposed windows and doors in units on Lots 257 and 258 shall be prepared by a qualified professional and shall be submitted at the time of application for Building Permit.

Residual impact with mitigation: Less-than-significant.

IMPACT 13

Receptor Location 9A (Lots 236, 237, 259 and 260) Located next to "B" Street, and within the influence of noise from the Buchanan Bypass corridor, Sky Ranch II Lots 236, 237, 259, and 260 would experience an increase in day-night average noise level of +1 dBA with opening of the bypass. The Ldn would be 60 dBA before the opening of the Buchanan Bypass. After opening of the bypass, the Ldn would be approximately 61 dBA. This increase is a less-than-significant effect.

Mitigation measure: None warranted.

IMPACT 14

Receptor Location 10 Located off-site along Westridge Court in Black Diamond Ranch, Receptor Location 10 would experience a permanent increase of +2 dBA in day-night average noise level (Ldn) would result with the Sky Ranch II project. Opening of the Buchanan Bypass would result in an additional +9 dBA increase at Receptor Location 10, which has an existing Ldn of 52 dBA. With approved development, the proposed Sky Ranch II project, and opening of the Buchanan Bypass, the predicted Ldn at Receptor Location 10 would increase to 64 dBA (first-story) from 55 dBA without the bypass and from 53 dBA without the proposed project. Forecasts above are for the first-story account for the assumed presence a 5-foot tall privacy fence constructed of overlapping boards. At the second-story level, the forecast noise levels

would be relatively higher, and the future Ldn after opening of the bypass could be expected to be approximately 67 dBA.

Off-site mitigation measure:

- Developer shall construct a continuous sound wall or fence of overlapping boards generally in the back yards of Lots 127-138 in Black Diamond Ranch. However, the fence would have no noise reduction benefit at second-story level.
- At exposed second stories, the developer shall install acoustic-rated windows to assure interior sound levels would be less than 45 dBA.

Residual impact with mitigation: For an 8-foot tall wall or fence constructed of adequate density with overlapping boards, the outdoor Ldn at the first-story level could readily be reduced to 60 dBA, or below, from 62 dBA without a wall or fence. The mitigation measures described above are outside the jurisdiction of the City of Pittsburg.

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J. AIR QUALITY

EXISTING SETTING

The air quality planning area known as the "San Francisco Bay Area" includes Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties, and portions of Solano and Sonoma Counties (see Figure 1).

Carquinez Strait Region

The project site is located in the Carquinez Strait Region, the sole sea level pass through California's eastern Coast Range. The Carquinez Strait and the Golden Gate (the sole sea level pass in the western Coast Range) allow marine air to pass into and out of the Central Valley. The Carquinez Strait is up to 6,500 feet wide, with terrain elevation from sea level to 600 feet.

Prevailing winds are westerly *(i.e.*, from the west). During summer and fall months, high atmospheric pressure offshore and thermal low pressure in the Central Valley draws marine air eastward through the Carquinez Strait. Winds are strongest in the afternoon when the pressure gradient between the Pacific high and the Central Valley thermal low is greatest. Afternoon wind speeds of 15 to 20 mph are common throughout the region, accelerated in the funnel of the surrounding hills. Annual average wind speeds are 8 mph in Martinez and 10 mph further east. This climate pattern is associated with relatively good air quality as the marine air carries with it relatively less air pollution.

In late summer and fall, high atmospheric pressure centered over the Great Basin or the Pacific Northwest creates an east-to-west or northeast-to-southwest pressure gradient, low wind speeds, shallow mixing depths, and high ozone potential. This climate pattern is associated with relatively higher air pollution concentrations as the air pattern is over more urban land uses, carries relatively more air pollution, and mixing is limited.

During winter, easterly air flow (*i.e.*, from east to west) through the Carquinez Strait occurs between storms, when high pressure over inland areas causes easterly flow into the Bay Area through the Carquinez Strait.

Air temperatures in the Carquinez Strait region do not vary widely. Martinez and Antioch have average daily maximum temperatures in the mid- to high-50 degrees Fahrenheit in the winter and high 80 degrees Fahrenheit in the summer. Average minimum temperatures are high 30s to low 40s in winter and mid 50s in summer. Rainfall amounts in this region are highly variable depending on local terrain. In flat, open areas, such as Fairfield, the annual rainfall is 22 inches. In Martinez, the rainfall is reduced to 18.5 inches per year owing to elevated hilly terrain to the west.

Farther east, in Pittsburg and Antioch, the annual rainfall is reduced to 13 inches owing to the rain shadow effect of Mount Diablo and its foothills which are in Antioch and Pittsburg are known as the southern hills.

Many industrial facilities including chemical plants and refineries within the Carquinez Strait region emit substantial air pollutant emissions. Fortunately, ground-level air pollutant concentrations generally are moderated by general high wind speeds and good mixing.

TABLE 26
Partial List of Ambient Air Quality Standards Relevant in the San Francisco Bay Area

Air Pollutant	California	Federal	Notes
Ozone (O3)	9 pphm (1 Hour) NA	12 pphm (1 Hour) 8.5 pphm (8 Hour)	"Non-attainment" refers to the designation of an area that has not met the standards. Air quality plans are intended to meet first the NAAQS.
Carbon Monoxide	9.0 ppm (8 Hour) 20 (1 Hour)	9.0 ppm (8 Hour) 35 (1 Hour)	8-hour refers to the concentration measured continuously during eight consecutive hours.
Respirable Particulate Matter (PM10)	50 µg/m3 (24 Hour) 30 µg/m3 (Annual Geometric Mean)	150 µg/m3 (24 Hour) 50 µg/m3 (Annual Arithmetic Mean)	PM10 refers to particle sizes less than 10 microns in diameter. Ten microns equals 1 hundredth of one millimeter.
Fine Particulate Matter (PM2.5)	No Separate State Standard	65 µg/m3 (24 Hour) 15 µg/m3 (Annual Arithmetic Mean)	PM2.5 is a new standard recently promulgated by the U.S. EPA. PM2.5 refers to smaller particle sizes, less than 2.5 microns in diameter. One micron equals 2.5 thousandths of one millimeter.
Source: http://www.arb.ca.gov/aqs/aqs.htm, December 18, 2002 http://www.arb.ca.gov/aqs/aaqs2.pdf			

Air Quality Standards

The federally mandated air quality standards are known as the National Ambient Air Quality Standards. The State of California has set its own more stringent standards for some, not all, air pollutants (see Table 26).

The PM2.5 standards were set by the U.S. EPA in 1997. California completed the installation of new PM2.5 monitors in 1998. In 1997, U.S. EPA also promulgated a revised ozone standard of 0.08 ppm, measured over an 8-hour period.

Air Quality Monitoring

The Bay Area Air Quality Management District ("BAAQMD") operates air pollution monitoring equipment at 10th Street in Pittsburg and 2975 Treat Boulevard in Concord to monitor airborne concentrations of ozone, nitrogen dioxide (NO2), sulfur dioxide (SO2), carbon monoxide (CO), particulate dust (PM10). PM2.5 levels are measured at 2975

Treat Boulevard and air toxic contaminants are measured at both Pittsburg and Concord air monitoring stations.

After 30 years of improvement during 1970-2000, local climatic factors, topography, the growing number of residents and cars, refineries, other industry, and construction, collectively contribute to the current measured concentrations of air pollutants. Air pollutants of relatively greatest concern in the San Francisco Bay Area today are ozone, particulate matter (PM10), and air toxic contaminants. See Table 27 for details.

TABLE 27
Air Quality Record for Pittsburg and Concord, California

Standards/Monitoring Locations	2000	2001	2002	2003	2004*
Maximum Ozone (1-hour)					
Pittsburg	11	12	11	9.4	9.0
Concord	14	13	10	10.1	9.7
Maximum Ozone (8-hour)					
Pittsburg	8	9	10	8	8.1
Concord	9	9	9	8.5	8.3
Days Above Federal Ozone 8-Hr/State Ozone 1-Hr					
Pittsburg	0 / 2	1 / 2	2 / 4	0 / 0	0/0
Concord	1 / 1	1 / 6	3 / 5	1 / 5	0/1
Maximum PM10* (24-hr)					
Pittsburg	56	98	73	59	NA
Concord	54	106	63	34	NA
Annual PM10* (AGM)					
Pittsburg	13.9	16.6	21.1	20.2	**NA**
Concord	16.2	17.8	17.9	16.4	**NA**
Days Above Federal / State PM10 (24-Hr)*					
Pittsburg	0 / 2	- / -	0 / 3	0 / -	NA
Concord	0 / 1	0 / 2	0 / 3	0 / 0	NA
Maximum Carbon Monoxide (1-hour)					
Pittsburg	4.9	5.2	6.2	3.4	NA
Concord	4.5	4.4	3.5	3.2	NA
Maximum Carbon Monoxide (8-hour)					
Pittsburg	2.7	2.4	2.5	nd	NA
Concord	2.7	2.7	2.3	nd	NA

NOTES:

* Through October 12, 2004.

**PM10 is monitored on a 6-day cycle (or approximately 60 measurements per year). The number of calendar days in excess of the standard may be estimated by multiplying the columns at right by six, as suggested by the BAAQMD.

SOURCES:

http://www.baaqmd.gov/pio/aq_summaries/index.asp
http://www.arb.ca.gov/adam/cgi-bin/db2www/polltrendsb.d2w/Branch
http://gate1.baaqmd.gov/aqmet/AQYearly.aspx

Air Quality Trends

According to the U.S. Environmental Protection Agency, the San Francisco Bay Area has not attained the new 8-hour standard for ground-level ozone (U.S. EPA, December 3, 2003). The Clean Air Act, 1990, defines a non-attainment area as any area that does not meet, or that contributes to ambient air quality in a nearby area that does not meet, the national primary or secondary ambient air quality standard for the pollutant. Guidance by U.S. EPA further provides that the non-attainment area generally is the largest of the Consolidated Metropolitan Statistical Area, Metropolitan Statistical Area, or other non-attainment boundary based upon air pollution monitoring.

On October 23, 2003, EPA signed a rulemaking proposing to determine that the San Francisco Bay Area has attained the 1-hour ozone air quality standard by the deadline required by the Clean Air Act (CAA). Based on this proposal, EPA also proposed to determine that the CAA's requirements for reasonable further progress, attainment demonstration, and contingency provisions are not applicable to the area for so long as the Bay Area continues to attain the 1-hour ozone standard. In April 2004, U.S. EPA made a final finding that the Bay Area has attained the national 1-hour ozone standard.

Ozone— By the end of the 2003 smog season, the San Francisco Bay Area had recorded only one value above the 1-hour NAAQS. This excess occurred at the air monitor in Livermore, which typically records peak concentrations within the San Francisco Bay Area. This monitor recorded no excess in 2001 and two in 2002, for a total of three excesses over the 3-year period of 2001-2003. During the 2001-2003 period, three of the Bay Area's 24 ozone monitors recorded excesses of the 1-hour ozone standard: Livermore (1 in 2003, 2 in 2002), Bethel Island (1 in 2001), and Concord (1 in 2001).

PM10— The San Francisco Bay Area has met federal PM10 standards since 1992, but has not met California's more stringent PM10 standards. Pittsburg's PM10 monitoring record is not an exception.

Based on analysis of the chemical composition of airborne PM10 the BAAQMD has assessed that the main sources are wood smoke, combustion of fossil fuels, airborne dust entrained (propelled into the air) by motor vehicle tires and turbulence, and construction. About one-third of PM10 originates from wood smoke, one-third from motor vehicle exhaust, and one-third from fossil fuel combustion. In winter relatively more of the NOx produced by fossil fuel combustion is transformed in the air into ammonium nitrate, a form of particulate matter.

The region's PM10 levels have reduced thirty percent since 1990. Currently, the BAAQMD is supporting adoption of local city and county wood-burning

ordinances to reduce wood smoke. Additionally, State of California and federal programs have been implemented, and more are under development, to reduce NOx and PM_{10} emissions form on-road and off-road diesel engines. Despite the forecast reductions in NOx and PM_{10} from tailpipes, the BAAQMD remains alert to the fact that a substantial source of PM10 is dust entrained by motor vehicle tires and turbulence and that the total number of miles driven in the Bay Area is increasing every year (*Bay Area 2000 Clean Air Plan*, BAAQMD, December 20, 2000, p. 12).

PM2.5—Data for PM2.5 are incomplete (see Table 28), but current attention is focused on the 2.5 micron size, in view of the new federal standard. Because 80 to 90 percent of smoke is of the 2.5 micron size and below, wood smoke management is an important issue for the BAAQMD in its air quality planning. Attainment designation for the National PM2.5 standard is set to be published by the U.S. EPA in December 2004.

TABLE 28
New $PM_{2.5}$ Air Quality Monitoring Record for Concord, California

$PM_{2.5}$ Air Monitoring Station	Year	Concentrations ($\mu g/m^3$)		Completeness of Record	
		High 24-Hr	Avg	Qtrs	Mo.
Concord	2001	nd	nd	nd	nd
	2002	77	11.3	4	12

Notes:
$\mu g/m^3$ means micrograms per cubic meter.

Source:
http://www.baaqmd.gov/pio/aq_summaries/index.asp

Carbon Monoxide (CO)—The BAAQMD is currently in attainment of the federal and California's CO standards. CO was monitored in Pittsburg and Concord during 2000-2002 with similar results (see Table 27). CO monitoring in the years 2000-2002 has shown that maximum levels of CO at the Pittsburg air monitoring station range from 2.4 ppm to 2.7 ppm during 1-hour and from 4.9 ppm to 6.4 ppm during 8-hours.

Toxic Air Contaminants—Toxic Air Contaminants (TACs) refer to pollutants which frequently at very low concentration can induce adverse health effects are known or suspected cancer-causing agents. The Draft Environmental Impact Reports for the *City of Pittsburg General Plan* and *Pittsburg/Bay Point BART Station Area Specific Plan*, acknowledge broad classes of TACs including service stations (benzene), dry cleaners (perchloroethylene), motor vehicle exhaust (benzene), landfills (polyvinyl chloride), and diesel exhaust.

Diesel exhaust came to be of current concern to the public and regulators after reports in 1989 concluded diesel exhaust is a potential cancer risk factor in humans. Since 1989 various health organizations, the U.S. Environmental Protection Agency (EPA), and the California Air Resources Board (ARB) have participated in health assessments of diesel exhaust.

The Clean Air 2004 Rules, signed into law on May 11, 2004, include provisions for non-road diesel exhaust. The U.S. EPA is implementing a comprehensive national program to reduce emissions from non-road diesel engines by 90 percent and also reduce fuel sulfur content. The adopted emission standards apply to diesel engines used in most kinds of construction, agricultural, and industrial equipment. Because the emission control devices can be damaged by sulfur, the law includes provisions to reduce the allowable level of sulfur in non-road diesel fuel by more than 99 percent.

U.S. EPA estimates that affected non-road diesel engines currently account for about 44 percent of total diesel particulate matter (PM) emissions and about 12 percent of total nitrogen oxides (NOx) emissions from mobile sources nationwide. These proportions are even higher in some urban areas. The proposed diesel emission standards will reduce emissions by more than 90 percent, and are similar to the requirements for engines being implemented now for on-road highway trucks and buses.

The U.S. EPA adopted in December 2000 regulations to reduce emissions from new diesel-powered heavy-duty trucks. According to the California Air Resources Board these regulations will apply to federally certified heavy-heavy duty trucks and California certified heavy-heavy duty and medium-heavy duty diesel trucks. Particulate Matter (PM10) emission rates will reduce from 0.26 grams per mile traveled to 0.026 grams per mile traveled for new-in-service trucks beginning with the 2007 model year.

The BAAQMD regulates stationary sources of TACs through its permitting process. In April 2003 the BAAQMD published its Risk Evaluation Procedure (REP), for sources of TACs regulated under Regulation 2, Rule 5. The REP requires evaluation of incremental risk to workers and the nearest neighbors. For TACs that are designated potentially carcinogenic, an exposure is significant if the probability of contracting cancer for any exposed person exceeds 10 in one million over a lifetime of exposure.

A very small fraction of total PM10 originates diesel-truck and auto exhaust. Diesel exhaust control measures are not intended primarily as strategies to reduce total PM_{10} but are a response to the regulatory community's specific acknowledgment that very low concentrations of diesel exhaust may pose a

cancer risk to humans. For the purpose of evaluating potential non-cancer health effects related to diesel fumes, the chronic inhalation Reference Exposure Level (REL) is 5 micrograms per cubic meter (µg/m3). The REL is the concentration at or below which no adverse non-cancer health effects are expected.

Air monitoring for TACs has been performed at the Pittsburg (10th Street) and Concord (2975 Treat Boulevard and Arnold Way). Results are not summarized herein because there are several different TACs and the results can be evaluated in terms of risk to specific populations but cannot generally be compared to an ambient air quality standard.

Asbestos—Asbestos is classified as a known human carcinogen and a toxic air contaminant. Naturally-occurring asbestos minerals may be found in serpentinite rock that is located in the San Francisco Bay region. Disruption, breaking, or crushing of serpentinite rock potentially can lead to airborne emissions of dusts that contain the mineral asbestos. T o address the potential health hazard of this airborne substance, the Governor's Office of Planning and Research (OPR, 2000) and the CARB (17 Cal. Code Regs. 93105) each have established requirements to minimize emissions of naturally-occurring asbestos from construction and grading. BAAQMD Regulation 11, Rule 2 requires appropriate emission control methods, handling, disposal, and record-keeping for handling asbestos-containing material.

Nuisances— BAAQMD Regulation 2, Rule 1, General Requirements, prohibits any source from causing a public nuisance. The BAAQMD also manages an odor control program to minimize odor nuisances. Sources that generate odors which travel into adjacent properties are regulated by the provisions of BAAQMD Regulation 7, Odorous Substances.

FUTURE AIR QUALITY

Contra Costa County's population grew 130,900 persons during 1990-1999, up 16.2 percent in the ten years. At the same time, daily vehicle miles of travel increased 4,068,000 vehicle-miles, up 21 percent in the ten years. In the face of expected future growth, cooperation of employers and the driving public will be needed to realize air quality improvements and maintain air quality. In the cases of PM2.5 (federal 24-hour), ozone (federal 8-hour and California 1-hour), efforts to achieve and maintain the ambient air quality standards will be a long-term challenge, requiring continued emissions controls and future reductions (*The 2004 California Almanac of Emissions and Air Quality*, Appendix A, May 2004).

AIR QUALITY IMPACT ASSESSMENT

PROJECT EVALUATED

The proposed project is the Sky Ranch II residential subdivision, including its construction phase and construction and operation of the future Buchanan Bypass. The proposed project includes 415 single-family lots and construction of the segment of the Buchanan Bypass within the limits of the Proposed Site. Commercial and industrial elements, a school site, and park are not proposed. Additionally, as required under the California Environmental Quality Act (CEQA), and guidelines issued thereto, the assessment considers the following alternatives to the Proposed Project: On-Site Conservation, No Project, and Alternative Site Locations (see Chapter VI).

PROJECT SITE

The project site generally is located in the southeastern part of Pittsburg, within the Planning Area and Sphere of Influence, outside the incorporated city limits. The project site adjoins the City of Antioch on the east. From the project site, it is approximately 4.2 miles to the Pittsburg Civic Center and 2.5 miles to Buchanan Park. Walmart (2203 Loveridge Road) is located approximately 2.1 miles from the Proposed Site. The Pittsburg BART station at Bailey Road/West Leland Road is located three miles west of Railroad Avenue, at an overall driving distance of approximately 6.6 miles from the Proposed Site.

Land uses in the proposed project are exclusively single-family residential without commercial, public park, or open space uses. The project site is adjoined by other existing residential development to the north and northwest and by residential development under construction to the east.

The nearest shopping center is County East Mall, located at Delta Fair Boulevard and Somersville Road, an overall driving distance 2.7 miles from the Proposed Site. Walmart (2203 Loveridge Road) is an overall driving distance of 2.3 miles from the Proposed Site. The nearest supermarkets are Raley's (1375 Buchanan Road), Albertson's (2515 Somersville Road, Antioch), Albertson's (2100 Railroad Avenue), and Save Mart (3190 Contra Loma Boulevard, Antioch). The nearest supermarket (Raley's, 1375 Buchanan Road) is located 1.1 miles from the Proposed Site, and the second nearest supermarket (Albertson's, 2515 Somersville Road) is located to 2.1 miles from the Proposed Site. The nearest service stations are Delta Fair Chevron (2101 Somersville Road, Antioch), Shell (1335 Buchanan Road), and Shell (3737 Railroad Avenue).

Schools in the area are part of the Pittsburg Unified School District. The nearest elementary schools, namely, Foothill Elementary, Stoneman Elementary, and

Highlands Elementary, are located 1.5 to 1.9 miles from the Proposed Site. The nearest Junior High Schools are Central Junior High School and Hillview Junior High School. Pittsburg High School is located near the intersection of Railroad Avenue and Leland Road (Source: *Pittsburg 2020: A Vision for the 21st Century*, Figure 8-2, p. 8-22).

PROJECT EMISSIONS

The proposed project would generate continuing emissions during the lifetime of the project (Table 29) and temporary emissions during construction (Table 30). Air pollution generated during the proposed project's construction phase, and continuing during occupancy of the proposed housing and hotel, are called air pollutant emissions or just "emissions." Sources of air pollution would include construction trucks and machinery, motor vehicles, maintenance, and wood-burning if EPA Phase II fireplace inserts or wood stoves are allowed.

TABLE 29
Air Pollutant Emissions Added by the Proposed Project in Contra Costa County, California

Air Pollutant	Contra Costa County Projected Emissions	Pittsburg & Antioch Projected Baseline Emissions	Other Buildout Except Project (2010)	Pittsburg & Antioch Baseline + Other Buildout	Project Only (2010)	Cumulative with Project (2010)	% Added by Project
ROG	23,617	3,865	103	3,968	10	3,978	0.3
NOx	36,413	9,060	84	9,144	8.6	9,153	0.1
CO	101,152	20,367	659	21,026	70	21,096	0.3
PM10	11,072	2,396	70	2,466	7.4	2,473	0.3

NOTES: Emissions have been expressed for consistency in tons per year. Assumptions for 2010 emissions include:

1. EPA Phase II wood stoves (1% of dwellings) and natural gas-fired fireplaces with artificial logs.
2. No indirect source fugitive dust emissions. Fugitive dust from construction is tabulated separately in Table 30.
3. County-wide emissions are apportioned based upon population share, approximately 20 percent in year 2010.
4. Emissions from high emitting facilities have been added to population-apportioned emissions.
5. ABAG population projections for 2005 (2010) are 83,000 (90,400) persons in Pittsburg and 98,800 (106,700) persons in Antioch. Projected population increases during 2005-2010, therefore, are 7,400 persons in Pittsburg and 7,900 persons in Antioch. Corresponding housing increases during 2005-2010 are 2,410 dwelling units in Pittsburg and 2,690 dwelling units in Antioch, based upon household sizes of 3.07 persons per added household in Pittsburg and 2.94 persons per added household in Antioch.
6. NOx emissions from high emitting facilities in Pittsburg and Antioch comprise approximately 50 percent of projected baseline NOx emissions (column 3).

SOURCES: http://www.arb.ca.gov/aqd/almanac/almanac04/pdf/almanac2004all.pdf ; Contra Costa Community College District, June 2003; and Urbemis2002.

Table 29 summarizes air pollutant emissions, within the Pittsburg and Antioch spheres of influence, contributed by operation and maintenance, but not by construction, of the proposed project. Construction emissions are tabulated separately in Table 29. The BAAQMD significance thresholds are 15 tons per year (or, 80 pounds per day) for each of reactive organic gases (ROG), nitrogen oxides (NOx), and PM_{10}, and 100 tons per year (550 pounds per day) for carbon monoxide (CO). Project-only emissions from operations would not exceed these thresholds.

Trip rates used for this air quality impact assessment were selected to match the assumptions of the traffic engineer. Trips rates for proposed housing products were selected to match trip generation in *Traffic and Circulation Study for Sky Ranch II* (Whitlock & Weinberger, October 2004).

TABLE 30
Construction-Phase Air Pollutant Emissions Added by the Project

Air Pollutant	Emissions in tons per year				
	2005	2006	2007	2008	2009
ROG Baseline	6.7	4.9	14.4	5.0	0.10
NOx Baseline	55.6	38.0	0.21	0.15	0.05
CO Baseline	47.2	36.7	5.5	3.4	1.0
PM10 Baseline* With controls** With controls***	 221* 112** 39***	 158* 80** 27***	 0 0 0	 0 0 0	 0 0 0

NOTES: Tons per year.
* Based on two-season earthwork phase, 24,000 cubic yards per day, beginning June 2005.
** Grading-phase air pollution control includes 3-times per day watering.
*** Above plus 3-times per day watering of unpaved haul roads and speed restriction of 15 mph or lower on unpaved haul roads.

SOURCE: Urbemis2002.

Emissions were calculated based upon design years of 2005-2009 for construction and 2010 for occupancy or "operations." Construction-phase emissions can be expected to occur for the extended number of years owing to the scale of the proposed project, and will vary during 2005-2009 depending upon construction activity. The Urbemis2002 model written for the California Air Resources Board was used to facilitate calculation of emissions. Emissions include emissions for the construction-phase and continuing operations (that is, area source and vehicle exhaust emissions) of the proposed project.

In Table 29, the baseline assumptions are 1 percent of new dwelling units have EPA Phase II catalytic or noncatalytic wood-burning stoves or EPA Phase II fireplace inserts. Other fireplaces are limited to natural-gas burning with artificial logs. In Table 29, other baseline assumptions include 100 percent natural gas for space heating and water heating. These assumptions are consistent with actual usage in new housing in the San Francisco Bay area, where the majority of new construction now features natural-gas burning with artificial logs, few with wood stoves, and natural gas for space heating and water heating.

IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

The potential impact of the proposed project was evaluated in terms of the California Environmental Quality Act significance criteria listed below:

a) Conflict with or obstruct implementation of the applicable air quality plan;

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation;

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment;

d) Expose sensitive receptors to substantial pollutant concentrations; and,

e) Create objectionable odors affecting a substantial number of people.

EVALUATION

Conflict with the San Francisco Bay Area's *Attainment Plan* — The proposed project is consistent with the *Attainment Plan* and with *General Plan* buildout assumptions. The proposed project does not represent an intensified use of the site or a new stationary source, so

that proposed project is consistent with ABAG projections and related air pollution emissions which are incorporated into the *Attainment Plan.*

Mitigation measures: None warranted as the proposed project is not inconsistent with the *Attainment Plan.*

Violate any air quality standard or contribute substantially to an existing or projected air quality violation —

Table 29 shows that operations emissions from the proposed project would constitute approximately 0.3 percent of the local area's emissions. Operations emissions generated by the proposed project would be less than BAAQMD significance thresholds. Relative to the BAAQMD thresholds, proposed project in 2010 would generate 50 percent of the PM10 threshold, 57 percent of the NOx threshold, 67 percent of the ROG threshold, and 70 percent of the CO threshold.

Mitigation measures: None warranted as potential effects of the proposed project in terms of air quality standards violations are less-than-significant.

Result in a cumulatively considerable net increase in ozone precursors or PM10 —

Ozone. Reactive Organic Gas (ROG) refers to precursors to ozone formation. In combination with sunlight ROG are transformed into ozone in the atmosphere.

In comparison to future air pollutant emissions, the proposed project would contribute 10 tons per year or approximately 0.3 percent of cumulative ROG emissions in the Pittsburg and Antioch area (see Table 29). Temporarily, during project construction, peak ROG emissions could reach 14 tons per year. The proposed project's construction-phase contribution to regional emissions of ozone precursors is just under the significance threshold of 15 tons per year.

Mitigation measures: None warranted as the potential effect of the proposed project in terms of emission of ozone precursors is less than the significance threshold.

PM10 and PM2.5. Unmitigated grading is expected to add 10 pounds per acre per day during earthwork. Because grading is a temporary and intermittent source, it is not included in buildout

(except project), project only, or cumulative emissions of PM10 in Table 29 and instead is presented separately in Table 30.

In comparison with future air pollutant emissions in the Pittsburg and Antioch area, the proposed project would contribute 7.4 tons per year or approximately 0.3 percent of cumulative PM10 emissions in the Pittsburg and Antioch area. PM10 includes PM2.5 emissions. This contribution includes vehicular and area-source emissions but excludes construction-phase emissions.

Construction-phase emissions of PM10 from dust and diesel exhaust are estimated to be 221 tons per year in the year of maximum cut and fill volume. This estimate represents a baseline without mitigation measures. Watering and diesel exhaust controls could substantially reduce the predicted emission of PM10 during construction. With 3-times daily watering of the grading site and unpaved roads, and speed limits for grading equipment, PM10 emission could be reduced by 80 percent, to 39 tons per year from 221 tons per year.

The San Francisco Bay area has attained the federal PM10 standard but has not attained the State of California's PM10 standard. Review of preliminary data for Concord also seems to indicate nonattainment of the PM2.5 locally, with official determination expected in December 2004. Whether PM10 emissions from the proposed project would contribute to future violations of California's PM10 standard and the PM2.5 standard will depend on the effectiveness of regional air quality planning measures to attain and maintain the standards.

Implementation of fugitive dust mitigation, particulate filters on heavy diesel equipment used for earthwork, and wood smoke management measures should be recognized as critical for the control of PM10 and PM2.5. This would apply to the proposed project or other build alternatives.

IMPACT 1: Proposed project operations may include wood-burning which generates PM10 and PM2.5 emissions. Such emissions may cumulatively contribute to violation of the State of California ambient PM10 standard and federal ambient PM2.5 standard.

Mitigation measures:

- Developer shall install natural gas-fired aesthetic fireplaces. City shall prohibit or severely restrict wood-burning in EPA-certified Phase II fireplace inserts, other EPA-certified Phase II appliances, or EPA-exempt pelletized-wood stoves. This

restriction would be consistent with the City of Pittsburg's *General Plan* Policy 9-P-33.

Residual impact after mitigation: Less-than-significant effect.

Expose sensitive receptors to substantial air pollutant concentrations—

Carbon monoxide. Sensitive receptors include, for example, schools, parks, and housing. Based upon the projected traffic volumes on internal roads and external roads, sensitive receptors are not expected to be exposed to air pollution exceeding air quality standards resulting from operation of the proposed project.

Projected daily traffic volumes on streets located outside the project site and streets internal to the project site would not carry such high volumes as to be expected to cause or contribute to any violation of the ambient air quality standards for carbon monoxide (CO). According to the *Traffic Impact Study*, before opening of the Buchanan Bypass "B" Street would carry up to 3,972 vehicles per day (vpd). The daily traffic volume on Ventura Drive in Highlands Ranch could reach 6,474 vpd. With the recommended phasing mitigation, the cumulative volume on Ventura Drive would not exceed 5,000 vpd. With traffic volumes up to 6,474 vpd, curbside CO concentrations from vehicle exhaust when added to the assumed CO background concentrations are not expected to exceed the California 8-hour or 1-hour standards.

Background CO concentrations in the area around the project site are not expected to exceed approximately 2.4 ppm (8-hour) and 4.8 ppm (1-hour). This background is based on air monitoring at 10th Street in Pittsburg. "Background" means the CO concentration that would prevail in the absence of the Proposed Project.

The above conclusions are supported by screening-level Caline4 modeling, with uninterrupted traffic flow on a single road segment, worst-case meteorological conditions, receptor location 50 feet from the road centerline, and an assumed exhaust emission rate of 16 grams per vehicle mile. The CO (8-hour) concentration is projected based upon the CO (1-hour) concentration and a persistence factor of 0.50.

Particulates. Construction would include substantial earth moving. The baseline cut and fill volume is 3.31 million cubic yards, excluding the additional remedial excavating and backfilling to remove and stabilize landslide and colluvial deposits. Prevailing winds during the grading will tend to transport particulates to the east,

to Black Diamond Ranch. Without frequent watering to suppress dust, elevated PM10 and PM2.5 concentrations potentially could result within 500 feet of the active grading area.

IMPACT 2: During construction the proposed project will generate PM10 and PM2.5 emissions, and at times the areas of active grading will be close to existing or future houses in Black Diamond Ranch and Highlands Ranch. The following mitigation measures would reduce grading dust (PM10) by approximately 80 percent, but would not necessarily avoid dust nuisance under adverse conditions such as winds from the south or west.

Mitigation measures:

- Developer shall perform active grading operations with watering at least 3 times per day including watering of any unpaved roads.
- Developer shall limit off-road speeds to 15 mph on the project site.
- Developer shall pave roads before deliveries of concrete or other construction materials are made to the lots.
- Developer shall hydroseed or apply (non-toxic) soil stabilizer to inactive construction areas (previously graded areas inactive for ten days or more) or apply water daily.
- Developer shall enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (soil, sand, cement, or aggregate materials.)
- Developer shall install sandbags or other erosion control measures to prevent silt runoff to public roadways.
- Developer shall replant suitable grassland vegetation in disturbed areas as soon as feasible.

Residual impact after mitigation: Significant, unavoidable.

IMPACT 3
Even with the above mitigation measures, PM10 and PM2.5 emissions could create a dust nuisance if active grading is located within 500 feet of existing residences.

Mitigation measures:

- Developer shall perform grading operations with more frequent watering than three time daily watering, including

watering on demand to keep surface soil moist or crusted at all times.

- Developer shall install and operate a temporary wind vane and anemometer during the grading. Developer shall suspend grading operations if adverse winds over 25 mph are blowing dust to any occupied residence.

- Developer shall provide perimeter dust monitoring for grading operations within 500 feet of an occupied dwelling. Monitoring reports shall be prepared and submitted daily to the City's Engineering Department

Residual impact after mitigation: Less-than-significant.

IMPACT 4: Even with the above mitigation measures, PM10 and PM2.5 diesel exhaust emissions would be emitted from the grading equipment at the annualized rate of 2.6 tons per year in the year of maximum cut and fill volume. Diesel soot is considered to be a Toxic Air Contaminant. The following additional mitigation measure, in conjunction with those measures listed above, would reduce diesel exhaust PM10 by approximately 2 tons per year in the year of maximum cut and fill volume.

Mitigation measure:

- Developer shall require particle filters on diesel earthmoving equipment including excavators, earthmovers, and compactors.

Residual impact after mitigation: Less-than-significant.

IMPACT 5: Proposed project grading will include deep excavations to bedrock. Though serpentine, or other forms of naturally-occurring asbestos are not known to be present on the project site, application for exemption from the BAAQMD or compliance with dust control provisions of Section 93105 is required. The State of California Code of Regulations, Title 17, Section 93105, is an Asbestos Air Toxic Control Measures (ATCMs) to minimize or avoid naturally-occurring asbestos in grading dust.

Mitigation measures:

- Developer shall comply with Asbestos ATCMs or exemption from the BAAQMD.

- When applying for a general exemption from the ATCM via a geologic exemption, the developer shall contact the BAAQMD prior to submitting an exemption application. By doing so, the developer and the District will be able to discuss all of the information the District needs to consider the exemption request and ensure that a complete application is submitted. Failure to contact the District prior to submitting an exemption application may result in delays in processing the exemption request.

Residual impact after mitigation: Less-than-significant.

Objectionable Odors —

The proposed project is not of a class of projects that has a recognized direct potential to create objectionable odors. Indirectly, the proposed housing would have add incrementally to wastewater generation within the Delta Diablo Sanitation District. However, the increment is low in comparison to treatment capacity and, therefore, not likely to induce treatment plant odors related to incomplete treatment.

Mitigation measures: None warranted as potential odor effects of the proposed project are less-than-significant.

CUMULATIVE EFFECTS

Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment—

Development in the San Francisco Bay Area and the related ROG emissions from industrial sources and travel in motor vehicles continue to contribute to ozone levels. The 8-hour standard of 8.5 pphm has been equaled or exceeded in Pittsburg at times during 2000-2004. ROG emissions of the proposed project are less than the annual significance threshold of 15 tons per year, but in conjunction with ROG emissions from other sources will contribute to ozone formation.

IMPACT 6: The proposed project will generate ROG that cumulatively, with other residential development and industrial sources, may contribute to a violation of the federal 8-hour and State of California 1-hour ambient ozone standards. The majority of the project's ROG emissions would originate from vehicular exhaust, area sources (*e.g.*, space heating) in winter, and temporary construction sources in summer. Mitigation measures focus on

reduction of ROG emissions from sources emitting ROG during the summer and fall ozone season.

Mitigation measures:

- Developer shall design and construct garages with electrical hookups for recharging electric-powered or hybrid vehicles. Assure compliance at the time of Design Review, Plan Check, and Building Inspection.
- Developer shall require and employ architectural coatings with reduced-VOC (5 percent reduction in emission of ROG from painting). Assure this at the time of Design Review, Plan Check, and Building Inspection.
- Developer shall include as mandatory provisions of the CC&Rs restrictions to reduce on-site handling of gasoline. City shall require this as a condition of approval.
    1. Developer shall encourage homebuyers to use push-reel or electric-powered lawn mowers through dissemination of air/water pollution information pamphlets.
    2. CC & Rs shall prohibit on-site refueling of vehicles or storage of gasoline in excess of 1-gallon.

Residual impact after mitigation: Less-than-significant effect.

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K. PUBIC HEALTH & SAFETY

SETTING

The project site is located a considerable distance from the nearest refineries or manufacturing facilities. On-site hazards include landslide, wildland fire, electromagnetic fields (EMF) from Pacific Gas & Electric (PG&E) electric power transmission lines, and oil spill or rupture hazards from the Kinder Morgan Energy Partners petroleum product pipeline. Landslide hazard is addressed in Chapter V.B; therefore, landslide hazard is addressed but not herein.

Wildland Fire Hazard

The southern hills have a general potential for grass fires. Though the City of Pittsburg's *General Plan* does not illustrate specific areas of potential fire hazard, the City acknowledges the relative risk of wildland fire where the southern hills abut residential developments, owing to dryness (June-October), grass, and slope. Moreover, the California Department of Forestry and Fire Protection (CDF) has produced a Fire Hazard Disclosure Map that illustrates the project site as a Wildland Area (CDF, 2000).

Ground-borne fires involving native grasslands are the predominant fire risk at the project site. According to CDF, the project site is located in the grass fuel planning belt, has a medium surface fuel ranking, and crown fuel is not present (CDF, *Santa Clara Unit Fire Management Plan*, 2004, pp. 47-60).

Ground-borne fires tend to advance in the direction of prevailing winds, and the hazard they pose to property depends primarily on fuel density. Ground fires are, in general, the most readily controllable kind of Urban Wildland Interface (UWI) fire. Fuel breaks are relatively effective and, in the absence of large amounts of fuel in the forms of brush and other undergrowth, grassland fires present relatively lower risk to property than chaparral, chamise-chaparral, woodland, and conifer forest.

Dry grass with an average depth of 1 foot (corresponding to a fuel loading of 0.75 tons per acre) burns rapidly with flame length of approximately 4 feet. In comparison , stands of mature brush, 6 feet or more in height (corresponding to a fuel load of 16 to 21 tons per acre) tends to spread quickly and burn intensely with 19 foot flame lengths.

CDF's Fire Hazard Disclosure Map for Contra Costa County, Map NHD-07, shows the project site is located in a Wildland Area but is not located in a Very High Fire Hazard Severity Zone (VHFHSZ). Wildland Areas are the same as State Responsibility Areas (SRAs), and VHFHSZ areas are also known as 'Bates Bill'

areas. The owner(s) of the project site are subject to the maintenance requirements of Section 4291 of the Public Resources Code. If, and only if, the CDF has entered into a cooperative agreement with a local agency for fire protection services is it the state's responsibility to provide fire protection services to any building or structure located within the wildlands.

The Contra Costa Battalion (Battalion Six) of CDF covers all of Contra Costa County, a small part of northwestern Alameda County, and western San Joaquin County. There are several large land owners in the battalion. Among the largest are Mt Diablo State Park, East Bay Regional Park District, and the Contra Costa Water District. Contra Costa County's population is over 1 million, and encroachments into the UWI are increasing in number. The cooperative agreements with other fire agencies in the Battalion Six territory remain a priority among CDF projects. CDF and Contra Costa Fire Protection District have not currently entered into a cooperative agreement.

Electric Power Transmission Lines

PG&E was provided with a copy of the Vesting Tentative Map for Sky Ranch II to identify the particular power line easement of concern. According to PG&E staff, there are two separate power lines each on its own towers within the 100-foot wide power line easement. The two power lines are each 6-circuit, 115 kilovolt lines. Within the limits of the project site, the lines are supported by a total of six transmission towers, three towers for each line.

Petroleum Pipeline

The Office of the State Fire Marshal (SFM), Pipeline Safety Division, regulates the safety of approximately 5,500 miles of intrastate hazardous liquid transportation pipelines in California. SFM acts as an agent of the federal Office of Pipeline Safety concerning the inspection of more than 2,000 miles of interstate pipelines. Pipeline Safety staff inspect, test, and investigate to ensure compliance with all federal and state pipeline safety laws and regulations. SFM, Pipeline Safety Division, responds to spills, ruptures, fires, or similar incidents, and it investigates all such accidents for cause.

Hazardous liquid pipelines are periodically tested for integrity using procedures approved by SFM. The pipeline integrity testing program has been certified by the federal government since 1981. SFM also maintains Geographic Information Systems-based maps of regulated pipelines and has been named as a state repository for pipeline data by the National Pipeline Mapping System.

The petroleum pipeline on the project site is a 10-inch diameter multi-purpose line that can carry any of three refined petroleum products—namely, gasoline, diesel, or jet fuel (Biggs, June 2005). The petroleum product pipeline is an underground

pipeline in a 10-foot wide easement that is contiguous with PG&E's 100-foot wide power transmission line easement. The pipeline traverses the project site generally east-west just south of the transmission towers.

Storage Tank and Hazardous Waste Sites
Historical aerial photographs and reports in regard to hazardous waste sites were reviewed to assess whether there is a likely or risk of environmental impairment on the site. Based on this review, there have been no known buildings on the site and no known manufacturing, disposal, auto-wrecking, or other uses of site that could potentially entail the use or storage of hazardous materials or waste. Above ground or underground storage tanks are not known or suspected based upon the historical use of the site for cattle grazing and absence of a residence or other buildings. The nearest tanks were above-ground oil storage tanks, collectively the "Los Medanos Tank Farm," which formerly was located on the adjoining Highlands Ranch and Meadow Lands parcels.

The proposed project is located at considerable distance from the nearest active or inactive sanitary landfills. Such landfills include GBF/Pittsburg Landfill, Lynch Canyon Landfill, and Keller Canyon Landfill. A summary of the review of historical aerial photographs, reports in regard to hazardous waste sites, and information about the nearest active or inactive landfills is presented in Chapter V. M. Storage tank and hazardous waste sites were considered and are not discussed further here, as effects on the site have been determined to be less-than-significant.

APPLICABLE REGULATIONS AND POLICIES

Urban Wildland Interface
Public Resources Code (PRC) 4291 and SB 1369 – Governor Arnold Schwarzenegger on September 23, 2004 signed into law Senate Bill 1369. This bill became effective January 1, 2005. Senate Bill (SB) 1369 amended both PRC 4291 and Government Code (GC) 51182 in the following manner:

- Increases minimum clearance requirement to 100 feet from 30 feet.
- Provides for state law, or local ordinance, rule, or regulation to specify distances greater than 100 feet.
- Allows insurance companies to require home/building owners to maintain firebreaks greater than 100 feet.

In SRAs, that is, areas where PRC 4291 (as amended) applies, owners proposing to build or rebuild, must obtain certification from the local building official that the proposed dwelling/structure complies with all applicable state and local building standards, including those described in subdivision (b) of GC 51189. Current rulemaking in progress the Office of the State Fire Marshal (SFM) will "recommend building standards that provide for comprehensive space and structure defensibility to protect structures from fires spreading from adjacent structures or

vegetation and vegetation from fires spreading from adjacent structures." The draft standards were published June 30, 2005.

Public Resources Code Section 4291 states that: "Any person who owns, leases, controls, operates, or maintains any occupied dwelling or occupied structure in, upon, or adjoining any mountainous area, forest-covered land, brush-covered land, grass-covered land, or any land that is covered with flammable material, shall at all times do all of the following:

> (a) Maintain around and adjacent to the dwelling or structure a firebreak made by removing and clearing away, for a distance of not less than 100 feet on each side thereof or to the property line, whichever is nearer, all flammable vegetation or other combustible growth. This paragraph does not apply to single specimens of trees, ornamental shrubbery, or similar plants that are used as ground cover, if they do not form a means of rapidly transmitting fire from the native growth to any dwelling or structure.
>
> (b) Maintain around and adjacent to the occupied dwelling or occupied structure additional fire protection or fuel breaks made by removing brush, flammable vegetation, or combustible growth that is located more than 100 feet from the occupied dwelling or occupied structure or to the property line, whichever is nearer, as may be required by the local agency if the local agency finds that 100 feet is not sufficient to provide reasonable fire safety. Outside the defensible perimeter grass and other vegetation less than 18 inches in height above the ground may be maintained where necessary to stabilize the soil and prevent erosion.

A person is not required under Section 4291 to maintain any clearing on land to which that person does not have the legal right of access for maintaining the clearing.

Building Codes – There are currently four codes/standards applicable to the Urban Wildland Interface fire hazard. These are Public Resources Code Section 4291, the 2001 California Fire Code (which amends the 1997 Uniform Fire Code), National Fire Protection Association Standard 1144 - Protection of Life and Property from Wildfire, and the International Urban Wildland Interface Code. The 2001 California Building Code does *not* specifically address this hazard currently.

Contra Costa County Fire Protection District – The CCCFPD has adopted service level goals, standards for abatement of exterior fire hazard, and standards for fire vehicle access. It also has level of service goals based on response time and distance from the nearest fire stations. These goals are 5 minutes response or 1.5 miles distance.

CCCFPD's abatement standards for proposed parcels more than 5 acres in size require 30-foot wide fire breaks, with grass and weeds cut to 3-inch height, or lower, and disked. Firebreaks must be around tree clusters and stored combustibles, on each side of roads, and along all fence lines, property lines, ditches and creeks. On parcels of 5 acres or less, grass and weeds must be cut to a height of 3 inches, or lower, over the entire parcel. These standards currently apply to the 163-acre project site, and also to its neighbors in Highlands Ranch and Black Diamond Ranch, the Thomas parcel, and AUSD-owned parcel. Fuel or "fire" breaks are required whether or not a parcel has a house or other structural improvement.

Electric Power Transmission Lines

The California Public Utilities Commission (CPUC) adopted General Order No. 95 in 1998. General Order No. 95 General Order governs construction of overhead electric supply and communication systems. According to Table 1 of General Order No. 95, a minimum vertical clearance of 30 feet is required between the power line and the ground if passable by motor vehicles or agricultural equipment or 25 feet if passable only by pedestrians. Additionally, the required vertical clearance from the top edge of a swimming pool is 30 feet.

Petroleum Product Pipelines

It is the written position of the State Fire Marshal, as communicated in Information Bulletin #03-001, that nothing shall encroach into or upon a petroleum product pipeline easement, if that encroachment would impede the pipeline operator from complete and unobstructed surface access along the pipeline right-of-way. Additionally, obstructions that would shield the pipeline right-of-way from visual observation are not to be permitted or allowed. It is imperative, both in the interest of public safety and the protection of the environment, that pipeline operators be able to assess visually conditions along the pipeline easement as a means of ascertaining the integrity of the pipeline.

It is the responsibility of pipeline operators to ensure they have unimpeded surface access and ability at all times to physically observe all portions of their pipeline rights-of-way. In cases where this is not possible, the pipeline operator shall inform the State Fire Marshal, and the State Fire Marshal shall in conjunction with the pipeline operator resolve the issue.

Section 51014.6 of the California Government Code states, " (a) Effective January 1, 1987, no person, other than the pipeline operator, shall do any of the following with respect to any pipeline easement:

(1) Build, erect, or create a structure or improvement within the pipeline easement or permit the building, erection, or creation thereof.

(2) Build, erect, or create a structure, fence, wall, or obstruction adjacent to any pipeline easement which would prevent complete and unimpaired surface access to the easement, or permit the building, erection, or creation thereof.

(b) No shrubbery or shielding shall be installed on the pipeline easement which would impair aerial observation of the pipeline easement. This prohibition does not prevent the re-vegetation of any landscape disturbed within a pipeline easement as a result of construction the pipeline and does not prevent the holder of the underlying fee interest or the holder's tenant from planting and harvesting seasonal agricultural crops on a pipeline easement.

(c) This section does not prohibit a pipeline operator from performing any necessary activities within a pipeline easement, including, but not limited to, the construction, replacement, relocation, repair, or operation of the pipeline.

Storage Tank and Hazardous Waste Sites

Leaking underground storage tank sites and hazardous waste sites generally can pose risks including health safety and environmental risks. The City of Pittsburg's *General Plan*, therefore, provides several policies in regard to hazardous waste site and the transportation of hazardous materials:

10-P-32 Designate and map Brownfield contamination sites which have contamination from previous historical uses.

10-P-33 Prevent the spread of hazardous materials from leaks or spills on industrial facilities into residential neighborhoods.

10-P-34 Identify regional and local routes for transportation of hazardous materials. (*Note: Theses generally have been designated by the City as routes like Pittsburg-Antioch Highway, Tenth Street-Willow Pass Road, and Loveridge Road north of SR 4.)*

10-P-35 Require historical assessments as part of the environmental review process.

IMPACT ASSESSMENT

STANDARDS OF SIGNIFICANCE

The proposed project could potentially expose persons to wildland fire hazard, EMF exposure from existing on-site electrical power transmission lines, and pipeline rupture hazard from the existing petroleum product pipeline. The proposed project also could expose persons to landslide hazard, noise, and air pollution, and these potential exposures are evaluated separately in Chapters V. B, I, and J. Other hazards to public health and safety, including potential hazards caused by hazardous materials and wastes, were determined in the Initial Study to be less-than-significant effects.

Criteria applied in the evaluation include both the adopted standards of responsible agencies, which were set for the protection of the public, and the following general criteria:

- **Wildland Fire Risk**. A significant risk if people or structures are exposed to risk of loss, injury or death involving wildland fires, including situations where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

- **Power Transmission Lines**. A significant effect or risk of significant effect if determined that the exposure could cause substantial adverse health consequences on human beings, either directly or indirectly.

- **Petroleum Product Pipeline**. A significant hazard to the public or the environment if the pipeline, through reasonably foreseeable upset and accident conditions, could involve the release of hazardous materials into the environment.

EVALUATION

Wildland Fire Hazard— The southern hills have a general potential for grass fires and introduction of human presence, landscaping, and ignition sources potentially could add to the potential for grass fires on the adjoining upslope hills. In view of the project site's location on the Urban Wildland Interface (UWI), the Contra Costa County Fire Protection District (CCCFPD) has recommended compliance with its adopted standards for abatement of exterior fire hazard and standards for fire vehicle access. CCCFPD's recommendations also are based on the site's location outside the response time and distance service goals of 5 minutes or 1.5 miles.

As shown on the Vesting Tentative Map dated March 16, 2004, the proposed project does not provide Emergency Vehicle Access (EVA) to the adjoining open space. With CCFPD's recommendation for an EVA through proposed Lot 191 and the City's recommended Zone III/IV water reservoir and service road, emergency access to the project site and wildlands area south of the project site could be improved.

Power Transmission Magnetic Fields— In the areas of potential exposure to magnetic fields from the existing overhead power transmission lines, the project could have adverse impacts on persons so exposed. The potential health effect of related to power transmission lines remains unsettled in the general scientific community. In June 2002 the California DHS determined that "EMF exposure can cause some amount of increased risk of childhood leukemia, adult brain cancer, Lou Gehrig's Disease, and miscarriage." However, the State of California has adopted school siting guidelines and avoidance criteria for new power transmission line construction, but not passed regulations requiring, for example, specific setback distances for new residential developments.

Proposed Lot 76, proposed Lot 304-306, and proposed Lot 228-233 may have fill or fill slopes that encroach horizontally and vertically into PG&E's easement. This could be acceptable only if the 30-foot ground clearance standard is met. The clearance standards are set forth in CPUC General Order 95.

PG & E requires access to all six towers. According to PG & E staff, feasible access appears for the westernmost towers from "A" Court and for the mid-site towers from a proposed access road. However, no access is shown through proposed Lots 229 and 244 to the two easternmost towers (Gigliotti, June 2005). This issue could be mitigated by providing an access way from "B" Street. Cross fencing would not be allowed across the access way. This issue also could be avoided if the easements are protected as right-of-way for a future trail under Alternative 1b.

Petroleum Product Pipeline— The proposed project would create backyard areas around the pipeline and its easement. Creation of lot lines and fencing across an easement is known as "cross fencing." Proposed Lot 77 and proposed Lots 228-233, 236, 260, 305-306, 309, 342-343, and 378 would cross-fence the easement. On proposed Lot 77 and proposed Lots 236, 260, 306, and 378, the building pads could be very close to the pipeline, depending on the pad siting on the lots. The existing product pipeline would cross proposed "B" Street and proposed "D" Street.

Information Bulletin #03-001 expressly states SFM's position against the placement of structures, fences, landscaping or other visual or access impediments in product pipeline easements. Information Bulletin #03-001 also states SFM's position against obstructions, whether within or outside a petroleum product pipeline easement, that would shield the pipeline right-of-way from visual observation.

The petroleum product pipeline is a multi-purpose pipeline that can and may carry diesel, jet fuel, or gasoline. Safety measures, including remote leak detection and periodic inspections by Kinder Morgan Energy Partners, are in place. Even so, pipeline leakage or accidental rupture by a private landowner are reasonably foreseeable upset conditions which could be especially damaging if the pipeline were conveying gasoline at the time of incident. Gasoline is flammable and contains hazardous constituents including benzene.

MITIGATION MEASURES

The following specific measures and can be implemented and enforced by the City of Pittsburg.

IMPACT 1: The proposed project potentially could expose residents and houses on "D" Street, "D" Court, and "C" Court to wildland fire risk on the Urban Wildland Interface.

Mitigation measure:

- Developer shall include emergency service provisions on the recommended Zone III/IV reservoir service road. Such provisions include suitable driving surface, grade and turnaround for fire engines and hydrants.

- Developer shall provide access to open space at the site's perimeter. To accommodate this access the developer shall provide additional EVAs at locations to be selected by the Contra Costa County Fire Protection District and City Engineering. One EVA location selected by CCCFPD is Lot 191 connecting to Markley Creek Drive in Black Diamond Ranch.

- Developer shall disclose the Natural Hazard Disclosure (Fire) Map to home buyers, along with public information including PRC 4291 and/or landscape, defensible space, and fuel break requirements equivalent in content.

Residual impact after mitigation: Less-than-significant.

IMPACT 2: Proposed lot sizes and locations of Lots 89, 91, 104, 138-141, and 181-190 could place the future owners of these particular lots in a position of depending on adjoining land owners (currently, AUSD and Thomas) to comply with PRC 4291 on the "other side" of their property lines. If AUSD and Thomas failed to provide fuel breaks, the defensible spaces on proposed Lots 89, 91, 104, 138-141, and 181-190 would be limited to the distances from backs of houses to the backs property lines.

Mitigation measures:

- Developer avoid siting the smallest-sized lots along the UWI.
- In place of "C" Court, which is proposed as a double-loaded street, re-design "C" Court as a single-loaded street with Lots 176-180 along its north side and tennis courts, picnic area, or a tot park on its south side. The concept eliminates proposed Lots 181-190. With or without re-design and realignment of "C" Court, the available park space would be approximately 1.2 to 2.0 acres depending on the design and alignment. If "C" Court is re-designed or realigned, the size of Lots 176-180 could be increased.

Residual impact after mitigation: Less-than-significant.

IMPACT 3: The proposed project potentially could expose residents and houses to additional fire risk as response distance and time from the nearest CCCFPD fire stations exceeds 1.5 miles or 5 minutes.

Mitigation measures:

- Developer shall construct all residences with residential fire sprinklers. Installation shall be as per NFPA #13D with the addition of sprinklers in the attics, garages, bathrooms, and closets. A four (4) head hydraulic calculation shall be used.
- Developer shall construct all roofs with Class A rated roof assemblies.

Residual impact after mitigation: Less-than-significant.

IMPACT 4 : The proposed project could expose residents of the project site to EMF locally near the existing power transmission lines.

Mitigation measure:

- Developer shall avoid new development within the 2 milli-Gauss (mG) radius of influence. This will be accomplished by building

setbacks. The 2 mG radius of influence shall be determined based upon modeling or measurement, or a combination of the two. In no case shall horizontal setbacks less than 100 feet be approved by the City.

Residual impact after mitigation: Less-than-significant.

IMPACT 5: Proposed Lot 76, proposed Lot 304-306, and proposed Lot 228-233 may have fill or fill slopes that encroach horizontally and vertically into PG&E's easement. This could be acceptable only if the 30-foot ground clearance standard is met.

Mitigation measure:

- Developer shall comply with General Order 95 (30-feet ground clearance) by performing grading in a manner that preserves continuously a minimum of 30 feet from the ground to the power lines.

Residual impact after mitigation: Less-than-significant.

IMPACT 6: The easternmost power transmission towers in the back of proposed Lots 229 and 244 potentially could be rendered inaccessible.

Mitigation measure:

- Developer shall provide access from "B" Street and avoid cross-fencing of the easement to permit unimpeded service access at all times.

Residual impact after mitigation: Less-than-significant.

IMPACT 7: Physical and visual access to the petroleum product pipeline easement potentially could be impaired by introduction of fences, dwellings, and landscaping. Physical access and visual access are necessary for routine inspection, emergency response, and overall public safety.

Mitigation measures:

- Developer shall modify lot lines of proposed Lot 77 and proposed Lots 228-233, 236, 260, 305-306, 309, 342-343, and 378, to avoid cross-fencing of the petroleum pipeline easement and preserve unimpaired physical and visual access.

- Developer shall identify a relocation site for the relocated Zone II water reservoir near the end of "A" Court, in such a manner as to preserve physical and visual access to the petroleum product pipeline.

Residual impact after mitigation: Less-than-significant.

IMPACT 8: The petroleum product pipeline is a multi-purpose pipeline that may at times carry diesel, jet fuel, or gasoline. Upset conditions involving leakage and rupture by inadvertent act of a contractor or private landowner are reasonably foreseeable upset conditions. The pipeline easement and downslope area adjoining the pipeline easement would be best preserved as a buffer, outside of private back yards.

Mitigation measures:

- Developer shall preserve the PG&E and Kinder Morgan Energy Partners easements outside of private lots. Infrastructure that overlaps the easements, such as the detention basin, water reservoir, "B" Street and "D" Street, common or parking areas, or a future trail, could be acceptable within the easement provided such infrastructure does not impair physical and visual access to the pipeline.

- Developer shall provide suitable disclosures of the presence of the petroleum product pipeline to future buyers of lots within a specified distance of the pipeline, including all lots located downslope of the pipeline and additional lots to be determined by City staff.

Residual impact after mitigation: Less-than-significant.

IMPACT 9: Construction grading on the proposed project could expose nearby off-site residents to Toxic Air Contaminants including diesel exhaust.

Mitigation measure:

- Require diesel exhaust particle filters on heavy grading equipment as described in Chapter V. J.

Residual impact after mitigation: Less-than-significant.

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L. CULTURAL RESOURCES

This chapter evaluates the potential effect of the Sky Ranch II residential subdivision on important historic and prehistoric cultural resources. This chapter provides information on the cultural resources setting, assesses potential impacts on cultural resources, and provides site-specific mitigation measures.

EXISTING SETTING

Cultural resources include prehistoric and historic archaeological resources, historic buildings and structures, and sites of importance to Native Americans. A prehistoric archaeological site has been identified on the project site.

Native American archaeological site CA-CCO-437 is shown on published maps to be located on the project site generally north of the power transmission lines and overlapping Highlands Ranch (*Pittsburg General Plan Update: Existing Conditions and Planning Issues*, Figure 8-2, p. 181, June 1998). In 1981, K. Flynn identified five artifacts (CA-CCO-437) scattered along the north boundary of Sky Ranch II, north of the power transmission lines, 400 feet north- south and 328 feet east-west. NWIC listed CA-CCO-437 as the full width of Sky Ranch II (approx. 2600 feet). No midden or other evidence of habitation were encountered or reported. The five artifacts were collected by Flynn. Subsequent surficial or subsurface inspections of the area including CA-CCO-437 were performed by Holman in 1983, Windmiller in 1999, and Windmiller again in 2002. The work in 1999 included twenty-one backhoe trenches through and around CA-CCO-437. The work in 2002 included surficial inspection of the entire Sky Ranch II project site. Evidence of habitation, midden, or artifacts were not encountered.

Consultation was performed with one of the professional archaeologists involved in previous inspections of the project site. On the basis of the entire record of research, including trenching in 1999 and inspection in 1983 and 2002, additional trenching was not recommended (Holman, April 2004).

The following information about local indigenous peoples is excerpted from the Contra Costa County *2004 CTP Draft EIR*:

> **More than 9,000 years before present (BP)**--Paleo and Lower Archaic Indians were present in the Fan Francisco Bay area and evidence suggests they were nomadic. Many, but not all, of the sites from this early period are submerged or buried by changing bay water levels and watercourse siltation levels.
>
> **Beginning around 4,500 years BP to 300 BP**--The Windmiller, Berkeley, and the Augustine patterns form a sequence evident in central California.

4,500 to 3,000 BP The Windmiller Pattern may represent the advent of early Penutian speaking populations and was focused primarily in the lower Central Valley and Delta regions. The pattern is characterized by the influence of and adaptation to lacustrine and marsh environments.

3,000 to 1,500 BP The Berkeley Pattern may represent the spread of proto-Miwok and Costanoans, collectively known as Utians, from their hypothesized lower Sacramento Valley/Delta homeland and is more archaeologically visible than the predecessor Windmiller Pattern. The Berkeley Pattern has a greater emphasis on the exploitation of the acorn as a staple.

1,500 BP to 300 BP The last pattern in this sequence, the Augustine Pattern is an outgrowth of the Berkeley Pattern or a blend initiated by the migration of Wintuan, including the Patwin, populations from the north. By approximately 1,500 years BP, peoples with three different language groups inhabited portions of Contra Costa: the Costanoan (Ohlone), the Bay Miwok, and the Northern Valley Yokuts, the latter being considered to be the final group to arrive in the Bay Area.

The Costanoan speakers inhabited the western hills, plains, and the Bay shore from the Carquinez Straits south to Salinas. Many of their villages were associated with a permanent source of fresh water at the mouth of streams or on terraces at the base of hills. Bay Miwok speakers inhabited the western slopes of the Diablo Range, the inland valleys, and the northern coastal plains. Their largest villages were located in the San Ramon Valley. The Northern Valley Yokut speakers inhabited the eastern slopes of the Diablo Range north to the San Joaquin River. Their primary villages were located along the San Joaquin River, with scattered use of the eastern plains and smaller secondary villages in the inland valleys.

Regulatory Setting

Procedures for the evaluation and treatment of archaeological and historical resources are outlined in the CEQA Statutes, and Guidelines issued thereto, Section 15064.5 CEQA is the prevailing State of California legislative act protecting these resources by ensuring their consideration in discretionary activities. CEQA requires that public or private projects financed or approved by public agencies must assess the effects of the project on historical resources. Historical resources are defined as buildings, sites, structures, objects or districts, each of which may have historical, architectural, archaeological, cultural, or scientific significance.

CEQA requires that if a project results in an effect that may cause a substantial adverse change in the significance of an historical resource, then alternative plans or mitigation measures must be considered; however, only unique cultural resources or significant historical resources need to be addressed.
In Section 15064.5(a) of the CEQA Guidelines, the term "historical resources" is defined to include all of the following:

(1) A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (Pub. Res. Code SS5024.1, Title 14 CCR, Section 4850 et seq.).

(2) A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements Section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

(3) Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources (Pub. Res. Code SS5024.1, Title 14 CCR, Section 4852) including the following:

(A) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

(B) Is associated with the lives of persons important in our past;

(C) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

(D) Has yielded, or may be likely to yield, information important in prehistory or history.

Therefore, prior to the assessment of effect or the development of mitigation measures, the uniqueness of cultural resources and eligibility or significance of historical resources must first be determined. The steps that are normally taken in a cultural resources investigation for CEQA compliance are as follows:

1. Identify potential cultural or historical resources;
2. Evaluate the uniqueness of cultural resources and eligibility of historical resources; and
3. Evaluate the potential effects of a project on all unique cultural resources or eligible historical resources.

According to Section 21083.2(g) of the California Public Resources Code, if the Lead Agency determines that the project may have significant effect on unique archaeological resources, the environmental impact report shall address the issue of those resources. An environmental impact report, if otherwise necessary, shall not address the issue of non-unique archaeological resources. "Unique archaeological resource" means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that is meets any of the following criteria:

(1) Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information.

(2) Has a special and particular quality such as being the oldest of its kind or the best available example of its kind.

(3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Furthermore, according to Section 21083.2(h) and 21083.2(i) of the California Public Resources Code,

> "Non-unique archaeological resource" means an archaeological artifact, object, or site which does not meet the criteria in subdivision (g). A non-unique archaeological resource need be given no further consideration, other than simple recording of its existence by the lead agency if it so elects.
>
> A Lead Agency may make provisions for archaeological sites accidentally discovered during construction. These provisions may include an immediate evaluation of the find. If the find is determined to be a unique archaeological resource, contingency funding and a time allotment sufficient to allow recovering an archaeological sample or to employ one of the avoidance measures may be required under the provisions set forth in this section. Construction work may continue on other parts of the building site while archaeological mitigation takes place

The California Health and Safety Code (Sec. 7052) prohibits disturbance of human remains except under certain conditions, and specifies procedures to be followed in the event that Native American graves are found. The *Initial Study* did not identify the existence of, or the probable likelihood, of Native American human remains within the project site (see Appendix A).

IMPACTS AND MITIGATION MEASURES

Significance Criteria

According to the California Environmental Quality Act, a substantial adverse change in the significance of a cultural resource is a significant effect on the environment (CEQA Section 15064.5). Actions that would materially impair the significance of a cultural resource are any actions that would demolish or adversely alter those physical characteristics of a resource that convey its historical significance. Section 15064.5 (c) (4) states:

> *If an archaeological resource is neither a unique archaeological nor an historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment. It shall be sufficient that both the resource and the effect on it are noted in the Initial Study or EIR, if one is prepared to address impacts on other resources, but they need not be considered further in the CEQA process.*

Significance criteria follow:

a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5;
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5;
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or,
d) Disturb any human remains, including those interred outside of formal cemeteries.

EVALUATION

The project site does not contain a known unique cultural resource. The archaeological site that was identified previously consisted of a localized scattering of five artifacts on the ground surface. Those artifacts were collected. Subsequent surface inspection and subsurface trenching by qualified archeologists found no further evidence of artifacts or an archaeological resource. The identified site, therefore, qualifies as neither unique resource nor an historical resource.

> **IMPACT 1**: The project site is in a low sensitivity zone and the potential for encountering archaeological resources is considered low. In the event any cultural materials are encountered during subsurface grading, the following measure will be implemented.

Mitigation measures:

- Upon discovery the grading contractor shall halt grading within a radius of 50 feet of the find and will call the Chief of Planning, a qualified archaeologist and the Native American Heritage Commission (or local California Indian).

- Developer shall notify the Chief of Planning and Native American heritage Commission within 24 hours if any potentially significant cultural materials are encountered by the archaeologist.

- Following examination of the find, the archaeologist will examine the find and make appropriate recommendations regarding the significance of the find and the appropriate mitigation. Recommendations could include collection, recordation and analysis of any significant cultural materials. A Report of Findings prepared by the archaeologist, documenting any data recovered during his/her monitoring, would be submitted to the City Planning Department on a monthly basis.

Residual impact after mitigation: Less-than-significant.

IMPACT 2: The project site is in a low sensitivity zone and the potential for encountering human skeletal remains is considered low. In the event any human skeletal remains are encountered during subsurface grading, the following measure will be implemented.

Mitigation measures:

- In the event that human skeletal remains are encountered, the contractor shall immediately halt excavation or disturbance of the burial site or any nearby area reasonably suspected to overlie adjacent human remains and notify the County Coroner and Director of Planning. Excavation or disturbance shall remain suspended until the investigation of the County Coroner has been completed and recommendations of the coroner have been completely implemented including the conditional procedures outlined below.

- Upon determination by the County Coroner that the remains are Native American, the coroner shall contact the California Native American Heritage Commission, pursuant to subdivision (c) of section 7050.5 of the Health and Safety Code and the County Coordinator of Indian Affairs. No further disturbance of the site may be made except as authorized by the County Coordinator of Indian Affairs in accordance with the provisions of State law and the Health and Safety Code.

- The developer shall provide recommendations and appropriate mitigation measures prepared by a qualified archaeologist to the Director of Planning. The Director of Planning will ensure that a mitigation program, in conformance with measures recommended by the archaeologist, will be implemented during construction.

Residual impact after mitigation: Less-than-significant.

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M. EFFECTS DETERMINED TO BE LESS-THAN-SIGNIFICANT

This chapter summarizes environmental effects of the proposed project that were determined on the basis of the Initial Study review to be less-than-significant effects. Consequently, these effects are not discussed in detail in the Environmental Impact Report.

Agricultural Resources

Agricultural uses in the Planning Area consist primarily of grazing land for cattle in the hills south of the city. A small portion of this land, none on the project site, is classified by the California Department of Conservation as Farmland of Local Importance. The project site consists of grazing land without Farmland of Statewide or Local Importance (*Pittsburg General Plan Update: Existing Conditions Report*, June 1998, pp. 251 and 254).

Agricultural-zoned or Williamson Act parcels remain under contract in the Planning Area, but none is located on the project site. The adjoining Thomas parcel, which adjoins the project site on the west, is used for cattle grazing and is illustrated as Williamson Act contracted. Adjoining the project site on the north and east are the Highlands Ranch and Black Diamond Ranch residential subdivisions. South of the project site are two Antioch Unified School District owned parcels APN 075-051-005 and -007. These adjoining lands are designated for residential and open space uses.

The adjoining land west of the project site has been designated in the General Plan for Low Density Residential and Open Space uses. A small portion of this particular land shown to be "Farmland of Local Importance" (*Pittsburg General Plan Update: Existing Conditions Report*, June 1998, p. 254) is not contiguous with the site.

The Buchanan Bypass corridor west of the site, continuing toward Kirker Pass Road, would pass along the southern tip of Farmland of Local Importance. The approved Black Diamond Ranch residential subdivision has implemented construction of one segment of the Buchanan Bypass, and the proposed project would implement construction of another segment of the bypass.

Hazards and Hazardous Materials

The history of land use on the project site and around the project site was reviewed by an environmental site assessor. Primary sources of historical information were aerial photographs. Waste landfills and hazardous waste sites engaged in monitoring or environmental contamination clean-up were identified and evaluated

based on review of public agency records and reports and other reports submitted on behalf of responsible parties.

Aerial photographs—Aerial photographs were viewed at U.S. Geological Survey for 1949, 1966, 1973, 1974, and 1981. Additional aerial photographs were viewed on-line at www.TerraServer.com for 1993 and 2003. The project site has been used for cattle grazing, with a large livestock pond visible in the southwestern portion of the project site as early as 1973. Haying may have been performed in the northeastern portion in 1966. Transmission towers on the site were visible in all aerial photographs since 1949. Other above-ground structures were not apparent in then aerial photographs viewed. There was no sign of past use of the project site for landfilling, oil tank farms, auto wrecking, industrial or automotive repair uses. The Los Medanos Tank Farm was visible off-site, north of the project site, in 1949 (USGS, 1949).

GBF/Pittsburg Landfills--The 88-acre GBF/Pittsburg Landfills is a Superfund site located approximately 3,000 feet east of the project site. The site began landfill operation in 1946. Between 1960 and 1975, Industrial Tank Corp. leased the eastern 64 acres of the site and operated up to ten surface impoundments covering approximately 11 acres. The unlined impoundments were used until 1974 to dispose liquid wastes including refinery sludges, acids, oils, and slurries containing such hazardous substances as hexavalent chromium, lead, cyanide, asbestos, acetone, trichloroethylene, benzene, tetrachloroethylene, formaldehyde, phenol, DDT, and diazinon. In 1974, the California Regional Water Quality Control Board (CRWQCB) issued a Cleanup and Abatement Order, which closed the surface impoundments and prohibited hazardous waste disposal at the site after October 1, 1974. From 1974 to 1992, the GBF/Pittsburg Landfills accepted only non-hazardous waste. During the 1960s and 1970s, numerous complaints were filed by the community about chemical odors from the site and symptoms of burning eyes and irritated lungs. Community concerns have been addressed through community meetings and fact sheets. In the course of preparing this public health assessment, we did not discover any current community health concerns.

Exposure to airborne contaminants to on-site workers and nearby community members did occur in the past, but data are not available to evaluate those past exposures. The site currently poses no apparent public health hazard, and conditions are not expected to change in the future. The potential for inhalation exposure from releases of contaminated soil gas does exist, but those possible exposures would be below levels of health concern. No other potential present or future completed exposure pathways have been identified. Significant future exposure to GBF/Pittsburg

Landfills site-related contaminants is unlikely (California, Department of Health Services, February 17, 1994).

Lynch Disposal Site--The 16-acre Lynch Disposal Site (southeast corner Somersville/ Paso Corto Road) closed in 1974 after operating since 1969. The site was used for disposal of municipal solid waste from the City of Antioch. Corrective work was done on the site in 1978 under the direction of Regional Water Quality Control Board. In 1990, the owner of the Antioch site died, leaving the property to his wife and a religious group known as Freedom Church. In 1997, the California Integrated Waste Management Board approved using up to $85,000 to shore up an eroding northern slope, hydroseed the area, and build a berm atop the incline to divert drainage. The crumbling slope had exposed some of the trash and threatened a nearby road, posing risks to traffic.

Old Antioch Landfill--The Old Antioch Landfill site consists of 19 acres on the east side of Somersville Road. Disposal operations were conducted from 1928 to 1968. Burn dump operations persisted until 1960, and trench-and-fill occurred until closing in 1968. Site remediation was performed by the City of Antioch on the northern boundary along Markley Creek in 1996 under the oversight of Contra Costa County, CIWMB, and RWQCB-CVR. James Donlon Boulevard (formerly, Paso Corto Road) was realigned and extended across the southerly portion of the site in 2000. Paso Corto Road, the southerly boundary of the site, was converted to a jogging path.

Keller Canyon Landfill—This landfill is owned by Allied Waste Industries. The Keller Canyon Landfill opened on May 7, 1992 as a Class II Landfill operating under permit number 07-AA-0032. The facility accepts municipal solid waste, non-liquid industrial waste, contaminated soils, ash, grit and sludges but is not open to the general public.

Keller Canyon Landfill covers 2,600 acres of land within which is a 244-acre area permitted for disposal. The site currently handles 2,500 tons of waste per day, although the permit allows up to 3,500 tons of waste per day to be managed at the facility. Keller Canyon Landfill is approximately 4 miles west of the project site, at such distance that it is not considered further here.

Mineral Resources

According to the California Department of Conservation, Geological Survey (formerly, Division of Mines and Geology) there are no known significant mineral deposits in the Planning Area. The hills south of the City limits potentially could contain mineral deposits, though their presence and significance are unknown (*Pittsburg General Plan Update: Existing Conditions and Planning Issues*, pp. 250-251 and Figure 12-3, p. 253). Mineral deposits on the site are not noted in the General Plan or in *Geologic Exploration Sky Ranch II Subdivision 8475* (ENGEO Incorporated, February 14, 2002).

IMPACTS AND MITIGATION MEASURES

EVALUATION

The evaluations below provide the rationale for determination of less-than-significant effects. Based on this determination, mitigation measures are not presented as none is warranted for the specified less-than-significant effects.

Agricultural Resources —

Significance Criteria:

- Conversion to a non-agricultural use any designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency.

- Conflicts with existing zoning for agricultural use or a Williamson Act contract.

- Changes in the existing environment which, owing to their location or nature, could result in conversion of farmland to non-agricultural use.

The proposed project could not result in conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, owing to the absence of such designations for the site. The project site parcels, APN 089-050-067 and APN 089-050-042, are not listed in Table 12-4 titled "Williamson Act Contract Land, Pittsburg Planning Area" (*Pittsburg General Plan Update: Existing Conditions Report*, June 1998, pp. 252 and 255). Therefore, the proposed project could not conflict with agricultural-zoned or Williamson Act parcels.

In conjunction with the through-connection of the bypass west to Kirker Pass Road, or to Buchanan Road via another road, construction of the bypass could eventually influence conversion of the Thomas parcel's Farmland of Local Importance. Its ultimate conversion to urban use, however, has been considered in the General Plan which shows a planned Low-Density Residential use of the this Farmland of Local Importance. As consistent with the General Plan EIR's impact analysis, this potential effect is less-than-significant.

The adjoining Thomas parcel along the western side of the site contains a small portion of Farmland of Local Importance, none of which adjoins the project site. The adjoining land to the west could continue to be used for cattle grazing. In view of the proposed grading, with 2:1 cut and fill slopes along the site's western boundary, mitigation measures other than fencing generally would not be warranted to assure compatibility of the proposed residential use along the shared western boundary with continued use for cattle grazing on the adjoining Thomas parcel.

Hazards and Hazardous Materials —

Significance Criteria:

- A significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- A significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
- Hazardous emissions or hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
- Location on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.

The project is residential not of a class of project (e.g., industrial, light industrial, landfill, or highway) that is generally recognized as having the potential to transport, use, or dispose hazardous materials. The proposed project could be expected to generate hazardous waste during construction on a one-time basis. Over the long-term, household hazardous waste would be generated on a recurring basis over its lifetime. Intermittent disposal of hazardous construction-phase and recurring disposal of household hazardous wastes (*e,g.*, waste paints, pesticides, herbicides, household cleaning products and appliances) can be accommodated through the local licensed waste haulers and Household Hazardous Waste Program.

The project also is not of a class of project that is generally recognized as having the potential to create upset or accident conditions. However, the project site's proximity to an existing petroleum product pipeline, overhead power transmission lines, and a proposed thoroughfare could potentially result in exposure of residents to such conditions. Introduction of new houses into the vicinity of overhead power transmission lines and a petroleum product pipeline is addressed in Chapter V.K., Public Health & Safety.

Introduction of the future Buchanan Bypass if it is completed as a through corridor from Somersville Road to Kirker Pass Road could potentially enable transport of hazardous materials or waste. However, the designation of hazardous material and waste haul route is within the City's authority. General Plan Policy 7-P-24 discourages unnecessary traffic in residential areas. Upon opening of the Buchanan Bypass for through connection, at the discretion of the City of Pittsburg, the Buchanan Bypass could be restricted to non-hazardous deliveries and weight limited trucks. Therefore, the potential impact is less-than-significant.

The project is residential and, therefore, not of a class of project that is generally recognized as having the potential to emit toxic air pollutant or handle acutely hazardous materials. Such activities would be inconsistent with Zoning Regulations.

The project site is not included on standard public agency compilations of hazardous waste sites, active or inactive landfills, leaking underground storage tank sites, or other data bases of similar environmental pollution concerns.

Mineral Resources —

Significance Criteria:

- Loss of availability of a known mineral resource that would be of value to the region and the residents of the state.

- Loss of availability of a locally-important mineral resource recovery site as delineated on a local general plan, specific plan or other land use plan.

The preliminary grading concept calls for selective use of on-site soils for engineered fill beneath proposed graded level lots. As there is not any known mineral resource on the project site and no locally-important mineral resource as delineated in the City of Pittsburg's General Plan, the potential impact is less-than-significant.

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http://www.atsdr.cdc.gov/HAC/PHA/gbf/gbf_p2.html

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http://www.dtsc.ca.gov/database/Calsites/CALP001.CFM?IDNUM=07490038

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Photo I.D.	***Collection #***	***Date***	***Scale***
GS-JL-1-7	384	10-13-1949	1:23,600
BUU-6GG-7	515	06-26-1966	1:20,000
CC 3526 4-93	219	05-02-1973	1;12,000
Area 3/7 11-27	606	07-11-1974	1:20,000
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http://www.epa.gov/superfund/sites/npl/nar1341.htm
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www.Terraserver.com. Aerial photographs of Pittsburg area for 1993 and 2003.

VI. ALTERNATIVES ANALYSIS

The California Environmental Quality Act (CEQA) and guidelines issued thereto require that an EIR to assess environmental impacts of alternatives to a proposed project. The range of alternatives generally is not fixed but is guided by "rule of reason." The CEQA guidelines specify that the EIR identify alternatives which "would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project." The CEQA Guidelines requires require evaluation of the No Project alternative and alternative locations to a proposed project site.

This section assesses whether there are alternatives of design, scope or location could substantially lessen the significant impacts of the proposed project. Even those alternatives that would "impede to some degree attainment of the project objectives," or that would be more expensive, are considered.

To guide formulation of alternatives by "rule of reason," one may first list the potential significant impacts of the proposed project. For the proposed Sky Ranch II project, the potential significant impacts are:

1. **Biological Resources**
   Loss of on-site California tiger salamander habitat
2. **Geology, Soils and Seismicity**
   Exposure of some residents to landslide hazard
3. **Public Health & Safety**
   Exposure of residents to wildland fire hazard
   Exposure of some residents to EMF
4. **Traffic**
   Traffic volumes in Highlands Ranch over 5,000 vehicles per day
5. **Community Noise & Air Quality**
   Exposures to noise levels above standards at second-story level
   Temporary construction noise, dust, and diesel exhaust
6. **Cumulative Effects**
   Cumulative filling and reduction in lineal footage of natural streambeds
   Cumulative delay and demand for 4-travel lanes on Buchanan Road

In formulating alternatives, therefore, attention was focused on reducing or avoiding one or more of the above potential adverse effects. Each of the alternatives is discussed below, and a comparison of impacts is presented in Table 32.

BASIS FOR ALTERNATIVES ANALYSIS

California Environmental Quality Act Guidelines

CEQA Guidelines require consideration of a reasonable range of alternatives to a proposed project or to the location of a proposed project. Alternatives must "feasibly attain the basic objectives of the project" (CEQA Guidelines, Section 15126(a)). "Feasible" means that the alternatives "are capable of being accomplished in a successful manner within a reasonable period of time, taking into

account economic, environmental, legal, social and technological factors" (CEQA Guidelines, Section 15364).

Section 15126 of the CEQA Guidelines outlines the range of alternatives that the EIR should analyze. All EIRs must assess a "No Project" alternative. The No Project alternative explores relative impacts of not implementing the proposed project. EIRs also must generally assess an alternative location to the proposed location.

In assessing a reasonable range of alternatives to a proposed project and location, the EIR should assist decision-makers make reasoned choices. Alternatives analysis enables weighing of relative impacts among the alternatives. Alternatives analysis may also enable identification of potential alternatives that could avoid the identified impacts of the proposed project, even if those alternatives would impede to some degree the attainment of project objectives or would be more costly. If the alternatives themselves would have significant environmental impacts, the EIR must identify those impacts as well.

CEQA Guidelines require that the EIR assess the relative impacts of the alternatives on the environment. This means comparison of relative magnitude, degree, or extent compared to the impacts of the proposed project. The EIR need not evaluate alternatives at the same level of detail as the proposed project.

Finally, CEQA Guidelines require identification of the environmentally superior alternative among the alternatives analyzed. If the No Project Alternative is the environmentally superior alternative, then the EIR must identify which of the remaining alternatives is environmentally superior.
Under CEQA, the proposed project, other reasonable alternatives that can attain basic project objectives, the No Project alternative, and an Alternate Site Location alternative and must be considered. There is no specific mandate under CEQA which directs specifically how decision-makers select among the alternatives, as CEQA has the all-encompassing mandate of minimizing environmental impact, has a full-disclosure mandate of demonstrating to a wary public that its environment is being protected, and does not have a specific mandate to conserve a particular habitat such as, for example, wetlands. Projects, or alternatives, that would cause significant environmental effects shall not be approved under CEQA, if there are feasible alternatives or mitigation measures that would lessen those effects.

Clean Water Act Section 404b(1) Guidelines
Section 404b(1) Guidelines are the substantive environmental standards by which all Section 404 permit applications are evaluated. Section 404b(1) Guidelines are binding regulations published by the U.S. Environmental Protection Agency at 40 CFR Part 230 on December 24, 1980. The fundamental precept of the Section 404b(1) Guidelines is that discharges of dredged or fill material into waters of the

United States, including wetlands and non-wetlands or "other" waters, should not occur unless it can be demonstrated that such discharges, either individually or cumulatively, will not result in unacceptable adverse effects on the aquatic ecosystem. Section 404b(1) Guidelines specifically require that "no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences" (40 CFR 230.10(a)).

Based on this provision, the applicant is required in every case (irrespective of whether the discharge site is a special aquatic site or whether the activity associated with the discharge is water dependent) to evaluate opportunities for use of non-aquatic areas and other aquatic sites that would result in less adverse impact on the aquatic ecosystem. A permit cannot be issued, therefore, in circumstances where a less environmentally damaging practicable alternative for the proposed discharge exists (except as provided for under Section 404b(2)).

Section 404b(1) Guidelines do not demand the same intensity of analysis for all types of projects but instead allow the scope of evaluation to be proportionate to the extent of potential adverse impact on the aquatic environment. The introduction to Section 230.10(a) acknowledges that the level of analysis required may vary with the nature and complexity of each individual case.

Furthermore, Section 404b(1) Guidelines do not require an elaborate search for practicable alternatives if it is reasonably anticipated that there are only minor differences between the environmental impacts of the proposed project and the environmental impacts of the practicable alternatives. This decision will be made after consideration of resource agency comments on the proposed project. When it is determined that there is no identifiable or discernible difference in adverse impact on the environment between the applicant's proposed project and all other practicable alternatives, then the applicant's alternative is considered as satisfying the requirements of Section 230.10(a). Even where a practicable alternative exists that would have less adverse impact on the aquatic ecosystem, the Section 404b(1) Guidelines allow it to be rejected if it would have "other significant adverse environmental consequences" (40 CFR 230.10(a)).

The U.S. Army Corps (USACE) has permitting authority under Section 404b(1) and is a responsible agency under CEQA for review of the proposed project. The California Department of Fish and Game has permitting authority, under Section 1600 of California Fish and Game Code, over streambed alteration. S.B. 418 (Chapter 736) repealed previous Sections 1600-1607 and replaced them with Fish and Game Code Sections 1600-1616 (effective January 1, 2004).

In contrast to CEQA, under Section 404b(1) of the Clean Water Act, a practicable alternative generally must be selected if it is available, practicable, and substantially less environmentally damaging to an aquatic ecosystem under the purview of the Clean Water Act. It is noteworthy to emphasize that the alternative selection is driven by the concept of "substantially less damaging." Preservation or creation of small pockets of isolated wetlands is not an objective of USACE.

Endangered Species Acts

Federal Endangered Species Act (FESA) -- The federal Endangered Species Act of 1973 (16 USC 1531-1544), as amended, establishes a national program for the conservation of threatened and endangered species of fish, wildlife, and plants and the habitat on which they depend. FESA requires that federal agencies and others consult with the U.S. Fish & Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS), as appropriate, to ensure that their proposed actions are not likely to jeopardize the continued existence of endangered or threatened species or to adversely modify or destroy their designated critical habitats.

Section 10(a)(1)(B) authorizes the Secretary of the Interior ("Secretary") to permit any taking otherwise prohibited by Section 9(a)(1)(B) if such taking is incidental to, and not the purpose of, the implementation of an otherwise lawful activity. The applicant must submit a Conservation Plan (see Table 31). The Conservation Plan must i) indicate the impact which will likely result from such taking; ii) specify what steps the applicant will take to minimize and mitigate such impacts and the funding that will be available to implement such steps; (iii) state what alternative actions to such taking the applicant considered and the reasons why such alternatives to the Proposed Action are not being implemented; and (iv) include all such other measures that the Secretary may require as being necessary or appropriate for the plan.

After opportunity for public comment, the Secretary will issue a permit only if the Secretary finds, with respect to a permit application and the related Conservation Plan, that the following apply:

(i) The taking will be incidental;
(ii) The applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such taking;
(iii) The applicant will ensure that adequate funding for the plan;
(iv) The taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild; and,
(v) Other measures that the Secretary may require as being necessary or appropriate for the plan will be implemented; and,
(vi) The Secretary has received such other assurances as the Secretary may require that the plan will be implemented.

TABLE 31
ESA Jeopardy Analysis Framework

Step	USFWS Review - Applicant Analysis
1.	Define the biological requirements and current status of each listed species.
2.	Evaluate the relevance of the environmental baseline to the species' current status.
3.	Determine the effects of the proposed action on listed species.
4.	Determine whether the species can be expected to survive with an adequate potential for recovery under the effects of the proposed action, the effects of the environmental baseline, and any cumulative effects, and considering measures for survival and recovery specific to other life stages.
5.	Identify reasonable and prudent alternatives (RPAs) to the proposed action when that action is likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its critical habitat. Thus, this step is relevant only when the conclusion of the previously described analysis is that the proposed action could jeopardize a listed species. The RPA will have to 1) reduce the mortality associated with the proposed action to a level that does not jeopardize the species and 2) maintain (or restore) essential habitat features so that there is no adverse modification of designated critical habitat. An analysis to determine the sufficiency of the reasonable and prudent alternative will be based on the same considerations described above.

The U.S. Fish & Wildlife Service and National Marine Fisheries Service (NMFS), as appropriate, have permitting authority under ESA to allow incidental take of listed species by otherwise lawful actions including, but not limited to, land development.

In contrast to CEQA, under Section 10 of the federal Endangered Species Act, reasonable and prudent alternatives (RPAs) must be considered to avoid impact to a listed species or its critical habitat. Neither an applicant-proposed action nor an alternative may be implemented if it would jeopardize the continued existence of a listed species throughout its range. FESA does not distinguish among degrees of jeopardy or impact to critical habitat.

California Endangered Species Act (CESA) -- The state of California equivalent is the California Endangered Species Act (Fish and Game Code, Sections 2050 *et seq.*). CESA also allows for take incidental by otherwise lawful development projects. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate mitigation planning to offset project-caused losses of listed species populations and their essential habitats. Under CESA, the California Department of Fish and Game (CDFG) is a responsible agency for purposes of issuing an incidental take permit where another public agency must approve the project or activity for which the permit is sought and the other agency has taken the lead agency role for purposes of compliance

with the California Environmental Quality Act, Public Resources Code Section 21000, *et seq.* ("CEQA").

The CDFG Director determines whether or not to issue an incidental take permit and, in addition, determines whether a project, as proposed, may result in any significant adverse environmental effects in addition to the impacts of taking species to be covered by the permit, and, if so, whether feasible alternatives or feasible mitigation measures would avoid or substantially lessen any significant adverse effects. The Director shall not approve the application, as proposed, if there are feasible mitigation measures or alternatives that would substantially reduce any significant adverse effects. If significant adverse effects will likely result even after the inclusion of feasible mitigation measures or alternatives, the Director may approve the application if the Director first makes findings in accordance with the provisions of Section 21081 of the Public Resources Code.

ALTERNATIVES ANALYZED

This EIR evaluates conservation alternatives, the proposed project, No Project, and Alternative Site Locations. The general intent of the evaluation under CEQA is to assist decision-makers and the public to compare the relative magnitude, degree, or extent of potential environmental impacts among the alternatives.

The specific intent of alternatives analysis under ESA is to identify a Reasonable and Prudent Alternative to 1) reduce incidental take and mortality of a population of listed species to a level that does not jeopardize the continued existence of the species throughout its range and 2) to maintain, restore, or enhance essential habitat, if the proposed project could jeopardize a listed species.

The specific intent of alternatives analysis under Section 404b(1) is to identify all practicable alternatives to the proposed project. If any such alternative could avoid discharge of dredged or fill material to an aquatic ecosystem, and if there is an identifiable or discernible reduction in adverse impact on the aquatic ecosystem between the applicant's proposed project and one or more of the practicable alternatives, then the discharge (fill) under the applicant's proposed project generally cannot be permitted. The one exception is the case of a practicable alternative which has other significant environmental impacts and which, therefore, could be rejected.

As for the alternatives, including Alternative 1 (On-Site Conservation), Alternative 2 (Proposed Project), Alternative 3 (No Project) and Alternative 4 (Alternative Site Locations), none can preserve an on-site overland corridor connection with Markley Creek. The approved Black Diamond Ranch subdivision includes in aggregate 43.6 acres of open space within a central area, the Markley Creek corridor, and powerline easements. Dedicated open space in the central area and powerline easements are crossed by streets and other urban land uses such that these areas are not connected with the open space in

the Markley Creek (see Figure 4). In view of the approved Black Diamond Ranch subdivision in the City of Antioch, the only viable overland corridors are located off-site, in HCP/NCCP Zone 1d, which is located south of the proposed project site and the Black Diamond Ranch subdivision.

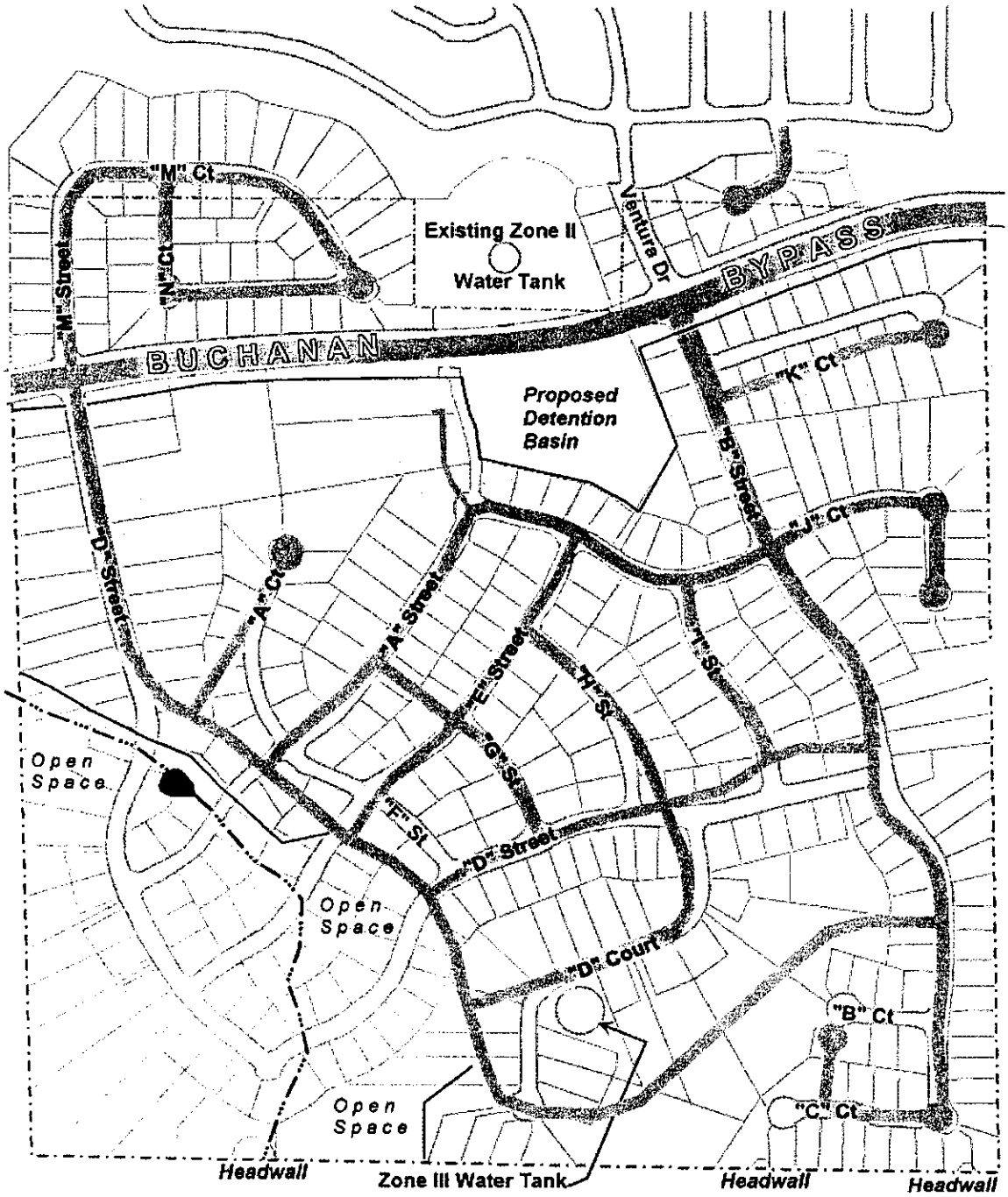
Alternative 1a, 1b, 1c and 1d (On-Site Conservation Alternatives)
Alternatives 1a, 1b, 1c, and 1d (collectively, Alternative 1) minimize development within proposed critical habitat of the California tiger salamander (CTS) and filling of streambeds. Figures 29, 30, and 31 illustrate the On-Site Conservation Alternatives.

Objectives of Alternative 1 are:

1. Develop a low-density (1 to 7 du/acre) residential subdivision;
2. Construct the Buchanan Road Bypass as a 4-lane arterial road within the limits of the project site;
3. Minimize depletion and/or enhance aestivation habitat used by the CTS; and,
4. Conserve creekside and upland habitat contiguous with existing open space.

To accomplish these objectives, Alternative 1 realigns proposed "D" Street and "D" Court. Owing to the realignment of "D" Street, Alternative 1 also modifies "A" Court, "C" Court, and "B" Court (see Figure 29, 30, and 31). As a consequence of habitat conservation and slide avoidance, approximately 55 to 76 potential lots in the southwestern portion of the Proposed Project would not be developed. Elsewhere within the project site, modifications to the remaining developable area could be plotted achieve at least 350 lot residential subdivision with only a slight reduction in average lot size and no change in minimum lot size compared to the Alternative 2 (Proposed Project). Under Alternative 1b density transfer or general Plan amendment could be allowed by the City of Pittsburg to accommodate 115 townhouse units.

Under Alternative 1b, 90 town house units would be constructed on 10 acres along the proposed Buchanan Bypass in the northwestern corner of the site. The density there, 9 du/gross acre, would be consistent with the low end of the Medium Density standard (7-14 du/gross acre). An additional 25 townhouses would be constructed on 7.25 acres between the power transmission lines and proposed Buchanan Bypass in the eastern portion of the site. The density there, 3.45 du/gross acre, would be consistent with the low end of the mid-range of the Low Density standard (1-7 du/gross acre). The overall density would be Low Density, but General Plan amendment and pre-zoning for Medium Density, or zoning variance, on 17.25 acres would be necessary owing to the reduced minimum lot size in the town house portions of the development.

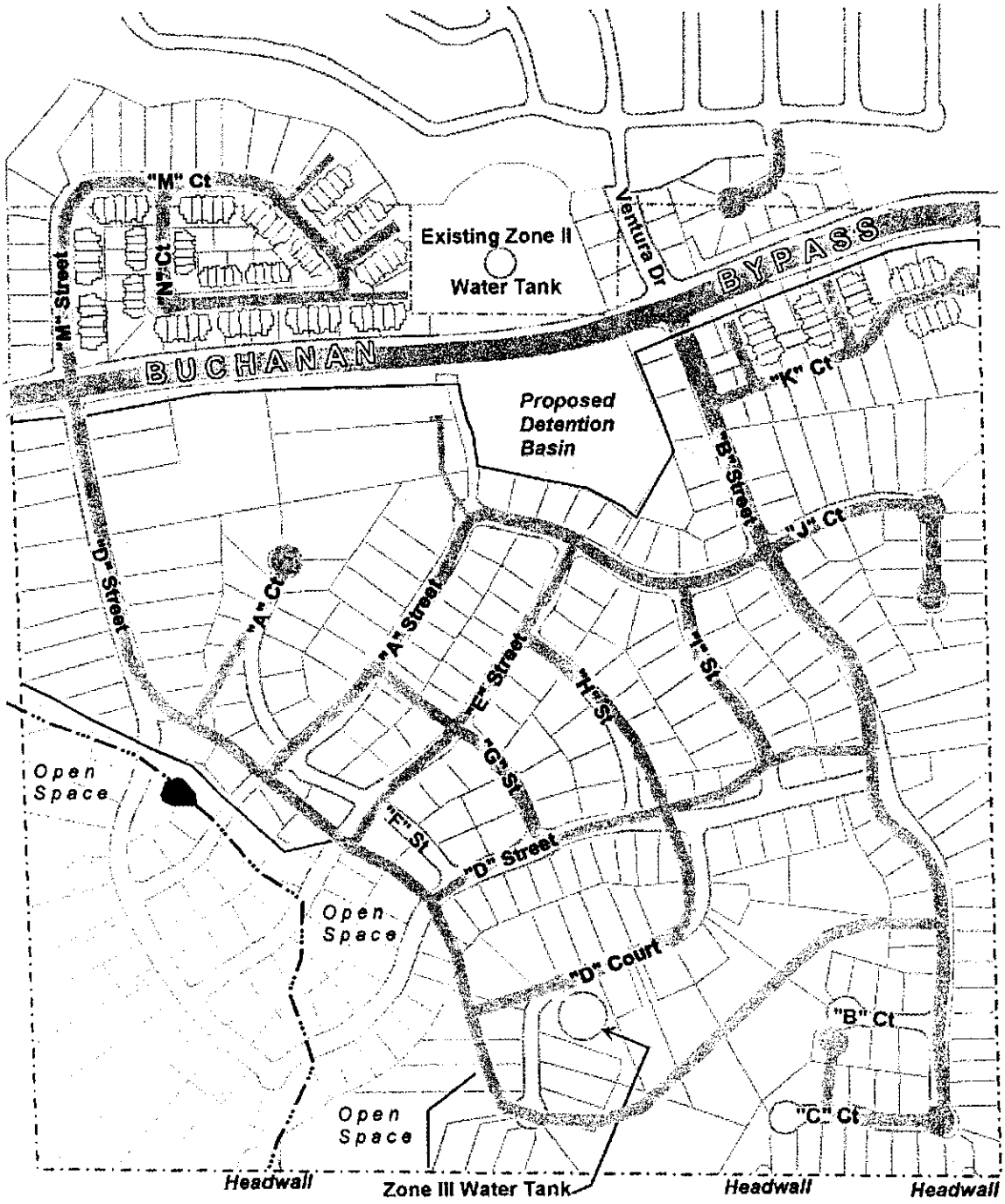


City of Pittsburg
65 Civic Avenue
Pittsburg, CA 94656

N

0 200 400 ft

FIGURE 29
Alternative 1a
Slide Area 1-2-3 and Creek Avoidance

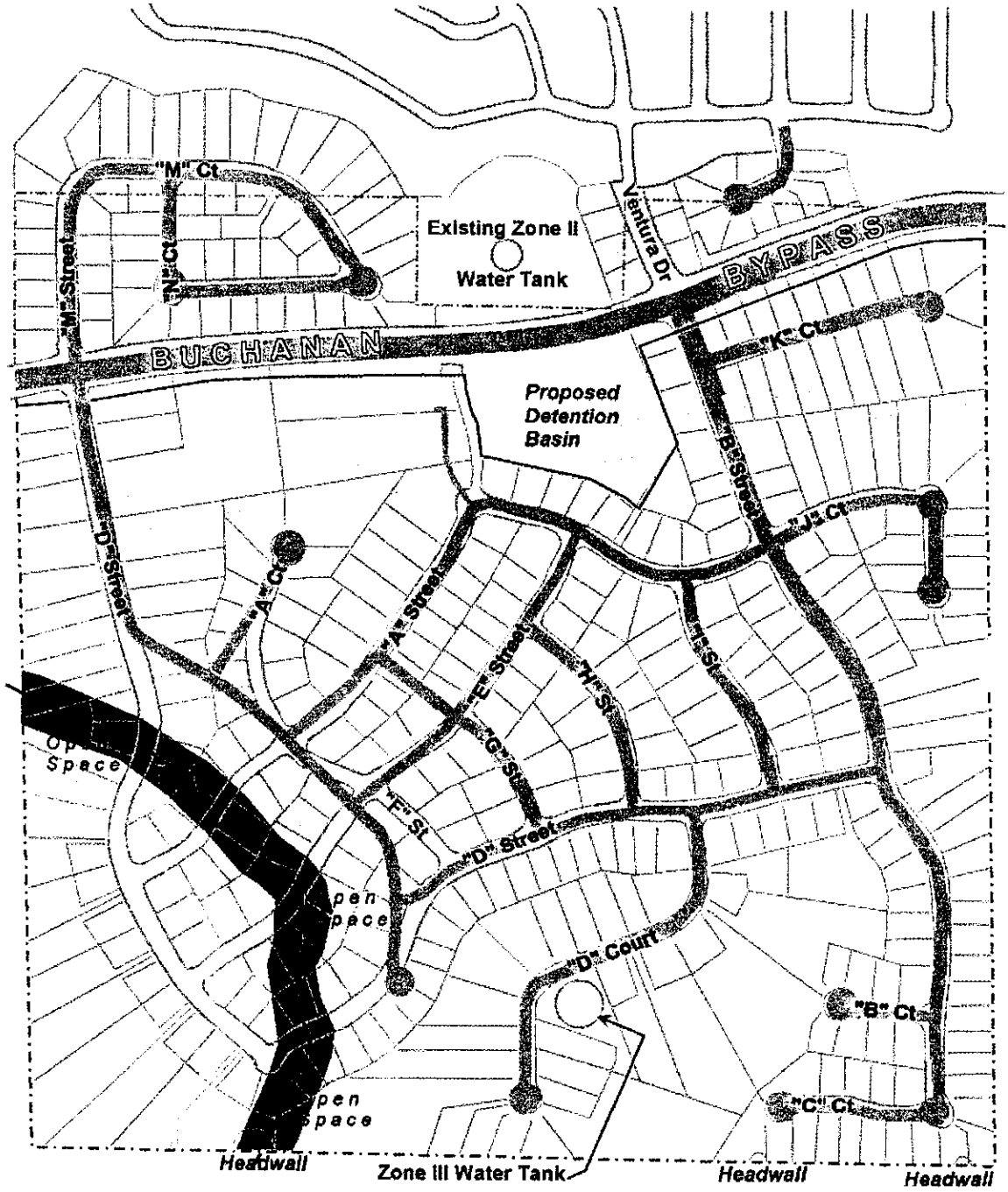


City of Pittsburg
65 Civic Avenue
Pittsburg, CA 94656

N

0 200 400 ft

FIGURE 30
Alternative 1b
Avoidance with Density Transfer



City of Pittsburg
65 Civic Avenue
Pittsburg, CA 94656

N
0 200 400 ft

FIGURE 31
Alternatives 1c and 1d
Intermittent Stream Buffers

The townhouses shown in Figure 30 consist of 1-story and 2-story models. Both versions are grouped in 5-unit clusters. One-story models have 1,600 square feet plus 2-car (400-square foot) garage. Two-story models also have 1,600 square feet, consisting of 650 square feet and 2-car garage (400 square feet) on the ground level, and 1,050 square feet on the upper level.

The 1-story models are shown at transitions with single-family housing and nearest the recommended sound wall. Such placement avoids concerns with second-story sound level exposure, which could not be mitigated by proposed or recommended sound walls. The 2-story models are placed at a setback from Buchanan Bypass. Also, near "K" Street, the townhouses are placed with adequate setback from power transmission lines to avoid potential EMF exposure.

Community buildings, tot lots, tennis courts, or other community amenities are not shown in Figure 30; however, there is available land area to accommodate these. Such amenities would not be provided under Alternative 2 (Proposed Project).

Alternative 1 could conserve and/or enhance approximately 21 to 29 acres of CTS aestivation habitat. The actual presence or absence of the CTS on the project site has been confirmed by independent sightings recorded and submitted for entry into the California Natural Diversity Data Base (Gan, 2004).

Within the 21 to 29 acres conserved under Alternative 1, there are approximately 394 lineal feet of intermittent creek with defined bed and bank. Alternative 1 exceeds minimum creekbed avoidance, the objective of which may be satisfied by a setback from the top of bank, typically 50-100 feet in urban settings. With minimum 50-foot setback protection, and assuming an average bank-to-bank width of 10 feet, minimum protection of the intermittent creek along its entire length in the southwestern portion of the project site is approximately 4.5 acres. Alternative 1 would preserve the creekbed, adjacent corridor and upland areas.

Relative Impacts or Benefits of Alternative 1 Alternative 1b is the environmentally superior alternative.

CTS Habitat – Under Alternative 1 some members of this species would continue to be viable within the conserved area that is contiguous with other undeveloped land outside the Urban Planning Boundary. Alternative 1 would reduce the depletion of CTS habitat in one area of the project site but would not avoid the proposed urban uses of CTS habitat throughout the project site.

Under Alternative 1 development on CTS habitat would not likely jeopardize the continued existence of the species; however, that is a determination to be made by USFWS. Under Alternative 1, a CTS Conservation Plan would be necessary to implement short-term

construction phase requirements and long-term requirements for minimizing incidental take and disturbance of CTS individuals and their conserved habitat.

Jurisdictional Waters - Alternative 1 could conserve approximately 21 to 29 acres of intermittent creek, intermittent creek setback, and additional contiguous upland area. Under Alternative 1, two other jurisdictional waters would be intercepted at headwalls to be located along the southern boundary and diverted through pipes to the Black Diamond Ranch storm sewer. Under the proposed project, the intermittent creek and the two other jurisdictional waters would be intercepted at headwalls to be located along the southern boundary and diverted through pipes. If determined to be jurisdictional, only the conservation alternatives provide opportunity for on-site mitigation of jurisdictional waters. Alternative 3 (Proposed Project) would require off-site compensatory mitigation for filling of jurisdiction waters.

Landslide and Earth Settlement Risks - In addition to the direct benefits of achieving the alternative's objectives, Alternative 1 could avoid fill and remedial earthwork in landslide areas #1, 2, and 3. The majority of the conservation area under Alternative 1 is mapped as deep-seated landslide and colluvial deposits. Alternative 1, therefore, could avoid any potential for settlement on the affected lots in those mapped areas in the southwestern portion of the project site.

Grading Equipment Exhaust and Fugitive Dust - Reduction in earthwork would shorten the grading phase and reduce PM2.5 and PM10 emissions from grading equipment exhaust and fugitive dust. Based upon the Preliminary Grading Plan the fill depth on over one-third of the Alternative 1 conservation area ranges from 30 to 90 feet. The estimated proposed fill volume is one million cubic yards, a volume which does not include remedial earthwork necessary to stabilize the land slide and colluvium areas. Alternative 1 could avoid fill and remedial earthwork in landslide areas #1, 2, and 3. In view of the requirement to stabilize the landslide and colluvial deposits before placing fill on them, the approximate earthwork requirement could be two million cubic yards.

Traffic - Alternative 1 would reduce daily traffic by 624 one-way trips per day, to approximately 3,360 one-way trips per day from 3,984 one-way trips per day under the proposed project. Reductions in traffic could have minor benefits in terms of reduced vehicular exhaust emissions and reduced sound levels within the project site, particularly along "D" Street.

Along "D" Street, near its mouth at Buchanan Bypass, the future daily traffic could be reduced to 912 vehicles per day (vpd) compared to 1,545 vpd under the proposed project. There would not be a benefit at "B" Street near its mouth at Buchanan Bypass, which is projected to have 1,747 vpd. Ventura Drive, before the opening of the Buchanan Bypass to through-traffic, is projected to carry an additional 3,360 vpd under Alternative 1. For livable streets the desired volume is 1,500 vpd or less, and not to exceed 2,000 vpd.

General Plan Policy Analysis - The project site is located on the urban edge. Adopted General Plan goals 4-G-3, 4-G-17, and 8-G-15 apply generally to development on the urban edge, neighborhoods, open space and trails. Policy 4-P-7 suggests development maintain a rural feeling and orientation toward open space. Policy 4-P-82 suggests development be responsive to natural elements, maintain a sense of connection to surrounding uses, and protect of creek corridors. Policy 2-P-72 specifically applies in the Buchanan Subarea and suggests protection of north-south creek corridors. Open space and trail Policy 8-P-82 suggests development of trails and trail heads and connections to regional and local open space. Under Alternative 1 several private residential lots would back onto open space in the Black Diamond Subarea and along the southern and western boundaries of the project site. Along the eastern boundary, the project site would be adjoined by the Black Diamond Ranch residential subdivision and several lots would back onto dedicated open space therein. There would be on-site open space in the southwestern portion of the project site and potential for public connection to open space along "D" Street. The intermittent streambed would be preserved. Unless required through mitigation measures there would be no provisions for development of trails or trail heads. Even so, public orientation toward open space would be enhanced along "D" Street.

Alternative 2 (Proposed Project)
Alternative 2 is the Applicant's proposal.

Objectives of Alternative 2 are:

1. Develop a residential subdivision having approximately 415 lots consistent with the adopted General Plan Low Density Residential designation and a minimum lot size for RS pre-zoning; and,
2. Construct the Buchanan Road Bypass as a 4-lane arterial road within the limits of the project site;

To accomplish these objectives, the Applicant has prepared a Vesting Tentative Map generally consistent with the Low Density residential land use designation and proposed RS pre-zoning of the project site. Under the Low Density land use designation 1 to 7 dwelling units per gross acre are allowed. The proposed density

is 2.46 du/acre. In the RS Zoning District, the minimum lot size is 6,000 square feet and the minimum lot width is 60 feet. The proposed minimum lot size is 8,000 square feet and the average lot size is 14,500 square feet. Open space is not proposed. A detention basin on a parcel of 4.03 acres is shown.

As proposed "D" Street and "B" Street form a lopped circulation system. The future Buchanan Road Bypass is shown on the Applicant's Vesting Tentative Map as a 4-lane artery within a 100-foot wide right-of-way.

Relative Impacts or Benefits of Alternative 2 Alternative 2 represents the impact baseline. Under Alternative 2, all 163 acres would be developed with streets, water tank, houses, and the 4.03-acre detention basin.

CTS Habitat - Depletion of CTS habitat would be 163 acres. Under Alternative 2, development on existing CTS habitat would not likely jeopardize the continued existence of the species; however, that is a determination to be made by USFWS. Under Alternative 2, a CTS Conservation Plan would be necessary to implement short-term construction phase requirements and long-term requirements for minimizing incidental take and disturbance of CTS individuals and the adjacent off-site habitat.

Jurisdictional Waters - Alternative 2 would not conserve any of the on-site waters of the U.S. Under Alternative 2 jurisdictional waters would be intercepted at three headwalls to be located along the southern boundary and diverted west or east through pipes to a stream channel or storm water conveyance system located off-site.

Landslide and Earth Settlement Risks - Under Alternative 2 remedial earthwork would be necessary to stabilize the landslide areas #1, 2, and 3, and areas of compressible landslide or colluvial deposits. The extent or depth of remediation requires additional study based upon a preliminary report by ENGEO.

Deep-seated slides range in depth from 30 to 120 feet. Alternative 2, therefore, could require could one million cubic yards of remedial earthwork, more or less depending on the findings of the supplemental study, to minimize potential for landslides and fill settlement. Without remedial earthwork fill settlement could potentially result from compression of the underlying landslide or colluvial deposits. Earthwork on landslides in the conservation area could be two million cubic yards in aggregate under Alternative 2.

Grading Equipment Exhaust and Fugitive Dust - Alternative 2 represents the maximum earthwork, longest duration grading phase, and related

duration for potential PM2.5 and PM10 emissions from grading equipment exhaust and fugitive dust.

Traffic - Alternative 2 represents the maximum traffic alternative, in the amount of 3,984 one-way trips per day. Along "D" Street, near its mouth at Buchanan Bypass, the future daily traffic could be 1,545 vpd under the proposed project. "B" Street near its mouth at Buchanan Bypass is projected to have 1,747 vpd under Alternatives 1 and 2. Ventura Drive, before the opening of the Buchanan Bypass to through-traffic, is projected to carry an additional 3,984 vpd under Alternative 2. For livable streets the desired volume is 1,500 vpd or less, and not to exceed 2,000 vpd.

General Plan Policy Analysis - The project site is located on the urban edge. Adopted General Plan goals 4-G-3, 4-G-17, and 8-G-15 apply generally to development on the urban edge, neighborhoods, open space and trails. Policy 4-P-7 suggests development maintain a rural feeling and orientation toward open space. Policy 4-P-82 suggests development be responsive to natural elements, maintain a sense of connection to surrounding uses, and protect of creek corridors. Policy 2-P-72 specifically applies in the Buchanan Subarea and suggests protection of north-south creek corridors. Open space and trail policy 8-P-82 suggests development of trails and trail heads and connections to regional and local open space.

Under Alternative 2 several private residential lots would back onto open space in the Black Diamond Subarea along the southern and western boundaries of the project site. Along the eastern boundary, the project site would be adjoined by the Black Diamond Ranch residential subdivision and several lots would back onto dedicated open space therein. The Preliminary Grading Plan calls for fill placement in the intermittent streambed and cuts several hilltops; therefore, it is generally less responsive to the existing natural elements on the project site. There are no provisions for protection of creek corridors or development of trails or trail heads. Although the proposed project would be adjoined by open space, it is without provision for public access and therefore, lacks public orientation toward open space.

Alternative 3 (No Project)

The No Project alternative is the environmentally superior alternative because it avoids key impacts including depletion of CTS habitat, incidental take of CTS individuals, filling of streams, exposure to landslide hazard, and traffic intrusion into Highlands Ranch. Because the No Project alternative is found to be the environmentally superior alternative, CEQA requires that the least-damaging action alternative be identified. That alternative is Alternative 1b.

The No Project alternative would defer development of the project site until such time that a Low-Density Residential use is proposed again. The No Project

alternative would not preclude future Low-Density Residential use of the project site including, for example, the proposed project or a modified Site Development Plan. The potential presence of CTS individuals on the project site, and related requirements to minimize incidental take, necessitate a CTS Conservation Plan, which could be deferred under Alternative 3 and submitted later with a Site Development Plan.

The No Project alternative potentially could defer all of the short-term impacts of the proposed project, which include construction dust and noise, and also the long-term effects such as depletion of CTS habitat, filling of waters of the United States, exposure to landslide hazard, traffic intrusion impact on Highlands Ranch, and project-related air pollution emissions. Such impacts, however, could potentially result eventually under another General Plan compliant use of the proposed site as Low-Density Residential use is consistent for the 156-acre project site under the adopted General Plan.

The City of Pittsburg may reject all Low-Density Residential uses of the project site until such time that the Site Development Plan, design, Buchanan Bypass, and mitigation measures can be shown to avoid or mitigate potential significant environmental impacts of such uses. If feasibility proves to be an issue critical to Low Density Residential use of the project site, the City of Pittsburg may consider RS zoning or PD-zoning to accommodate smaller lots and clustering, still consistent with the Low Density Residential density range of 1 to 7 du/acre.

In the interim period, an alternative means of completing the 0.5-mile segment of the Buchanan Bypass may be necessary. Assuming so, the right-of-way could be protected and then acquired following standard eminent domain or negotiated and right-of-way acquisition procedures.

Relative Impacts or Benefits of Alternative 3 Alternative 3 represents a deferred development and deferred impact scenario. Under Alternative 3, all or a portion of the 163 acres eventually would be developed with streets, water tank, houses, and a detention basin, depending on the Site Development Plan.

CTS Habitat - Depletion of CTS habitat would be deferred. Even so, under Alternative 3, future applications for development of the project site would be likely as a Low-Density Residential use is consistent with the General Plan. A CTS Conservation Plan that addresses short-term and long-term CTS conservation measures could be deferred and submitted later with a Site Development Plan.

Jurisdictional Waters - Alternative 3 would not necessarily conserve any of the on-site waters of the U.S. but could defer their filling or conservation

until a future date. In the interim period, jurisdictional waters could remain relatively undisturbed except by cattle grazing.

Landslide and Earth Settlement Risks - Under Alternative 3 remedial earthwork would be deferred. The extent or depth of remediation requires additional study based upon a preliminary report by ENGEO.

Grading Equipment Exhaust and Fugitive Dust - Alternative 3 would defer earthwork, grading, and related potential PM2.5 and PM10 emissions from grading equipment exhaust and fugitive dust.

Traffic - Alternative 3 would not generate traffic in the interim period before a residential use is developed on the project site. In the interim period, there would be no project-related traffic intrusion on Ventura Drive. The right-of-way for the Buchanan Bypass could be protected and then acquired following standard eminent domain or negotiated and right-of-way acquisition procedures. Under Alternative 3, therefore, it is possible that the bypass segment within the limits of the project site could be constructed and residential development on the project site could be deferred until opening of the Buchanan Bypass to through-traffic.

General Plan Policy Analysis – Alternative 3 is nether consistent nor inconsistent with the adopted General Plan. Alternative 3 simply would defer development of the project site with the proposed project or a modified project.

Alternative 4 (Alternative Site Locations) Alternative 4 means location of the proposed project at another site and not the project site (see Figure 32). Objectives of Alternative 4 are:

1. Develop a Hillside Planned District (HPD) residential subdivision, with base density depending on slope (maximum not to exceed 4.5 du/acre, before density bonus);
2. Construct the Buchanan Road Bypass as a 4-lane arterial road within the limits of the project site;
3. Minimize depletion and/or enhance aestivation habitat used by the CTS; and,
4. Conserve creekside and upland habitat contiguous with existing open space.

As would Alternative 3 (No Project), Alternative 4 (Alternative Site Locations) would defer development of the project site until such time that a Low-Density Residential use, with RS or PD pre-zoning is proposed again. The related requirement for a CTS Conservation Plan could be deferred under Alternative 4 and submitted later with a modified Site Development Plan.

KEY
Excluded by Final Rule (Proposed CTS Critical Habitat)
Proposed CRLF Critical Habitat
SAN JOAQUIN RIVER
Willow Pass Road
Willow Pass
W. 10th St.
CIVIC CENTER
City Park
Harbor Street
Southern Pacific
STATE HIGHWAY 4
West Leland Road
East Leland Rd
West 10th Street
Golf Course
Stoneman Park
Railroad Avenue
Loveridge Rd
Los Medanos College
Delta Fair Blvd
EAST COUNTY MALL
Marchetti Park
L Street
Buchanan Park
Buchanan Road
Highlands Park
Future Park Site
Palo Verde Dr
Ventura Dr
Meadow Lands
Somersville Creek
BUCHANAN
HIGHLANDS
ALT. 4 SITE #4B
Future Bypass
ALT. 4 SITE #4A
PROPOSED SITE
Black Diamond Ranch
GBF/ PITTSBURG LANDFILLS
Contra Costa Canal
James Donlon Boulevard
Mira Vista
Marina
BLACK DIAMOND
Kirker Creek
Kirker Pass Road
BLACK DIAMOND MINES
REGIONAL PRESERVE
14
15
City of Pittsburg
65 Civic Avenue
Pittsburg, CA 94656
N
0 1K 2K 3K ft
FIGURE 32
Alternative Site Locations

Potential alternate site locations are located within the Buchanan or Woodlands Planning Subareas, west of the project site, on adjacent Hillside Planned District (HPD) pre-zoned land within the Urban Planning Area and also within the new Measure P voter-approved Urban Limit Line. These other sites are located north of the same powerline easement that traverses the project site (see Figure 32).

Alternate Site #4A is located in the Buchanan Planning Subarea, contiguous with existing residential subdivisions toward the north. Alternate Site #4B is located in the Woodland Planning Subarea on the west side of Kirker Pass Road. Environmental constraints were examined at a planning level, based on review of available documents.

Relative Impacts or Benefits of Alternative 4 Alternative 4 represents development of approximately 195 to 252 houses on another site. Under Alternative 4, development of the project site would be deferred and future development of all or a portion of the project site could occur with a modified project including streets, water tank, houses, and a detention basin, depending on the Site Development Plan. The relative impact to CTS and CRLF, or its critical habitat, relative earthwork volumes, and other relative impacts are estimated based upon available information but without site-specific surveys or exploration.

CRLF and CTS Habitat - The alternative sites may have 100 percent coverage with proposed CRLF critical habitat over the entire site footprints. On Alternative #4A, CTS individuals have been observed and those sightings recorded in the CNDDB. Alternative #4B has coverage with CTS habitat, some of which had been proposed as critical habitat, but which in August 2005 was excluded by Final Rule.

Jurisdictional Waters - Alternative 4 would have similar or more extensive jurisdictional waters. Each alternative site has 3,000 lineal feet of USGS-mapped intermittent streams.

Landslide and Earth Settlement Risks – Figure 10-1 of *Pittsburg 2020: A Vision for the 21st Century* shows Alternate Sites #4A and #4B to be located in areas of moderately unstable earth. There is not any site-specific geotechnical feasibility analysis for Alternative 4. Therefore, the presence of landslides is known, but the magnitude and cost for remedial earthwork is unknown.

Grading Equipment Exhaust and Fugitive Dust - Alternative 4 probably would generate lesser amounts of dust from grading and diesel exhaust earthmoving equipment, as the development footprints would be relatively smaller (66 to 91 acres excluding the land area pre-zoned for Open Space).

Traffic - Alternative 4 would generate 167 to 286 PM peak hour trips. The viability of Alternative #4A is dependent on the Buchanan Bypass. Construction of the bypass within the limits of Alternative Site #4A would be necessary. Traffic flow through an existing residential neighborhood would be necessary pending completion of a suitable north-south collector. In the interim period, there would be no project-related traffic intrusion in one of the neighborhoods to the north. For Alternative Site #4B, located at the western terminus of the ultimate Buchanan Bypass, traffic from this alternative site would have direct access to Kirker Pass Road. Alternative #4B likely could avoid the impacts to Buchanan Road that are forecast to occur for Alternatives 1, 2 and 4A.

Feasibility - Relative to feasibility, cost, and practicability of the alternatives, considerations under CEQA and CWA Section 404b(1), neither Alternative 4A nor Alternative 4B, would meet the definition of a feasible or environmentally superior alternative. Alternative 4A can fulfill only about 50 percent of the proposed project's housing. Neither alternative site has characteristics that clearly distinguish it from the proposed site in terms of presence of jurisdictional waters, special habitat, or landslide hazard. In fact, considerably less is known about the wetland, biological and geotechnical constraints on the alternative sites than is currently known about the project site. Alternative 4 could not be accomplished within a reasonable timeframe, and only Alternative 4B could provide a scale of development that is potentially 68 percent of the proposed scale.

ALL PRACTICABLE ALTERNATIVES ANALYSIS

Clean Water Act Section 404(b)(1) Guidelines (Guidelines) were published by the U.S. Environmental Protection Agency at 40 CFR Part 230 on December 24, 1980. The fundamental precept of the Guidelines is that discharges of dredged or fill material into waters of the United States, including wetlands, should not occur unless it can be demonstrated that such discharges, either individually or cumulatively, will not result in unacceptable adverse effects on the aquatic ecosystem. The Guidelines specifically require that "no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences." 40 CFR 230.10(a).

Practicable alternatives are those alternatives that are "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes." 40 CFR 230.10(a)(2). The preamble to the Guidelines also states that "[i]f an alleged alternative is unreasonably expensive to the applicant, the alternative is not 'practicable.'" Guidelines Preamble, "Economic Factors", 45 Federal Register 85343 (December 24, 1980). In applying Section 404(b)(1) Guidelines to projects with minor impacts, projects that may cause more than minor impacts on the aquatic environment,

either individually or cumulatively, should be subjected to a proportionately more detailed level of analysis. Conversely, projects that may cause only minor impacts on the aquatic environment, either individually or cumulatively, should be subjected to a proportionately lower detailed level of analysis.

No Project Alternative

The No Project Alternative could avoid impact to 156 acres of CTS habitat. The No Project Alternative could not accomplish the purpose of new housing development, a purpose that is consistent with the City's adopted General Plan land use designation.

Other CTS habitat, including proposed CTS critical habitat, is located off site to the west and southeast. Under the proposed HCP/NCCP, approximately 406 acres is targeted for acquisition and protection in Sub-Zone 1d, which is located directly south and southwest of the project site. Sub-Zone 1d consists of annual grasslands, with intermittent and ephemeral streams, similar to those occurring on the project site. Unlike Zone 1, on-site habitat resources have been temporarily degraded by cattle grazing.

Zone 1's habitat resources generally may be considered superior in value to those on the project site, primarily because Zone 1 resources occur extensively over a contiguous area that can be acquired assembled into the proposed Preserve System. In contrast, the project site is bounded by existing residential developments on the northwest, north, and east. In view of its location adjacent to existing residential subdivisions, it would be relatively costly to create an urban edge buffer around the project site. Such a buffer would span at 5,200 to 7,800 lineal feet, depending on the future use of the Thomas parcel. As discussed in the Draft HCP/NCCP, straight edges are preferred at the urban edge to minimize buffer land area requirements.

Proposed Project Alternative

Under this alternative, the proposed project would be implemented with all of the mitigation measures described herein adopted as conditions of approval. The project proponent would be required to provide for off-site compensatory mitigation for all loss of CTS habitat, wetland and other jurisdictional waters. No portion of the project site currently is designated, or is proposed to be designated, as CTS critical habitat. Instead, all such habitat is located off-site.

Under the proposed project Alternative, off-site compensatory mitigation at a 3:1 ratio would be required before mass grading. Mass grading would be performed with cut slopes and fill over the entire 156 acre area of the site, to create a conventional residential subdivision and looped road system, 415 lots having an average size of approximately 14,000 square feet. Mass grading includes 1.75 million cubic yards of cut and 1.56 million cubic yards of fill. These volumes do

not include the additional remedial excavation and backfill for stabilization of landslide deposits in the southwestern area of the site.

The Proposed Project Alternative is a low-density residential land use with a density of 2.55 du/acre. This is consistent with the City's General Plan Low-Density Residential designation (1-7 du/acre) and the City's General Plan buildout assumption for the site (3 du/acre). At $725,000 per house, the approximate market value of the project is $301 million.

Conservation Alternative 1a

Conservation Alternative 1a would remove approximately 28 acres and 66 lots from the development footprint. The 28 acres are located in the southwestern portion of the site on both sides of the historical intermittent stream channel and generally in the area having the highest incidence of deep-seated landslide deposits.

Without provision for smaller lots sizes or higher density elsewhere on the site, the number of residential lots would be reduced to approximately 349 lots. The project's market value under Conservation Alternative 1a is $253 million, a reduction of $48 million.

Though the market value of the project would be reduced under this alternative, mass and remedial grading necessary for site development also would be reduced. Some fraction of these grading cost savings would be applied instead to creek restoration.

Conservation Alternative 1a would avoid 394 feet of identified existing stream having defined bed and bank. Conservation Alternative 1a would not avoid the 945 to 1,484 lineal feet of intermittent or ephemeral stream and wetland features identified in the site's southeastern corner; however, Conservation Alternative 1a would provide an opportunity on-site restoration of 1,686 lineal feet (includes the 394 lineal feet) of stream habitat. Therefore, assuming restoration of approximately 1,292 lineal feet (net), there would not be a substantial net reduction in identified potential jurisdictional waters under Conservation Alternative 1a.

Restoration of this particular reach of an intermittent creek, Reach 2, is interpreted to have relatively greater value than similar conservation in the southeastern corner of the project site. The ephemeral streams in the southeastern corner, once part of the headwaters of an intermittent creek tributary to Kirker Creek, are a part of relatively short network. Off-site, east of the project site, the seasonal storm water discharge from these ephemeral streams drains to Markley Creek by a combination of in-channel and overland flow, which is being replaced by the manmade storm water conveyance system being constructed on the adjoining Black Diamond Ranch.

In the southwestern portion of the site, Reach 2 is part of a combined natural and manmade system that extends from Black Diamond Mines Regional Preserve on the south to a point of confluence with Kirker Creek north of State Highway 4. Reaches 1, 2, and 3 comprise the natural portion of the stream system. No part of the downstream system is natural until Dowest Slough. The total extent of Reaches 1-3 is approximately 5,900 lineal feet. Reaches 1-3 are not parts of Kirker Creek for which stream rehabilitation projects are proposed or in-progress to the west.

South of the project site, Reach 1 has 2,600 lineal feet within a wooded ravine that extends though acquisition Zone 1d of the proposed HCP/NCCP. Within the project site, Reach 2 is disjunct, with an overall original extent of 1,686 lineal feet, of which 394 feet recently were identified as having a defined bed and bank. The suggested conservation land in Reach 2 currently supports annual grassland without riparian vegetation. West of the project site, seasonal storm water discharge resumes in Reach 3, described by HBG as having a defined bed and bank. Farther north, Reach 3 is intercepted in manmade conveyance systems, which convey seasonal storm water flow to Kirker Creek north of State Highway 4.

Streams and their upland habitats generally provide recharge, natural bio-filtration, and wildlife habitat. As naturally-provided functions are eliminated, provision of equivalent functions require engineering of man-made substitutes or compensatory mitigation off-site. Man-made substitutes can be integrated into landscape features; even so, they cannot provide the equivalent habitat value for wildlife.

The conservation value of restoration of Reach 2 as suggested in Conservation Alternative 1 is itself subject to interpretation or debate. With the future acquisition and protection of 25 percent of Zone 1d, conservation of contiguous upland habitat east and west of Reach 1, or a portion thereof, could be assured. Reach 1, therefore, may be considered as a primary candidate for conservation owing to its location within acquisition Zone 1d. Reach 3 also is illustrated in the HCP/NCCP as being located within Zone 1d; however, a portion of Reach 3 also is located within the Buchanan Planning Subarea. Without acquisition and protection of the part of Zone 1d that contains Reach 3, there would not be as much opportunity for conservation of contiguous upland habitat west of Reach 2. Eventually the 21 to 29 acres conserved on the project site may adjoin urbanized land on the east, west and south.

Conservation Alternative 1b

Like Conservation Alternative 1a, Conservation Alternative 1b would remove approximately 28 acres from the development footprint. The 28 acres are located in the southwestern portion of the site on both sides of the historical intermittent stream channel and generally in the area having the highest incidence of deep-seated landslide deposits. Conservation Alternative 1b would avoid all of the same resources as Conservation Alternative 1a.

Conservation Alternative 1b, unlike Conservation Alternative 1a, would allow for development of approximately 406 dwelling units on the project site. This could be accomplished, for example, by modifying the development plan to include zero lot line or attached housing near the Buchanan Bypass, without exceeding the proposed density (2.55 du/acre). The project's market value under Conservation Alternative 1b is approximately $277 million, which is $24 million lower under Conservation Alternative 1b (compared to the Proposed Project Alternative).

Mass and remedial grading necessary for site development also would be reduced (compared to the grading under the Proposed Project Alternative). Some fraction of these grading cost savings would be applied instead to required creek restoration.

The conservation value of restoration of Reach 2 as suggested in Conservation Alternative 1 is subject to the same interpretation as the interpretation for Alternative 1a. Reach 1, or a portion thereof, may be considered as the primary candidate for off-site conservation. Future conservation of land west of Reaches 2 and 3 would depend on future development in the Buchanan Planning Subarea.

Conservation Alternative 1c

Conservation Alternative 1c is traditional stream protection by means of a riparian setback, or "buffer." Conservation Alternative 1c was considered to determine if a lesser on-site conservation area, less than 28 acres, could potentially provide for on-site mitigation to impacted wetlands.

Buffers are described in the HCP/NCCP, which specifically recommends buffer widths and discusses buffers according to stream hydrologic function/classification, habitat function, and proximate land use. Cited literature recommendations based on general stream hydrologic function are: intermittent stream reaches (150 to 300 feet total width) and ephemeral stream reaches (50 to 100 feet total width, depending on soil, slope, and vegetative cover). Cited literature recommendations based on habitat are: general riparian ecosystem function (90 to 150 feet total width), bird habitat/diversity (160 to 450 feet totals width), and reptile/ amphibian habitat (300 to 500 feet). The general recommendation for buffer separating preserve land from future urban development is 300 feet (total width of buffer).

Stream conservation with a minimum 150-foot wide buffer would remove approximately 5.8 acres from the development footprint. The 150-foot wide stream conservation buffer would leave approximately 15.2 acres isolated in the southwestern corner of the project site.

To accommodate additional value as CTS habitat, a 500-foot wide buffer would remove approximately 19.4 acres from the development footprint. The CTS conservation footprint (19.4 acres) would leave an additional 9.6 acres isolated in the southwestern corner of the project site, which also would be removed from the

development footprint. In view of the steep slopes and unstable landslide deposits, it would not be cost effective or technically feasible to prepare that isolated southwestern corner for development.

Wetland mitigation credit could be given for conservation of 5.8 acres on-site; however, CTS mitigation credit probably could not be given for any of the 5.8 acres without the larger 500-foot wide buffer. Without the larger buffer, CTS would be subject to significant direct mortality from traffic, pets, and general disturbance by proposed residential use of the project site. The applicant likely could be required by USFWS to mitigate off-site at a 3:1 ratio for all 163 acres of the project site. Conservation Alternative 1c would not be practicable because it would be unreasonably expensive to the applicant to mitigate wetlands on-site yet still be required to compensate off-site for loss of 163 acres of CTS habitat. A reasonable and prudent person would elect Conservation Alternative 1b over Conservation Alternatives 1a, 1c, and 1d.

Alternative Sites

Alternative sites for development of the project were considered. Both alternative sites are illustrated in the City's current General Plan as having the low density residential designation (1-7 du/acre), and both are shown as located within the City's Planning Area and also within the voter-approved Measure P Urban Limit Line (ULL). The alternative sites have been pre-zoned Hillside Residential District (HPD) and Open Space (OS). For HPD land, base density depends on slope.

Alternative Sites #4A and 4B are illustrated in the General Plan as being located at elevations 200-400 feet above mean sea level, with Tulare formation soils and slopes greater than 20 percent, in zones of moderate slope instability. Both alternative sites are located within the Kirker Creek watershed. Vegetative communities are classified as California annual grasslands, and the sites currently may be used for cattle grazing. Based only on General Plan level inquiry, the sites also may be under Williamson Act contract.

> **Alternative Site #4A** is located directly west of the proposed site, within the portion of the Buchanan Subarea pre-zoned for HPD and OS under voter-approved Measure P. Alternative Site #4A consists of approximately 101 acres, as drawn, but additional upslope land pre-zoned for Open Space use is present to the south. Access could be provided by means of the future Buchanan Bypass if constructed for the approximately 1 mile segment from Black Diamond Ranch to Kirker Pass Road.
>
> The entire acreage of Alternative Site #4A is shown in the Draft HCP/NCCP as being located within an acquisition zone (Sub-Zone 1d). The voter-approved Measure P ULL encroaches into Sub-Zone 1d; therefore, the maximum Permit Area defined in the HCP/NCCP may or

may not be sufficient to include additional Permit Area within the recently expanded ULL.

Alternative Site #4A has two dash-dot intermittent streams as shown in the General Plan and U.S. Geological Survey topographic maps. The entire area of Alternative Site #4A site is located within USFWS-proposed critical habitat of the CRLF (Unit CCS-1B). Though no portion of Alternative Site #4A is located within CTS critical habitat, this site contains annual grasslands and an adult CTS was sighted on Alternative Site #4A (Gan, October 2004). Species surveys and a wetlands delineation are not available for this alternative site.

In view of the presence of mapped intermittent streams of similar length compared to that present on the proposed site, impacts to jurisdictional waters may be expected to be similar for Alternative Site #4A and the Proposed Project Alternative. In view of its annual grasslands habitat classification and CTS sighting on Alternative Site #4A, it is highly likely that Alternative Site #4A would be considered as suitable SJKF habitat and CTS aestivation habitat.

Alternative Site #4A and Alternative 2 (Proposed Project) can reasonably be expected to have similar of wetlands, SJKF, and CTS concerns. A reasonable person holding fee title ownership of land located within the existing ULL, who additionally has paid holding costs and invested in engineering studies to advance a development interest in the proposed project site, would not forgo the latter to pursue a similar interest in Alternative Site #4A.

Alternative Site #4B is located farther west of the proposed project site, entirely within the Woodlands Planning Subarea. Alternative Site #4B, as drawn, consists of approximately 140 acres.

As for Alternative Site #4A, the entire acreage of Alternative Site #4B is shown as being located within an acquisition zone (Sub-Zone 1c) in the Draft HCP/NCCP. The voter-approved Measure P ULL encroaches into Sub-Zone 1c; therefore, the maximum Permit Area defined in the HCP/NCCP may or may not be sufficient to include additional Permit Area within the recently expanded ULL.

Alternative Site #4B has a dash-dot intermittent stream as shown in the General Plan and U.S. Geological Survey topographic maps. Furthermore, the intermittent stream reach shown on Alternative Site #4B is tributary to a natural reach of Kirker Creek.

The entire area of Alternative Site #4B is located within USFWS-proposed critical habitat of the CRLF. Alternative Site #4B is located within 0.4, 0.8, and 1.1 mile of previous CTS sightings reported and recorded in the CNDDB. Approximately 50 percent of Alternative Site #4B previously had been proposed by USFWS as CTS critical habitat, being a portion of Unit 14, which subsequently was excluded by Final Rule in August 2005. Species surveys and a wetlands delineation are not available for the site.

In view of the presence of a mapped intermittent stream of similar or greater habitat value and extent compared to that present on the proposed project site, impacts to jurisdictional waters may be expected to be similar or greater for Alternative Site #4B compared to the Proposed Project Alternative. In view of its annual grasslands habitat classification, CTS sightings less than 1.1 mile west and southwest on Alternative Site #4B, and past proposal for critical habitat designation, it is highly likely that all of Alternative Site #4B would be considered as providing SJKF habitat and CTS aestivation habitat.

Alternative Site #4B and Alternative 2 (Proposed Project) can reasonably be expected to have similar of wetlands, SJKF, and CTS concerns. A reasonable person holding fee title ownership of land located within the existing ULL, who additionally has paid holding costs and invested in engineering studies to advance a development interest in the proposed site, would not forgo the latter to pursue a similar interest in Alternative Site #4B.

SUMMARY

Environmentally Superior Alternative

Of the action alternatives, the environmentally superior alternative is the Conservation Alternative with Density Transfer (Alternative 1b). Alternative 1b preserves an opportunity for streambed rehabilitation, reduces but does not entirely avoid on-site CTS habitat loss, reduces but does not entirely avoid exposure to landslide hazard, and can achieve most of the proposed project's objective of providing 415 dwelling units. To accomplish this, Alternative 1b would protect approximately 28 acres and build 115 units (of a total 406 units) as attached single-family townhouses. A General Plan amendment to accommodate medium density housing on part of the site along the north side of Buchanan Bypass and variance for smaller lot sizes on part of the site along the south side of Buchanan Road would be required.

Among all the alternative considered, the environmentally superior alternative is the No Project (Alternative 3), because it alone can avoid all the potential significant environmental impacts. However, Section 15126.6(e)(2) of the CEQA Guidelines states that "if the environmentally superior alternative is the No Project alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives."

Action alternatives except Alternative 1b achieve a small portion of the proposed project's housing. Alternative 1a, Alternative 1c, and Alternative 1d would provide 339 to 360 housing units (82 to 87 percent of the proposed housing). Alternative sites (Alternative 4A and 4B) hypothetically could provide 165 to 284 housing units (40 to 70 percent of the proposed project's housing), depending on base density determined by site slope. The latter estimates are hypothetical, performed in the absence of geotechnical feasibility or other feasibility assessments, and are based on OS and HPD-prezoning with an assumed base density of 2 to 2.5 du/acre.

Relative to the federal Endangered Species Act, none of the alternatives currently involves the USFWS-designated critical habitat of the California tiger salamander (CTS). Proposed CTS critical habitat, Units 14 and 15, were excluded by Final Rule (USFWS, August 23, 2005). Through its proposed mass grading, Alternative 2 (Proposed Project) would deplete 163 acres of CTS habitat, the most CTS aestivation habitat among the alternatives. Alternatives 1a, 1b, 1c, and 1d would deplete 134 to 142 acres of CTS aestivation habitat. The range of impact (134 to 163 acres) is relatively narrow. If one considers the magnitude of Zone 1d habitat protection under the proposed East Contra Costa County HCP/NCCP the differences are inconsequential. At the time of writing, however, the HCP/NCCP is not approved; therefore, proposed protection in Zone 1d may not be assumed as fact.

Relative to Clean Water Act and Section 404b(1) Guidelines, the U.S. Army Corps of Engineers (USACE) seek identification of alternatives that are available, practicable, and substantially less environmentally damaging to an aquatic ecosystem under the purview of the Clean Water Act. The proposed filling of potential on-site jurisdictional waters could be substantially less under the conservation alternatives (Alternatives 1a, 1b, 1c, and 1d). Prior to having a delineation verification and jurisdictional determination by USACE, the waters on the project site have been assessed to be potentially jurisdictional, though final determination rests with USACE. If determined to be jurisdictional, only the conservation alternatives provide opportunity for on-site mitigation of jurisdictional waters. Alternative 2 (Proposed Project) would require off-site compensatory mitigation for filling of jurisdiction waters.

Relative to feasibility, cost, and practicability of the alternatives, considerations under CEQA and CWA Section 404b(1), neither Alternative 4A nor Alternative 4B would meet the definition of a feasible or environmentally superior alternative. Alternative 4A can fulfill only 60 percent of the project's proposed housing. Neither alternative site has characteristics that clearly distinguish it from the proposed site in terms of presence of jurisdictional waters, special habitat, or landslide hazard. In fact, considerably less is known about the wetland, biological and geotechnical constraints on the alternative sites than is currently known about the project site. Alternative 4 could not be accomplished within a reasonable timeframe and also could not provide a scale of development above approximately 70 percent of the proposed scale.

TABLE 32
ALTERNATIVES ANALYSIS

Alternatives		Description			Conservation Impacts					Other Impacts			
		Improved Land Area[d] (Acres)	Number of Dwelling Units	Consistency with General Plan Land Use	Intermittent Stream Loss (Lineal feet)	Streambed Loss (Lineal feet)	Stream Rehabilitation Opportunity (Lin. feet)	CTS Habitat Loss (Acres)	Proposed CRLF Critical Habitat Loss	Lots Exposed to Off-Site Landslides	Areas Exposed to Wildland Fire	PM Peak Hour Traffic (vph)	Community Noise & Air Quality
1a	On-Site Conservation	128[a]	349[c]	Yes	0	1,484	1,686	136	23	7	Yes-reduced[f]	352	S
1b	On-Site Conservation with Density Transfer	128[a]	406[c]	No	0	1,484	1,686	134	23	7	Yes-reduced[f]	356	S
1c	Stream Buffer (500-ft)	127[a,b]	339[c]	Yes	0	1,484	1,686	134	24	7	Yes	342	S
1d	Stream Buffer (150-ft)	135[a,b]	360	Yes	0	1,484	1,686	142	31	7	Yes	364	S
2	Proposed Project	156[a]	415[c]	Yes	394	1,878	0	163	51	25	Yes	419	S
3	No Project	0	0	NA	0	0	1,686	0	0	0	No	0	LTS
4A	Buchanan Planning Subarea Site (101 acres)	66	165-206	Yes	0	ND	3,000	66[d]	66[d]	ND	Yes-ND	167-208	S
4B	Woodlands Planning Subarea Site (140 acres)	91[e]	227-284	Yes	0	ND	3,000	91[d]	91[d]	ND	Yes-ND	229-286	S

NOTES:
NA Not Applicable ND Not Determined S Potential Significant Impact LTS Less-Than-Significant Impact
[a] Excludes the contiguous 7.1-acre re-subdivided area in Highlands Ranch and on-site conservation area (if any).
[b] Excludes the stream buffer area and 9.6 acres (500-foot buffer) to 15 acres (150-foot buffer) that would be isolated.
[c] Includes 20 lots built on the contiguous 7.1-acre re-subdivided portion of Highlands Ranch.
[d] Acreage excluding Open Space (OS) or conserved area.
[e] Includes acreage in previous USFWS-proposed CTS critical habitat, which was deleted by Final Rule in August 2005.
[f] Risk is slightly reduced, primarily along the portion of "D" Street shown as single-loaded without houses on the upslope side of the street.
SOURCE: Draft EIR for Sky Ranch II, 2005; Institute of Traffic Engineers, 1997. *Trip Generation*, 6th Edition, Volume 1.

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VII. CUMULATIVE EFFECTS

The City of Pittsburg in 2001 concluded a *General Plan* update, which resulted in the current Low-Density Residential land use designation of the project site. Therefore, the project site has recently been considered in a General Plan process which determined a suitable and appropriate use of the site is a Low-Density Residential use (1-7 dwelling units per gross acre).

The proposed project could serve a current demand for permanent housing. The project could provide many large-sized lots, with an average lot size of 14,500 square feet, and an overall subdivision for 415 houses. The proposed project at 2.55 du/gross acre would be at the low end of the Low Density Residential range (1-7 du/gross acre).

Despite its consistency with the *General Plan Land Use Element*, the proposed project could have effects that may be considered as cumulatively significant. Potential cumulative effects of the proposed project include:

- Cumulative reduction of California tiger salamander (CTS) and San Joaquin fit fox (SJKF) habitat between Black Diamond Mines Regional Preserve and Buchanan Road.
- Cumulative reduction of the natural north-south stream lattice that is tributary to Kirker Creek.
- Cumulative traffic increase in the Buchanan Road corridor resulting in a service level that is more congested than the mid-"D" (0.85 volume-to-capacity) standard adopted in the *East County Action Plan*.
- Cumulative Ldn noise level increases in the Buchanan Road corridor and along Ventura Drive in Highlands Ranch.
- Cumulative reduction in "rural atmosphere" and orientation toward open space in the portion of the Buchanan Planning Sub-area south of Buchanan Road.

California Tiger Salamander and California Red-Legged Frog Habitat
The project site and surrounding area is part of an extensive vegetative community called California annual grassland. Through these grasslands historically flowed an extensive lattice of north-south tributaries to Kirker creek. The lattice was bisected by Buchanan Road and, as residential subdivisions were constructed, many of the natural stream channels were diverted to underground piping.

California annual grasslands are found extensively off-site in the Black Diamond Planning Sub-area and Black Diamond Mines Regional Preserve. They are generally considered to be viable aestivation habitat for California tiger salamander

(CTS) if located with accompanying burrowing mammals and within 1 mile of seasonal ponded water. With the historical reduction in seasonal ponded water owing to grading, development, and stream undergrounding, the quality of habitat for CTS and CRLF has been reduced locally around the project site. The nearest USFWS-proposed CTS critical habitat is located considerable distances south and west of the project site; however, the southwest corner of the project site contains USFWS-proposed CRLF critical habitat (see Chapter V.A, Figure 6).

The project as proposed would not preserve the land in its current condition or form and would not, therefore, conserve any habitat viable for CTS aestivation or breeding. The project's depletion of California annual grassland and surface waters is minor individually but cumulatively significant in conjunction with other past and current development in the vicinity south of Buchanan Road.

Land Forms and Streams

Streams and a stock pond on the site, and others in the vicinity, have cumulatively been altered over time since *circa* 1900. The land form in the area, including portions of the project site, has been altered by grading and filling. One of the earliest mass grading events in the area was performed by the Pittsburg Railroad and Standard Oil Company to create its above-ground oil tank farm. The contours north and east of the project site, illustrated by USGS in 1916, probably diverted part of the stream flow from tributary area that previously flowed to Markley Creek. At an unknown period, probably after 1916, grading was performed for the power transmission towers on the project site. Informal unpaved roads have been constructed on the project site, and fill has been placed in the intermittent stream channel. The fill in Reach 2 is illustrated in Chapter V.C, Figure 10.

By 1953, or before, the former stock pond on the project site had been created, which is illustrated as a pond by USGS in 1953, 1968, 1973, and 1980. During 1970-2004, the area south of Buchanan Road was developed with residential subdivisions. The adjacent subdivisions at Palo Verde Drive and Highlands Ranch diverted the upslope flows in USGS-mapped intermittent streams into underground piping.

Cumulatively, industrial, electrical utility, and residential land uses have altered the local land form and have contributed to cumulative loss of north-south stream channels. The project as proposed would not preserve the land in its current condition or form. It would permanently alter the hill form, fill intermittent and ephemeral stream reaches, and reduce native annual grassland by 156 acres.

The proposed project, therefore, may be considered as both consistent with a Low-Density Residential use as designated in the City's adopted *General Plan* and inconsistent with some of the adopted goals and policies of the *General Plan*,

including, for example, policies that call for preservation and enhancement of north-south stream channels (Policy 2-P-72, 4-P-82).

Three conservation alternatives are discussed in Chapter VI, any one of which could achieve consistency with *General Plan* Policies 2-P-72 and 4-P-82. With the Preliminary Grading Plan as submitted, the proposed project could not preserve on-site reaches of an intermittent stream channel in the southwestern portion of the site or ephemeral stream channels in the southeastern portion of the site.

Buchanan Road Corridor

Buchanan Road is a two-lane road for most of its length between Railroad Avenue/Kirker Pass Road on the west and Somersville Road on the east. Yet it is acknowledged to be a route of regional importance in the *East County Action Plan* because it is the only east-west route through the southern part of Pittsburg and southwestern Antioch. During 1940-2004 residential development north and south of the corridor has placed an increasing burden of traffic on the Buchanan Road corridor.

Cumulatively, with approved projects and other foreseeable development, by 2025 the future intersection levels of service (LOS) in the Buchanan Road corridor are forecast to become sub-standard. The future 2025 PM peak hour LOS is forecast to be 0.83/D at Loveridge Road/Buchanan Road, 0.80/C at Buchanan Road/Ventura Drive, 0.87/D at Buchanan Road/Meadows Avenue, and 0.084/D at Somersville Road/Buchanan Road, all without the proposed project. With the proposed project, the future 2025 LOS at these intersections would be 0.90/E except the LOS would be 0.88/D at Somerville Road/Buchanan Road (see Chapter IX, Table 33). The project's incremental contribution to traffic congestion in the Buchanan Road corridor is 3 to 10 percent of the volume-to-capacity.

CCTA adopted in December 2003 a *7-Year Capital Improvement Program* that includes CIP #0769, Buchanan Road widening to four lanes from the Antioch City limit east to Somersville Road. However, a funding source is not identified and the widening limits would not extend west of Meadows Avenue.

Community Noise

As traffic volumes have increased, so have noise levels increased for the houses nearest Buchanan Road. Though some houses are shielded by sound walls, second stories generally are not shielded, and some housing is located where there is no sound wall. Ldn noise levels in the Buchanan Road corridor range generally from 65 to 73 dBA. With sound wall presence or increased setback from the centerline, the Ldn is as low as 59 to 62 at the first-story. With cumulative development, without the proposed project, the future year 2025 Ldn is forecast to increase by 0.3 to 0.8 dBA. With the proposed project, the incremental increase caused by project-related traffic would be 0.3 to 0.6 dBA. Typical Ldn noise levels at the first-story

level would increase by approximately 1 dBA compared to existing levels (see Chapter V.I, Table 24). The incremental increase caused by the proposed project is not substantial; however, but the cumulative noise increases caused by the proposed project in conjunction with past development, approved development, and other future foreseeable development in the Buchanan Road corridor is cumulatively significant.

Opening of the Buchanan Bypass would shift traffic onto the bypass and north-south roads connected to the bypass. Noise effects of opening the bypass to through traffic include 1) restoration of community noise levels along Buchanan Road to noise levels near the existing condition and 2) cumulative increases in community noise along the bypass corridor. The latter increases are attributable both to increased traffic volume and to increased speed after the bypass is opened for through-traffic connection. Typical Ldn noise levels for houses fronting on the bypass would increase by +7 to +17 dBA, which are substantial changes in noise level (see Chapter V.I, Table 24).

Air Quality

Development in the San Francisco Bay Area and the related ROG emissions from industrial sources and travel in motor vehicles continue to contribute to ozone levels. The 8-hour standard of 8.5 pphm has been equaled or exceeded in Pittsburg at times during 2000-2004. ROG emissions of the proposed project are less than the annual significance threshold of 15 tons per year, but in conjunction with ROG emissions from other sources the project will contribute to ozone formation throughout its lifetime. Chapter V.J suggests mitigation measures for the construction-phase and post-construction period.

Rural Atmosphere

Residential development south of Buchanan Road follows conventional approaches and idiosyncratic approaches characteristic of residential subdivision during 1955-1975. Conventional subdivisions feature housing with uniform setbacks and orientation toward streets. Where open space is present, conventional lots may have a backyard that abuts open space.

Some subdivisions south of Buchanan Road, like Palo Verde Drive, have only one point of access to Buchanan Road, a high percent of paved area (28 percent), and numerous short cul-de-sacs. None of the residential subdivisions south of Buchanan Road includes single-loaded roads, split grade or one-way streets, or residential collector streets with limited access or excluding curb cuts for driveways. Policy 4-P-7 of the City of Pittsburg's *General Plan* suggests orientation toward open space to augment rural atmosphere at the edge of the City's development envelope.

Cumulatively, in conjunction with the adjoining residential subdivisions, the proposed project could potentially contribute to conventional suburban atmosphere and orientation toward streets. To a reduced degree, the proposed project could achieve elements of rural atmosphere with variable front yard building setbacks, revision of front elevations to place garages toward the rear or at 90 degrees relative to the street, street landscaping, rustic street lights, transparent fencing, and a Natural Grassland Plan to regulate plantings on north-facing slopes. These design considerations, and others, can be accommodated during the mandatory Design Review. However, the basic street layout, not unlike the street layouts in the Palo Verde Drive and Highlands Ranch subdivisions, is not rural in atmosphere or oriented toward open space.

A conclusion of *Urban Design & Policy Analysis* (see Chapter V. E) is that mitigation measures or re-design of lot and street layouts could potentially enhance the project's consistency with the City's adopted design goals and policies. Use of a single-loaded perimeter street--without conventional curb, gutter and sidewalk--at the project's southern end could potentially augment the overall orientation toward open space. Integration of such a street with a soft path or meandering pavement on the side uninterrupted by curb cuts could enhance rural atmosphere.

With the project as proposed, opportunities to accomplish the objectives of retaining rural atmosphere and orientation toward open space would be possible to a reduced degree, through the Design Review process discussed above. Once built, existing opportunities for stream preservation and rehabilitation, modified lots, and modified street layouts could not be readily be regained during the project's lifetime.

VIII. IRREVERSIBLE CHANGES & IRRETRIEVABLE COMMITMENTS OF RESOURCES

The project site is unimproved urban land within the current Urban Limit Line (ULL) and City of Pittsburg's Planning Area. The proposed project represents an urban use of the environment with an expectancy of 100 years, or longer, from ground breaking to the time of potential reuse of the project site for a similar single-family residential use. Development of the proposed project effectively would preclude consideration and independent implementation of another residential subdivision during this time. It is possible that a distant future date, 50 to 100 years hence, some of the single-family lots and houses along Buchanan Bypass could be redeveloped with new residential uses, reflecting future pressures to provide housing for a growing population that is located near employment centers in Contra Costa County.

Construction of the proposed project involves a commitment of land, its related habitat and visual resources, and renewable or nonrenewable resources. Considerable amounts of fossil fuels and construction materials (*e.g.*, aggregate, sand, cement, wood, reinforcing steel, and asphalt) will be expended. These materials, and the resources used in their production, are generally not retrievable, though some of the materials are recyclable. Construction materials like concrete and asphalt, for example, can be crushed and recycled as road base. None of the above-listed materials in general, however, is in short supply; therefore, their use for the proposed project would not be expected to affect their continued availability in the future. Once used, these construction materials would be committed to the proposed project for the useful lives of the roads, utility infrastructure, and houses (50 to 100 years, or longer).

The proposed project entails mass grading with cut and fill, including filling of ephemeral and intermittent streams, and construction of roads and utilities to serve the project. The proposed project not only commits the land for the proposed residential use but also irreversibly commits the land to a modified form and also commits the use of its related habitat and visual resources indefinitely or permanently.

It is possible that a distant future date, parcel assembly could be performed to enable a medium- or high-density residential use along Buchanan Bypass, reflecting future pressures to provide housing for a growing population that is located near employment centers in Contra Costa County. This general possibility is attributable to economic forces driven by the San Francisco Bay area's housing market. In the absence of comparable economic forces, it is unlikely that streets would be removed to accommodate a mini-park, a trail or trail head, to restore a creek bed, or

to re-orient the proposed houses along the southern portion of "D" Street to open space. Proposed grading and construction, therefore, can be considered as irreversible commitments of the land and its resources for the proposed uses to the exclusion of other uses for habitat, stream beds, parks or trails, or orientation toward open space.

A particular conservation alternative, Alternative 1b, is described in Chapter VI, which could achieve 406 units of the proposed 415 housing units. In contrast to the proposed project, Alternative 1b could potentially preserve 29 acres of on-site habitat, preserve 1,686 lineal feet of intermittent stream for restoration, and could partially achieve a degree of orientation toward open space along "D" Street.

Without the proposed project or one of the conservation alternatives, the project site may remain in cattle grazing for an indefinite period. It is highly likely, however, that the project site would be the subject of another development application within 2 to 5 years, because the site adjoins existing residential subdivisions, is located within the current ULL, has a Low-Density Residential land use designation, and is located in a region of high housing demand. The No Project alternative essentially would defer the development of a residential use to an undetermined future date. In the interim, the project site's land form and habitat resources should remain about the same, disturbed only by the current use for cattle grazing.

IX. UNAVOIDABLE ADVERSE IMPACTS AND GROWTH-INDUCING IMPACTS

UNAVOIDABLE ADVERSE IMPACTS

Terminology

Adverse environmental effects of a proposed action that cannot be mitigated or that can only be partially lessened but not entirely eliminated are termed "unavoidable adverse impacts." Mitigation measures or alternatives to a proposed action may not be available that could otherwise mitigate or avoid the adverse effect. If available, the mitigation measures or alternatives may have their own adverse environmental effects of greater or lesser magnitude than the impacts of the proposed action. Mitigation measures to be adopted and implemented for a proposed action may not be capable of entirely eliminating the adverse environmental effects. Mitigation measures may be available but not practical to implement owing to any number of factors, including, for example, excessive cost in relation to a marginal benefit. Mitigation measures, therefore, may be adopted and implemented to reduce the potential effect but not entirely eliminate the effect. Occasionally, a Lead Agency may lack of jurisdiction to implement a mitigation measure.

Responsibility of the Lead Agency

To the extent that unavoidable impacts may result from a proposed action such impacts must be identified as such, as required under the California Environmental Act and Guidelines issued thereto. In addition, the Lead Agency making such a finding of unavoidable adverse environmental effect is charged with disclosing the impact in its Statement of Findings and Overriding Considerations. In other words, if the Lead Agency is to deliberate and decide upon actions or programs that have the potential to cause or contribute to an unavoidable impact, that impact must be disclosed and reasons for approval or adoption must be explicitly stated by the Lead Agency. Any number of reasons may be presented in the Statement of Overriding Considerations including, for example, the statement that the benefits of the action or need for the program outweigh the adverse effects. Unavoidable adverse impacts do not necessarily preclude fact-finding, deliberation, approval, adoption, or implementation of private or public actions by a Lead Agency.

Filling of Jurisdictional Waters/Streambed Alteration

The proposed project would include mass grading and landslide repair. Under the Preliminary Grading Plan, filling of on-site jurisdictional waters could not be avoided. The only feasible mitigation measure under the Preliminary Grading Plan is off-site compensatory mitigation.

Spill-over and Urban Edge Effects

In this Draft EIR, spill-over and urban edge effects are considered in several forms, including but not limited to additional traffic on Ventura Drive, dust and construction noise, potential exposure to unmitigated off-site landslide hazard, potential exposure to wildland fire hazard, and potential urban encroachment upon open space and wildlife habitat. Generally, spill-over and urban edge impacts can be mitigated but not necessarily entirely avoided.

Use of the Highlands Ranch neighborhood for primary access to or from the project site is not optimal; therefore, the additional project-related traffic on Ventura Drive specifically is quantified and compared with the residential street volume standard of 5,000 vehicles per day. New houses, landscaping, human presence, pets, and street lighting form a potential for disturbance to nesting birds and other wildlife. It is left to the decision-makers to evaluate the facts presented in the Draft EIR, or seek additional facts, and determine whether spill-over and urban edge effects could be significant and adverse even with the recommended mitigation measures.

Though through-traffic in Highlands Ranch is not expected to cause or contribute significantly to community noise, air pollution, or operations failure of any of the intersections (e.g., Buchanan Road/Ventura, Buchanan Road/Meadows, Buchanan Bypass/ "B" Street/Ventura Drive), the additional project-related through-traffic using Ventura Drive specifically is quantified for consideration by decision-makers. The recommendation of the *Traffic Impact Study* is to phase and limit proposed residential development on the project site until parallel capacity on the New Standard Oil Avenue from Buchanan Road to Buchanan Bypass is available.

The preliminary estimate of the maximum buildout before parallel capacity becomes available is 353 single-family units. Construction of the New Standard Oil Avenue through Meadow Lands to the intersection stub shown within the Black Diamond Ranch residential subdivision is an example of a mitigation measure that is not within the jurisdiction of the City of Pittsburg.

A compatible transitional use between the urban edge and wildlife habitat is discussed in the proposed East Contra Costa County Habitat Conservation Plan/Natural Communities Conservation Plan (the "Draft Plan"). The transitional use recommended in the Draft Plan is known as the Zone 1d buffer. Buffer land constitutes a strip of sufficient width, recommended in the Draft Plan to be 500 feet, to protect habitat value of proposed preserve lands. The Zone 1d buffer is located outside the previous ULL (2000) but partially within the recent voter-approved ULL (2005), and within Pittsburg's Planning Area, in the Black Diamond Planning Sub-Area. The City's General Plan land use designation and/or pre-zoning for Open Space are protective of this future buffer land, so that buffer protection on the project site is not necessary and could be superfluous. Located along Ventura Drive in Highlands Ranch, 1707 and 1711 Ventura Drive, and five additional houses between Rangewood Road and Glen Canyon Circle or

Drive, would experience a permanent increase of +3.4 dBA in day-night average noise level from the Sky Ranch II project and an additional +1.4 dBA increase from opening of the Buchanan Bypass. Receptor Location 4 has an existing Ldn of 60 dBA. With approved development, the proposed Sky Ranch II project, and opening of the Buchanan Bypass, the predicted Ldn at Receptor Location 4 would increase to 66 dBA from 60 Ldn. The potential noise increase in the front yards is unavoidable. Interior noise, hypothetically if the Ldn were above 45 dBA, could potentially be mitigated by retrofitting windows having a line-of-sight to Ventura Drive, for example, if sound level monitoring confirms the need to mitigate interior sound levels above 45 Ldn.

The CCTA/Transplan East County Action Plan has adopted a level of service standard of "D" or better (less than 0.85 volume-to-capacity) for the Buchanan Road corridor. The *Traffic Impact Study* indicates that the proposed project generally would worsen the LOS at Buchanan/Loveridge, Buchanan Ventura, Buchanan/Meadows, and Buchanan/Somersville (see Table 33). Without the Buchanan Bypass, the proposed project would contribute to traffic operations below the traffic service standard. The recommended mitigation measure to widen Buchanan Road to 4-lanes could have adverse impacts including right-of-way take, Section 4f park impact, and community noise impact.

TABLE 33

Buchanan Road Corridor Future Traffic Operations

Intersection	Existing Plus Approved Projects		Cumulative 2025 Without Buchanan Bypass		Cumulative 2025 With Buchanan Bypass	
	No Project	With Project	No Project	With Project	No Project	With Project
6. Railroad Ave/Buchanan Rd	0.76/C	0.80/C	1.09/F	1.11/F	0.55/A	0.56/A
7. Harbor St/Buchanan Rd	0.81/D	0.87/D	1.05/F	1.11/F	0.54/A	0.56/A
8. Loveridge Rd/Buchanan Rd	0.71/C	0.80/C	0.83/D	0.90/D	0.54/A	0.60/A
9. Buchanan Rd/Ventura Dr	0.95/E	0.96/E	0.80/C	0.81/D	0.62/B	0.63/B
10. Buchanan Rd/Meadows Ave	0.92/E	1.01/F	0.87/D	0.96/E	0.59/A	0.65/B
11. Somersville Rd/Buchanan Rd	0.86/D	0.94/E	0.84/D	0.88/D	0.75/C	0.75/C

SOURCE: W-Trans, September, 2005

Off-site landslides #1,2,3 and #17 would not be repaired upslope of specified lots including Lots 94-104 and Lots 181-184. Upslope of Lots 94-104, benches typically 8 feet in width and a wider debris bench 20 feet in width are proposed. In the southeastern corner of the project site, Landslide 17 extends from the west and also from the south onto proposed Lots 181-184. The off-site portion of Landslide 17 would not be repaired under the proposed preliminary grading plan. Owing to the presence of the upslope landslide deposits, maintenance is a potential issue, to maintain the back yards and the continuing function of storm water diversion piping.

To control fuel loads in the dry season months, off-site maintenance may be required. In-lieu of off-site maintenance, on-site fire protection easements along the boundary may be a practical alternative to enable Homeowner Association access for seasonal maintenance for the purpose of fuel load reduction.

Ultimately, the evaluation that is demanded of decision-makers is project-specific and site-specific. Spill-over and urban edge effects may be key to their deliberation.

Avoidance Alternatives

Based upon review of the alternatives (Chapter VI), none of the alternatives except No Project can avoid all of the jurisdictional waters impacts, spill-over and urban edge impacts. Of the "build" alternatives, Conservation with Density Transfer (Alternative 1b) could feasibly accomplish the basic purpose of the proposed project and minimize jurisdictional waters impacts, spill-over and urban edge impacts. Density transfer would not necessarily require additional City action in the form of General Plan amendment provided the overall density is consistent with the General Plan's low-density residential designation of theproject site.

Discussion

Alternative 1b is the only alternative considered to have the potential to accomplish most of the basic purpose of the proposed project. It could avoid some, not all, of potential off-site landslide hazard to persons and property. It could reduce the site's peak hourly trip generation by 63 trips per PM peak hour and daily trip generation by over 500 vehicles per day. It could provide 1,686 lineal feet suitable for on-site stream restoration. However, none of the "build" alternatives, including Alternative 1b, could avoid filling of all on-site jurisdictional waters or avoid all of the identified spill-over and urban edge effects. Decision-makers may concur that reduction of the site's traffic generation is a key consideration or, with equal validity, may factor into their decision-making the nature of other of the spill-over and urban edge effects of the proposed project and alternatives.

GROWTH-INDUCING IMPACTS

Terminology

Ways in which an action could potentially foster economic or population growth, or foster construction of additional housing, in the surrounding area, are termed growth-inducing effects. Such effects may be direct or indirect. For example, a new commercial development could directly foster jobs creation, and indirectly could induce population growth by attracting new employees to move into housing in the surrounding community.

Growth-Inducing Effects of the Proposed Project

The proposed project is expected to serve an existing demand for housing and not create a new demand or incremental demand. Services would not be extended by the proposed project into a previously unserved or under-served area. The Zone III/IV reservoir recommended by the City of Pittsburg as a mitigation measure would not be capable of serving as residential water supply for houses above approximately 465 feet above msl. Therefore, the water reservoir would serve the proposed project only and could not serve additional development. The Buchanan Bypass segment constructed within the project site limits could eventually be opened to through traffic from Somersville Road to Kirker Pass Road. When and if that occurs, the *Traffic Impact Study* has demonstrated that Buchanan Bypass is needed to meet traffic demand by providing additional east-west capacity in the Buchanan Road corridor. Without the bypass, Buchanan Road/Ventura Drive, Buchanan Road/Meadows Avenue, and Somersville Road/Buchanan Road are all projected to operate at or below the adopted Transplan standard (0.85 volume-to-capacity). The bypass, therefore, would serve a foreseeable demand under the current *General Plan* development scenario and would not induce additional traffic not expected otherwise.

The proposed project would not add sanitary sewer or storm water conveyance capacity. Under the proposed project, land would not be prepared for development outside the project site's limits. The proposed project also would not provide new access into the area.

The proposed project potentially could facilitate extension of the Buchanan Bypass segment west through the Thomas parcel. However, in view of the recommendations in this EIR, it is clear that the City should endeavor to prohibit any connection of the bypass segment at the project site's western limit pending either 1) construction of parallel north-south collector streets or arteries between the bypass and Buchanan Road or else 2) completion of the bypass to Kirker Pass Road. For the above reasons, development of the proposed project is expected to serve an existing need for housing, but is not expected to have a direct or indirect growth-inducing effect on the surrounding community.

Growth-Inducing Impacts of Alternatives

The No Project Alternative would have no potential to induce, intensify or accelerate growth. The Conservation Alternatives (Alternatives 1a, 1b, and 1c) also would not induce growth for the same reasons as described for the proposed project. Relatively less is known about the alternative sites. Generally, Alternative Site #4A appears to be located such that construction of a longer 1-mile segment of the future Buchanan Bypass east to Black Diamond Ranch would be necessary. Alternative Site #4A could, therefore, be interpreted as requiring extension of an external road that could induce development on the project site. Alternative Site #4B, in contrast, appears to have current access and would not, therefore, require extension of new external roads through undeveloped land.

X. GLOSSARY

A-weighing – An adjustment to the decibel scale to account for human response to sound having a range of frequency (or, pitch). A-weighting essentially discounts sounds below 300 hertz or above 4,000 hertz, as sounds between 300 Hz and 4,000 Hz are perceived as louder by humans. There is a strong correlation between A-weighted sound levels (expressed as dBA) and community response to noise.

Annexation: The inclusion of territory in a city or special district.

Approved developments – Development projects including expansions that have been approved by authorized body of the City, such as City Council, or that have been issued a Building Permit but have not yet been constructed or occupied.

Bedding plane – a kind of discontinuity or stratification of bedrock. The bedding plane of sedimentary rocks is basically a weak plane, which when inclined becomes a gliding surface.

Candidate – A species for which substantial information is available to support a proposal for listing, but for which lack of funding and personnel preclude listing. The Secretary of the Interior is required to publish "Notices of Review" which list the status of candidate species.

Community noise – the all-encompassing sound level associated with an outdoor environment.

Covered Activities – the kinds of development projects and other activities for which permits may be issued in the future under East Contra Costa County's HCP/NCCP if/when that plan is finalized, approved by USFWS and CDFG, and implemented.

Critical Habitat – the geographic area containing physical or biological features essential to the conservation of a listed species or an area that may require special management considerations or protection.

Cumulative traffic forecast – A long-term projection (e.g., year 2025) of peak traffic volumes based on existing volumes, plus traffic from approved developments, and also including potential traffic from other foreseeable land development consistent with the General Plan.

Day-night average sound level (Ldn) – Another statistic which expresses the community noise level over a day (24 hours), with a +10 dBA penalty for sound occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours.

Debris flow – a kind of slope failure in which unconsolidated rock, colluvium, and soil move slowly or rapidly downslope along a relatively shallow translational failure plane.

Decibel scale – amplitude of sound pressure ranging from the threshold of perception (0 decibels, dB) to amplitudes above the threshold of pain (130 dB).

Dip slope – the relative slope of a bedding plane in comparison to the slope plane. Negative dip: the bedding plane angle is less than the slope plane angle, and the bedding plane daylights out of the slope face. Positive dip: the bedding plane angle is greater than the slope plane angle, and the bedding plane runs into the slope face. Negative dip is comparatively more unstable.

Effects of noise – Physiological effects (*e.g.*, hearing loss, sleep disturbance) and subjective effects (*e.g.*, annoyance, nuisance, dissatisfaction). The interior sound level of 45 dBA is considered by the U.S. EPA to be essential for sleep with an adequate margin of safety. Habitual exposure to sound above 85 dB will cause a gradual hearing loss in a significant number of individuals, and louder noises will accelerate this damage (Source: http://www.midwestear.com/educatn.htm).

EMF – a general term referring collectively to the electrical and magnetic fields created by a moving charge or current.

Endangered – Any species of animal or plant that is in danger of extinction throughout all or a significant portion of its range.

Energy-equivalent sound level (Leq) – A statistic which expresses the community noise level as the average, steady-state, A-weighted, sound level that contains the same total energy as the time-varying sound over a given period.

Engineered fill – fill consisting of select materials approved by an Engineering Geologist, placed in uniform level lifts, moisture conditioned, and mechanically compacted using appropriate equipment.

Ephemeral Stream – A stream that forms only during and immediately after precipitation.

Frequency – Young children, who generally have the best hearing, can usually discern sounds from about 20 Hz, the lowest note on a large pipe organ, to 20,000 Hz, the high shrill of a dog whistle, which most adults are unable to hear. Human speech ranges from 300 to 4,000 Hz, and sounds within this range are perceived to be louder than sounds at lower or higher frequencies (Source: http://www.midwestear.com/educatn.htm).

HCP/NCCP – Habitat Conservation Plan/Natural Communities Conservation Plan

Hertz – a unit of frequency, equal to one cycle per second, used to describe the pitch of a pure-tone sound or the oscillation of alternating electrical current.
Incidental Take – the killing, trapping, collecting, or relocation of protected species that is considered "incidental to," that is, "an unavoidable consequence of," a permitted activity. The killing, trapping, collecting, or harassing of a protected species without a permit is illegal.

Incidental Take Permit – a permit issued under ESA that allows for incidental take.
Incorporation: The creation of a city or incorporation of territory into a city.

Interceptor - a sanitary sewer pipeline that receives the flow from a number of trunk, main, or lateral sewer lines and transports it to a treatment plant or other point of disposal.

Intermittent Stream – A stream that only flows for part of the year and is marked on U.S. Geological Survey topographic maps with a line of blue dashes and dots.

Intermediate keys – Intermediate keys are blind benches created during grading and then backfilled with engineered fill to achieve final grade. Like a toe key, an intermediate key may include subdrains, interrupts a potential slide plane, and changes the friction angle to horizontal on the bench.

Level of Service (LOS) - is used to rank traffic operation (*i.e.*, delay) on various highways, ramps, roads, or intersections based on traffic volumes and roadway capacity using a series of letter designations ranging from A (lowest delay) to F (greatest delay). Generally, Level of Service A represents free flow conditions and Level of Service F represents forced flow or breakdown conditions.

Noise – Unwanted sound.

Key – Also called a "Toe Key," "Shear Key," or "Buttress Key." A key is a kind of grading to stabilize an upslope area created by excavation of a broad trench at the base or "toe' of slope and backfilling with engineered fill, sometimes with construction of subdrains to covey infiltration water away from the slope. A key essential interrupts a slide plane and connects the upslope area into deeper, more stable soil or bedrock.

kV – kilovolt or one thousand volts, a unit of electricity.

kVA – kilovolt-amp or one thousand volt-amps, a unit of electrical power.

Main - a sanitary sewer pipeline that will receive the flow from one or more laterals and discharge into a trunk or interceptor.

Near-term traffic forecast – A projection of peak traffic volumes based on existing volumes plus traffic from approved developments.

Peak ground acceleration – the peak horizontal, or vertical, acceleration of the ground measured at a receptor and often expressed as a decimal fraction of the acceleration of gravity, 32 feet/sec^2 or 9.8 m/sec^2.
Peak traffic volume –The a.m. peak volume is the highest volume during the morning commute, during one hour in the interval from 7:00 to 9:00 a.m. The p.m. peak volume is the highest volume during the evening commute, during one hour in the interval from 4:00 and 6:00 p.m.

Permit Area – The area within which a permit for incidental take may be granted by the Implementing Entity and local jurisdictions. For covered development activities, the Initial Permit Area may be conceptualized as the urban growth and infill area and is contained within the existing ULL. For covered development activities, the Eventual Permit Area may be conceptualized as the urban growth area contained within a future ULL.

Plasticity Index (PI) – A measure of the expansive nature ("shrink/swell" potential) of soils.

PM_{10} – particulate matter in the ambient air having a particle size of 10 micrometers or less.

Preserve – The Preserve or Preserve System means land that will be contained within "safe harbor" under the HCP/NCCP for the purpose of wildlife and habitat protection. Under the Incidental Take Permit, the preserve land can be viewed as mitigation land that will be accepted by USFWS/CDFG as compensation for urban uses on other land within the Permit Area

Pressure sewer – a sewer pipeline receiving sewage flow directly from a pump station and discharging under pressure into an interceptor, trunk, main, lateral, another pumping station, or treatment plant.

Relative loudness – decibel scale corresponds closely to the human perception of relative loudness, each increment of 10 dB being perceived as a doubling of loudness.

Sensitive land use - Some land uses are considered relatively more sensitive to community noise. The City of Pittsburg *General Plan 2020*, Policies 12-P-5 and 12-P-6, for example, recognize noise-sensitive land uses including housing.

Shear strength – forces resisting movement downslope including frictional resistance and cohesion among the rock and soil particles that make up the slide mass.

Shear stress – the vector component of gravitational force that is parallel to the bedding plane or failure plane. Shear stress increases as slope (or, "slope angle" or "grade") increase.

Shrink/Swell – change in soil volume caused solely by change in moisture. This condition occurs when expansive soils undergo alternate cycles of wetting (swelling) and drying (shrinking).

Slope failure – also called "mass wasting," is the downslope movement of rock debris and soil caused when the load (or, "force of gravity" or "shear force") exceeds the resisting forces.

Slope plane – the slope of a hillside or localized portion thereof.

Soil creep – a kind of slope failure in which unconsolidated rock, colluvium, and soil move very slowly downslope along a relatively shallow translational failure plane.

Sound - Pressure variation in the air perceptible by the human ear.

Sound attenuation – Lessening of sound levels, commonly over distance. Sound from stationary point source attenuates at a rate of 6 to 9 dB per doubling of distance from the sound source, depending on atmospheric conditions, hard or soft ground surface, and presence of intervening barriers. Sound from a widely distributed source, such as a large industrial facility, attenuates at a lower rate, approximately 3 to 6 dB per doubling of distance. Sound from a road or highway adjoined by a soft-ground surface attenuates at a rate of 5 dB per doubling of distance.

Sphere of influence: A plan, adopted by Local Agency Formation Commission (LAFCO), for the probable physical boundaries and service areas of a city or district.

Student yield ratio – the number of pupils in a school district divided by the number of dwelling units in the district.

Threshold – The minimum sound level detectable to a human observer is 0 dB if the observer has no hearing loss. A person can have up to 25 dB hearing level and still have "normal" hearing.

Threatened species– Any species of animal or plant that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

Toe drain or key drain – Drainage blankets or curtain drains with perforated pipe at the toe of the slope or along an intermediate key, used to collect infiltration or seepage water along the original embankment. A system of pipe and/or pervious material along the downstream toe of a slope conveys water it to a free outlet.

Translational/rotational slide – A kind of slope failure involving movement of relatively cohesive, homogeneous soils and rock along a bedrock bedding plane that is deep-seated and dips in the same direction as the slope surface. Failure caused by saturated conditions, or by incompetent clayey bedrock material that fails under overburden weight, commonly results in a deep-seated rotational-type slide. Translational slides commonly are controlled by structural weakness such as bedding planes and contacts between bedrock and overlying deposits.

Trunk – A major sanitary sewer pipeline into which more than two laterals or mains discharge and which transports the flow collected from laterals and mains to an interceptor, pumping station or treatment plant.

Urban service line – A planning boundary established by a city or county that shows the limits of urban development. Also called an urban development area, urban development boundary, and urban limit line (ULL).

Unengineered fill – Fill of unknown origin or heterogeneous compositions, placed randomly or without moisture conditioning and proper compaction.

Volume-to-capacity – A quotient of a road's volume or an intersection's critical volume divided by its capacity.

XI. PERSONS & ORGANIZATIONS CONSULTED

The following persons and organizations were consulted during preparation of the Draft EIR.

City of Pittsburg

Mr. Walter C. Pease, Assistant Director, Public Works

Ms. Melissa Ayres, AICP, Planning Manager/Zoning Administrator

Mr. Keith Halvorson, Assistant City Engineer

Mr. Paul Reinders, Senior Civil Engineer

Mr. Alfredo Hurtado, Civil Engineer II

Mr. Kenneth W. Strelo, Associate Planner

Mr. Christopher B. Barton, Assistant Planner

California Department of Fish and Game

Mr. Carl Wilcox

Ms. Janice Gan

City of Antioch

Ms. Christine Wehrmeister, Senior Planner

City of Concord

Mr. John Templeton, Transportation Manager

Contra Costa County Library System

Ms. Laura Donoghue

Ms. Marina Partridge

Contra Costa Water District

Mr. Mark Seedall, Senior Planner

Ms. Sue Gin, Accountant

Contra Costa County Fire Protection District

Mr. Richard S. Ryan

Contra Costa County Flood Control & Water Conservation District

Ms. Hannah Wong

California Department of Transportation

Mr. Timothy C. Cable, District Branch Chief

Ms. Lisa Carboni

Delta Diablo Sanitation District

Ms. Patricia E. Chapman, Associate Engineer

East Bay Regional Parks District

Mr. Brad Olson, Environmental Programs Manager

Kinder Morgan Energy Partners, L.P.

Mr. D. R. Quinn

Mr. Mike Biggs

Pacific Gas & Electric Company

Mr. Leo DeLong

Mr. Mike Gigliotti

Pittsburg Unified School District

Mr. Reed McLaughlin, Business Services

Potrero Hills Landfill Co.

XII. PREPARERS OF THIS REPORT

The following persons participated in preparing the Draft EIR.

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AutoCAD / ArcView / GIS	Erika Amdur
Herpetologist	Gretchen E. Padgett-Flohr
Rare Plant Surveys	Virginia Dains

ENVIRONMENTAL IMPACT REPORT

FOR THE PROPOSED

SKY RANCH II RESIDENTIAL SUBDIVISION

IN UNINCORPORATED CONTRA COSTA COUNTY

PITTSBURG, CALIFORNIA

SCH #2004112092

Draft EIR – Appendices
December 2005

Prepared for:

City of Pittsburg
Planning Department
65 Civic Avenue
Pittsburg, CA 94565

XIII. APPENDICES

The appendices are separately bound and listed below:

A. Initial Study
B. Responses to Notice of Preparation
C. All Practicable Alternatives Analysis
D. Biological Assessment
E. Urban Design & Policy Analysis
F. Plants for Low-Water Gardens
G. Traffic Impact Study
H. Community Noise Assessment
I. Dust Mitigation for Large Construction Projects
J. URBEMIS Model Output

A. INITIAL STUDY

CEQA—Initial Study

November 8, 2004

Environmental Checklist Form

1. Project title: Sky Ranch II Subdivision 8475 (RZ-02-21, SUBD 8475, DR-02-48)

2. Lead agency name and address: City of Pittsburg
Planning and Building Department
65 Civic Avenue
Pittsburg, CA 94565

3. Contact person and phone number: Mr. Ken Strelo (925) 252-4122

4. Project location: APN 089-050-067 and APN 089-050-042 (portions of Highlands Ranch) Buchanan Subarea on unincorporated land in the southeastern portion of the Sphere of Influence of City of Pittsburg, California, south of Buchanan Road and adjoining Highlands Ranch to the north.

5. Project Sponsor's Name and Address: Discovery Builders Inc.
4021 Port Chicago Highway Suite H
Concord, CA 94520

6. General plan designation: Low density residential (1 to 7 du/gross acre)

7. Proposed Zoning: pre-zoning for RS

8. Description of project: This is a proposed 415-unit single-family residential subdivision bounded by the Highlands Ranch residential subdivision (Unit 2, Subd. 8258, and Unit 5, Subd. 8532) on the north; by the approved Black Diamond Ranch residential subdivision in the City of Antioch on the east, and by Open Space outside the Urban Limit Line and Planning Area to the south and west. Required actions to develop this project include pre-zoning the site RS (Single-Family Residential)) District, annexation of the property to the City and related service districts, and subdivision and design review approvals. The applicant has filed for a Vesting Tentative Map dated March 16, 2004 with the City of Pittsburg. With RS pre-zoning of the site, the project would be consistent with the Low Density Residential land use designation as currently designated in the General Plan.

   The project site consists of approximately 163 acres total in APN 089-050-067 and -042 and portions of Highlands Ranch, Units 2 and 5. The terrain consists of rolling hills and north-south trending drainage swales. Cut and fill grading is proposed to create single-family lots on graded benches with graded slopes and/or retaining walls between benches.

   A 4.03 acre detention basin is proposed near the southwest corner of the main access road (Ventura Drive extension and "B" Street) and the proposed right-of-way dedication

for the Buchanan Bypass.

The minimum lot size, 8,000 square feet, is consistent with the RS Zoning District requirement. Lots are varied in size, averaging 14,500 square feet with a maximum lot size of 125,520 square feet (Lot 379). Lots of larger or smaller sizes are interspersed throughout the project site. There is no apparent pattern of larger lot sizes at higher elevations.

A number of lots shown on the Vesting Tentative Map are flag lots. There are twenty flag lots proposed within the project. A flag lot consists of a rectangular or irregular "flag" and a driveway or easement "stem" for access. Flag lots include Lots 89, 91, 92, 95, 96, 99, 100, 103, 104, 147, 148, 151, 152, 154, 160, 190, 190, 221, 222, and 301. Some of these are in tandem with smaller sized lots having conventional street frontage.

The project includes construction of the Buchanan Bypass within the limits of the project site. The Buchanan Bypass is identified in *Pittsburg 2020: A Vision for the 21st Century and 1997 Traffic Mitigation Fee Study* as a planned transportation facility to be funded by traffic mitigation fees. Buchanan Subarea Goal 2-G-25 and Policy 2-P-73 call for construction of the Buchanan Bypass as an alternative route for commuters traveling from Kirker Pass Road to destinations east of Pittsburg.

The proposed segment of the Buchanan Bypass within the boundaries of the project site would not be open to through-traffic at the eastern and western termini within the project site until completion of the entire bypass west to Kirker Pass Road. In the interim, project-related traffic would use Ventura Drive through Highlands Ranch to Buchanan Road. There would be secondary access via "D" Street. At the intersection of "D" Street and the Buchanan Bypass, turning movements would be restricted to right-turns in and right-turns out as the proposed Buchanan Bypass would have a raised median divider there.

9. Surrounding land uses and setting: The project site is located within the Buchanan Subarea in the southeastern part of the Pittsburg Planning Area within the City of Pittsburg's Sphere of Influence and Urban Limit Line. The Buchanan Subarea is adjoined on the south by the Black Diamond Subarea and on the east by the City of Antioch. The planning boundaries, Buchanan and Black Diamond Subareas are shown in the General Plan (*Pittsburg 2020: A Vision for the 21st Century*, pp. 2-12, 2-55 and 2-56, 2-73 and 2-73).

The project site itself adjoins the Black Diamond Subarea on the south, the City of Antioch's approved Black Diamond Ranch single-family subdivision on the east, the new Highlands Ranch single-family residential subdivision on the north, older single-family residential development on Palo Verde Drive to the northwest, and Open Space designated land in the Black Diamond Subarea on the west. The project site does not adjoin the Black Diamond Mines Regional Preserve whose northern limit is approximately 2600 feet south of the southern boundary of the project.

The project site consists of undeveloped grasslands on rolling hills, to a maximum elevation of approximately 500 feet above mean sea level (msl). The adjoining area to the south and southwest, within the Black Diamond Subarea, consists of rolling hills at increasing elevations above 500 feet msl. The General Plan identifies (p. 2-73) a

relevant "off-site" resource that is located approximately two miles west of the project site in the Kirker Creek riparian corridor, which traverses generally north-south through the Black Diamond and Buchanan Subareas. According to the General Plan, Kirker Creek provides an opportunity for a trail linking Black Diamond Mines Regional Preserve with Buchanan Park. General Plan Policies 2-P-105, 2-P-106, and 2-P-107 apply to the general goal of preserving the rolling Black Diamond Hills as Open Space and present a particular challenge for transition at the fringe between residential development and open space.

Access to the Buchanan Subarea currently is provided by Buchanan Road, Railroad Avenue and Kirker Pass Road, Loveridge Road, and Somersville Road. The future Buchanan Bypass is intended as an alternate parallel route to State Highway 4. The future Buchanan Bypass is a conceptually planned facility shown on the City's General Plan Land Use Map and Roadway System, the construction of which has not been funded or partially funded.

Constraints mapped generally for the General Plan did not include any mapped areas overlapping the project site, except for mapped areas of steep slopes. The project site has slopes up to 30 percent in the southwestern and southeastern corners.

The foothills of Mount Diablo in the southeastern portion of the Planning Area tend to be susceptible to soil creep, landsliding on slopes greater than 15 percent, and debris flows on slopes greater than 20 percent. Debris flows can occur on any slope, but are more likely to occur where soil saturation, either naturally by stormwater runoff or else induced by landscape irrigation, is concentrated within swales and gullies (*General Plan*, pp. 10-3, -4, and -5).

The project site is not located within the 100-year floodplain (*General Plan*, Figure 10-3, p. 10-18). Most of the project site, except the eastern edge, is located within the Kirker Creek watershed away from any reach subject to flooding (*General Plan*, Figure 9-2, p. 9-17). The project site also is not located in an identified noise-affected area. State Highway 4 casts traffic noise over a broad corridor; however, the project site is located outside the noise corridor of State Highway 4 (*General Plan*, Figure 12-2, p. 12-9). Major or minor faults do not cross the project site (*General Plan*, Figure 10-2, p. 10-9). The nearest fault branch is located approximately 2 miles southwest of the project site.

The project site does not have fresh water emergent wetlands. Such wetlands occur generally within the City of Pittsburg in Kirker Creek, Lawler Ravine, and several of the tributaries located in the Mount Diablo foothills. The *General Plan* (Figure 9-1, page 9-5) illustrates seasonal wetland, California annual grassland, salt marsh and other vegetative communities. One seasonal wetland is illustrated in the General Plan as occurring within the western portion of the project site; however, detailed wetland study of the project site in 2004 identified an additional wetland on the project site in the southeastern corner.

10. Other agencies whose approval is required (*e.g.*, permits, fees, on-site or off-site mitigation requirements): See Table 1 (next page).

TABLE 1
AGENCY CONSULTATIONS OR PERMITS

AGENCY	APPROVAL OR PERMIT
U.S. Army Corps of Engineers (USACE)	Determination/concurrence with negative wetland delineation, nationwide or individual permit
U.S. Fish & Wildlife Service	Section 7 consultation or Section 10(a) permit
California Department of Fish and Game (CDFG)	Potential Section 1601-1603 Permit (Streambed Alteration) for grading fill in the ravines
State Water Resources Control Board (SWRCB)	NPDES General Permit (with requisite Storm Water Pollution Prevention Plan, Conceptual Storm Water Pollution Prevention Plan, and Permanent Control Measures)
San Francisco RWQCB	Potential Section 401 Permit Certification or Waiver
Caltrans/Federal Highway Administration (FHWA)	Approval of any recommended modifications to the ramp intersections of State Route 4
Local Agency Formation Commission (LAFCo)	Annexation
Metropolitan Transportation Commission (MTC)	None
Contra Costa County Transportation Agency (Congestion Management Agency)	Traffic Impact Study procedures will conform to CCCTA. Potential off-site mitigation (*e.g.*, BART parking and bike lanes) to maximize HOV and transit ridership.
Contra Costa Water District	For inclusion of the Sky Ranch II subdivision in the service area boundary of the U.S. Bureau of Reclamation's Central Valley Project. Section 7, Federal ESA, consultation with USFWS is required. CCWD has commented on a previous project on the project site.
Contra Costa County Fire Protection District	Approval of water supply, hydrants, access roads, and emergency vehicle access ways.
Contra Costa Flood Control and Water Conservation District	Altered storm flow to natural creeks with defined bed and banks is subject to CCCFCWCD review. CCCFCWCD has commented on a previous project on the project site.
Delta Diablo Sanitation District	Status of current off-site facilities and planned improvements is unknown.
Pittsburg Unified School District	The district will collect a school impact fee.
SOURCE: Environmental Service, April 2004	

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☒ Aesthetics	☒ Agriculture Resources	☒ Air Quality
☒ Biological Resources	☒ Cultural Resources	☒ Geology /Soils
☒ Hazards & Hazardous Materials	☒ Hydrology / Water Quality	☒ Land Use / Planning
☐ Mineral Resources	☒ Noise	☒ Population / Housing
☒ Public Services	☒ Recreation	☒ Transportation/Traffic
☒ Utilities / Service Systems	☒ Mandatory Findings of Significance	

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☒ I find that the project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the project, nothing further is required.

_____ _____

Signature Date

_____ _____

Signature Date

EVALUATION OF ENVIRONMENTAL IMPACTS:

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, "Earlier Analyses," may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
   a) Earlier Analysis Used. Identify and state where they are available for review.
   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
   c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures that were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:
   a) the significance criteria or threshold, if any, used to evaluate each question; and
   b) the mitigation measure identified, if any, to reduce the impact to less than significance

Issues:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
I. AESTHETICS -- Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐

Views from the southern hills in general include vistas of the cityscape and Suisun Bay beyond (*Pittsburg 2020: A Vision for the 21st Century*, August 2001, p. 4-2). There currently are no trails or other public viewing locations on the project site; therefore, the project would not affect an outward view of a scenic vista.

Views of the southern hills, including the project site, are available from several off-site vantage points. Even from the Civic Center, views of the project site are possible, though at ground level generally are blocked by intervening buildings and trees (Ibid., Figure 4-1, p. 4-3). State Highway 4 is not designated as a scenic highway. Limited views of the project site from State Highway 4 are brief and fleeting owing to intervening buildings, trees, and highway depression.

The project would extend the urban pattern from Highlands Ranch on the north, from the developing Black Diamond Ranch on the east, and from other existing residential subdivision along Palo Verde Drive on the northwest. Visual change will be apparent from locations north and east of the site but higher elevation hills above 500 feet msl would be preserved as the scenic backdrop. *(Ref 28, 46)*

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒

The site has no prominent visual features including, but not limited to, rock outcrops. The site is traversed at its lower elevation by power transmission lines. The site is characterized as annual grasslands in the General Plan, and historically has been used for cattle grazing. *(Ref 46)*

c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☒	☐	☐	☐

Warrants evaluation. Prime panoramic views of the site are available from Buchanan Road, Ventura Drive north of Buchanan Road (Loveridge Road to Somersville Road), Los Medanos College near East Leland Road, Marchetti Park (Antioch), and Mokelumne Trail. Without exaggeration, it is possible to characterize the site, the adjoining hills east and west of the site, and the more distant hills to the south, as key visual elements from these listed locations. The project's design, site plan, grading, and houses could potentially create a substantial impact on existing public views. *(Ref 28)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Viewed from points east there potentially could be some glare in certain early morning hours at certain times of the year. Potential glare would be associated with low solar altitude (20 degrees or less) and solar azimuth between 50 degrees and 100 degrees east of north. At higher solar altitudes reflection from windows would be directed to the ground. Conditions conducive to glare directed to the east may exist during March – September, sunrise to 7:30 AM, but not other times or months of the year. Potential glare, therefore, would be limited to early dawn, at unspecified locations generally east or northeast of the site. The effect is a transient one that can be minimized with maturation of the landscaping and eave overhangs on east-facing or northeast-facing facades. In view of the absence of lines of sight from the west, which are interrupted by the topography, glare from west-facing windows should be absent. *(Ref 28)*

II. AGRICULTURE RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒

Agricultural uses in the Planning Area consist primarily of grazing land for cattle in the hills south of the city. A small portion of this land is classified by the California Department of Conservation as Farmland of Local Importance. The project site consists of grazing land without Farmland of Statewide or Local Importance (*Pittsburg General Plan Update: Existing Conditions Report*, June 1998, pp. 251 and 254). *(Ref 46, 50)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒

Agricultural-zoned or Williamson Act parcels remain under contract in the Planning Area, but none is located on the site. APN 089-050-067 and APN 089-050-042 are not listed in Table 12-4 titled "Williamson Act Contract Land, Pittsburg Planning Area" (*Pittsburg General Plan Update: Existing Conditions Report*, June 1998, pp. 252 and 255). The parcel(s) adjoining the site on the west are illustrated as Williamson Act contracted. *(Ref 50)*

c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland, to non-agricultural use?	☒	☐	☐	☐

This is a land use compatibility and growth-inducing impact question. The adjoining land to the north is Highlands Ranch residential subdivision, and the adjoining land to the east is the Black Diamond Ranch residential subdivision, which is now under construction. The adjoining land to the south of the project site is in the Black Diamond Subarea and is designated for Open Space use. The adjoining land to the west of the site has been designated in the General Plan for Low Density Residential and Open Space uses. A small portion of this particular land shown to be "Farmland of Local Importance" (*Pittsburg General Plan Update: Existing Conditions Report*, June 1998, p. 254) is not contiguous with the site. In the interim, before application for nonrenewal of Williamson Act contract and conversion, the adjoining land to the west could be used for cattle grazing. Mitigation measures are warranted to assure compatibility of uses along the shared western boundary.

The Buchanan Bypass segment west of the site, continuing toward Kirker Pass Road, would pass along the southern tip of the specific Farmland of Local Importance. Indirectly, therefore, the Black Diamond Ranch residential subdivision and project each would implement construction of segments of the Buchanan Bypass that in conjunction with the foreseeable through-connection of the bypass west to Kirker Pass Road, or to Buchanan Road via a another road, could eventually influence conversion of this Farmland of Local Importance. Its ultimate conversion, however, appears to have been considered in the General Plan, including the Buchanan Subarea, which shows a planned Low Density Residential use of this specific farmland. *(Ref 46, 50)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
III. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐	☐	☐

Applicable Air Quality Plan--The *City of Pittsburg Hearing Draft General Plan EIR* (p. 4-48) considers buildout under the General Plan and potential consistency or inconsistency with the adopted 1997 Clean Air Plan (1997 CAP). The EIR concludes that buildout under the *Pittsburg 2020: A Vision for the 21st Century* General Plan would be consistent with the 1997 CAP. However, the 1997 CAP is no longer the applicable air quality plan. An air quality assessment was prepared to describe current applicable air quality policies.

The Bay Area 2000 Clean Air Plan was adopted by the BAAQMD Board of Directors at a public hearing on December 20, 2000, and was then submitted to the California Air Resources Board. The 2000 CAP is the third triennial update of the District's original 1991 Clean Air Plan. The 2000 CAP includes a control strategy review to ensure that the plan continues to include "all feasible measures" to reduce ozone, an update of the District's emission inventory, estimates of emission reductions achieved by the plan, and an assessment of air quality trends.

The *San Francisco Bay Area Ozone Attainment Plan for the 1-Hour National Ozone Standard*, dated June 1999 was submitted to the United States Environmental Protection Agency (U.S. EPA) by the California Air Resources Board (ARB) in August 1999. The latter plan subsequently was revised and submitted as *Revised San Francisco Bay Area Ozone Attainment Plan for the 1-Hour National Ozone Standard,* adopted by the BAAQMD on October 24, 2001, to respond to the U.S. EPA's disapproval of the Bay Area's Ozone Attainment Plan, an element of the 2000 CAP, and finding of failure to attain the national ozone standard. The Revised 2001 Ozone Attainment Plan provides for attainment of the national standard by 2006.

On October 23, 2003, U.S. EPA signed a rulemaking proposing to determine that the San Francisco Bay Area has attained the 1-hour ozone air quality standard by the deadline required by the Clean Air Act (CAA). Based on this proposal, EPA also proposed to determine that the CAA's requirements for reasonable further progress, attainment demonstration, and contingency provisions are not applicable to the area for so long as the Bay Area continues to attain the 1-hour ozone standard. In April 2004, U.S. EPA made a final finding that the Bay Area has attained the national 1-hour ozone standard.

According to the U.S. Environmental Protection Agency, the San Francisco Bay Area has not attained the new 8-hour standard for ground-level ozone (U.S. EPA, December 3, 2003). The Clean Air Act, 1990, defines a non-attainment area as any area that does not

meet, or that contributes to ambient air quality in a nearby area that does not meet, the national primary or secondary ambient air quality standard for the pollutant.

Data for PM2.5 are incomplete, but current attention is focused on the 2.5 micron size, in view of the new federal standard. Because 80 to 90 percent of smoke is of the 2.5 micron size and below, wood smoke management is an important issue for the BAAAQMD in its air quality planning. Attainment designation for the National PM2.5 standard is set to be published by the U.S. EPA in December 2004. *(Ref 25, 48)*

General Plan –EIR Buildout Analysis and ABAG Projections. Population and housing buildout analyses among the *Pittsburg General Plan Update: Existing Conditions and Planning Issues* report, *City of Pittsburg Hearing Draft General Plan EIR,* and council-adopted General Plan have been updated and adjusted to resolve inconsistencies. An air quality assessment was prepared to evaluate potential project-only and cumulative air quality impacts. Project-only emissions added by the project and cumulative emissions added by the project and other development were tabulated. Project emissions are shown to be less than BAAQMD significance thresholds. Emissions added by the project are shown to be approximately 0.3 percent of projected year 2010 cumulative emissions in the Pittsburg and Antioch area.

Maximum densities applied by the City of Pittsburg for adopted General Plan buildout calculations were 3 du/gross acre for this property. According to the adopted General Plan buildout assumptions, approximately 480 dwelling units would be consistent with the adopted General Plan buildout of the160-acre site (Pittsburg, Resolution 01-9490, November 2001, Item 10, Policy 2-P-72). *(Ref 45)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☒(1,2,3)	☐	☐	☐

(1) Particulate Matter (PM)--During construction grading when dust or particulate matter (PM) will add to the existing PM_{10} and $PM_{2.5}$ burden. PM_{10} refers to the fraction of particles less than 10 microns in diameter, and $PM_{2.5}$ refers to the fraction of particles less than 2.5 microns in diameter. The Pittsburg area has exceeded California's PM_{10} 24-hour concentration standard of 50 μg/m3 on an estimated 15 days per year. Particulate monitoring is performed on a 6-day rotating cycle so the exact number is unknown. Monitoring for $PM_{2.5}$ began only recently in Concord in 2002. In 2002 the annual average $PM_{2.5}$ monitored in Concord was 77 μg/m3 which exceeds the federal concentration standard of 65 μg/m3.

The project could potentially emit more than the significance threshold for PM10 (15 tons per year) but only under default assumptions of the URBEMIS2002 model considered now to be unrealistic for current subdivisions. Default assumptions include 35 percent EPA Phase 2 fireplace inserts, 10 percent open hearth fireplaces, and 60 percent natural gas for water and space heating. More typical assumptions include no open hearth fireplaces, 1 percent Phase 2 fireplace inserts, and 99 percent natural gas with artificial

log, and 100 percent natural gas for water and space heating. Based upon the modified assumptions, the project would emit 7.4 tons per year, or more during the earthwork phase. PM_{10} emissions, therefore, warrant further evaluation in the EIR and possible mitigation. If acceptable to the applicant, the modified assumptions could be required as mitigation measures and enforced through building permits and CC&Rs.

Adjoining sensitive receptors will be located in the Black Diamond Ranch residential subdivision. Existing receptors are located in the Highlands Ranch residential subdivision and along Palo Verde Drive. Construction-phase emissions of PM10 and PM2.5, therefore, warrant further evaluation in the EIR and possible mitigation. *(Ref 4,25)*

(2) Ozone and Its Precursors (ROG)-- During 2000-2003 the Pittsburg area infrequently has exceeded the federal 8-hour ozone concentration standard of 8.5 parts per hundred million (pphm) and California's 1-hour ozone concentration standards of 9 pphm. The project could potentially emit more than the significance threshold for ROG (15 tons per year), but only under default assumptions of the URBEMIS2002 model considered now to be unrealistic for current subdivisions. Default assumptions include 35 percent EPA Phase 2 fireplace inserts, 10 percent open hearth fireplaces, and 60 percent natural gas for water and space heating. More typical assumptions include no open hearth, 1 percent Phase 2, and 99 percent natural gas with artificial log, and 100 percent natural gas for water and space heating. Based upon the modified assumptions, the project would emit 10 tons per year, or 14 tons per year peak during the construction phase. ROG emissions, therefore, warrant further evaluation in the EIR and possible mitigation. If acceptable to the applicant, the modified assumptions could be required as mitigation measures and enforced through building permits and CC&Rs. *(Ref 4, 25)*

(3) Carbon Monoxide (CO)--The Pittsburg area has not exceeded federal or State of California carbon monoxide standard concentrations during 2000-2003. The project could potentially emit more than the significance threshold for CO (100 tons per year) but only under default assumptions of the URBEMIS2002 model considered now to be unrealistic for current subdivisions. Default assumptions include 35 percent EPA Phase 2 fireplace inserts, 10 percent open hearth fireplaces, and 60 percent natural gas for water and space heating. More typical assumptions include no open hearth, 1 percent Phase 2, and 99 percent natural gas with artificial log, and 100 percent natural gas for water and space heating. Based upon the modified assumptions, the project would emit 70 tons per year, or less during the construction phase. CO emissions, therefore, warrant further evaluation in the EIR and possible mitigation. If acceptable to the applicant, the modified assumptions could be required as mitigation measures and enforced through building permits and CC&Rs. *(Ref 4, 25)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☒(1,2)	☐	☐	☐

The project's contributions to air pollutant emissions are presented in b) and *Air Quality Assessment*. Significance thresholds apply to project-specific emissions and do not apply to cumulative air pollutant emissions. *Air Quality Assessment* evaluated cumulative air pollutant emissions from the project and other approved or foreseeable development. In comparison to year 2010 cumulative emissions, excluding the construction phase, the project would generate approximately 0.3 percent, or less, of the cumulative air pollutant emissions in Pittsburg and Antioch. In general, this is not a considerable net increase. *(Ref 25)*

(1) PM_{10} Emissions --During earthwork the project could potentially generate PM_{10} emissions in excess of the BAAQMD significance threshold (15 tons per year). Earthwork-phase PM_{10} emissions would exceed the threshold for two grading seasons; therefore, this is a potentially significant impact in view of the current status relative to California's ambient air quality standard. California's PM_{10} 24-hour concentration standard of 50 μg/m3 has been exceeded on an estimated 15 days per year. *(Ref 4, 25)*

(2) Other Criteria Air Pollutants--The project's air pollutant emissions of other criteria air pollutants, including ozone precursor, would not exceed the BAAQMD's significance thresholds. *(Ref 25)*

d) Expose sensitive receptors to substantial pollutant concentrations?	☒	☐	☐	☐

The adjoining Highlands Ranch has current residents and the adjoining Black Diamond Ranch residential subdivision will have residents as grading was initiated in Spring 2004. During construction grading on the site, diesel exhaust fumes and PM_{10} dust would be generated and these potentially could be carried by wind to nearby residential receptors.

Long-term exposures of future residents of the site are not expected because the project is not located adjacent to proximate stationary sources of air pollution. The distance from State Route 4 is sufficient such that elevated concentrations of diesel fumes and PM_{10} dust are not expected from that highway.

Supplemental evaluation of CO 1-hour and 8-hour concentrations off-site should be performed where the project is forecast to add traffic to congested intersections or itself cause congested conditions. This supplemental evaluation cannot be provided here without completing a Traffic Impact Study. *(Ref 17, 25)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
e) Create objectionable odors affecting a substantial number of people?	☐	☒	☐	☐

The project is not of a class of projects that has a recognized potential to create objectionable odors. Potential local odor-generating sources such as, for example, refineries, waste water treatment plants, landfills, service stations and restaurants, are located at considerable distances from the site; therefore, it is not expected that future residents would be exposed to odor nuisances posed by existing odor sources. During construction, unmitigated diesel exhaust could potentially create objectionable odor. *(Ref 25)*

IV. BIOLOGICAL RESOURCES -- Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☒	☐	☐	☐

Such potential impacts are being evaluated in a Biological Assessment by Huffman-Broadway Group (HBG). Potential use of the site by and recommendations for surveys of the California Tiger Salamander (CTS, *Ambystoma californiense*) and California Red-Legged Frog (CRLF, *Rana aurora draytonii*) previously were identified in an initial screening titled *Special Status Wildlife Species Habitat Assessment Sky Ranch [II], Pittsburg, Contra Costa County, California* (Wetlands Research Associates, Inc., December 2001). Subsequently, habitat assessment on the Sky Ranch II site for CTS and CRLF was performed by HBG-Rana Resources following current U. S. Fish and Wildlife (USFWS) protocol for habitat assessments for CRLF and CTS. Results are presented in a letter report dated, dated June 13, 2004.

The following information is preliminary research including on-site USFWS habitat assessment for CRLF and CTS by HBG-Rana Resources and *Draft Biological Assessment* by HBG.

California red-legged frog (*Rana aurora draytonii)* is a federally-listed threatened species and California species of special concern. The historical range of the California red-legged frog extended from the vicinity of Point Reyes National Seashore in Marin County southward to northwestern Baja California, Mexico and inland to approximately Redding in Shasta County (61 Federal Register 25813). The frog has sustained a 70 percent reduction in its geographic range. Known populations of this species are found in Markley Creek on the adjoining Black Diamond Ranch, Subdivision 7487, in Antioch. CDFG required creekside habitat conservation including approximately 20 acres

dedicated as permanent open space along Markley Creek. Within Subdivision 7487 limits there are 43.6 acres total open space.

California red-legged frogs have been observed in a number of aquatic and terrestrial habitats, including marshes, streams, lakes, reservoirs, ponds and other permanent, or near permanent, sources of water. Although they occur in ephemeral streams or ponds, California red-legged frogs are expected to thrive in permanent deep-water pools with dense stands of overhanging willows (*Salix* spp.) and emergent vegetation. However, they have been observed in a variety of aquatic environments, including livestock ponds and artificial pools with little or no vegetation.

There is probably no potential for CRLF to occur on the site as there are no permanent water sources on site or on the adjoining Black Diamond Ranch (HBG-Rana Resources, June 13, 2004; McGinnis, July 12, 1996). *(Ref 34, 38)*

California tiger salamander (*Ambystoma californiense*) is a federally-listed threatened species and is a California species of special concern. Federal listing status was upgraded to "threatened" in July 2004.

California tiger salamander (CTS) occurs in central California from the central Sacramento Valley to the central San Joaquin Valley and surrounding foothills of both the Coast Range and the Sierra Nevada. The species also has been recorded in the San Francisco Bay area, the Monterey Bay area, and valleys and foothills in San Luis Obispo and Santa Barbara Counties. Actual occurrence of the species within this range is restricted to locations where breeding ponds are surrounded by suitable upland habitat.

Adult California tiger salamanders inhabit grassland, savanna, or deciduous oak woodland habitats which contain natural ponds, vernal pools, intermittent streams, or stock ponds. They usually are not found unless there is this combination of ponded water for breeding and surrounding upland, with a predominant ground cover of grazed or ungrazed grassland. They spend the majority of their time below ground, in rodent burrows, or other natural crevices. The major threat to the California tiger salamander is the loss of breeding pools and ponds and the conversion of upland habitat for agriculture and urban development.

Results of habitat assessment and consultation with CDFG showed presence of suitable breeding or aestivation habitat and recorded sightings of three (3) adult male CTS on and next to the project site on February 12, 2003 (Gan, October 2004). There are additional recorded CTS sightings within one mile of the project site, in the vicinity of Markley Creek, and additional sightings within 2-3 miles of the project site. Based upon the habitat assessment, potential suitable breeding habitat or aestivation habitat is present for CTS across the project site (HBG-Rana Resources, June 13, 2004). *(Ref 30, 34)*

Burrowing owl (*Athene cunicularia*) is both a federal and state species of special concern. Burrowing owls are small terrestrial owls commonly found in open grassland topography ranging from western Canada to portions of South America. Burrowing owl habitat can be found in annual and perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. In California, burrowing owls most commonly use ground squirrel burrows, but they also may use man-made structures, such as cement culverts; cement, asphalt, or wood debris piles; or openings beneath cement or

asphalt pavement. Burrowing owls may use a site for breeding, wintering, foraging, and/or migration stopovers during migration. Occupancy of suitable burrowing owl habitat can be verified at a site by an observation of at least one burrowing owl, or, alternatively, its molted feathers, cast pellets, prey remains, eggshell fragments, or excrement at or near a burrow entrance. The site has no potential habitat for burrowing owls due to the absence of California ground squirrel burrows. No burrowing owls or signs indicating their presence were observed on-site by HBG during site surveys in April 2004.

San Joaquin kit fox (Vulpes macrotis mutica) historically was distributed over a large portion of central California, extending roughly from southeastern Contra Costa County south along the eastern edge of the Interior Coast Range to the southern San Joaquin Valley, including major portions of western Kern County and Tulare County. Today, in the northern portion of its range, the San Joaquin kit fox (SJKF) is limited to the southwestern portion of Contra Costa County extending approximately two miles north and four miles west of Byron, the northeastern corner of Alameda County, and western San Joaquin County in a strip parallel to Interstate 580. The populations of SJKF in this area are dependent on a narrow strip of grassland bounded by the coastal mountains on the west, by the San Joaquin Delta and intensive agriculture on the north, and by the California Aqueduct and Delta Mendota Canal on the east. The principal habitat for the SJKF is the native alkali sink vegetation of the San Joaquin Valley. The edge of the known, acknowledged range of the SJKF is 10 miles from the project site. Suitable on-site habitat for the SJKF was not found during the year 2004 biological surveys and habitat assessment of the project site (Huffman Broadway Group, August 2004).

In July 1996, Dr. Samuel McGinnis prepared biological surveys and habitat assessment of the site of the adjoining Black Diamond Ranch (then known as "Sky Ranch I"), an existing approved residential subdivision under environmental review at that time. Dr. McGinnis wrote:

> As a result of two sightings by Bell, 1994, of the San Joaquin kit fox (SJKF) on the western border of the BDRP [Black Diamond Mines Regional Preserve], the northern limit of the 1990 U. S. Fish and Wildlife Service (USFWS) SJKF range map has been extended to include the greater south Antioch area.

As a result, Dr. McGinnis conducted surveys on the Black Diamond Ranch site on April 14 and 15, 1996, and again between June 22 and July 14, 1996. There were no SJKF sightings by Dr. McGinnis, who also concluded there was not suitable SJKF habitat on the Black Diamond Ranch (McGinnis, Samuel, July 12, 1996, *Report of Special Status Animal and Plant Species on the Sky Ranch [I] Planned Development Site, City of Antioch, California*).

Additional Special Status Animal Species A number of raptor species whose ranges include the project area are considered California Species of Special Concern with respect to nesting habitat. These species include northern harrier (*Circus cyaneus*), white-tailed kite (*Elanus caeruleus*), sharp-shinned hawk (*Accipiter striatus),* Cooper's hawk (*Accipiter cooperii*) and prairie falcon (*Falco mexicanus*). Suitable breeding sites do not occur on the site for any these species, and none was observed at the site during wildlife surveys conducted by HBG during the 2004 nesting season. Additional state-designated avian species of concern include two species known to occur in grasslands such as those that occur at the project site: California horned lark (*Eremophila alpestris*

actia) and loggerhead shrike (*Lanius ludovicianus*). California horned larks were observed in winter surveys of the site, but were not observed by HBG at the site during the nesting season. Although loggerhead shrikes were observed at the site during the nesting season, no evidence of nesting by the species was observed. Pre-construction surveys for both species are recommended as mitigation to determine if the nesting cycle of either of these species could be interrupted by construction activity and, if warranted, to allow preparation of a construction plan to allow successful nesting.

Special Status Plant Species A list of special status plants with potential to occur on the Sky Ranch II property was developed from the California Department of Fish and Game's Natural Diversity Data Base (CNDDB 2004), the U.S. Fish and Wildlife Service (USFWS) Endangered Species Office, the California Native Plant Society (CNPS), and field knowledge of the investigator. A complete list of special status plant species occurring in the vicinity of Sky Ranch II are included in the Biological Assessment. A total of nine (9) special status plant species were reported in the CNDDB as occurring within the four quadrangle search areas that would be considered as potentially occurring in the grassland habitats of the site. These species and their flowering times are: fragrant fritillary (*Fritillaria liliacea*) (March); diamond-petaled poppy (*Eschscholtzia rhombipetala*) March to April); showy madia (*Madia radiata*) (March to May); Diablo helianthela (*Helianthela castenea*) (April to June); round-leaved filaree (*Erodium macrophyllum*) (March to May); Mt. Diablo buckwheat (*Eriogonum truncatum*) (April to November); Brewer's western flax (*Hesperolinon breweri*) (May to July); Mt. Diablo fairy-lantern (*Calochortus pulchellus*) (April to June); and big tarplant (*Blepharizonia plumosa* ssp. *plumosa*) (July to October).

Spring and summer botanical surveys timed to correspond with the flowering period of special status plants were conducted on the site on March 18, April 14, and July 12, 2004, when flowering or leaf morphology could best be examined to determine definitively the presence or absence of these species. The site was walked and all habitats were visited. No special status plants were found during the spring and summer 2004 botanical surveys. Based upon the surveys, the site does not have any populations of or high quality habitat for special status plants.

U.S. Fish and Wildlife Service (USFWS) The U.S. Fish and Wildlife Service (USFWS) is responsible for implementing the federal Endangered Species Act (ESA). The purpose of the ESA is "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved" (16 USC 1531). The ESA establishes an official listing process for plants and animals considered to be in danger of extinction; requires development of specific plans of action for the recovery of listed species; and restricts activities perceived to harm or kill listed species or affect critical habitat (16 USC 1532, 1536). In the case of the CTS, federal listing status was upgraded to "threatened" in July 2004.

The ESA also requires federal agencies to ensure that their actions do not jeopardize the continued existence of listed species or adversely modify critical habitat (16 USC 1536). Therefore, the ESA is invoked when the property contains a federally listed threatened or endangered species that may be affected by a federal permit decision. In the event that listed species or designated critical habitat are involved and a U.S. Army Corps of Engineers (USACE) Section 404 permit is required for impacts to jurisdictional waters, USACE must initiate consultation with USFWS (or the National Marine Fisheries Service, NMFS) pursuant to Section 7 of the ESA (16 USC 1536; 40 CFR § 402). If formal

consultation is required, USFWS or NMFS will issue a biological opinion stating whether the permit action is likely to jeopardize the continued existence of the listed species, recommending reasonable and prudent measures to ensure the continued existence of the species, establishing terms and conditions under which the project may proceed, and authorizing incidental take of the species.

Section 7 consultation with, or Section 10(a) permit from, the U.S. Fish & Wildlife Service is necessary before the U.S. Bureau of Reclamation can act on a request to include the Project Site within the Central Valley Project's service boundary. The proposed Sky Ranch II subdivision is located outside the Contra Costa Water District's approved CVP contractual service area boundary. The Section 7 consultation, or a Section 10(a) permit, must be concluded prior to any approval of action or finding that the project could have non-jeopardy status.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☒	☐	☐	☐

The habitat of the project site is classified as California annual grassland and is shown to have one intermittent stream (*Pittsburg 2020: A Vision for the 21st Century,* pp. 2-58, 9-3). The intermittent stream also is shown on the U.S.G.S. Antioch South topographic map. *Special Status Wildlife Species Habitat Assessment Sky Ranch [II]* (WRA, December 2001, p. 1) notes that much of the project site has been influenced by cattle grazing, resulting in a plant community dominated by non-native annual species including Italian ryegrass (*Lolium multiflorum*), barley (*Hordeum murinum*), rip-gut brome (*Bromus diandrus*), and wild oats (*Avena fatuam*). Sparse oak woodland at higher elevations on the project site also are acknowledged (Ibid., p. 1; HBG-Rana Resources, June 13, 2004). The number and locations of oak trees, generally in the southwestern portion of the project site that is subject to a proposed fill, will be verified during preparation of the EIR. The intermittent creek and ephemeral drainages are noted to lack riparian and wetland vegetation. *(Ref 1, 34, 46, 56, 61)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☒	☐	☐	☐

Delineation of Potential Jurisdictional Wetlands under Section 404 of the Clean Water Act Sky Ranch [II] Project Site, Pittsburg, California (prepared by Wetlands Research Associates, Inc., dated December 2001) found no potential wetlands but did identify "other jurisdictional waters" on the project site. A recent delineation in June 2004, prepared on behalf of the applicant, found an isolated seasonal wetland and an isolated ephemeral drainage, which are both located in the southeastern portion of the project site, and a "concave basin" whose water source is a manmade cattle trough (Albion Environmental, Inc., July 2004). The results of the surveys are considered preliminary pending further independent review and verification by USACE. *(Ref 1, 61)*

U.S. EPA and USACE regulations define wetlands as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" [40 CFR '230.3(t); 33 CFR '328.3(b)].

Based on the past, year 2001 investigation of the project site, WRA determined that the project site contains "other waters" jurisdiction of USACE. A total of four ephemeral or "seasonal" drainageways were identified by WRA, including an area mapped as an intermittent stream by the U.S. Geological Survey. The unnamed intermittent creek, located in the southwest corner of the project site, extends approximately 394 lineal feet from the southern boundary of the project site to a livestock pond. Albion Environmental found that the isolated drainageway in the southeastern portion of the project site was not connected to a downstream drainage, hence is not jurisdictional. Albion Environmental, Inc., did not map the drainage channel in the southwestern portion of the project site and also considered the "concave basin" or "livestock pond" therein to be fed from a manmade water trough. Therefore, the two technical reports differ in their conclusions. Depending on verification the project may or may not require either an individual or a nationwide Section 404 permit from USACE. The individual or nationwide permit depends on lineal feet or acreage of impact. *(Ref 1, 56, 61)*

With implementation of the preliminary grading plan, seasonal storm flow in the unnamed intermittent creek would be intercepted at a headwall at the southern boundary of the project site and conveyed via a bypass pipe to the western boundary of the project site. With implementation of the preliminary grading plan storm flows in other seasonal drainageways would be intercepted at the southeastern corner of the project site and conveyed to the Black Diamond Ranch residential subdivision storm system. Storm

flows from the project site, therefore, would add incrementally to off-site systems as not all storm flow would be conveyed to the proposed on-site detention basin. *(Ref 17, 36)*

Agency Consultations - Agency consultation with the U.S. Army Corps of Engineers (USACE) is necessary to obtain concurrence with the delineation of other waters of the U.S. For impacts to other waters of the U.S., or waters of the state, authorization from the USACE and RWQCB would be required. Avoidance alternatives and/or appropriate mitigation measures will be required by USACE and RWQCB to avoid or compensate for on-site impacts to waters under federal or state jurisdiction. The developer will need to apply for a permit from the USACE, the 401 water quality certification from the RWQCB and a Streambed Alteration Agreement from CDFG. Assuming presence of jurisdictional waters on the project site, Section 7 (Federal Endangered Species Act) agency consultation with USACE and USFWS also would be necessary before the U.S. Bureau of Reclamation could act on a request to include the project site within the Central Valley Project's service boundary. Assuming absence of jurisdictional waters on the project site, the applicant would be responsible obtaining a Section 10(a) permit from USFWS. *(Ref 51)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☒	☐	☐	☐

Potential use of the project site, or a portion thereof, as breeding habitat or as refugial habitat for the California tiger salamander warrants confirmation through a special wet-season trapping survey. If the survey is not conducted it is likely that USFWS and CDFG will presume the species to be present on the project site. *(Ref 34)*

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☒	☐	☐	☐

The creekways and wetlands policies of the City of Pittsburg (General Plan Policies 9-P-9, -10, -11, and -12) could be applicable to select oak trees and creekways on the project site. The biological resources and habitat goal policy (General Plan Goal 9-G-1 and Policy 9-P-1) requires that assessments be conducted prior to development approval within habitat areas of special status species such as the California tiger salamander (CTS). In view of the proposed grading and fill, tree and creekway preservation would not be possible without modifications to the proposed subdivision and grading plan. In view of the uses of the project site for aestivation and/or breeding habitat by CTS, on-site mitigation measures, off-site compensatory mitigation measures, and alternatives to the proposed project will be assessed during preparation of the EIR. *(Ref 46)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

The East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan (HCP/NCCP) is under development by a Joint Powers Association (JPA). A Preliminary Draft Conservation Strategy was published in January 2003. A Notice of Intent and Notice of Preparation to prepare a joint EIS/EIR were circulated on June 5, 2003 (Federal Register / Vol. 68, No. 108 / Thursday) and June 30, 2003, and by the JPA and U.S. Fish & Wildlife Service (USFWS).

The HCP/NCCP identifies a 170,000-acre planning area that includes watersheds draining the eastern flanks of Mount Diablo in East Contra Costa County, California. Members of the Joint Powers Association intend to request Endangered Species Act (Act) permits for 7 species federally listed as threatened or endangered and 19 other species that are either listed as threatened or endangered under the California Endangered Species Act or identified as a Federal or State species of concern, including CRLF and CTS. Incidental take permits are needed to authorize take of listed species that could occur as a result of implementation activities covered under the HCP/NCCP, including—but not limited to— residential, commercial and industrial development.

The heart of the conservation strategy is preserved land linked to existing protected lands to form a network of protected areas outside the permit area (the area where impacts will be permitted under the HCP/NCCP). The conservation strategy provides for the establishment, enhancement, and long-term management of the preserved land for the benefit of covered vegetation communities, covered species, and overall biodiversity and ecosystem functions. The project site is not included as proposed preservation land in the HCP/NCCP.

The HCP/NCCP will establish a coordinated process for permitting and mitigating the incidental take of endangered species, as an alternative to the current project-by-project approach. Rather than individually surveying, negotiating, and securing mitigation, project proponents will receive an endangered species permit by paying a fee to the JPA. Fees collected by the JPA will be used to purchase habitat lands or easements from willing sellers, monitoring, and habitat enhancement or management activities. *(Ref 22, 58)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES -- Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☐	☒

No historical resources were encountered in 1981 or in any of the subsequent inspections after 1981. Subsequent inspections were performed in 1983, 1999, and 2002, including inspection of the project site and CA-CCO-437 in 2002 (see Table 2, page 24). *(Ref 32, 50, 63)*

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☐	☐	☒

Native American archaeological site CA-CCO-437 is shown on published maps to be located on the project site (*Pittsburg General Plan Update: Existing Conditions and Planning Issues*, Figure 8-2, p. 181, June 1998). In 1981, K. Flynn identified five artifacts (CA-CCO-437) scattered along the north boundary of Sky Ranch II, north of the power transmission lines, 400 feet north- south and 328 feet east-west. NWIC listed CA-CCO-437 as the full width of Sky Ranch II (approx. 2600 feet). No midden or other evidence of habitation. The five artifacts were collected.

Consultation was performed with one of the professional archaeologists involved in previous inspections of the project site. On the basis of the entire record of research, including trenching in 1999 and inspection in 2002, additional trenching was not recommended (Holman, April 2004). *(Ref 32, 50, 63)*

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

The available references including *Pittsburg General Plan Update: Existing Conditions and Planning Issues, Pittsburg 2020: A Vision for the 21st Century, and Draft Environmental Impact Report for the City of Pittsburg General Plan,* SCH No. 1999072109, do not address paleontological resources. Paleontological resources are not addressed in CEQA Section 15064.5. Such resources, if any exist on the project site, are unknown and unrecorded.

The physical features on the project site consist of rounded hill forms, common in the southern foothills of Mount Diablo and not unique to southern Pittsburg, as portrayed in the General Plan (*Pittsburg 2020: A Vision for the 21st Century*, Figure 10-1, p. 10-4). Elevations on the project site generally are lower than 500 feet msl. The Preliminary Grading Plan calls for extensive cut and fill grading, and sub-excavation and re-compaction in uniform level lifts in slide areas, to create graded benches or sloped lots. Similar conditions have been encountered in the San Marco and Oak Hills subdivisions. *(Ref 46, 50)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
d) Disturb any human remains, including those interred outside of formal cemeteries?	☒	☐	☐	☐

Burial mounds were not encountered in 1981 or in any of the subsequent inspections in 1983, 1999, and 2002. In the event that unknown, unrecorded buried human remains are unearthed during mass grading, standard mitigation measures can be invoked to lessen the impact to less than significant. *(Ref 32, 63)*

TABLE 2
SUMMARY OF ARCHAEOLOGICAL SURVEYS
SKY RANCH II, CONTRA COSTA COUNTY, PITTSBURG, CALIFORNIA

Archaeologist	Study Date	Survey Location	Findings	Recommendations
Flynn, K. Archaeological Resource Service)	1981	Arata Ranch (a larger area engulfing Sky Ranch II)	Identified five artifacts (CA-CCO-437) scattered along the north boundary of Sky Ranch II, north of the power transmission lines, 400 feet north- south and 328 feet east-west. NWIC listed CA-CCO-437 as the full width of Sky Ranch II (approx. 2600 feet). No midden or other evidence of habitation. The five artifacts were collected.	Recommended monitoring grubbing and mass grading by an archaeologist.
Holman, Miley	1983	Arata Ranch	Detailed inspection of the area including CA-CCO-437. No surface evidence of habitation, midden or artifacts.	Concluded mitigation more effective if conducted before mass grading. Recommended disking, inspection, and collection before mass grading.
Windmiller, Ric	1999	Highlands Ranch	Inspection of ground surface along the common east-west boundary line dividing Highlands Ranch on the north and Sky Ranch II on the south. Inspection was along the north (Highlands Ranch) side. Twenty one (21) backhoe trenches oriented north-south (perpendicular to the common east-west boundary) at intervals along the full 2500 feet breadth.	
Windmiller, Ric	2002	Sky Ranch II	Re-inspected the ground surface within the entire CA-CCO-437 as recorded by NWIC, making zig-zagging transects 5-15 meters apart. Found no artifacts and no other indications of cultural deposits. Inspected the entire Sky Ranch II site by three teams composed of two archaeological technicians per team, walking parallel north-south transects.	Concluded that Sky Ranch II residential subdivision will not affect any archaeological or other historical resources. Recommended "stop work" if buried archaeological resources are discovered once the project grading and construction have begun.

SOURCE: Windmiller, Ric, March 2002. *Phase I Archaeological Resources Inventory, Sky Ranch Unit 2, Pittsburg, Contra Costa County, California.*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
VI. GEOLOGY AND SOILS -- Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒

The General Plan (Figure 10-2, p. 10-9) illustrates no fault traces across the project site. The nearest unnamed fault trace is located in the southern hills approximately 1 mile southwest of the project site. The General Plan characterizes this and similar fault traces as "northwest trending splays of the Clayton and Black Diamond Area faults" and as "inactive."

ENGEO considered on-site ground rupture and assessed the possibility as "remote" (ENGEO, *Geotechnical Exploration Sky Ranch II Subdivision 8475*, February 14, 2002, p. 20). The ENGEO assessment was specifically prepared for the project site. *(Ref 23, 24, 46)*

ii) Strong seismic ground shaking?	☒	☐	☐	☐

The possibility of seismic ground shaking of moderate to high magnitude earthquakes is ubiquitous within the San Francisco Bay Region. The maximum credible earthquake generated by the Clayton-Marsh Creek-Greenville Fault is 6.9 on the Modified Mercalli Scale. Magnitude 6.9 is the "maximum credible," with a probability of 10 percent occurrence in 50 years. The Clayton-Greenville Fault is located 3 miles south of the Planning Area and the Marsh Creek-Greenville Fault is located 10 miles southeast of the Planning Area (*Pittsburg 2020: A Vision for the 21st Century*, General Plan, Table 10-1, page 10-6).

ENGEO also assessed earthshaking specifically for the project site (ENGEO, *Geotechnical Exploration Sky Ranch II Subdivision 8475*, February 14, 2002, p. 20). ENGEO calculated (Ibid., pp. 9, 20) that peak ground acceleration in a Magnitude 6.9 event on either fault was estimated to be 0.411 (horizontal). Analysis of site development requirements by ENGEO considered the above-described event and peak ground acceleration. ENGEO's report concludes (Ibid., p. 21) that "it is reasonable to expect that well-designed, well-constructed structures will not collapse or cause loss of life in a major earthquake (SEAOC, 1996)." *(Ref 23, 24, 46)*

ii) Strong seismic ground shaking? (*Continued*)

The 1997 Uniform Building Code (UBC) system for analysis of earthshaking groups the Clayton Fault and Marsh Creek Fault with the Greenville Fault. The analysis presented by ENGEO, therefore, includes peak acceleration from a major earthquake on the grouped Greenville-Clayton-Marsh Creek Fault. Furthermore, the Alquist-Priolo (AP) system no longer lists the Clayton Fault as an active fault. *(Ref 23)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
iii) Seismic-related ground failure, including liquefaction?	☒	☐	☐	☐

Liquefaction is characterized generally in the City of Pittsburg General Plan (p. 10-8) based upon information published by the Association of Bay Area Governments (ABAG). Upland areas that are underlain by bedrock generally have very low liquefaction potential.

The ABAG Geologic Information Systems (http://gis.abag.ca.gov) was consulted to obtain its liquefaction map for the project site. ABAG GIS shows very low liquefaction over most of the project site except for a narrow band of very high liquefaction potential in the southwestern portion, which coincides with the location of the unnamed intermittent creek.

The risk of on-site liquefaction is assessed by ENGEO Incorporated and described as "low" at the Project Site (ENGEO, *Geotechnical Exploration Sky Ranch II Subdivision 8475*, February 14, 2002, p. 21). *(Ref 3, 23, 24, 46)*

iv) Landslides? ☒ ☐ ☐ ☐

The City of Pittsburg General Plan portrays (Figure 10-1, p. 10-4) most of the area south of the future Buchanan Bypass, including the project site, as moderately unstable or generally unstable. ABAG Geologic Information Systems (http://gis.abag.ca.gov) was consulted to obtain its landslide susceptibility map for the vicinity of the project site. ABAG's GIS shows the southern one-third portion of the project site as mostly landslides.

Site-specific landslides mapped by ENGEO include 31 landslide areas on the project site. Landslide areas #1, 2, and 3 are deep-seated landslides in the southwestern corner, extending off-site to the southwest. Landslide areas #7, 8, 9, and 10 are deep-seated landslides located centrally within the project site. The areas mapped by ENGEO, except Landslide areas #8 (portion), 10, 11, and 12, coincide generally with the ABAG GIS landslide map. Slide areas #8 (portion), 10, 11, and 12, are not included in the ABAG GIS landslide map.

Mitigation measures and supplemental exploration were recommended by ENGEO to address the constraints, though it also is a conclusion of that development of the Sky Ranch II site with 415 buildable lots is technically feasible provided that appropriate mitigation measures for geologic hazards are implemented. In regard to slope instability and soil creep, ENGEO concluded that slope instability can be mitigated by proper

iv) Landslides? (*Continued*)

grading (ENGEO, *Geotechnical Exploration for Sky Ranch II Subdivision 8475,* February 14, 2002, pp. 14-17). ENGEO identified supplemental exploration to ascertain the compressibility of colluvial and alluvial deposits in the southwestern portion of the project site. Depending on the outcome of supplemental exploration, more or less excavation to remove and replace compressible deposits would be needed.

With regard to soil creep ENGEO specifically identified the proposed 3:1 graded slopes at the northern boundary of the project site. These are proposed 3:1 slopes on Lots 39-49 and Lots 62-66, adjoining Highlands Ranch. Also, Lots 127-135 and Lots 372 and 378 have proposed 3:1 graded slopes. Debris benches are shown generally at the toe of 3:1 graded slopes. ENGEO recommended:

> "...foundation and remedial grading should address [soil] creep as well as existing and proposed buttress [fills] in these areas. Once 40-scale grading plans are developed these areas should be evaluated for foundation criteria." (Ibid., p. 17) *(Ref 3, 23, 24, 46)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
b) Result in substantial soil erosion or the loss of topsoil?	☒	☐	☐	☐

Proposed grading will alter the existing hills and swales to create graded benches or 2:1 and 3:1 graded slopes for proposed lots. Graded slopes rather than retaining walls generally are proposed as transitions between the benches. Any grading operation of the scale proposed presents obvious potential for erosion. Keyway subdrains are recommended by ENGEO to covey infiltration water out of the compacted fill in the toe-of-slope keyways. Concrete-lined V-ditches are recommended to convey surface runoff away from the keyways.

ENGEO identified potential for "excessive total and differential settlement" at the project site from consolidation of compressible colluvial deposits in the swales where fill will be placed and from settlement of foundations where supported over compressible colluvial and alluvial deposits. ENGEO recommended (Ibid., p. 18) complete removal and replacement with engineered fill, but also noted (Ibid., p. 15) that complete removal of Landslide areas #1, 2, and 3 would "involve a very large quantity of earthwork." ENGEO recommended supplemental exploration to characterize the compressibility of soil in this southwestern valley. *(Ref 23, 24, 46)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☒(1,2)	☐	☒ (3)	☐

(1) Post-Grading Settlement--Post-grading settlement of "deeper" fills and underlying compressible deposits may result over a long period after grading (Ibid., pp. 13-14). After initial settlement, about 1 to 2 inches of long-term heave may result once the [shallower] fills become wetted. In deeper portions of fill, some hydro-compression or settlement in the amount of 2 to 4 inches may result from long-term wetting by irrigation or rainwater (Ibid., p. 14). These figures do not include potential post-grading settlement caused by the fill surcharge placed on compressible colluvial or alluvial deposits in Landslide areas #1, 2, and 3. ENGEO stated that the latter potential settlement caused by compression of compressible deposits by fill surcharges warrants further study.

(2) Artificial Fill/Settlement--Areas of artificial fill are identified by ENGEO in the northeastern and southwestern portions of the project site and the northern portion within Highlands Ranch (Ibid., p. 9). In addition, there are existing engineered fills in the vicinity of the water reservoir. *(Ref 23)*

A large area of existing undocumented fill up to 40 feet thick is located in the northeastern portion of the project site. An existing gas pipeline crosses this artificial fill area. According to ENGEO, the prominent valley in the southwestern portion of the project site contains "relatively thin undocumented fill, probably five feet thick." *(Ref 23)*

(3) Densification--Settlement induced by earthquake shaking, also termed "densification," was assessed to be a minor effect based upon ENGEO Incorporated's assessment of soil types on the Project Site. The risk of densification was assessed by ENGEO and described as "minor" in view of the absence of loose granular deposits at the project site (ENGEO, *Geotechnical Exploration Sky Ranch II Subdivision 8475*, February 14, 2002, p. 21). *(Ref 23)*

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☒	☐	☐	☐

Residual soils derived by in-place weathering of the parent bedrock where encountered by ENGEO along ridgelines and spur ridges were 3 to 5 feet thick. Residual soils were characterized by ENGEO as "dark brown silty clay with lesser amounts of sand." These residual soils have a Plasticity Index (PI) of 31 to 46 which is considered highly expansive (Ibid., pp. 9-10). Native soil and bedrock generally were characterized by ENGEO as expansive. The clayey soil and clayey bedrock on the project site have PI indices of 22 to 39 (Ibid., p. 13).

Expansive soils shrink and swell in response to moisture changes. ENGEO recommended the following: 1) placement of moderately to highly expansive soils at depths 10 feet or more below finish grade and selective use of 4 feet of non-expansive or low expansive soils as caps for house pads and 2) use of post-tensioned reinforcing steel mats or pier-and-grade beam concrete slab systems (Ibid., pp. 24-25,3 2-35). Conditions of differential settlement or variable expansive soil on cut lots and cut-to-fill transition lots are recommended to be mitigated by sub-excavation (minimum 2 feet depth) and replacement with compacted, engineered fill (Ibid., pp. 27-28).

Differential fill thickness is identified by ENGEO as being of primary concern in the prominent southwestern valley. Remedial grading to reduce differential fill thickness in this valley will likely involve a substantial quantity of sub-excavation and engineered fill (Ibid., p. 28). ENGEO's recommended grading criterion is 10 feet or less differential fill thickness beneath individual houses (Ibid., p. 44). For the water reservoir, ENGEO recommends the entire tank pad be sub-excavated to create a uniform fill thickness. The proposed reservoir is located in Landslide area #12.

ENGEO Incorporated also noted that moisture conditioning and compaction of expansive clay soils may necessitates over-excavation and re-compaction (Ibid., p. 13). Over-excavation and recompaction with moisture conditioning before the concrete pour can mitigate the difficulty of moisture conditioning expansive clay soils. *(Ref 23)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

Not applicable. Septic service is not proposed, and all lots will be served by connection to the municipal system.

VII. HAZARDS AND HAZARDOUS MATERIALS -- Would the project

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒

The project is not of a class of project that is generally recognized as having the potential to transport, use, or dispose hazardous materials. Intermittent disposal of household hazardous wastes (*e,g.*, paints, pesticides, herbicides) can be accommodated through the local Household Hazardous Waste Program.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒

The project is not of a class of project that is generally recognized as having the potential to create upset or accident conditions. Introduction of the Buchanan Bypass could potentially enable transport of hazardous materials or waste. At the discretion of the City of Pittsburg, the Buchanan Bypass could be restricted to non-hazardous deliveries.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒

The project is not of a class of project that is generally recognized as having the potential to emit toxic air pollutant or handle acutely hazardous materials.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒

Aerial photographs—Aerial photographs were viewed at U.S. Geological Survey for 1949, 1966, 1973, 1974, and 1981. The project site has been used for cattle grazing, with a large livestock pond visible in the southwestern portion of the project site as early as 1973. Haying may have been performed in the northeastern portion in 1966. Transmission towers on the site were visible in all aerial photographs since 1949. Other above-ground structures were not apparent in then aerial photographs viewed. There was no sign of past use of the project site for landfilling, oil tank farms, auto wrecking, industrial or automotive repair uses. The Los Medanos Tank Farm was visible off-site, north of the project site, in 1949. *(Ref 57)*

GBF/Pittsburg Landfills--The 88-acre GBF/Pittsburg Landfills is a Superfund site located approximately 3,000 feet east of the project site. The site began landfill operation in 1946. Between 1960 and 1975, Industrial Tank Corp. leased the eastern 64 acres of the site and operated up to ten surface impoundments covering approximately 11 acres. The unlined impoundments were used until 1974 to dispose liquid wastes including refinery sludges, acids, oils, and slurries containing such hazardous substances as hexavalent chromium, lead, cyanide, asbestos, acetone, trichloroethylene, benzene, tetrachloroethylene, formaldehyde, phenol, DDT, and diazinon. In 1974, the California Regional Water Quality Control Board (CRWQCB) issued a Cleanup and

Abatement Order, which closed the surface impoundments and prohibited hazardous waste disposal at the site after October 1, 1974. From 1974 to 1992, the GBF/Pittsburg Landfills accepted only non-hazardous waste. During the 1960s and 1970s, numerous complaints were filed by the community about chemical odors from the site and symptoms of burning eyes and irritated lungs. Community concerns have been addressed through community meetings and fact sheets. In the course of preparing this public health assessment, we did not discover any current community health concerns.

Exposure to airborne contaminants to on-site workers and nearby community members did occur in the past, but data are not available to evaluate those past exposures. The site currently poses no apparent public health hazard, and conditions are not expected to change in the future. The potential for inhalation exposure from releases of contaminated soil gas does exist, but those possible exposures would be below levels of health concern. No other potential present or future completed exposure pathways have been identified. Significant future exposure to GBF/Pittsburg Landfills site-related contaminants is unlikely (California, Department of Health Services, February 17, 1994).

Lynch Disposal Site--The 16-acre Lynch Disposal Site (southeast corner Somersville/ Paso Corto Road) closed in 1974 after operating since 1969. The site was used for disposal of municipal solid waste from the City of Antioch. Corrective work was done on the site in 1978 under the direction of Regional Water Quality Control Board. In 1990, the owner of the Antioch site died, leaving the property to his wife and a religious group known as Freedom Church. In 1997, the California Integrated Waste Management Board approved using up to $85,000 to shore up an eroding northern slope, hydroseed the area, and build a berm atop the incline to divert drainage. The crumbling slope had exposed some of the trash and threatened a nearby road, posing risks to traffic.

Old Antioch Landfill--The Old Antioch Landfill site consists of 19 acres on the east side of Somersville Road. Disposal operations were conducted from 1928 to1968. Burn dump operations persisted until1960, and trench-and-fill occurred until closing in 1968. Site remediation was performed by the City of Antioch on the northern boundary along Markley Creek in 1996 under the oversight of Contra Costa County, CIWMB, and RWQCB-CVR. James Donlon Boulevard (formerly, Paso Corto Road) was realigned and extended across the southerly portion of the site in 2000. Paso Corto Road, the southerly boundary of the site, was converted to a jogging path. *(Ref 12, 13, 14, 37, 39, 40, 54, 55, 60)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒

Not applicable.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒

Not applicable.

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒

The project is not of a class of project that is generally recognized as having the potential to interfere with emergency evacuation or response. The project site is not located on an evacuation route or at a gateway. The future 4-lane Buchanan Bypass could eventually provide through-connection from Somersville Road to Kirker Pass Road. Construction of the segment of the Buchanan Bypass within the limits of the project and the contiguous segments needed for a through-connection could create an alternative to Highway 4 as an east-west route from Concord to Antioch. This alternative off-highway connection could be considered as a benefit for emergency preparedness and evacuation. Provision of maximum roadway accessibility into the southern hills will ensure maximum five-minute response time goals (*City of Pittsburg General Plan Draft EIR, p. 4-72).* *(Ref 46, 48)*

h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☒	☐	☐	☐

The Pittsburg General Plan does not illustrate areas of potential fire hazard. The southern hills have a general potential for grass fires and introduction of human presence and ignition sources potentially could add to the potential for grass fires on the adjoining upslope hills. As shown on the Vesting Tentative Map dated March 16, 2004, the project does not provide Emergency Vehicle Access (EVA) ways to the adjoining open space. With provisions for EVA connections and seasonal maintenance of grasses and shrubs on the adjacent slopes, the potential impact potentially could be mitigated to a less-than-significant effect. *(Ref 17, 36, 46)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact

VIII. HYDROLOGY AND WATER QUALITY
-- Would the project:

a) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☒

Construction of the project, because it would involve more than 5 acres, would require an NPDES General Permit (with requisite Storm Water Pollution Prevention Plan, Conceptual Storm Water Pollution Prevention Plan, and Permanent Control Measures) and a Section 401 Permit ("Water Quality Certification") or Waiver. Water Quality Certifications are required for filling projects. Contra Costa County Flood Control and Water Conservation District. County Ordinance 89-27 requires a drainage permit for most drainage work. In general, a permit is required for the purposes of reviewing and inspecting proposed drainage work. These processes should assure that measures are enforced to mitigate potential erosion and sedimentation of receiving waters as wells as accidental spills or discharges to drainageways during construction. *(Ref 8, 64)*

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (*e.g.*, the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☒	☐	☐	☐

The source of ground water for the Pittsburg Plain Groundwater Basin is rainwater absorbed through pervious bedrock deposits in stream channels located in the southern hills. Ground water flows in a northerly direction following the slope of the land, and eventually into an aquifer that is part of the San Joaquin/Sacramento ground water system (*City of Pittsburg General Plan Draft EIR*, p. 4-115). DWR reports that ground water levels in the Pittsburg Plain Groundwater Basin have remained stable over the period of record, with the exception of static water level drops and subsequent recovery associated with the 1976-1977 and 1987-1992 drought periods (DWR, 2003).

The project would result in some loss of ground water recharge capability by filling of a segment of the unnamed intermittent stream channel. The portion of the project site within the Markley Creek watershed would continue to drain to Markley Creek via the storm water collection system being developed in the adjoining Black Diamond Ranch residential subdivision. Elsewhere on the project site, the existing soil types are clayey, not pervious, and the hilly terrain is not conducive to ground water recharge.

Proposed grading cuts are not so deep as to be likely to encounter an aquifer, though the proposed cuts potentially could encounter shallow ground water. The maximum proposed cut is 100 feet in the vicinity of Lots 161-162, 204-206, and 270. The second deepest proposed cut is 70 feet in the vicinity of Lots 28-29 and 381.

Subsurface springs were not encountered by the geotechnical staff during Geotechnical Exploration in October and November 2000 (ENGEO, *Geotechnical Exploration Report, Sky Ranch II Subdivision 8475*, p. 11). Ground water was encountered in test bore B-3 at approximately 64 feet below grade surface (bgs). B-3 was located in an area of proposed fill. Ground water was not encountered in the three other test bores or 52 test pits throughout the project site.

Potential reduction in winter seasonal recharge will be offset in part by additional summer season irrigation. Based upon independent review of the information in ENGEO's Geotechnical Exploration Report, man-made recharge is not likely to be successful anywhere on the Project Site because the on-site clayey soils have low permeability characteristics. Detention of storm water from Drainage Subareas 1, 4 and 5 in a proposed on-site detention basin, therefore, would not be expected to have a recharge benefit.

On-site ground water will not be used by the project for landscape irrigation or drinking. The project ultimately could receive water from the Central Valley Project (CVP) at that time when the project site would be approved for inclusion in the in the CVP service area boundary. The Contra Costa Water District (CCWD) is the inclusion applicant to the U.S. Bureau of Reclamation. Mr. Mark Seedall, (925) 688-8119, was contacted to verify information in CCWD's previous comment letter dated August 2002.

CCWD commented on a previous project for the project site. The project site currently is outside the service boundary of the CCWD. Annexation to the CCWD would be processed as a boundary reorganization requiring approval of the Local Agency Formation Commission (LAFCo). CCWD would issue a "Will Serve" Letter to the City of Pittsburg in accordance with CCWD Code of Regulations 5.04.120. The provision of water service to annexed land is governed by this regulation., whether by request directly to the CCWD or by application to LAFCo. Confirmation Letter issuance is contingent on 1) the applicant's compliance with Section 7 or 10 of the federal Endangered Species Act (written clearance or permit from U.S. Fish and Wildlife) and 2) U.S. Bureau of Reclamation's approval of the inclusion application submitted by CCWD. Evidence of Section 7 or 10 compliance must be submitted to CCWD prior to its submittal of the inclusion application.

Inclusion is necessary to avoid potential overdraft of ground water from the two municipal wells. These two wells are projected in *City of Pittsburg 2000 Urban Water Management Plan* (November 20, 2000) to provide a safe yield of 1,600 acre-feet per year (Ibid., p. 11). That safe yield is held constant through the planning horizon, 2020. Water purchases from the CCWD are projected to increase to 14,671 acre-feet in 2020 from 8,790 acre-feet in 2000 (*City of Pittsburg 2000 Urban Water Management Plan*, p. 11).

The ultimate number of households in the project is 415 households. At 2.85 to 3.59 persons per household, and 150 gpcd, the ultimate residential water demand for the project is 177,400 to 223,500 gallons per day (200 to 250 acre-feet per year). Though the City of Pittsburg municipal wells could supply on an interim basis, the permanent water supply assumed in the *City of Pittsburg 2000 Urban Water Management Plan* is purchased water from CCWD. Without inclusion approval by the U.S. Bureau of Reclamation, municipal well water would be the sole source of water supply. *(Ref 15, 17, 23, 48, 49, 51)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☒	☐	☐	☐

The project would intercept stormwater flow from existing drainageways including an unnamed intermittent creek. Storm water collected in Drainage Subareas 2 and 3 would be discharged toward the west via the creek bypass pipe and outfall(s). The precise location and design of the outfall(s) are not shown on the Vesting Tentative Map. Mitigation measures such as gabion dissipaters at the outfall(s) could be effective for minimizing erosion. At the three proposed headwalls along the southern boundary of the project site, rip rap or gravel beds to reduce flow velocity and allow settling could be effective.

About 50 percent of the stormwater flow generated from the project would be discharged to a proposed on-site detention basin. CCCFCWCD recommended a perpetual funding source established for maintenance of the proposed on-site detention basin. The remainder of the stormwater flow generated from the project would be conveyed to other locations summarized as follows:

1. Drainage Subarea 1, located west of the existing water reservoir, would collect storm water at several inlets along "M" Court and would convey the storm water across Buchanan Bypass to the proposed detention basin. A stormwater inlet is shown along the south side of the Buchanan Bypass opposite the proposed detention basin; however, conveyance across the future median divider is ambiguous.
2. Drainage Subareas 2 and 3 would drain to the existing branch intermittent creek west of the project site. Subarea 3 includes a headwall where an existing seasonal stream enters the project site. This intermittent stream is tributary to a branch intermittent creek located west of the project site.
3. Conveyance of storm water collected in Drainage Subarea 4 is ambiguously shown on the Vesting Tentative Map. An inlet is shown at the foot of "B" Street (adjacent Lots 256 and 257), but an easement and outfall leading into the proposed detention basin is not depicted. Storm water from Drainage Subarea 5 would discharge into the proposed on-site detention basin. It is presumed that stormwater from Drainage Subareas 4 and 5 should be conveyed to the on-site detention basin unless the down stream systems in Highlands Ranch have been sized adequately to convey and detain incremental storm water from Drainage Subareas 4 and 8.
4. Drainage Subarea 6 would discharge to a proposed stormwater inlet at the eastern end of 'C" Court (southern end of "B' Street), which then would convey stormwater by a proposed stormwater pipe to the Black Diamond Ranch subdivision. Drainage Subarea 6 includes headwalls where two existing ephemeral drainage swales enter the project site. Storm water from these swales also would be conveyed to a future stormwater pipe in the Black Diamond Ranch subdivision.
5. Subarea 7, located in the northeastern portion of the project site, would drain to an inlet at the end of "J" Court and then to a future stormwater pipe beneath the Buchanan Bypass.

6. Drainage Subarea 8, located east of the existing water reservoir, would drain to the existing Highlands Ranch stormwater conveyance system. Highlands Ranch storm water is detained at an existing detention basin located along the south side of Buchanan Road.

During construction water quality of the storm water flows from the project will depend upon temporary control measures implemented during grading and construction. Potential siltation of the proposed detention basin is a possibility requiring periodic maintenance during and after construction. CCCFCWCD, therefore, recommended a perpetual funding source established for maintenance of the proposed on-site detention basin. Establishment of the latter fund is suggested prior to the City's issuance of a grading permit for construction of the on-site detention basin. *(Ref 20, 36, 64)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☒	☐	☐	☐

The proposed on-site detention basin (Parcel A, 4.03 acres, shown on the Vesting Tentative Map) appears to collect storm flows from Drainage Subareas 1, 4, and 5, which cover over 50 percent of the project site. Storm flow from Drainage Subareas 6 and 7 would be conveyed with flow from the new Black Diamond Ranch subdivision to an outfall in Markley Creek. From the presumed outfall(s) along the western boundary of the project site, storm flow from Drainage Subareas 2 and 3 would flow north where they would be collected in the existing Palo Verde Drive system.

Clarification and evaluation are required to demonstrate adequacy of existing and planned systems to convey or detain the projected storm flows. According to Pittsburg General Plan Policy 9-P-21 (*Pittsburg 2020: A Vision for the 21st Century*, p. 9-16):

> *As part of CEQA documentation, require an assessment of downstream drainage creeks and channels and City storm water facilities impacted by potential project runoff.*
>
> *Calculate potential sedimentation and runoff based upon the maximum storm event and determine necessary capacity of the downstream drainage system. If the project presents potential downstream sedimentation, runoff or flooding issues, require additional mitigation including, but not limited to, 1) limitations on grading and construction in dry season only and 2) funding for downstream improvements, maintenance, and repairs.*

The project could potentially increase the rate of runoff by filling and replacing a reach of an existing intermittent creek with diversion piping and also by adding impervious surfaces including roads, driveways and roof tops. Combined storm water flows, where the project could potentially add to existing flows either by diversion or intensification, must be evaluated to satisfy Policy 9-P-21. Potential incremental flows are identified

from Drainage Subareas 2 and 3 to the presumed outfall(s) west of the project site; from Drainage Subarea 6 to the adjoining Black Diamond Ranch residential subdivision; from Drainage Subareas 1, 4, and 5 to the proposed on-site detention basin; from Drainage Subarea 7 to a stormwater pipe beneath the future Buchanan Bypass near the eastern end of the project site; and from Drainage Subarea 8 to the Highlands Ranch stormwater pipe beneath Ventura Drive and Meadows Avenue and thence to the existing Highlands Ranch detention basin.

The Contra Costa County Flood Control and Water Conservation District (CCCFCWCD) is a responsible agency for drainage patterns and flood control facilities within its jurisdiction. CCCFCWCD reviewers and inspectors also evaluate projects to determine whether they have any potential to impact the capacity or stability of natural or manmade drainage systems. According to the CCCFCWCD, the project site lies in both Drainage Area (DA) 55, West Antioch watershed) and unformed DA 70 (Kirker Creek watershed).

CCCFCWCD commented previously on Subd. 8475 (Vesting Tentative Map dated July 2002). At the time of its previous comment, CCCFCWCD recommended that all stormwater runoff entering or originating within the project site be collected and conveyed to the nearest natural water course or to an adequate man-made drainage facility without diversion of [storm flows in] the watersheds (CCCFCWCD, February 12, 2003).

> **DRAINAGE PERMITS**: County Ordinance 1010 requires a drainage permit for most drainage work. In general, a permit is required for the purposes of reviewing and inspecting proposed drainage work. Reviews and inspections are needed to protect the public from creation of inadequate drainage facilities based on poor designs or construction practices.. Prohibited activities are: (1) impairing or impeding creek flows (2) depositing material in a creek, (3) excavation or grading that alters the surface of land so as to reduce the capacity of a channel, (4) removing or destroying vegetation in a creek, (5) planting in a creek, (6) constructing or altering any storm drainage facility or channel, (7) doing anything within a drainage easement, public or private, (8) installing or constructing any non-drainage structure within a watercourse. The applicant shall provide permits or other documents stating permits are not required from State Department of Fish and Game, U.S. Corps of Engineers, and the Regional Water Quality Control Board.
>
> **FLOOD CONTROL PERMIT ENCROACHMENTS**: The proposed project does not include any work within CCCFCWCD property, easement, or right-of-way. Therefore, a Flood Control Encroachment permit is not required.

Hydrology and hydraulic calculations must accompany all designs of private or public storm drainage systems (pipes, ditches or channels) and designs which may affect the capacity of natural or manmade drainage systems. Pipe outfalls shall be designed and constructed per County standard details. Variations of County standard details may be accepted on a case-by-case basis.

Ms. Hannah Wong of the Contra Costa County Flood Control and Water Conservation District (CCCFCWCD) was contacted, (925) 313-2381. She stated that the drainage area for most of the project site is unformed DA 70. The proposed on-site detention basin should be designed to hold the 100-year storm flow with 2 feet of freeboard.

Additionally, CCCFCWCD previously wrote that incremental storm water runoff from a portion of the project is contributory to DA 55 storm flows and that DA 55 drainage fees apply for those proposed lots. Furthermore, for the portion of the project contributory to DA 70, CCCFCWCD wrote that the applicant should mitigate downstream impacts either

1) by construction of off-site drainage improvements or else 2) by payment of an in lieu fee calculated at $5,000 per gross acre into a drainage deficiency fund. Eight locations of needed off-site drainage improvements are numbered #21 through 28 (*Pittsburg General Plan: Existing Conditions and Planning Issues*, Figure 13-8, p. 293). This mitigation potentially could be consistent with General Plan Policy 10-P-23. *(Ref 20, 21, 36, 46, 50, 64)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☒	☐	☐	☐

See item d). Pending clarification and further analysis, the potential effect on existing or planned stormwater drainage systems will be presumed to be potentially significant. In particular, the applicant's civil engineer will be requested to submit data, clarify or evaluate:

1. Effect of incremental flow from Drainage Subarea 2 and 3 on Palo Verde Drive stormwater conveyance system.
2. Effect of diverted and incremental flow from Drainage Subarea 6 and 7 on Markley Creek and the planned stormwater conveyance system in the Black Diamond Ranch residential subdivision (Drainage Subarea 6 only).
3. Conveyance of stormwater from Drainage Subarea 1 to the proposed on-site detention basin.
4. Effect on existing Highlands Ranch stormwater drainage systems.

Data, clarification, and evaluation so submitted will be reviewed by the City of Pittsburg and CCCFCWCD. *(Ref 27, 36)*

f) Otherwise substantially degrade water quality?	☐	☐	☒	☐

Ground water was not encountered on the Project Site above a depth of approximately 64 feet below grade surface (ENGEO, *Geotechnical Exploration Sky Ranch II Subdivision 8475*, February 12, 2002, p. 11). Surface water protection will be subject to a Storm Water Pollution Prevention Plan (SWPPP) to address specific activities on the project site covered by the Statewide National Pollutant Discharge Elimination System (NPDES) General Permit (California Regional Water Quality Control Board, *Guidelines for Construction Projects*, pp. 37-47). Construction-phase storage of hazardous materials including fuel, paint, and other materials will be subject to structural and non-structural Best Management Practices (BMPs) to control spills leakage and dumping, as may be expressed in Spill Prevention and Contingency Plan. Non-stormwater discharges of hazardous materials will be prohibited (Ibid., p. 26). After construction post-construction BMPs will be required and funding sources and the responsible party for long-term implementation and maintenance will be identified (Ibid., p. 46). Residents normally are not permitted to store hazardous materials or hazardous waste other than household hazardous waste. *(Ref 8, 23)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒

The project site is located outside the 100-year flood zone (*Pittsburg 2020: A Vision for the 21st Century*, p. 9-17). Demonstration of storm volume and capacity of the on-site detention basin to contain the 100-year storm flow with 2 feet of freeboard and downstream flood control facilities should be performed by the applicant's civil engineer for review by the City of Pittsburg and CCCFCWCD. *(Ref 46, 64)*

h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒

The project site is located outside the 100-year flood zone (*Pittsburg 2020: A Vision for the 21st Century*, p. 9-17). *(Ref 46)*

i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒

The project site is not located in a 100-year floodplain or downstream of a dam or levee. *(Ref 46, 50, 56)*

j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

The risk of regional subsidence or uplift, tsunamis or seiches is assessed by ENGEO Incorporated and described as "low" or "unlikely" at the Project Site (ENGEO, *Geotechnical Exploration Sky Ranch II*, February 14, 2002, p. 20). *(Ref 23)*

IX. LAND USE AND PLANNING -- Would the project:

a) Physically divide an established community?	☐	☐	☐	☒

The project could not divide an established community. The project will adjoin Highlands Ranch to the north, Black Diamond Ranch to the east in the City of Antioch, and the community around Palo Verde Drive to the northwest. *(Ref 17, 36)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☒	☐	☐	☐

General Plan—Land use designation and density. The project proposes pre-zoning of approximately 156 acres to RS (Single-Family Residential) District. Land on the site (excluding a proposed re-subdivided portion of Highlands Ranch) is designated Low Density Residential (1 to 3 du/acre) in the adopted General Plan. The number of proposed lots is 415 lots including 20 lots in the re-subdivided area; therefore, the proposed density based on total acreage within the site is 2.55 du/gross acre. Therefore, the proposed land use and density are consistent with the adopted 3 du/acre allowed on this property under the General Plan.

The total acreage in the site is approximately 163 acres including the re-subdivided area and 156 acres excluding the re-subdivided area. The total acreage includes the existing PG& E transmission line corridor (7.5 acres) but excludes the existing water reservoir and land around it. The project includes re-subdivision of approximately 20 lots in the Highlands Ranch residential subdivision (Tract 7217). The acreage involved in re-subdivision in Highlands Ranch is approximately 7.1 acres.

The effective density in the re-subdivided area is approximately 2.8 du/gross acre, which also is consistent with the density standard (1 to 3 du/gross acre). Originally, Highlands Ranch was approved for development of 590 lots on a site of 174 acres. With the potential addition of 21 lots on a portion of the previously designated school and park site, and 20 lots in the re-subdivided area, the density of Highlands Ranch would remain less than 3.63 du/gross acre, which is consistent with the Low Density Residential density standard. *(Ref 36, 45, 46)*

RS Zoning—Consistency with RS District standards. The Low Density Residential land use designation and RS Zoning District are intended primarily for detached single-family dwellings on lots typically not smaller than 6,000 square feet. In comparison, the minimum lot size in the project is 8,000 square feet and the average lot size is 14,500 square feet. Minimum lot size of 6,000 square feet and lot width of 60 feet are consistent with the RS Zoning District Property Development Regulations.

There are twenty flag lots proposed within the project. A flag lot consists of a rectangular or irregular "flag" and a driveway or easement "stem" for access. Flag lots include Lots 89, 91, 92, 95, 96, 99, 100, 103, 104, 147, 148, 151, 152, 154, 160, 190, 190, 221, 222, and 301.

Tandem conventional-flag lots are pairs of lots that have a conventional lot along a proposed street, a driveway (the flag stem) along the side yard of the conventional lot, and a flag lot that occupies a position adjoining the rear yard of the conventional lot. The project includes fifteen flag lots in tandem with conventional lots. These tandem conventional-flag lots include: Lots 88-89, 90-91, 93-92, 94-95, 97-96, 98-99, 101-100, 102-103, 105-104, 146-147, 149-148, 150-151, 153-152, 159-160, and 300-301. The RS Property Development Regulations (PDRs) do not prohibit flag lots.

Graded pads are shown but precise foundations are not shown on the Vesting Tentative Map & Preliminary Grading Plan; therefore, side yards, corner side yards, and rear yards cannot be evaluated relative to RS District Property Development Regulations. Based upon the lot widths, suitable side yards should be attainable provided that the building foot print is sized and sited to accommodate lot-specific conditions. No variances from the RS District standards have been requested to accommodate the project.

Other —General Plan goals and policies. The site is located on the urban edge. Adopted General Plan goals 4-G-3, 4-G-17, and 8-G-15 apply generally to development on the urban edge, neighborhoods, open space and trails. Policy 4-P-7 suggests development maintain a rural feeling and orientation toward open space. Policy 4-P-82 suggests development be responsive to natural elements, maintain a sense of connection to surrounding uses, and protect of creek corridors. Policy 2-P-72 specifically applies in the Buchanan Subarea and suggests protection of north-south creek corridors. Open space and trail policy 8-P-20 suggests development of trails and trail heads and connections to regional and local open space. Additional details are presented in *Urban Design Policy Analysis* dated March 29, 2004.

Goal 4-G-3: The project as shown on the Vesting Tentative Map (March 2004) would provide for slopes free of buildings on private-owned lots but would not provide a connected Open Space transition from urban uses to open space on the City's southern edge. Unbuildable areas are located on individual private lots without provisions for public access. Public viewing locations would include locations on public-dedicated streets and sidewalks; however, viewing locations from accessible open space would not be provided within the project. **Policy 4-P-7:** As proposed, the project potentially could afford a general sense of rural character through its larger private lots having substantial landscaped or unbuilt area on the slopes; however, the current design mixes 0.2-acre lots and 1-acre lots near the southern boundary of the site. At the southern and southeastern edges of the project there would be a mix of large 2-acre lots (*e.g.*, Lots 137, 142, 151), smaller 0.25-acre lots (e.g., Lots 138-141), and even 0.20-acre lots (*e.g.*, Lots 107-125, 161-180, and 182-200). Lots 89, 91, 92, 95, 96, 99, 100, 103 and 104 would range in size from approximately 0.5 to approximately 1 acre and would be in tandem, paired with smaller 0.2-acre lots (*i.e.*, Lots 88, 90, 93, 94, 97, 98, 101, 102, and 105).

With the particular lots shown in tandem in the southwest corner of the site and with the 0.2-acres lots illustrated along "B" Street, "B" Court and "C" Court, the overall feeling potentially could be less rural with orientation toward adjoining downslope or upslope residences rather than toward open space. Without retaining connected open space, for example, under common ownership by a Homeowners' Association, there is less opportunity for orientation of future homes toward open space.

Without retaining connected open space, there also is less opportunity for off-street trails; therefore, the design of proposed streets, sidewalks, and lighting will have considerable influence over the ultimate urban feel or rural feel experienced within the project.

Goal 2-G-24: Project integration with the existing residential subdivisions could be met nominally. **Policy 2-P-69:** Street and pedestrian connections to adjacent residential areas could be nominally met by the project as designed; however, supplemental street and pedestrian connections could be considered. Pedestrian safety and convenience of the crossing at Ventura Drive/"B" Street/ Buchanan Road Bypass will be evaluated by the Traffic Engineer.

Policy 4-P-84: The project as shown on the Vesting Tentative Map (March 2004) would not provide an integrated pattern of streets and pedestrian paths that provide connections between neighborhoods. Measures could improve connection between Black Diamond Ranch and Sky Ranch II subdivisions. There are three proposed fire access points show on the Black Diamond Ranch which terminate at the common boundary shared with the project. Connections may be possible by creating connection in the vicinity of Lot 190 or 191, Lot 200, and Lot 226. At these locations fire access ways are noted on the Vesting Tentative Map on the Black Diamond Ranch side only.

On the site, USGS has mapped one intermittent creek (USGS, 1980). One of the wetlands experts has identified two isolated wetlands (Albion Environmental, July 2004). **Goal 9-G-5:** The General Plan calls for preservation of Pittsburg's creeks for their visual and habitat values and drainage capacity. Development standards would address natural creeks, swales, and wetlands that convey or detain hillside storm water. **Policy 9-P-9:** Establish creek setbacks of 50 feet (minimum) and 150 feet (maximum) on each side of a creekbed. These requirements may be augmented as needed to preserve ecological resources, for example, wetlands, special status species and their habitat (Policies 9-P12 and 9-P-13). **Policy 9-P-11:** Encourages re-establishment of creeks in the design of new development. The project as shown on the Vesting Tentative Map & Preliminary Grading Plan would not preserve any of the existing on-site or off-site natural creeks, swales, and wetlands.
(Ref 1, 26, 36, 46, 56)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

The East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan (HCP/NCCP) is under development by a Joint Powers Association (JPA). A Preliminary Draft Conservation Strategy was published in January 2003. A Notice of Intent and Notice of Preparation to prepare a joint EIS/EIR were circulated on June 5, 2003 (Federal Register / Vol. 68, No. 108 / Thursday) and June 30, 2003, and by the JPA and U.S. Fish & Wildlife Service (USFWS). Additional details are provided on pages 21-22. *(Ref 22, 58)*

X. MINERAL RESOURCES -- Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒

No mineral deposits are noted in the General Plan, *Pittsburg 2020: A Vision for the 21st Century* or in *Geologic Exploration Sky Ranch II Subdivision 8475* prepared by ENGEO Incorporated, dated February 14, 2002. According to the California Department of Conservation, Geological Survey (formerly, Division of Mines and Geology) there are no known significant mineral deposits in the Planning Area. The hills south of the City limits potentially could contain mineral deposits, though their significance is unknown (*Pittsburg General Plan: Existing Conditions and Planning Issues*, pp. 250-251 and Figure 12-3, p. 253). *(Ref 23, 46, 50)*

b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

The hills south of the City limits potentially could contain mineral deposits, though their significance is unknown (*Pittsburg General Plan: Existing Conditions and Planning Issues*, pp. 250-251 and Figure 12-3, p. 253; *Pittsburg 2020: A Vision for the 21st Century*, p. 12-11). Figure 12-3 illustrates the site as having potential mineral deposits (*e.g.*, construction aggregate) the significance of which cannot be evaluated by CDC/GS based upon the available information. The preliminary grading concept calls for selective use of on-site soils for engineered fill beneath proposed graded level lots. *(Ref 23, 46, 50)*

	Potentially Significant Impact	**Less Than Significant with Mitigation Incorporation**	**Less Than Significant Impact**	**No Impact**
XI. NOISE -- Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☒	☐	☐	☐

60 L_{dn} represents the City's normally acceptable outdoor noise level standard for single-family houses. "Noise level standard" means the level of noise normally acceptable for single-family residential land use. It does not mean literally a limit. New single-family development in the range from 60 to 70 Ldn can be undertaken but should be undertaken only after detailed acoustical analysis and needed sound insulation features are included in the design (*Pittsburg 2020: A Vision for the 21st Century*, August 2001, Figure 12-3, p. 12-11).

Along the future Buchanan Bypass, noise exposure will depend on effectiveness of a proposed masonry sound wall. Construction and opening of the Buchanan Bypass to through-traffic would introduce a new noise source. The Buchanan Bypass is a proposed 4-lane, limited-access artery, having a potential to convey up to approximately 35,000 vehicles per day (ADT) at 45-50 mph. The future Buchanan Bypass is a conceptually planned facility shown on the City's General Plan Land Use Map and Roadway System, the construction of which has not been funded or partially funded. For an hourly automobile volume of 3,600 vph traveling 50 mph, Table 3 presents predicted L_{eq} and L_{dn} noise levels depending on distance from the centerline of the Buchanan Bypass.

TABLE 3
FUTURE SOUND LEVELS ADJACENT TO THE BUCHANAN ROAD BYPASS

Receptor Distance from the Buchanan Bypass Centerline (Feet)	Lots/Houses Located Within the Stated Distance	Estimated Sound Levels (dBA)*	
		Leq (1-Hour)	Ldn (24-hour)
100	2-3, 11, 17-18, 29-37, 72-73, 257, 307, and 381	66.4-66.9	68-69
200	1, 4-6, 7, 12, 16, 19, 28, 38, 71, 74-75, 237-242, 246-256, 258, and 380	60.4-60.9	62-63
300	NA (60 Ldn or lower)	56.7-57.3	59-60
400	NA (60 Ldn or lower)	54.2-54.8	56-57

* Unmitigated, that is, without proposed 6-foot tall masonry sound wall.
SOURCE: FHWA, Traffic Noise Model Look-Up Program

Without mitigation, future L_{dn} sound levels could be expected to be in the range of 67-70 dBA outdoors within 100 feet of the centerline of the Buchanan Bypass. Future houses on Lots #2-3, 11, 17, 18, 29-37, 72-73, 257, 307, and 381, which would be located within 100 feet of the centerline of the Buchanan Bypass, potentially could be within this outdoor sound level range of 67-70 dBA. With effective sound walls, traffic noise levels could be reduced in the noise shadow created by the walls. General Plan Policy 12-P-6 requires that proposed housing exposed to noise levels greater than 65 L_{dn} incorporate mitigation measures to ensure that interior noise levels do not exceed 45 dBA (L_{dn}). *(Ref 29, 46)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
b) Exposure of persons to or generation of excessive groundborne vibration or airborne noise levels?	☐	☐	☐	☒

The project is not in a class of projects having recognized potential to create groundborne vibration. Such projects which may create groundborne vibration or vibration-induced noise include rail systems, bridges and overcrossings, industrial machinery and facilities, and pump stations. Airborne noise levels on the site would be neither clearly unacceptable (over 75 L_{dn}) nor normally unacceptable (70-75 L_{dn}) for single-family residential uses. *(Ref 46)*

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☒	☐	☐	☐

The existing 24-hour average sound level (L_{dn}) on the site was monitored by Shen Milsom & Wilke, Inc., during March 20-22, 2002 (Wednesday through Friday). The existing on-site L_{dn} is 54 dBA, which represents background noise primarily from Highlands Ranch and to a lesser degree from Buchanan Road and State Highway 4.

Before completion and opening of the Buchanan Bypass with a continuous through-connection to Kirker Pass Road, all project-related traffic and Highlands Ranch traffic would use Ventura Drive. In the event that the Buchanan Bypass is never constructed or is completed with a future through-connection several years after the project is developed, the combined Highlands Ranch and project traffic potentially could use Ventura Drive for many years. The incremental traffic added by the project to Ventura Drive would be approximately 3,900 trips per day (415 trips per peak hour). The projected traffic volume represents generally a doubling of the No Project volume and, therefore, could add to the existing traffic noise level. With the ambient background L_{dn} of 54 dBA, approximately 2 dBA could be added to the overall noise level for a future L_{dn} of 56 dBA. According to the General Plan, Chapter 12, a 3 dBA change is just noticeable while a 5 dBA change is considered a significant effect. Therefore, the predicted increase of 2 dBA while permanent is not considered to be substantial. *(Ref 46, 52)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☒	☐	☐	☐

Construction of the project would introduce a variety of construction noise sources including, but not limited to, scrapers, graders, dozers, sheeps-foot compactors, and heavy-duty trucks. Other noise sources include backhoes, air compressors, and nail guns. These temporary sources would increase noise levels in inverse proportion to distance from the nearest sensitive receptors. Policy 12-P-9 (limit generation of loud noises on construction sites to normal business hours) could potentially restrict the time-of-day of the impact (*Pittsburg General Plan Draft EIR*, p. 4-127). *(Ref 48)*

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Not applicable.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Not applicable.

XII. POPULATION AND HOUSING -- Would the project:

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☒	☐	☐	☐

The project includes 415 single-family houses, a number which includes the re-subdivision of a 7-acre portion of Highlands Ranch. With 415 units and an average household size of 3.07 persons per household, the estimated population added to the Planning Area by the project is 1,274 persons. The average household size in Pittsburg during 2005-2010 is based upon ABAG *Projections 2003 (Contra Costa Community College District, June 2003).*

In comparison, ABAG *Projections 2003* estimate 7,400 persons will be added to Pittsburg's population during 2005-2010, and 2,410 houses will be added during that same period. The project, therefore, represents approximately 17 percent of forecast population and housing increases during 2005-2010.

In terms of added traffic, the potential daily traffic (ADT) 3,970 trips per day and the daily miles of vehicle travel (VMT) is 31,850 vehicle miles per day. The ADT estimate is based upon 9.57 trips per dwelling unit per day, and the daily VMT is based on the Contra Costa County average 25 vehicle miles per person per day (California Air Resources Board, 2004, *The 2004 California Almanac of Emissions,* Appendix D, p. 514).

The project would extend water and sewer service, but only within the project site limits. The project includes construction of the segment of the future Buchanan Bypass within project site limits. This segment of the Buchanan Bypass has a counterpart in the approved Black Diamond Ranch to the east. The contemplated connection and opening of the segment of the Buchanan Bypass within project site limits and adjoining segments will complete a new east-west circulation route. This ultimate connection is conceptual and will not occur until the bypass is completed west to Kirker Pass Road or possibly to Buchanan Road via another road west of the project site.

The Buchanan Bypass was conceived as an alternative route parallel to State Highway 4 to accommodate off-highway east-west travel to destinations from Kirker Pass in Concord to Somersville Road in Antioch. Construction of the Buchanan Bypass would serve areas already developed, approved for development, or designated for potential development under the adopted General Plans of the cities of Antioch and Pittsburg. The 4-lane arterial Buchanan Bypass contemplated here is consistent with the City's General Plan; however, conformity with the General Plan is not sufficient basis for a finding that this element of the project could have no significant environmental effects including a potential growth-inducing effect.

Surrounding areas of current or potential future development include Black Diamond Ranch (297 units, Antioch), Meadow Creek Estates (529 units, Antioch), and Mira Vista (495 units, Antioch). The project would not induce development of these approved subdivisions. *(Ref 6, 19, 46)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

There is no existing or past housing on the project site. *(Ref 57)*

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

The project is not in a class of project generally recognized to have the potential to displace people or housing. The site is not located adjacent to apartments, public housing, or below market rate housing, or adjacent to land designated for such uses. Therefore, development of the proposed housing on the site could not exert any market pressures to redevelop existing housing stock and displace persons from that existing housing.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact

XIII. PUBLIC SERVICES

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Fire protection? ☒ ☐ ☐ ☐

The Contra Costa County Fire Protection District (CCCFPD) provides fire protection service for the Planning Area including the site. Station 85 (2555 Harbor Street) is the nearest CCCFPD fire station. The 1.5-mile response radius centered around Station 85 cuts across Highlands Ranch, and the project site is just outside the 1.5-mile radius. The 1.5-mile radius is intended to show the area within a 5-minute response time goal (*Pittsburg 2020: A Vision for the 21st Century*, August 2001, pp. 11-14 through 11-17). During EIR preparation the CCCFPD will be asked to review the location of the project site in relation to Station 85 and the Vesting Tentative Map in relation to the open space interfaces west, south, and east of the site. According to the General Plan, wildland fire risk is greatest in the hills south of the City and much of the risk is attributable to open grasslands abutting residential developments (Ibid., p. 11-17). General Plan Policy 11-P-24 suggests construction of community fire breaks in areas of extreme fire hazard. General Plan Policy 11-P-27 calls for cooperation with CCCFPD in obtaining new sites or relocation of existing fire stations to new site to provide more efficient response (Ibid., pp. 11-18 and 11-19). With provisions for mitigation measures, including emergency vehicle access (EVA) ways to vegetated upslope areas and off-site areas and maintenance of fire breaks to reduce dry-season fuel load, the potential impact potentially could be mitigated to a less-than-significant effect. *(Ref 17, 36, 46)*

Police protection? ☒ ☐ ☐ ☐

The potential significance of the impact of the project on police patrol and response time is unknown pending further consultation with the Police Department.

Schools? ☒ ☐ ☐ ☐

The project is of a class of projects that is generally recognized as having the potential to affect the stated service. The Pittsburg Unified School District (PUSD) school enrollments currently exceed capacity (Ibid., p. 8-23). PUSD collects a school impact fee from new residential development within the district boundary. The school impact fee is used to

Schools? (*Continued*)

construct school facility space needed to accommodate incremental pupil enrollment contributed by new residential development.

The nearest elementary schools, namely, Foothill Elementary, Stoneman Elementary, and Highlands Elementary, are located 1.5 to 1.9 miles from the site. The nearest Junior High Schools are Central Junior High School and Hillview Junior High School. Pittsburg High School is located near the intersection of Railroad Avenue and Leland Road (*Pittsburg 2020: A Vision for the 21st Century*, Figure 8-2, p. 8-22). *(Ref 46)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Parks?	☒	☐	☐	☐

The Vesting Tentative Map does not illustrate any parks within the project, but a future 5-10 acre park is being developed along Buchanan Road east of Ventura Drive. The service level is approximately 5 acres of community and neighborhood park per 1,000 persons and minimum 2 acres in size in new residential developments with a target size of 5 acres (Ibid., p. 8-8). The project would contribute to a demand in the approximate amount of 5 acres. The future 5-10 acre park along Buchanan Road would be separated from the project by the 4-lane bypass and may not meet the General Plan standard of siting parks within reasonable walking distance.

Absence of a mini-park or neighborhood park within the project potentially could be contrary to other General Plan Policies including Policy 8-P-2 (pursue development of park and recreation facilities within reasonable walking distance of homes) and Policy 8-P-6 (minimum 2 contiguous acres in new residential neighborhoods where park space may be proposed). Absence of a trail and public trail head within the project potentially could be inconsistent with General Plan Policies 8-P-15 and 8-P-19 of securing ownership of lands within the powerline transmission corridors south of State Highway 4 for development of a community [linear] park and interconnecting trail *Pittsburg 2020: A Vision for the 21st Century*, August 2001, pp. 8-8, 8-9, 8-11 and 8-15). *(Ref 36, 44, 46)*

Other public facilities?	☒	☐	☐	☐

The project is of a class of project that is generally recognized as having the potential to contribute incremental demand for other governmental or quasi-governmental services, librarians and books, bus transit, and BART. The project could add demand for County Connection transit service, Tri-Delta bus service, and BART service, and also for pedestrian and bicyclist facilities. Approximately 84 percent of Pittsburg workers commute to jobs outside the City. Seventeen percent commute to jobs in Concord, and lesser percentages commute to jobs in Walnut Creek and Oakland (*Pittsburg General Plan Draft EIR*, 2001, p. 4-29). Incremental and cumulative demand for these services and potential mitigation measures should be explored in the environmental document. Cumulative refers to other past, currently developing, approved or future planned developments in the vicinity of the site that can be expected to contribute similar demands for other governmental or quasi-governmental services. *(Ref 46, 48)*

Other public facilities? (*Continued*)

The project has particular potential to create an ongoing need for operation and maintenance of a public-dedicated sanitary sewer lift station. Such a lift station is proposed by the applicant to pump wastewater generated at Lots 162-204 to a manhole at the intersection of "B" and "D" Streets. The City will review this element of the project and potential alternatives, including possible connection to the adjoining development to the east to accommodate gravity flow. *(Ref. 43)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XIV. RECREATION --				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☒	☐	☐	☐

The project will add approximately 1,274 residents, and can be expected to add to the use of Buchanan Park and the nearest parks. Other parks that may be visited by future residents of the project include Stoneman Park and Marchetti Park (Antioch). In the absence of on-site park land dedication and facilities, the project could be expected to double the use of the future planned park along Buchanan Road. Maintenance of park facilities and sod will increase is proportion to visitation. Without dedication and development of on-site park land, the shortage of park land is considered a potentially significant impact (*Pittsburg General Plan EIR*, p. 4-57). Mitigation measures will be considered to dedicate on-site park land, improve existing or planned off-site parks, and to augment maintenance of those parks. *(Ref 46, 48)*

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☒	☐	☐	☐

The project does not include recreational facilities. The project will add incrementally to visitation of existing and planned parks and use of existing and planned park facilities. In lieu fees will be considered for expansion of existing or planned recreational facilities. Joint participation with Highlands Ranch and Homeowner Association fees will be considered for augmentation of maintenance cycles in the planned park along Buchanan Road. *(Ref 36)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XV. TRANSPORTATION/TRAFFIC -- Would the project:				
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (*i.e.*, result in a substantial increase in the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☒	☐	☐	☐

The project is estimated to generate approximately 3,970 vehicle trips per day (vpd). Before the Buchanan Bypass is opened for through-traffic, all project-related traffic would use Ventura Drive and Buchanan Road. General Plan Policy 7-P-21 recommends traffic on local residential streets be kept below 5,000 vpd (*Pittsburg 2020: A Vision for the 21st Century*, p. 7-20). The congestion impact of adding 3,970 trips per day to Ventura Drive, and other potential congestion impacts, are being evaluated in a Traffic Impact Study.

Ventura Drive provides access to the existing residential neighborhood north of the proposed Sky Ranch II project, provides circulation within the neighborhood (collector), and has driveway access to abutting residences (local). Based on criteria contained in the Pittsburg General Plan, therefore, Ventura Drive's classification is a blend of a collector street and a local street. The maximum volume on a so-called "livable residential street" is 2,000 vpd (Livable Streets by Appleyard, Donald, 1981; "Traditional Neighborhood Development: Street Design Guidelines" by Institute of Transportation Engineers, June 1997). Because the City has adopted a local streets standard but has not adopted a so-called livable streets standard, the standard for evaluating impact significance on Ventura Drive is 5,000 vpd.

Existing traffic on Ventura Drive, immediately south of Buchanan Road, is approximately 3,600 vehicles per day (vpd). On the section of Ventura Drive with residential driveways, existing traffic is estimated at 2,500 vpd. The project would be expected to increase traffic volumes on the local street portion of Ventura Drive to 6,472 vpd, without the Buchanan Road Bypass (increase of 3,972 vpd) and to 5,230 vpd with the Bypass (increase of 2,730 vpd). Both of these scenarios result in traffic volumes which exceed the City's local street carrying capacity of 5,000 vpd

Street connections with future streets in the Black Diamond Ranch residential subdivision are not proposed, with the exception of the Buchanan Bypass. The project, therefore, would not contribute to future traffic within the Black Diamond Ranch residential subdivision. *(Ref 2, 17, 35, 36, 46, 65)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☒	☐	☐	☐

The potential impact of the project on level of service standards at signalized intersections, designated roads, highways and highway ramps is being evaluated in a Traffic Impact Study.

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒

The project is not located beneath any flight path or adjacent to land subject to ALUC jurisdiction (*Pittsburg 2020: A Vision for the 21st Century*, August 2001, p. 2-4). *(Ref 46)*

d) Substantially increase hazards due to a design feature (*e.g.*, sharp curves or dangerous intersections) or incompatible uses (*e.g.*, farm equipment)?	☒	☐	☐	☐

On-site circulation and Buchanan Bypass as proposed will be reviewed by a Traffic Engineer. The proposed on-site circulation system is a looped system formed by "B" Street and "D" Street and also by "B" Street --"A" Street -- "D" Street. The southern end of "B" Street is a cul-de-sac 1,000 feet in length. "D" Court is approximately 1,100 feet in length. *(Ref 36)*

The future Buchanan Bypass could potentially present an impediment to pedestrian travel depending on design of the crosswalk, future traffic volume, and design speed. This issue also is being evaluated in the traffic study. *(Ref 36)*

e) Result in inadequate emergency access?	☒	☐	☐	☐

Emergency vehicle access (EVA) ways to grassy slope areas are required by the Contra Costa County Fire Protection District. EVA ways to the contiguous grassy slopes south and west of the site are not shown on the Vesting Tentative Map. Emergency vehicle access ways to the contiguous grassy open space in the approved Black Diamond Ranch residential subdivision east of the site are shown on the Black Diamond Ranch (Subd. 7487) Vesting Tentative Map but terminate at the property line. This off-site open space is adjoined by proposed Lots 200-208 and Lots 222-224 on the site. Mitigation measures including modifications to include provisions for EVA ways will be considered in consultation with the Contra Costa County Fire Protection District. *(Ref 17, 36)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
f) Result in inadequate parking capacity?	☐	☐	☒	☐

Provided that RS Design Development Standards (18.50.015) are met, sufficient front yard area should be available to accommodate parking in the driveways. Driveways and curb cuts should be reviewed during Design Review to assure that these are adequate and functional for parking of two- to three-cars without encroachment onto the sidewalks. Curved driveway sections should allow extra width to enable full functionality.

g) Conflict with adopted policies, plans, or programs supporting alternative transportation (*e.g.*, bus turnouts, bicycle racks)?	☒	☐	☐	☐

A Traffic Impact Study is being prepared in accordance with Contra Costa Transportation Authority (CCTA) Technical Procedures dated September 17, 1997. The Traffic Impact Study report, therefore, will address growth management issues as required by Measure C of the CCTA and will serve as the technical basis for the Transportation Chapter of the project's environmental document.

BART has its rail line in the State Route 4 corridor with station access at Bailey Road, and this location presents an opportunity for BART ridership from the project. Current Park & Ride parking availability and utilization will be reviewed in relation to incremental demand for parking posed by the project.

XVI. UTILITIES AND SERVICE SYSTEMS—Would the project:

a) Exceed [or cause violations of] wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐

The project is not in a class of project that is generally recognized as having the potential to cause violations of wastewater discharge requirements. Waste water from the project would include sanitary flow without industrial waste water flow. The project is not expected to generate dry or wet weather wastewater flows of a magnitude that could exceed the water pollution control plant's dry or wet weather treatment requirements.

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☒	☐	☐	☐

Water--The City of Pittsburg previously determined that the 32 mgd water treatment plant and 2.5 million gallon raw water reservoir is adequate for the Planning Area. The *2000 Urban Water Management Plan*, as amended, addresses future water service, sources of water supply, and projected water use. Water supply, demand, and new residential

connections projected by the Pittsburg Finance Department for 2005-2020 are presented in Table 4.

TABLE 4
FUTURE WATER PROJECTIONS
CITY OF PITTSBURG, CALIFORNIA

PROJECTIONS	Estimated Acre Feet Per Year*			
	2005	2010	2015	2020
Project demand	0	100	225	225
Residential demand**	8,956	9,829	10,703	11,576
Citywide demand	12,587	13,815	15,043	16,271
Projected supply	22,945	24,315	26,043	27,771

NOTES:
* Pittsburg Department of Finance estimates except for project demand.
** Residential includes single- and multi-family.

SOURCE: *Pittsburg 2000 Urban Water Management Plan*

Water use by single-family residences is projected to increase to 10,615 acre-feet per year (AFY) in 2020 from 8,212 AFY in 2005. During this period the number of single-family residential water connections is projected to increase to 15,500 in 2020 from 14,000 in 2005, which is an increase of 1,500 connections or 100 connections per year. Water use is projected to increase each year by 160 acre-feet per year (160 AFY) for new single-family dwellings built during 2005-2020.

The project would add 415 dwelling units and is estimated to add an ultimate water demand of 200 to 250 AFY. This is equivalent to an incremental increase of approximately 23 AFY each year during 2005-2015, or 15 AFY each year during 2005-2020. This estimate assumes 150 gpcd and 2.85 to 3.59 persons per connection. Based upon the estimated project demand, cumulative projected demand, and projected supply, the project could not necessitate construction of new water or wastewater treatment facilities or expansion of existing facilities. *(Ref 43, 49)*

The existing Zone II water tank will be reviewed in terms of storage capacity and water pressure in view of expected changes in the service requirements of Highlands Ranch and the proposed resubdivided area downslope of the Zone II tank. If supplementation is found to be necessary, the City may seek dedication of a tank site within the project site. With the potential addition of 21 lots on a portion of the previously designated school and park site, and 20 lots in the re-subdivided area of Highlands Ranch, the existing Zone II water tank could potentially be inadequate to provide combined domestic water and fire flows.

The proposed Zone III water tank at elevation 465 feet also will be reviewed in terms of storage capacity and water pressure. Lots 127-153 are proposed to be served with a booster pump for domestic water. Lots along the south side of "D" Street at pad elevations 365 to 390 feet could potentially have low water pressure. The proposed site of the Zone III water tank appears to have inadequate land buffer for an earthen berm and/or elevation to accommodate subterranean design. The City may seek dedication of

an off-site tank location south of the project site to accommodate gravity flow without a booster pump and tank concealment. *(Ref. 43)*

Sewer-- Sewer service in the Planning area is provided by the City and Delta Diablo Sanitation District (DDSD). The City owns and operates the collection system except in Bay Point. DDSD owns and operates the wastewater treatment plant. The average treated flow was 13.6 mgd in 1999 (*Pittsburg 2020: A Vision for the 21st Century*, August 2001, p. 11-9; *City of Pittsburg General Plan Draft EIR, 2001, pp. 4-74 & -75*).

DDSD has adopted a Master Plan that includes phased treatment plant expansion to provide treatment of 24.0 mgd (average dry weather flow). This ultimate capacity is intended to meet the combined General Plan buildout demand of the cities of Pittsburg, Antioch, and unincorporated Bay Point. The City of Pittsburg has an agreement with DDSD that provides for concurrent annexation of new urban lands into both the City and DDSD boundaries and authorizes the City to collect annexation fees on the District's behalf. Annexation fees are used by DDSD to fund master planned expansion and other improvements.

Waste water generation can be approximated as 80 percent of water use, where inflow and infiltration can be ignored. Projected average waste water generation by the project would be, therefore, approximately 160,000 gallons per day, equivalent to 0.16 million gallons per day (mgd).

According to the Pittsburg General Plan, new development south of State Highway 4 places increased demand on the City's aging collection system. The EIR will address potential impact of the project to the off-site trunk sewer system. General Plan Policy 11-P-12 recommends the City pursue replacement and/or expansion of the City's trunk sewer system (Ibid., p. 11-10). The EIR also will describe the current status of existing plant capacity and future timing of planned treatment plant expansion. *(Ref 46, 48)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☒	☐	☐	☐

With implementation of the preliminary grading plan, seasonal storm flow in the unnamed intermittent creek would be intercepted at a headwall at the southern boundary of the site and conveyed via a bypass pipe to the western boundary of the site. With implementation of the preliminary grading plan storm flows in other seasonal drainageways would be intercepted at the southeastern corner of the site and conveyed to the Black Diamond Ranch residential subdivision storm system. Storm flows from the site, therefore, would add incrementally to off-site systems as not all storm flow would be conveyed to the proposed on-site detention basin. About 50 percent of the storm water flow generated from the project would be discharged to a proposed on-site detention

basin. CCCFCWCD previously recommended a perpetual funding source established for maintenance of the proposed on-site detention basin.

Additionally, CCCFCWCD previously wrote that incremental storm water runoff from a portion of the project is contributory to DA 55 storm flows and that DA 55 drainage fees apply for those proposed lots. For the portion of the project contributory to DA 70, CCCFCWCD wrote that the applicant should mitigate downstream impacts either 1) by construction of off-site drainage improvements or else 2) by payment of an in lieu fee calculated at $5,000 per gross acre into a drainage deficiency fund. Eight locations of needed off-site drainage improvements are numbered #21 through 28 (*Pittsburg General Plan: Existing Conditions and Planning Issues*, Figure 13-8, p. 293). The contemplated storm drainage improvements numbered #27 and 28 are located west of the project site in the unnamed intermittent creek south of Palo Verde Drive. This off-site mitigation potentially could be consistent with General Plan Policy 10-P-23. *(Ref 21, 27, 36, 46, 50)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☒	☐	☐	☐

The project would require water for domestic uses, estimated at 200 to 250 acre feet per year. The Central Valley Project (CVP) water demand increment added by the project is approximately 2 percent of the City of Pittsburg's projected contracted annual water purchases from Contra Costa Water District (CCWD). Service to the project is contingent upon inclusion of the project site in the CVP. Before this process can be initiated by CCWD, the inclusion application of CCWD to the U.S. Bureau of Reclamation requires information from the applicant's Section 7 or 10 consultation with USFWS.

Year 2003 water purchases by the City of Pittsburg were 9,937acre feet per year (AFY), and year 2000 water purchases were 8,790 AFY. Projected water purchases are 12,215 AFY in 2010 and 14,671 AFY in 2020. Water will be provided from Los Vaqueros Reservoir, a 100,000 AF reservoir south of Brentwood completed in 1998 and filled January 1999. The primary conveyance facility for CCWD's raw water is the Contra Costa Canal, which conveys water from the Delta intake at Rock Slough. Currently, selective pumping in winter and spring is performed to fill Los Vaqueros Reservoir with higher water quality. Raw water supplied to Pittsburg generally is blended from the Delta intake, Old River intake, and Los Vaqueros Reservoir. CCWD currently provides approximately 150,000 AFY throughout its service boundary. *(Ref 31, 51)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☒	☐	☐	☐

Determination is pending consultation with DDSD.

f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐

Municipal solid waste generated by the project will contribute cumulatively to the region's need for landfill capacity. Residential solid waste is picked up and disposed by Pittsburg Disposal Services at the Potrero Hills Landfill located east of Suisun City in Solano County. Potrero Hills Landfill is a Class III sanitary landfill that began operation in 1986 and has a projected remaining life of 17 to 20 years. The total estimated permitted capacity is 21.5 million cubic yards, with 7.7 million cubic yards (36 percent) used and 13.8 million cubic yards (64 percent) remaining (CIWMB, 2004).

Adjacent acreage owned by Potrero Hills Landfill Company may allow for future expansion of landfill capacity (*Pittsburg 2020: A Vision for the 21st Century*, August 2001, p. 11-12). The proposed expansion of the existing Potrero Hills Landfill onto a 260-acre area owned by Potrero Hills Landfill, Inc., would increase the disposal life of the landfill by approximately 35 years. Both the existing landfill and the proposed expansion site are located within the secondary management area of the Suisun Marsh. The proposed expansion would add approximately 61.6 million cubic yards of fill capacity, for a total site capacity would be approximately 83 million cubic yards. Solano County submitted the Notice of Preparation (NOP) of its Draft EIR to the California Office of Planning and Research on March 24, 2003. *(Ref 16, 46, 53)*

g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

The project is not of a class of project that is generally recognized as having a potential to violate applicable statutes and regulations related to solid waste.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XVII. MANDATORY FINDINGS OF SIGNIFICANCE --				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☐

The project could potentially impact one of more special status species. The site contains suitable habitat for the California tiger salamander (CTS). Three CTS individuals were observed on and next to the project site on February 12, 2003, and CTS have been sighted within one mile of the site (HBG-Rana Resources, June 13, 2004; Gan, Janice, October 2004). The listing status for CTS was upgraded to federal threatened in July 2004. Additional future studies for CTS and development of reasonable and prudent alternatives, on-site mitigation measures, and off-site compensatory mitigation measures are pending consultation with USFWS.

Based upon the findings of the available archaeological resources inventory and systematic survey prepared by Mr. Ric Windmiller The project probably could not impact important examples of the major periods of California history or prehistory. That survey included site inspection by three teams composed of two archaeological technicians per team walking parallel north-south transects over the entire area of the site.
The project has the potential to degrade the quality of the physical environment by contributing to cumulative traffic volume in excess of 5,000 vpd along Ventura Drive. This impact could potentially occur in the interim period before completion and opening the future Buchanan Bypass to through-traffic. With opening of the Buchanan Bypass to through-traffic it is expected that some project-related traffic would shift from Ventura Drive and Buchanan Road onto the Buchanan Bypass. A Traffic Impact Study is being prepared to address this and other potential traffic impacts of the project.

The preliminary grading plan illustrates substantial cuts and fills to create buildable areas and streets. Slide stabilization or removal could potentially require a very large quantity of earthwork. Dust and diesel fumes during construction would tend to be carried by prevailing westerly winds into the Black Diamond Ranch residential subdivision. *(Ref 17, 23, 24, 30, 32, 36, 63)*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☒	☐	☐	☐

Warrants further evaluation. The project would contribute incrementally to water demand, storm water runoff, school enrollment, traffic volumes, and PM10 dust. Any or all of these contributions combined with similar contributions from past, current or foreseeable future developments in the area of the project site potentially could result in a significant impact. *(Ref 25)*

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

In the areas of potential exposure to noise, magnetic fields from the existing overhead power transmission lines, and construction dust including diesel particulate, the project could have adverse impacts on persons so exposed.

The potential health effect of related to power transmission lines remains unsettled in the general scientific community; however, in June 2002 the California DHS determined that "EMF exposure can cause some amount of increased risk of childhood leukemia, adult brain cancer, Lou Gehrig's Disease, and miscarriage." With regard to existing power transmission lines, the obvious interim mitigation measure, because it is low cost and effective, is avoiding new development within the 2 mG radius of influence. *(Ref 9, 10, 11, 41, 42)*

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http://gis.abag.ca.gov

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http://gate1.baaqmd.gov/aqmet/AQYearly.aspx

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http://www.energy.ca.gov/outdoor_lighting/index.html

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http://www.dtsc.ca.gov/database/Calsites/CALP001.CFM?IDNUM=07490038

14) California Department of Toxic Substances Control, (DTSC), June 1997. *Remedial Action Plan, GBF/Pittsburg Landfill(s) (Contra Costa Sanitary Landfill), Antioch, Contra Costa County, California.*

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18) Contra Costa County, Environmental Health Department, Closed Illegal and Abandoned Sites. http://www.cchealth.org/eh/pdf/solid_waste/inactive_closed_sites.pdf

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20) Contra Costa County Flood Control and Water Conservation District, (CCCFCWD), Encroachment Permit Application http://www.co.contra-costa.ca.us/depart/pw/engineering/permit_forms/Floodcontrol_enc.pdf

21) CCCFCWD, February 12, 2003. Letter to City of Pittsburg.

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23) ENGEO Incorporated, revised February 14, 2002. *Geotechnical Exploration Sky Ranch II Subdivision 8475, Pittsburg, California*, Project No. 5081.2.001.01.

24) ENGEO Incorporated, June 14, 2004. *Preliminary Assessment and Mitigation Concepts for Landslides in the Southwestern Portion of Sky Ranch II Development Area, Pittsburg, California*, Project No. 5081.2.001.02.

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26) Environmental Service, March 29, 2004. *Draft Urban Design Policy Analysis for the Proposed Sky Ranch II Subdivision in Pittsburg, California.*

27) Environmental Service, May 13, 2004. Preliminary analysis of proposed grading, drainage subareas, and stormwater conveyance, including figure titled "Proposed Drainage Subareas and Structures" on the Proposed Sky Ranch II Subdivision in Pittsburg, California.

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34) HBG-Rana Resources, June 13, 2004. *Results of Habitat Assessment on the Sky Ranch II Site, Contra Costa County, California, for CTS and CRLF.*

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50) Pittsburg, City of, June 1998. *Pittsburg General Plan Update: Existing Conditions and Planning Issues. Also called the "Existing Conditions Report."*

51) Seedall, Mark, May 2004. Telephone communication to verify information in Contra Costa Water District's (CCWD's) previous comment letter dated August 2002. Contra Costa Water District (CCWD) is the inclusion applicant to the U.S. Bureau of Reclamation. (925) 688-8119.

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Photo I.D.	*Collection #*	*Date*	*Scale*
GS-JL-1-7	384	10-13-1949	1:23,600
BUU-6GG-7	515	06-26-1966	1:20,000
CC 3526 4-93	219	05-02-1973	1;12,000
Area 3/7 11-27	606	07-11-1974	1:20,000
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B. RESPONSES TO NOTICE OF PREPARATION

Letters received in response to the Notice of Preparation are reproduced herein.

Respondent	Date of Letter	Pages
City of Pittsburg cover letter	Dec. 2004	1 pp.
Department of Transportation (Caltrans)	Dec. 2004	2 pp.
City of Pittsburg staff, Mr. Joel Summerhill	Dec. 2004	1 pp.
City of Pittsburg staff, Mr. Walter Pease	Dec. 2004	1 p.
City of Pittsburg staff, Mr. Paul Reinders	Dec. 2004	1 p.
City of Pittsburg staff, Ms. Gina Haynes	Dec. 2004	2 pp.
Delta Diablo Sanitation District	Dec. 2004	2 pp.
Contra Costa Fire Protection District	Feb. 2005	2 pp.
Contra Costa Water District (Mark Seedall)	Dec. 2004	1 p.
Contra Costa County Flood Control	Dec. 2004	4 pp.
Transplan Committee	Dec. 2004	1 p.
Antioch Unified School District	Dec. 2004	1 p.
City of Antioch	Dec. 2004	2 pp.
East Bay Regional Park District	Dec. 2004	3 pp.
East Bay Regional Park District	Jan. 2003	2 pp.
East Bay Regional Park District	October 2002	5 pp.
Pittsburg Disposal Service	Nov. 2004	1 p.
City of Concord	Dec. 2004	2 pp.
Kinder Morgan Energy Partners	Aug. 2005	3 pp.

City of Pittsburg
Planning Department
Civic Center - 65 Civic Avenue, Pittsburg, CA 94565

Telephone (925) 252-4920 • FAX: (925) 252-4814

December 23, 2004

Marc Papineau
Environmental Service
5789 Gold Creek Drive
Castro Valley, CA 94552

RE: COPY OF COMMENTS RECEIVED ON SKY RANCH II EIR NOTICE OF PREPARATION

Dear Mr. Papineau:

I have attached a comprehensive package (10 correspondences) of all the comments received in response to the Sky Ranch II EIR Notice of Preparation. We will need to meet in person to determine which comments should be included in the Administrative Draft EIR. Some comments may not be relevant to the EIR process.

Upon your review of the comments, please contact me at (925) 252-4920 or e-mail at kstrelo@ci.pittsurg.ca.us to set up a meeting. This meeting will be you, City staff and any sub-consultants necessary to conduct the meeting, if allowable by the EIR budget.

Sincerely,

Kenneth W. Strelo
Associate Planner

Attachments: Letter from Pittsburg Disposal Service dated (author's date) 11/23/04
Letter from TRANSPLAN dated 12/6/04
Letter from Flood Control dated 12/9/04
Letter from East Bay Regional Park District dated 12/10/04
Email from Joel Summerhill dated 12/14/04
Memo from Walter Pease dated 12/15/04
Letter from Antioch Unified School District dated 12/17/04
Letter from City of Antioch dated 12/21/04
Letter from Delta Diablo Sanitation District dated 12/22/04
Letter from City of Concord dated 12/22/04

Delta Diablo Sanitation District

OFFICE AND TREATMENT PLANT: 2500 PITTSBURG-ANTIOCH HIGHWAY, ANTIOCH, CA 94509-1373
TEL.: (925) 756-1900 ADMIN. FAX: (925) 756-1961 MAINT. FAX: (925) 756-1963 OPER. FAX: (925) 756-1962 TECH. SVCS. FAX: (925) 756-1960
www.ddsd.org

December 21, 2004

RECEIVED
DEC 22 2004
PLANNING DEPARTMENT
CITY OF PITTSBURG

Mr. Kenneth Strelo, Associate Planner
Planning and Building Department
City of Pittsburg
65 Civic Avenue
Pittsburg, CA 94565-3814

SUBJECT: NOTICE OF PREPARATION OF ENVIRONMENTAL IMPACT REPORT/REQUEST FOR COMMENTS/CONDITIONS, SKY RANCH II RESIDENTIAL SUBDIVISION NO. 8475, PITTSBURG, CA

Dear Mr. Strelo:

Delta Diablo Sanitation District (District) staff is in receipt of the Notice of Preparation/California Environmental Quality Act Initial Study dated November 8, 2004 for the Sky Ranch II Residential Subdivision in Pittsburg, California. Based upon the notice, we understand the project involves the construction of 415 single-family homes on a 166.5-acre site bounded by the Highland Ranch residential subdivision on the north, the approved Black Diamond Ranch residential subdivision in the City of Antioch on the east, and by Open Space outside the Urban Limit Line to the south and west. As noted on page 55 of the initial study, the City has an agreement that provides for concurrent annexation of new urban lands into both the City and District boundaries; however, the District collects its own annexation fees. The District also collects Capital Facility Capacity Charges (CFCCs) for new development. These charges are used to fund master planned capital expansion improvements.

As noted in the Initial Study (pages 55 and 57), the Environmental Impact Report (EIR) will need to address the potential impact to the offsite sewer system and wastewater treatment system. The District's 2004 Conveyance System Master Plan uses the City of Pittsburg's 2002 Wastewater Collection System Master Plan (WCSMP) as the basis for its flow projections/capacity evaluations. The City's WCSMP estimated flows from Sky Ranch with 283-single family homes, whereas the proposed development has 415-single family homes. The analysis for the EIR should use wastewater generation projections based on the methods in the City and District master plans. The City WCSMP also assumes that off-site wastewater flows ultimately discharge to the District's Pittsburg-Antioch Interceptor. This should be verified in the EIR.

In regard to Item XVI (a), the District has experienced a sanitary sewer overflow as a result of construction debris entering an offsite sewer. It is requested that appropriate construction controls are included as a condition of approval. Appropriate controls include isolating sewers under construction with sewer plugs/temporary grates until new sewers are fully cleaned and accepted, and obligating sewer contractors to register sewer plugs/ropes with the City prior to

Recycled Paper

installation. If facilities are to be connected directly to existing District sewers, the contractor should obtain written approval from the District prior to making the final tie-in.

If you have additional questions, please feel free to contact me at (925) 756-1939.

Sincerely,

Patricia E. Chapman
Associate Engineer

PEC/dcj

cc: Gregory G. Baatrup, Technical Services Manager
File No. DEV.02.DEVDOC-495
Chron File

Contra Costa County Fire Protection District

Fire Chief
KEITH RICHTER

February 9, 2005

RECEIVED
FEB 10 2005
PLANNING DEPARTMENT
CITY OF PITTSBURG

Mr. Ken Strelo
City of Pittsburg
Planning Department
65 Civic Avenue
Pittsburg, CA 94565

Subject: RZ-02-21, Sub 8475, DR-02-48
Sky Ranch II
Ventura Drive / Buchanan Road Bypass
CCCFPD Project No. 20792

Dear Mr. Strelo:

We have reviewed the request for comments for an Environmental Impact Report for a proposed subdivision with 415 single-family residences at the subject location. The Contra Costa County Fire protection District cannot serve this project without additional built in fire protection for all homes. Due to the travel distance from the fire stations that serve this area, the following are required:

1. All homes shall be equipped with residential fire sprinklers. The system shall be installed as per NFPA # 13D with the addition of sprinklers in the attics, garages, bathrooms and closets. A four (4) head hydraulic calculation shall be used.

2. All structures (homes and out buildings) shall have a Class A rated roof assemblies.

3. Access shall be provided to all open spaces for fire apparatus and personnel.

4. Provide a 20' wide emergency vehicle access from Ventura Drive through the lot 101 to the "T" intersection in the adjacent subdivision.

Fire Station 85 is located at 2555 Harbor Drive, with a travel distance of 2.5 miles to the site. Fire Station 83 is located 2717 Gentrytown Drive, with a travel distance of 2.04 miles to the site. Both fire stations have a type one(1) engine and have a crew of three (3) personnel.

The four (4) items listed above, with the Fire District standards of roadway width, grade and turning radius, location of fire hydrants with fire flow, and weed abatement standards, Contra Costa County Fire Protection District can provide an acceptable level of fire life safety for this proposed development.

If you have any questions regarding this matter, please contact the undersigned at (925) 941-3537.

Sincerely,

Richard S. Ryan
Fire Inspector

RSR/nlr

File: 20792.ltr

Mark Seedall

From: Mark Seedall
Sent: Thursday, December 23, 2004 3:22 PM
To: 'kstrelo@ci.pittsburg.ca.us'
Subject: Sky Ranch II Subdivision 8475 NOP

Dear Mr. Strelo,

The Contra Costa Water District (CCWD) is in receipt of the Notice of Preparation (NOP) - Request for Comments/Conditions for the Sky Ranch II Residential Subdivision. The NOP correctly notes that CCWD has commented previously on this development. CCWD offers the following additional clarifications:

1) On page 34 of the NOP: The applicant needs to provide CCWD with written evidence from the United States Fish and Wildlife Service regarding its review of this project. CCWD encourages the project applicant to directly contact the USFWS as soon as possible to discuss any impacts this project may have on endangered species. The project applicant should advise USFWS that some confirmation in writing regarding their endangered species review is needed as part of the environmental review to provide water service. This will also support annexation by CCWD and inclusion to the Central Valley Project service area by the United States Bureau of Reclamation. CCWD will not be able to process the annexation request under CCWD Code of Regulation 5.04.120 until it has evidence that indicates USFWS has addressed endangered species.

2) On page 36 of the NOP: CCWD notes that a portion of the storm water flow from Sky Ranch II drains through the existing Highlands Ranch storm water conveyance system that crosses the Contra Costa Canal near Meadow Lane. Currently heavy storm water flows from Highland Ranch is held in a detention basin and then is slowly released under Buchanan Road towards Meadow Lane onto the right of way of the Contra Costa Canal. Additional storm water flow from Sky Ranch II to this storm water system will create additional impacts. CCWD requests that the City of Pittsburg condition development at Sky Ranch II until such time as the needed storm water improvements can be made to avoid impacts to the United States Bureau of Reclamation property.

Please keep CCWD informed and on the mailing list for this project. I can be reached at the number below.

Mark A. Seedall
Senior Planner
CONTRA COSTA WATER DISTRICT
P.O. Box H_2O
Concord, CA 94524-2099

(925) 688-8119
(925) 688-8142 (Fax)

mseedall@ccwater.com

Contra Costa County
FLOOD CONTROL
& Water Conservation District

Maurice M. Shiu
ex officio Chief Engineer
255 Glacier Drive, Martinez, CA 94553-4825
Telephone: (925) 313-2000
FAX (925) 313-2333

December 9, 2004

RECEIVED
DEC 13 2004
PLANNING DEPARTMENT
CITY OF PITTSBURG

Ken Strelo
City of Pittsburg
Planning Department
65 Civic Avenue
Pittsburg, CA 94565

Our Files: 1002-8475, 97-55, and 97-70

Dear Mr. Strelo:

We have reviewed the Notice of Preparation (NOP) for Environmental Impact Report (EIR) for Subdivision 8475, Sky Ranch II, located at Buchanan Road Bypass and Ventura Drive (APN 089-050-042 and 089-050-067). We received the NOP on November 22, 2004, and submit the following comments:

1. We understand that this project is currently within the unincorporated County limits. Please clarify if the City will annex this project prior to any developments.

2. This project is in Drainage Areas 55 and 70 (DA 55 and DA 70). Proposed lots that fall within APN 089-050-042 should pay the drainage area fees for DA 55. Please have the developer's engineer submit a worksheet containing the lot sizes, fee per lot subtotal and total fee required, along with the lot closure calculations for our review. In addition, the work sheet should contain the calculations of amount of existing impervious surface on the lot. The work sheet submitted will be the basis for establishing the fee obligation. The City will need to collect the fee during the development process prior to filing the Final Map.

3. Proposed lots that fall within APN 089-050-067 are located within DA 70. DA 70 is an unformed drainage area, and therefore no fees are due for these lots.

4. We recommend that the developer design and construct storm drain facilities to adequately collect and convey stormwater runoff, without diversion of the watershed, entering or originating within the development to the nearest natural watercourse or adequate man-made drainage facility. The developer should verify the capacity of the downstream system.

5. In our February 12, 2003, letter to the City, we commented that the proposed lots in APN 084-050-67 (within DA 70) are located in Kirker Creek watershed. This watershed has drainage problems in the downstream area and this development should be required to mitigate its adverse effects on the inadequate drainage system by constructing off-site improvements or contributing to the County deficiency fund.

   Section VIII (d) on page 38 states that the portion of the project within DA 70 should mitigate by constructing off-site improvements or by contributing to the drainage deficiency fund. It should be clarified that the off-site improvements should be equal to an amount calculated at $5,000 times the gross acreage of the project, and state that the deficiency fund will be used for improving Kirker Creek.

6. We previously recommend that a perpetual funding source be established for the maintenance of the proposed detention basin. We recommend that the City require the project owner to establish this funding entity before allowing construction of the detention basin.

7. We previously requested information about the proposed basin such as the final design calculations and final construction plans. The District is interested in reviewing the calculations and plans when they become available. This review would fall under our Fee for Service category.

September 10, 2002, letter to the City

8. In our September 10, 2002, letter to the City, we listed several items regarding the drainage mitigation measures, which should be addressed in the EIR. We reiterate these comments below:

   a) Section VIII (d) on page 37 states that the pipe outfalls should be designed and constructed per County standard details. The EIR should state that all hydrology/hydraulic calculations as well as design and construction of drainage facilities must be in compliance with Division 914 of the Ordinance Code and must conform to District standards or practices of Contra Costa County and the Flood Control District.

   b) The developer should construct the detention basin with the first phase of construction of the project. The basin may be phased, so that the volume provided is adequate to mitigate the runoff effects of the developed areas of the project.

   c) We recommend the detention basin be designed per the Contra Costa County "Detention Basin Guidelines" with any design exceptions subject to review and approval of the Flood Control District.

      Section VIII (d) on page 37 states that the detention basin should be designed to hold the 100-year storm with 2 feet of free board. We also recommend that the basin should also be sized to contain the design storm for the watershed (using the most conservative storm duration). Additionally, the detention basin should be sized to contain the 100-year average recurrence interval runoff, unless it can be shown that a 100-year average recurrence interval runoff can be safely passed through the detention basin without damage to the basin or downstream properties or conveyance system. The engineer should design the emergency spillway for the detention basin to pass the 100-year peak flow rate. Roads or pedestrian trails shall not be used for the emergency spillway.

   d) The basin should be oversized to provide adequate volume for the accumulation of sediment. The volume necessary for sediment storage will be determined by the sediment removal schedule as dictated by the Operation & Maintenance manual discussed below. Additionally, we recommend the engineer include provisions for a perimeter service road, 4:1 basin side slopes, adequate basin access, a standard perimeter fence and a trash rack facility at the primary outfall structure for the basin.

   e) Preliminary flood routing calculations should be submitted by the project engineer in conjunction with the Draft EIR. This information will be necessary to preliminarily size the basin. These calculations will probably be adequate for the Draft EIR, however **we suggest that the City require a more detailed analysis prior to the approval of the tentative map so that the basin area is more accurately determined before map acceptance.** Hydrology calculations should be calculated using the Contra Costa County Unit Hydrograph, which is specific to our geographic area and rainfall characteristics. The

County's Hydrology Department can perform the calculations and produce the appropriate flood hydrographs using the County's computer model at a nominal cost. Please contact Scott McQuarrie, Senior Hydrographer, at (925) 313-2292 for this service. Typically, the District receives engineering submittals utilizing the HEC-HMS program developed by the Army Corps of Engineers for the basin routing.

f) As a part of the aforementioned submittal, the project engineer should submit a large-scale hydrology map, annotating flow rates and tributary areas. The Tatum Method should be used for calculating travel time in the flood routing analysis (there is a card for this in the HEC-HMS model). The storm duration calculated should be for the 3, 6, 12, and 24-hour storms, utilizing the most critical runoff volume for the basin design. The engineer's submittal should include a refined analysis of the basin, which accurately determines the inflow and outflow hydrographs.

g) The developer's engineer or consultant should be required to supply an Operation and Maintenance manual, which addresses sediment accumulation and identifies a basin-monitoring schedule, which requires an annual inspection at a minimum. This manual should address all aspects of the basin's maintenance, such as desiltation, weed and trash abatement, excessive vegetation growth at the outfall/low flow channel, maintenance of inlet and outlet structures, embankment maintenance, acceptable chemical use in the basin, provisions to limit liability, basin access, possible permit requirements from regulatory agencies, etc. In order to determine the rate of soil loss erosion in the upper reaches of the watershed, the Universal Soil Loss Equation (USLE) developed by the Agricultural Research Service (Wischmeier and Smith, 1965) has been used in the past. Settlement and debris load in the basin can be calculated with ABAG and District standards. Calculations of erosion and settlement rate affecting the basin will be necessary to determine the accumulation rate and hence the removal frequency. The manual should be written in such a manner that it could be given to the crew of any maintenance entity and function as a complete guide to maintenance requirements of the basin.

h) The applicant should retain a licensed geotechnical engineer to specifically address the basin in regards to permeability, groundwater, slope stability, effects of basin excavation on water table, safe basin side slopes with respect to rapid draw down or wave action, sediment transport from upstream watershed, and liquefaction concerns. A geotechnical report specifically addressing the basin will be needed before the District can make an accurate assessment of the basin.

i) The Flood Control District will not be the maintenance entity for this proposed basin. We recommend that the City condition the developer to form a maintenance assessment district and that the property owners record a statement of obligation in the form of a deed notification to inform all future property owners of their legal obligation to maintain the basin through an HOA. This would ensure the City of a perpetual funding source for basin maintenance. Another option would be for the City to maintain the basin through their Clean Water Program, if feasible.

j) While detention basins can mitigate peak flows to pre-project levels, they have the impact of increased duration of flows in the downstream watercourse. This has the impact of increased saturation of the channel banks, and increased potential for channel erosion. The applicant should address the potential downstream erosion due to the project. The applicant may choose to mitigate this project's impact by detaining peak runoff to below pre-project levels

for storm events ranging from the 2-year to the 100-year events. If the applicant chooses to mitigate in this manner, the HEC-HMS analysis of the greater frequency storm events (i.e., 2-yr and 10-yr) should be provided. If the applicant does not provide these measures, then a geotechnical analysis of the creek downstream of the project should be provided, and specific erosion control and creek stabilization measures, as determined by the geotechnical analysis, should be implemented as mitigation measures in the DEIR.

k) Saturation of the channel banks caused by extended duration of peak flows also has the potential to generate increased levels of sediment in the watercourse. Unless the applicant can show that the downstream system will not experience such an increase in sedimentation, mitigation through stabilization of the channel should be considered. This impact may also be mitigated through implementation of long-term, best management practices (BMP's). Bioengineering in critical sections of the watercourse is one option. Short term BMP's to mitigate sediment transport into and within the watercourse should be utilized during the construction phase of the development.

l) The Draft EIR should address all of the permits that may be required for work in and around creeks, and identify the timing requirements for these permits/water certifications.

We appreciate the opportunity to comment on the NOP for EIR and welcome continued coordination. We look forward to reviewing the EIR, which should incorporate these comments. If you should have any questions, please call me at (925) 313-2315 or Tim Jensen (925) 313-2396

Very truly yours,

J. LaRocque

Jocelyn A. B. LaRocque
Staff Engineer
Flood Control Engineering

JL:cw
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c: Greg Connaughton, Flood Control
Bob Faraone, Flood Control
Tim Jensen, Flood Control

TRANSPLAN Committee
East Contra Costa Transportation Planning
Antioch • Brentwood • Oakley • Pittsburg • Contra Costa County

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PLANNING DEPARTMENT
CITY OF PITTSBURG

December 6, 2004

Ken Strelo
~~Dana Hoggatt, Assistant Planner~~
City of Pittsburg
65 Civic Avenue
Pittsburg, CA 94565

Dear Dana:

I have received your Notice of Preparation, dated November 18, 2004, regarding the preparation of an environmental impact report for the Sky Ranch II Residential Subdivision. Please accept my comments regarding the scope of issues that should be analyzed in the EIR.

The proposed project will be accessed in part by Buchanan Road, which is identified as a route of regional significance in the *East County Action Plan* developed by TRANSPLAN.

Therefore, I request the City of Pittsburg analyze the project to determine if it would impact the ability to maintain the following traffic service objectives for Buchanan Road as identified in the *East County Action Plan*.

1. Level of service "mid-D" or better at intersections on Buchanan Road. This means forecasted traffic should not exceed 85 percent of the capacity of these intersections. (This relates to Item XV, Transportation/Traffic, in the Initial Study Environmental Checklist that was included with your Notice of Preparation.)

2. Delay index less than 2.0 on Buchanan Road. This means the travel time along Railroad Avenue during peak traffic periods should be less than twice the travel time during off-peak periods.

I can provide you with more information on these analyses if needed. Paul Reinders participates on the TRANSPLAN Technical Advisory Committee and he is familiar with these issues as well.

Thank you for the opportunity to comment on the scope of the environmental impact report.

Sincerely,

John Greitzer
TRANSPLAN staff

cc: TRANSPLAN Committee
TRANSPLAN Technical Advisory Committee

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651 Pine Street, N. Wing—4th Floor, Martinez CA 94553
Phone: (925) 335-1201 Fax: (925) 335-1300 jgrei@cd.cccounty.us www.transplan.us

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CITY OF PITTSBURG
PLANNING DEPARTMENT
94565

December 17, 2004

Mr. Kenneth W. Strelo
Associate Planner
City of Pittsburg
Planning Department
65 Civic Ave.
Pittsburg, CA 94565

Dear Mr. Strelo:

RE: Notice of Preparation of an Environmental Impact Report for the Sky Ranch II Residential Subdivision.

We are in receipt of your memo dated November 18, 2004 regarding the above-mentioned project and would appreciate receiving updated information as well as a copy of the findings of the EIR report.

Thank you.

Sincerely,

Tim R. Forrester
Director Facilities Finance

TRF:mll

COMMUNITY DEVELOPMENT — *P.O. Box 5007, Antioch, CA 94531-5007*

December 21, 2004

Mr. Ken Strelo
City of Pittsburg
Planning Department
65 Civic Ave.
Pittsburg, CA 94565

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PLANNING DEPARTMENT
CITY OF PITTSBURG

Re: Sky Ranch II – Notice of Preparation

Dear Mr. Strelo,

Thank you for the opportunity to provide comments on the NOP for the Sky Ranch II project in the City of Pittsburg.

The City of Antioch understands that it is Pittsburg's intent to not connect the Pittsburg portion of the Buchanan Bypass/James Donlon Boulevard at the project's eastern boundary, with the completed Antioch portion of this street. If our understanding is accurate, Antioch is opposed to not allowing through traffic on this important east/west street connection between our two cities. The City of Antioch has required the developer of the subdivision to the east to construct the full four lane portion of this roadway up to the west Antioch City Limit line. Traffic should be allowed to travel from one city to another similar to other street connections between our two cities such as Buchanan Road, Delta Fair Boulevard and the Pittsburg Antioch Highway.

Previous traffic studies prepared for this project made no mention of the future arterial through the Seeno owned Chevron property that would connect the James Donlon Road / Buchanan Bypass with Buchanan Road and continue on southward to the Century Boulevard / Delta Fair Boulevard / Leland Road intersection (Standard Oil Avenue). We request that the traffic portion of the EIR study this future street.

The City of Antioch also requests that the traffic analysis study the following items:

- Include trip analysis of planned land uses between James Donlon Boulevard, Somersville Road, Buchanan Road and Meadows Avenue.
- Intersection analysis of: Buchanan Road. at Meadows Avenue; Buchanan Road at the New Standard Oil Avenue and Metcalf Road intersection (adjacent to the fuel pumping station at Buchanan Road); Buchanan Road at Somersville Road; Somersville Road at Delta Fair Boulevard; Somersville

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Neighborhood Improvement Phone (925) 779-7042 – Fax (925) 779-7034
Land Development/Engineering Phone (925) 779-7035 – Fax (925) 779-7034

Road at the Highway 4 interchange ramps; Delta Fair Boulevard at Century Boulevard; and New Standard Oil Avenue.

- Study Project impacts on Buchanan Road and the possible need for widening to a four-lane divided arterial.
- Determine the project fair share of the costs of offsite mitigations.
- Use the Federal highway capacity manual LOS operations method for calculating purposes.

Thank you again for the opportunity to comment. Please forward the draft EIR to my attention for comment when it is ready for distribution.

Sincerely,

Tina Wehrmeister
Senior Planner

cc: Ron Bernal, Assistant City Engineer
Ed Franzen, Traffic Engineer

EAST BAY REGIONAL PARK DISTRICT

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December 10, 2004

Mr. Ken Strelo
City of Pittsburg
Community Development Department
Planning Division
65 Civic Avenue
Pittsburg, CA 94565

Subject: Scoping Comments for Sky Ranch II DEIR – Subdivision 8475
Black Diamond Mines Regional Preserve

Dear Mr. Strelo:

Thank you for providing the East Bay Regional Park District ("District") with a copy of the Notice of Preparation for an Environmental Impact Report on the proposed Sky Ranch II subdivision in Pittsburg. We are pleased that the City has decided to prepare an EIR on this large and complex housing project. Herewith please find our scoping comments on this project, along with copies of previous correspondence on this project.

Transition with Open Space: In previous letters, the District has requested that the developer eliminate certain proposed lots along the southern boundary of the proposed subdivision so that there is adequate space for a transitional area between development and open space. The current proposal does not appear to contain such a buffer area. Such buffers are necessary to create a fuel break area to minimize the risk of wildland fire spreading into the residential area and to minimize the risk of a structural fire spreading into the open space. We recommend a minimum of 100 feet on flat ground and a minimum of 300 feet in hilly areas for this buffer. The future homeowners association or an assessment district would be responsible for maintaining low fuel levels within this buffer area.

Visual Impacts: We request that proposed homes be eliminated from ridgelines and other areas that would be visually prominent from Black Diamond Mines Regional Preserve, which is just south of the proposed development. The DEIR should contain a visual simulation of existing and future with-development views from Somerville Road, Lougher Ridge and Arata Overlook Trails at Black Diamond Mines. The requested open space transitional area described above may also be helpful in reducing visual impacts to views from Black Diamond Mines Regional Preserve.

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Biological Resources: The proposed project site has the potential to support several special status plant and animal species. Many of these are described in the Initial Study; however, the Initial Study appears to rely primarily upon outdated or improper studies and incorrect or incomplete information to reach its conclusions.

California red-legged frogs are known to use areas with seasonal water for disbursement. They may move up and down seasonal drainages when these areas are wet. The information regarding Dr. McGuiness' conclusions about San Joaquin kit fox from 1996 are no longer relevant because there have been numerous other sightings in eastern Contra Costa County since 1996. The Initial Study indicates the surveys were done for burrowing owl in April 2004, but it does not indicate if these surveys were done in conformance with existing breeding season surveys.

The Initial Study also fails to identify that the federally-endangered large-flowered fiddleneck (*Amsinckia grandiflora*) is present at Black Diamond Mines. The special-status large-leaved filaree (*Erodium macrophyllum*) is also present at Sydney flat, but it is not mentioned in the Initial Study. Finally, the big tarplant (*Blepharizonia plumosa* ssp. *plumosa*) is a fall blooming plant that would not be evident or identifiable during spring and summer surveys. This plant is also present at Black Diamond Mines in habitats similar to the project area.

There is a wealth of information, including species-profiles, distribution records and models, current survey methodology, and more recent occurrence information contained in the draft East Contra Costa Habitat Conservation Plan that does not appear to have been considered as part of the Initial Study. We recommend that the City review this information and initiate early consultation with the Department of Fish and Game, and the US Fish and Wildlife Service on currently accepted survey methodologies and impact analysis procedures for special-status species under their jurisdictions.

Traffic and Circulation: The primary entrance into Black Diamond Mines is via Somersville Road. There is currently a three-way intersection at the park entrance, which will experience a significant increase in traffic volume with the construction of the proposed project, and a significant increase in traffic speed, which will result from connection with the Buchanan Road Bypass. Both of these are potentially significant impacts that should be fully addressed and mitigated by the proposed project.

Currently, motorists accessing Black Diamond Mines via Somersville Road enjoy a relatively unconstrained access during weekday non-commute periods and on weekends. With the addition of 1,274 new residents at the park entrance, traffic volumes will increase greatly during park operating hours, both on weekdays and weekends. With the completion of the Buchanan Road Bypass, traffic volumes

and traffic speeds will increase even further. The new bypass will effectively function as a high-speed expressway, paralleling Highway 4. We anticipate that during AM and PM peak commute periods the accessibility and desirability of visiting Black Diamond Mines at its Somersville entrance will be greatly diminished. Will the proposed project be providing signalized turning pockets from the bypass into the Somersville Road to Black Diamond Mines?

For bicyclists, equestrians and walkers, the impact will be even greater. It's likely given the higher speeds and increased traffic volumes that equestrians will forego accessing the park via Somersville road, due to the noise and high speeds of traffic on the approach roads frightening their horses. For similar reasons, walkers and bicycle riders may choose to forego accessing the park. It is important that the proposed project provide Class I grade separated trails along the proposed bypass so that there is some degree of protection for trail users. In addition, the proposed project should provide for pedestrian activated signals where Somersville Road intersects the new bypass.

Please call me at (510) 544-2622 or Linda Chavez at (510) 544-2624 should you have any questions regarding our scoping letter.

Sincerely,

Brad Olson
Environmental Programs Manager

Attachments (3 letters)

cc. Linda Chavez, EBRPD
Janice Gan, DFG

EAST BAY REGIONAL PARK DISTRICT

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January 13, 2003

Mr. Ken Strelo
City of Pittsburg
Community Development Department
Planning Division
65 Civic Avenue
Pittsburg, CA 94565

RE: Black Diamond Mines Regional Preserve
Sky Ranch II – Subdivision 8475
Vesting Tentative Map and Preliminary Grading Plan Referral

Dear Mr. Strelo:

The East Bay Regional Park District has received and reviewed the tentative map referral for the Sky Ranch II proposed project. The Park District's Black Diamond Mines Regional Preserve is located in close proximity to this site as is the adjacent Antioch Unified School District property. As a point of information the Antioch Unified School District property is an authorized negotiation for the Park District. The Park District has the following concerns regarding the proposed project:

(1.) Lack of transition between the proposed project and undeveloped natural areas adjacent to this property,
(2.) Lack of fire buffers and vegetation management zones,
(3.) The potential impacts from the rezoning and the resulting density in the General Plan Land Use designation,
(4.) The need for a full Environmental Impact Report.
(5.) The visual impacts,
(6.) The grading impacts,
(7.) The growth inducing impacts of the Buchanan Road Bypass, and
(8.) The biological resource impacts.

This project, by its location in the hills, will be visible from much of the area. The southeast portion of this project is particularly visible from the entrance of the Regional Preserve and the historic portion of the Antioch Unified School District property. The project proposes standard subdivision size lots right up to the property line and a water tank in the southeast corner of the project site. There is no transition between the proposed development and the undeveloped natural areas. The Park District requests elimination of lots 161 through 170. Those lots should be replaced with a transitional buffer, which also creates a firebreak. Lot 121, 122, 123, and 124

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should have significant building setbacks from the undeveloped natural areas of the adjacent property.

There is a history of wildland fires in this area. The proposed tentative map does not take into account that this is a wildland urban interface. The project should be required to have a fire management plan, which includes fire buffers, vegetation management zones to help reduce the spread of a fire, and reduced development densities along this interface.

The General Plan Land Use designation for Sky Ranch II and other properties were changed from a designation that would allow an average of 3 units per acre, encourage clustering and open space (Hillside Low Density) to a designation that allows an average of 6 units per acre (Low Density) without appropriate CEQA review. This is a substantial (100%) increase in density with the potential for significant adverse impacts. Since the appropriate CEQA review has not been previously prepared, the potentially significant adverse effects need to be addressed with the current Sky Ranch II proposed project.

The Park District requests that this project be subject to a full Environmental Impact Report (EIR). Some of the elements that should be included in the EIR are as follows.
Discussion of:

- The visual impacts of the proposed grading and related development (houses and water tank) upon the Regional Preserve and the historic area of the Antioch Unified School District property.
- The preventative measures to reduce the fire risk or spread of fire such as vegetation management for fire buffers and their long-term maintenance funding mechanism.
- Grading impacts related to aesthetics, biological resources, and geology.
- The growth inducing impacts of the Buchanan Bypass. The vesting tentative map proposes a portion of the Buchanan Bypass. The City's recently adopted General Plan identifies a policy, 7-P-12, which states: "... Ensure preparation of a feasibility and environmental impact study to determine the precise alignment, costs, mitigation measures, and impacts on adjacent uses." The impacts of developing this thoroughfare through the rural hills and this property have not been addressed in an EIR.
- The biological resources need to be fully assessed. This area has potential habitat for the San Joaquin kit fox, California tiger salamander, California red-legged frog and burrowing owl.

Thank you for the opportunity to comment on the vesting tentative map. The Park District continues to be interested and concerned with this project. Please include the District on the mailing list for further referrals, notices of public hearings and CEQA documents. If you have any questions please contact me at (510) 544-2624.

Very truly yours,

Linda J. P. Chavez
Park Planner II

EAST BAY REGIONAL PARK DISTRICT

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October 18, 2002

Via FAX and US Mail

Honorable Mayor Frank Aiello and City Council
City of Pittsburg
65 Civic Avenue
Pittsburg, CA 94565

RE: **Black Diamond Mines Regional Preserve**
Sky Ranch II - Subdivision 8475 and
Initial Study/Mitigated Negative Declaration

Dear Mayor Aiello and City Council members:

The East Bay Regional Park District has received and reviewed the initial study and the tentative map for the proposed Sky Ranch II project. The Park District's Black Diamond Mines Regional Preserve is located in close proximity to this site as is the adjacent Antioch Unified School District property (formerly Arcata Ranch). As a point of information, the Antioch Unified School District property is an authorized negotiation for the Park District. The Park District has strong concerns that adequate CEQA (California Environmental Quality Act) review has not occurred. The City's draft General Plan had previously proposed protection of the scenic open space on the upper ridges. That proposed protection is now gone. The Sky Ranch II project currently proposes development on those scenic upper ridges, with potentially significant adverse impacts on open space, habitat, and buffering.

In particular, the proposed Sky Ranch II project creates the following significant concerns for the District:

1) the visual impacts,
2) limited transition between the proposed project and the adjacent undeveloped natural habitat areas,
3) the lack of fire buffers and long-term vegetation management,
4) the proposed density,
5) the grading impacts, and
6) the growth inducing impacts of the Buchanan Road Bypass.

OCT 18 2002

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This project, by its location in the scenic hills, will be visible from much of the area. The southeast portion of this project is particularly visible from the entrance of the Regional Preserve and the historic portion of the Antioch Unified School District property. The project proposes standard subdivision-size lots right up to the property line and a water tank in the southeast corner of the project site. There is no transition between the proposed development and the undeveloped natural areas. The Park District requests elimination of lots 161 through 170 at a minimum. Those lots should be replaced with a transitional buffer which also creates a fire break.

In the Initial Study there is no mention of long-term vegetation management for fire buffers or the visual impacts upon the Regional Preserve and the historic area of the Antioch Unified School District property from the proposed project. There is discussion in the Initial Study for the improvements to the water supply, storage and delivery system for fire protection, but it ignores the preventative measures needed to reduce the fire risk or spread of fire. There is a history of wildland fires in this area. The proposed tentative map does not take into account that this is a wildland/ urban interface. The project should be required to have a fire management plan which includes fire buffers, vegetation management zones to help reduce the spread of a fire, and reduced development densities along this interface.

The Sky Ranch II Environmental Initial Study indicates this plan is consistent with the existing General Plan. However, the General Plan Land Use designation for Sky Ranch II and other properties were changed from a designation that would allow an average of three units per acre, encourage clustering and open space (Hillside Low Density) to a designation that allows an average of six units per acre (Low Density) without appropriate CEQA review. This is a substantial (100%) increase in density with the potential for significant adverse impacts. Since the appropriate CEQA review has not been previously prepared, the potentially significant adverse effects need to be addressed with the current proposed Sky Ranch II project.

The proposed density could lead to major grading on this hillside property. The Environmental Initial Study does not address the amount of grading or its impact to the area. It simply states that the project involves substantial grading, with cut and fill depths reaching a maximum of 100 vertical feet and that it is a less than significant impact. By comparison, 100 vertical feet is equivalent to the height of a 9-story building. Such grading has potential for significant adverse impacts related to aesthetics, biological resources, and geology. These impacts need to be addressed in an EIR.

The Initial Study does not discuss the water tank other than as a public service. There needs to be an environmental evaluation of the potentially significant adverse visual impacts of the water tank. Screening the water tank with a berm, if placing the tank below ground is not possible, and inclusion of trees such as oaks and buckeyes that are natural to the area, as well as, use of flat natural colored paint would be examples of appropriate visual mitigation.

The vesting tentative map proposes a portion of the Buchanan Bypass. The City's recently adopted General Plan identifies a policy, 7-P-12, which states: " Ensure preparation of a feasibility and environmental impact study to determine the precise alignment, costs, mitigation measures, and impacts on adjacent uses." The impacts of developing this thoroughfare through the rural hills and this property have not been addressed in an EIR. To comply with CEQA, and to be found consistent with the General Plan, an environmental impact report needs to be completed for the entire Bypass. The growth inducing impacts of the Bypass need to be addressed. The District requests that the growth inducing impacts of the Buchanan Bypass be discussed in an EIR and that mitigation be incorporated.

Regarding the biological resources, further assessments are recommended for confirmation of the existence of the California tiger salamander, California red-legged frog and burrowing owl. The initial study does not include the San Joaquin kit fox in its list of further assessments. This property is within the kit fox range. There is recorded evidence of San Joaquin kit fox occurrences in close proximity to this property. The District requests that these further studies include the San Joaquin kit fox and be completed before the decision is made on this project. It would be inappropriate and inconsistent with CEQA to establish entitlements when the proposed plan could potentially impact a particular species of concern, if found to be present.

For the reasons indicated in this letter, the Park District requests that a full EIR be prepared and processed and that substantial mitigation be incorporated into the proposed Sky Ranch II project. Thank you for the opportunity to comment on both the vesting tentative map and the Initial Study. The Park District continues to be interested and concerned with this project. Please include the District on the mailing list for further referrals, notices of public hearings and CEQA documents. If you have questions regarding this matter, please contact me at (510) 544-2621.

Sincerely,

Larry Feng
Interagency Planning Manager

cc: Board of Directors
P. O'Brien
R. Doyle

EAST BAY REGIONAL PARK DISTRICT

BOARD OF DIRECTC
Ayn Wieskamp
President
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Pat O'Brien
General Manager

July 25, 2002

Mr. Kenneth W. Strelo
City of Pittsburg
Community Development Department
Planning Division
65 Civic Avenue
Pittsburg, CA 94565

RE: **Black Diamond Mines Regional Preserve**
Sky Ranch II - Subdivision 8475 and
- Initial Study/Mitigated Negative Declaration

Dear Mr. Strelo:

The East Bay Regional Park District has received and reviewed the initial study and the tentative map for the Sky Ranch II proposed project. The Park District's Black Diamond Mines Regional Preserve is located in close proximity to this site as is the adjacent Antioch Unified School District property. As a point of information the Antioch Unified School District property is an authorized negotiation for the Park District. The Park District is concerned with the limited transition between the proposed project and undeveloped natural areas adjacent to this property, the visual impacts, the lack of fire buffers and long-term vegetation management, and the growth inducing impacts of the Buchanan Road Bypass.

This project, by its location in the hills, will be visible from much of the area. The south east portion of this project is particularly visible from the entrance of the Regional Preserve and the historic portion of the Antioch Unified School District property. The project proposes standard subdivision size lots right up to the property line and a water tank in the south east corner of the project site. There is no transition between the proposed development and the undeveloped natural areas. The Park District requests elimination of lots 161 through 170. Those lots should be replaced with a transitional buffer which also creates a fire break.

In the Initial Study there is no mention of a long-term vegetation management for fire buffers or the visual impacts upon the Regional Preserve and the historic area of the Antioch Unified School District property from the proposed project. There is discussion in the Initial Study for the improvements to the water supply, storage and delivery system for fire protection, but ignores

2950 Peralta Oaks Court P.O. Box 5381 Oakland, CA 94605-0381
TEL 510 635-0135 FAX 510 569-4319 TDD 510 633-0460 www.ebparks.org

the preventative measures to reduce the fire risk or spread of fire. There is a history of wildland fires in this area. The proposed tentative map does not take into account that this is a wildland urban interface. Their project should be required to have a fire management plan which includes fire buffers, vegetation management zones to help reduce the spread of a fire, and reduced development densities along this interface.

The Initial Study does not discuss the water tank other than as a public service. There should be discussion and implementation of ways to reduce the visual impact of the water tank. Screening the water tank with a berm, if placing the tank below ground is not possible, and inclusion of trees such as oaks and buckeyes that are natural to the area, as well as, use of flat natural colored paint would be examples of appropriate visual mitigation.

The vesting tentative map proposes the Buchanan Road Bypass. The growth inducing impacts of the Bypass need to be addressed. The District requests that the growth inducing impacts of the Buchanan Road Bypass be discussed and that mitigation be recommended.

In respect to the biological resources, further assessments are recommended for confirmation of the existence of the California tiger salamander, California red-legged frog and burrowing owl. The initial study does not include the San Joaquin kit fox in its list of further assessments. This property is within the kit fox range. There is recorded evidence of the San Joaquin kit fox occurrences in close proximity to this property The District requests that these further studies include the San Joaquin kit fox and be completed before the decision is made on this project. It would be inappropriate and inconsistent with CEQA to establish entitlements when the proposed plan could potentially impact a particular species of concern, if found to be present.

Thank you for the opportunity to comment on both the vesting tentative map and the Initial Study. The Park District will be following this project, please include the District on the mailing list for further referrals, notices of public hearings and CEQA documents. If you have any questions please contact me at (510) 544-2624.

Very truly yours,

Linda J.P. Chavez
Park Planner II

Pittsburg Disposal Service
180 EAST LELAND ROAD
PITTSBURG, CALIFORNIA 94565
TEL: 925/432-6262
FAX: 925/432-6245

Rec'd 11/24/04

November 23, 2004

City of Pittsburg
Ken Strelo
Planning Department
65 Civic Avenue
Pittsburg, CA 94565

RE: Sky Ranch II Residential Subdivision E/R

Dear Mr. Strelo,

I am in receipt of your plans for Project No. #RZ-02-21, SUBD 8475, DR-02-48, Sky Ranch II Residential Subdivision E/R. I see no problems with truck access for garbage pick-up. The map is small and I would like a larger version for final review.

If you have any questions, please phone our office at (925) 432-6262.

Sincerely,

Jim Nejedly

City of Concord
1455 Gasoline Alley
Concord, California 94520-4805
FAX: (925) 680-1660
Public Works-Maintenance Services Department
Qamar Khan, Director

Telephone: (925) 671-3129

City Council
Laura M. Hoffmeister, Mayor
Susan Bonilla, Vice Mayor
Helen M. Allen
Mark A. Peterson
William Shinn

Mary Rae Lehman, City Clerk
Thomas Wending, City Treasurer

Edward R. James, City Manager

December 22, 2004

Ken Strelo
City of Pittsburgh
Pittsburgh City Hall
65 Civic Avenue
Pittsburg CA 94565

RE: City of Concord's Comments on the Notice of Preparation of an Environmental Impact Report for the Sky Ranch II Residential Subdivision (RZ-02-21, SUBD 8475, DR-02-48)

Dear Mr. Strelo:

The City of Concord has received the above referenced Notice of Preparation (NOP) and Initial Environmental Impact Analysis (IEIA) for the Sky Ranch II residential subdivision located on unincorporated land in the southeastern portion of the City of Pittsburg's Sphere of Influence. The proposed project consists of the development of 415 single-family housing units on an approximate 163 acres site.

We are providing comments only pertaining to potential traffic impacts that the proposed Sky Ranch II project would have on the City of Concord. The IEIA has not identified any intersections or roadway segments in Concord to be studied in the Draft Environmental Impact Report (DEIR). Prior traffic analysis entitled "Sky Ranch II Traffic Study (July 2002)" and "Preliminary Traffic Impact Assessment for the Buchanan Road Bypass (September 2002)" assigned several trips to the Kirker Pass Road/Ygnacio Valley Road corridor.

The DEIR needs to evaluate the traffic operations on Kirker Pass Road at the intersections of Concord Boulevard and Clayton Road for both morning and afternoon peak periods. The DEIR should also evaluate the project impacts on the Kirker Pass Road/Ygancio Valley Road Traffic Management Plan and the East-Central Traffic Management Plan.

It appears that a considerable amount of traffic generated by this project will be served by the Buchanan Road Bypass. The City of Concord would be opposed to the construction of the Buchanan Road Bypass because the project would encourage the use of the Kirker Pass Road/Ygnacio Valley Road corridor rather than the freeway system.

The Sky Ranch II project requires foresight on a regional level and cooperation between jurisdictions to resolve transportation issues. It is our expectation that these issues and concerns that we have identified with the proposal be addressed in the DEIR document. The DEIR should identify feasible mitigation measures that are within the power of the City of Pittsburg to impose with respect to the traffic impacts. The mitigation measures identified for traffic/transportation in the DEIR need to adequately address our concerns or reduce those impacts to less-than-significant levels.

Thank you for the opportunity to review and comment on the NOP and IEIA. We look forward to receiving the DEIR, including responses to our comments. If you have any questions regarding these comments, or would like to discuss them further, please contact me at 925-671-3129.

Very truly yours,

John Templeton

John Templeton
Transportation Manager

cc: Mayor and Members of the Concord City Council
Edward R. James, City Manager, City of Concord
Lydia Du Borg, Assistant City Manager, City of Concord
Mark Deven, Assistant City Manager, City of Concord
Qamar Khan, Director of Public Works – Maintenance Services, City of Concord
Jim Forsberg, Director of Planning and Economic Development, City of Concord
Deborah Raines, Planning Manager, City of Concord
Phillip Woods, Senior Planner, City of Concord
TRANSPAC
File

DEPARTMENT OF TRANSPORTATION
111 GRAND AVENUE
P. O. BOX 23660
OAKLAND, CA 94623-0660
PHONE (510) 286-5505
FAX (510) 286-5559
TTY (800) 735-2929

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PLANNING DEPARTMENT
94565

Flex your power!
Be energy efficient!

December 22, 2004

CC004804
CC-004-26.01
SCH2004112092

Mr. Ken Strelo
Planning and Building Department
City of Pittsburg
65 Civic Avenue
Pittsburg, CA 94565

Dear Mr. Strelo:

Sky Ranch II – Notice of Preparation / Initial Study

Thank you for including the California Department of Transportation in the environmental review process for the proposed project. We have reviewed the Notice of Preparation and Initial Study for the Sky Ranch II Residential Subdivision 8475 Draft Environmental Impact Report and have the following comments to offer:

TRANSPORTATION/TRAFFIC
Our primary concern with the project is the potentially significant impact it may have to traffic volume and congestion. In order to adequately address our concerns regarding the operation of State Route 4, we recommend the traffic impact analysis include, but not be limited to the following:

1. Information on the project's traffic impacts in terms of trip generation, distribution, and assignment. The assumptions and methodologies used in compiling this information should be addressed.

2. Average Daily Traffic (ADT) and AM and PM peak hour volumes on all significantly affected streets and highways, including crossroads and controlling intersections.

3. Schematic illustration of the traffic conditions for: 1) existing, 2) existing plus project, 3) cumulative, and 4) cumulative plus project for the intersections and roadway segments in the project area.

4. Calculation of cumulative traffic volumes should consider all traffic-generating developments, both existing and future, that would affect the State Highway facilities being evaluated.

5. Mitigation measures should consider highway and non-highway improvements and services. Special attention should be given to the development of alternate solutions to circulation problems that do not rely on increased highway construction.

6. All mitigation measures proposed should be fully discussed, including financing, scheduling, implementation responsibilities, and lead agency monitoring.

We encourage the City of Pittsburg to coordinate preparation of the study with our office, and we would appreciate the opportunity to review the scope of work. Please see the Department's *"Guide for the Preparation of Traffic Impact Studies"* at the following website for more information:
http://www.dot.ca.gov/hq/traffops/developserv/operationalsystems/reports/tisguide.pdf

HYDROLOGY AND WATER QUALITY

Our Hydraulics Office requests copies of the analysis, details of the basin, and copies of the engineered plans for on-site detention that will be incorporated into the development in order to evaluate the impact the development will have, if any, on State storm drainage facilities.

We look forward to reviewing the Draft Environmental Impact Report, the Traffic Impact Analysis, and other requested materials for this project. Please send two copies to the following address:

Lisa Carboni
Office of Transit and Community Planning
Department of Transportation, District 4
P.O. Box 23660
Oakland, CA 94623-0660

Should you require further information or have any questions regarding this letter, please call Lisa Carboni of my staff at (510) 622-5491.

Sincerely,

TIMOTHY C. SABLE
District Branch Chief
IGR/CEQA

c: Scott Morgan (State Clearinghouse)

ENGINEERING DEPARTMENT
Traffic Division

65 Civic Avenue
Pittsburg, California 94565

MEMO: December 27, 2004

TO: Ken Strelo, Associate Planner

FROM: Paul Reinders, Senior Civil Engineer

RE: **Sky Ranch II Subdivision**

I have the following comments related to the draft Sky Ranch II Subdivision EIR's Traffic Impact Analysis prepared by W-trans:

- "Existing + Approved Development" scenario's list of approved projects includes development that was generating traffic when "existing" traffic counts were taken. Therefore, this scenario needs to be reanalyzed.
- A Cumulative 2025 with and without the Standard Oil Avenue connection (Buchanan Rd. Bypass to Buchanan Rd. to E. Leland Rd. at Century Blvd.) should be included as scenarios and analyzed (with and without the Buchanan Road Bypass).
- Site Plan should be analyzed, including street intersection alignments, grades, sight distances, emergency access, and queue lengths at the Ventura Dr./ "B" St. /Buchanan Rd. Bypass intersection.
- Projected average daily traffic volumes are needed for all project's streets to determine required street widths per City Standard Details.
- Clarify Mitigation 7 by explaining what "alternative access to Buchanan Rd." is, perhaps providing an example. Is this feasible?

I also would like to comment on the Tentative Map in that it appears to propose a steeper 2:1 slope for the Bypass (due to a PG&E transmission tower?) than the maximum 3:1 slope recommended in the City's Project Study Report for the Buchanan Bypass

ENGINEERING DEPARTMENT
Traffic Division
65 Civic Avenue
Pittsburg, California 94565

MEMO: December 21, 2004

TO: Paul Reinders, Senior Civil Engineer

FROM: Gina Haynes, Civil Engineer II

RE: **Comments for Sky Ranch II Traffic Study**

Following are comments/questions for the traffic analysis for Sky Ranch II:

General Comments

1) The document should include page numbers.

2) New counts for the project were taken in 2004 on April 20, May 13, August 10, and August 11. Other counts obtained through the Los Medanos College Traffic Impact Study were taken September 9 and 10, 2003. Most all of the approved projects included in this analysis are constructed and occupied, therefore; your analysis includes trips generated from these already completed projects, plus the actual counts performed. I believe this is a fatal flaw in the study. I think that this study should be corrected to include only projects approved and not those already constructed.

3) The study provides impact and mitigation measures for all intersection operating deficiently, although, it is unclear as to what mitigation measures are required for the project. Provide a summary of impacts and mitigation required for the project.

Specific Comments

1) In *Description of Study Area*, third paragraph, Railroad Avenue changes name to Kirker Pass Road at Castlewood Drive.

2) Above *Existing Intersection Conditions* at the top of the page, the study indicates approximately 3,600 vehicles per day on the southern extension of Ventura Drive. This number seems very high. Were ADT counts taken at this location?

3) Below the top of the page where the study depicts the intersections included in the study, #1 should be California Avenue, not California Boulevard.

4) Impact 7-Please verify that the ADT count is accurate for the southern extension of Ventura Drive. Also, identify the limits of the section of Ventura Drive that fronts residential homes.

5) Mitigation #7-Please provide the back-up data that justifies that adding 261 units would limit the ADT on Ventura Drive to 5000 vehicles per day. Also, justify how the study determined 391 units after opening the Bypass.

6) Is mitigation 7 through 10 the only mitigation that the study is recommending to mitigate impacts from the project?

Joel Summerhill

From: Joel Summerhill

Sent: Tuesday, December 14, 2004 3:49 PM

To: Ken Strelo

Subject: Sky Ranch II Subdivision

In my opinion, this is a poorly engineered Subdivision. See the following comments as numbered in black on the plan.

1. Who owns, landscapes and maintains this frontage?
2. The masonry soundwall reduces these lots to 6300-6900 sq. ft., not any where near the 8000sq. ft. minimum called out.
3. No landscaping or entry sign at entrance to Sky Ranch II subdivision.
4. Does the City give up this property for these lots.
5. Water tank access directly onto Buchanan Bypass road.
6. Detention Basin access directly onto Buchanan Bypass road.
7. Who landscapes medians?
8. No entry landscaping or sign at other entrance to Sky Ranch II subdivision.
9. Who landscapes R.O.W.?
10. Where is the underground piping (plumbing) and concrete overflow weir like exists at Oak Hills and Highlands Ranch Detention Basins?
11. I can't understand how the Property line, Easement line and Access Road overlap in this area.
12. "B" Street is a Collector Street that has a 14% grade in this area. City standard?
13. These P.G.&E. towers should not be in back yards. Service access if required may greatly reduce usable building site for several properties.
14. Same issue as #13.
15. This Court has a 14% grade in this area. City Standard?
16. This Street has a 14% grade in this area. City Standard?
17. This Court has a 14 % grade in this area. City Standard?
18. These Lift Stations usually represent a lot of extra work for Public Works.
19. Booster Pumps required for lots 127-153. Long term maintenance implications.
20. Opportunity for street connection to adjoining subdivision.
21. In-Lieu fees for this subdivision should go to Highlands Ranch.

CITY OF PITTSBURG
PUBLIC WORKS DEPARTMENT
65 Civic Avenue, Pittsburg, California 94565

DATE: December 15, 2004

TO: Ken Strelo, Planning

FROM: Walter Pease, Ast. Director of Public Works WPease

SUBJECT: Sky Ranch II (Subd 8475)

The following are comments about the proposed Sky Ranch II project:

- XVI Utilities " ...2.5 million gallon *raw* water reservoir" - what is this supposed to be?
- Zone III (?) Reservoir elevation shown – is it top or bottom?
- Lot 14, 15, 16 and 17 are proposed on property that belongs to City, which includes water line and access road.
- Note says: "Relocate existing fence" – what does this mean and why would we want it relocated?
- The parcel/sliver west of the proposed relocated reservoir road and south of the reservoir – who would it belong to?
- Water system:
    - Where are Zone III and Zone IV pump stations located? What size are they proposed to be?
    - Water System Master Plan says 1.0 million gallon Zone IV Reservoir located at 620 ft m.s.l. – not shown.
    - Inadequate water pressure:
        - Zone II system has inadequate pressure to serve new houses – how will it be resolved?
        - Pad of reservoir(s) needs to be at least 100 feet above pads of the houses that it (they) serves to give adequate second story water pressure.
- Sewer system - gravity flow only.

KINDER MORGAN
ENERGY PARTNERS, L.P.
SFPP, L.P.

SFPP, L.P.
Operating Partnership

August 3, 2005

ENG 4-2-1 (12.0 12.75 - 9)
File Reference #05-371-1

Mr. Marc Papineau
Environmental Assessor
Environmental Services
5789 Gold Creek Drive
Castro Valley CA 94552

RE: Sky Ranch II Residential Development Subdivision 8475 – Environmental Impact Report

Dear Mr. Papineau:

This is in reply to your letter of June 9, 2005, concerning the proposed Sky Ranch subdivision in the unincorporated area near the City of Pittsburg California.

As you are aware, Kinder Morgan (KM) operates and maintains a 10-inch high pressure refined petroleum products (gasoline, diesel, jet fuel) pipeline within a 10 feet wide easement essentially as depicted on the Tentative Map enclosed with your letter.

The Preliminary Grading Plan shows that extensive cut & fill and residential lots will impact the 10-inch pipeline easement. This would not be acceptable and therefore, may require relocation of the pipeline and easement. The relocated easement would have to lie along a pre-graded route that would be acceptable to KM and at the expense of others. Typically, the cost of relocating a mile of 10-inch pipeline and providing inspection during construction activities near the pipeline would be in the range of $1 to 2 million.

Attached for your information is a copy of Bulletin #03-001 from the office of the State Fire Marshal concerning encroachments into, on or adjacent to pipeline easements.

Since KM must employ outside resources to review project plans, and coordinate pipeline activities as these types of projects move forward, we will require an initial deposit of $25,000 in order to proceed with the pipeline engineering review.

Mr. George Reed (714) 560-4770 will be KM engineering contact for matters concerning this project.

Sincerely,

D R Quinn

D. R. Quinn

Attachment

T:drq/letters/ENG4-2-1/05-371-1

G.T. Reed

Discovery Builders Inc.
Suite H
4061 Port Chicago Highway
Concord, CA 94520

Isakson & Associates
Suite C
2255 Ygnacio Valley Road
Walnut Creek, CA 94598

INFORMATION BULLETIN
#03-001

Date Issued: June 20, 2003

SUBJECT: ENCROACHMENTS INTO OR ON PIPELINE EASEMENTS

The purpose of this informational bulletin is to delineate the position of the State Fire Marshal regarding encroachments onto the pipeline easements.

Section 51014.6 of the California Government Code states, " (a) Effective January 1, 1987, no person, other than the pipeline operator, shall do any of the following with respect to any pipeline easement: (1) Build, erect, or create a structure or improvement within the pipeline easement or permit the building, erection, or creation thereof. (2) Build, erect, or create a structure, fence, wall, or obstruction adjacent to any pipeline easement which would prevent complete and unimpaired surface access to the easement, or permit the building, erection, or creation thereof. (b) No shrubbery or shielding shall be installed on the pipeline easement which would impair aerial observation of the pipeline easement. This subdivision does not prevent the revegetation of any landscape disturbed within a pipeline easement as a result of construction the pipeline and does not prevent the holder of the underlying fee interest or the holder's tenant from planting and harvesting seasonal agricultural crops on a pipeline easement. (c) This section does not prohibit a pipeline operator from performing any necessary activities within a pipeline easement, including, but not limited to, the construction, replacement, relocation, repair, or operation of the pipeline.

It is the position of the State Fire Marshal that nothing shall encroach into or upon the pipeline easement, which would impede the pipeline operator from complete and unobstructed surface access along the pipeline right of way. Nor shall there be any obstructions, which would shield the pipeline right of way from observation. In the interest of public safety and the protection of the environment, it is imperative that the pipeline operator visually assesses the conditions along the easement to ensure the integrity of the pipeline.

It is the responsibility of the pipeline operator to ensure they have unimpeded surface access and to be able to physically observe all portions of their pipeline rights of way. In cases where this is not possible, the pipeline operator shall inform the State Fire Marshal. The State Fire Marshal shall in conjunction with the pipeline operator resolve the issue.

Questions regarding the issue of pipeline encroachment can be addressed to:

Bob Gorham, Supervising Pipeline Safety Engineer
CDF/State Fire Marshal
Pipeline Safety Division
3950 Paramount Blvd. Suite 210
Lakewood, CA 9012

(562) 497-9100
(562) 497-9104 (fax)
bob.gorham@fire.ca.gov

C. ALL PRACTICABLE ALTERNATIVES ANALYSIS

INTRODUCTION

Clean Water Act Section 404(b)(1) Guidelines (Guidelines) were published by the U.S. Environmental Protection Agency at 40 CFR Part 230 on December 24, 1980. The fundamental precept of the Guidelines is that discharges of dredged or fill material into waters of the United States, including wetlands, should not occur unless it can be demonstrated that such discharges, either individually or cumulatively, will not result in unacceptable adverse effects on the aquatic ecosystem. The Guidelines specifically require that "no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences." 40 CFR 230.10(a).

Practicable alternatives are those alternatives that are "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes." 40 CFR 230.10(a)(2). The preamble to the Guidelines also states that "[i]f an alleged alternative is unreasonably expensive to the applicant, the alternative is not 'practicable.'" Guidelines Preamble, "Economic Factors", 45 Federal Register 85343 (December 24, 1980). In applying Section 404(b)(1) Guidelines to projects with minor impacts, projects which may cause more than minor impacts on the aquatic environment, either individually or cumulatively, should be subjected to a proportionately more detailed level of analysis. Conversely, projects which may cause only minor impacts on the aquatic environment, either individually or cumulatively, should be subjected to a proportionately lower detailed level of analysis.

ANALYSIS

Conservation Alternative 1a

Conservation Alternative 1a would remove approximately 28 acres and 66 lots from the development footprint. The 28 acres are located in the southwestern portion of the site on both sides of the historical intermittent stream channel and generally in the area having the highest incidence of deep-seated landslide deposits.

Without provision for smaller lots sizes or higher density elsewhere on the site, the number of residential lots would be reduced to approximately 349 lots. The project's market value under Conservation Alternative 1a is $253 million, a reduction of $48 million.

Though the market value of the project would be reduced under this alternative, mass and remedial grading necessary for site development also would be reduced. Some fraction of these grading cost savings would be applied instead to creek restoration.

Conservation Alternative 1a would avoid 394 feet of identified existing intermittent stream having defined bed and bank. Conservation Alternative 1a would not avoid the 945 to 1,484 lineal feet of ephemeral stream and wetland features identified in the site's southeastern corner; however, Conservation Alternative 1a would provide an opportunity for on-site restoration of 1,686 lineal feet (includes the 394 lineal feet) of stream habitat. Therefore, assuming restoration of approximately 1,292 lineal feet (net), there would not be a substantial net reduction in identified potential jurisdictional waters under Conservation Alternative 1a.

Restoration of this particular reach of an intermittent creek, Reach 2, is interpreted to have relatively greater value than similar conservation in the southeastern corner of the project site. The ephemeral streams in the southeastern corner, once part of the headwaters of an intermittent creek tributary to Kirker Creek, are a part of a relatively short network. Off-site, east of the project site, the seasonal storm water discharge from these ephemeral streams drains to Markley Creek by a combination of in-channel and overland flow, which is being replaced by the manmade storm water conveyance system being constructed on the adjoining Black Diamond Ranch.

In the southwestern corner of the site, Reach 2 of the intermittent stream is part of a combined natural and manmade system that extends from Black Diamond Mines Regional Preserve on the south to a point of confluence with Kirker Creek north of State Highway 4. Reaches 1, 2, and 3 comprise the natural portion of the stream system. No part of the downstream system is natural until Dowest Slough. The total extent of Reaches 1-3 is approximately 5,900 lineal feet. Reaches 1-3 are not parts of Kirker Creek for which stream rehabilitation projects are proposed or in-progress to the west.

South of the project site, Reach 1 has 2,600 lineal feet within a wooded ravine that extends though acquisition Zone 1d of the proposed HCP/NCCP. Within the project site, Ephemeral Reach 2 is disjunct, with an overall original extent of 1,686 lineal feet, of which 394 feet recently were identified as having a defined bed and bank. The suggested conservation land in Reach 2 currently supports annual grassland without riparian vegetation. West of the project site, seasonal storm water discharge resumes in Reach 3, described by HBG as having a defined bed and bank. Farther north, Ephemeral Reach 3 is intercepted in manmade conveyance systems, which convey seasonal storm water flow to Kirker Creek north of State Highway 4.

Streams and their upland habitats generally provide recharge, natural bio-filtration, and wildlife habitat. As naturally-provided functions are eliminated, provision of equivalent functions require engineering of man-made substitutes or compensatory

mitigation off-site. Man-made substitutes can be integrated into landscape features; even so, they cannot provide the equivalent habitat value for wildlife.

The conservation value of restoration of Reach 2 as suggested in Conservation Alternative 1a is itself subject to interpretation or debate. With the future acquisition and protection of 25 percent of Zone 1d, conservation of contiguous upland habitat east and west of Reach 1, or a portion thereof, could be assured. Reach 1, therefore, may be considered as a primary candidate for conservation owing to its location within acquisition Zone 1d. Reach 3 also is illustrated in the HCP/NCCP as being located within Zone 1d; however, a portion of Reach 3 also is located within the Buchanan Planning Subarea. Without acquisition and protection of the part of Zone 1d that contains Reach 3, there would not be as much opportunity for conservation of contiguous upland habitat west of Reach 2. Eventually the some of the 28 acres conserved on the project site may adjoin urbanized land on the Thomas parcel on the west.

Conservation Alternative 1b

Like Conservation Alternative 1a, Conservation Alternative 1b would remove approximately 28 acres from the development footprint. The 28 acres are located in the southwestern portion of the site on both sides of the historical intermittent stream channel and generally in the area having the highest incidence of deep-seated landslide deposits. Conservation Alternative 1b would avoid all of the same resources as Conservation Alternative 1a.

Conservation Alternative 1b, unlike Conservation Alternative 1a, would allow for development of 406 dwelling units on the project site. This could be accomplished, for example, by modifying the development plan to include zero lot line or attached housing near the Buchanan Bypass, without exceeding the proposed density (2.55 du/acre). The project's market value under Conservation Alternative 1b is approximately $277 million.

Though the market value of Conservation Alternative 1b would be nearly the same as under the proposed project, and mass and remedial grading necessary for site development also would be reduced. Some fraction of these grading cost savings would be applied instead to required creek restoration.

The conservation value of restoration of Reach 2 as suggested in Conservation Alternative 1b is subject to the same interpretation as the interpretation for Conservation Alternative 1a. Reach 1, or a portion thereof, may be considered as the primary candidate for off-site conservation. Future conservation of land west of Reaches 2 and 3 would depend on future development in the Buchanan Planning Subarea.

Conservation Alternatives 1c and 1d

Conservation Alternatives 1c and 1d are traditional stream protection by means of a riparian setback, or "buffer." Conservation Alternative 1c and 1d were considered to determine if a lesser on-site conservation area, less than 29 acres, could potentially provide for on-site mitigation to impacted wetlands.

Buffers are described in the HCP/NCCP, which specifically recommends buffer widths and discusses buffers according to stream hydrologic function/classification, habitat function, and proximate land use. Cited literature recommendations based on general stream hydrologic function are: intermittent stream reaches (150 to 300 feet total width) and ephemeral stream reaches (50 to 100 feet total width, depending on soil, slope, and vegetative cover). Cited literature recommendations based on habitat are: general riparian ecosystem function (90 to 150 feet total width), bird habitat/diversity (160 to 450 feet totals width), and reptile/ amphibian habitat (300 to 500 feet). The general recommendation for buffer separating preserve land from future urban development is 300 feet (total width of buffer).

To accommodate value as CTS habitat, Alternative 1c (500-foot wide stream buffer) would remove approximately 19.4 acres from the development footprint. The CTS conservation footprint (19.4 acres) would leave approximately 9.6 acres of land isolated in the southwestern corner of the project site. In view of the steep slopes and unstable landslide deposits, it would not be cost effective or technically feasible to prepare that isolated southwestern corner for development. Alternative 1c (500-foot stream buffer) avoids development of a total of 29 acres (conservation footprint plus isolated area).

Stream conservation with a minimum 150-foot wide buffer (Alternative 1d) would remove approximately 5.8 acres from the development footprint and would create an additional 15.2-acre potentially isolated in the southwestern corner of the project site. Alternative 1d (150-foot stream buffer) avoids development of a total of 21 acres (conservation footprint plus isolated area).

Under Alternatives 1c and 1d wetland mitigation credit could be given for conservation or restoration of 5.8 acres on-site; however, CTS mitigation credit probably could not be given for any acreage not contiguous with open space. Without the larger buffer for CTS, CTS would be subject to significant direct mortality from traffic, pets, and general disturbance by proposed residential use of the project site. The applicant likely could be required by USFWS to mitigate off-site at a 3:1 ratio for all or most of 163 acres on the project site.

Conservation Alternative 1c and 1d would not be practicable because they would be unreasonably expensive for on-site conservation or wetland restoration given that the developer still could be required to compensate off-site for the loss of up to 163 acres of CTS habitat. Conservation Alternative 1b is less costly and could achieve

relatively more of the basic project objective compared to Conservation Alternatives 1c and 1d.

Alternative 2 (Proposed Project)
The proposed project would be implemented with all of the mitigation measures described herein adopted as conditions of approval. The project proponent would be required to provide for off-site compensatory mitigation for all loss of CTS habitat, wetland and other jurisdictional waters. No portion of the project site currently is designated by USFWS, or is proposed to be designated by USFWS, as CTS critical habitat. Instead, all such habitat is located off-site.

Under the proposed project, off-site compensatory mitigation at a 3:1 ratio would be required before mass grading. Mass grading would be performed with cut slopes and fill over the entire 163 acre area of the site, to create a conventional residential subdivision and looped road system, 415 lots having an average size of approximately 14,000 square feet. Mass grading includes 1.75 million cubic yards of cut and 1.56 million cubic yards of fill. These volumes do not include the additional remedial excavation and backfill for stabilization of landslide deposits in the southwestern area of the site.

The proposed project is a low-density residential land use with a density of 2.55 du/acre. This is consistent with the City's General Plan Low-Density Residential designation (1-7 du/acre) and the City's General Plan build-out assumption for the site (3 du/acre). At $725,000 per house, the approximate market value of the project is $301 million.

Alternative 3 (No Project)
The No Project Alternative could avoid impact to 163 acres of CTS habitat. The No Project Alternative could not accomplish the purpose of new housing development, a purpose that is consistent with the City's adopted General Plan land use designation.

Other CTS habitat, including designated CTS critical habitat, is located off site to the west and southeast. Under the proposed HCP/NCCP, approximately 406 acres is targeted for acquisition and protection in Sub-Zone 1d, which is located directly south and southwest of the project site. Sub-Zone 1d consists of annual grasslands, with intermittent and ephemeral streams, similar to those occurring on the project site. Unlike Zone 1, on-site habitat resources have been temporarily degraded by cattle grazing.

Zone 1's habitat resources generally may be considered superior in value to those on the project site, primarily because Zone 1 resources occur extensively over a

contiguous area that can be acquired assembled into the proposed Preserve System. In contrast, the project site is bounded by existing residential developments on the northwest, north, and east. In view of its location adjacent to existing residential subdivisions, it would be relatively costly to create an urban edge buffer around the project site. Such a buffer would span at 5,200 to 7,800 lineal feet, depending on the future use of the Thomas parcel. As discussed in the Draft HCP/NCCP, straight edges are preferred at the urban edge to minimize buffer land area requirements.

Alternative 4 (Alternative Site Locations)
Alternative sites for development of the project were considered. In common with the project site, both alternative sites are illustrated in the City's current General Plan as having the low density residential designation (1-7 du/acre), and both are shown as located within the City's Planning Area and also within the voter-approved Measure P Urban Limit Line (ULL). The alternative sites have been pre-zoned Hillside Planned District (HPD) and Open Space (OS).

Alternative Sites #4A and 4B are illustrated in the General Plan as being located at elevations 200-400 feet above mean sea level, with Tulare formation soils and slopes greater than 20 percent, in zones of moderate slope instability. Both alternative sites are located within the Kirker Creek watershed. Vegetative communities are classified as California annual grasslands, and the sites currently may be used for cattle grazing. Based only on General Plan level inquiry, the sites also may be under Williamson Act contract.

Alternative Site #4A is located directly west of the project site, within the portion of the Buchanan Planning Subarea pre-zoned for HPD and OS under voter approved Measure P. Alternative Site #4A consists of approximately 101 acres, as drawn, but additional upslope land pre-zoned for Open Space is present to the south. Access could be provided by means of the future Buchanan Bypass if constructed for the approximately 1 mile segment from Black Diamond Ranch to Kirker Pass Road.

The entire acreage of Alternative Site #4A is shown in the Draft HCP/NCCP as being located within an acquisition zone (Sub-Zone 1d). The voter-approved Measure P ULL encroaches into Sub-Zone 1d; therefore, the maximum Permit Area defined in the HCP/NCCP may or may not be sufficient to include additional Permit Area within the recently expanded ULL.

Alternative Site #4A has two dash-dot intermittent streams as shown in the General Plan and U.S. Geological Survey topographic maps. The entire area of Alternative Site #4A site is located within USFWS-proposed critical

habitat of the CRLF (Unit CCS-1B). Though no portion of Alternative Site #4A is located within CTS critical habitat, this site contains annual grasslands and an adult CTS was sighted on Alternative Site #4A (Gan, October 2004). Species surveys and a wetlands delineation are not available for this alternative site.

In view of the presence of mapped intermittent streams of similar length compared to those present on the project site, impacts to jurisdictional waters may be expected to be similar for Alternative Site #4A and the proposed project. In view of its annual grasslands habitat classification and CTS sighting on Alternative Site #4A, it is highly likely that Alternative Site #4A would be considered as suitable SJKF habitat and CTS aestivation habitat.

Alternative Site #4A and Alternative 2(Proposed Project) can reasonably be expected to have similar wetlands, SJKF, and CTS concerns. A reasonable person holding fee title ownership of land located within the existing ULL, who additionally has paid holding costs and invested in engineering studies to advance a development interest in the project site, would not forgo the latter to pursue a similar interest in Alternative Site #4A.

Alternative Site #4B is located farther west of the project site, entirely within the Woodlands Planning Subarea. Alternative Site #4B, as drawn, consists of approximately 140 acres.

As for Alternative Site #4A, the entire acreage of Alternative Site #4B is shown as being located within an acquisition zone (Sub-Zone 1c) in the Draft HCP/NCCP. The voter-approved Measure P ULL encroaches into Sub-Zone 1c; therefore, the maximum Permit Area defined in the HCP/NCCP may or may not be sufficient to include additional Permit Area within the recently expanded ULL.

Alternative Site #4B has a dash-dot intermittent stream as shown in the General Plan and U.S. Geological Survey topographic maps. Furthermore, the intermittent stream reach shown on Alternative Site #4B is tributary to a natural reach of Kirker Creek.

The entire area of Alternative Site #4B is located within USFWS-proposed critical habitat of the CRLF. Alternative Site #4B is located within 0.4, 0.8, and 1.1 mile of previous CTS sightings reported and recorded in the CNDDB. Approximately 50 percent of Alternative Site #4B has been proposed by USFWS as CTS critical habitat, being a portion of Unit 14.,

which subsequently was excluded by Final Rule in August 2005. Species surveys and a wetlands delineation are not available for the site.

In view of the presence of a mapped intermittent stream of similar or greater habitat value and extent compared to that present on the project site, impacts to jurisdictional waters may be expected to be similar or greater for Alternative Site #4B compared to the proposed project. In view of its annual grasslands habitat classification, CTS sightings less than 1.1 mile west and southwest on Alternative Site #4B, and past proposed for critical habitat designation, it is highly likely that Alternative Site #4B would be considered as providing suitable CTS aestivation habitat if not breeding habitat. Presence or absence of breeding habitat could only be assessed with an actual survey, which has not been performed.

Alternative Site #4B and Alternative 2 (Proposed Project) can reasonably be expected to have similar wetlands, SJKF, and CTS concerns. A reasonable person holding fee title ownership of land located within the existing ULL, who additionally has paid holding costs and invested in engineering studies to advance a development interest in the project site, would not forgo the latter to pursue a similar interest in Alternative Site #4B.

D. BIOLOGICAL ASSESSMENT

This separately-bound document, one of the supporting technical documents, is available at the City of Pittsburg City Hall but is not reproduced herein.

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E. URBAN DESIGN & POLICY ANALYSIS

1. INTRODUCTION

1.1 Methods and Criteria — This Urban Design & Policy Analysis is intended to evaluate the proposed project and site in terms of a subset of the goals and policies of the City's General Plan, *Pittsburg 2020: A Vision for the 21st Century*. The particular goals and policies subject to consideration here are:

- Goals and policies expressed for the Buchanan Subarea (Chapter 2.5, especially pages 2-55 & 2-56)
- Goals and policies expressed for Urban Edges and Views (Chapter 4.1, especially pages 4-4 through 4-8)
- Goals and policies expressed for Neighborhood Design (Chapter 4.5, especially pages 4-44 through 4-46)
- Goals and policies expressed in Chapter 8.2 (Parks) and Chapter 8.3 (Trails and Open Space)

Some goals and policies were expressly excluded from the Urban Design & Policy Analysis. Hillside Development goals and policies were not evaluated, because the City Council has determined that such goals and policies apply specifically to land above the 500-foot elevation. Elevations within the project site generally are below the 500-foot elevation contour except for a minor area at the southwestern corner of the project site that would be graded for slope stability but not leveled for any graded pads.

Street, pedestrian and bicycle facilities are evaluated elsewhere, in the *Traffic Impact Study*. Proposed transportation features of the proposed project, therefore, are not evaluated comprehensively here except in the context of Neighborhood Design, Goals 4-G-17 and 4-G-18, regarding connectivity with adjoining neighborhoods, existing and planned facilities.

Lastly, trails and open space goals and policies are addressed generally. However, this policy analysis is not at a level of detail sufficient to assure consistency with the City's adopted *Parks Recreation and Open Space Master Plan* or to facilitate detailed local and regional planning for parks, connected trail systems, and special recreational facilities.

1.2 Proposed Project —The proposed project is Sky Ranch II Residential Subdivision 8475, consisting of 415 single-family dwelling units and other improvements (*e.g.*, water tank, streets) on a site of 156 acres plus approximately 7 acres of proposed re-subdivision within Highlands Ranch. Approximately 29 of the 415 lots involve re-subdivision of land within the

existing Highlands Ranch residential subdivision, Tract 7217. The residential density is approximately 2.55 du/gross acre. The General Plan land use designation is Low-Density Residential (1 to 7 du/acre).

The proposed Sky Ranch II residential subdivision is located outside the incorporated city limits of the City of Pittsburg, within the City of Pittsburg Sphere of Influence, and inside the Contra Costa County Urban Limit Line. The proposed project is contiguous with Highlands Ranch Residential Subdivisions 8258 and 8532 in the City of Pittsburg on the north and the proposed Black Diamond Ranch (formerly known as Sky Ranch I) in the City of Antioch on the east. The proposed project means pre-zoning to the RS Zoning District, Vesting Tentative Map for residential subdivision, annexation, improvements, infrastructure, and project phasing as described in the application.

The project site consists of two parcels (APN 089-050-067 and 089-050-042) and a portion of Highlands Ranch. Approximately 156 acres of the project site requires annexation into the City of Pittsburg, and is now located within the adopted Urban Limit Line (ULL) and Pittsburg Sphere of Influence

1.3 Planning Area—The proposed Sky Ranch II project and developing Highlands Ranch residential subdivision, are located in the Buchanan Planning Subarea. The subarea is characterized as hillside low-density and low-density residential acreage (*Pittsburg 2020: A Vision for the 21st Century*, August 2001, p. 2-33.)

The Buchanan Planning Subarea is designated generally for Open Space, Low-Density Residential (1-7 du/acre), and Hillside Low-Density Residential at elevations above 500 feet above msl. In addition to open space and housing, rights-of-way for power lines and the Buchanan Road Bypass are shown, a park-designated area in Highlands Ranch is shown. Park-designated to Low Density Residential land within the project site has been removed and re-designated in the City's final, adopted *General Plan*. Also, the school site in the southeast quadrant of Buchanan Road and Ventura Drive has been removed and re-designated to Low Density Residential in the City's final, adopted *General Plan*.

2. GENERAL PLAN GOALS AND POLICIES

2.1 Buchanan Subarea Goals and Policies — Goals for the Buchanan Planning Subarea include the following:

- **2-G-24** Design new developments as integrated or interconnected with existing developments.

- **2-G-25** Encourage development as a means of funding the Buchanan Road Bypass.

- **2-P-69** Provide street and pedestrian connections to the adjacent residential areas.

- **2-P-70** Encourage varied architectural style and smooth visual transitions to the adjacent residential areas.

- **2-P-71** Maintain [public] views of the southern hills.

- **2-P-72** New residential development south of Buchanan Road should:
  1) Ensure adequate acreage for an elementary school directly adjacent to Buchanan Road;
  2) Avoid any net increase in peak-hour stormwater flow;
  3) Preserve and enhance existing north-south creeks; and,
  4) Respect natural topography.

- **2-P-73** Pursue construction of the proposed Buchanan Road Bypass.

2.2 Urban Design Element —The Urban Design Element of the *General Plan* (August 2001) has set forth urban design goals and policies that are applicable to the proposed project. Chapter 4.1 contains goals and policies to protect views and guide development at the urban edge. Chapter 4.2, which contains goals and policies relevant to new hillside development, do not apply to the proposed project based on the project suite's elevation generally below 500 feet.

1) Ridges – There is no mapped major or minor ridge on the project site (General Plan, Figure 4-2).

2) Hillside Development Policies – On November 3, 2003, the Pittsburg City Council adopted Resolution 03-9943 to clarify application of

Hillside Development Policies. Council adopted Option 4 to apply policies specifically to land above the 500-foot contour elevation as delineated in the General Plan.

The hillside policies of the General Plan themselves were not changed by Resolution 03-9943. The question resolved by Resolution 03-9943 was to which land in the community those policies would apply. The 500-foot elevation contour skirts the southwest corner of the project site. As there are no other 500-foot elevated locations, except the very southwest tip, ridge viewshed protection and Hillside Development Policies do not apply to the project site.

3) **Urban Edge** –The rolling grassy southern hills define the southern urban edge of the City of Pittsburg. Directly east, the Antioch city limit defines the entry between the two cities.

- **4-G-3** Ensure that new residential development in the southern hills provides a transition from urban to open space on the City's edge.
- **4-P-5** Design and install entry features at the entrances to the City (including Buchanan Road)
- **4-P-6** Ensure planting of trees and other vegetation along collectors and arteries to maintain sense of open space at the City's southern boundary.
- **4-P-7** Ensure new residential development at the City's southern boundary retain a rural feeling (*e.g.*, through rustic material selection, avoidance of linear and opaque fencing, and orientation toward open space).

2.3 Neighborhood Design Goals and Policies— The relevant goals and policies are set forth in the City of Pittsburg's *General Plan*, pages 4-44, 4-45 and 4-46.

- **Goal 4-G-17** Encourage development of diverse and distinctive neighborhoods that build upon patterns of the natural landscape and provide a sense of connection with the surrounding uses.
- **Goal 4-G-18** Ensure that neighborhood streets provide safe and attractive connections to local schools, parks, and commercial centers, and transit facilities for pedestrians and bicyclists.

- **Policy 4-P-82** Encourage neighborhood design (including land use development intensity and street layout) that is responsive to natural or institutional elements such as

    1) Creeks. Protect riparian corridors through building setbacks. Ensure pedestrian access to creeks and provide connections from local trails and sidewalks. Integrate urban parks and open space with creeks.
    2) Urban Edges. Feather land uses from urban intensity to rural intensity at City boundaries.
    3) Adjacent Uses. Promote connections with surrounding land uses by integrating street networks and visual/architectural treatments.

- **Policy 4-P-83** Develop and implement development standards in the City's Zoning Ordinance and Subdivision regulations that minimize the visual dominance of garages in residential subdivisions.

- **Policy 4-P-84** Ensure that new developments provide an integrated pattern of streets and pedestrian paths that provide connections between neighborhoods.

- **Policy 4-P-86** Provide safe and comfortable pedestrian routes through local neighborhoods by requiring sidewalks on both sides of residential streets, except in hillside areas, planting street trees adjacent to the curb, and minimizing curb cuts.

Open Space and Trails Goals and Policies —

- **Goal 8-G-15** calls for promotion of a local trail and linear park system to provide access to regional open space areas as well as connections between neighborhoods.

- **Policy 8-P-15** directs the Community Development Department to work with PG & E to obtain ownership of lands within the transmission line corridor.

- **Policy 8-P-20** encourages new residential development in hillside areas to develop public trails and trail heads providing connections to regional and local open spaces.

3. EVALUATION

Buchanan Planning Subarea Policy Analysis—

Goal 2-G-24: The proposed project would extend access through Highlands Ranch via extension Ventura Drive and the at-grade intersection of the Buchanan Road Bypass and Ventura Drive. Pending the possible completion and opening of the future Buchanan Bypass, the sole vehicular and pedestrian connection between the proposed project, Highlands Ranch, and Buchanan Road would be Ventura Drive. As proposed there would not be street or pedestrian path connections via Palo Verde Drive or Glen Canyon Circle, or via connection to future streets within the Black Diamond Residential subdivision. Goal 2-G-24 (project integration with the existing residential subdivisions) would be met nominally.

Policy 2-P-69 (street and pedestrian connections to adjacent residential areas) would be nominally met by the proposed project as designed; however, supplemental street and pedestrian connections could be considered for connection to Black Diamond Ranch and Highlands Ranch.

Additional pedestrian connections could be designed and sited within the proposed project. One potential site for a pedestrian path separated from proposed streets is the existing water storage tank parcel. With an undercrossing under or overcrossing over the Buchanan Road Bypass and connection with the proposed detention basin service road, interconnection and pedestrian movement between the Highlands Ranch and Sky Ranch II subdivisions could be enhanced. Additional connection to such a pedestrian path and undercrossing/overcrossing also could be provided along the north side of the Buchanan Road Bypass and through "M" or "N" Court. The cost of an overcrossing or undercrossing unfortunately could be prohibitive.

Alternative connection between Highlands Ranch and the proposed Project is the crossing at the Buchanan Road Bypass intersection with Ventura Drive and "B" Street. Pedestrian safety and convenience of the crossing at Ventura Drive/"B" Street/ Buchanan Road Bypass was evaluated in the *Traffic Impact Study*.

These above measures would not improve connection between Black Diamond Ranch and Sky Ranch II subdivisions. There are three proposed fire access points show on the Black Diamond Ranch which terminate at the common boundary shared with the proposed project. Connections may be possible by creating connection in the vicinity of Lot 190 or 191, Lot 200, and Lot 226. At

these locations fire access ways are noted on the Vesting Tentative Map on the Black Diamond Ranch side only.

Policy 2-P-70 (varied architectural style and smooth transitions within established neighborhoods). Please refer to Neighborhood Design Policy Analysis (page A-9) for a discussion of possible design elements that would necessarily be different from existing features already built in Highlands Ranch, yet consistent with Goal 4-G-17 (diverse and distinctive neighborhoods).

Policy 2-P-71 (maintain [public] views of the southern hills). Preliminary analysis is that the views of the upper elevation hills and ridges (500 feet and higher) would not be altered by the proposed project. However, public viewing locations would not be provided on the project site except from the public dedicated roads.

Policy 2-P-72 New residential development south of Buchanan Road should:

1. Ensure adequate acreage for an elementary school directly adjacent to Buchanan Road;
2. Avoid any net increase in peak-hour stormwater flow;
3. Preserve and enhance existing north-south creeks; and,
4. Respect natural topography.

School Land Dedication Policy —The proposed project would be required to pay developer fees for new school construction at the existing school site adjacent to Buchanan Road plus an additional fee for park land acquisition. As approved at the regular meeting of the Planning Commission on April 8, 2003, park land dedication within the proposed project is not preferred. This would not preclude, however, potential dedication of public trail easements within the proposed project.

Stormwater Flow Policy—Analysis of stormwater detention within the project site indicates 7-acre feet of storage will be required to accommodate the 100-year storm. Post-development runoff to the west, which is not detained, will be maintained at or below the pre-development rate. Post-development runoff to the east, which discharges into Markley Creek via the storm sewer piping in Black Diamond Ranch, will increase by 3 cfs (10-year storm) and 5 cfs (100-year storm), compared to the pre-development rates.

North-South Creek Policy— The proposed project would fill on-site ephemeral and intermittent stream reaches. The existing streams lack riparian habitat such as riparian woodland habitat. Policy 2-P-72 does not clarify whether north-south streams should be preserved in general or only if they have associated riparian habitat.

The project site has previously been mapped by the U.S. Geological Survey as having 1,686 lineal feet of an intermittent "dash-dot" stream in its southwestern area. The stream has been partially filled as indicated by ENGEO Incorporated in *Geotechnical Exploration Sky Ranch II Pittsburg, California.* The project site also has been mapped by USGS in topographic maps dated 1953, 1968, 1973, and 1980 as having seasonal ponded water within the on-site reach of this intermittent stream.

Buchanan Road Bypass—
Goal 2-G-25: Right-of-way would be dedicated for the Buchanan Road Bypass by the proposed project. Goal 2-G-25 (implementing the Buchanan Road Bypass), therefore, could be facilitated by the proposed project through the northern end of the project site.

Policy 2-P-73 The proposed project is consistent with construction of the proposed Buchanan Road Bypass.

Urban Edge Policy Analysis—
Goal 4-G-3: The proposed project as shown on the Vesting Tentative Map (March 2004) would provide for slopes free of buildings on private-owned lots but would not provide a connected Open Space transition from urban uses to open space on the City's southern edge. Unbuildable areas are located on individual private lots without provisions for public access. Public viewing locations would include locations on public-dedicated streets and sidewalks; however, viewing locations from accessible open space would not be provided within the proposed project.

Policy 4-P-5 The proposed project potentially could accommodate an entry feature at eastern end of the Buchanan Road Bypass within the limits of the project site. It is not known whether it would be practical for the City to assess developer contributions for a similar entry feature along Buchanan Road from other proposed developments in the Buchanan Subarea, as the Buchanan Subarea after completion of Highlands ranch and Sky Ranch II would be largely developed leaving primarily infill opportunities.

Policy 4-P-6 The proposed project potentially could accommodate planting of trees and other vegetation along collectors and arteries to assist with preservation of a sense of open space at the City's southern boundary.

Policy 4-P-7 The proposed project potentially could afford a general sense of rural character through its larger private lots having substantial landscaped or unbuilt area on the slopes; however, the current design mixes 0.2-acre lots and 1-acre lots near the southern boundary of the project site. At the southern and

southeastern edges of the proposed project there would be a mix of large 2-acre lots (*e.g.*, Lots 137, 142, 151), smaller 0.25-acre lots (e.g., Lots 138-141), and even 0.20-acre lots (*e.g.*, Lots 107-125, 161-180, and 182-200). Lots 89, 91, 92, 95, 96, 99, 100, 103 and 104 would range in size from approximately 0.5 to approximately 1 acre and would be in tandem, paired with smaller 0.2-acre lots (*i.e.*, Lots 88, 90, 93, 94, 97, 98, 101, 102, and 105).

With the particular lots shown in tandem in the southwest corner of the project site and with the 0.2-acre lots illustrated along "B" Street, "B" Court and "C" Court, the overall feeling potentially could be less rural with orientation toward adjoining downslope or upslope residences rather than toward open space. Without retaining connected open space, for example, under common ownership by a Homeowners' Association, there is less opportunity for orientation of future homes toward open space.

Without retaining connected open space, there also is less opportunity for off-street trails; therefore, the design of proposed streets, sidewalks, and lighting will have considerable influence over the ultimate urban feel or rural feel experienced within the proposed project.

Visual simulation will be used to test whether the proposed lots as shown on the Vesting Tentative Map could potentially accomplish a rural feel and transition from urban uses to open space.

Neighborhood Design Policy Analysis—
Goal 4-G-17 As proposed the project potentially could provide a distinctive neighborhood through the residential product and architecture, and interesting siting of future houses on larger-sized lots. The proposed street layout is very similar to the adjacent layout in Highlands Ranch. Connection to the adjacent open space to the south potentially could be augmented by adding trails. Connection to the future adjoining Black Diamond Ranch residential subdivision to the east potentially could be augmented by providing trails or all-weather pedestrian and bicyclist paths. The connection to the adjoining Highlands Ranch residential subdivision to the south potentially could be impaired with the future Buchanan Road Bypass through connection from Somersville Road to Kirker Pass Road. The Traffic Engineer has evaluated safety and delay experienced at the intersection of Ventura Drive and Buchanan Road Bypass under 2025 cumulative traffic conditions.

Goal 4-G-18 The nearest park will be located along the south side of Buchanan Road, just east of Ventura Drive. The nearest bus stop would be located along Buchanan Road in the near-term and in the long-term potentially could be sited along the Buchanan Road Bypass. To accomplish this, additional land would

have to be dedicated for bus pull-outs on the north and south sides of the Buchanan Road Bypass. Along the south side, a low retaining wall may or may not be needed to accommodate the width of a pull-out.

Safety and convenience of the pedestrian crossing at Ventura Drive/ "B" Street/Buchanan Road Bypass have been evaluated in the *Traffic Impact Study*. The intersection safety issue may affect specific technical requirements of the median, traffic signal, and pedestrian activation for crossing, but does not affect design or policy considerations of the *Urban Design & Policy Analysis*.

Policy 4-P-82 The proposed project as shown on the March 2004 Vesting Tentative Map would fill an existing intermittent drainage that historically has been used for a created stock pond. The drainage feature is located in the southwestern portion of the project site, entering around proposed Lot 104 and existing through proposed Lots 81-85. On the U.S. Geological Survey map,--Antioch South, 7.5-Minute Series, Topographic Map, dated 1953, and photorevised 1980,--the southwestern drainage is illustrated as an intermittent stream feature. In aerial photographs dated 1949, 1966, 1973, 1974, 1981, 1993, 1999, and 2002, the southwestern drainage and stock pond was most apparent in the May 1973 aerial photograph. The feature is present but may be dry or less vegetated in summer. Several of the aerial photographs were taken during dry months (June–October).

This ephemeral, or intermittent, drainage and three others on the project site have defined bed and bank according to WRA (December 2001). The three other drainages identified by WRA are not illustrated on the U.S. Geological Survey map. From the southern edge of the project site to the western edge, the southwestern drainage (WRA Drainage 1) is approximately 660 lineal feet, including 400 feet with defined bed and bank and 260 feet of broad downstream swale. The Vesting Tentative Map and Preliminary Grading Plan indicate fill (20 to 100 feet depth) in the area of Drainage 1.

1) Creeks. The proposed project would build a headwall at the Drainage 1 entry into the project site. Natural drainage would be replaced with an engineered storm drain bypass.

2) Urban Edge. The overall density of the proposed project is 2.55 du/gross acre. The proposed project as shown would intermix 0.2-acre lots and 1-acre lots up to the southern edge of the project site. As shown on the Vesting Tentative Map, the proposed densities and lot sizes within the project site are fairly mixed throughout. Large-sized lot adjoin smaller-sized lots. There is no proposed open space in common ownership at the

southern edge of the proposed project or around the existing natural drainage features.

3) Adjacent Uses. The adjoining existing Highlands Ranch residential subdivision and proposed project would be connected solely by Ventura Drive. There is no planned connection with Black Diamond Ranch to the east. Palo Verde Drive currently dead ends without a planned connection to the future Buchanan Road Bypass.

Policy 4-P-83 The proposed project could potentially incorporate street, landscape, fencing, and architectural elements that lend to a rural atmosphere. On the lots having 72 feet or more frontage along a proposed street, it would be feasible to place separate detached garages, attached garages at 90 degrees, or garage and port-cochere elements. This simple requirement would enhance rural feel.

Street lighting could be reduced throughout the proposed project or selectively along the minor streets. More rustic standards, even wood, and electroliers could be selected.

The design of the mouth of "B" Street could potentially be enhanced to include entry features and landscaping having rural character with reduction or, if necessary, elimination of Lot 237 and Lots 256-259. One example is enhanced planting strips, separating the curbs and sidewalks, along east and west sides of "B" Street. These planting strips could be upsized to accommodate trees and roots such as Bradford pear or flowering cherry, for example.

Specified lots along "D" Court and the upper segments of "D" Street and "B" Street potentially could be restricted to 1-story ranch style housing with corral-style fencing or other "transparent" fencing (except painted or unpainted metal or landscape-created borders (*e.g.*, hedges, windbreaks). Requirements for standard curb gutter and sidewalks on both sides of the upper streets ("D" Court and the upper segments of "D" Street and "B" Street) could be relaxed in favor of a functionally adequate substitute meeting the City Engineer's approval. The objective is a balance of rural feel and functionality.

Such design elements would necessarily be different from existing features already built in Highlands Ranch; however, the variety could be advantageous, consistent with Goal 4-G-17 (diverse and distinctive neighborhoods). Generally, the future Buchanan Road Bypass will visually soften the contrast and visually separate the Highlands Ranch residential subdivision from the proposed project. With design elements incorporated into the mouth of "B" Street there potentially could be a visually satisfactory architectural transition

between Ventura Drive north of the future Buchanan Road Bypass and "B" Street within the project site.

Policy 4-P-84 The proposed project as shown on the Vesting Tentative Map (March 2004) would not provide an integrated pattern of streets and pedestrian paths that provide connections between neighborhoods. Please refer to page A-6 for a discussion, in particular, 2-G-24 and 2-P-69.

Policy 4-P-86 The proposed project as shown on the Vesting Tentative Map (March 2004) potentially could provide safe and comfortable pedestrian routes throughout the project site. In the upper elevated portions of the project site, requirements for standard curb gutter and sidewalks on both sides of the upper streets ("D" Court and the upper segments of "D" Street and "B" Street) could be relaxed in favor of a functionally adequate substitute meeting the City Engineer's approval. The objective is a balance of rural feel and functionality. Planting street trees adjacent to sidewalks or walking paths potentially could enhance rural feel for drivers and pedestrians.

Open Space and Trails Policy Analysis—

Goal 8-G-15 As shown on the Vesting Tentative Map (March 2004) the proposed project would not provide connections with the adjoining Black Diamond Ranch residential subdivision. Proposed fire access roads, which could potentially serve as pedestrian trails on the Black Diamond Ranch side, are shown to terminate at the property line. There would be no connection without trespass across privately-owned lots in the proposed project.

Policy 8-P-15 As shown on the Vesting Tentative Map (March 2004), the east-west PG & E transmission line easement would remain but the land would be subdivided and individually owned rather than in common ownership. The main transmission line corridor is the north-south corridor. However, the east-west PG& E transmission line easement that traverses the project site also could provide a connection with the main north-south corridor to the west of the project site.

Policy 8-P-20 As shown on the Vesting Tentative Map (March 2004), there is no proposed public trail or trail head within the proposed project. EBRPD was contacted regarding its long-term plan for trails connecting with Black Diamond Mines Regional Preserve located south of the project site. The EBRPD Board approved negotiation for acquisition of the AUSD-owned parcel. The EBRPD does not have a trail improvement plan for east west connection north of Black Diamond Mines Regional Preserve, but is

open to the concept if it meets certain trail right-of-way design width requirments.

4. DESIGN REVIEW

The City of Pittsburg requires mandatory Design Review for residential subdivisions of more than five units. It is expected that many, not all, of the design & policy issues discussed herein will be considered and addressed during Design Review. The purpose of these considerations is to achieve, or partially achieve, the stated goals of the *General Plan* for the urban edge and the Buchanan Planning Subarea

Priovisions that should be considered as Vesting Tentaive Map issues include the following:

- Provision of a mini-park or "tot" park site within the proposed project
- protection of the power transmission line right-of-way for a future eastwest connection to Black Diamonf Mines Regional preserve or linear fitness trail (requires modification to certain specific lots)
- avoidanceof cross-fencing of of the petroleum product pipeline adjacent to within the power transmission line easement
- EVA and pedestrian access to Black Diamond Ranch by street connection or pedestrian paths (requires modification to certain specific lots)
- Emergency Vehicle Access (EVA) to the hill slopes (requires modification to certain specific lots)
- Lot adjustments to proposed Lots 11, 257, and 258 to accommodate certain road design modifications
- additional land dedication for an entry feature at the eastern terminus of the constructed portion of the Buchanan Bypass (affects Highlands Ranch)

Design elements that can be considered during Design Review include, for example:

- front elevations to re-orient garage doors
- staggered front yard setbacks to achieve greater rural atmosphere
- transparent fencing on north-facing hill slopes visible from Buchanan Road
- reduced street lighting and rustic street lighting along the southern portion of "D" Street and the full length of "D" Court and "C" Court
- streets without conventional curb, gutter and sidewalk, in favor of a rustic design treatment with rounded gutter catchments and without

concrete sidewalks along the southern portion of "D" Street and the full length of "D" Court and "C" Court

- provision augmented tree planting width within street cross-section conventionally used for sidewalks and narrow suburban planting strips
- minimum 100-foot building setbacks where lots are near the power transmission lines (affects specific lots)

5. CONCLUSION

In conclusion, opportunities to accomplish the *General Plan* goals for the Buchanan Planning Subarea and urban edge would be possible to a reduced degree with the project as proposed. Two of these goals are retaining rural atmosphere and orienting of subdivisions on the urban edge toward open space.

Through the mandatory Design Review process required by the City of Pittsburg, a range of refinements or modifications to the lots can be included in the project's design to augment rural atmosphere and implement certain other policies of the *General Plan.* Concepts for mitigation measures are listed in Section 4.

Among the concepts listed in Section 4 are suggestions for re-design of certain portions of the street layout of southern "D" Street, "D" Court, and "C" Court. While this is currently hypothetically possible, it would entail a change to a portion of the Vesting Tentative Map, Preliminary Grading Plan, and street grades, determination of the feasibility of which is beyond the scope of this *Urban Design & Policy Analysis.* It is important to note only that once the proposed project is built the existing opportunities for stream preservation and rehabilitation, modified lots, and modified street layouts could not be readily regained during the project's lifetime.

Re-design of certain lots and street layouts 1) near the southern portion of the site, 2) near the power transmission line easement, and 3) near street stubs in Black Diamond Ranch could enhance the project's consistency with the City's adopted design goals and policies for the Buchanan Planning Subarea, the urban edge, and neighborhood connectivity. Use of a single-loaded perimeter street or split-grade street near the southern edge of the project site--without conventional curb, gutter and sidewalk--could potentially augment the overall orientation toward open space. Integration of such a street with a soft path or meandering pavement on the side uninterrupted by curb cuts could enhance rural atmosphere. This is a suggestion for consideration during Design Review and, as stated above, the feasibility of the suggestion is not known.

F. PLANTS FOR LOW-WATER GARDENS

APPENDIX F

Recommended Plants for Low-Water Gardens

Groundcovers:

Gazania "Sunrise Yellow"	*Gazania*
Trailing Iceplant	*Lampranthus spectabilis*
Trailing African Daisy	*Osteospermum fruticosum*
Ivy Geranium	*Pelargonium peltatum*
Daylily	*Hemerocallis hybrids*
Lily-of-the-Nile	*Agapanthus africanus*
Mexican Evening Primrose	*Oenothera berlandieri*
Rosemary	*Rosmarinus officinalis "Prostratus"*
Verbena	*Verbena rigida*

Shrubs:

English Lavender	*Lavendula augustifolia*
Sword Fern	*Nephrolepis cordifolia*
Tam Juniper	*Juniperus Sabina "Tamariscifolia"*
California Lilac	*Ceanothus "Concha"*
Heavenly Bamboo	*Nandina domestica*
Yew Pine	*Podocarpus macrophyllus*
Wormwood	*Artemisia*
Xylosma	*Xylosma congestum*
Natal Plum	*Carissa grandiflora*
Wild Lilac	*Ceaonthus spp.*
Rockrose	*Cistus hybrids*
Pride of Madeira	*Echium fastuosum*
Cape Plumbago	*Plumbago auriculata*
Bottlebrush	*Callistemon*
Toyon	*Heteromeles arbutifolia*
Oleander	*Nerium oleander*
Mock Orange	*Pittosporum tobira*
Dwarf Mock Orange	*Pittosporum t. "Wheeler's Dwarf"*
Creeping Coprosma	*Coprosma kirkii*

APPENDIX F
Recommended Plants for Low-Water Gardens

Lantana	*Lantana camara "Carnival"*
Indian Hawthorne	*Raphiolepis indica*
Prostrate Acacia	*Acacia redolens*

Trees:

Pink Melaleuca	*Melaleuca nesophila*
Canary Island Pine	*Pinus canariensis*
Floss Silk Tree	*Chorisia speciosa*
Jacaranda	*Jacaranda mimosifolia*
Catalina Ironwood	*Lyonathammus floribundus*
Mexican Fan Palm	*Washingtonia robusta*
Aleppo Pine	*Pinus halepensis*
Australian Willow	*Geijera parviflora*
Lemon Bottlebrush	*Callistemon citrinus*

Vines:

Bougainvillea	*Bougainvillea*
Common Trumpet Creeper	*Campis radicans*
Hall's Honeysuckle	*Lonicera japonica "Halliana"*
Cup-of-Gold Vine	*Solandra maxima*
Cape Honeysuckle	*Tecomaria capensis*
Wisteria	*Wisteria spp.*

Perennials:

Coreopsis	*Coreopsis*
Blanket Flower	*Gaillardia grandiflora*
Sea Lavender	*Limonium perezii*
Sage	*Salvia spp.*
California Fuchsia	*Zauschneria*

G. TRAFFIC IMPACT STUDY

The supporting technical exhibits and calculations are reproduced herein.

Identifier	ADDITIONAL LABEL	Page Count	Page No.
Figure 1	Study Area Intersections	1 p.	522
Figure 2	Existing Lane Configurations	1 p.	523
Figure 3	Existing Traffic Volumes	1 p.	524
Figure 4	Approved Development Traffic	1 p.	525
Figure 5	Cumulative 2025 Traffic without Bypass	1 p.	526
Figure 6	Cumulative 2025 Traffic with Bypass	1 p.	527
Figure 7	Project Trip Assignment without Bypass	1 p.	528
Figure 8	Project Trip Assignment with Bypass	1 p.	529
Figure A1	Trip Distribution (before Buchanan Bypass)	1 p.	530
Figure A2	Trip Distribution (with Buchanan Bypass)	1 p.	531
Calculation Sheets	Intersection Level of Service (LOS)	91 pp.	532-622
Calculation Sheets	Intersection LOS for Mitigated Conditions	25 pp.	623-647

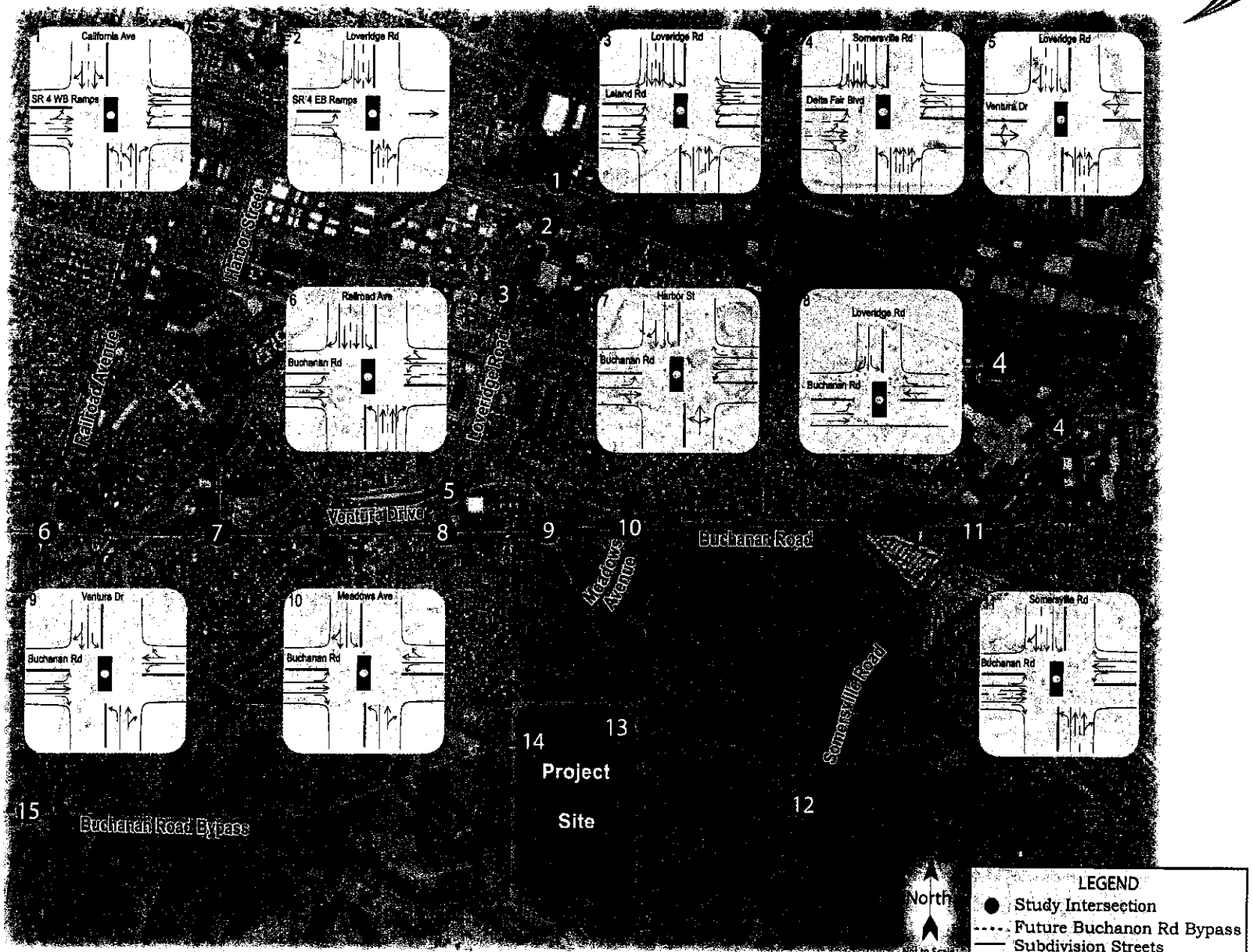
Sky Ranch II Subdivision Traffic Analysis

City of Pittsburg

Figure 1

Study Area

PIT002.ai 8/05



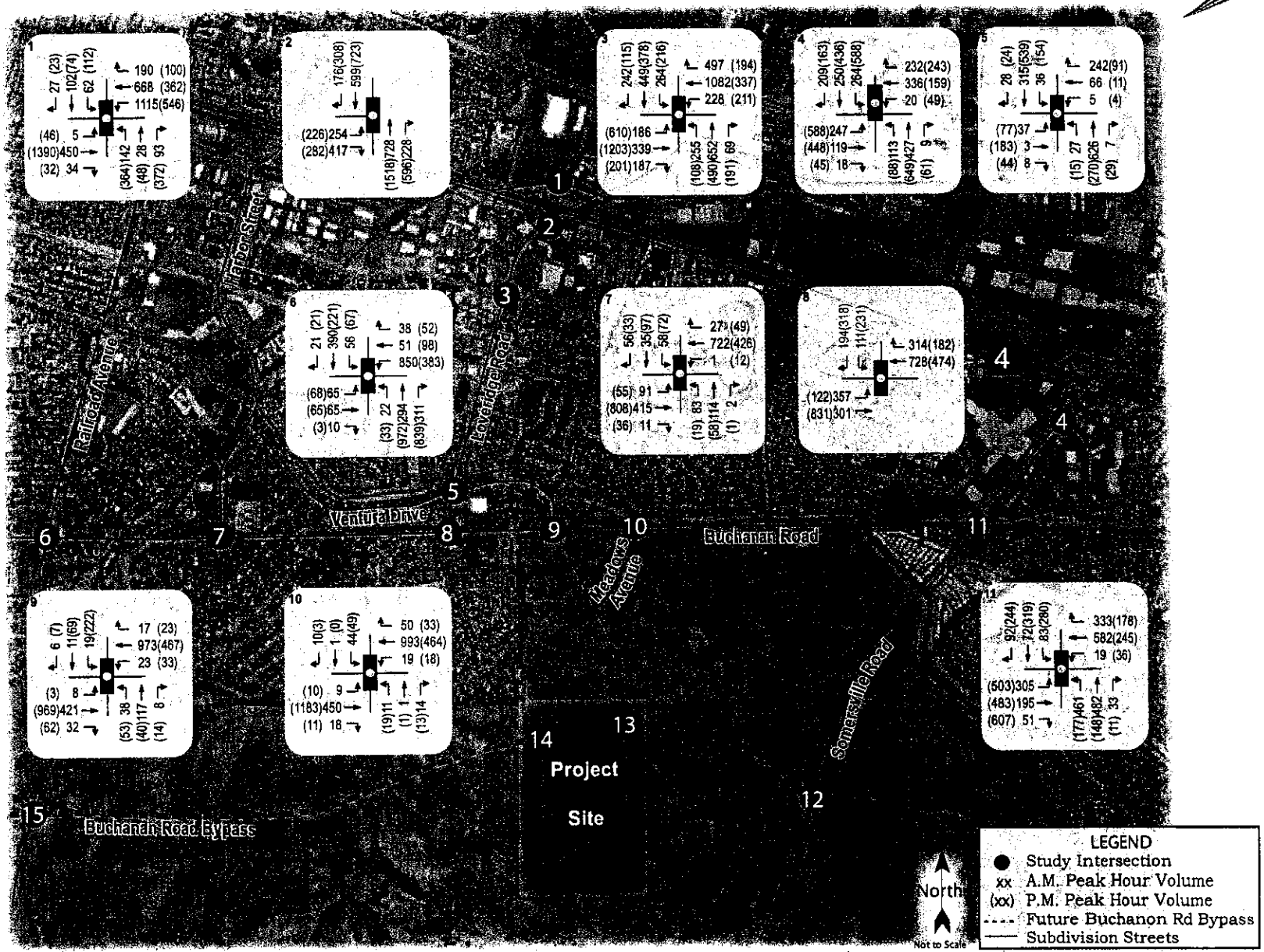
Sky Ranch II Subdivision Traffic Analysis

Cit f Pittsburg

Figure 2

Existing Lane Configurations

PIT002.1 J5



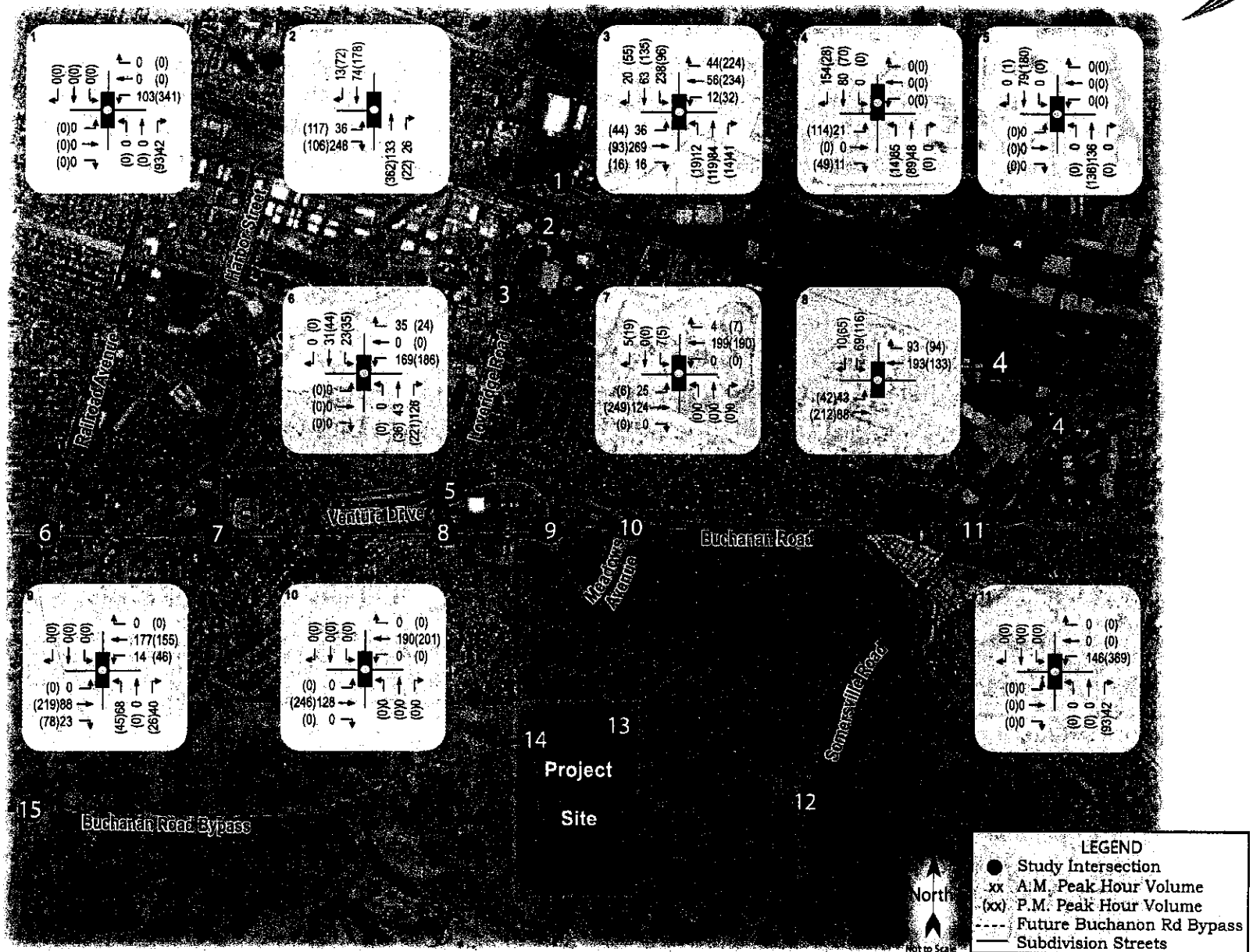
Sky Ranch II Subdivision Traffic Analysis

City of Pittsburg

Figure 3

Existing Traffic Volumes

PIT002.ai 8/05

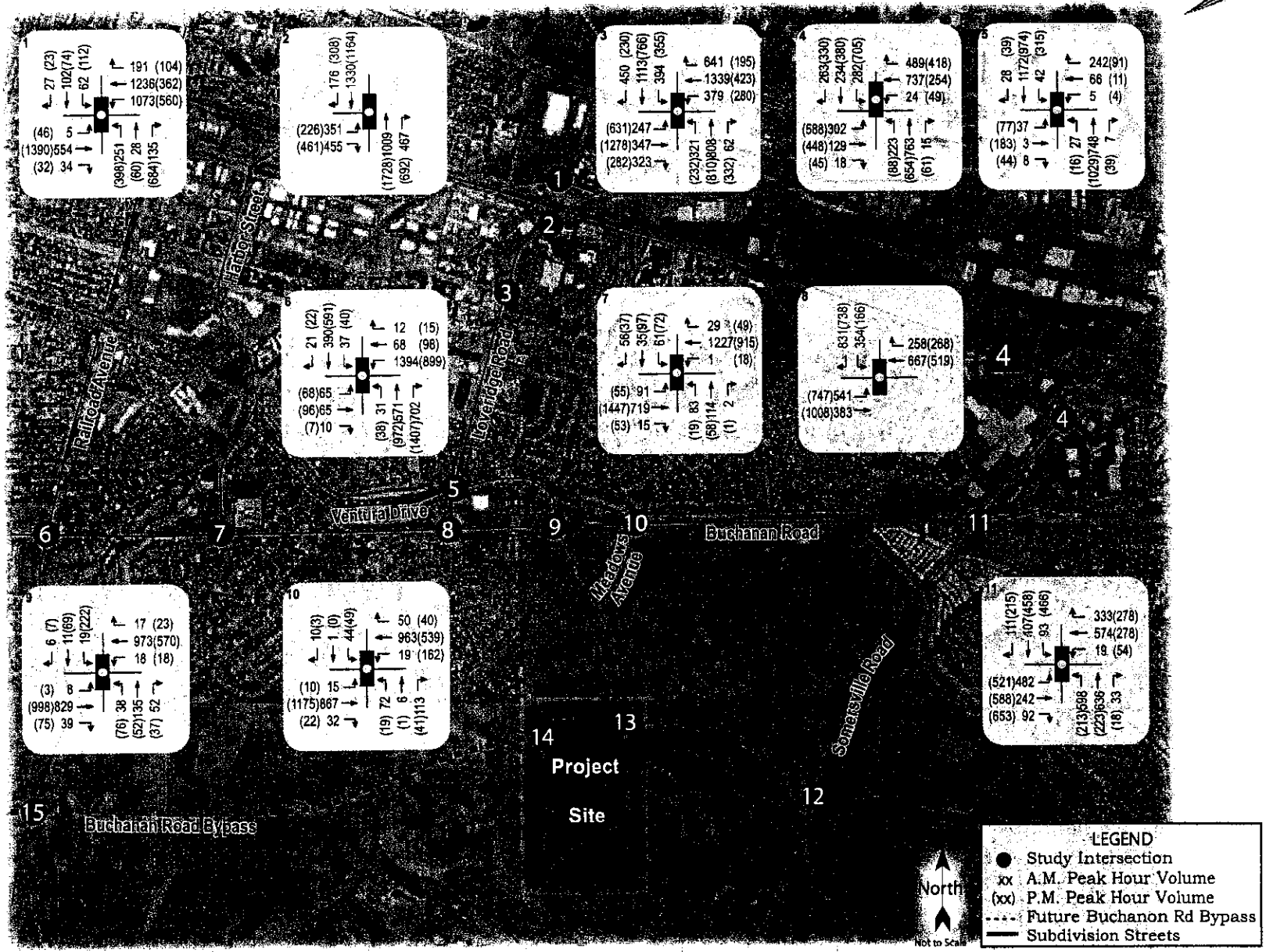


Sky Ranch II Subdivision Traffic Analysis

Figure 4

Cit f Pittsburg

Approved Development Traffic Volumes



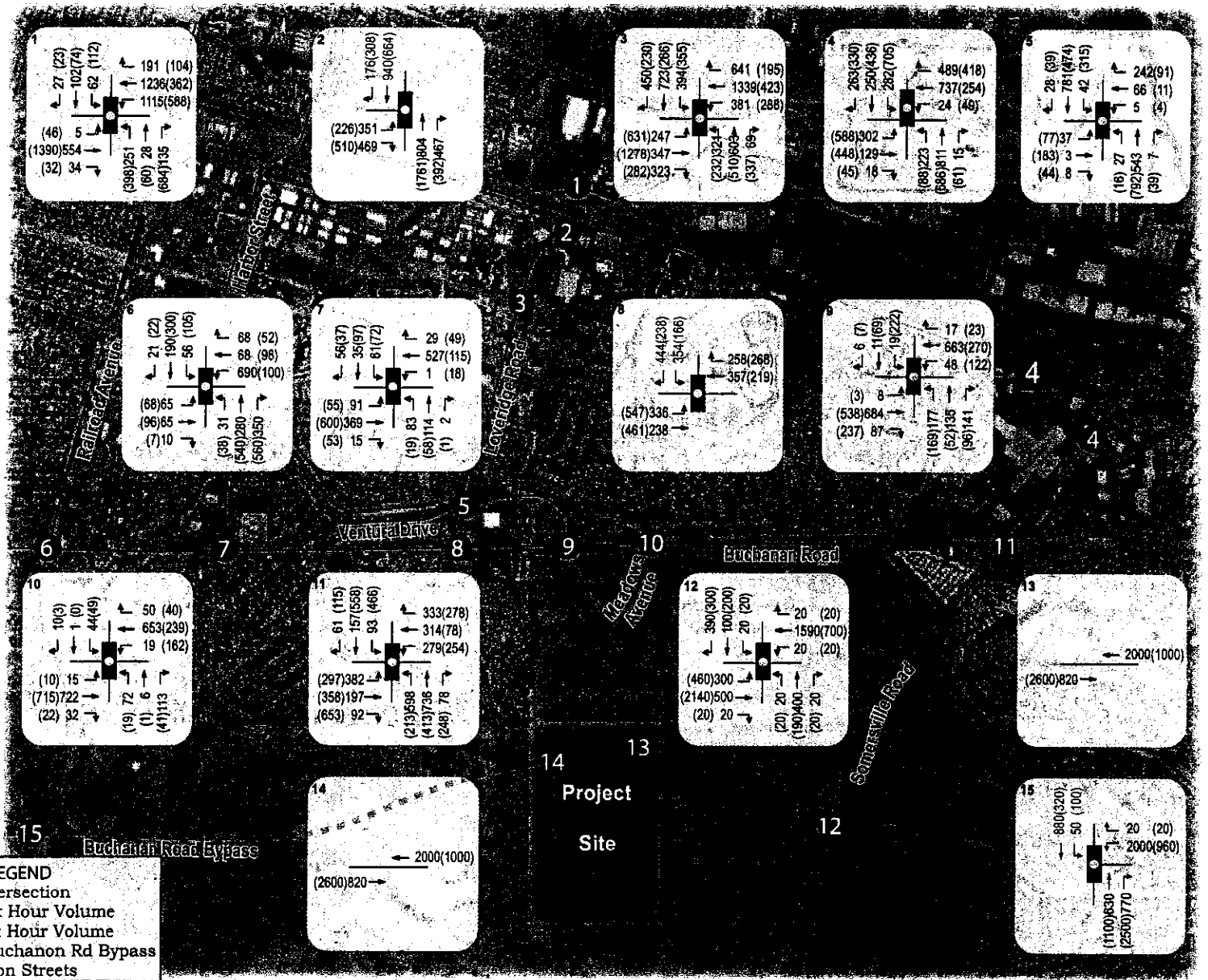
Sky Ranch II Subdivision Traffic Analysis

Figure 5

Cumulative 2025 without Buchanan Road Bypass Traffic Volumes

City of Pittsburg

PIT002.ai 8/05



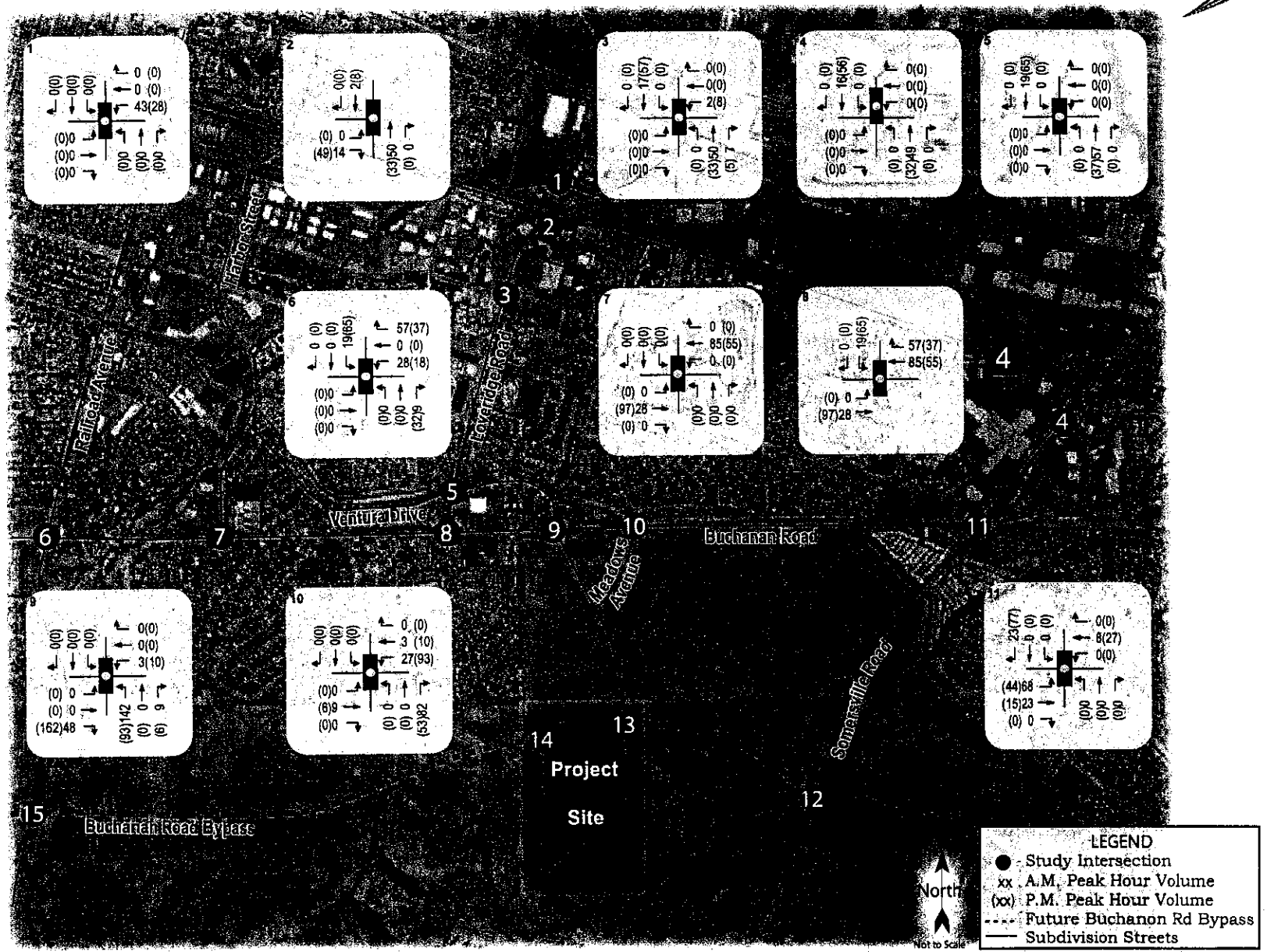
Sky Ranch II Subdivision Traffic Analysis

Figure 6

City of Pittsburg

Cumulative 2025 with Buchanan Road Bypass Traffic Volumes

PIT002 05



Sky Ranch II Subdivision Traffic Analysis

City of Pittsburg

Figure 7

Project (without Bypass) Traffic Volumes

PIT002.ai 9/05

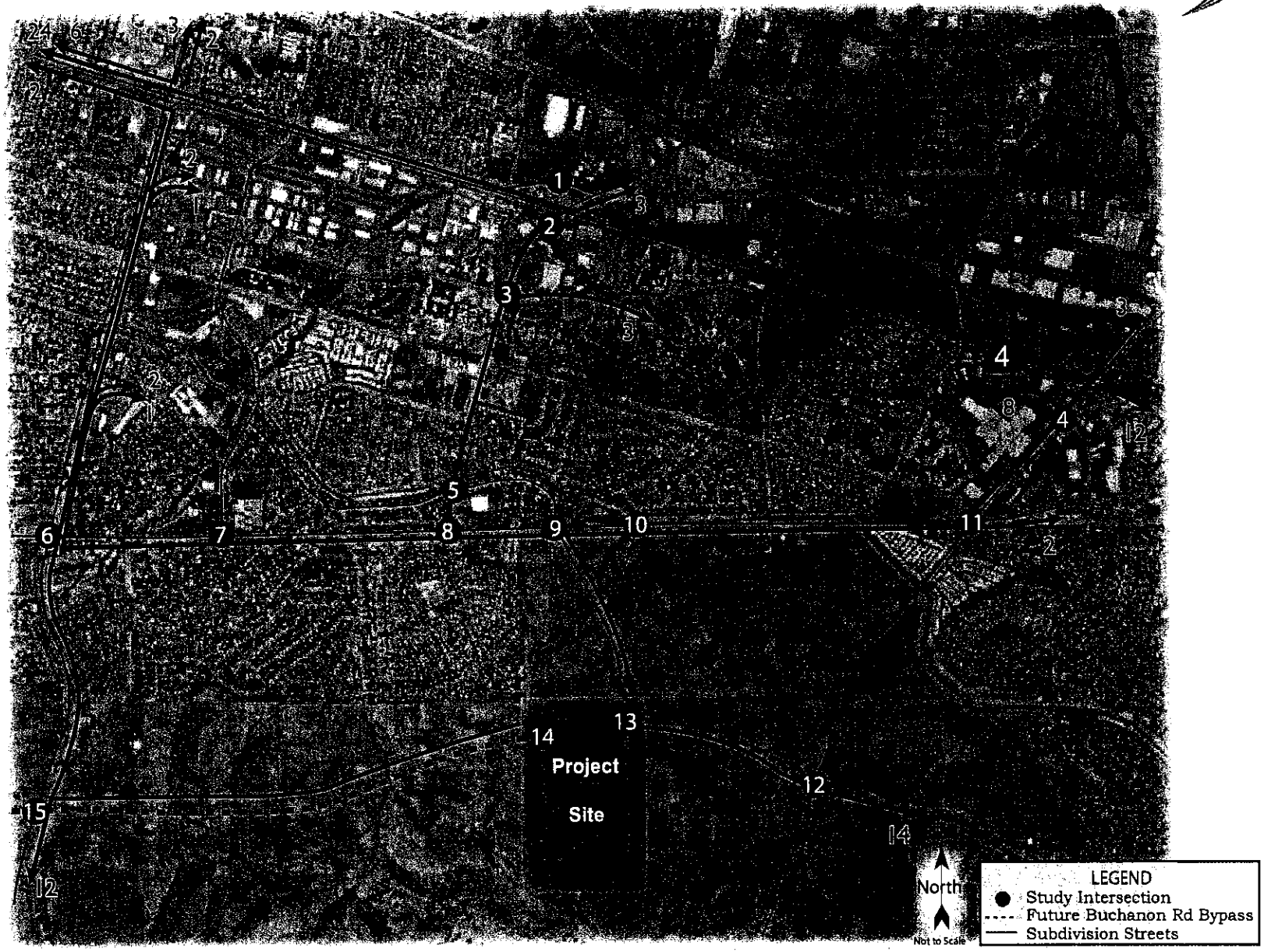
Sky Ranch II Subdivision Traffic Analysis

Figure A1

City of Pittsburg

Trip Distribution (Pre Bypass)

PIT002.ai 04



Sky Ranch II Subdivision Traffic Analysis

City of Pittsburg

Figure A2

Trip Distribution (Post Bypass)

PIT002.ai 11/04

Intersection Level of Service Calculations
CCTA Methodology
Existing Conditions

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing Conditions 09/01/05

INTERSECTION 1 S.R. 4 WB Ramps/California Ave City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 8-PHASE SIGNAL
27 102 62

Split? Y

LEFT 5 --- 1.1 1.1 2.2 1.1 1.0 --- 190 RIGHT
STREET NAME:
THRU 450 ---> 2.1 (NO. OF LANES) 1.0<--- 668 THRU California Ave

RIGHT 34 --- 1.0 2.1 1.1 1.0 2.0 --- 1115 LEFT

N
W + E 142 28 93 SIG WARRANTS:
S LEFT THRU RIGHT Split? Y Urb=Y, Rur=Y

STREET NAME: S.R. 4 WB Ramps

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	93	0 *	1650	0.0000	
	THRU (T)	28	28	1650	0.0170	
	LEFT (L)	142	142	3000	0.0473	
	T + L		170	3000	0.0567	0.0567
SB	RIGHT (R)	27	27	1650	0.0164	
	THRU (T)	102	102	3300	0.0309	
	LEFT (L)	62	62	1650	0.0376	
	T + R		129	3300	0.0391	
	T + L		164	3300	0.0497	
	T + R + L		191	3300	0.0579	0.0579
EB	RIGHT (R)	34	0 *	1650	0.0000	
	THRU (T)	450	450	3300	0.1364	
	LEFT (L)	5	5	1650	0.0030	
	T + L		455	3300	0.1379	0.1379
WB	RIGHT (R)	190	128 *	1650	0.0776	
	THRU (T)	668	668	1650	0.4048	0.4048
	LEFT (L)	1115	1115	3000	0.3717	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.66
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing Conditions 09/01/05

INTERSECTION 1 S.R. 4 WB Ramps/California Ave City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 8-PHASE SIGNAL
23 74 112

Split? Y

LEFT 46 --- 1.1 1.1 2.2 1.1 1.0 --- 100 RIGHT
STREET NAME:
THRU 1390 ---> 2.1 (NO. OF LANES) 1.0<--- 362 THRU California Ave

RIGHT 32 --- 1.0 2.1 1.1 1.0 2.0 --- 546 LEFT

N
W + E 364 48 372 SIG WARRANTS:
S LEFT THRU RIGHT Split? Y Urb=Y, Rur=Y

STREET NAME: S.R. 4 WB Ramps

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	372	72 *	1650	0.0436	
	THRU (T)	48	48	1650	0.0291	
	LEFT (L)	364	364	3000	0.1213	
	T + L		412	3000	0.1373	0.1373
SB	RIGHT (R)	23	23	1650	0.0139	
	THRU (T)	74	74	3300	0.0224	
	LEFT (L)	112	112	1650	0.0679	0.0679
	T + R		97	3300	0.0294	
	T + L		186	3300	0.0564	
	T + R + L		209	3300	0.0633	
EB	RIGHT (R)	32	0 *	1650	0.0000	
	THRU (T)	1390	1390	3300	0.4212	
	LEFT (L)	46	46	1650	0.0279	
	T + L		1436	3300	0.4352	0.4352
WB	RIGHT (R)	100	0 *	1650	0.0000	
	THRU (T)	362	362	1650	0.2194	0.2194
	LEFT (L)	546	546	3000	0.1820	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.86
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing Conditions 09/01/05

INTERSECTION 2 Loveridge Road/S.R. 4 EB Ramps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 2-PHASE SIGNAL

RIGHT THRU LEFT
176 599 0

Split? Y

LEFT 254 --- 1.0 1.0 2.0 0.0 0.0 --- 0 RIGHT

STREET NAME:
THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU S.R. 4 EB Ramps

RIGHT 417 --- 1.0 0.0 2.1 1.1 0.0 --- 0 LEFT

N
W + E
S

SIG WARRANTS:
Urb=Y, Rur=Y

0 728 228
LEFT THRU RIGHT Split? N

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	228	228	1800	0.1267	
THRU (T)	728	728	3600	0.2022	
T + R		956	3600	0.2656	0.2656
SB RIGHT (R)	176	0 *	1800	0.0000	
THRU (T)	599	599	3600	0.1664	
EB RIGHT (R)	417	417	1800	0.2317	0.2317
LEFT (L)	254	254	1800	0.1411	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.50
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing Conditions 09/01/05

INTERSECTION 2 Loveridge Road/S.R. 4 EB Ramps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 2-PHASE SIGNAL

RIGHT THRU LEFT
308 723 0

Split? Y

LEFT 226 --- 1.0 1.0 2.0 0.0 0.0 --- 0 RIGHT

STREET NAME:
THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU S.R. 4 EB Ramps

RIGHT 282 --- 1.0 0.0 2.1 1.1 0.0 --- 0 LEFT

N
W + E
S

SIG WARRANTS:
Urb=Y, Rur=Y

0 1518 596
LEFT THRU RIGHT Split? N

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	596	596	1800	0.3311	
THRU (T)	1518	1518	3600	0.4217	
T + R		2114	3600	0.5872	0.5872
SB RIGHT (R)	308	82 *	1800	0.0456	
THRU (T)	723	723	3600	0.2008	
EB RIGHT (R)	282	282	1800	0.1567	0.1567
LEFT (L)	226	226	1800	0.1256	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.74
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing Conditions 09/01/05

INTERSECTION 3 Loveridge Road/E. Leland Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 6-PHASE SIGNAL

```
                    RIGHT THRU LEFT
                      242  449  264
                       |    |    |
                       v    v    v
LEFT   186 ---> 2.0  1.0  2.0  2.0  1.0 ---> 497  RIGHT
THRU   339 ---> 2.0  (NO. OF LANES)  2.0<--- 1082 THRU
RIGHT  187 ---> 1.0  1.0  2.1  1.1  2.0 ---> 228  LEFT
                       |    ^    |    |
                       v    |    v    v
                      255  652   69
                     LEFT THRU RIGHT Split? N
```

Split? N

STREET NAME: E. Leland Road

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Loveridge Road

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	69	69	1650	0.0418	
	THRU (T)	652	652	3300	0.1976	
	LEFT (L)	255	255	1650	0.1545	
	T + R		721	3300	0.2185	0.2185
SB	RIGHT (R)	242	140 *	1650	0.0848	
	THRU (T)	449	449	3300	0.1361	
	LEFT (L)	264	264	3000	0.0880	0.0880
EB	RIGHT (R)	187	0 *	1650	0.0000	
	THRU (T)	339	339	3300	0.1027	
	LEFT (L)	186	186	3000	0.0620	0.0620
WB	RIGHT (R)	497	352 *	1650	0.2133	
	THRU (T)	1082	1082	3300	0.3279	0.3279
	LEFT (L)	228	228	3000	0.0760	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.70
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing Conditions 09/01/05

INTERSECTION 3 Loveridge Road/E. Leland Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 6-PHASE SIGNAL

```
                    RIGHT THRU LEFT
                      115  378  216
                       |    |    |
                       v    v    v
LEFT   610 ---> 2.0  1.0  2.0  2.0  1.0 ---> 194  RIGHT
THRU  1203 ---> 2.0  (NO. OF LANES)  2.0<--- 337  THRU
RIGHT  201 ---> 1.0  1.0  2.1  1.1  2.0 ---> 211  LEFT
                       |    ^    |    |
                       v    |    v    v
                      108  490  191
                     LEFT THRU RIGHT Split? N
```

Split? N

STREET NAME: E. Leland Road

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Loveridge Road

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	191	191	1650	0.1158	
	THRU (T)	490	490	3300	0.1485	
	LEFT (L)	108	108	1650	0.0655	
	T + R		681	3300	0.2064	0.2064
SB	RIGHT (R)	115	0 *	1650	0.0000	
	THRU (T)	378	378	3300	0.1145	
	LEFT (L)	216	216	3000	0.0720	0.0720
EB	RIGHT (R)	201	93 *	1650	0.0564	
	THRU (T)	1203	1203	3300	0.3645	0.3645
	LEFT (L)	610	610	3000	0.2033	
WB	RIGHT (R)	194	75 *	1650	0.0455	
	THRU (T)	337	337	3300	0.1021	
	LEFT (L)	211	211	3000	0.0703	0.0703

TOTAL VOLUME-TO-CAPACITY RATIO: 0.71
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing Conditions 09/01/05

INTERSECTION 4 Somersville Road/Delta Fair Blvd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

209 250 264

LEFT 247 --- 2.1 1.0 2.0 2.0 1.0 --- 232 RIGHT (Split? Y)

THRU 119 ---> 2.2 (NO. OF LANES) 1.0<--- 336 THRU STREET NAME: Delta Fair Blvd

RIGHT 18 --- 1.1 1.0 3.1 1.1 1.0 --- 20 LEFT

N
W + E
S

113 427 9
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Somersville Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	9	9	1650	0.0055	
THRU (T)	427	427	4950	0.0863	
LEFT (L)	113	113	1650	0.0685	
T + R		436	4950	0.0881	0.0881
SB RIGHT (R)	209	73 *	1650	0.0442	
THRU (T)	250	250	3300	0.0758	
LEFT (L)	264	264	3000	0.0880	0.0880
EB RIGHT (R)	18	18	1650	0.0109	
THRU (T)	119	119	3300	0.0361	
LEFT (L)	247	247	3000	0.0823	
T + R		137	3300	0.0415	
T + L		366	4650	0.0787	
T + R + L		384	4650	0.0826	0.0826
WB RIGHT (R)	232	87 *	1650	0.0527	
THRU (T)	336	336	1650	0.2036	0.2036
LEFT (L)	20	20	1650	0.0121	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.46
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing Conditions 09/01/05

INTERSECTION 4 Somersville Road/Delta Fair Blvd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

163 436 588

LEFT 588 --- 2.1 1.0 2.0 2.0 1.0 --- 243 RIGHT (Split? Y)

THRU 448 ---> 2.2 (NO. OF LANES) 1.0<--- 159 THRU STREET NAME: Delta Fair Blvd

RIGHT 45 --- 1.1 1.0 3.1 1.1 1.0 --- 49 LEFT

N
W + E
S

88 649 61
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Somersville Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	61	61	1650	0.0370	
THRU (T)	649	649	4950	0.1311	
LEFT (L)	88	88	1650	0.0533	
T + R		710	4950	0.1434	0.1434
SB RIGHT (R)	163	0 *	1650	0.0000	
THRU (T)	436	436	3300	0.1321	
LEFT (L)	588	588	3000	0.1960	0.1960
EB RIGHT (R)	45	45	1650	0.0273	
THRU (T)	448	448	3300	0.1358	
LEFT (L)	588	588	3000	0.1960	
T + R		493	3300	0.1494	
T + L		1036	4650	0.2228	
T + R + L		1081	4650	0.2325	0.2325
WB RIGHT (R)	243	0 *	1650	0.0000	
THRU (T)	159	159	1650	0.0964	0.0964
LEFT (L)	49	49	1650	0.0297	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.67
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing Conditions 09/01/05

INTERSECTION 5 Loveridge Road/Ventura Drive City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
28 315 36

LEFT 37 --- 1.1 1.1 2.1 1.0 1.1 --- 242 RIGHT
Split? N

THRU 3 ---> 1.1 (NO. OF LANES) 1.1<--- 66 THRU

RIGHT 8 --- 1.1 1.0 2.1 1.1 1.1 --- 5 LEFT

STREET NAME: Ventura Drive

N
W + E
S
27 626 7
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Loveridge Road

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	7	7	1650	0.0042	
	THRU (T)	626	626	3300	0.1897	
	LEFT (L)	27	27	1650	0.0164	
	T + R		633	3300	0.1918	0.1918
SB	RIGHT (R)	28	28	1650	0.0170	
	THRU (T)	315	315	3300	0.0955	
	LEFT (L)	36	36	1650	0.0218	0.0218
	T + R		343	3300	0.1039	
EB	RIGHT (R)	8	8	1650	0.0048	
	THRU (T)	3	3	1650	0.0018	
	LEFT (L)	37	37	1650	0.0224	0.0224
	T + R		11	1650	0.0067	
	T + L		40	1650	0.0242	
	T + R + L		48	1650	0.0291	
WB	RIGHT (R)	242	242	1650	0.1467	
	THRU (T)	66	66	1650	0.0400	
	LEFT (L)	5	5	1650	0.0030	
	T + R		308	1650	0.1867	
	T + L		71	1650	0.0430	
	T + R + L		313	1650	0.1897	0.1897

TOTAL VOLUME-TO-CAPACITY RATIO: 0.43
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing Conditions 09/01/05

INTERSECTION 5 Loveridge Road/Ventura Drive City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
24 539 154

LEFT 77 --- 1.1 1.1 2.1 1.0 1.1 --- 91 RIGHT
Split? N

THRU 183 ---> 1.1 (NO. OF LANES) 1.1<--- 11 THRU

RIGHT 44 --- 1.1 1.0 2.1 1.1 1.1 --- 4 LEFT

STREET NAME: Ventura Drive

N
W + E
S
15 270 29
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Loveridge Road

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	29	29	1650	0.0176	
	THRU (T)	270	270	3300	0.0818	
	LEFT (L)	15	15	1650	0.0091	
	T + R		299	3300	0.0906	0.0906
SB	RIGHT (R)	24	24	1650	0.0145	
	THRU (T)	539	539	3300	0.1633	
	LEFT (L)	154	154	1650	0.0933	0.0933
	T + R		563	3300	0.1706	
EB	RIGHT (R)	44	44	1650	0.0267	
	THRU (T)	183	183	1650	0.1109	
	LEFT (L)	77	77	1650	0.0467	
	T + R		227	1650	0.1376	
	T + L		260	1650	0.1576	
	T + R + L		304	1650	0.1842	0.1842
WB	RIGHT (R)	91	91	1650	0.0552	
	THRU (T)	11	11	1650	0.0067	
	LEFT (L)	4	4	1650	0.0024	0.0024
	T + R		102	1650	0.0618	
	T + L		15	1650	0.0091	
	T + R + L		106	1650	0.0642	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.37
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing Conditions 09/01/05

INTERSECTION 6 Railroad Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
21 390 56

LEFT 65 --- 1.0 1.0 2.0 1.0 1.1 --- 38 RIGHT | Split? Y

THRU 65 ---> 1.0 (NO. OF LANES) 1.1<--- 51 THRU STREET NAME: Buchanan Road

RIGHT 10 --- 1.0 1.0 2.0 1.0 2.0 --- 850 LEFT

N
W + E
S

22 294 311
LEFT THRU RIGHT Split? Y

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Railroad Avenue

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	311	0 *	1650	0.0000	
THRU (T)	294	294	3300	0.0891	0.0891
LEFT (L)	22	22	1650	0.0133	
SB RIGHT (R)	21	0 *	1650	0.0000	
THRU (T)	390	390	3300	0.1182	0.1182
LEFT (L)	56	56	1650	0.0339	
EB RIGHT (R)	10	0 *	1650	0.0000	
THRU (T)	65	65	1650	0.0394	0.0394
LEFT (L)	65	65	1650	0.0394	
WB RIGHT (R)	38	38	1650	0.0230	
THRU (T)	51	51	1650	0.0309	
LEFT (L)	850	850	3000	0.2833	0.2833
T + R		89	1650	0.0539	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.53
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing Conditions 09/01/05

INTERSECTION 6 Railroad Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
21 221 67

LEFT 68 --- 1.0 1.0 2.0 1.0 1.1 --- 52 RIGHT | Split? Y

THRU 65 ---> 1.0 (NO. OF LANES) 1.1<--- 98 THRU STREET NAME: Buchanan Road

RIGHT 3 --- 1.0 1.0 2.0 1.0 2.0 --- 383 LEFT

N
W + E
S

33 972 839
LEFT THRU RIGHT Split? Y

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Railroad Avenue

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	839	628 *	1650	0.3806	0.3806
THRU (T)	972	972	3300	0.2945	
LEFT (L)	33	33	1650	0.0200	
SB RIGHT (R)	21	0 *	1650	0.0000	
THRU (T)	221	221	3300	0.0670	0.0670
LEFT (L)	67	67	1650	0.0406	
EB RIGHT (R)	3	0 *	1650	0.0000	
THRU (T)	65	65	1650	0.0394	
LEFT (L)	68	68	1650	0.0412	0.0412
WB RIGHT (R)	52	52	1650	0.0315	
THRU (T)	98	98	1650	0.0594	
LEFT (L)	383	383	3000	0.1277	0.1277
T + R		150	1650	0.0909	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.62
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing Conditions 09/01/05

INTERSECTION 7 Harbor Street/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
56 35 58

LEFT 91 --- 1.0 1.1 1.1 1.0 1.0 --- 27 RIGHT
Split? N

STREET NAME:
THRU 415 ---> 1.1 (NO. OF LANES) 1.0<--- 722 THRU Buchanan Road

RIGHT 11 --- 1.1 1.1 1.1 1.1 1.0 --- 1 LEFT

N
W + E
S
83 114 2
LEFT THRU RIGHT Split? Y

SIG WARRANTS:
Urb=B, Rur=Y

STREET NAME: Harbor Street

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	2	2	1650	0.0012	
	THRU (T)	114	114	1650	0.0691	
	LEFT (L)	83	83	1650	0.0503	
	T + R		116	1650	0.0703	
	T + L		197	1650	0.1194	
	T + R + L		199	1650	0.1206	0.1206
SB	RIGHT (R)	56	56	1650	0.0339	
	THRU (T)	35	35	1650	0.0212	
	LEFT (L)	58	58	1650	0.0352	
	T + R		91	1650	0.0552	0.0552
EB	RIGHT (R)	11	11	1650	0.0067	
	THRU (T)	415	415	1650	0.2515	
	LEFT (L)	91	91	1650	0.0552	0.0552
	T + R		426	1650	0.2582	
WB	RIGHT (R)	27	0 *	1650	0.0000	
	THRU (T)	722	722	1650	0.4376	0.4376
	LEFT (L)	1	1	1650	0.0006	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.67
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing Conditions 09/01/05

INTERSECTION 7 Harbor Street/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
33 97 72

LEFT 55 --- 1.0 1.1 1.1 1.0 1.0 --- 49 RIGHT
Split? N

STREET NAME:
THRU 808 ---> 1.1 (NO. OF LANES) 1.0<--- 426 THRU Buchanan Road

RIGHT 36 --- 1.1 1.1 1.1 1.1 1.0 --- 12 LEFT

N
W + E
S
19 58 1
LEFT THRU RIGHT Split? Y

SIG WARRANTS:
Urb=N, Rur=Y

STREET NAME: Harbor Street

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	1	1	1650	0.0006	
	THRU (T)	58	58	1650	0.0352	
	LEFT (L)	19	19	1650	0.0115	
	T + R		59	1650	0.0358	
	T + L		77	1650	0.0467	
	T + R + L		78	1650	0.0473	0.0473
SB	RIGHT (R)	33	33	1650	0.0200	
	THRU (T)	97	97	1650	0.0588	
	LEFT (L)	72	72	1650	0.0436	
	T + R		130	1650	0.0788	0.0788
EB	RIGHT (R)	36	36	1650	0.0218	
	THRU (T)	808	808	1650	0.4897	
	LEFT (L)	55	55	1650	0.0333	
	T + R		844	1650	0.5115	0.5115
WB	RIGHT (R)	49	0 *	1650	0.0000	
	THRU (T)	426	426	1650	0.2582	
	LEFT (L)	12	12	1650	0.0073	0.0073

TOTAL VOLUME-TO-CAPACITY RATIO: 0.64
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing Conditions 09/01/05

INTERSECTION 8 Loveridge Road/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 3-PHASE SIGNAL

RIGHT THRU LEFT
194 0 111

Split? N

LEFT	357	---	1.0	1.0	0.0	1.0	1.0	---	314	RIGHT
THRU	301	--->	1.0	(NO. OF LANES)			1.0	<---	728	THRU
RIGHT	0	---	0.0	0.0	0.0	0.0	0.0	---	0	LEFT

STREET NAME: Buchanan Road

N
W + E
S

SIG WARRANTS: Urb=Y, Rur=Y

LEFT THRU RIGHT Split? N
0 0 0

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB RIGHT (R)	194	0 *	1720	0.0000	
LEFT (L)	111	111	1720	0.0645	0.0645
EB THRU (T)	301	301	1720	0.1750	
LEFT (L)	357	357	1720	0.2076	0.2076
WB RIGHT (R)	314	203 *	1720	0.1180	
THRU (T)	728	728	1720	0.4233	0.4233

TOTAL VOLUME-TO-CAPACITY RATIO: 0.70
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing Conditions 09/01/05

INTERSECTION 8 Loveridge Road/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 3-PHASE SIGNAL

RIGHT THRU LEFT
318 0 231

Split? N

LEFT	122	---	1.0	1.0	0.0	1.0	1.0	---	182	RIGHT
THRU	831	--->	1.0	(NO. OF LANES)			1.0	<---	474	THRU
RIGHT	0	---	0.0	0.0	0.0	0.0	0.0	---	0	LEFT

STREET NAME: Buchanan Road

N
W + E
S

SIG WARRANTS: Urb=Y, Rur=Y

LEFT THRU RIGHT Split? N
0 0 0

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB RIGHT (R)	318	196 *	1720	0.1140	
LEFT (L)	231	231	1720	0.1343	0.1343
EB THRU (T)	831	831	1720	0.4831	0.4831
LEFT (L)	122	122	1720	0.0709	
WB RIGHT (R)	182	0 *	1720	0.0000	
THRU (T)	474	474	1720	0.2756	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.62
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing Conditions 09/01/05

INTERSECTION 9 Ventura Drive/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

6 11 19

<---- v ----> | Split? N

LEFT 8 --- 1.0 1.1 1.1 1.0 1.1 --- 17 RIGHT

STREET NAME:

THRU 421 ---> 1.0 (NO. OF LANES) 1.1<--- 973 THRU Buchanan Road

RIGHT 32 --- 1.0 1.0 1.1 1.1 1.0 --- 23 LEFT

<---- ^ ----> |

v v

N SIG WARRANTS:

W + E 38 117 8 Urb=N, Rur=Y

S LEFT THRU RIGHT Split? N

STREET NAME: Ventura Drive

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	8	8	1650	0.0048	
	THRU (T)	117	117	1650	0.0709	
	LEFT (L)	38	38	1650	0.0230	
	T + R		125	1650	0.0758	0.0758
SB	RIGHT (R)	6	6	1650	0.0036	
	THRU (T)	11	11	1650	0.0067	
	LEFT (L)	19	19	1650	0.0115	0.0115
	T + R		17	1650	0.0103	
EB	RIGHT (R)	32	0 *	1650	0.0000	
	THRU (T)	421	421	1650	0.2552	
	LEFT (L)	8	8	1650	0.0048	0.0048
WB	RIGHT (R)	17	17	1650	0.0103	
	THRU (T)	973	973	1650	0.5897	
	LEFT (L)	23	23	1650	0.0139	
	T + R		990	1650	0.6000	0.6000

TOTAL VOLUME-TO-CAPACITY RATIO: 0.69
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing Conditions 09/01/05

INTERSECTION 9 Ventura Drive/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

7 69 222

<---- v ----> | Split? N

LEFT 3 --- 1.0 1.1 1.1 1.0 1.1 --- 23 RIGHT

STREET NAME:

THRU 969 ---> 1.0 (NO. OF LANES) 1.1<--- 467 THRU Buchanan Road

RIGHT 62 --- 1.0 1.0 1.1 1.1 1.0 --- 33 LEFT

<---- ^ ----> |

v v

N SIG WARRANTS:

W + E 53 40 14 Urb=Y, Rur=Y

S LEFT THRU RIGHT Split? N

STREET NAME: Ventura Drive

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	14	14	1650	0.0085	
	THRU (T)	40	40	1650	0.0242	
	LEFT (L)	53	53	1650	0.0321	
	T + R		54	1650	0.0327	0.0327
SB	RIGHT (R)	7	7	1650	0.0042	
	THRU (T)	69	69	1650	0.0418	
	LEFT (L)	222	222	1650	0.1345	0.1345
	T + R		76	1650	0.0461	
EB	RIGHT (R)	62	9 *	1650	0.0055	
	THRU (T)	969	969	1650	0.5873	0.5873
	LEFT (L)	3	3	1650	0.0018	
WB	RIGHT (R)	23	23	1650	0.0139	
	THRU (T)	467	467	1650	0.2830	
	LEFT (L)	33	33	1650	0.0200	0.0200
	T + R		490	1650	0.2970	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.77
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing Conditions 09/01/05

INTERSECTION 10 Meadows Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

```
                    RIGHT THRU LEFT
                      10    1   44
                       |    |   |
                       |    |   |
                  ^    |    |   |    ^
                  |    |  <---  v   --->      | Split? N
LEFT      9 ---  1.0   1.1  1.1  1.0  1.1 ---   50  RIGHT
                                                    STREET NAME:
THRU    450 ---> 1.0  (NO. OF LANES)   1.1<---  993  THRU  Buchanan Road

RIGHT    18 ---  1.0   1.0  1.1  1.1  1.0 ---   19  LEFT
                  |    <---   ^   --->     |
                  v         |   |         v
  N               |    |   |                        SIG WARRANTS:
W + E             |   11   1  14                      Urb=N, Rur=N
  S               LEFT THRU RIGHT Split? N
```

STREET NAME: Meadows Avenue

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	14	14	1650	0.0085	
	THRU (T)	1	1	1650	0.0006	
	LEFT (L)	11	11	1650	0.0067	
	T + R		15	1650	0.0091	0.0091
SB	RIGHT (R)	10	10	1650	0.0061	
	THRU (T)	1	1	1650	0.0006	
	LEFT (L)	44	44	1650	0.0267	0.0267
	T + R		11	1650	0.0067	
EB	RIGHT (R)	18	7 *	1650	0.0042	
	THRU (T)	450	450	1650	0.2727	
	LEFT (L)	9	9	1650	0.0055	0.0055
WB	RIGHT (R)	50	50	1650	0.0303	
	THRU (T)	993	993	1650	0.6018	
	LEFT (L)	19	19	1650	0.0115	
	T + R		1043	1650	0.6321	0.6321

TOTAL VOLUME-TO-CAPACITY RATIO: 0.67
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing Conditions 09/01/05

INTERSECTION 10 Meadows Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

```
                    RIGHT THRU LEFT
                       3    0   49
                       |    |   |
                       |    |   |
                  ^    |    |   |    ^
                  |    |  <---  v   --->      | Split? N
LEFT     10 ---  1.0   1.1  1.1  1.0  1.1 ---   33  RIGHT
                                                    STREET NAME:
THRU   1183 ---> 1.0  (NO. OF LANES)   1.1<---  464  THRU  Buchanan Road

RIGHT    11 ---  1.0   1.0  1.1  1.1  1.0 ---   18  LEFT
                  |    <---   ^   --->     |
                  v         |   |         v
  N               |    |   |                        SIG WARRANTS:
W + E             |   19   1  13                      Urb=N, Rur=N
  S               LEFT THRU RIGHT Split? N
```

STREET NAME: Meadows Avenue

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	13	13	1650	0.0079	
	THRU (T)	1	1	1650	0.0006	
	LEFT (L)	19	19	1650	0.0115	
	T + R		14	1650	0.0085	0.0085
SB	RIGHT (R)	3	3	1650	0.0018	
	THRU (T)	0	0	1650	0.0000	
	LEFT (L)	49	49	1650	0.0297	0.0297
	T + R		3	1650	0.0018	
EB	RIGHT (R)	11	0 *	1650	0.0000	
	THRU (T)	1183	1183	1650	0.7170	0.7170
	LEFT (L)	10	10	1650	0.0061	
WB	RIGHT (R)	33	33	1650	0.0200	
	THRU (T)	464	464	1650	0.2812	
	LEFT (L)	18	18	1650	0.0109	0.0109
	T + R		497	1650	0.3012	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.77
INTERSECTION LEVEL OF SERVICE: C

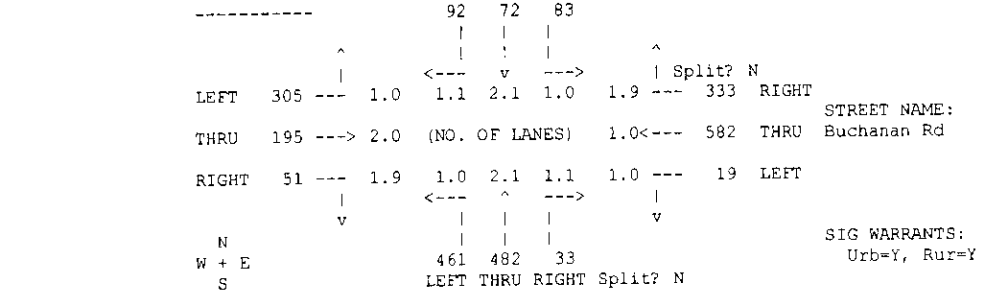
* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing Conditions 09/01/05

INTERSECTION 11 Somersville Road/Buchanan Rd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 6-PHASE SIGNAL



STREET NAME: Buchanan Rd

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Somersville Road

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	33	33	1650	0.0200	
	THRU (T)	482	482	3300	0.1461	
	LEFT (L)	461	461	1650	0.2794	0.2794
	T + R		515	3300	0.1561	
SB	RIGHT (R)	92	92	1650	0.0558	0.0558
	THRU (T)	72	72	3300	0.0218	
	LEFT (L)	83	83	1650	0.0503	
	T + R		164	3300	0.0497	
EB	RIGHT (R)	51	51	1650	0.0309	
	THRU (T)	195	195	3300	0.0591	
	LEFT (L)	305	305	1650	0.1848	0.1848
WB	RIGHT (R)	333	333	1650	0.2018	
	THRU (T)	582	582	1650	0.3527	0.3527
	LEFT (L)	19	19	1650	0.0115	
	TOTAL VOLUME-TO-CAPACITY RATIO:				0.87	
	INTERSECTION LEVEL OF SERVICE:				D	

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing Conditions 09/01/05

INTERSECTION 11 Somersville Road/Buchanan Rd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 6-PHASE SIGNAL

STREET NAME: Buchanan Rd

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Somersville Road

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	11	11	1650	0.0067	
	THRU (T)	148	148	3300	0.0448	
	LEFT (L)	177	177	1650	0.1073	0.1073
	T + R		159	3300	0.0482	
SB	RIGHT (R)	244	244	1650	0.1479	
	THRU (T)	319	319	3300	0.0967	
	LEFT (L)	280	280	1650	0.1697	
	T + R		563	3300	0.1706	0.1706
EB	RIGHT (R)	607	607	1650	0.3679	
	THRU (T)	483	483	3300	0.1464	
	LEFT (L)	503	503	1650	0.3048	0.3048
WB	RIGHT (R)	178	178	1650	0.1079	
	THRU (T)	245	245	1650	0.1485	0.1485
	LEFT (L)	36	36	1650	0.0218	
	TOTAL VOLUME-TO-CAPACITY RATIO:				0.73	
	INTERSECTION LEVEL OF SERVICE:				C	

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV,CAP=

Intersection Level of Service Calculations
CCTA Methodology
Existing Plus Approved Development

Trip Generation				7th Edition Rates																			
						AM PEAK							PM PEAK							Weekday	
Zone #	Approved Projects	Number of Units	Units	Land Use Number	Land Use No./Type	Trip Rate per Unit	Number of Trips	In %	In Rate	In Trips	Out %	Out Rate	Out Trips	Trip Rate per Unit	Number of Trips	In %	In Rate	In Trips	Out %	Out Rate	Out Trips	Trip Rate per Unit	Total Trips
5	Los Medanos College	4250	students	550	University/College		645			607			38		474			51			423		
6	Highlands Ranch	193	units	210	Single Family Detached Housing	0.75	145	25	0.19	36	75	0.56	109	1.01	195	63	0.64	123	37	0.37	72	9.57	1847
7	Stanford Place	100	units	210	Single Family Detached Housing	0.75	75	25	0.19	19	75	0.56	56	1.01	101	63	0.64	64	37	0.37	37	9.57	957
8	Buchanan Road Starbucks	2.9	ksf	934	Fast Food with Drive Thru	53.11	154	51	27.09	79	49	26.02	75	34.64	100	52	18.01	52	48	16.63	48	496.12	1439
9	Delta Gateway	9.1	ksf	814	Specialty Retail (am from 820)	1.03	9	61	0.63	6	39	0.40	4	2.71	25	44	1.19	11	56	1.52	14	44.32	403
10	Gomez Brother's Auto Center	7.6	ksf	942	Automobile Care Center	2.94	22	65	1.91	15	35	1.03	8	3.38	26	50	1.69	13	50	1.69	13	33.8	257
11	Pittsburg Medical Center	8.362	ksf	720	Medical-Dental Office Building	2.48	21	79	1.96	16	21	0.52	4	3.72	31	27	1.00	8	73	2.72	23	36.13	302
12	Security Public Storage	78.2	ksf	151	Mini-Warehouse	0.15	12	59	0.09	7	41	0.06	5	0.26	20	51	0.13	10	49	0.13	10	2.5	196
13	Heritage Pointe	125	units	210	Single Family Detached Housing	0.75	94	25	0.19	23	75	0.56	70	1.01	126	63	0.64	80	37	0.37	47	9.57	1196
14	Lawlor Estates	50	units	210	Single Family Detached Housing	0.75	38	25	0.19	9	75	0.56	28	1.01	51	63	0.64	32	37	0.37	19	9.57	479
15	Oak Hills South Units	120	units	210	Single Family Detached Housing	0.75	90	25	0.19	23	75	0.56	68	1.01	121	63	0.64	76	37	0.37	45	9.57	1148
16	San Marco (Single Family Units)	1200	units	210	Single Family Detached Housing	0.75	900	25	0.19	225	75	0.56	675	1.01	1212	63	0.64	764	37	0.37	448	9.57	11484
17	Willow Heights	120	units	210	Single Family Detached Housing	0.75	90	25	0.19	23	75	0.56	68	1.01	121	63	0.64	76	37	0.37	45	9.57	1148
18	Presidio Village (Senior Apartments)	104	dwellings	252	Elderly Housing-Attached	0.08	8	45	0.04	4	55	0.04	5	0.11	11	61	0.07	7	39	0.04	4	3.48	362
19	San Marco (Multi-Family Units)	1526	units	220	Apartment	0.51	778	20	0.10	156	80	0.41	623	0.62	946	65	0.40	615	35	0.22	331	6.72	10255
20	Empire Business Park I	104.433	ksf	130	Industrial Park	0.84	88	82	0.69	72	18	0.15	16	0.86	90	21	0.18	19	79	0.68	71	6.96	727
21	Faith Worship Center	17.5	ksf	560	Church	0.72	13	54	0.39	7	46	0.33	6	0.66	12	52	0.34	6	48	0.32	6	9.11	159
22	Fire Station #84 with Administration Center	10.942	ksf	170	Utilities	0.8	9	50	0.40	4	50	0.40	4	0.76	8	45	0.34	4	55	0.42	5	7.6	83
23	First Baptist Church	26.4	ksf	560	Church	0.72	19	54	0.39	10	46	0.33	9	0.66	17	52	0.34	9	48	0.32	8	9.11	241
24	Loveridge Commercial Center	236	ksf	820 (F)	Shopping Center	1.11	262	61	0.68	160	39	0.43	102	4.68	1103	48	2.24	530	52	2.43	574	50.28	11867
	with pass-by and linked trip reduction						*210*			*128*			*82*		*772*			*371*			*402*		*8514*
25	Mira Vista	264	units	210	Single Family Detached Housing	0.75	198	25	0.19	50	75	0.56	149	1.01	267	63	0.64	168	37	0.37	99	9.57	2526
26	Black Diamond Ranch	289	units	210	Single Family Detached Housing	0.75	217	25	0.19	54	75	0.56	163	1.01	292	63	0.64	184	37	0.37	108	9.57	2766
Total							**3833**			**1571**			**2262**		**5019**			**2742**			**2277**		**46489**

Notes:

Los Medanos College trips match LSA Report

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing plus Approved 09/01/05

INTERSECTION 1 S.R. 4 WB Ramps/California Ave City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 8-PHASE SIGNAL

RIGHT THRU LEFT
27 102 62

LEFT 5 --- 1.1 1.1 2.2 1.1 1.0 --- 190 RIGHT
Split? Y

THRU 450 ---> 2.1 (NO. OF LANES) 1.0<--- 668 THRU
STREET NAME: California Ave

RIGHT 34 --- 1.0 2.1 1.1 1.0 2.0 --- 1218 LEFT

N
W + E
S
142 28 135
LEFT THRU RIGHT Split? Y

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: S.R. 4 WB Ramps

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	135	0 *	1650	0.0000	
	THRU (T)	28	28	1650	0.0170	
	LEFT (L)	142	142	3000	0.0473	
	T + L		170	3000	0.0567	0.0567
SB	RIGHT (R)	27	27	1650	0.0164	
	THRU (T)	102	102	3300	0.0309	
	LEFT (L)	62	62	1650	0.0376	
	T + R		129	3300	0.0391	
	T + L		164	3300	0.0497	
	T + R + L		191	3300	0.0579	0.0579
EB	RIGHT (R)	34	0 *	1650	0.0000	
	THRU (T)	450	450	3300	0.1364	
	LEFT (L)	5	5	1650	0.0030	
	T + L		455	3300	0.1379	0.1379
WB	RIGHT (R)	190	128 *	1650	0.0776	
	THRU (T)	668	668	1650	0.4048	
	LEFT (L)	1218	1218	3000	0.4060	0.4060

TOTAL VOLUME-TO-CAPACITY RATIO: 0.66
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV+CUMULATI.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing plus Approved 09/01/05

INTERSECTION 1 S.R. 4 WB Ramps/California Ave City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 8-PHASE SIGNAL

RIGHT THRU LEFT
23 74 112

LEFT 46 --- 1.1 1.1 2.2 1.1 1.0 --- 100 RIGHT
Split? Y

THRU 1390 ---> 2.1 (NO. OF LANES) 1.0<--- 362 THRU
STREET NAME: California Ave

RIGHT 32 --- 1.0 2.1 1.1 1.0 2.0 --- 887 LEFT

N
W + E
S
364 48 465
LEFT THRU RIGHT Split? Y

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: S.R. 4 WB Ramps

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	465	0 *	1650	0.0000	
	THRU (T)	48	48	1650	0.0291	
	LEFT (L)	364	364	3000	0.1213	
	T + L		412	3000	0.1373	0.1373
SB	RIGHT (R)	23	23	1650	0.0139	
	THRU (T)	74	74	3300	0.0224	
	LEFT (L)	112	112	1650	0.0679	0.0679
	T + R		97	3300	0.0294	
	T + L		186	3300	0.0564	
	T + R + L		209	3300	0.0633	
EB	RIGHT (R)	32	0 *	1650	0.0000	
	THRU (T)	1390	1390	3300	0.4212	
	LEFT (L)	46	46	1650	0.0279	
	T + L		1436	3300	0.4352	0.4352
WB	RIGHT (R)	100	0 *	1650	0.0000	
	THRU (T)	362	362	1650	0.2194	
	LEFT (L)	887	887	3000	0.2957	0.2957

TOTAL VOLUME-TO-CAPACITY RATIO: 0.94
INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV+CUMULATI.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing plus Approved 09/01/05

INTERSECTION 2 Loveridge Road/S.R. 4 EB Ramps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 2-PHASE SIGNAL
189 673 0

Split? Y

LEFT 290 --- 1.0 1.0 2.0 0.0 0.0 --- 0 RIGHT
STREET NAME:
THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU S.R. 4 EB Ramps
RIGHT 665 --- 1.0 0.0 2.1 1.1 0.0 --- 0 LEFT

N
W + E
S

SIG WARRANTS:
Urb=Y, Rur=Y

0 861 254
LEFT THRU RIGHT Split? N

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	254	254	1800	0.1411	
THRU (T)	861	861	3600	0.2392	
T + R		1115	3600	0.3097	0.3097
SB RIGHT (R)	189	0 *	1800	0.0000	
THRU (T)	673	673	3600	0.1869	
EB RIGHT (R)	665	665	1800	0.3694	0.3694
LEFT (L)	290	290	1800	0.1611	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.68
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV+CUMULATI.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing plus Approved 09/01/05

INTERSECTION 2 Loveridge Road/S.R. 4 EB Ramps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 2-PHASE SIGNAL
380 901 0

Split? Y

LEFT 343 --- 1.0 1.0 2.0 0.0 0.0 --- 0 RIGHT
STREET NAME:
THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU S.R. 4 EB Ramps
RIGHT 388 --- 1.0 0.0 2.1 1.1 0.0 --- 0 LEFT

N
W + E
S

SIG WARRANTS:
Urb=Y, Rur=Y

0 1880 618
LEFT THRU RIGHT Split? N

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	618	618	1800	0.3433	
THRU (T)	1880	1880	3600	0.5222	
T + R		2498	3600	0.6939	0.6939
SB RIGHT (R)	380	37 *	1800	0.0206	
THRU (T)	901	901	3600	0.2503	
EB RIGHT (R)	388	388	1800	0.2156	0.2156
LEFT (L)	343	343	1800	0.1906	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.91
INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV+CUMULATI.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing plus Approved 09/01/05

INTERSECTION 3 Loveridge Road/E. Leland Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 6-PHASE SIGNAL

RIGHT THRU LEFT
262 512 502

LEFT 222 --- 2.0 1.0 2.0 2.0 1.0 --- 541 RIGHT
Split? N

THRU 608 ---> 2.0 (NO. OF LANES) 2.0<--- 1138 THRU

RIGHT 203 --- 1.0 1.0 2.1 1.1 2.0 --- 240 LEFT

N
W + E
S

STREET NAME:
E. Leland Road

SIG WARRANTS:
Urb=Y, Rur=Y

LEFT THRU RIGHT Split? N

STREET NAME: Loveridge Road

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	110	110	1650	0.0667	
	THRU (T)	736	736	3300	0.2230	
	LEFT (L)	267	267	1650	0.1618	
	T + R		846	3300	0.2564	0.2564
SB	RIGHT (R)	262	140 *	1650	0.0848	
	THRU (T)	512	512	3300	0.1552	
	LEFT (L)	502	502	3000	0.1673	0.1673
EB	RIGHT (R)	203	0 *	1650	0.0000	
	THRU (T)	608	608	3300	0.1842	
	LEFT (L)	222	222	3000	0.0740	0.0740
WB	RIGHT (R)	541	265 *	1650	0.1606	
	THRU (T)	1138	1138	3300	0.3448	0.3448
	LEFT (L)	240	240	3000	0.0800	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.84
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV+CUMULATI.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing plus Approved 09/01/05

INTERSECTION 3 Loveridge Road/E. Leland Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 6-PHASE SIGNAL

RIGHT THRU LEFT
170 513 312

LEFT 654 --- 2.0 1.0 2.0 2.0 1.0 --- 418 RIGHT
Split? N

THRU 1296 ---> 2.0 (NO. OF LANES) 2.0<--- 571 THRU

RIGHT 217 --- 1.0 1.0 2.1 1.1 2.0 --- 243 LEFT

N
W + E
S

STREET NAME:
E. Leland Road

SIG WARRANTS:
Urb=Y, Rur=Y

LEFT THRU RIGHT Split? N

STREET NAME: Loveridge Road

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	205	205	1650	0.1242	
	THRU (T)	609	609	3300	0.1845	
	LEFT (L)	127	127	1650	0.0770	
	T + R		814	3300	0.2467	0.2467
SB	RIGHT (R)	170	0 *	1650	0.0000	
	THRU (T)	513	513	3300	0.1555	
	LEFT (L)	312	312	3000	0.1040	0.1040
EB	RIGHT (R)	217	90 *	1650	0.0545	
	THRU (T)	1296	1296	3300	0.3927	0.3927
	LEFT (L)	654	654	3000	0.2180	
WB	RIGHT (R)	418	246 *	1650	0.1491	
	THRU (T)	571	571	3300	0.1730	
	LEFT (L)	243	243	3000	0.0810	0.0810

TOTAL VOLUME-TO-CAPACITY RATIO: 0.82
INTERSECTION LEVEL OF SERVICE: D

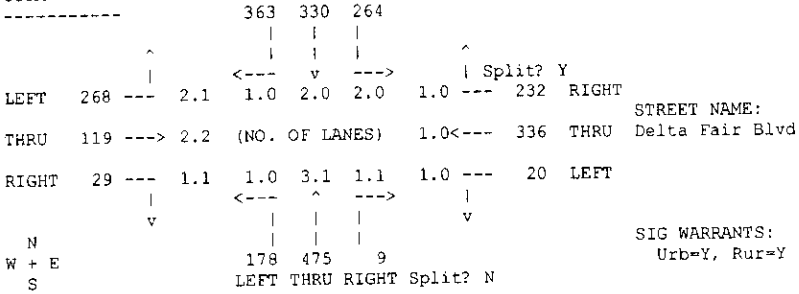
* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV+CUMULATI.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing plus Approved 09/01/05

INTERSECTION 4 Somersville Road/Delta Fair Blvd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL



STREET NAME: Delta Fair Blvd

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Somersville Road

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	9	9	1650	0.0055	
	THRU (T)	475	475	4950	0.0960	
	LEFT (L)	178	178	1650	0.1079	0.1079
	T + R		484	4950	0.0978	
SB	RIGHT (R)	363	216 *	1650	0.1309	0.1309
	THRU (T)	330	330	3300	0.1000	
	LEFT (L)	264	264	3000	0.0880	
EB	RIGHT (R)	29	29	1650	0.0176	
	THRU (T)	119	119	3300	0.0361	
	LEFT (L)	268	268	3000	0.0893	
	T + R		148	3300	0.0448	
	T + L		387	4650	0.0832	
	T + R + L		416	4650	0.0895	0.0895
WB	RIGHT (R)	232	87 *	1650	0.0527	
	THRU (T)	336	336	1650	0.2036	0.2036
	LEFT (L)	20	20	1650	0.0121	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.53
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV+CUMULATI.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing plus Approved 09/01/05

INTERSECTION 4 Somersville Road/Delta Fair Blvd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

STREET NAME: Delta Fair Blvd

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Somersville Road

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	61	61	1650	0.0370	
	THRU (T)	738	738	4950	0.1491	
	LEFT (L)	102	102	1650	0.0618	
	T + R		799	4950	0.1614	0.1614
SB	RIGHT (R)	191	0 *	1650	0.0000	
	THRU (T)	506	506	3300	0.1533	
	LEFT (L)	588	588	3000	0.1960	0.1960
EB	RIGHT (R)	94	94	1650	0.0570	
	THRU (T)	448	448	3300	0.1358	
	LEFT (L)	702	702	3000	0.2340	
	T + R		542	3300	0.1642	
	T + L		1150	4650	0.2473	
	T + R + L		1244	4650	0.2675	0.2675
WB	RIGHT (R)	243	0 *	1650	0.0000	
	THRU (T)	159	159	1650	0.0964	0.0964
	LEFT (L)	49	49	1650	0.0297	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.72
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV+CUMULATI.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing plus Approved 09/01/05

INTERSECTION 5 Loveridge Road/Ventura Drive City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
28 394 36

LEFT 37 --- 1.1 1.1 2.1 1.0 1.1 --- 242 RIGHT
Split? N

THRU 3 ---> 1.1 (NO. OF LANES) 1.1<--- 66 THRU
STREET NAME: Ventura Drive

RIGHT 8 --- 1.1 1.0 2.1 1.1 1.1 --- 5 LEFT

N
W + E
S

27 762 7
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Loveridge Road

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	7	7	1650	0.0042	
	THRU (T)	762	762	3300	0.2309	
	LEFT (L)	27	27	1650	0.0164	
	T + R		769	3300	0.2330	0.2330
SB	RIGHT (R)	28	28	1650	0.0170	
	THRU (T)	394	394	3300	0.1194	
	LEFT (L)	36	36	1650	0.0218	0.0218
	T + R		422	3300	0.1279	
EB	RIGHT (R)	8	8	1650	0.0048	
	THRU (T)	3	3	1650	0.0018	
	LEFT (L)	37	37	1650	0.0224	0.0224
	T + R		11	1650	0.0067	
	T + L		40	1650	0.0242	
	T + R + L		48	1650	0.0291	
WB	RIGHT (R)	242	242	1650	0.1467	
	THRU (T)	66	66	1650	0.0400	
	LEFT (L)	5	5	1650	0.0030	
	T + R		308	1650	0.1867	
	T + L		71	1650	0.0430	
	T + R + L		313	1650	0.1897	0.1897

TOTAL VOLUME-TO-CAPACITY RATIO: 0.47
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV+CUMULATI.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing plus Approved 09/01/05

INTERSECTION 5 Loveridge Road/Ventura Drive City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
25 719 154

LEFT 77 --- 1.1 1.1 2.1 1.0 1.1 --- 91 RIGHT
Split? N

THRU 183 ---> 1.1 (NO. OF LANES) 1.1<--- 11 THRU
STREET NAME: Ventura Drive

RIGHT 44 --- 1.1 1.0 2.1 1.1 1.1 --- 4 LEFT

N
W + E
S

15 406 29
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Loveridge Road

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	29	29	1650	0.0176	
	THRU (T)	406	406	3300	0.1230	
	LEFT (L)	15	15	1650	0.0091	0.0091
	T + R		435	3300	0.1318	
SB	RIGHT (R)	25	25	1650	0.0152	
	THRU (T)	719	719	3300	0.2179	
	LEFT (L)	154	154	1650	0.0933	
	T + R		744	3300	0.2255	0.2255
EB	RIGHT (R)	44	44	1650	0.0267	
	THRU (T)	183	183	1650	0.1109	
	LEFT (L)	77	77	1650	0.0467	
	T + R		227	1650	0.1376	
	T + L		260	1650	0.1576	
	T + R + L		304	1650	0.1842	0.1842
WB	RIGHT (R)	91	91	1650	0.0552	
	THRU (T)	11	11	1650	0.0067	
	LEFT (L)	4	4	1650	0.0024	0.0024
	T + R		102	1650	0.0618	
	T + L		15	1650	0.0091	
	T + R + L		106	1650	0.0642	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.42
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV+CUMULATI.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing plus Approved 09/01/05

INTERSECTION 6 Railroad Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
21 421 79

LEFT 65 --- 1.0 1.0 2.0 1.0 1.1 --- 73 RIGHT
Split? Y

STREET NAME:.

THRU 65 ---> 1.0 (NO. OF LANES) 1.1<--- 51 THRU Buchanan Road

RIGHT 10 --- 1.0 1.0 2.0 1.0 2.0 --- 1019 LEFT

N
W + E
S

22 337 437
LEFT THRU RIGHT Split? Y

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: Railroad Avenue

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	437	0 *	1650	0.0000	
	THRU (T)	337	337	3300	0.1021	0.1021
	LEFT (L)	22	22	1650	0.0133	
SB	RIGHT (R)	21	0 *	1650	0.0000	
	THRU (T)	421	421	3300	0.1276	0.1276
	LEFT (L)	79	79	1650	0.0479	
EB	RIGHT (R)	10	0 *	1650	0.0000	
	THRU (T)	65	65	1650	0.0394	0.0394
	LEFT (L)	65	65	1650	0.0394	
WB	RIGHT (R)	73	73	1650	0.0442	
	THRU (T)	51	51	1650	0.0309	
	LEFT (L)	1019	1019	3000	0.3397	0.3397
	T + R		124	1650	0.0752	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.61
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV+CUMULATI.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing plus Approved 09/01/05

INTERSECTION 6 Railroad Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
21 265 102

LEFT 68 --- 1.0 1.0 2.0 1.0 1.1 --- 76 RIGHT
Split? Y

STREET NAME:

THRU 65 ---> 1.0 (NO. OF LANES) 1.1<--- 98 THRU Buchanan Road

RIGHT 3 --- 1.0 1.0 2.0 1.0 2.0 --- 569 LEFT

N
W + E
S

33 1008 1060
LEFT THRU RIGHT Split? Y

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: Railroad Avenue

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	1060	747 *	1650	0.4527	0.4527
	THRU (T)	1008	1008	3300	0.3055	
	LEFT (L)	33	33	1650	0.0200	
SB	RIGHT (R)	21	0 *	1650	0.0000	
	THRU (T)	265	265	3300	0.0803	0.0803
	LEFT (L)	102	102	1650	0.0618	
EB	RIGHT (R)	3	0 *	1650	0.0000	
	THRU (T)	65	65	1650	0.0394	
	LEFT (L)	68	68	1650	0.0412	0.0412
WB	RIGHT (R)	76	76	1650	0.0461	
	THRU (T)	98	98	1650	0.0594	
	LEFT (L)	569	569	3000	0.1897	0.1897
	T + R		174	1650	0.1055	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.76
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV+CUMULATI.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing plus Approved 09/01/05

INTERSECTION 7 Harbor Street/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

61 35 65

<--- v ---> | Split? N

LEFT 116 --- 1.0 1.1 1.1 1.0 1.0 --- 31 RIGHT

STREET NAME:

THRU 539 ---> 1.1 (NO. OF LANES) 1.0<--- 921 THRU Buchanan Road

RIGHT 11 --- 1.1 1.1 1.1 1.1 1.0 --- 1 LEFT

<--- ^ --->

SIG WARRANTS:

N
W + E 83 114 2 Urb=Y, Rur=Y
S LEFT THRU RIGHT Split? Y

STREET NAME: Harbor Street

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	2	2	1650	0.0012	
THRU (T)	114	114	1650	0.0691	
LEFT (L)	83	83	1650	0.0503	
T + R		116	1650	0.0703	
T + L		197	1650	0.1194	
T + R + L		199	1650	0.1206	0.1206
SB RIGHT (R)	61	61	1650	0.0370	
THRU (T)	35	35	1650	0.0212	
LEFT (L)	65	65	1650	0.0394	
T + R		96	1650	0.0582	0.0582
EB RIGHT (R)	11	11	1650	0.0067	
THRU (T)	539	539	1650	0.3267	
LEFT (L)	116	116	1650	0.0703	0.0703
T + R		550	1650	0.3333	
WB RIGHT (R)	31	0 *	1650	0.0000	
THRU (T)	921	921	1650	0.5582	0.5582
LEFT (L)	1	1	1650	0.0006	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.81
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV+CUMULATI.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing plus Approved 09/01/05

INTERSECTION 7 Harbor Street/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

52 97 77

<--- v ---> | Split? N

LEFT 61 --- 1.0 1.1 1.1 1.0 1.0 --- 56 RIGHT

STREET NAME:

THRU 1057 ---> 1.1 (NO. OF LANES) 1.0<--- 616 THRU Buchanan Road

RIGHT 36 --- 1.1 1.1 1.1 1.1 1.0 --- 12 LEFT

<--- ^ --->

SIG WARRANTS:

N
W + E 19 58 1 Urb=Y, Rur=Y
S LEFT THRU RIGHT Split? Y

STREET NAME: Harbor Street

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	1	1	1650	0.0006	
THRU (T)	58	58	1650	0.0352	
LEFT (L)	19	19	1650	0.0115	
T + R		59	1650	0.0358	
T + L		77	1650	0.0467	
T + R + L		78	1650	0.0473	0.0473
SB RIGHT (R)	52	52	1650	0.0315	
THRU (T)	97	97	1650	0.0588	
LEFT (L)	77	77	1650	0.0467	
T + R		149	1650	0.0903	0.0903
EB RIGHT (R)	36	36	1650	0.0218	
THRU (T)	1057	1057	1650	0.6406	
LEFT (L)	61	61	1650	0.0370	
T + R		1093	1650	0.6624	0.6624
WB RIGHT (R)	56	0 *	1650	0.0000	
THRU (T)	616	616	1650	0.3733	
LEFT (L)	12	12	1650	0.0073	0.0073

TOTAL VOLUME-TO-CAPACITY RATIO: 0.81
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV+CUMULATI.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing plus Approved 09/01/05

INTERSECTION 8 Loveridge Road/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 3-PHASE SIGNAL

```
                    RIGHT THRU LEFT
                      204    0  180
                       |     |   |
                       |     |   |
                  <----     v   ---->
LEFT   400 ---> 1.0   1.0  0.0  1.0   1.0 ---  407  RIGHT
                                                    STREET NAME:
THRU   389 ---> 1.0  (NO. OF LANES)   1.0<---  921  THRU  Buchanan Road

RIGHT    0 ---> 0.0   0.0  0.0  0.0   0.0 ---    0  LEFT
                  <----     ^   ---->
                       |     |   |
                       v     |   v
  N                    |     |   |                  SIG WARRANTS:
W + E                  0     0   0                    Urb=Y, Rur=Y
  S                LEFT THRU RIGHT Split? N
```

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB RIGHT (R)	204	0 *	1720	0.0000	
LEFT (L)	180	180	1720	0.1047	0.1047
EB THRU (T)	389	389	1720	0.2262	
LEFT (L)	400	400	1720	0.2326	0.2326
WB RIGHT (R)	407	227 *	1720	0.1320	
THRU (T)	921	921	1720	0.5355	0.5355
TOTAL VOLUME-TO-CAPACITY RATIO:					0.87
INTERSECTION LEVEL OF SERVICE:					D

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV+CUMULATI.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing plus Approved 09/01/05

INTERSECTION 8 Loveridge Road/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 3-PHASE SIGNAL

```
                    RIGHT THRU LEFT
                      328    0  300
                       |     |   |
                       |     |   |
                  <----     v   ---->
LEFT   165 ---> 1.0   1.0  0.0  1.0   1.0 ---  275  RIGHT
                                                    STREET NAME:
THRU   919 ---> 1.0  (NO. OF LANES)   1.0<---  667  THRU  Buchanan Road

RIGHT    0 ---> 0.0   0.0  0.0  0.0   0.0 ---    0  LEFT
                  <----     ^   ---->
                       |     |   |
                       v     |   v
  N                    |     |   |                  SIG WARRANTS:
W + E                  0     0   0                    Urb=Y, Rur=Y
  S                LEFT THRU RIGHT Split? N
```

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB RIGHT (R)	328	163 *	1720	0.0948	
LEFT (L)	300	300	1720	0.1744	0.1744
EB THRU (T)	919	919	1720	0.5343	0.5343
LEFT (L)	165	165	1720	0.0959	
WB RIGHT (R)	275	0 *	1720	0.0000	
THRU (T)	667	667	1720	0.3878	
TOTAL VOLUME-TO-CAPACITY RATIO:					0.71
INTERSECTION LEVEL OF SERVICE:					C

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV+CUMULATI.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing plus Approved 09/01/05

INTERSECTION 9 Ventura Drive/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
6 11 19

LEFT 8 --- 1.0 1.1 1.1 1.0 1.1 --- 17 RIGHT
Split? N

THRU 509 ---> 1.0 (NO. OF LANES) 1.1<--- 1150 THRU

RIGHT 55 --- 1.0 1.0 1.1 1.1 1.0 --- 37 LEFT

N
W + E
S

STREET NAME: Buchanan Road

SIG WARRANTS: Urb=Y, Rur=Y

LEFT THRU RIGHT Split? N

STREET NAME: Ventura Drive

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	48	48	1650	0.0291	
THRU (T)	117	117	1650	0.0709	
LEFT (L)	106	106	1650	0.0642	
T + R		165	1650	0.1000	0.1000
SB RIGHT (R)	6	6	1650	0.0036	
THRU (T)	11	11	1650	0.0067	
LEFT (L)	19	19	1650	0.0115	0.0115
T + R		17	1650	0.0103	
EB RIGHT (R)	55	0 *	1650	0.0000	
THRU (T)	509	509	1650	0.3085	
LEFT (L)	8	8	1650	0.0048	0.0048
WB RIGHT (R)	17	17	1650	0.0103	
THRU (T)	1150	1150	1650	0.6970	
LEFT (L)	37	37	1650	0.0224	
T + R		1167	1650	0.7073	0.7073

TOTAL VOLUME-TO-CAPACITY RATIO: 0.82
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV+CUMULATI.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing plus Approved 09/01/05

INTERSECTION 9 Ventura Drive/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
7 69 222

LEFT 3 --- 1.0 1.1 1.1 1.0 1.1 --- 23 RIGHT
Split? N

THRU 1188 ---> 1.0 (NO. OF LANES) 1.1<--- 622 THRU

RIGHT 140 --- 1.0 1.0 1.1 1.1 1.0 --- 79 LEFT

N
W + E
S

STREET NAME: Buchanan Road

SIG WARRANTS: Urb=Y, Rur=Y

LEFT THRU RIGHT Split? N

STREET NAME: Ventura Drive

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	40	40	1650	0.0242	
THRU (T)	40	40	1650	0.0242	
LEFT (L)	98	98	1650	0.0594	
T + R		80	1650	0.0485	0.0485
SB RIGHT (R)	7	7	1650	0.0042	
THRU (T)	69	69	1650	0.0418	
LEFT (L)	222	222	1650	0.1345	0.1345
T + R		76	1650	0.0461	
EB RIGHT (R)	140	42 *	1650	0.0255	
THRU (T)	1188	1188	1650	0.7200	0.7200
LEFT (L)	3	3	1650	0.0018	
WB RIGHT (R)	23	23	1650	0.0139	
THRU (T)	622	622	1650	0.3770	
LEFT (L)	79	79	1650	0.0479	0.0479
T + R		645	1650	0.3909	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.95
INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV+CUMULATI.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing plus Approved 09/01/05

INTERSECTION 10 Meadows Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
10 1 44

Split? N

LEFT 9 --- 1.0 1.1 1.1 1.0 1.1 --- 50 RIGHT

STREET NAME:

THRU 578 ---> 1.0 (NO. OF LANES) 1.1<--- 1183 THRU Buchanan Road

RIGHT 18 --- 1.0 1.0 1.1 1.1 1.0 --- 19 LEFT

N
W + E
S

SIG WARRANTS:
Urb=N, Rur=N

11 1 14
LEFT THRU RIGHT Split? N

STREET NAME: Meadows Avenue

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	14	14	1650	0.0085	
	THRU (T)	1	1	1650	0.0006	
	LEFT (L)	11	11	1650	0.0067	
	T + R		15	1650	0.0091	0.0091
SB	RIGHT (R)	10	10	1650	0.0061	
	THRU (T)	1	1	1650	0.0006	
	LEFT (L)	44	44	1650	0.0267	0.0267
	T + R		11	1650	0.0067	
EB	RIGHT (R)	18	7 *	1650	0.0042	
	THRU (T)	578	578	1650	0.3503	
	LEFT (L)	9	9	1650	0.0055	0.0055
WB	RIGHT (R)	50	50	1650	0.0303	
	THRU (T)	1183	1183	1650	0.7170	
	LEFT (L)	19	19	1650	0.0115	
	T + R		1233	1650	0.7473	0.7473

TOTAL VOLUME-TO-CAPACITY RATIO: 0.79
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV+CUMULATI.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing plus Approved 09/01/05

INTERSECTION 10 Meadows Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
3 0 49

Split? N

LEFT 10 --- 1.0 1.1 1.1 1.0 1.1 --- 33 RIGHT

STREET NAME:

THRU 1429 ---> 1.0 (NO. OF LANES) 1.1<--- 665 THRU Buchanan Road

RIGHT 11 --- 1.0 1.0 1.1 1.1 1.0 --- 18 LEFT

N
W + E
S

SIG WARRANTS:
Urb=N, Rur=N

19 1 13
LEFT THRU RIGHT Split? N

STREET NAME: Meadows Avenue

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	13	13	1650	0.0079	
	THRU (T)	1	1	1650	0.0006	
	LEFT (L)	19	19	1650	0.0115	
	T + R		14	1650	0.0085	0.0085
SB	RIGHT (R)	3	3	1650	0.0018	
	THRU (T)	0	0	1650	0.0000	
	LEFT (L)	49	49	1650	0.0297	0.0297
	T + R		3	1650	0.0018	
EB	RIGHT (R)	11	0 *	1650	0.0000	
	THRU (T)	1429	1429	1650	0.8661	0.8661
	LEFT (L)	10	10	1650	0.0061	
WB	RIGHT (R)	33	33	1650	0.0200	
	THRU (T)	665	665	1650	0.4030	
	LEFT (L)	18	18	1650	0.0109	0.0109
	T + R		698	1650	0.4230	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.92
INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV+CUMULATI.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing plus Approved 09/01/05

INTERSECTION 11 Somersville Road/Buchanan Rd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 6-PHASE SIGNAL

RIGHT THRU LEFT
111 72 94

| | | Split? N
<--- v --->

LEFT 343 --- 1.0 1.1 2.1 1.0 1.9 --- 398 RIGHT

THRU 285 ---> 2.0 (NO. OF LANES) 1.0<--- 753 THRU

RIGHT 51 --- 1.9 1.0 2.1 1.1 1.0 --- 19 LEFT
<--- ^ --->

STREET NAME:
Buchanan Rd

N
W + E
S

461 482 33
LEFT THRU RIGHT Split? N

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: Somersville Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	33	33	1650	0.0200	
THRU (T)	482	482	3300	0.1461	
LEFT (L)	461	461	1650	0.2794	0.2794
T + R		515	3300	0.1561	
SB RIGHT (R)	111	111	1650	0.0673	0.0673
THRU (T)	72	72	3300	0.0218	
LEFT (L)	94	94	1650	0.0570	
T + R		183	3300	0.0555	
EB RIGHT (R)	51	51	1650	0.0309	
THRU (T)	285	285	3300	0.0864	
LEFT (L)	343	343	1650	0.2079	0.2079
WB RIGHT (R)	398	398	1650	0.2412	
THRU (T)	753	753	1650	0.4564	0.4564
LEFT (L)	19	19	1650	0.0115	

TOTAL VOLUME-TO-CAPACITY RATIO: 1.01
INTERSECTION LEVEL OF SERVICE: F

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV+CUMULATI.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing plus Approved 09/01/05

INTERSECTION 11 Somersville Road/Buchanan Rd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 6-PHASE SIGNAL

RIGHT THRU LEFT
283 319 329

| | | Split? N
<--- v --->

LEFT 528 --- 1.0 1.1 2.1 1.0 1.9 --- 192 RIGHT

THRU 704 ---> 2.0 (NO. OF LANES) 1.0<--- 407 THRU

RIGHT 607 --- 1.9 1.0 2.1 1.1 1.0 --- 36 LEFT
<--- ^ --->

STREET NAME:
Buchanan Rd

N
W + E
S

177 148 11
LEFT THRU RIGHT Split? N

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: Somersville Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	11	11	1650	0.0067	
THRU (T)	148	148	3300	0.0448	
LEFT (L)	177	177	1650	0.1073	0.1073
T + R		159	3300	0.0482	
SB RIGHT (R)	283	283	1650	0.1715	
THRU (T)	319	319	3300	0.0967	
LEFT (L)	329	329	1650	0.1994	
T + R		602	3300	0.1824	0.1824
EB RIGHT (R)	607	607	1650	0.3679	
THRU (T)	704	704	3300	0.2133	
LEFT (L)	528	528	1650	0.3200	0.3200
WB RIGHT (R)	192	192	1650	0.1164	
THRU (T)	407	407	1650	0.2467	0.2467
LEFT (L)	36	36	1650	0.0218	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.86
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV+CUMULATI.PMV,CAP=

Intersection Level of Service Calculations
CCTA Methodology
Existing plus Approved plus Project Conditions

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing plus Project plus Approved 09/01/05

INTERSECTION 1 S.R. 4 WB Ramps/California Ave City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 8-PHASE SIGNAL

RIGHT THRU LEFT
27 102 62

LEFT 5 --- 1.1 1.1 2.2 1.1 1.0 --- 190 RIGHT
Split? Y

THRU 450 ---> 2.1 (NO. OF LANES) 1.0<--- 668 THRU
STREET NAME: California Ave

RIGHT 34 --- 1.0 2.1 1.1 1.0 2.0 --- 1261 LEFT

N
W + E 142 28 135
S LEFT THRU RIGHT Split? Y

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: S.R. 4 WB Ramps

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	135	0 *	1650	0.0000	
THRU (T)	28	28	1650	0.0170	
LEFT (L)	142	142	3000	0.0473	
T + L		170	3000	0.0567	0.0567
SB RIGHT (R)	27	27	1650	0.0164	
THRU (T)	102	102	3300	0.0309	
LEFT (L)	62	62	1650	0.0376	
T + R		129	3300	0.0391	
T + L		164	3300	0.0497	
T + R + L		191	3300	0.0579	0.0579
EB RIGHT (R)	34	0 *	1650	0.0000	
THRU (T)	450	450	3300	0.1364	
LEFT (L)	5	5	1650	0.0030	
T + L		455	3300	0.1379	0.1379
WB RIGHT (R)	190	128 *	1650	0.0776	
THRU (T)	668	668	1650	0.4048	
LEFT (L)	1261	1261	3000	0.4203	0.4203

TOTAL VOLUME-TO-CAPACITY RATIO: 0.67
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED

INT=EXISTING.INT,VOL=EXISTING.AMV+PROJECT.AMV+CUMULATI.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing plus Project plus Approved 09/01/05

INTERSECTION 1 S.R. 4 WB Ramps/California Ave City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 8-PHASE SIGNAL

RIGHT THRU LEFT
23 74 112

LEFT 46 --- 1.1 1.1 2.2 1.1 1.0 --- 100 RIGHT
Split? Y

THRU 1390 ---> 2.1 (NO. OF LANES) 1.0<--- 362 THRU
STREET NAME: California Ave

RIGHT 32 --- 1.0 2.1 1.1 1.0 2.0 --- 915 LEFT

N
W + E 364 48 465
S LEFT THRU RIGHT Split? Y

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: S.R. 4 WB Ramps

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	465	0 *	1650	0.0000	
THRU (T)	48	48	1650	0.0291	
LEFT (L)	364	364	3000	0.1213	
T + L		412	3000	0.1373	0.1373
SB RIGHT (R)	23	23	1650	0.0139	
THRU (T)	74	74	3300	0.0224	
LEFT (L)	112	112	1650	0.0679	0.0679
T + R		97	3300	0.0294	
T + L		186	3300	0.0564	
T + R + L		209	3300	0.0633	
EB RIGHT (R)	32	0 *	1650	0.0000	
THRU (T)	1390	1390	3300	0.4212	
LEFT (L)	46	46	1650	0.0279	
T + L		1436	3300	0.4352	0.4352
WB RIGHT (R)	100	0 *	1650	0.0000	
THRU (T)	362	362	1650	0.2194	
LEFT (L)	915	915	3000	0.3050	0.3050

TOTAL VOLUME-TO-CAPACITY RATIO: 0.95
INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED

INT=EXISTING.INT,VOL=EXISTING.PMV+PROJECT.PMV+CUMULATI.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing plus Project plus Approved 09/01/05

INTERSECTION 2 Loveridge Road/S.R. 4 EB Ramps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 2-PHASE SIGNAL
189 675 0

LEFT 290 --- 1.0 1.0 2.0 0.0 0.0 --- 0 RIGHT Split? Y
THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU STREET NAME: S.R. 4 EB Ramps
RIGHT 679 --- 1.0 0.0 2.1 1.1 0.0 --- 0 LEFT

N
W + E
S

0 911 254
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	254	254	1800	0.1411	
THRU (T)	911	911	3600	0.2531	
T + R		1165	3600	0.3236	0.3236
SB RIGHT (R)	189	0 *	1800	0.0000	
THRU (T)	675	675	3600	0.1875	
EB RIGHT (R)	679	679	1800	0.3772	0.3772
LEFT (L)	290	290	1800	0.1611	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.70
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV+PROJECT.AMV+CUMULATI.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing plus Project plus Approved 09/01/05

INTERSECTION 2 Loveridge Road/S.R. 4 EB Ramps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 2-PHASE SIGNAL
380 909 0

LEFT 343 --- 1.0 1.0 2.0 0.0 0.0 --- 0 RIGHT Split? Y
THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU STREET NAME: S.R. 4 EB Ramps
RIGHT 437 --- 1.0 0.0 2.1 1.1 0.0 --- 0 LEFT

N
W + E
S

0 1913 618
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	618	618	1800	0.3433	
THRU (T)	1913	1913	3600	0.5314	
T + R		2531	3600	0.7031	0.7031
SB RIGHT (R)	380	37 *	1800	0.0206	
THRU (T)	909	909	3600	0.2525	
EB RIGHT (R)	437	437	1800	0.2428	0.2428
LEFT (L)	343	343	1800	0.1906	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.95
INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV+PROJECT.PMV+CUMULATI.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing plus Project plus Approved 09/01/05

INTERSECTION 3 Loveridge Road/E. Leland Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 6-PHASE SIGNAL

```
                    RIGHT THRU LEFT
                      262  529  502
                       |    |    |
                       v    v    v
                      <---  v  --->
LEFT   222 --- 2.0    1.0  2.0  2.0   1.0 ---  541  RIGHT
                                                  STREET NAME:
THRU   608 ---> 2.0  (NO. OF LANES)   2.0<---  1138  THRU  E. Leland Road

RIGHT  203 --- 1.0    1.0  2.1  1.1   2.0 ---  242  LEFT
                     <---   ^   --->
                       |    |    |
                       v    |    v
  N                    |    |    |                  SIG WARRANTS:
W + E                 267  786  117                   Urb=Y, Rur=Y
  S                  LEFT THRU RIGHT Split? N
```

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	117	117	1650	0.0709	
THRU (T)	786	786	3300	0.2382	
LEFT (L)	267	267	1650	0.1618	
T + R		903	3300	0.2736	0.2736
SB RIGHT (R)	262	140 *	1650	0.0848	
THRU (T)	529	529	3300	0.1603	
LEFT (L)	502	502	3000	0.1673	0.1673
EB RIGHT (R)	203	0 *	1650	0.0000	
THRU (T)	608	608	3300	0.1842	
LEFT (L)	222	222	3000	0.0740	0.0740
WB RIGHT (R)	541	265 *	1650	0.1606	
THRU (T)	1138	1138	3300	0.3448	0.3448
LEFT (L)	242	242	3000	0.0807	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.86
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV+PROJECT.AMV+CUMULATI.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing plus Project plus Approved 09/01/05

INTERSECTION 3 Loveridge Road/E. Leland Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 6-PHASE SIGNAL

```
                    RIGHT THRU LEFT
                      170  570  312
                       |    |    |
                       v    v    v
                      <---  v  --->
LEFT   654 --- 2.0    1.0  2.0  2.0   1.0 ---  418  RIGHT
                                                  STREET NAME:
THRU  1296 ---> 2.0  (NO. OF LANES)   2.0<---  571  THRU  E. Leland Road

RIGHT  217 --- 1.0    1.0  2.1  1.1   2.0 ---  251  LEFT
                     <---   ^   --->
                       |    |    |
                       v    |    v
  N                    |    |    |                  SIG WARRANTS:
W + E                 127  642  210                   Urb=Y, Rur=Y
  S                  LEFT THRU RIGHT Split? N
```

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	210	210	1650	0.1273	
THRU (T)	642	642	3300	0.1945	
LEFT (L)	127	127	1650	0.0770	
T + R		852	3300	0.2582	0.2582
SB RIGHT (R)	170	0 *	1650	0.0000	
THRU (T)	570	570	3300	0.1727	
LEFT (L)	312	312	3000	0.1040	0.1040
EB RIGHT (R)	217	90 *	1650	0.0545	
THRU (T)	1296	1296	3300	0.3927	0.3927
LEFT (L)	654	654	3000	0.2180	
WB RIGHT (R)	418	246 *	1650	0.1491	
THRU (T)	571	571	3300	0.1730	
LEFT (L)	251	251	3000	0.0837	0.0837

TOTAL VOLUME-TO-CAPACITY RATIO: 0.84
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV+PROJECT.PMV+CUMULATI.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing plus Project plus Approved 09/01/05

INTERSECTION 4 Somersville Road/Delta Fair Blvd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

363 346 264

LEFT 268 --- 2.1 1.0 2.0 2.0 1.0 --- 232 RIGHT | Split? Y

THRU 119 ---> 2.2 (NO. OF LANES) 1.0<--- 336 THRU STREET NAME: Delta Fair Blvd

RIGHT 29 --- 1.1 1.0 3.1 1.1 1.0 --- 20 LEFT

N
W + E
S

178 524 9 SIG WARRANTS: Urb=Y, Rur=Y

LEFT THRU RIGHT Split? N

STREET NAME: Somersville Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	9	9	1650	0.0055	
THRU (T)	524	524	4950	0.1059	
LEFT (L)	178	178	1650	0.1079	0.1079
T + R		533	4950	0.1077	
SB RIGHT (R)	363	216 *	1650	0.1309	0.1309
THRU (T)	346	346	3300	0.1048	
LEFT (L)	264	264	3000	0.0880	
EB RIGHT (R)	29	29	1650	0.0176	
THRU (T)	119	119	3300	0.0361	
LEFT (L)	268	268	3000	0.0893	
T + R		148	3300	0.0448	
T + L		387	4650	0.0832	
T + R + L		416	4650	0.0895	0.0895
WB RIGHT (R)	232	87 *	1650	0.0527	
THRU (T)	336	336	1650	0.2036	0.2036
LEFT (L)	20	20	1650	0.0121	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.53
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV+PROJECT.AMV+CUMULATI.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing plus Project plus Approved 09/01/05

INTERSECTION 4 Somersville Road/Delta Fair Blvd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

191 562 588

LEFT 702 --- 2.1 1.0 2.0 2.0 1.0 --- 243 RIGHT | Split? Y

THRU 448 ---> 2.2 (NO. OF LANES) 1.0<--- 159 THRU STREET NAME: Delta Fair Blvd

RIGHT 94 --- 1.1 1.0 3.1 1.1 1.0 --- 49 LEFT

N
W + E
S

102 770 61 SIG WARRANTS: Urb=Y, Rur=Y

LEFT THRU RIGHT Split? N

STREET NAME: Somersville Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	61	61	1650	0.0370	
THRU (T)	770	770	4950	0.1556	
LEFT (L)	102	102	1650	0.0618	
T + R		831	4950	0.1679	0.1679
SB RIGHT (R)	191	0 *	1650	0.0000	
THRU (T)	562	562	3300	0.1703	
LEFT (L)	588	588	3000	0.1960	0.1960
EB RIGHT (R)	94	94	1650	0.0570	
THRU (T)	448	448	3300	0.1358	
LEFT (L)	702	702	3000	0.2340	
T + R		542	3300	0.1642	
T + L		1150	4650	0.2473	
T + R + L		1244	4650	0.2675	0.2675
WB RIGHT (R)	243	0 *	1650	0.0000	
THRU (T)	159	159	1650	0.0964	0.0964
LEFT (L)	49	49	1650	0.0297	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.73
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV+PROJECT.PMV+CUMULATI.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing plus Project plus Approved 09/01/05

INTERSECTION 5 Loveridge Road/Ventura Drive City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
28 413 36

LEFT 37 --- 1.1 1.1 2.1 1.0 1.1 --- 242 RIGHT
Split? N

THRU 3 ---> 1.1 (NO. OF LANES) 1.1<--- 66 THRU

RIGHT 8 --- 1.1 1.0 2.1 1.1 1.1 --- 5 LEFT

N
W + E
S
27 819 7
LEFT THRU RIGHT Split? N

STREET NAME: Ventura Drive

STREET NAME: Loveridge Road

SIG WARRANTS: Urb=Y, Rur=Y

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	7	7	1650	0.0042	
	THRU (T)	819	819	3300	0.2482	
	LEFT (L)	27	27	1650	0.0164	
	T + R		826	3300	0.2503	0.2503
SB	RIGHT (R)	28	28	1650	0.0170	
	THRU (T)	413	413	3300	0.1252	
	LEFT (L)	36	36	1650	0.0218	0.0218
	T + R		441	3300	0.1336	
EB	RIGHT (R)	8	8	1650	0.0048	
	THRU (T)	3	3	1650	0.0018	
	LEFT (L)	37	37	1650	0.0224	0.0224
	T + R		11	1650	0.0067	
	T + L		40	1650	0.0242	
	T + R + L		48	1650	0.0291	
WB	RIGHT (R)	242	242	1650	0.1467	
	THRU (T)	66	66	1650	0.0400	
	LEFT (L)	5	5	1650	0.0030	
	T + R		308	1650	0.1867	
	T + L		71	1650	0.0430	
	T + R + L		313	1650	0.1897	0.1897

TOTAL VOLUME-TO-CAPACITY RATIO: 0.48
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV+PROJECT.AMV+CUMULATI.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing plus Project plus Approved 09/01/05

INTERSECTION 5 Loveridge Road/Ventura Drive City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
25 784 154

LEFT 77 --- 1.1 1.1 2.1 1.0 1.1 --- 91 RIGHT
Split? N

THRU 183 ---> 1.1 (NO. OF LANES) 1.1<--- 11 THRU

RIGHT 44 --- 1.1 1.0 2.1 1.1 1.1 --- 4 LEFT

N
W + E
S
15 443 29
LEFT THRU RIGHT Split? N

STREET NAME: Ventura Drive

STREET NAME: Loveridge Road

SIG WARRANTS: Urb=Y, Rur=Y

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	29	29	1650	0.0176	
	THRU (T)	443	443	3300	0.1342	
	LEFT (L)	15	15	1650	0.0091	0.0091
	T + R		472	3300	0.1430	
SB	RIGHT (R)	25	25	1650	0.0152	
	THRU (T)	784	784	3300	0.2376	
	LEFT (L)	154	154	1650	0.0933	
	T + R		809	3300	0.2452	0.2452
EB	RIGHT (R)	44	44	1650	0.0267	
	THRU (T)	183	183	1650	0.1109	
	LEFT (L)	77	77	1650	0.0467	
	T + R		227	1650	0.1376	
	T + L		260	1650	0.1576	
	T + R + L		304	1650	0.1842	0.1842
WB	RIGHT (R)	91	91	1650	0.0552	
	THRU (T)	11	11	1650	0.0067	
	LEFT (L)	4	4	1650	0.0024	0.0024
	T + R		102	1650	0.0618	
	T + L		15	1650	0.0091	
	T + R + L		106	1650	0.0642	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.44
INTERSECTION LEVEL OF SERVICE: A

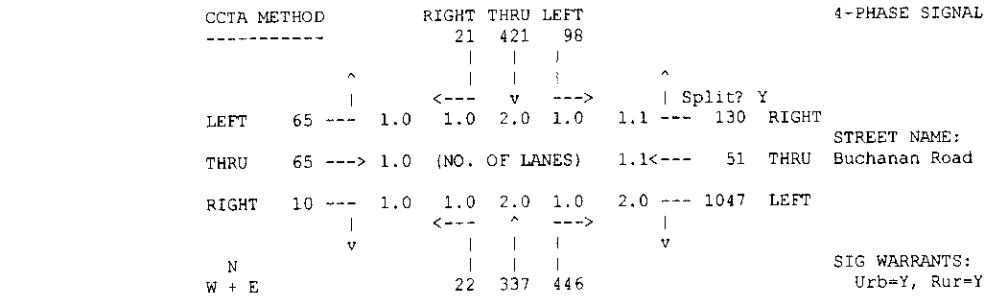
* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV+PROJECT.PMV+CUMULATI.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing plus Project plus Approved 09/01/05

INTERSECTION 6 Railroad Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL



STREET NAME: Railroad Avenue

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	446	0 *	1650	0.0000	
THRU (T)	337	337	3300	0.1021	0.1021
LEFT (L)	22	22	1650	0.0133	
SB RIGHT (R)	21	0 *	1650	0.0000	
THRU (T)	421	421	3300	0.1276	0.1276
LEFT (L)	98	98	1650	0.0594	
EB RIGHT (R)	10	0 *	1650	0.0000	
THRU (T)	65	65	1650	0.0394	0.0394
LEFT (L)	65	65	1650	0.0394	
WB RIGHT (R)	130	130	1650	0.0788	
THRU (T)	51	51	1650	0.0309	
LEFT (L)	1047	1047	3000	0.3490	0.3490
T + R		181	1650	0.1097	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.62
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV+PROJECT.AMV+CUMULATI.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing plus Project plus Approved 09/01/05

INTERSECTION 6 Railroad Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

STREET NAME: Railroad Avenue

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	1092	769 *	1650	0.4661	0.4661
THRU (T)	1008	1008	3300	0.3055	
LEFT (L)	33	33	1650	0.0200	
SB RIGHT (R)	21	0 *	1650	0.0000	
THRU (T)	265	265	3300	0.0803	
LEFT (L)	167	167	1650	0.1012	0.1012
EB RIGHT (R)	3	0 *	1650	0.0000	
THRU (T)	65	65	1650	0.0394	
LEFT (L)	68	68	1650	0.0412	0.0412
WB RIGHT (R)	113	113	1650	0.0685	
THRU (T)	98	98	1650	0.0594	
LEFT (L)	587	587	3000	0.1957	0.1957
T + R		211	1650	0.1279	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.80
INTERSECTION LEVEL OF SERVICE: C

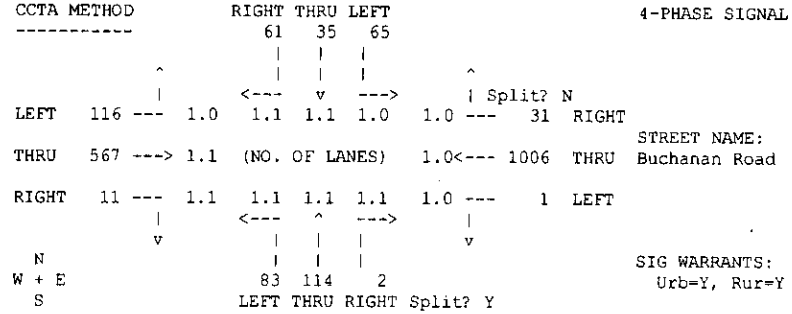
* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV+PROJECT.PMV+CUMULATI.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing plus Project plus Approved 09/01/05

INTERSECTION 7 Harbor Street/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL



STREET NAME: Buchanan Road

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Harbor Street

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	2	2	1650	0.0012	
THRU (T)	114	114	1650	0.0691	
LEFT (L)	83	83	1650	0.0503	
T + R		116	1650	0.0703	
T + L		197	1650	0.1194	
T + R + L		199	1650	0.1206	0.1206
SB RIGHT (R)	61	61	1650	0.0370	
THRU (T)	35	35	1650	0.0212	
LEFT (L)	65	65	1650	0.0394	
T + R		96	1650	0.0582	0.0582
EB RIGHT (R)	11	11	1650	0.0067	
THRU (T)	567	567	1650	0.3436	
LEFT (L)	116	116	1650	0.0703	0.0703
T + R		578	1650	0.3503	
WB RIGHT (R)	31	0 *	1650	0.0000	
THRU (T)	1006	1006	1650	0.6097	0.6097
LEFT (L)	1	1	1650	0.0006	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.86
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED

INT=EXISTING.INT,VOL=EXISTING.AMV+PROJECT.AMV+CUMULATI.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing plus Project plus Approved 09/01/05

INTERSECTION 7 Harbor Street/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

STREET NAME: Buchanan Road

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Harbor Street

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	1	1	1650	0.0006	
THRU (T)	58	58	1650	0.0352	
LEFT (L)	19	19	1650	0.0115	
T + R		59	1650	0.0358	
T + L		77	1650	0.0467	
T + R + L		78	1650	0.0473	0.0473
SB RIGHT (R)	52	52	1650	0.0315	
THRU (T)	97	97	1650	0.0588	
LEFT (L)	77	77	1650	0.0467	
T + R		149	1650	0.0903	0.0903
EB RIGHT (R)	36	36	1650	0.0218	
THRU (T)	1154	1154	1650	0.6994	
LEFT (L)	61	61	1650	0.0370	
T + R		1190	1650	0.7212	0.7212
WB RIGHT (R)	56	0 *	1650	0.0000	
THRU (T)	671	671	1650	0.4067	
LEFT (L)	12	12	1650	0.0073	0.0073

TOTAL VOLUME-TO-CAPACITY RATIO: 0.87
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED

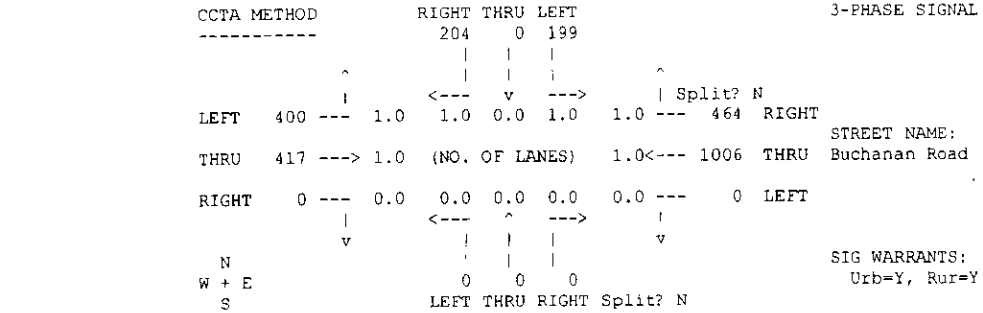
INT=EXISTING.INT,VOL=EXISTING.PMV+PROJECT.PMV+CUMULATI.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing plus Project plus Approved 09/01/05

INTERSECTION 8 Loveridge Road/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 3-PHASE SIGNAL



STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB RIGHT (R)	204	0 *	1720	0.0000	
LEFT (L)	199	199	1720	0.1157	0.1157
EB THRU (T)	417	417	1720	0.2424	
LEFT (L)	400	400	1720	0.2326	0.2326
WB RIGHT (R)	464	265 *	1720	0.1541	
THRU (T)	1006	1006	1720	0.5849	0.5849
TOTAL VOLUME-TO-CAPACITY RATIO:					0.93
INTERSECTION LEVEL OF SERVICE:					E

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV+PROJECT.AMV+CUMULATI.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing plus Project plus Approved 09/01/05

INTERSECTION 8 Loveridge Road/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 3-PHASE SIGNAL

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB RIGHT (R)	328	163 *	1720	0.0948	
LEFT (L)	365	365	1720	0.2122	0.2122
EB THRU (T)	1016	1016	1720	0.5907	0.5907
LEFT (L)	165	165	1720	0.0959	
WB RIGHT (R)	312	0 *	1720	0.0000	
THRU (T)	722	722	1720	0.4198	
TOTAL VOLUME-TO-CAPACITY RATIO:					0.80
INTERSECTION LEVEL OF SERVICE:					C

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV+PROJECT.PMV+CUMULATI.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing plus Project plus Approved 09/01/05

INTERSECTION 9 Ventura Drive/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
6 11 19

LEFT 8 --- 1.0 1.1 1.1 1.0 1.1 --- 17 RIGHT
Split? N

THRU 509 ---> 1.0 (NO. OF LANES) 1.1<--- 1150 THRU

RIGHT 103 --- 1.0 1.0 1.1 1.1 1.0 --- 40 LEFT

STREET NAME:
Buchanan Road

N
W + E 248 117 57
S LEFT THRU RIGHT Split? N

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: Ventura Drive

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	57	57	1650	0.0345	
	THRU (T)	117	117	1650	0.0709	
	LEFT (L)	248	248	1650	0.1503	0.1503
	T + R		174	1650	0.1055	
SB	RIGHT (R)	6	6	1650	0.0036	
	THRU (T)	11	11	1650	0.0067	
	LEFT (L)	19	19	1650	0.0115	
	T + R		17	1650	0.0103	0.0103
EB	RIGHT (R)	103	0 *	1650	0.0000	
	THRU (T)	509	509	1650	0.3085	
	LEFT (L)	8	8	1650	0.0048	0.0048
WB	RIGHT (R)	17	17	1650	0.0103	
	THRU (T)	1150	1150	1650	0.6970	
	LEFT (L)	40	40	1650	0.0242	
	T + R		1167	1650	0.7073	0.7073

TOTAL VOLUME-TO-CAPACITY RATIO: 0.87
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV+PROJECT.AMV+CUMULATI.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing plus Project plus Approved 09/01/05

INTERSECTION 9 Ventura Drive/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
7 69 222

LEFT 3 --- 1.0 1.1 1.1 1.0 1.1 --- 23 RIGHT
Split? N

THRU 1188 ---> 1.0 (NO. OF LANES) 1.1<--- 622 THRU

RIGHT 302 --- 1.0 1.0 1.1 1.1 1.0 --- 89 LEFT

STREET NAME:
Buchanan Road

N
W + E 191 40 46
S LEFT THRU RIGHT Split? N

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: Ventura Drive

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	46	46	1650	0.0279	
	THRU (T)	40	40	1650	0.0242	
	LEFT (L)	191	191	1650	0.1158	
	T + R		86	1650	0.0521	0.0521
SB	RIGHT (R)	7	7	1650	0.0042	
	THRU (T)	69	69	1650	0.0418	
	LEFT (L)	222	222	1650	0.1345	0.1345
	T + R		76	1650	0.0461	
EB	RIGHT (R)	302	111 *	1650	0.0673	
	THRU (T)	1188	1188	1650	0.7200	0.7200
	LEFT (L)	3	3	1650	0.0018	
WB	RIGHT (R)	23	23	1650	0.0139	
	THRU (T)	622	622	1650	0.3770	
	LEFT (L)	89	89	1650	0.0539	0.0539
	T + R		645	1650	0.3909	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.96
INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV+PROJECT.PMV+CUMULATI.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing plus Project plus Approved 09/01/05

INTERSECTION 10 Meadows Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

```
                    10    1   44
                     |    |   |
                     |    |   |
                <----|    v   |---->
LEFT     9 ---  1.0  1.1  1.1  1.0  1.1 ---   50  RIGHT
                                                  STREET NAME:
THRU   587 ---> 1.0  (NO. OF LANES)   1.1<--- 1186  THRU  Buchanan Road

RIGHT   18 ---  1.0  1.0  1.1  1.1  1.0 ---   46  LEFT
                |    <----|    |---->   |
                v         |    |        v
  N                       |    |                      SIG WARRANTS:
W + E                    11    1   96                   Urb=N, Rur=B
  S                  LEFT THRU RIGHT Split? N
```

STREET NAME: Meadows Avenue

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	96	96	1650	0.0582	
	THRU (T)	1	1	1650	0.0006	
	LEFT (L)	11	11	1650	0.0067	
	T + R		97	1650	0.0588	0.0588
SB	RIGHT (R)	10	10	1650	0.0061	
	THRU (T)	1	1	1650	0.0006	
	LEFT (L)	44	44	1650	0.0267	0.0267
	T + R		11	1650	0.0067	
EB	RIGHT (R)	18	7 *	1650	0.0042	
	THRU (T)	587	587	1650	0.3558	
	LEFT (L)	9	9	1650	0.0055	0.0055
WB	RIGHT (R)	50	50	1650	0.0303	
	THRU (T)	1186	1186	1650	0.7188	
	LEFT (L)	46	46	1650	0.0279	
	T + R		1236	1650	0.7491	0.7491

TOTAL VOLUME-TO-CAPACITY RATIO: 0.84
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV+PROJECT.AMV+CUMULATI.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing plus Project plus Approved 09/01/05

INTERSECTION 10 Meadows Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

```
                     3    0   49
                     |    |   |
                     |    |   |
                <----|    v   |---->
LEFT    10 ---  1.0  1.1  1.1  1.0  1.1 ---   33  RIGHT
                                                  STREET NAME:
THRU  1435 ---> 1.0  (NO. OF LANES)   1.1<---  675  THRU  Buchanan Road

RIGHT   11 ---  1.0  1.0  1.1  1.1  1.0 ---  111  LEFT
                |    <----|    |---->   |
                v         |    |        v
  N                       |    |                      SIG WARRANTS:
W + E                    19    1   66                   Urb=N, Rur=N
  S                  LEFT THRU RIGHT Split? N
```

STREET NAME: Meadows Avenue

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	66	66	1650	0.0400	
	THRU (T)	1	1	1650	0.0006	
	LEFT (L)	19	19	1650	0.0115	
	T + R		67	1650	0.0406	0.0406
SB	RIGHT (R)	3	3	1650	0.0018	
	THRU (T)	0	0	1650	0.0000	
	LEFT (L)	49	49	1650	0.0297	0.0297
	T + R		3	1650	0.0018	
EB	RIGHT (R)	11	0 *	1650	0.0000	
	THRU (T)	1435	1435	1650	0.8697	0.8697
	LEFT (L)	10	10	1650	0.0061	
WB	RIGHT (R)	33	33	1650	0.0200	
	THRU (T)	675	675	1650	0.4091	
	LEFT (L)	111	111	1650	0.0673	0.0673
	T + R		708	1650	0.4291	

TOTAL VOLUME-TO-CAPACITY RATIO: 1.01
INTERSECTION LEVEL OF SERVICE: F

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV+PROJECT.PMV+CUMULATI.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Existing plus Project plus Approved 09/01/05

INTERSECTION 11 Somersville Road/Buchanan Rd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 6-PHASE SIGNAL

RIGHT THRU LEFT
134 72 94

Split? N

LEFT	411	1.0	1.1	2.1	1.0	1.9	398	RIGHT
THRU	308	2.0	(NO. OF LANES)			1.0	761	THRU
RIGHT	51	1.9	1.0	2.1	1.1	1.0	19	LEFT

STREET NAME: Buchanan Rd

N
W + E
S

461 482 33
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Somersville Road

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	33	33	1650	0.0200	
	THRU (T)	482	482	3300	0.1461	
	LEFT (L)	461	461	1650	0.2794	0.2794
	T + R		515	3300	0.1561	
SB	RIGHT (R)	134	134	1650	0.0812	0.0812
	THRU (T)	72	72	3300	0.0218	
	LEFT (L)	94	94	1650	0.0570	
	T + R		206	3300	0.0624	
EB	RIGHT (R)	51	51	1650	0.0309	
	THRU (T)	308	308	3300	0.0933	
	LEFT (L)	411	411	1650	0.2491	0.2491
WB	RIGHT (R)	398	398	1650	0.2412	
	THRU (T)	761	761	1650	0.4612	0.4612
	LEFT (L)	19	19	1650	0.0115	

TOTAL VOLUME-TO-CAPACITY RATIO: 1.07
INTERSECTION LEVEL OF SERVICE: F

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.AMV+PROJECT.AMV+CUMULATI.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Existing plus Project plus Approved 09/01/05

INTERSECTION 11 Somersville Road/Buchanan Rd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 6-PHASE SIGNAL

RIGHT THRU LEFT
360 319 329

Split? N

LEFT	572	1.0	1.1	2.1	1.0	1.9	192	RIGHT
THRU	719	2.0	(NO. OF LANES)			1.0	434	THRU
RIGHT	607	1.9	1.0	2.1	1.1	1.0	36	LEFT

STREET NAME: Buchanan Rd

N
W + E
S

177 148 11
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Somersville Road

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	11	11	1650	0.0067	
	THRU (T)	148	148	3300	0.0448	
	LEFT (L)	177	177	1650	0.1073	0.1073
	T + R		159	3300	0.0482	
SB	RIGHT (R)	360	360	1650	0.2182	0.2182
	THRU (T)	319	319	3300	0.0967	
	LEFT (L)	329	329	1650	0.1994	
	T + R		679	3300	0.2058	
EB	RIGHT (R)	607	607	1650	0.3679	
	THRU (T)	719	719	3300	0.2179	
	LEFT (L)	572	572	1650	0.3467	0.3467
WB	RIGHT (R)	192	192	1650	0.1164	
	THRU (T)	434	434	1650	0.2630	0.2630
	LEFT (L)	36	36	1650	0.0218	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.94
INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXISTING.INT,VOL=EXISTING.PMV+PROJECT.PMV+CUMULATI.PMV,CAP=

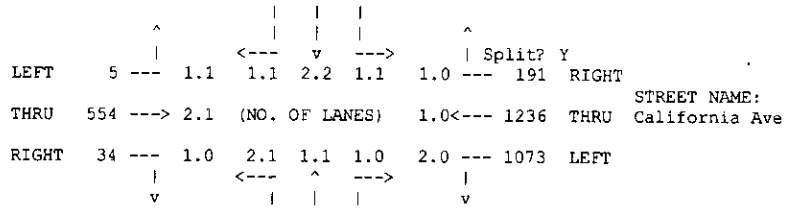
Intersection Level of Service Calculations
CCTA Methodology
Cumulative 2025 without Buchanan Road Bypass Conditions

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future without Bypass 09/01/05

INTERSECTION 1 S.R. 4 WB Ramps/California Ave City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 8-PHASE SIGNAL



STREET NAME: California Ave

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: S.R. 4 WB Ramps

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	135	0 *	1650	0.0000	
	THRU (T)	28	28	1650	0.0170	
	LEFT (L)	251	251	3000	0.0837	
	T + L		279	3000	0.0930	0.0930
SB	RIGHT (R)	27	27	1650	0.0164	
	THRU (T)	102	102	3300	0.0309	
	LEFT (L)	62	62	1650	0.0376	
	T + R		129	3300	0.0391	
	T + L		164	3300	0.0497	
	T + R + L		191	3300	0.0579	0.0579
EB	RIGHT (R)	34	0 *	1650	0.0000	
	THRU (T)	554	554	3300	0.1679	
	LEFT (L)	5	5	1650	0.0030	
	T + L		559	3300	0.1694	0.1694
WB	RIGHT (R)	191	129 *	1650	0.0782	
	THRU (T)	1236	1236	1650	0.7491	0.7491
	LEFT (L)	1073	1073	3000	0.3577	

TOTAL VOLUME-TO-CAPACITY RATIO: 1.07
INTERSECTION LEVEL OF SERVICE: F

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future without Bypass 09/01/05

INTERSECTION 1 S.R. 4 WB Ramps/California Ave City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 8-PHASE SIGNAL

STREET NAME: California Ave

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: S.R. 4 WB Ramps

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	684	376 *	1650	0.2279	0.2279
	THRU (T)	60	60	1650	0.0364	
	LEFT (L)	398	398	3000	0.1327	
	T + L		458	3000	0.1527	
SB	RIGHT (R)	23	23	1650	0.0139	
	THRU (T)	74	74	3300	0.0224	
	LEFT (L)	112	112	1650	0.0679	0.0679
	T + R		97	3300	0.0294	
	T + L		186	3300	0.0564	
	T + R + L		209	3300	0.0633	
EB	RIGHT (R)	32	0 *	1650	0.0000	
	THRU (T)	1390	1390	3300	0.4212	
	LEFT (L)	46	46	1650	0.0279	
	T + L		1436	3300	0.4352	0.4352
WB	RIGHT (R)	104	0 *	1650	0.0000	
	THRU (T)	362	362	1650	0.2194	0.2194
	LEFT (L)	560	560	3000	0.1867	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.95
INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future without Bypass 09/01/05

INTERSECTION 2 Loveridge Road/S.R. 4 EB Ramps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 2-PHASE SIGNAL

```
                RIGHT THRU LEFT
                  176 1330    0
                   |   |   |
                   |   |   |
                   |   |   |
                <--- v   ---> | Split? Y
LEFT   351 ---  1.0  1.0  2.0  0.0  0.0 ---    0  RIGHT
                                                STREET NAME:
THRU     0 ---> 0.0  (NO. OF LANES)   0.0<---   0  THRU  S.R. 4 EB Ramps

RIGHT  455 ---  1.0  0.0  2.1  1.1  0.0 ---    0  LEFT
               |    <---  ^   --->     |
               v         |   |        v
  N                      |   |   |              SIG WARRANTS:
W + E                    0 1009  467              Urb=Y, Rur=Y
  S                LEFT THRU RIGHT Split? N
```

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	467	467	1800	0.2594	
THRU (T)	1009	1009	3600	0.2803	
T + R		1476	3600	0.4100	0.4100
SB RIGHT (R)	176	0 *	1800	0.0000	
THRU (T)	1330	1330	3600	0.3694	
EB RIGHT (R)	455	455	1800	0.2528	0.2528
LEFT (L)	351	351	1800	0.1950	
TOTAL VOLUME-TO-CAPACITY RATIO:					0.66
INTERSECTION LEVEL OF SERVICE:					B

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future without Bypass 09/01/05

INTERSECTION 2 Loveridge Road/S.R. 4 EB Ramps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 2-PHASE SIGNAL

```
                RIGHT THRU LEFT
                  308 1164    0
                   |   |   |
                   |   |   |
                   |   |   |
                <--- v   ---> | Split? Y
LEFT   226 ---  1.0  1.0  2.0  0.0  0.0 ---    0  RIGHT
                                                STREET NAME:
THRU     0 ---> 0.0  (NO. OF LANES)   0.0<---   0  THRU  S.R. 4 EB Ramps

RIGHT  461 ---  1.0  0.0  2.1  1.1  0.0 ---    0  LEFT
               |    <---  ^   --->     |
               v         |   |        v
  N                      |   |   |              SIG WARRANTS:
W + E                    0 1728  692              Urb=Y, Rur=Y
  S                LEFT THRU RIGHT Split? N
```

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	692	692	1800	0.3844	
THRU (T)	1728	1728	3600	0.4800	
T + R		2420	3600	0.6722	0.6722
SB RIGHT (R)	308	82 *	1800	0.0456	
THRU (T)	1164	1164	3600	0.3233	
EB RIGHT (R)	461	461	1800	0.2561	0.2561
LEFT (L)	226	226	1800	0.1256	
TOTAL VOLUME-TO-CAPACITY RATIO:					0.93
INTERSECTION LEVEL OF SERVICE:					E

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future without Bypass 09/01/05

INTERSECTION 3 Loveridge Road/E. Leland Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 6-PHASE SIGNAL

RIGHT THRU LEFT
450 1113 394

LEFT 247 --- 2.0 1.0 2.0 2.0 1.0 --- 641 RIGHT
Split? N

THRU 347 ---> 2.0 (NO. OF LANES) 2.0<--- 1339 THRU
STREET NAME: E. Leland Road

RIGHT 323 --- 1.0 1.0 2.1 1.1 2.0 --- 379 LEFT

N
W + E
S
321 808 62
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Loveridge Road

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	62	62	1650	0.0376	
	THRU (T)	808	808	3300	0.2448	
	LEFT (L)	321	321	1650	0.1945	0.1945
	T + R		870	3300	0.2636	
SB	RIGHT (R)	450	314 *	1650	0.1903	
	THRU (T)	1113	1113	3300	0.3373	0.3373
	LEFT (L)	394	394	3000	0.1313	
EB	RIGHT (R)	323	2 *	1650	0.0012	
	THRU (T)	347	347	3300	0.1052	
	LEFT (L)	247	247	3000	0.0823	0.0823
WB	RIGHT (R)	641	424 *	1650	0.2570	
	THRU (T)	1339	1339	3300	0.4058	0.4058
	LEFT (L)	379	379	3000	0.1263	

TOTAL VOLUME-TO-CAPACITY RATIO: 1.02
INTERSECTION LEVEL OF SERVICE: F

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future without Bypass 09/01/05

INTERSECTION 3 Loveridge Road/E. Leland Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 6-PHASE SIGNAL

RIGHT THRU LEFT
230 766 355

LEFT 631 --- 2.0 1.0 2.0 2.0 1.0 --- 195 RIGHT
Split? N

THRU 1278 ---> 2.0 (NO. OF LANES) 2.0<--- 423 THRU
STREET NAME: E. Leland Road

RIGHT 282 --- 1.0 1.0 2.1 1.1 2.0 --- 280 LEFT

N
W + E
S
232 810 332
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Loveridge Road

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	332	332	1650	0.2012	
	THRU (T)	810	810	3300	0.2455	
	LEFT (L)	232	232	1650	0.1406	
	T + R		1142	3300	0.3461	0.3461
SB	RIGHT (R)	230	0 *	1650	0.0000	
	THRU (T)	766	766	3300	0.2321	
	LEFT (L)	355	355	3000	0.1183	0.1183
EB	RIGHT (R)	282	50 *	1650	0.0303	
	THRU (T)	1278	1278	3300	0.3873	0.3873
	LEFT (L)	631	631	3000	0.2103	
WB	RIGHT (R)	195	0 *	1650	0.0000	
	THRU (T)	423	423	3300	0.1282	
	LEFT (L)	280	280	3000	0.0933	0.0933

TOTAL VOLUME-TO-CAPACITY RATIO: 0.95
INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future without Bypass 09/01/05

INTERSECTION 4 Somersville Road/Delta Fair Blvd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

```
                    263  234  282
                     |    |    |
                     ^    |    |
                     |    |    |          ^
                     |<---  v   --->       | Split? Y
LEFT   302 ---> 2.1  1.0  2.0  2.0  1.0 <--- 489  RIGHT
                                                    STREET NAME:
THRU   129 ---> 2.2  (NO. OF LANES)   1.0<--- 737  THRU  Delta Fair Blvd

RIGHT   18 ---> 1.1  1.0  3.1  1.1  1.0 <--- 24   LEFT
                     |    ^    |    |
                     |<---  |   --->  |
                     v      |    |    v
  N                  |      |    |                    SIG WARRANTS:
W + E               223    763   15                    Urb=Y, Rur=Y
  S                 LEFT THRU RIGHT Split? N
```

STREET NAME: Somersville Road

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	15	15	1650	0.0091	
	THRU (T)	763	763	4950	0.1541	
	LEFT (L)	223	223	1650	0.1352	
	T + R		778	4950	0.1572	0.1572
SB	RIGHT (R)	263	97 *	1650	0.0588	
	THRU (T)	234	234	3300	0.0709	
	LEFT (L)	282	282	3000	0.0940	0.0940
EB	RIGHT (R)	18	18	1650	0.0109	
	THRU (T)	129	129	3300	0.0391	
	LEFT (L)	302	302	3000	0.1007	0.1007
	T + R		147	3300	0.0445	
	T + L		431	4650	0.0927	
	T + R + L		449	4650	0.0966	
WB	RIGHT (R)	489	334 *	1650	0.2024	
	THRU (T)	737	737	1650	0.4467	0.4467
	LEFT (L)	24	24	1650	0.0145	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.80
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT, VOL=FUTURE-P.AMV, CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future without Bypass 09/01/05

INTERSECTION 4 Somersville Road/Delta Fair Blvd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

```
                    330  380  705
                     |    |    |
                     ^    |    |
                     |    |    |          ^
                     |<---  v   --->       | Split? Y
LEFT   588 ---> 2.1  1.0  2.0  2.0  1.0 <--- 418  RIGHT
                                                    STREET NAME:
THRU   448 ---> 2.2  (NO. OF LANES)   1.0<--- 254  THRU  Delta Fair Blvd

RIGHT   45 ---> 1.1  1.0  3.1  1.1  1.0 <--- 49   LEFT
                     |    ^    |    |
                     |<---  |   --->  |
                     v      |    |    v
  N                  |      |    |                    SIG WARRANTS:
W + E               88    654   61                    Urb=Y, Rur=Y
  S                 LEFT THRU RIGHT Split? N
```

STREET NAME: Somersville Road

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	61	61	1650	0.0370	
	THRU (T)	654	654	4950	0.1321	
	LEFT (L)	88	88	1650	0.0533	
	T + R		715	4950	0.1444	0.1444
SB	RIGHT (R)	330	7 *	1650	0.0042	
	THRU (T)	380	380	3300	0.1152	
	LEFT (L)	705	705	3000	0.2350	0.2350
EB	RIGHT (R)	45	45	1650	0.0273	
	THRU (T)	448	448	3300	0.1358	
	LEFT (L)	588	588	3000	0.1960	
	T + R		493	3300	0.1494	
	T + L		1036	4650	0.2228	
	T + R + L		1081	4650	0.2325	0.2325
WB	RIGHT (R)	418	30 *	1650	0.0182	
	THRU (T)	254	254	1650	0.1539	0.1539
	LEFT (L)	49	49	1650	0.0297	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.77
INTERSECTION LEVEL OF SERVICE: C

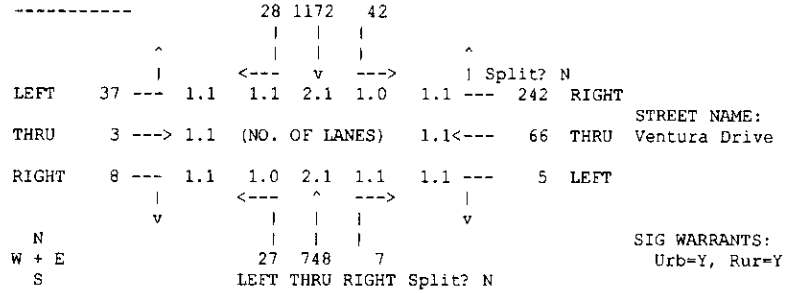
* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT, VOL=FUTURE-P.PMV, CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future without Bypass 09/01/05

INTERSECTION 5 Loveridge Road/Ventura Drive City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL



STREET NAME: Ventura Drive

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Loveridge Road

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	7	7	1650	0.0042	
	THRU (T)	748	748	3300	0.2267	
	LEFT (L)	27	27	1650	0.0164	0.0164
	T + R		755	3300	0.2288	
SB	RIGHT (R)	28	28	1650	0.0170	
	THRU (T)	1172	1172	3300	0.3552	
	LEFT (L)	42	42	1650	0.0255	
	T + R		1200	3300	0.3636	0.3636
EB	RIGHT (R)	8	8	1650	0.0048	
	THRU (T)	3	3	1650	0.0018	
	LEFT (L)	37	37	1650	0.0224	0.0224
	T + R		11	1650	0.0067	
	T + L		40	1650	0.0242	
	T + R + L		48	1650	0.0291	
WB	RIGHT (R)	242	242	1650	0.1467	
	THRU (T)	66	66	1650	0.0400	
	LEFT (L)	5	5	1650	0.0030	
	T + R		308	1650	0.1867	
	T + L		71	1650	0.0430	
	T + R + L		313	1650	0.1897	0.1897

TOTAL VOLUME-TO-CAPACITY RATIO: 0.59
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future without Bypass 09/01/05

INTERSECTION 5 Loveridge Road/Ventura Drive City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

STREET NAME: Ventura Drive

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Loveridge Road

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	39	39	1650	0.0236	
	THRU (T)	1029	1029	3300	0.3118	
	LEFT (L)	16	16	1650	0.0097	
	T + R		1068	3300	0.3236	0.3236
SB	RIGHT (R)	39	39	1650	0.0236	
	THRU (T)	974	974	3300	0.2952	
	LEFT (L)	315	315	1650	0.1909	0.1909
	T + R		1013	3300	0.3070	
EB	RIGHT (R)	44	44	1650	0.0267	
	THRU (T)	183	183	1650	0.1109	
	LEFT (L)	77	77	1650	0.0467	
	T + R		227	1650	0.1376	
	T + L		260	1650	0.1576	
	T + R + L		304	1650	0.1842	0.1842
WB	RIGHT (R)	91	91	1650	0.0552	
	THRU (T)	11	11	1650	0.0067	
	LEFT (L)	4	4	1650	0.0024	0.0024
	T + R		102	1650	0.0618	
	T + L		15	1650	0.0091	
	T + R + L		106	1650	0.0642	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.70
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future without Bypass 09/01/05

INTERSECTION 6 Railroad Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

```
                RIGHT THRU LEFT
                  21  390   37
                   |   |    |
                   |   |    |
                <---   v   --->        | Split? Y
LEFT    65 ---  1.0  1.0  2.0  1.0  1.1 ---   12  RIGHT
                                                   STREET NAME:
THRU    65 ---> 1.0  (NO. OF LANES)   1.1<---   68  THRU  Buchanan Road

RIGHT   10 ---  1.0  1.0  2.0  1.0  2.0 --- 1394  LEFT
           |        <---   ^   --->       |
           v             |   |    |       v
  N                      |   |    |                SIG WARRANTS:
W + E                   31  571  702                  Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? Y
```

STREET NAME: Railroad Avenue

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	702	0 *	1650	0.0000	
	THRU (T)	571	571	3300	0.1730	0.1730
	LEFT (L)	31	31	1650	0.0188	
SB	RIGHT (R)	21	0 *	1650	0.0000	
	THRU (T)	390	390	3300	0.1182	0.1182
	LEFT (L)	37	37	1650	0.0224	
EB	RIGHT (R)	10	0 *	1650	0.0000	
	THRU (T)	65	65	1650	0.0394	0.0394
	LEFT (L)	65	65	1650	0.0394	
WB	RIGHT (R)	12	12	1650	0.0073	
	THRU (T)	68	68	1650	0.0412	
	LEFT (L)	1394	1394	3000	0.4647	0.4647
	T + R		80	1650	0.0485	
	TOTAL VOLUME-TO-CAPACITY RATIO:					0.80
	INTERSECTION LEVEL OF SERVICE:					C

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future without Bypass 09/01/05

INTERSECTION 6 Railroad Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

```
                RIGHT THRU LEFT
                  22  591   40
                   |   |    |
                   |   |    |
                <---   v   --->        | Split? Y
LEFT    68 ---  1.0  1.0  2.0  1.0  1.1 ---   15  RIGHT
                                                   STREET NAME:
THRU    96 ---> 1.0  (NO. OF LANES)   1.1<---   98  THRU  Buchanan Road

RIGHT    7 ---  1.0  1.0  2.0  1.0  2.0 ---  899  LEFT
           |        <---   ^   --->       |
           v             |   |    |       v
  N                      |   |    |                SIG WARRANTS:
W + E                   38  972 1407                  Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? Y
```

STREET NAME: Railroad Avenue

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	1407	913 *	1650	0.5533	0.5533
	THRU (T)	972	972	3300	0.2945	
	LEFT (L)	38	38	1650	0.0230	
SB	RIGHT (R)	22	0 *	1650	0.0000	
	THRU (T)	591	591	3300	0.1791	0.1791
	LEFT (L)	40	40	1650	0.0242	
EB	RIGHT (R)	7	0 *	1650	0.0000	
	THRU (T)	96	96	1650	0.0582	0.0582
	LEFT (L)	68	68	1650	0.0412	
WB	RIGHT (R)	15	15	1650	0.0091	
	THRU (T)	98	98	1650	0.0594	
	LEFT (L)	899	899	3000	0.2997	0.2997
	T + R		113	1650	0.0685	
	TOTAL VOLUME-TO-CAPACITY RATIO:					1.09
	INTERSECTION LEVEL OF SERVICE:					F

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future without Bypass 09/01/05

INTERSECTION 7 Harbor Street/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
56 35 61

Split? N

LEFT 91 --- 1.0 1.1 1.1 1.0 1.0 --- 29 RIGHT

THRU 719 ---> 1.1 (NO. OF LANES) 1.0<--- 1227 THRU

RIGHT 15 --- 1.1 1.1 1.1 1.1 1.0 --- 1 LEFT

N
W + E
S
83 114 2
LEFT THRU RIGHT Split? Y

STREET NAME: Buchanan Road

STREET NAME: Harbor Street

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	2	2	1650	0.0012	
	THRU (T)	114	114	1650	0.0691	
	LEFT (L)	83	83	1650	0.0503	
	T + R		116	1650	0.0703	
	T + L		197	1650	0.1194	
	T + R + L		199	1650	0.1206	0.1206
SB	RIGHT (R)	56	56	1650	0.0339	
	THRU (T)	35	35	1650	0.0212	
	LEFT (L)	61	61	1650	0.0370	
	T + R		91	1650	0.0552	0.0552
EB	RIGHT (R)	15	15	1650	0.0091	
	THRU (T)	719	719	1650	0.4358	
	LEFT (L)	91	91	1650	0.0552	0.0552
	T + R		734	1650	0.4448	
WB	RIGHT (R)	29	0 *	1650	0.0000	
	THRU (T)	1227	1227	1650	0.7436	0.7436
	LEFT (L)	1	1	1650	0.0006	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.97
INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future without Bypass 09/01/05

INTERSECTION 7 Harbor Street/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
37 97 72

Split? N

LEFT 55 --- 1.0 1.1 1.1 1.0 1.0 --- 49 RIGHT

THRU 1447 ---> 1.1 (NO. OF LANES) 1.0<--- 915 THRU

RIGHT 53 --- 1.1 1.1 1.1 1.1 1.0 --- 18 LEFT

N
W + E
S
19 58 1
LEFT THRU RIGHT Split? Y

STREET NAME: Buchanan Road

STREET NAME: Harbor Street

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	1	1	1650	0.0006	
	THRU (T)	58	58	1650	0.0352	
	LEFT (L)	19	19	1650	0.0115	
	T + R		59	1650	0.0358	
	T + L		77	1650	0.0467	
	T + R + L		78	1650	0.0473	0.0473
SB	RIGHT (R)	37	37	1650	0.0224	
	THRU (T)	97	97	1650	0.0588	
	LEFT (L)	72	72	1650	0.0436	
	T + R		134	1650	0.0812	0.0812
EB	RIGHT (R)	53	53	1650	0.0321	
	THRU (T)	1447	1447	1650	0.8770	
	LEFT (L)	55	55	1650	0.0333	
	T + R		1500	1650	0.9091 **	0.9091
WB	RIGHT (R)	49	0 *	1650	0.0000	
	THRU (T)	915	915	1650	0.5545	
	LEFT (L)	18	18	1650	0.0109	0.0109

TOTAL VOLUME-TO-CAPACITY RATIO: 1.05
INTERSECTION LEVEL OF SERVICE: F

* ADJUSTED FOR RIGHT TURN ON RED ** APPROACHING OR EXCEEDING CAPACITY
INT=FUTURE.INT,VOL=FUTURE-P.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future without Bypass 09/01/05

INTERSECTION 8 Loveridge Road/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 3-PHASE SIGNAL

RIGHT THRU LEFT
831 0 354

LEFT 541 --- 1.0 1.0 0.0 1.0 1.0 --- 258 RIGHT
Split? N

THRU 383 ---> 1.0 (NO. OF LANES) 1.0<--- 667 THRU
STREET NAME: Buchanan Road

RIGHT 0 --- 0.0 0.0 0.0 0.0 0.0 --- 0 LEFT

N
W + E
S
0 0 0
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB RIGHT (R)	831	290 *	1720	0.1686	
LEFT (L)	354	354	1720	0.2058	0.2058
EB THRU (T)	383	383	1720	0.2227	
LEFT (L)	541	541	1720	0.3145	0.3145
WB RIGHT (R)	258	0 *	1720	0.0000	
THRU (T)	667	667	1720	0.3878	0.3878

TOTAL VOLUME-TO-CAPACITY RATIO: 0.91
INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future without Bypass 09/01/05

INTERSECTION 8 Loveridge Road/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 3-PHASE SIGNAL

RIGHT THRU LEFT
738 0 166

LEFT 747 --- 1.0 1.0 0.0 1.0 1.0 --- 268 RIGHT
Split? N

THRU 1008 ---> 1.0 (NO. OF LANES) 1.0<--- 519 THRU
STREET NAME: Buchanan Road

RIGHT 0 --- 0.0 0.0 0.0 0.0 0.0 --- 0 LEFT

N
W + E
S
0 0 0
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB RIGHT (R)	738	0 *	1720	0.0000	
LEFT (L)	166	166	1720	0.0965	0.0965
EB THRU (T)	1008	1008	1720	0.5860	
LEFT (L)	747	747	1720	0.4343	0.4343
WB RIGHT (R)	268	102 *	1720	0.0593	
THRU (T)	519	519	1720	0.3017	0.3017

TOTAL VOLUME-TO-CAPACITY RATIO: 0.83
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future without Bypass 09/01/05

INTERSECTION 9 Ventura Drive/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
6 11 19

LEFT 8 --- 1.0 1.1 1.1 1.0 1.1 --- 17 RIGHT
Split? N

THRU 829 ---> 1.0 (NO. OF LANES) 1.1<--- 973 THRU
STREET NAME: Buchanan Road

RIGHT 39 --- 1.0 1.0 1.1 1.1 1.0 --- 18 LEFT

N
W + E
S
38 135 52
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Ventura Drive

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	52	52	1650	0.0315	
THRU (T)	135	135	1650	0.0818	
LEFT (L)	38	38	1650	0.0230	
T + R		187	1650	0.1133	0.1133
SB RIGHT (R)	6	6	1650	0.0036	
THRU (T)	11	11	1650	0.0067	
LEFT (L)	19	19	1650	0.0115	0.0115
T + R		17	1650	0.0103	
EB RIGHT (R)	39	1 *	1650	0.0006	
THRU (T)	829	829	1650	0.5024	
LEFT (L)	8	8	1650	0.0048	0.0048
WB RIGHT (R)	17	17	1650	0.0103	
THRU (T)	973	973	1650	0.5897	
LEFT (L)	18	18	1650	0.0109	
T + R		990	1650	0.6000	0.6000

TOTAL VOLUME-TO-CAPACITY RATIO: 0.73
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future without Bypass 09/01/05

INTERSECTION 9 Ventura Drive/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
7 69 222

LEFT 3 --- 1.0 1.1 1.1 1.0 1.1 --- 23 RIGHT
Split? N

THRU 998 ---> 1.0 (NO. OF LANES) 1.1<--- 570 THRU
STREET NAME: Buchanan Road

RIGHT 75 --- 1.0 1.0 1.1 1.1 1.0 --- 18 LEFT

N
W + E
S
76 52 37
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Ventura Drive

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	37	37	1650	0.0224	
THRU (T)	52	52	1650	0.0315	
LEFT (L)	76	76	1650	0.0461	
T + R		89	1650	0.0539	0.0539
SB RIGHT (R)	7	7	1650	0.0042	
THRU (T)	69	69	1650	0.0418	
LEFT (L)	222	222	1650	0.1345	0.1345
T + R		76	1650	0.0461	
EB RIGHT (R)	75	0 *	1650	0.0000	
THRU (T)	998	998	1650	0.6048	0.6048
LEFT (L)	3	3	1650	0.0018	
WB RIGHT (R)	23	23	1650	0.0139	
THRU (T)	570	570	1650	0.3455	
LEFT (L)	18	18	1650	0.0109	0.0109
T + R		593	1650	0.3594	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.80
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future without Bypass 09/01/05

INTERSECTION 10 Meadows Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

10 1 44

Split? N

LEFT 15 --- 1.0 1.1 1.1 1.0 1.1 --- 50 RIGHT

STREET NAME:

THRU 867 ---> 1.0 (NO. OF LANES) 1.1<--- 963 THRU Buchanan Road

RIGHT 32 --- 1.0 1.0 1.1 1.1 1.0 --- 19 LEFT

N

W + E SIG WARRANTS: Urb=Y, Rur=Y

S

72 6 113

LEFT THRU RIGHT Split? N

STREET NAME: Meadows Avenue

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	113	113	1650	0.0685	
	THRU (T)	6	6	1650	0.0036	
	LEFT (L)	72	72	1650	0.0436	
	T + R		119	1650	0.0721	0.0721
SB	RIGHT (R)	10	10	1650	0.0061	
	THRU (T)	1	1	1650	0.0006	
	LEFT (L)	44	44	1650	0.0267	0.0267
	T + R		11	1650	0.0067	
EB	RIGHT (R)	32	0 *	1650	0.0000	
	THRU (T)	867	867	1650	0.5255	
	LEFT (L)	15	15	1650	0.0091	0.0091
WB	RIGHT (R)	50	50	1650	0.0303	
	THRU (T)	963	963	1650	0.5836	
	LEFT (L)	19	19	1650	0.0115	
	T + R		1013	1650	0.6139	0.6139

TOTAL VOLUME-TO-CAPACITY RATIO: 0.72
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future without Bypass 09/01/05

INTERSECTION 10 Meadows Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

3 0 49

Split? N

LEFT 10 --- 1.0 1.1 1.1 1.0 1.1 --- 40 RIGHT

STREET NAME:

THRU 1175 ---> 1.0 (NO. OF LANES) 1.1<--- 539 THRU Buchanan Road

RIGHT 22 --- 1.0 1.0 1.1 1.1 1.0 --- 162 LEFT

N

W + E SIG WARRANTS: Urb=N, Rur=N

S

19 1 41

LEFT THRU RIGHT Split? N

STREET NAME: Meadows Avenue

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	41	41	1650	0.0248	
	THRU (T)	1	1	1650	0.0006	
	LEFT (L)	19	19	1650	0.0115	
	T + R		42	1650	0.0255	0.0255
SB	RIGHT (R)	3	3	1650	0.0018	
	THRU (T)	0	0	1650	0.0000	
	LEFT (L)	49	49	1650	0.0297	0.0297
	T + R		3	1650	0.0018	
EB	RIGHT (R)	22	3 *	1650	0.0018	
	THRU (T)	1175	1175	1650	0.7121	0.7121
	LEFT (L)	10	10	1650	0.0061	
WB	RIGHT (R)	40	40	1650	0.0242	
	THRU (T)	539	539	1650	0.3267	
	LEFT (L)	162	162	1650	0.0982	0.0982
	T + R		579	1650	0.3509	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.87
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future without Bypass 09/01/05

INTERSECTION 11 Somersville Road/Buchanan Rd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 6-PHASE SIGNAL

RIGHT THRU LEFT
111 107 93

LEFT 482 --- 1.0 1.1 2.1 1.0 1.9 --- 333 RIGHT
Split? N

THRU 242 ---> 2.0 (NO. OF LANES) 1.0<--- 574 THRU
STREET NAME: Buchanan Rd

RIGHT 92 --- 1.9 1.0 2.1 1.1 1.0 --- 19 LEFT

N
W + E
S
598 636 33
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Somersville Road

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	33	33	1650	0.0200	
	THRU (T)	636	636	3300	0.1927	
	LEFT (L)	598	598	1650	0.3624	0.3624
	T + R		669	3300	0.2027	
SB	RIGHT (R)	111	111	1650	0.0673	0.0673
	THRU (T)	107	107	3300	0.0324	
	LEFT (L)	93	93	1650	0.0564	
	T + R		218	3300	0.0661	
EB	RIGHT (R)	92	92	1650	0.0558	
	THRU (T)	242	242	3300	0.0733	
	LEFT (L)	482	482	1650	0.2921	0.2921
WB	RIGHT (R)	333	333	1650	0.2018	
	THRU (T)	574	574	1650	0.3479	0.3479
	LEFT (L)	19	19	1650	0.0115	

TOTAL VOLUME-TO-CAPACITY RATIO: 1.07
INTERSECTION LEVEL OF SERVICE: F

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future without Bypass 09/01/05

INTERSECTION 11 Somersville Road/Buchanan Rd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 6-PHASE SIGNAL

RIGHT THRU LEFT
215 458 466

LEFT 521 --- 1.0 1.1 2.1 1.0 1.9 --- 278 RIGHT
Split? N

THRU 588 ---> 2.0 (NO. OF LANES) 1.0<--- 278 THRU
STREET NAME: Buchanan Rd

RIGHT 653 --- 1.9 1.0 2.1 1.1 1.0 --- 54 LEFT

N
W + E
S
213 223 18
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Somersville Road

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	18	18	1650	0.0109	
	THRU (T)	223	223	3300	0.0676	
	LEFT (L)	213	213	1650	0.1291	
	T + R		241	3300	0.0730	0.0730
SB	RIGHT (R)	215	215	1650	0.1303	
	THRU (T)	458	458	3300	0.1388	
	LEFT (L)	466	466	1650	0.2824	0.2824
	T + R		673	3300	0.2039	
EB	RIGHT (R)	653	653	1650	0.3958	
	THRU (T)	588	588	3300	0.1782	
	LEFT (L)	521	521	1650	0.3158	0.3158
WB	RIGHT (R)	278	278	1650	0.1685	
	THRU (T)	278	278	1650	0.1685	0.1685
	LEFT (L)	54	54	1650	0.0327	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.84
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.PMV,CAP=

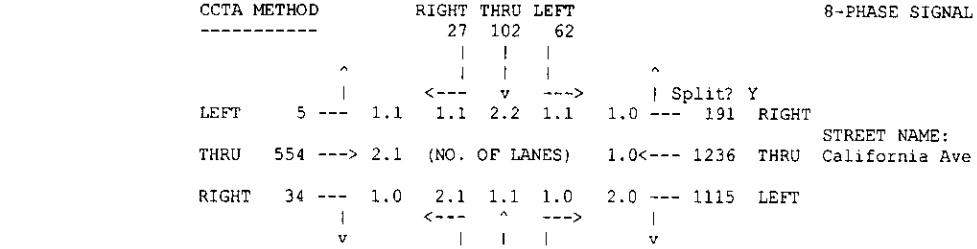
Intersection Level of Service Calculations
CCTA Methodology
Cumulative 2025 with Buchanan Road Bypass Conditions

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future with Bypass 09/01/05

INTERSECTION 1 S.R. 4 WB Ramps/California Ave City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 8-PHASE SIGNAL



STREET NAME: California Ave

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: S.R. 4 WB Ramps

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	135	0 *	1650	0.0000	
	THRU (T)	28	28	1650	0.0170	
	LEFT (L)	251	251	3000	0.0837	
	T + L		279	3000	0.0930	0.0930
SB	RIGHT (R)	27	27	1650	0.0164	
	THRU (T)	102	102	3300	0.0309	
	LEFT (L)	62	62	1650	0.0376	
	T + R		129	3300	0.0391	
	T + L		164	3300	0.0497	
	T + R + L		191	3300	0.0579	0.0579
EB	RIGHT (R)	34	0 *	1650	0.0000	
	THRU (T)	554	554	3300	0.1679	
	LEFT (L)	5	5	1650	0.0030	
	T + L		559	3300	0.1694	0.1694
WB	RIGHT (R)	191	129 *	1650	0.0782	
	THRU (T)	1236	1236	1650	0.7491	0.7491
	LEFT (L)	1115	1115	3000	0.3717	

TOTAL VOLUME-TO-CAPACITY RATIO: 1.07
INTERSECTION LEVEL OF SERVICE: F

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future with Bypass 09/01/05

INTERSECTION 1 S.R. 4 WB Ramps/California Ave City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 8-PHASE SIGNAL

STREET NAME: California Ave

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: S.R. 4 WB Ramps

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	684	361 *	1650	0.2188	0.2188
	THRU (T)	60	60	1650	0.0364	
	LEFT (L)	398	398	3000	0.1327	
	T + L		458	3000	0.1527	
SB	RIGHT (R)	23	23	1650	0.0139	
	THRU (T)	74	74	3300	0.0224	
	LEFT (L)	112	112	1650	0.0679	0.0679
	T + R		97	3300	0.0294	
	T + L		186	3300	0.0564	
	T + R + L		209	3300	0.0633	
EB	RIGHT (R)	32	0 *	1650	0.0000	
	THRU (T)	1390	1390	3300	0.4212	
	LEFT (L)	46	46	1650	0.0279	
	T + L		1436	3300	0.4352	0.4352
WB	RIGHT (R)	104	0 *	1650	0.0000	
	THRU (T)	362	362	1650	0.2194	0.2194
	LEFT (L)	588	588	3000	0.1960	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.94
INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future with Bypass 09/01/05

INTERSECTION 2 Loveridge Road/S.R. 4 EB Ramps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 2-PHASE SIGNAL

```
                RIGHT THRU LEFT
                  176  940    0
                   |    |    |
                   ^    |    |
                   |    |    |
                  <---  v   --->        ^
                   |                    | Split? Y
LEFT   351 ---  1.0 | 1.0  2.0  0.0  0.0 ---    0  RIGHT
                   |                              STREET NAME:
THRU     0 ---> 0.0 | (NO. OF LANES)    0.0<---  0  THRU  S.R. 4 EB Ramps
                   |
RIGHT  469 ---  1.0 | 0.0  2.1  1.1  0.0 ---    0  LEFT
                   |    <---  ^   --->   |
                   v          |    |    v
                              |    |                        SIG WARRANTS:
  N                           |    |
W + E                         0  804  467                    Urb=Y, Rur=Y
  S                     LEFT THRU RIGHT Split? N
```

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	467	467	1800	0.2594	
THRU (T)	804	804	3600	0.2233	
T + R		1271	3600	0.3531	0.3531
SB RIGHT (R)	176	0 *	1800	0.0000	
THRU (T)	940	940	3600	0.2611	
EB RIGHT (R)	469	469	1800	0.2606	0.2606
LEFT (L)	351	351	1800	0.1950	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.61
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future with Bypass 09/01/05

INTERSECTION 2 Loveridge Road/S.R. 4 EB Ramps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 2-PHASE SIGNAL

```
                RIGHT THRU LEFT
                  308  664    0
                   |    |    |
                   ^    |    |
                   |    |    |
                  <---  v   --->        ^
                   |                    | Split? Y
LEFT   226 ---  1.0 | 1.0  2.0  0.0  0.0 ---    0  RIGHT
                   |                              STREET NAME:
THRU     0 ---> 0.0 | (NO. OF LANES)    0.0<---  0  THRU  S.R. 4 EB Ramps
                   |
RIGHT  510 ---  1.0 | 0.0  2.1  1.1  0.0 ---    0  LEFT
                   |    <---  ^   --->   |
                   v          |    |    v
                              |    |                        SIG WARRANTS:
  N                           |    |
W + E                         0 1761  392                    Urb=Y, Rur=Y
  S                     LEFT THRU RIGHT Split? N
```

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	392	392	1800	0.2178	
THRU (T)	1761	1761	3600	0.4892	
T + R		2153	3600	0.5981	0.5981
SB RIGHT (R)	308	82 *	1800	0.0456	
THRU (T)	664	664	3600	0.1844	
EB RIGHT (R)	510	510	1800	0.2833	0.2833
LEFT (L)	226	226	1800	0.1256	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.88
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future with Bypass 09/01/05

INTERSECTION 3 Loveridge Road/E. Leland Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 6-PHASE SIGNAL
450 723 394

LEFT 247 --- 2.0 1.0 2.0 2.0 1.0 --- 641 RIGHT
Split? N

THRU 347 ---> 2.0 (NO. OF LANES) 2.0<--- 1339 THRU STREET NAME: E. Leland Road

RIGHT 323 --- 1.0 1.0 2.1 1.1 2.0 --- 381 LEFT

N
W + E SIG WARRANTS: Urb=Y, Rur=Y
S
321 603 69
LEFT THRU RIGHT Split? N

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	69	69	1650	0.0418	
THRU (T)	603	603	3300	0.1827	
LEFT (L)	321	321	1650	0.1945	0.1945
T + R		672	3300	0.2036	
SB RIGHT (R)	450	314 *	1650	0.1903	
THRU (T)	723	723	3300	0.2191	0.2191
LEFT (L)	394	394	3000	0.1313	
EB RIGHT (R)	323	2 *	1650	0.0012	
THRU (T)	347	347	3300	0.1052	
LEFT (L)	247	247	3000	0.0823	0.0823
WB RIGHT (R)	641	424 *	1650	0.2570	
THRU (T)	1339	1339	3300	0.4058	0.4058
LEFT (L)	381	381	3000	0.1270	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.90
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future with Bypass 09/01/05

INTERSECTION 3 Loveridge Road/E. Leland Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 6-PHASE SIGNAL
230 266 355

LEFT 631 --- 2.0 1.0 2.0 2.0 1.0 --- 195 RIGHT
Split? N

THRU 1278 ---> 2.0 (NO. OF LANES) 2.0<--- 423 THRU STREET NAME: E. Leland Road

RIGHT 282 --- 1.0 1.0 2.1 1.1 2.0 --- 288 LEFT

N
W + E SIG WARRANTS: Urb=Y, Rur=Y
S
232 510 337
LEFT THRU RIGHT Split? N

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	337	337	1650	0.2042	
THRU (T)	510	510	3300	0.1545	
LEFT (L)	232	232	1650	0.1406	
T + R		847	3300	0.2567	0.2567
SB RIGHT (R)	230	0 *	1650	0.0000	
THRU (T)	266	266	3300	0.0806	
LEFT (L)	355	355	3000	0.1183	0.1183
EB RIGHT (R)	282	50 *	1650	0.0303	
THRU (T)	1278	1278	3300	0.3873	0.3873
LEFT (L)	631	631	3000	0.2103	
WB RIGHT (R)	195	0 *	1650	0.0000	
THRU (T)	423	423	3300	0.1282	
LEFT (L)	288	288	3000	0.0960	0.0960

TOTAL VOLUME-TO-CAPACITY RATIO: 0.86
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future with Bypass 09/01/05

INTERSECTION 4 Somersville Road/Delta Fair Blvd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

263 250 282

Split? Y

LEFT 302 --- 2.1 1.0 2.0 2.0 1.0 --- 489 RIGHT

THRU 129 ---> 2.2 (NO. OF LANES) 1.0<--- 737 THRU Delta Fair Blvd

RIGHT 18 --- 1.1 1.0 3.1 1.1 1.0 --- 24 LEFT

STREET NAME:

SIG WARRANTS:

N
W + E
S

223 811 15
LEFT THRU RIGHT Split? N

Urb=Y, Rur=Y

STREET NAME: Somersville Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	15	15	1650	0.0091	
THRU (T)	811	811	4950	0.1638	
LEFT (L)	223	223	1650	0.1352	
T + R		826	4950	0.1669	0.1669
SB RIGHT (R)	263	97 *	1650	0.0588	
THRU (T)	250	250	3300	0.0758	
LEFT (L)	282	282	3000	0.0940	0.0940
EB RIGHT (R)	18	18	1650	0.0109	
THRU (T)	129	129	3300	0.0391	
LEFT (L)	302	302	3000	0.1007	0.1007
T + R		147	3300	0.0445	
T + L		431	4650	0.0927	
T + R + L		449	4650	0.0966	
WB RIGHT (R)	489	334 *	1650	0.2024	
THRU (T)	737	737	1650	0.4467	0.4467
LEFT (L)	24	24	1650	0.0145	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.81
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future with Bypass 09/01/05

INTERSECTION 4 Somersville Road/Delta Fair Blvd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

330 436 705

Split? Y

LEFT 588 --- 2.1 1.0 2.0 2.0 1.0 --- 418 RIGHT

THRU 448 ---> 2.2 (NO. OF LANES) 1.0<--- 254 THRU Delta Fair Blvd

RIGHT 45 --- 1.1 1.0 3.1 1.1 1.0 --- 49 LEFT

STREET NAME:

SIG WARRANTS:

N
W + E
S

88 686 61
LEFT THRU RIGHT Split? N

Urb=Y, Rur=Y

STREET NAME: Somersville Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	61	61	1650	0.0370	
THRU (T)	686	686	4950	0.1386	
LEFT (L)	88	88	1650	0.0533	
T + R		747	4950	0.1509	0.1509
SB RIGHT (R)	330	7 *	1650	0.0042	
THRU (T)	436	436	3300	0.1321	
LEFT (L)	705	705	3000	0.2350	0.2350
EB RIGHT (R)	45	45	1650	0.0273	
THRU (T)	448	448	3300	0.1358	
LEFT (L)	588	588	3000	0.1960	
T + R		493	3300	0.1494	
T + L		1036	4650	0.2228	
T + R + L		1081	4650	0.2325	0.2325
WB RIGHT (R)	418	30 *	1650	0.0182	
THRU (T)	254	254	1650	0.1539	0.1539
LEFT (L)	49	49	1650	0.0297	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.77
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future with Bypass 09/01/05

INTERSECTION 5 Loveridge Road/Ventura Drive City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

28 781 42

<---

LEFT 37 --- 1.1 1.1 2.1 1.0 1.1 --- 242 RIGHT Split? N

THRU 3 ---> 1.1 (NO. OF LANES) 1.1<--- 66 THRU STREET NAME: Ventura Drive

RIGHT 8 --- 1.1 1.0 2.1 1.1 1.1 --- 5 LEFT

--->

N
W + E
S

27 543 7

LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Loveridge Road

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	7	7	1650	0.0042	
	THRU (T)	543	543	3300	0.1645	
	LEFT (L)	27	27	1650	0.0164	0.0164
	T + R		550	3300	0.1667	
SB	RIGHT (R)	28	28	1650	0.0170	
	THRU (T)	781	781	3300	0.2367	
	LEFT (L)	42	42	1650	0.0255	
	T + R		809	3300	0.2452	0.2452
EB	RIGHT (R)	8	8	1650	0.0048	
	THRU (T)	3	3	1650	0.0018	
	LEFT (L)	37	37	1650	0.0224	0.0224
	T + R		11	1650	0.0067	
	T + L		40	1650	0.0242	
	T + R + L		48	1650	0.0291	
WB	RIGHT (R)	242	242	1650	0.1467	
	THRU (T)	66	66	1650	0.0400	
	LEFT (L)	5	5	1650	0.0030	
	T + R		308	1650	0.1867	
	T + L		71	1650	0.0430	
	T + R + L		313	1650	0.1897	0.1897

TOTAL VOLUME-TO-CAPACITY RATIO: 0.47
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future with Bypass 09/01/05

INTERSECTION 5 Loveridge Road/Ventura Drive City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

39 474 315

<---

LEFT 77 --- 1.1 1.1 2.1 1.0 1.1 --- 91 RIGHT Split? N

THRU 183 ---> 1.1 (NO. OF LANES) 1.1<--- 11 THRU STREET NAME: Ventura Drive

RIGHT 44 --- 1.1 1.0 2.1 1.1 1.1 --- 4 LEFT

--->

N
W + E
S

16 792 39

LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Loveridge Road

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	39	39	1650	0.0236	
	THRU (T)	792	792	3300	0.2400	
	LEFT (L)	16	16	1650	0.0097	
	T + R		831	3300	0.2518	0.2518
SB	RIGHT (R)	39	39	1650	0.0236	
	THRU (T)	474	474	3300	0.1436	
	LEFT (L)	315	315	1650	0.1909	0.1909
	T + R		513	3300	0.1555	
EB	RIGHT (R)	44	44	1650	0.0267	
	THRU (T)	183	183	1650	0.1109	
	LEFT (L)	77	77	1650	0.0467	
	T + R		227	1650	0.1376	
	T + L		260	1650	0.1576	
	T + R + L		304	1650	0.1842	0.1842
WB	RIGHT (R)	91	91	1650	0.0552	
	THRU (T)	11	11	1650	0.0067	
	LEFT (L)	4	4	1650	0.0024	0.0024
	T + R		102	1650	0.0618	
	T + L		15	1650	0.0091	
	T + R + L		106	1650	0.0642	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.63
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future with Bypass 09/01/05

INTERSECTION 6 Railroad Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
21 190 56

LEFT 65 --- 1.0 1.0 2.0 1.0 1.1 --- 68 RIGHT
Split? Y

STREET NAME:
THRU 65 ---> 1.0 (NO. OF LANES) 1.1<--- 68 THRU Buchanan Road

RIGHT 10 --- 1.0 1.0 2.0 1.0 2.0 --- 690 LEFT

N
W + E
S

SIG WARRANTS:
Urb=Y, Rur=Y

31 280 350
LEFT THRU RIGHT Split? Y

STREET NAME: Railroad Avenue

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	350	0 *	1650	0.0000	
	THRU (T)	280	280	3300	0.0848	0.0848
	LEFT (L)	31	31	1650	0.0188	
SB	RIGHT (R)	21	0 *	1650	0.0000	
	THRU (T)	190	190	3300	0.0576	0.0576
	LEFT (L)	56	56	1650	0.0339	
EB	RIGHT (R)	10	0 *	1650	0.0000	
	THRU (T)	65	65	1650	0.0394	0.0394
	LEFT (L)	65	65	1650	0.0394	
WB	RIGHT (R)	68	68	1650	0.0412	
	THRU (T)	68	68	1650	0.0412	
	LEFT (L)	690	690	3000	0.2300	0.2300
	T + R		136	1650	0.0824	
	TOTAL VOLUME-TO-CAPACITY RATIO:					0.41
	INTERSECTION LEVEL OF SERVICE:					A

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future with Bypass 09/01/05

INTERSECTION 6 Railroad Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
22 300 105

LEFT 68 --- 1.0 1.0 2.0 1.0 1.1 --- 52 RIGHT
Split? Y

STREET NAME:
THRU 96 ---> 1.0 (NO. OF LANES) 1.1<--- 98 THRU Buchanan Road

RIGHT 7 --- 1.0 1.0 2.0 1.0 2.0 --- 100 LEFT

N
W + E
S

SIG WARRANTS:
Urb=Y, Rur=Y

38 540 560
LEFT THRU RIGHT Split? Y

STREET NAME: Railroad Avenue

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	560	505 *	1650	0.3061	0.3061
	THRU (T)	540	540	3300	0.1636	
	LEFT (L)	38	38	1650	0.0230	
SB	RIGHT (R)	22	0 *	1650	0.0000	
	THRU (T)	300	300	3300	0.0909	0.0909
	LEFT (L)	105	105	1650	0.0636	
EB	RIGHT (R)	7	0 *	1650	0.0000	
	THRU (T)	96	96	1650	0.0582	0.0582
	LEFT (L)	68	68	1650	0.0412	
WB	RIGHT (R)	52	52	1650	0.0315	
	THRU (T)	98	98	1650	0.0594	
	LEFT (L)	100	100	3000	0.0333	
	T + R		150	1650	0.0909	0.0909
	TOTAL VOLUME-TO-CAPACITY RATIO:					0.55
	INTERSECTION LEVEL OF SERVICE:					A

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future with Bypass 09/01/05

INTERSECTION 7 Harbor Street/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL
56 35 61

LEFT 91 --- 1.0 1.1 1.1 1.0 1.0 --- 29 RIGHT
Split? N

THRU 369 ---> 1.1 (NO. OF LANES) 1.0<--- 527 THRU
STREET NAME: Buchanan Road

RIGHT 15 --- 1.1 1.1 1.1 1.1 1.0 --- 1 LEFT

N
W + E
S
83 114 2
LEFT THRU RIGHT Split? Y
SIG WARRANTS: Urb=N, Rur=Y

STREET NAME: Harbor Street

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	2	2	1650	0.0012	
	THRU (T)	114	114	1650	0.0691	
	LEFT (L)	83	83	1650	0.0503	
	T + R		116	1650	0.0703	
	T + L		197	1650	0.1194	
	T + R + L		199	1650	0.1206	0.1206
SB	RIGHT (R)	56	56	1650	0.0339	
	THRU (T)	35	35	1650	0.0212	
	LEFT (L)	61	61	1650	0.0370	
	T + R		91	1650	0.0552	0.0552
EB	RIGHT (R)	15	15	1650	0.0091	
	THRU (T)	369	369	1650	0.2236	
	LEFT (L)	91	91	1650	0.0552	0.0552
	T + R		384	1650	0.2327	
WB	RIGHT (R)	29	0 *	1650	0.0000	
	THRU (T)	527	527	1650	0.3194	0.3194
	LEFT (L)	1	1	1650	0.0006	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.55
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future with Bypass 09/01/05

INTERSECTION 7 Harbor Street/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL
37 97 72

LEFT 55 --- 1.0 1.1 1.1 1.0 1.0 --- 49 RIGHT
Split? N

THRU 600 ---> 1.1 (NO. OF LANES) 1.0<--- 115 THRU
STREET NAME: Buchanan Road

RIGHT 53 --- 1.1 1.1 1.1 1.1 1.0 --- 18 LEFT

N
W + E
S
19 58 1
LEFT THRU RIGHT Split? Y
SIG WARRANTS: Urb=N, Rur=Y

STREET NAME: Harbor Street

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	1	1	1650	0.0006	
	THRU (T)	58	58	1650	0.0352	
	LEFT (L)	19	19	1650	0.0115	
	T + R		59	1650	0.0358	
	T + L		77	1650	0.0467	
	T + R + L		78	1650	0.0473	0.0473
SB	RIGHT (R)	37	37	1650	0.0224	
	THRU (T)	97	97	1650	0.0588	
	LEFT (L)	72	72	1650	0.0436	
	T + R		134	1650	0.0812	0.0812
EB	RIGHT (R)	53	53	1650	0.0321	
	THRU (T)	600	600	1650	0.3636	
	LEFT (L)	55	55	1650	0.0333	
	T + R		653	1650	0.3958	0.3958
WB	RIGHT (R)	49	0 *	1650	0.0000	
	THRU (T)	115	115	1650	0.0697	
	LEFT (L)	18	18	1650	0.0109	0.0109

TOTAL VOLUME-TO-CAPACITY RATIO: 0.54
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future with Bypass 09/01/05

INTERSECTION 8 Loveridge Road/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 3-PHASE SIGNAL

RIGHT THRU LEFT
444 0 354

LEFT 336 --- 1.0 1.0 0.0 1.0 1.0 --- 258 RIGHT
Split? N

THRU 238 ---> 1.0 (NO. OF LANES) 1.0<--- 357 THRU

RIGHT 0 --- 0.0 0.0 0.0 0.0 0.0 --- 0 LEFT

N
W + E
S

LEFT THRU RIGHT Split? N
0 0 0

STREET NAME: Buchanan Road

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB RIGHT (R)	444	108 *	1720	0.0628	
LEFT (L)	354	354	1720	0.2058	0.2058
EB THRU (T)	238	238	1720	0.1384	
LEFT (L)	336	336	1720	0.1953	0.1953
WB RIGHT (R)	258	0 *	1720	0.0000	
THRU (T)	357	357	1720	0.2076	0.2076
TOTAL VOLUME-TO-CAPACITY RATIO:					0.61
INTERSECTION LEVEL OF SERVICE:					B

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future with Bypass 09/01/05

INTERSECTION 8 Loveridge Road/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 3-PHASE SIGNAL

RIGHT THRU LEFT
238 0 166

LEFT 547 --- 1.0 1.0 0.0 1.0 1.0 --- 268 RIGHT
Split? N

THRU 461 ---> 1.0 (NO. OF LANES) 1.0<--- 219 THRU

RIGHT 0 --- 0.0 0.0 0.0 0.0 0.0 --- 0 LEFT

N
W + E
S

LEFT THRU RIGHT Split? N
0 0 0

STREET NAME: Buchanan Road

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB RIGHT (R)	238	0 *	1720	0.0000	
LEFT (L)	166	166	1720	0.0965	0.0965
EB THRU (T)	461	461	1720	0.2680	
LEFT (L)	547	547	1720	0.3180	0.3180
WB RIGHT (R)	268	102 *	1720	0.0593	
THRU (T)	219	219	1720	0.1273	0.1273
TOTAL VOLUME-TO-CAPACITY RATIO:					0.54
INTERSECTION LEVEL OF SERVICE:					A

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future with Bypass 09/01/05

INTERSECTION 9 Ventura Drive/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

			RIGHT	THRU	LEFT				
			6	11	19				
LEFT	8	1.0	1.1	1.1	1.0	1.1	17	RIGHT	
THRU	684	1.0	(NO. OF LANES)			1.1	663	THRU	STREET NAME: Buchanan Road
RIGHT	87	1.0	1.0	1.1	1.1	1.0	48	LEFT	
			177	135	141				
			LEFT	THRU	RIGHT	Split? N			

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Ventura Drive

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	141	141	1650	0.0855	
	THRU (T)	135	135	1650	0.0818	
	LEFT (L)	177	177	1650	0.1073	
	T + R		276	1650	0.1673	0.1673
SB	RIGHT (R)	6	6	1650	0.0036	
	THRU (T)	11	11	1650	0.0067	
	LEFT (L)	19	19	1650	0.0115	0.0115
	T + R		17	1650	0.0103	
EB	RIGHT (R)	87	0 *	1650	0.0000	
	THRU (T)	684	684	1650	0.4145	0.4145
	LEFT (L)	8	8	1650	0.0048	
WB	RIGHT (R)	17	17	1650	0.0103	
	THRU (T)	663	663	1650	0.4018	
	LEFT (L)	48	48	1650	0.0291	0.0291
	T + R		680	1650	0.4121	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.62
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future with Bypass 09/01/05

INTERSECTION 9 Ventura Drive/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

			RIGHT	THRU	LEFT				
			7	69	222				
LEFT	3	1.0	1.1	1.1	1.0	1.1	23	RIGHT	
THRU	538	1.0	(NO. OF LANES)			1.1	270	THRU	STREET NAME: Buchanan Road
RIGHT	237	1.0	1.0	1.1	1.1	1.0	122	LEFT	
			169	52	96				
			LEFT	THRU	RIGHT	Split? N			

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Ventura Drive

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	96	96	1650	0.0582	
	THRU (T)	52	52	1650	0.0315	
	LEFT (L)	169	169	1650	0.1024	
	T + R		148	1650	0.0897	0.0897
SB	RIGHT (R)	7	7	1650	0.0042	
	THRU (T)	69	69	1650	0.0418	
	LEFT (L)	222	222	1650	0.1345	0.1345
	T + R		76	1650	0.0461	
EB	RIGHT (R)	237	68 *	1650	0.0412	
	THRU (T)	538	538	1650	0.3261	0.3261
	LEFT (L)	3	3	1650	0.0018	
WB	RIGHT (R)	23	23	1650	0.0139	
	THRU (T)	270	270	1650	0.1636	
	LEFT (L)	122	122	1650	0.0739	0.0739
	T + R		293	1650	0.1776	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.62
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future with Bypass 09/01/05

INTERSECTION 10 Meadows Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

10 1 44

Split? N

LEFT	15	--->	1.0	1.1	1.1	1.0	1.1	---	50	RIGHT
THRU	722	--->	1.0	(NO. OF LANES)			1.1	<---	653	THRU
RIGHT	32	---	1.0	1.0	1.1	1.1	1.0	---	19	LEFT

STREET NAME: Buchanan Road

SIG WARRANTS: Urb=B, Rur=Y

N
W + E
S

72 6 113
LEFT THRU RIGHT Split? N

STREET NAME: Meadows Avenue

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	113	113	1650	0.0685	
THRU (T)	6	6	1650	0.0036	
LEFT (L)	72	72	1650	0.0436	
T + R		119	1650	0.0721	0.0721
SB RIGHT (R)	10	10	1650	0.0061	
THRU (T)	1	1	1650	0.0006	
LEFT (L)	44	44	1650	0.0267	0.0267
T + R		11	1650	0.0067	
EB RIGHT (R)	32	0 *	1650	0.0000	
THRU (T)	722	722	1650	0.4376	0.4376
LEFT (L)	15	15	1650	0.0091	
WB RIGHT (R)	50	50	1650	0.0303	
THRU (T)	653	653	1650	0.3958	
LEFT (L)	19	19	1650	0.0115	0.0115
T + R		703	1650	0.4261	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.55
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM future with Bypass 09/01/05

INTERSECTION 10 Meadows Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

3 0 49

Split? N

LEFT	10	--->	1.0	1.1	1.1	1.0	1.1	---	40	RIGHT
THRU	715	--->	1.0	(NO. OF LANES)			1.1	<---	239	THRU
RIGHT	22	---	1.0	1.0	1.1	1.1	1.0	---	162	LEFT

STREET NAME: Buchanan Road

SIG WARRANTS: Urb=N, Rur=N

N
W + E
S

19 1 41
LEFT THRU RIGHT Split? N

STREET NAME: Meadows Avenue

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	41	41	1650	0.0248	
THRU (T)	1	1	1650	0.0006	
LEFT (L)	19	19	1650	0.0115	
T + R		42	1650	0.0255	0.0255
SB RIGHT (R)	3	3	1650	0.0018	
THRU (T)	0	0	1650	0.0000	
LEFT (L)	49	49	1650	0.0297	0.0297
T + R		3	1650	0.0018	
EB RIGHT (R)	22	3 *	1650	0.0018	
THRU (T)	715	715	1650	0.4333	0.4333
LEFT (L)	10	10	1650	0.0061	
WB RIGHT (R)	40	40	1650	0.0242	
THRU (T)	239	239	1650	0.1448	
LEFT (L)	162	162	1650	0.0982	0.0982
T + R		279	1650	0.1691	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.59
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future with Bypass 09/01/05

INTERSECTION 11 Somersville Road/Buchanan Rd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 6-PHASE SIGNAL

RIGHT THRU LEFT
61 157 93

LEFT 382 --- 1.0 1.1 2.1 1.0 1.9 --- 333 RIGHT
Split? N

THRU 197 ---> 2.0 (NO. OF LANES) 1.0<--- 314 THRU
STREET NAME: Buchanan Rd

RIGHT 92 --- 1.9 1.0 2.1 1.1 1.0 --- 279 LEFT

N
W + E
S
598 736 78
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Somersville Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	78	78	1650	0.0473	
THRU (T)	736	736	3300	0.2230	
LEFT (L)	598	598	1650	0.3624	0.3624
T + R		814	3300	0.2467	
SB RIGHT (R)	61	61	1650	0.0370	
THRU (T)	157	157	3300	0.0476	
LEFT (L)	93	93	1650	0.0564	
T + R		218	3300	0.0661	0.0661
EB RIGHT (R)	92	92	1650	0.0558	
THRU (T)	197	197	3300	0.0597	
LEFT (L)	382	382	1650	0.2315	0.2315
WB RIGHT (R)	333	333	1650	0.2018	
THRU (T)	314	314	1650	0.1903	0.1903
LEFT (L)	279	279	1650	0.1691	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.85
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future with Bypass 09/01/05

INTERSECTION 11 Somersville Road/Buchanan Rd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 6-PHASE SIGNAL

RIGHT THRU LEFT
115 558 466

LEFT 294 --- 1.0 1.1 2.1 1.0 1.9 --- 278 RIGHT
Split? N

THRU 358 ---> 2.0 (NO. OF LANES) 1.0<--- 78 THRU
STREET NAME: Buchanan Rd

RIGHT 653 --- 1.9 1.0 2.1 1.1 1.0 --- 254 LEFT

N
W + E
S
213 413 248
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Somersville Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	248	248	1650	0.1503	
THRU (T)	413	413	3300	0.1252	
LEFT (L)	213	213	1650	0.1291	
T + R		661	3300	0.2003	0.2003
SB RIGHT (R)	115	115	1650	0.0697	
THRU (T)	558	558	3300	0.1691	
LEFT (L)	466	466	1650	0.2824	0.2824
T + R		673	3300	0.2039	
EB RIGHT (R)	653	653	1650	0.3958	
THRU (T)	358	358	3300	0.1085	0.1085
LEFT (L)	294	294	1650	0.1782	
WB RIGHT (R)	278	278	1650	0.1685	
THRU (T)	78	78	1650	0.0473	
LEFT (L)	254	254	1650	0.1539	0.1539

TOTAL VOLUME-TO-CAPACITY RATIO: 0.75
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future with Bypass 09/01/05

INTERSECTION 12 Somersville Road/Buchanan Rd Byps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 8-PHASE SIGNAL

RIGHT THRU LEFT
390 100 20

LEFT 300 --- 2.0 1.0 1.0 1.0 1.0 --- 20 RIGHT
Split? N

THRU 500 ---> 2.0 (NO. OF LANES) 2.0<--- 1590 THRU
STREET NAME: Buchanan Rd Byps

RIGHT 20 --- 1.0 1.0 1.0 1.0 1.0 --- 20 LEFT

N
W + E
S

SIG WARRANTS: Urb=Y, Rur=Y

20 400 20
LEFT THRU RIGHT Split? N

STREET NAME: Somersville Road

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	20	0 *	1650	0.0000	
	THRU (T)	400	400	1650	0.2424	0.2424
	LEFT (L)	20	20	1650	0.0121	
SB	RIGHT (R)	390	225 *	1650	0.1364	
	THRU (T)	100	100	1650	0.0606	
	LEFT (L)	20	20	1650	0.0121	0.0121
EB	RIGHT (R)	20	0 *	1650	0.0000	
	THRU (T)	500	500	3300	0.1515	
	LEFT (L)	300	300	3000	0.1000	0.1000
WB	RIGHT (R)	20	0 *	1650	0.0000	
	THRU (T)	1590	1590	3300	0.4818	0.4818
	LEFT (L)	20	20	1650	0.0121	
	TOTAL VOLUME-TO-CAPACITY RATIO:					0.84
	INTERSECTION LEVEL OF SERVICE:					D

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future with Bypass 09/01/05

INTERSECTION 12 Somersville Road/Buchanan Rd Byps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 8-PHASE SIGNAL

RIGHT THRU LEFT
300 200 20

LEFT 460 --- 2.0 1.0 1.0 1.0 1.0 --- 20 RIGHT
Split? N

THRU 2140 ---> 2.0 (NO. OF LANES) 2.0<--- 700 THRU
STREET NAME: Buchanan Rd Byps

RIGHT 20 --- 1.0 1.0 1.0 1.0 1.0 --- 20 LEFT

N
W + E
S

SIG WARRANTS: Urb=Y, Rur=Y

20 190 20
LEFT THRU RIGHT Split? N

STREET NAME: Somersville Road

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	20	0 *	1650	0.0000	
	THRU (T)	190	190	1650	0.1152	
	LEFT (L)	20	20	1650	0.0121	0.0121
SB	RIGHT (R)	300	47 *	1650	0.0285	
	THRU (T)	200	200	1650	0.1212	0.1212
	LEFT (L)	20	20	1650	0.0121	
EB	RIGHT (R)	20	0 *	1650	0.0000	
	THRU (T)	2140	2140	3300	0.6485	0.6485
	LEFT (L)	460	460	3000	0.1533	
WB	RIGHT (R)	20	0 *	1650	0.0000	
	THRU (T)	700	700	3300	0.2121	
	LEFT (L)	20	20	1650	0.0121	0.0121
	TOTAL VOLUME-TO-CAPACITY RATIO:					0.79
	INTERSECTION LEVEL OF SERVICE:					C

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future with Bypass 09/01/05

INTERSECTION 15 Kirker Pass/Buchanan Rd Byps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 8-PHASE SIGNAL

RIGHT THRU LEFT
880 0 50

LEFT 630 --- 2.0 2.0 0.0 1.0 1.0 --- 20 RIGHT
Split? N

THRU 770 ---> 2.0 (NO. OF LANES) 2.0<--- 2000 THRU

RIGHT 0 --- 0.0 0.0 0.0 0.0 0.0 --- 0 LEFT

N
W + E
S

0 0 0
LEFT THRU RIGHT Split? N

STREET NAME: Buchanan Rd Byps

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Kirker Pass

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB	RIGHT (R)	880	534 *	3000	0.1780	0.1780
	LEFT (L)	50	50	1650	0.0303	
EB	THRU (T)	770	770	3300	0.2333	
	LEFT (L)	630	630	3000	0.2100	0.2100
WB	RIGHT (R)	20	0 *	1650	0.0000	
	THRU (T)	2000	2000	3300	0.6061	0.6061

TOTAL VOLUME-TO-CAPACITY RATIO: 0.99
INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future with Bypass 09/01/05

INTERSECTION 15 Kirker Pass/Buchanan Rd Byps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 8-PHASE SIGNAL

RIGHT THRU LEFT
320 0 100

LEFT 1100 --- 2.0 2.0 0.0 1.0 1.0 --- 20 RIGHT
Split? N

THRU 2500 ---> 2.0 (NO. OF LANES) 2.0<--- 960 THRU

RIGHT 0 --- 0.0 0.0 0.0 0.0 0.0 --- 0 LEFT

N
W + E
S

0 0 0
LEFT THRU RIGHT Split? N

STREET NAME: Buchanan Rd Byps

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Kirker Pass

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB	RIGHT (R)	320	0 *	3000	0.0000	
	LEFT (L)	100	100	1650	0.0606	0.0606
EB	THRU (T)	2500	2500	3300	0.7576	0.7576
	LEFT (L)	1100	1100	3000	0.3667	
WB	RIGHT (R)	20	0 *	1650	0.0000	
	THRU (T)	960	960	3300	0.2909	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.82
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.PMV,CAP=

Intersection Level of Service Calculations
CCTA Methodology
Cumulative 2025 plus Project Conditions
without Buchanan Road Bypass

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future plus Project without Bypass 09/02/05

INTERSECTION 1 S.R. 4 WB Ramps/California Ave City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 8-PHASE SIGNAL

```
                        27  102   62
                         |   |   |
                         |   |   |
                <---     v   --->      | Split? Y
LEFT     5 ---  1.1   1.1  2.2  1.1   1.0 ---  191  RIGHT
                                                      STREET NAME:
THRU   554 ---> 2.1  (NO. OF LANES)    1.0<--- 1236  THRU  California Ave

RIGHT   34 ---  1.0   2.1  1.1  1.0   2.0 --- 1116  LEFT
                <---     ^   --->      |
                         |   |   |     v
  N                      |   |   |                  SIG WARRANTS:
W + E                   251  28  135                  Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? Y
```

STREET NAME: S.R. 4 WB Ramps

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	135	0 *	1650	0.0000	
	THRU (T)	28	28	1650	0.0170	
	LEFT (L)	251	251	3000	0.0837	
	T + L		279	3000	0.0930	0.0930
SB	RIGHT (R)	27	27	1650	0.0164	
	THRU (T)	102	102	3300	0.0309	
	LEFT (L)	62	62	1650	0.0376	
	T + R		129	3300	0.0391	
	T + L		164	3300	0.0497	
	T + R + L		191	3300	0.0579	0.0579
EB	RIGHT (R)	34	0 *	1650	0.0000	
	THRU (T)	554	554	3300	0.1679	
	LEFT (L)	5	5	1650	0.0030	
	T + L		559	3300	0.1694	0.1694
WB	RIGHT (R)	191	129 *	1650	0.0782	
	THRU (T)	1236	1236	1650	0.7491	0.7491
	LEFT (L)	1116	1116	3000	0.3720	

TOTAL VOLUME-TO-CAPACITY RATIO: 1.07
INTERSECTION LEVEL OF SERVICE: F

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.AMV+PROJECT.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future plus Project without Bypass 09/02/05

INTERSECTION 1 S.R. 4 WB Ramps/California Ave City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 8-PHASE SIGNAL

```
                        23   74  112
                         |   |   |
                         |   |   |
                <---     v   --->      | Split? Y
LEFT    46 ---  1.1   1.1  2.2  1.1   1.0 ---  104  RIGHT
                                                      STREET NAME:
THRU  1390 ---> 2.1  (NO. OF LANES)    1.0<---  362  THRU  California Ave

RIGHT   32 ---  1.0   2.1  1.1  1.0   2.0 ---  588  LEFT
                <---     ^   --->      |
                         |   |   |     v
  N                      |   |   |                  SIG WARRANTS:
W + E                   398  60  684                  Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? Y
```

STREET NAME: S.R. 4 WB Ramps

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	684	361 *	1650	0.2188	0.2188
	THRU (T)	60	60	1650	0.0364	
	LEFT (L)	398	398	3000	0.1327	
	T + L		458	3000	0.1527	
SB	RIGHT (R)	23	23	1650	0.0139	
	THRU (T)	74	74	3300	0.0224	
	LEFT (L)	112	112	1650	0.0679	0.0679
	T + R		97	3300	0.0294	
	T + L		186	3300	0.0564	
	T + R + L		209	3300	0.0633	
EB	RIGHT (R)	32	0 *	1650	0.0000	
	THRU (T)	1390	1390	3300	0.4212	
	LEFT (L)	46	46	1650	0.0279	
	T + L		1436	3300	0.4352	0.4352
WB	RIGHT (R)	104	0 *	1650	0.0000	
	THRU (T)	362	362	1650	0.2194	0.2194
	LEFT (L)	588	588	3000	0.1960	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.94
INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.PMV+PROJECT.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future plus Project without Bypass 09/02/05

INTERSECTION 2 Loveridge Road/S.R. 4 EB Ramps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 2-PHASE SIGNAL

RIGHT THRU LEFT
176 1332 0

LEFT 351 --- 1.0 1.0 2.0 0.0 0.0 --- 0 RIGHT
Split? Y

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU STREET NAME: S.R. 4 EB Ramps

RIGHT 469 --- 1.0 0.0 2.1 1.1 0.0 --- 0 LEFT

N
W + E
S

0 1059 467
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	467	467	1800	0.2594	
THRU (T)	1059	1059	3600	0.2942	
T + R		1526	3600	0.4239	0.4239
SB RIGHT (R)	176	0 *	1800	0.0000	
THRU (T)	1332	1332	3600	0.3700	
EB RIGHT (R)	469	469	1800	0.2606	0.2606
LEFT (L)	351	351	1800	0.1950	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.68
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.AMV+PROJECT.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future plus Project without Bypass 09/02/05

INTERSECTION 2 Loveridge Road/S.R. 4 EB Ramps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 2-PHASE SIGNAL

RIGHT THRU LEFT
308 1172 0

LEFT 226 --- 1.0 1.0 2.0 0.0 0.0 --- 0 RIGHT
Split? Y

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU STREET NAME: S.R. 4 EB Ramps

RIGHT 510 --- 1.0 0.0 2.1 1.1 0.0 --- 0 LEFT

N
W + E
S

0 1761 692
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	692	692	1800	0.3844	
THRU (T)	1761	1761	3600	0.4892	
T + R		2453	3600	0.6814	0.6814
SB RIGHT (R)	308	82 *	1800	0.0456	
THRU (T)	1172	1172	3600	0.3256	
EB RIGHT (R)	510	510	1800	0.2833	0.2833
LEFT (L)	226	226	1800	0.1256	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.96
INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.PMV+PROJECT.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future plus Project without Bypass 09/02/05

INTERSECTION 3 Loveridge Road/E. Leland Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 6-PHASE SIGNAL

```
                    RIGHT THRU LEFT
                     450 1130  394
                      |   |   |
                  ^   |   |   |   ^
                  |   <---  v  --->  | Split? N
LEFT   247 ---  2.0   1.0  2.0  2.0   1.0 ---  641  RIGHT
                                                    STREET NAME:
THRU   347 ---> 2.0  (NO. OF LANES)   2.0<---  1339  THRU  E. Leland Road

RIGHT  323 ---  1.0   1.0  2.1  1.1   2.0 ---  381  LEFT
               |  <---  ^   --->  |
               v       |   |     v
  N                    |   |   |                      SIG WARRANTS:
W + E                 321 858  69                      Urb=Y, Rur=Y
  S                  LEFT THRU RIGHT Split? N
```

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	69	69	1650	0.0418	
THRU (T)	858	858	3300	0.2600	
LEFT (L)	321	321	1650	0.1945	0.1945
T + R		927	3300	0.2809	
SB RIGHT (R)	450	314 *	1650	0.1903	
THRU (T)	1130	1130	3300	0.3424	0.3424
LEFT (L)	394	394	3000	0.1313	
EB RIGHT (R)	323	2 *	1650	0.0012	
THRU (T)	347	347	3300	0.1052	
LEFT (L)	247	247	3000	0.0823	0.0823
WB RIGHT (R)	641	424 *	1650	0.2570	
THRU (T)	1339	1339	3300	0.4058	0.4058
LEFT (L)	381	381	3000	0.1270	
TOTAL VOLUME-TO-CAPACITY RATIO:					1.02
INTERSECTION LEVEL OF SERVICE:					F

* ADJUSTED FOR RIGHT TURN ON RED

INT=FUTURE.INT,VOL=FUTURE-P.AMV+PROJECT.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future plus Project without Bypass 09/02/05

INTERSECTION 3 Loveridge Road/E. Leland Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 6-PHASE SIGNAL

```
                    RIGHT THRU LEFT
                     230  823  355
                      |   |   |
                  ^   |   |   |   ^
                  |   <---  v  --->  | Split? N
LEFT   631 ---  2.0   1.0  2.0  2.0   1.0 ---  195  RIGHT
                                                    STREET NAME:
THRU  1278 ---> 2.0  (NO. OF LANES)   2.0<---  423  THRU  E. Leland Road

RIGHT  282 ---  1.0   1.0  2.1  1.1   2.0 ---  288  LEFT
               |  <---  ^   --->  |
               v       |   |     v
  N                    |   |   |                      SIG WARRANTS:
W + E                 232 843  337                     Urb=Y, Rur=Y
  S                  LEFT THRU RIGHT Split? N
```

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	337	337	1650	0.2042	
THRU (T)	843	843	3300	0.2555	
LEFT (L)	232	232	1650	0.1406	
T + R		1180	3300	0.3576	0.3576
SB RIGHT (R)	230	0 *	1650	0.0000	
THRU (T)	823	823	3300	0.2494	
LEFT (L)	355	355	3000	0.1183	0.1183
EB RIGHT (R)	282	50 *	1650	0.0303	
THRU (T)	1278	1278	3300	0.3873	0.3873
LEFT (L)	631	631	3000	0.2103	
WB RIGHT (R)	195	0 *	1650	0.0000	
THRU (T)	423	423	3300	0.1282	
LEFT (L)	288	288	3000	0.0960	0.0960
TOTAL VOLUME-TO-CAPACITY RATIO:					0.96
INTERSECTION LEVEL OF SERVICE:					E

* ADJUSTED FOR RIGHT TURN ON RED

INT=FUTURE.INT,VOL=FUTURE-P.PMV+PROJECT.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future plus Project without Bypass 09/02/05

INTERSECTION 4 Somersville Road/Delta Fair Blvd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
263 250 282

Split? Y

LEFT 302 --- 2.1 1.0 2.0 2.0 1.0 --- 489 RIGHT

STREET NAME:

THRU 129 ---> 2.2 (NO. OF LANES) 1.0<--- 737 THRU Delta Fair Blvd

RIGHT 18 --- 1.1 1.0 3.1 1.1 1.0 --- 24 LEFT

N
W + E
S

223 812 15
LEFT THRU RIGHT Split? N

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: Somersville Road

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	15	15	1650	0.0091	
	THRU (T)	812	812	4950	0.1640	
	LEFT (L)	223	223	1650	0.1352	
	T + R		827	4950	0.1671	0.1671
SB	RIGHT (R)	263	97 *	1650	0.0588	
	THRU (T)	250	250	3300	0.0758	
	LEFT (L)	282	282	3000	0.0940	0.0940
EB	RIGHT (R)	18	18	1650	0.0109	
	THRU (T)	129	129	3300	0.0391	
	LEFT (L)	302	302	3000	0.1007	0.1007
	T + R		147	3300	0.0445	
	T + L		431	4650	0.0927	
	T + R + L		449	4650	0.0966	
WB	RIGHT (R)	489	334 *	1650	0.2024	
	THRU (T)	737	737	1650	0.4467	0.4467
	LEFT (L)	24	24	1650	0.0145	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.81
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.AMV+PROJECT.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future plus Project without Bypass 09/02/05

INTERSECTION 4 Somersville Road/Delta Fair Blvd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
330 436 705

Split? Y

LEFT 588 --- 2.1 1.0 2.0 2.0 1.0 --- 418 RIGHT

STREET NAME:

THRU 448 ---> 2.2 (NO. OF LANES) 1.0<--- 254 THRU Delta Fair Blvd

RIGHT 45 --- 1.1 1.0 3.1 1.1 1.0 --- 49 LEFT

N
W + E
S

88 686 61
LEFT THRU RIGHT Split? N

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: Somersville Road

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	61	61	1650	0.0370	
	THRU (T)	686	686	4950	0.1386	
	LEFT (L)	88	88	1650	0.0533	
	T + R		747	4950	0.1509	0.1509
SB	RIGHT (R)	330	7 *	1650	0.0042	
	THRU (T)	436	436	3300	0.1321	
	LEFT (L)	705	705	3000	0.2350	0.2350
EB	RIGHT (R)	45	45	1650	0.0273	
	THRU (T)	448	448	3300	0.1358	
	LEFT (L)	588	588	3000	0.1960	
	T + R		493	3300	0.1494	
	T + L		1036	4650	0.2228	
	T + R + L		1081	4650	0.2325	0.2325
WB	RIGHT (R)	418	30 *	1650	0.0182	
	THRU (T)	254	254	1650	0.1539	0.1539
	LEFT (L)	49	49	1650	0.0297	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.77
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.PMV+PROJECT.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future plus Project without Bypass 09/02/05

INTERSECTION 5 Loveridge Road/Ventura Drive City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
28 1191 42

| Split? N

LEFT 37 --- 1.1 1.1 2.1 1.0 1.1 --- 242 RIGHT

STREET NAME:

THRU 3 ---> 1.1 (NO. OF LANES) 1.1<--- 66 THRU Ventura Drive

RIGHT 8 --- 1.1 1.0 2.1 1.1 1.1 --- 5 LEFT

SIG WARRANTS:

W + E Urb=Y, Rur=Y

S

LEFT THRU RIGHT Split? N

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	7	7	1650	0.0042	
THRU (T)	805	805	3300	0.2439	
LEFT (L)	27	27	1650	0.0164	0.0164
T + R		812	3300	0.2461	
SB RIGHT (R)	28	28	1650	0.0170	
THRU (T)	1191	1191	3300	0.3609	
LEFT (L)	42	42	1650	0.0255	
T + R		1219	3300	0.3694	0.3694
EB RIGHT (R)	8	8	1650	0.0048	
THRU (T)	3	3	1650	0.0018	
LEFT (L)	37	37	1650	0.0224	0.0224
T + R		11	1650	0.0067	
T + L		40	1650	0.0242	
T + R + L		48	1650	0.0291	
WB RIGHT (R)	242	242	1650	0.1467	
THRU (T)	66	66	1650	0.0400	
LEFT (L)	5	5	1650	0.0030	
T + R		308	1650	0.1867	
T + L		71	1650	0.0430	
T + R + L		313	1650	0.1897	0.1897

TOTAL VOLUME-TO-CAPACITY RATIO: 0.60
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.AMV+PROJECT.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future plus Project without Bypass 09/02/05

INTERSECTION 5 Loveridge Road/Ventura Drive City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
39 1039 315

| Split? N

LEFT 77 --- 1.1 1.1 2.1 1.0 1.1 --- 91 RIGHT

STREET NAME:

THRU 183 ---> 1.1 (NO. OF LANES) 1.1<--- 11 THRU Ventura Drive

RIGHT 44 --- 1.1 1.0 2.1 1.1 1.1 --- 4 LEFT

SIG WARRANTS:

W + E Urb=Y, Rur=Y

S

LEFT THRU RIGHT Split? N

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	39	39	1650	0.0236	
THRU (T)	1066	1066	3300	0.3230	
LEFT (L)	16	16	1650	0.0097	
T + R		1105	3300	0.3348	0.3348
SB RIGHT (R)	39	39	1650	0.0236	
THRU (T)	1039	1039	3300	0.3148	
LEFT (L)	315	315	1650	0.1909	0.1909
T + R		1078	3300	0.3267	
EB RIGHT (R)	44	44	1650	0.0267	
THRU (T)	183	183	1650	0.1109	
LEFT (L)	77	77	1650	0.0467	
T + R		227	1650	0.1376	
T + L		260	1650	0.1576	
T + R + L		304	1650	0.1842	0.1842
WB RIGHT (R)	91	91	1650	0.0552	
THRU (T)	11	11	1650	0.0067	
LEFT (L)	4	4	1650	0.0024	0.0024
T + R		102	1650	0.0618	
T + L		15	1650	0.0091	
T + R + L		106	1650	0.0642	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.71
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.PMV+PROJECT.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future plus Project without Bypass 09/02/05

INTERSECTION 6 Railroad Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

```
                RIGHT THRU LEFT
                  21  390   56
                   |   |    |
                   |   |    |
              ^    |   |    |    ^
              |    |   v    |    | Split? Y
LEFT    65 ---  1.0  1.0  2.0  1.0  1.1 ---  69  RIGHT
                                                STREET NAME:
THRU    65 ---> 1.0 (NO. OF LANES)   1.1<---  68  THRU  Buchanan Road

RIGHT   10 ---  1.0  1.0  2.0  1.0  2.0 --- 1422 LEFT
              |    <---  ^   --->     |
              v         |   |        v
                        |   |
  N                     |   |                    SIG WARRANTS:
W + E                  31  571  711                Urb=Y, Rur=Y
  S                LEFT THRU RIGHT Split? Y
```

STREET NAME: Railroad Avenue

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	711	0 *	1650	0.0000	
	THRU (T)	571	571	3300	0.1730	0.1730
	LEFT (L)	31	31	1650	0.0188	
SB	RIGHT (R)	21	0 *	1650	0.0000	
	THRU (T)	390	390	3300	0.1182	0.1182
	LEFT (L)	56	56	1650	0.0339	
EB	RIGHT (R)	10	0 *	1650	0.0000	
	THRU (T)	65	65	1650	0.0394	0.0394
	LEFT (L)	65	65	1650	0.0394	
WB	RIGHT (R)	69	69	1650	0.0418	
	THRU (T)	68	68	1650	0.0412	
	LEFT (L)	1422	1422	3000	0.4740	0.4740
	T + R		137	1650	0.0830	
	TOTAL VOLUME-TO-CAPACITY RATIO:					0.80
	INTERSECTION LEVEL OF SERVICE:					C

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.AMV+PROJECT.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future plus Project without Bypass 09/02/05

INTERSECTION 6 Railroad Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

```
                RIGHT THRU LEFT
                  22  591  105
                   |   |    |
                   |   |    |
              ^    |   |    |    ^
              |    |   v    |    | Split? Y
LEFT    68 ---  1.0  1.0  2.0  1.0  1.1 ---  52  RIGHT
                                                STREET NAME:
THRU    96 ---> 1.0 (NO. OF LANES)   1.1<---  98  THRU  Buchanan Road

RIGHT    7 ---  1.0  1.0  2.0  1.0  2.0 ---  917 LEFT
              |    <---  ^   --->     |
              v         |   |        v
                        |   |
  N                     |   |                    SIG WARRANTS:
W + E                  38  972 1439                Urb=Y, Rur=Y
  S                LEFT THRU RIGHT Split? Y
```

STREET NAME: Railroad Avenue

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	1439	935 *	1650	0.5667	0.5667
	THRU (T)	972	972	3300	0.2945	
	LEFT (L)	38	38	1650	0.0230	
SB	RIGHT (R)	22	0 *	1650	0.0000	
	THRU (T)	591	591	3300	0.1791	0.1791
	LEFT (L)	105	105	1650	0.0636	
EB	RIGHT (R)	7	0 *	1650	0.0000	
	THRU (T)	96	96	1650	0.0582	0.0582
	LEFT (L)	68	68	1650	0.0412	
WB	RIGHT (R)	52	52	1650	0.0315	
	THRU (T)	98	98	1650	0.0594	
	LEFT (L)	917	917	3000	0.3057	0.3057
	T + R		150	1650	0.0909	
	TOTAL VOLUME-TO-CAPACITY RATIO:					1.11
	INTERSECTION LEVEL OF SERVICE:					F

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.PMV+PROJECT.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future plus Project without Bypass 09/02/05

INTERSECTION 7 Harbor Street/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

56 35 61

<--- v ---> | Split? N

LEFT 91 --- 1.0 1.1 1.1 1.0 1.0 --- 29 RIGHT

STREET NAME:

THRU 747 ---> 1.1 (NO. OF LANES) 1.0<--- 1312 THRU Buchanan Road

RIGHT 15 --- 1.1 1.1 1.1 1.1 1.0 --- 1 LEFT

<--- ^ --->

v v

N SIG WARRANTS:

W + E 83 114 2 Urb=Y, Rur=Y

S LEFT THRU RIGHT Split? Y

STREET NAME: Harbor Street

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	2	2	1650	0.0012	
	THRU (T)	114	114	1650	0.0691	
	LEFT (L)	83	83	1650	0.0503	
	T + R		116	1650	0.0703	
	T + L		197	1650	0.1194	
	T + R + L		199	1650	0.1206	0.1206
SB	RIGHT (R)	56	56	1650	0.0339	
	THRU (T)	35	35	1650	0.0212	
	LEFT (L)	61	61	1650	0.0370	
	T + R		91	1650	0.0552	0.0552
EB	RIGHT (R)	15	15	1650	0.0091	
	THRU (T)	747	747	1650	0.4527	
	LEFT (L)	91	91	1650	0.0552	0.0552
	T + R		762	1650	0.4618	
WB	RIGHT (R)	29	0 *	1650	0.0000	
	THRU (T)	1312	1312	1650	0.7952	0.7952
	LEFT (L)	1	1	1650	0.0006	

TOTAL VOLUME-TO-CAPACITY RATIO: 1.03
INTERSECTION LEVEL OF SERVICE: F

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.AMV+PROJECT.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future plus Project without Bypass 09/02/05

INTERSECTION 7 Harbor Street/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

37 97 72

<--- v ---> | Split? N

LEFT 55 --- 1.0 1.1 1.1 1.0 1.0 --- 49 RIGHT

STREET NAME:

THRU 1544 ---> 1.1 (NO. OF LANES) 1.0<--- 970 THRU Buchanan Road

RIGHT 53 --- 1.1 1.1 1.1 1.1 1.0 --- 18 LEFT

<--- ^ --->

v v

N SIG WARRANTS:

W + E 19 58 1 Urb=Y, Rur=Y

S LEFT THRU RIGHT Split? Y

STREET NAME: Harbor Street

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	1	1	1650	0.0006	
	THRU (T)	58	58	1650	0.0352	
	LEFT (L)	19	19	1650	0.0115	
	T + R		59	1650	0.0358	
	T + L		77	1650	0.0467	
	T + R + L		78	1650	0.0473	0.0473
SB	RIGHT (R)	37	37	1650	0.0224	
	THRU (T)	97	97	1650	0.0588	
	LEFT (L)	72	72	1650	0.0436	
	T + R		134	1650	0.0812	0.0812
EB	RIGHT (R)	53	53	1650	0.0321	
	THRU (T)	1544	1544	1650	0.9358 **	
	LEFT (L)	55	55	1650	0.0333	
	T + R		1597	1650	0.9679 **	0.9679
WB	RIGHT (R)	49	0 *	1650	0.0000	
	THRU (T)	970	970	1650	0.5879	
	LEFT (L)	18	18	1650	0.0109	0.0109

TOTAL VOLUME-TO-CAPACITY RATIO: 1.11
INTERSECTION LEVEL OF SERVICE: F

* ADJUSTED FOR RIGHT TURN ON RED ** APPROACHING OR EXCEEDING CAPACITY
INT=FUTURE.INT,VOL=FUTURE-P.PMV+PROJECT.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future plus Project without Bypass 09/02/05

INTERSECTION 8 Loveridge Road/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 3-PHASE SIGNAL

RIGHT THRU LEFT
831 0 373

LEFT 541 --- 1.0 1.0 0.0 1.0 1.0 --- 315 RIGHT
Split? N

THRU 411 ---> 1.0 (NO. OF LANES) 1.0<--- 752 THRU
STREET NAME: Buchanan Road

RIGHT 0 --- 0.0 0.0 0.0 0.0 0.0 --- 0 LEFT

N
W + E
S
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB RIGHT (R)	831	290 *	1720	0.1686	
LEFT (L)	373	373	1720	0.2169	0.2169
EB THRU (T)	411	411	1720	0.2390	
LEFT (L)	541	541	1720	0.3145	0.3145
WB RIGHT (R)	315	0 *	1720	0.0000	
THRU (T)	752	752	1720	0.4372	0.4372
TOTAL VOLUME-TO-CAPACITY RATIO:					0.97
INTERSECTION LEVEL OF SERVICE:					E

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.AMV+PROJECT.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future plus Project without Bypass 09/02/05

INTERSECTION 8 Loveridge Road/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 3-PHASE SIGNAL

RIGHT THRU LEFT
738 0 231

LEFT 747 --- 1.0 1.0 0.0 1.0 1.0 --- 305 RIGHT
Split? N

THRU 1105 ---> 1.0 (NO. OF LANES) 1.0<--- 574 THRU
STREET NAME: Buchanan Road

RIGHT 0 --- 0.0 0.0 0.0 0.0 0.0 --- 0 LEFT

N
W + E
S
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB RIGHT (R)	738	0 *	1720	0.0000	
LEFT (L)	231	231	1720	0.1343	0.1343
EB THRU (T)	1105	1105	1720	0.6424	
LEFT (L)	747	747	1720	0.4343	0.4343
WB RIGHT (R)	305	74 *	1720	0.0430	
THRU (T)	574	574	1720	0.3337	0.3337
TOTAL VOLUME-TO-CAPACITY RATIO:					0.90
INTERSECTION LEVEL OF SERVICE:					D

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.PMV+PROJECT.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future plus Project without Bypass 09/02/05

INTERSECTION 9 Ventura Drive/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

				6	11	19				
		^			v		^	Split? N		
LEFT	8	---	1.0	1.1	1.1	1.0	1.1	---	17	RIGHT
THRU	829	--->	1.0	(NO. OF LANES)			1.1	<---	973	THRU
RIGHT	87	---	1.0	1.0	1.1	1.1	1.0	---	21	LEFT
N										
W + E				180	135	61				
S				LEFT	THRU	RIGHT	Split? N			

STREET NAME: Buchanan Road

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Ventura Drive

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	61	61	1650	0.0370	
	THRU (T)	135	135	1650	0.0818	
	LEFT (L)	180	180	1650	0.1091	
	T + R		196	1650	0.1188	0.1188
SB	RIGHT (R)	6	6	1650	0.0036	
	THRU (T)	11	11	1650	0.0067	
	LEFT (L)	19	19	1650	0.0115	0.0115
	T + R		17	1650	0.0103	
EB	RIGHT (R)	87	0 *	1650	0.0000	
	THRU (T)	829	829	1650	0.5024	
	LEFT (L)	8	8	1650	0.0048	0.0048
WB	RIGHT (R)	17	17	1650	0.0103	
	THRU (T)	973	973	1650	0.5897	
	LEFT (L)	21	21	1650	0.0127	
	T + R		990	1650	0.6000	0.6000

TOTAL VOLUME-TO-CAPACITY RATIO: 0.74
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.AMV+PROJECT.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future plus Project without Bypass 09/02/05

INTERSECTION 9 Ventura Drive/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

				7	69	222				
		^			v		^	Split? N		
LEFT	3	---	1.0	1.1	1.1	1.0	1.1	---	23	RIGHT
THRU	998	--->	1.0	(NO. OF LANES)			1.1	<---	570	THRU
RIGHT	237	---	1.0	1.0	1.1	1.1	1.0	---	28	LEFT
N										
W + E				169	52	43				
S				LEFT	THRU	RIGHT	Split? N			

STREET NAME: Buchanan Road

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Ventura Drive

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	43	43	1650	0.0261	
	THRU (T)	52	52	1650	0.0315	
	LEFT (L)	169	169	1650	0.1024	
	T + R		95	1650	0.0576	0.0576
SB	RIGHT (R)	7	7	1650	0.0042	
	THRU (T)	69	69	1650	0.0418	
	LEFT (L)	222	222	1650	0.1345	0.1345
	T + R		76	1650	0.0461	
EB	RIGHT (R)	237	68 *	1650	0.0412	
	THRU (T)	998	998	1650	0.6048	0.6048
	LEFT (L)	3	3	1650	0.0018	
WB	RIGHT (R)	23	23	1650	0.0139	
	THRU (T)	570	570	1650	0.3455	
	LEFT (L)	28	28	1650	0.0170	0.0170
	T + R		593	1650	0.3594	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.81
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.PMV+PROJECT.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future plus Project without Bypass 09/02/05

INTERSECTION 10 Meadows Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

```
                    10    1   44
                     |    |   |
                     |    |   |
                     |    v   |
                     |<---    |
                     |        |
LEFT    15 ---  1.0  |  1.1   |  1.1  1.0  1.1 ---  50  RIGHT
                     |        |
                     |        |
THRU   876 ---> 1.0  |  (NO. OF LANES)  |  1.1<--- 966  THRU
                     |        |
                     |        |
RIGHT   32 ---  1.0  |  1.0   |  1.1  1.1  1.0 ---  46  LEFT
                     |        |
                     |        |
                     |    ^   |
                     |--->    |
                     |        |
                     |    |   |
                     |    |   |
                     |    |   |
                     |    |   |
                    72    6  195
                LEFT THRU RIGHT Split? N
```

STREET NAME: Buchanan Road

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Meadows Avenue

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	195	195	1650	0.1182	
	THRU (T)	6	6	1650	0.0036	
	LEFT (L)	72	72	1650	0.0436	
	T + R		201	1650	0.1218	0.1218
SB	RIGHT (R)	10	10	1650	0.0061	
	THRU (T)	1	1	1650	0.0006	
	LEFT (L)	44	44	1650	0.0267	0.0267
	T + R		11	1650	0.0067	
EB	RIGHT (R)	32	0 *	1650	0.0000	
	THRU (T)	876	876	1650	0.5309	
	LEFT (L)	15	15	1650	0.0091	0.0091
WB	RIGHT (R)	50	50	1650	0.0303	
	THRU (T)	966	966	1650	0.5855	
	LEFT (L)	46	46	1650	0.0279	
	T + R		1016	1650	0.6158	0.6158

TOTAL VOLUME-TO-CAPACITY RATIO: 0.77
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED

INT=FUTURE.INT,VOL=FUTURE-P.AMV+PROJECT.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future plus Project without Bypass 09/02/05

INTERSECTION 10 Meadows Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

```
                     3    0   49
                     |    |   |
                     |    |   |
                     |    v   |
                     |<---    |
                     |        |
LEFT    10 ---  1.0  |  1.1   |  1.1  1.0  1.1 ---  40  RIGHT
                     |        |
                     |        |
THRU  1181 ---> 1.0  |  (NO. OF LANES)  |  1.1<--- 549  THRU
                     |        |
                     |        |
RIGHT   22 ---  1.0  |  1.0   |  1.1  1.1  1.0 ---  255 LEFT
                     |        |
                     |        |
                     |    ^   |
                     |--->    |
                     |        |
                     |    |   |
                     |    |   |
                     |    |   |
                     |    |   |
                    19    1  94
                LEFT THRU RIGHT Split? N
```

STREET NAME: Buchanan Road

SIG WARRANTS: Urb=N, Rur=Y

STREET NAME: Meadows Avenue

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	94	94	1650	0.0570	
	THRU (T)	1	1	1650	0.0006	
	LEFT (L)	19	19	1650	0.0115	
	T + R		95	1650	0.0576	0.0576
SB	RIGHT (R)	3	3	1650	0.0018	
	THRU (T)	0	0	1650	0.0000	
	LEFT (L)	49	49	1650	0.0297	0.0297
	T + R		3	1650	0.0018	
EB	RIGHT (R)	22	3 *	1650	0.0018	
	THRU (T)	1181	1181	1650	0.7158	0.7158
	LEFT (L)	10	10	1650	0.0061	
WB	RIGHT (R)	40	40	1650	0.0242	
	THRU (T)	549	549	1650	0.3327	
	LEFT (L)	255	255	1650	0.1545	0.1545
	T + R		589	1650	0.3570	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.96
INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED

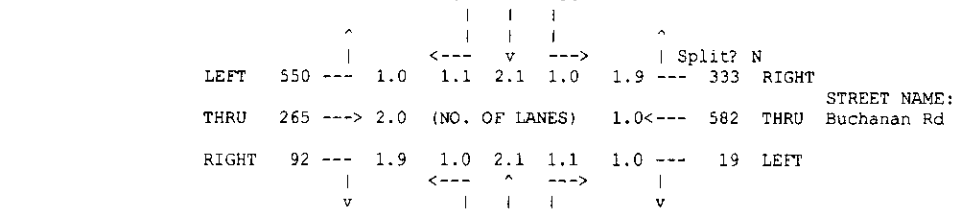
INT=FUTURE.INT,VOL=FUTURE-P.PMV+PROJECT.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future plus Project without Bypass 09/02/05

INTERSECTION 11 Somersville Road/Buchanan Rd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 6-PHASE SIGNAL
134 107 93



STREET NAME: Buchanan Rd

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Somersville Road

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	33	33	1650	0.0200	
	THRU (T)	636	636	3300	0.1927	
	LEFT (L)	598	598	1650	0.3624	0.3624
	T + R		669	3300	0.2027	
SB	RIGHT (R)	134	134	1650	0.0812	0.0812
	THRU (T)	107	107	3300	0.0324	
	LEFT (L)	93	93	1650	0.0564	
	T + R		241	3300	0.0730	
EB	RIGHT (R)	92	92	1650	0.0558	
	THRU (T)	265	265	3300	0.0803	
	LEFT (L)	550	550	1650	0.3333	0.3333
WB	RIGHT (R)	333	333	1650	0.2018	
	THRU (T)	582	582	1650	0.3527	0.3527
	LEFT (L)	19	19	1650	0.0115	

TOTAL VOLUME-TO-CAPACITY RATIO: 1.13
INTERSECTION LEVEL OF SERVICE: F

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.AMV+PROJECT.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future plus Project without Bypass 09/02/05

INTERSECTION 11 Somersville Road/Buchanan Rd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 6-PHASE SIGNAL
292 458 466

STREET NAME: Buchanan Rd

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Somersville Road

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	18	18	1650	0.0109	
	THRU (T)	223	223	3300	0.0676	
	LEFT (L)	213	213	1650	0.1291	0.1291
	T + R		241	3300	0.0730	
SB	RIGHT (R)	292	292	1650	0.1770	
	THRU (T)	458	458	3300	0.1388	
	LEFT (L)	466	466	1650	0.2824	
	T + R		750	3300	0.2273	0.2273
EB	RIGHT (R)	653	653	1650	0.3958	
	THRU (T)	603	603	3300	0.1827	
	LEFT (L)	565	565	1650	0.3424	0.3424
WB	RIGHT (R)	.278	278	1650	0.1685	
	THRU (T)	305	305	1650	0.1848	0.1848
	LEFT (L)	54	54	1650	0.0327	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.88
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=FUTURE-P.PMV+PROJECT.PMV,CAP=

Intersection Level of Service Calculations
CCTA Methodology
Cumulative 2025 plus Project Conditions
with Buchanan Road Bypass

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future plus Project with Bypass 09/01/05

INTERSECTION 1 S.R. 4 WB Ramps/California Ave City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 8-PHASE SIGNAL

RIGHT THRU LEFT
27 102 62

LEFT 5 --- 1.1 1.1 2.2 1.1 1.0 --- 191 RIGHT
THRU 554 ---> 2.1 (NO. OF LANES) 1.0<--- 1236 THRU
RIGHT 34 --- 1.0 2.1 1.1 1.0 2.0 --- 1171 LEFT

Split? Y

STREET NAME:
California Ave

N
W + E
S

LEFT THRU RIGHT Split? Y
251 28 135

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: S.R. 4 WB Ramps

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	135	0 *	1650	0.0000	
	THRU (T)	28	28	1650	0.0170	
	LEFT (L)	251	251	3000	0.0837	
	T + L		279	3000	0.0930	0.0930
SB	RIGHT (R)	27	27	1650	0.0164	
	THRU (T)	102	102	3300	0.0309	
	LEFT (L)	62	62	1650	0.0376	
	T + R		129	3300	0.0391	
	T + L		164	3300	0.0497	
	T + R + L		191	3300	0.0579	0.0579
EB	RIGHT (R)	34	0 *	1650	0.0000	
	THRU (T)	554	554	3300	0.1679	
	LEFT (L)	5	5	1650	0.0030	
	T + L		559	3300	0.1694	0.1694
WB	RIGHT (R)	191	129 *	1650	0.0782	
	THRU (T)	1236	1236	1650	0.7491	0.7491
	LEFT (L)	1171	1171	3000	0.3903	

TOTAL VOLUME-TO-CAPACITY RATIO: 1.07
INTERSECTION LEVEL OF SERVICE: F

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.AMV+BYPSPRON.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future plus Project with Bypass 09/01/05

INTERSECTION 1 S.R. 4 WB Ramps/California Ave City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 8-PHASE SIGNAL

RIGHT THRU LEFT
23 74 112

LEFT 46 --- 1.1 1.1 2.2 1.1 1.0 --- 104 RIGHT
THRU 1390 ---> 2.1 (NO. OF LANES) 1.0<--- 362 THRU
RIGHT 32 --- 1.0 2.1 1.1 1.0 2.0 --- 624 LEFT

Split? Y

STREET NAME:
California Ave

N
W + E
S

LEFT THRU RIGHT Split? Y
398 60 684

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: S.R. 4 WB Ramps

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	684	341 *	1650	0.2067	0.2067
	THRU (T)	60	60	1650	0.0364	
	LEFT (L)	398	398	3000	0.1327	
	T + L		458	3000	0.1527	
SB	RIGHT (R)	23	23	1650	0.0139	
	THRU (T)	74	74	3300	0.0224	
	LEFT (L)	112	112	1650	0.0679	0.0679
	T + R		97	3300	0.0294	
	T + L		186	3300	0.0564	
	T + R + L		209	3300	0.0633	
EB	RIGHT (R)	32	0 *	1650	0.0000	
	THRU (T)	1390	1390	3300	0.4212	
	LEFT (L)	46	46	1650	0.0279	
	T + L		1436	3300	0.4352	0.4352
WB	RIGHT (R)	104	0 *	1650	0.0000	
	THRU (T)	362	362	1650	0.2194	0.2194
	LEFT (L)	624	624	3000	0.2080	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.93
INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.PMV+BYPSPRON.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future plus Project with Bypass 09/01/05

INTERSECTION 2 Loveridge Road/S.R. 4 EB Ramps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 2-PHASE SIGNAL

RIGHT THRU LEFT
176 942 0

Split? Y

LEFT 351 --- 1.0 1.0 2.0 0.0 0.0 --- 0 RIGHT

STREET NAME:

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU S.R. 4 EB Ramps

RIGHT 488 --- 1.0 0.0 2.1 1.1 0.0 --- 0 LEFT

N
W + E
S

SIG WARRANTS:
Urb=Y, Rur=Y

0 867 467
LEFT THRU RIGHT Split? N

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	467	467	1800	0.2594	
THRU (T)	867	867	3600	0.2408	
T + R		1334	3600	0.3706	0.3706
SB RIGHT (R)	176	0 *	1800	0.0000	
THRU (T)	942	942	3600	0.2617	
EB RIGHT (R)	488	488	1800	0.2711	0.2711
LEFT (L)	351	351	1800	0.1950	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.64
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.AMV+BYPSPRON.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future plus Project with Bypass 09/01/05

INTERSECTION 2 Loveridge Road/S.R. 4 EB Ramps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 2-PHASE SIGNAL

RIGHT THRU LEFT
308 672 0

Split? Y

LEFT 226 --- 1.0 1.0 2.0 0.0 0.0 --- 0 RIGHT

STREET NAME:

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU S.R. 4 EB Ramps

RIGHT 574 --- 1.0 0.0 2.1 1.1 0.0 --- 0 LEFT

N
W + E
S

SIG WARRANTS:
Urb=Y, Rur=Y

0 1802 392
LEFT THRU RIGHT Split? N

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	392	392	1800	0.2178	
THRU (T)	1802	1802	3600	0.5006	
T + R		2194	3600	0.6094	0.6094
SB RIGHT (R)	308	82 *	1800	0.0456	
THRU (T)	672	672	3600	0.1867	
EB RIGHT (R)	574	574	1800	0.3189	0.3189
LEFT (L)	226	226	1800	0.1256	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.93
INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.PMV+BYPSPRON.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future plus Project with Bypass 09/01/05

INTERSECTION 3 Loveridge Road/E. Leland Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 6-PHASE SIGNAL

450 744 394

Split? N

LEFT	247	2.0	1.0	2.0	2.0	1.0	641	RIGHT	
THRU	347	2.0	(NO. OF LANES)			2.0	1339	THRU	STREET NAME: E. Leland Road
RIGHT	323	1.0	1.0	2.1	1.1	2.0	383	LEFT	

SIG WARRANTS: Urb=Y, Rur=Y

N / W + E / S

321 666 76

LEFT THRU RIGHT Split? N

STREET NAME: Loveridge Road

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	76	76	1650	0.0461	
	THRU (T)	666	666	3300	0.2018	
	LEFT (L)	321	321	1650	0.1945	0.1945
	T + R		742	3300	0.2248	
SB	RIGHT (R)	450	314 *	1650	0.1903	
	THRU (T)	744	744	3300	0.2255	0.2255
	LEFT (L)	394	394	3000	0.1313	
EB	RIGHT (R)	323	2 *	1650	0.0012	
	THRU (T)	347	347	3300	0.1052	
	LEFT (L)	247	247	3000	0.0823	0.0823
WB	RIGHT (R)	641	424 *	1650	0.2570	
	THRU (T)	1339	1339	3300	0.4058	0.4058
	LEFT (L)	383	383	3000	0.1277	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.91
INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.AMV+BYPSPRON.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future plus Project with Bypass 09/01/05

INTERSECTION 3 Loveridge Road/E. Leland Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 6-PHASE SIGNAL

230 338 355

Split? N

LEFT	631	2.0	1.0	2.0	2.0	1.0	195	RIGHT	
THRU	1278	2.0	(NO. OF LANES)			2.0	423	THRU	STREET NAME: E. Leland Road
RIGHT	282	1.0	1.0	2.1	1.1	2.0	296	LEFT	

SIG WARRANTS: Urb=Y, Rur=Y

N / W + E / S

232 551 342

LEFT THRU RIGHT Split? N

STREET NAME: Loveridge Road

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	342	342	1650	0.2073	
	THRU (T)	551	551	3300	0.1670	
	LEFT (L)	232	232	1650	0.1406	
	T + R		893	3300	0.2706	0.2706
SB	RIGHT (R)	230	0 *	1650	0.0000	
	THRU (T)	338	338	3300	0.1024	
	LEFT (L)	355	355	3000	0.1183	0.1183
EB	RIGHT (R)	282	50 *	1650	0.0303	
	THRU (T)	1278	1278	3300	0.3873	0.3873
	LEFT (L)	631	631	3000	0.2103	
WB	RIGHT (R)	195	0 *	1650	0.0000	
	THRU (T)	423	423	3300	0.1282	
	LEFT (L)	296	296	3000	0.0987	0.0987

TOTAL VOLUME-TO-CAPACITY RATIO: 0.87
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.PMV+BYPSPRON.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future plus Project with Bypass 09/01/05

INTERSECTION 4 Somersville Road/Delta Fair Blvd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

```
                RIGHT THRU LEFT
                 263  262  282
                  |    |    |
                  |    |    |
              <---    v    --->        | Split? Y
LEFT   302 ---  2.1   1.0  2.0  2.0   1.0 ---  489  RIGHT
                                                    STREET NAME:
THRU   129 ---> 2.2  (NO. OF LANES)    1.0<---  737  THRU  Delta Fair Blvd

RIGHT   18 ---  1.1   1.0  3.1  1.1   1.0 ---   24  LEFT
              |      <---    ^    --->    |
              v             |    |       v
  N           |             |    |                       SIG WARRANTS:
W + E         |            223  846   15                   Urb=Y, Rur=Y
  S           |          LEFT THRU RIGHT Split? N
```

STREET NAME: Somersville Road

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	15	15	1650	0.0091	
	THRU (T)	846	846	4950	0.1709	
	LEFT (L)	223	223	1650	0.1352	
	T + R		861	4950	0.1739	0.1739
SB	RIGHT (R)	263	97 *	1650	0.0588	
	THRU (T)	262	262	3300	0.0794	
	LEFT (L)	282	282	3000	0.0940	0.0940
EB	RIGHT (R)	18	18	1650	0.0109	
	THRU (T)	129	129	3300	0.0391	
	LEFT (L)	302	302	3000	0.1007	0.1007
	T + R		147	3300	0.0445	
	T + L		431	4650	0.0927	
	T + R + L		449	4650	0.0966	
WB	RIGHT (R)	489	334 *	1650	0.2024	
	THRU (T)	737	737	1650	0.4467	0.4467
	LEFT (L)	24	24	1650	0.0145	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.82
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.AMV+BYPSPRON.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future plus Project with Bypass 09/01/05

INTERSECTION 4 Somersville Road/Delta Fair Blvd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

```
                RIGHT THRU LEFT
                 330  476  705
                  |    |    |
                  |    |    |
              <---    v    --->        | Split? Y
LEFT   588 ---  2.1   1.0  2.0  2.0   1.0 ---  418  RIGHT
                                                    STREET NAME:
THRU   448 ---> 2.2  (NO. OF LANES)    1.0<---  254  THRU  Delta Fair Blvd

RIGHT   45 ---  1.1   1.0  3.1  1.1   1.0 ---   49  LEFT
              |      <---    ^    --->    |
              v             |    |       v
  N           |             |    |                       SIG WARRANTS:
W + E         |            88  709   61                   Urb=Y, Rur=Y
  S           |          LEFT THRU RIGHT Split? N
```

STREET NAME: Somersville Road

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	61	61	1650	0.0370	
	THRU (T)	709	709	4950	0.1432	
	LEFT (L)	88	88	1650	0.0533	
	T + R		770	4950	0.1556	0.1556
SB	RIGHT (R)	330	7 *	1650	0.0042	
	THRU (T)	476	476	3300	0.1442	
	LEFT (L)	705	705	3000	0.2350	0.2350
EB	RIGHT (R)	45	45	1650	0.0273	
	THRU (T)	448	448	3300	0.1358	
	LEFT (L)	588	588	3000	0.1960	
	T + R		493	3300	0.1494	
	T + L		1036	4650	0.2228	
	T + R + L		1081	4650	0.2325	0.2325
WB	RIGHT (R)	418	30 *	1650	0.0182	
	THRU (T)	254	254	1650	0.1539	0.1539
	LEFT (L)	49	49	1650	0.0297	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.78
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.PMV+BYPSPRON.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future plus Project with Bypass 09/01/05

INTERSECTION 5 Loveridge Road/Ventura Drive City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL
28 804 42

Split? N

LEFT 37 --- 1.1 1.1 2.1 1.0 1.1 --- 242 RIGHT
THRU 3 ---> 1.1 (NO. OF LANES) 1.1<--- 66 THRU
RIGHT 8 --- 1.1 1.0 2.1 1.1 1.1 --- 5 LEFT

N
W + E
S

27 613 7
LEFT THRU RIGHT Split? N

STREET NAME: Ventura Drive

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Loveridge Road

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	7	7	1650	0.0042	
	THRU (T)	613	613	3300	0.1858	
	LEFT (L)	27	27	1650	0.0164	0.0164
	T + R		620	3300	0.1879	
SB	RIGHT (R)	28	28	1650	0.0170	
	THRU (T)	804	804	3300	0.2436	
	LEFT (L)	42	42	1650	0.0255	
	T + R		832	3300	0.2521	0.2521
EB	RIGHT (R)	8	8	1650	0.0048	
	THRU (T)	3	3	1650	0.0018	
	LEFT (L)	37	37	1650	0.0224	0.0224
	T + R		11	1650	0.0067	
	T + L		40	1650	0.0242	
	T + R + L		48	1650	0.0291	
WB	RIGHT (R)	242	242	1650	0.1467	
	THRU (T)	66	66	1650	0.0400	
	LEFT (L)	5	5	1650	0.0030	
	T + R		308	1650	0.1867	
	T + L		71	1650	0.0430	
	T + R + L		313	1650	0.1897	0.1897

TOTAL VOLUME-TO-CAPACITY RATIO: 0.48
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.AMV+BYPSPRON.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future plus Project with Bypass 09/01/05

INTERSECTION 5 Loveridge Road/Ventura Drive City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL
39 554 315

Split? N

LEFT 77 --- 1.1 1.1 2.1 1.0 1.1 --- 91 RIGHT
THRU 183 ---> 1.1 (NO. OF LANES) 1.1<--- 11 THRU
RIGHT 44 --- 1.1 1.0 2.1 1.1 1.1 --- 4 LEFT

N
W + E
S

16 838 39
LEFT THRU RIGHT Split? N

STREET NAME: Ventura Drive

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Loveridge Road

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	39	39	1650	0.0236	
	THRU (T)	838	838	3300	0.2539	
	LEFT (L)	16	16	1650	0.0097	
	T + R		877	3300	0.2658	0.2658
SB	RIGHT (R)	39	39	1650	0.0236	
	THRU (T)	554	554	3300	0.1679	
	LEFT (L)	315	315	1650	0.1909	0.1909
	T + R		593	3300	0.1797	
EB	RIGHT (R)	44	44	1650	0.0267	
	THRU (T)	183	183	1650	0.1109	
	LEFT (L)	77	77	1650	0.0467	
	T + R		227	1650	0.1376	
	T + L		260	1650	0.1576	
	T + R + L		304	1650	0.1842	0.1842
WB	RIGHT (R)	91	91	1650	0.0552	
	THRU (T)	11	11	1650	0.0067	
	LEFT (L)	4	4	1650	0.0024	0.0024
	T + R		102	1650	0.0618	
	T + L		15	1650	0.0091	
	T + R + L		106	1650	0.0642	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.64
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.PMV+BYPSPRON.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future plus Project with Bypass 09/01/05

INTERSECTION 6 Railroad Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

21 194 67

<---> Split? Y

LEFT 65 --- 1.0 1.0 2.0 1.0 1.1 --- 101 RIGHT

STREET NAME:

THRU 65 ---> 1.0 (NO. OF LANES) 1.1<--- 68 THRU Buchanan Road

RIGHT 10 --- 1.0 1.0 2.0 1.0 2.0 --- 690 LEFT

<---> <--->

N SIG WARRANTS:
W + E 31 291 350 Urb=Y, Rur=Y
S LEFT THRU RIGHT Split? Y

STREET NAME: Railroad Avenue

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	350	0 *	1650	0.0000	
THRU (T)	291	291	3300	0.0882	0.0882
LEFT (L)	31	31	1650	0.0188	
SB RIGHT (R)	21	0 *	1650	0.0000	
THRU (T)	194	194	3300	0.0588	0.0588
LEFT (L)	67	67	1650	0.0406	
EB RIGHT (R)	10	0 *	1650	0.0000	
THRU (T)	65	65	1650	0.0394	0.0394
LEFT (L)	65	65	1650	0.0394	
WB RIGHT (R)	101	101	1650	0.0612	
THRU (T)	68	68	1650	0.0412	
LEFT (L)	690	690	3000	0.2300	0.2300
T + R		169	1650	0.1024	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.42
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.AMV+BYPSPRON.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future plus Project with Bypass 09/01/05

INTERSECTION 6 Railroad Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

22 313 142

<---> Split? Y

LEFT 68 --- 1.0 1.0 2.0 1.0 1.1 --- 73 RIGHT

STREET NAME:

THRU 96 ---> 1.0 (NO. OF LANES) 1.1<--- 98 THRU Buchanan Road

RIGHT 7 --- 1.0 1.0 2.0 1.0 2.0 --- 100 LEFT

<---> <--->

N SIG WARRANTS:
W + E 38 547 560 Urb=Y, Rur=Y
S LEFT THRU RIGHT Split? Y

STREET NAME: Railroad Avenue

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	560	505 *	1650	0.3061	0.3061
THRU (T)	547	547	3300	0.1658	
LEFT (L)	38	38	1650	0.0230	
SB RIGHT (R)	22	0 *	1650	0.0000	
THRU (T)	313	313	3300	0.0948	0.0948
LEFT (L)	142	142	1650	0.0861	
EB RIGHT (R)	7	0 *	1650	0.0000	
THRU (T)	96	96	1650	0.0582	0.0582
LEFT (L)	68	68	1650	0.0412	
WB RIGHT (R)	73	73	1650	0.0442	
THRU (T)	98	98	1650	0.0594	
LEFT (L)	100	100	3000	0.0333	
T + R		171	1650	0.1036	0.1036

TOTAL VOLUME-TO-CAPACITY RATIO: 0.56
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.PMV+BYPSPRON.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future plus Project with Bypass 09/01/05

INTERSECTION 7 Harbor Street/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

56 35 61

<--- v --->

LEFT 91 --- 1.0 1.1 1.1 1.0 1.0 --- 29 RIGHT | Split? N

STREET NAME:

THRU 380 ---> 1.1 (NO. OF LANES) 1.0<--- 560 THRU Buchanan Road

RIGHT 15 --- 1.1 1.1 1.1 1.1 1.0 --- 1 LEFT

<--- ^ --->

v

N SIG WARRANTS:
W + E 83 114 2 Urb=N, Rur=Y
S LEFT THRU RIGHT Split? Y

STREET NAME: Harbor Street

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	2	2	1650	0.0012	
THRU (T)	114	114	1650	0.0691	
LEFT (L)	83	83	1650	0.0503	
T + R		116	1650	0.0703	
T + L		197	1650	0.1194	
T + R + L		199	1650	0.1206	0.1206
SB RIGHT (R)	56	56	1650	0.0339	
THRU (T)	35	35	1650	0.0212	
LEFT (L)	61	61	1650	0.0370	
T + R		91	1650	0.0552	0.0552
EB RIGHT (R)	15	15	1650	0.0091	
THRU (T)	380	380	1650	0.2303	
LEFT (L)	91	91	1650	0.0552	0.0552
T + R		395	1650	0.2394	
WB RIGHT (R)	29	0 *	1650	0.0000	
THRU (T)	560	560	1650	0.3394	0.3394
LEFT (L)	1	1	1650	0.0006	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.57
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.AMV+BYPSPRON.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future plus Project with Bypass 09/01/05

INTERSECTION 7 Harbor Street/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

37 97 72

<--- v --->

LEFT 55 --- 1.0 1.1 1.1 1.0 1.0 --- 49 RIGHT | Split? N

STREET NAME:

THRU 637 ---> 1.1 (NO. OF LANES) 1.0<--- 136 THRU Buchanan Road

RIGHT 53 --- 1.1 1.1 1.1 1.1 1.0 --- 18 LEFT

<--- ^ --->

v

N SIG WARRANTS:
W + E 19 58 1 Urb=N, Rur=Y
S LEFT THRU RIGHT Split? Y

STREET NAME: Harbor Street

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	1	1	1650	0.0006	
THRU (T)	58	58	1650	0.0352	
LEFT (L)	19	19	1650	0.0115	
T + R		59	1650	0.0358	
T + L		77	1650	0.0467	
T + R + L		78	1650	0.0473	0.0473
SB RIGHT (R)	37	37	1650	0.0224	
THRU (T)	97	97	1650	0.0588	
LEFT (L)	72	72	1650	0.0436	
T + R		134	1650	0.0812	0.0812
EB RIGHT (R)	53	53	1650	0.0321	
THRU (T)	637	637	1650	0.3861	
LEFT (L)	55	55	1650	0.0333	
T + R		690	1650	0.4182	0.4182
WB RIGHT (R)	49	0 *	1650	0.0000	
THRU (T)	136	136	1650	0.0824	
LEFT (L)	18	18	1650	0.0109	0.0109

TOTAL VOLUME-TO-CAPACITY RATIO: 0.56
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.PMV+BYPSPRON.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future plus Project with Bypass 09/01/05

INTERSECTION 8 Loveridge Road/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 3-PHASE SIGNAL

RIGHT THRU LEFT
444 0 377

| | |
<--- v ---> | Split? N

LEFT 336 --- 1.0 1.0 0.0 1.0 1.0 --- 328 RIGHT

STREET NAME:

THRU 249 ---> 1.0 (NO. OF LANES) 1.0<--- 390 THRU Buchanan Road

RIGHT 0 --- 0.0 0.0 0.0 0.0 0.0 --- 0 LEFT
| ^ |
<--- ^ ---> |
v | | | v

N | | |
W + E 0 0 0 SIG WARRANTS:
S LEFT THRU RIGHT Split? N Urb=Y, Rur=Y

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB RIGHT (R)	444	108 *	1720	0.0628	
LEFT (L)	377	377	1720	0.2192	0.2192
EB THRU (T)	249	249	1720	0.1448	
LEFT (L)	336	336	1720	0.1953	0.1953
WB RIGHT (R)	328	0 *	1720	0.0000	
THRU (T)	390	390	1720	0.2267	0.2267

TOTAL VOLUME-TO-CAPACITY RATIO: 0.64
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.AMV+BYPSPRON.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future plus Project with Bypass 09/01/05

INTERSECTION 8 Loveridge Road/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 3-PHASE SIGNAL

RIGHT THRU LEFT
238 0 246

| | |
<--- v ---> | Split? N

LEFT 547 --- 1.0 1.0 0.0 1.0 1.0 --- 314 RIGHT

STREET NAME:

THRU 498 ---> 1.0 (NO. OF LANES) 1.0<--- 240 THRU Buchanan Road

RIGHT 0 --- 0.0 0.0 0.0 0.0 0.0 --- 0 LEFT
| ^ |
<--- ^ ---> |
v | | | v

N | | |
W + E 0 0 0 SIG WARRANTS:
S LEFT THRU RIGHT Split? N Urb=Y, Rur=Y

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB RIGHT (R)	238	0 *	1720	0.0000	
LEFT (L)	246	246	1720	0.1430	0.1430
EB THRU (T)	498	498	1720	0.2895	
LEFT (L)	547	547	1720	0.3180	0.3180
WB RIGHT (R)	314	68 *	1720	0.0395	
THRU (T)	240	240	1720	0.1395	0.1395

TOTAL VOLUME-TO-CAPACITY RATIO: 0.60
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.PMV+BYPSPRON.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future plus Project with Bypass 09/01/05

INTERSECTION 9 Ventura Drive/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

6 11 19

STREET NAME: Buchanan Road

SIG WARRANTS: Urb=Y, Rur=Y

280 135 147
LEFT THRU RIGHT Split? N

STREET NAME: Ventura Drive

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	147	147	1650	0.0891	
THRU (T)	135	135	1650	0.0818	
LEFT (L)	280	280	1650	0.1697	
T + R		282	1650	0.1709	0.1709
SB RIGHT (R)	6	6	1650	0.0036	
THRU (T)	11	11	1650	0.0067	
LEFT (L)	19	19	1650	0.0115	0.0115
T + R		17	1650	0.0103	
EB RIGHT (R)	121	0 *	1650	0.0000	
THRU (T)	684	684	1650	0.4145	0.4145
LEFT (L)	8	8	1650	0.0048	
WB RIGHT (R)	17	17	1650	0.0103	
THRU (T)	663	663	1650	0.4018	
LEFT (L)	50	50	1650	0.0303	0.0303
T + R		680	1650	0.4121	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.63
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.AMV+BYPSPRON.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future plus Project with Bypass 09/01/05

INTERSECTION 9 Ventura Drive/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

7 69 222

STREET NAME: Buchanan Road

SIG WARRANTS: Urb=Y, Rur=Y

236 52 100
LEFT THRU RIGHT Split? N

STREET NAME: Ventura Drive

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	100	100	1650	0.0606	
THRU (T)	52	52	1650	0.0315	
LEFT (L)	236	236	1650	0.1430	
T + R		152	1650	0.0921	0.0921
SB RIGHT (R)	7	7	1650	0.0042	
THRU (T)	69	69	1650	0.0418	
LEFT (L)	222	222	1650	0.1345	0.1345
T + R		76	1650	0.0461	
EB RIGHT (R)	354	118 *	1650	0.0715	
THRU (T)	538	538	1650	0.3261	0.3261
LEFT (L)	3	3	1650	0.0018	
WB RIGHT (R)	23	23	1650	0.0139	
THRU (T)	270	270	1650	0.1636	
LEFT (L)	129	129	1650	0.0782	0.0782
T + R		293	1650	0.1776	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.63
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.PMV+BYPSPRON.PMV,CAP=

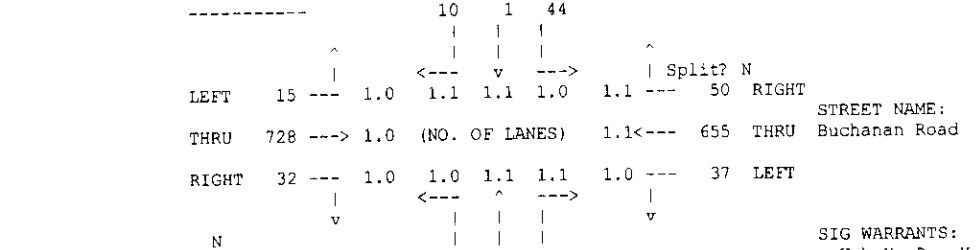
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future plus Project with Bypass 09/01/05

INTERSECTION 10 Meadows Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

10 1 44



STREET NAME: Buchanan Road

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Meadows Avenue

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	165	165	1650	0.1000	
	THRU (T)	6	6	1650	0.0036	
	LEFT (L)	72	72	1650	0.0436	
	T + R		171	1650	0.1036	0.1036
SB	RIGHT (R)	10	10	1650	0.0061	
	THRU (T)	1	1	1650	0.0006	
	LEFT (L)	44	44	1650	0.0267	0.0267
	T + R		11	1650	0.0067	
EB	RIGHT (R)	32	0 *	1650	0.0000	
	THRU (T)	728	728	1650	0.4412	0.4412
	LEFT (L)	15	15	1650	0.0091	
WB	RIGHT (R)	50	50	1650	0.0303	
	THRU (T)	655	655	1650	0.3970	
	LEFT (L)	37	37	1650	0.0224	0.0224
	T + R		705	1650	0.4273	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.59
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.AMV+BYPSPRON.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future plus Project with Bypass 09/01/05

INTERSECTION 10 Meadows Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

3 0 49

STREET NAME: Buchanan Road

SIG WARRANTS: Urb=N, Rur=B

STREET NAME: Meadows Avenue

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	75	75	1650	0.0455	
	THRU (T)	1	1	1650	0.0006	
	LEFT (L)	19	19	1650	0.0115	
	T + R		76	1650	0.0461	0.0461
SB	RIGHT (R)	3	3	1650	0.0018	
	THRU (T)	0	0	1650	0.0000	
	LEFT (L)	49	49	1650	0.0297	0.0297
	T + R		3	1650	0.0018	
EB	RIGHT (R)	22	3 *	1650	0.0018	
	THRU (T)	719	719	1650	0.4358	0.4358
	LEFT (L)	10	10	1650	0.0061	
WB	RIGHT (R)	40	40	1650	0.0242	
	THRU (T)	246	246	1650	0.1491	
	LEFT (L)	222	222	1650	0.1345	0.1345
	T + R		286	1650	0.1733	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.65
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.PMV+BYPSPRON.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future plus Project with Bypass 09/01/05

INTERSECTION 11 Somersville Road/Buchanan Rd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 6-PHASE SIGNAL

RIGHT THRU LEFT
79 157 93

LEFT 436 --- 1.0 1.1 2.1 1.0 1.9 --- 333 RIGHT
THRU 202 ---> 2.0 (NO. OF LANES) 1.0<--- 316 THRU
RIGHT 92 --- 1.9 1.0 2.1 1.1 1.0 --- 279 LEFT

Split? N

N
W + E
S

598 736 78
LEFT THRU RIGHT Split? N

STREET NAME: Buchanan Rd

STREET NAME: Somersville Road

SIG WARRANTS: Urb=Y, Rur=Y

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	78	78	1650	0.0473	
THRU (T)	736	736	3300	0.2230	
LEFT (L)	598	598	1650	0.3624	0.3624
T + R		814	3300	0.2467	
SB RIGHT (R)	79	79	1650	0.0479	
THRU (T)	157	157	3300	0.0476	
LEFT (L)	93	93	1650	0.0564	
T + R		236	3300	0.0715	0.0715
EB RIGHT (R)	92	92	1650	0.0558	
THRU (T)	202	202	3300	0.0612	
LEFT (L)	436	436	1650	0.2642	0.2642
WB RIGHT (R)	333	333	1650	0.2018	
THRU (T)	316	316	1650	0.1915	0.1915
LEFT (L)	279	279	1650	0.1691	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.89
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.AMV+BYPSPRON.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future plus Project with Bypass 09/01/05

INTERSECTION 11 Somersville Road/Buchanan Rd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 6-PHASE SIGNAL

RIGHT THRU LEFT
176 558 466

LEFT 329 --- 1.0 1.1 2.1 1.0 1.9 --- 278 RIGHT
THRU 361 ---> 2.0 (NO. OF LANES) 1.0<--- 83 THRU
RIGHT 653 --- 1.9 1.0 2.1 1.1 1.0 --- 254 LEFT

Split? N

N
W + E
S

213 413 248
LEFT THRU RIGHT Split? N

STREET NAME: Buchanan Rd

STREET NAME: Somersville Road

SIG WARRANTS: Urb=Y, Rur=Y

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	248	248	1650	0.1503	
THRU (T)	413	413	3300	0.1252	
LEFT (L)	213	213	1650	0.1291	
T + R		661	3300	0.2003	0.2003
SB RIGHT (R)	176	176	1650	0.1067	
THRU (T)	558	558	3300	0.1691	
LEFT (L)	466	466	1650	0.2824	0.2824
T + R		734	3300	0.2224	
EB RIGHT (R)	653	653	1650	0.3958	
THRU (T)	361	361	3300	0.1094	0.1094
LEFT (L)	329	329	1650	0.1994	
WB RIGHT (R)	278	278	1650	0.1685	
THRU (T)	83	83	1650	0.0503	
LEFT (L)	254	254	1650	0.1539	0.1539

TOTAL VOLUME-TO-CAPACITY RATIO: 0.75
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.PMV+BYPSPRON.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future plus Project with Bypass 09/01/05

INTERSECTION 12 Somersville Road/Buchanan Rd Byps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 8-PHASE SIGNAL

RIGHT THRU LEFT
390 100 20

Split? N

LEFT 300 --- 2.0 1.0 1.0 1.0 1.0 --- 20 RIGHT

STREET NAME:

THRU 533 ---> 2.0 (NO. OF LANES) 2.0<--- 1601 THRU Buchanan Rd Byps

RIGHT 20 --- 1.0 1.0 1.0 1.0 1.0 --- 20 LEFT

N
W + E
S

20 400 20
LEFT THRU RIGHT Split? N

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: Somersville Road

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	20	0 *	1650	0.0000	
	THRU (T)	400	400	1650	0.2424	0.2424
	LEFT (L)	20	20	1650	0.0121	
SB	RIGHT (R)	390	225 *	1650	0.1364	
	THRU (T)	100	100	1650	0.0606	
	LEFT (L)	20	20	1650	0.0121	0.0121
EB	RIGHT (R)	20	0 *	1650	0.0000	
	THRU (T)	533	533	3300	0.1615	
	LEFT (L)	300	300	3000	0.1000	0.1000
WB	RIGHT (R)	20	0 *	1650	0.0000	
	THRU (T)	1601	1601	3300	0.4852	0.4852
	LEFT (L)	20	20	1650	0.0121	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.84
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.AMV+BYPSPRON.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future plus Project with Bypass 09/01/05

INTERSECTION 12 Somersville Road/Buchanan Rd Byps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 8-PHASE SIGNAL

RIGHT THRU LEFT
300 200 20

Split? N

LEFT 460 --- 2.0 1.0 1.0 1.0 1.0 --- 20 RIGHT

STREET NAME:

THRU 2161 ---> 2.0 (NO. OF LANES) 2.0<--- 737 THRU Buchanan Rd Byps

RIGHT 20 --- 1.0 1.0 1.0 1.0 1.0 --- 20 LEFT

N
W + E
S

20 190 20
LEFT THRU RIGHT Split? N

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: Somersville Road

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	20	0 *	1650	0.0000	
	THRU (T)	190	190	1650	0.1152	
	LEFT (L)	20	20	1650	0.0121	0.0121
SB	RIGHT (R)	300	47 *	1650	0.0285	
	THRU (T)	200	200	1650	0.1212	0.1212
	LEFT (L)	20	20	1650	0.0121	
EB	RIGHT (R)	20	0 *	1650	0.0000	
	THRU (T)	2161	2161	3300	0.6548	0.6548
	LEFT (L)	460	460	3000	0.1533	
WB	RIGHT (R)	20	0 *	1650	0.0000	
	THRU (T)	737	737	3300	0.2233	
	LEFT (L)	20	20	1650	0.0121	0.0121

TOTAL VOLUME-TO-CAPACITY RATIO: 0.80
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.PMV+BYPSPRON.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future plus Project with Bypass 09/01/05

INTERSECTION 13 D Street/Buchanan Rd Byps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 8-PHASE SIGNAL

9 45 1

<--- ^ ---> Split? N

LEFT 24 --- 1.0 1.0 1.0 1.0 1.0 --- 0 RIGHT

STREET NAME:

THRU 824 ---> 2.0 (NO. OF LANES) 2.0<--- 2001 THRU Buchanan Rd Byps

RIGHT 7 --- 1.0 1.0 1.1 1.1 1.0 --- 9 LEFT

<--- ^ --->

N

W + E 32 30 27 SIG WARRANTS:

S LEFT THRU RIGHT Split? N Urb=N, Rur=N

STREET NAME: D Street

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	27	27	1650	0.0164	
THRU (T)	30	30	1650	0.0182	
LEFT (L)	32	32	1650	0.0194	0.0194
T + R		57	1650	0.0345	
SB RIGHT (R)	9	0 *	1650	0.0000	
THRU (T)	45	45	1650	0.0273	0.0273
LEFT (L)	1	1	1650	0.0006	
EB RIGHT (R)	7	0 *	1650	0.0000	
THRU (T)	824	824	3300	0.2497	
LEFT (L)	24	24	1650	0.0145	0.0145
WB RIGHT (R)	0	0	1650	0.0000	
THRU (T)	2001	2001	3300	0.6064	0.6064
LEFT (L)	9	9	1650	0.0055	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.67

INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED

INT=FUTURE.INT,VOL=WITHBYPN.AMV+BYPSPRON.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future plus Project with Bypass 09/01/05

INTERSECTION 13 D Street/Buchanan Rd Byps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 8-PHASE SIGNAL

25 152 1

<--- ^ ---> Split? N

LEFT 17 --- 1.0 1.0 1.0 1.0 1.0 --- 2 RIGHT

STREET NAME:

THRU 2603 ---> 2.0 (NO. OF LANES) 2.0<--- 1005 THRU Buchanan Rd Byps

RIGHT 23 --- 1.0 1.0 1.1 1.1 1.0 --- 31 LEFT

<--- ^ --->

N

W + E 21 86 18 SIG WARRANTS:

S LEFT THRU RIGHT Split? N Urb=Y, Rur=Y

STREET NAME: D Street

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	18	18	1650	0.0109	
THRU (T)	86	86	1650	0.0521	
LEFT (L)	21	21	1650	0.0127	0.0127
T + R		104	1650	0.0630	
SB RIGHT (R)	25	8 *	1650	0.0048	
THRU (T)	152	152	1650	0.0921	0.0921
LEFT (L)	1	1	1650	0.0006	
EB RIGHT (R)	23	2 *	1650	0.0012	
THRU (T)	2603	2603	3300	0.7888	0.7888
LEFT (L)	17	17	1650	0.0103	
WB RIGHT (R)	2	1 *	1650	0.0006	
THRU (T)	1005	1005	3300	0.3045	
LEFT (L)	31	31	1650	0.0188	0.0188

TOTAL VOLUME-TO-CAPACITY RATIO: 0.91

INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED

INT=FUTURE.INT,VOL=WITHBYPN.PMV+BYPSPRON.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future plus Project with Bypass 09/01/05

INTERSECTION 14 D Street/Buchanan Rd Byps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 8-PHASE SIGNAL

RIGHT THRU LEFT
31 0 0

LEFT 0 --- 0.0 1.0 0.0 0.0 1.0 --- 8 RIGHT
Split? N

THRU 827 ---> 2.0 (NO. OF LANES) 2.0<--- 2034 THRU

RIGHT 4 --- 1.0 0.0 0.0 1.0 0.0 --- 0 LEFT

N
W + E
S

0 0 2
LEFT THRU RIGHT Split? N

STREET NAME: Buchanan Rd Byps

SIG WARRANTS: Urb=N, Rur=N

STREET NAME: D Street

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	2	2	1650	0.0012	
SB RIGHT (R)	31	31	1650	0.0188	0.0188
EB RIGHT (R)	4	4	1650	0.0024	
THRU (T)	827	827	3300	0.2506	
WB RIGHT (R)	8	8	1650	0.0048	
THRU (T)	2034	2034	3300	0.6164	0.6164
TOTAL VOLUME-TO-CAPACITY RATIO:					0.64
INTERSECTION LEVEL OF SERVICE:					B

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.AMV+BYPSPRON.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future plus Project with Bypass 09/01/05

INTERSECTION 14 D Street/Buchanan Rd Byps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 8-PHASE SIGNAL

RIGHT THRU LEFT
20 0 0

LEFT 0 --- 0.0 1.0 0.0 0.0 1.0 --- 29 RIGHT
Split? N

THRU 2625 ---> 2.0 (NO. OF LANES) 2.0<--- 1022 THRU

RIGHT 20 --- 1.0 0.0 0.0 1.0 0.0 --- 0 LEFT

N
W + E
S

0 0 1
LEFT THRU RIGHT Split? N

STREET NAME: Buchanan Rd Byps

SIG WARRANTS: Urb=N, Rur=N

STREET NAME: D Street

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	1	1	1650	0.0006	
SB RIGHT (R)	20	20	1650	0.0121	0.0121
EB RIGHT (R)	20	20	1650	0.0121	
THRU (T)	2625	2625	3300	0.7955	0.7955
WB RIGHT (R)	29	29	1650	0.0176	
THRU (T)	1022	1022	3300	0.3097	
TOTAL VOLUME-TO-CAPACITY RATIO:					0.81
INTERSECTION LEVEL OF SERVICE:					D

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.PMV+BYPSPRON.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM Future plus Project with Bypass 09/01/05

INTERSECTION 15 Kirker Pass/Buchanan Rd Byps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 8-PHASE SIGNAL
880 0 54

STREET NAME: Kirker Pass

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB RIGHT (R)	880	534 *	3000	0.1780	0.1780
LEFT (L)	54	54	1650	0.0327	
EB THRU (T)	779	779	3300	0.2361	
LEFT (L)	630	630	3000	0.2100	0.2100
WB RIGHT (R)	31	0 *	1650	0.0000	
THRU (T)	2028	2028	3300	0.6145	0.6145

TOTAL VOLUME-TO-CAPACITY RATIO: 1.00
INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.AMV+BYPSPRON.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM Future plus Project with Bypass 09/01/05

INTERSECTION 15 Kirker Pass/Buchanan Rd Byps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 8-PHASE SIGNAL
320 0 132

STREET NAME: Kirker Pass

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB RIGHT (R)	320	0 *	3000	0.0000	
LEFT (L)	132	132	1650	0.0800	0.0800
EB THRU (T)	2532	2532	3300	0.7673	0.7673
LEFT (L)	1100	1100	3000	0.3667	
WB RIGHT (R)	27	0 *	1650	0.0000	
THRU (T)	978	978	3300	0.2964	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.85
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=FUTURE.INT,VOL=WITHBYPN.PMV+BYPSPRON.PMV,CAP=

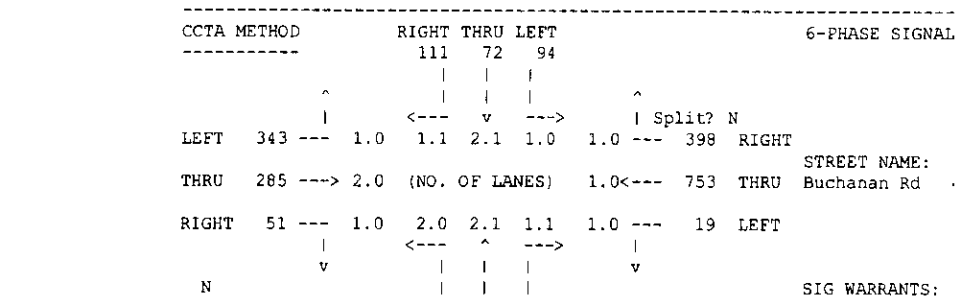
Intersection Level of Service Calculations
Mitigated Conditions

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated AM Existing plus Approved 09/02/05

INTERSECTION 11 Somersville Road/Buchanan Rd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 6-PHASE SIGNAL



STREET NAME: Somersville Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	33	33	1650	0.0200	
THRU (T)	482	482	3300	0.1461	
LEFT (L)	461	461	3000	0.1537	0.1537
T + R		515	3300	0.1561	
SB RIGHT (R)	111	111	1650	0.0673	0.0673
THRU (T)	72	72	3300	0.0218	
LEFT (L)	94	94	1650	0.0570	
T + R		183	3300	0.0555	
EB RIGHT (R)	51	0 *	1650	0.0000	
THRU (T)	285	285	3300	0.0864	
LEFT (L)	343	343	1650	0.2079	0.2079
WB RIGHT (R)	398	304 *	1650	0.1842	
THRU (T)	753	753	1650	0.4564	0.4564
LEFT (L)	19	19	1650	0.0115	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.89
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED

INT=EAMIT.INT,VOL=EXISTING.AMV+CUMULATI.AMV,CAP=

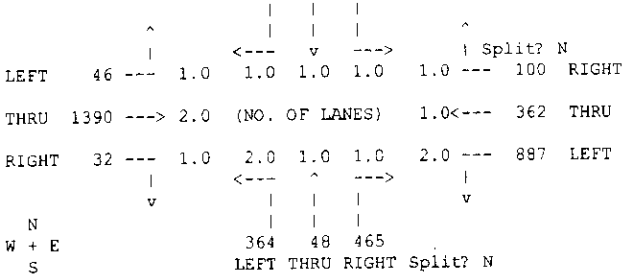
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated PM Existing plus Approved 09/02/05

INTERSECTION 1 S.R. 4 WB Ramps/California Ave City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 8-PHASE SIGNAL

RIGHT THRU LEFT
23 74 112



STREET NAME: California Ave

STREET NAME: S.R. 4 WB Ramps

SIG WARRANTS: Urb=Y, Rur=Y

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	465	0 *	1650	0.0000	
	THRU (T)	48	48	1650	0.0291	
	LEFT (L)	364	364	3000	0.1213	0.1213
SB	RIGHT (R)	23	0 *	1650	0.0000	
	THRU (T)	74	74	1650	0.0448	0.0448
	LEFT (L)	112	112	1650	0.0679	
EB	RIGHT (R)	32	0 *	1650	0.0000	
	THRU (T)	1390	1390	3300	0.4212	0.4212
	LEFT (L)	46	46	1650	0.0279	
WB	RIGHT (R)	100	0 *	1650	0.0000	
	THRU (T)	362	362	1650	0.2194	
	LEFT (L)	887	887	3000	0.2957	0.2957

TOTAL VOLUME-TO-CAPACITY RATIO: 0.88
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=EAMIT.INT,VOL=EXISTING.PMV+CUMULATI.PMV,CAP=

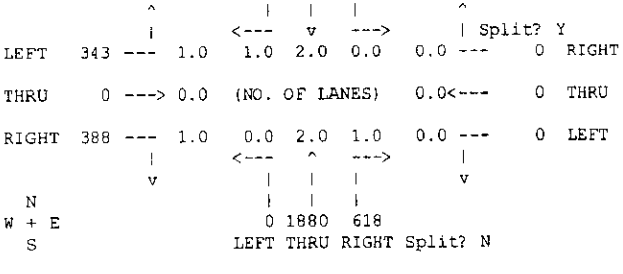
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated PM Existing plus Approved 09/02/05

INTERSECTION 2 Loveridge Road/S.R. 4 EB Ramps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 2-PHASE SIGNAL

RIGHT THRU LEFT
380 901 0



STREET NAME: S.R. 4 EB Ramps

STREET NAME: Loveridge Road

SIG WARRANTS: Urb=Y, Rur=Y

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	618	618	1800	0.3433	
	THRU (T)	1880	1880	3600	0.5222	0.5222
SB	RIGHT (R)	380	37 *	1800	0.0206	
	THRU (T)	901	901	3600	0.2503	
EB	RIGHT (R)	388	388	1800	0.2156	0.2156
	LEFT (L)	343	343	1800	0.1906	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.74
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=EAMIT.INT,VOL=EXISTING.PMV+CUMULATI.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated PM Existing plus Approved 09/02/05

INTERSECTION 9 Ventura Drive/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

7 69 222

<--- v ---> | Split? N

LEFT 3 --- 1.0 1.1 1.1 1.0 1.1 --- 23 RIGHT

STREET NAME:

THRU 1188 ---> 2.0 (NO. OF LANES) 1.1<--- 622 THRU Buchanan Road

RIGHT 140 --- 1.0 1.0 1.1 1.1 1.0 --- 79 LEFT

<--- ^ --->

N SIG WARRANTS:
W + E 98 40 40 Urb=Y, Rur=Y
S LEFT THRU RIGHT Split? N

STREET NAME: Ventura Drive

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	40	40	1650	0.0242	
THRU (T)	40	40	1650	0.0242	
LEFT (L)	98	98	1650	0.0594	
T + R		80	1650	0.0485	0.0485
SB RIGHT (R)	7	7	1650	0.0042	
THRU (T)	69	69	1650	0.0418	
LEFT (L)	222	222	1650	0.1345	0.1345
T + R		76	1650	0.0461	
EB RIGHT (R)	140	42 *	1650	0.0255	
THRU (T)	1188	1188	3300	0.3600	0.3600
LEFT (L)	3	3	1650	0.0018	
WB RIGHT (R)	23	23	1650	0.0139	
THRU (T)	622	622	1650	0.3770	
LEFT (L)	79	79	1650	0.0479	0.0479
T + R		645	1650	0.3909	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.59
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EAMIT.INT,VOL=EXISTING.PMV+CUMULATI.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated PM Existing plus Approved 09/02/05

INTERSECTION 10 Meadows Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

3 0 49

<--- v ---> | Split? N

LEFT 10 --- 1.0 1.1 1.1 1.0 1.1 --- 33 RIGHT

STREET NAME:

THRU 1429 ---> 2.0 (NO. OF LANES) 1.1<--- 665 THRU Buchanan Road

RIGHT 11 --- 1.0 1.0 1.1 1.1 1.0 --- 18 LEFT

<--- ^ --->

N SIG WARRANTS:
W + E 19 1 13 Urb=N, Rur=N
S LEFT THRU RIGHT Split? N

STREET NAME: Meadows Avenue

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	13	13	1650	0.0079	
THRU (T)	1	1	1650	0.0006	
LEFT (L)	19	19	1650	0.0115	
T + R		14	1650	0.0085	0.0085
SB RIGHT (R)	3	3	1650	0.0018	
THRU (T)	0	0	1650	0.0000	
LEFT (L)	49	49	1650	0.0297	0.0297
T + R		3	1650	0.0018	
EB RIGHT (R)	11	0 *	1650	0.0000	
THRU (T)	1429	1429	3300	0.4330	0.4330
LEFT (L)	10	10	1650	0.0061	
WB RIGHT (R)	33	33	1650	0.0200	
THRU (T)	665	665	1650	0.4030	
LEFT (L)	18	18	1650	0.0109	0.0109
T + R		698	1650	0.4230	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.48
INTERSECTION LEVEL OF SERVICE: A

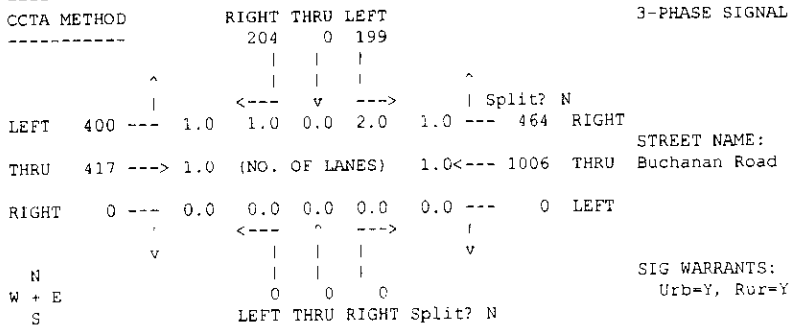
* ADJUSTED FOR RIGHT TURN ON RED
INT=EAMIT.INT,VOL=EXISTING.PMV+CUMULATI.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated AM Existing + Approved + Project 09/02/05

INTERSECTION 8 Loveridge Road/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 3-PHASE SIGNAL



STREET NAME: Buchanan Road

STREET NAME: Loveridge Road

SIG WARRANTS: Urb=Y, Rur=Y

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB RIGHT (R)	204	0 *	1720	0.0000	
LEFT (L)	199	199	3127	0.0636	0.0636
EB THRU (T)	417	417	1720	0.2424	
LEFT (L)	400	400	1720	0.2326	0.2326
WB RIGHT (R)	464	355 *	1720	0.2064	
THRU (T)	1006	1006	1720	0.5849	0.5849
TOTAL VOLUME-TO-CAPACITY RATIO:					0.88
INTERSECTION LEVEL OF SERVICE:					D

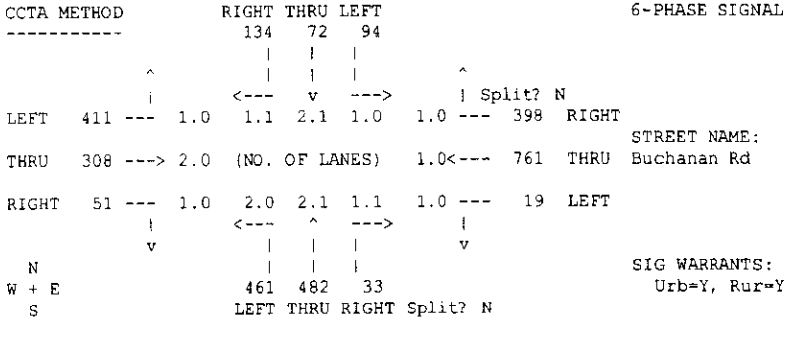
* ADJUSTED FOR RIGHT TURN ON RED
INT=EAPMIT.INT,VOL=EXISTING.AMV+CUMULATI.AMV+PROJECT.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated AM Existing + Approved + Project 09/02/05

INTERSECTION 11 Somersville Road/Buchanan Rd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 6-PHASE SIGNAL



STREET NAME: Buchanan Rd

STREET NAME: Somersville Road

SIG WARRANTS: Urb=Y, Rur=Y

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	33	33	1650	0.0200	
THRU (T)	482	482	3300	0.1461	
LEFT (L)	461	461	3000	0.1537	0.1537
T + R		515	3300	0.1561	
SB RIGHT (R)	134	134	1650	0.0812	0.0812
THRU (T)	72	72	3300	0.0218	
LEFT (L)	94	94	1650	0.0570	
T + R		206	3300	0.0624	
EB RIGHT (R)	51	0 *	1650	0.0000	
THRU (T)	308	308	3300	0.0933	
LEFT (L)	411	411	1650	0.2491	0.2491
WB RIGHT (R)	398	304 *	1650	0.1842	
THRU (T)	761	761	1650	0.4612	0.4612
LEFT (L)	19	19	1650	0.0115	
TOTAL VOLUME-TO-CAPACITY RATIO:					0.95
INTERSECTION LEVEL OF SERVICE:					E

* ADJUSTED FOR RIGHT TURN ON RED
INT=EAPMIT.INT,VOL=EXISTING.AMV+CUMULATI.AMV+PROJECT.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated PM Existing + Approved + Project 09/02/05

INTERSECTION 1 S.R. 4 WB Ramps/California Ave City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 8-PHASE SIGNAL

RIGHT THRU LEFT
23 74 112

LEFT 46 --- 1.0 1.0 1.0 1.0 1.0 --- 100 RIGHT
Split? N

THRU 1390 ---> 2.0 (NO. OF LANES) 1.0<--- 362 THRU

RIGHT 32 --- 1.0 2.0 1.0 1.0 2.0 --- 915 LEFT

STREET NAME:
California Ave

N
W + E
S

364 48 465
LEFT THRU RIGHT Split? N

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: S.R. 4 WB Ramps

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	465	0 *	1650	0.0000	
	THRU (T)	48	48	1650	0.0291	
	LEFT (L)	364	364	3000	0.1213	0.1213
SB	RIGHT (R)	23	0 *	1650	0.0000	
	THRU (T)	74	74	1650	0.0448	0.0448
	LEFT (L)	112	112	1650	0.0679	
EB	RIGHT (R)	32	0 *	1650	0.0000	
	THRU (T)	1390	1390	3300	0.4212	0.4212
	LEFT (L)	46	46	1650	0.0279	
WB	RIGHT (R)	100	0 *	1650	0.0000	
	THRU (T)	362	362	1650	0.2194	
	LEFT (L)	915	915	3000	0.3050	0.3050

TOTAL VOLUME-TO-CAPACITY RATIO: 0.89
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=EAPMIT.INT,VOL=EXISTING.PMV+CUMULATI.PMV+PROJECT.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated PM Existing + Approved + Project 09/02/05

INTERSECTION 2 Loveridge Road/S.R. 4 EB Ramps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 2-PHASE SIGNAL

RIGHT THRU LEFT
380 909 0

LEFT 343 --- 1.0 1.0 2.0 0.0 0.0 --- 0 RIGHT
Split? Y

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU

RIGHT 437 --- 1.0 0.0 2.0 1.0 0.0 --- 0 LEFT

STREET NAME:
S.R. 4 EB Ramps

N
W + E
S

0 1913 618
LEFT THRU RIGHT Split? N

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: Loveridge Road

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	618	618	1800	0.3433	
	THRU (T)	1913	1913	3600	0.5314	0.5314
SB	RIGHT (R)	380	37 *	1800	0.0206	
	THRU (T)	909	909	3600	0.2525	
EB	RIGHT (R)	437	437	1800	0.2428	0.2428
	LEFT (L)	343	343	1800	0.1906	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.77
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=EAPMIT.INT,VOL=EXISTING.PMV+CUMULATI.PMV+PROJECT.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated PM Existing + Approved + Project 09/02/05

INTERSECTION 9 Ventura Drive/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

			7	69	222				
		^	|	|	|	^			
		|	<---	v	--->	| Split? N			
LEFT	3 ---	1.0	1.1	1.1	1.0	1.1 ---	23	RIGHT	
									STREET NAME:
THRU	1188 --->	2.0	(NO. OF LANES)			1.1<---	622	THRU	Buchanan Road
RIGHT	302 ---	1.0	1.0	1.1	1.1	1.0 ---	89	LEFT	
		|	<---	^	--->	|			
		v	|	|	|	v			
N			|	|	|				SIG WARRANTS:
W + E			191	40	46				Urb=Y, Rur=Y
S			LEFT	THRU	RIGHT	Split? N			

STREET NAME: Ventura Drive

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	46	46	1650	0.0279	
	THRU (T)	40	40	1650	0.0242	
	LEFT (L)	191	191	1650	0.1158	
	T + R		86	1650	0.0521	0.0521
SB	RIGHT (R)	7	7	1650	0.0042	
	THRU (T)	69	69	1650	0.0418	
	LEFT (L)	222	222	1650	0.1345	0.1345
	T + R		76	1650	0.0461	
EB	RIGHT (R)	302	111 *	1650	0.0673	
	THRU (T)	1188	1188	3300	0.3600	0.3600
	LEFT (L)	3	3	1650	0.0018	
WB	RIGHT (R)	23	23	1650	0.0139	
	THRU (T)	622	622	1650	0.3770	
	LEFT (L)	89	89	1650	0.0539	0.0539
	T + R		645	1650	0.3909	
	TOTAL VOLUME-TO-CAPACITY RATIO:					0.60
	INTERSECTION LEVEL OF SERVICE:					A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EAPMIT.INT,VOL=EXISTING.PMV+CUMULATI.PMV+PROJECT.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated PM Existing + Approved + Project 09/02/05

INTERSECTION 10 Meadows Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

			3	0	49				
		^	|	|	|	^			
		|	<---	v	--->	| Split? N			
LEFT	10 ---	1.0	1.1	1.1	1.0	1.1 ---	33	RIGHT	
									STREET NAME:
THRU	1435 --->	2.0	(NO. OF LANES)			1.1<---	675	THRU	Buchanan Road
RIGHT	11 ---	1.0	1.0	1.1	1.1	1.0 ---	111	LEFT	
		|	<---	^	--->	|			
		v	|	|	|	v			
N			|	|	|				SIG WARRANTS:
W + E			19	1	66				Urb=N, Rur=N
S			LEFT	THRU	RIGHT	Split? N			

STREET NAME: Meadows Avenue

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	66	66	1650	0.0400	
	THRU (T)	1	1	1650	0.0006	
	LEFT (L)	19	19	1650	0.0115	
	T + R		67	1650	0.0406	0.0406
SB	RIGHT (R)	3	3	1650	0.0018	
	THRU (T)	0	0	1650	0.0000	
	LEFT (L)	49	49	1650	0.0297	0.0297
	T + R		3	1650	0.0018	
EB	RIGHT (R)	11	0 *	1650	0.0000	
	THRU (T)	1435	1435	3300	0.4348	0.4348
	LEFT (L)	10	10	1650	0.0061	
WB	RIGHT (R)	33	33	1650	0.0200	
	THRU (T)	675	675	1650	0.4091	
	LEFT (L)	111	111	1650	0.0673	0.0673
	T + R		708	1650	0.4291	
	TOTAL VOLUME-TO-CAPACITY RATIO:					0.57
	INTERSECTION LEVEL OF SERVICE:					A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EAPMIT.INT,VOL=EXISTING.PMV+CUMULATI.PMV+PROJECT.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated PM Existing + Approved + Project 09/02/05

INTERSECTION 11 Somersville Road/Buchanan Rd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 6-PHASE SIGNAL

RIGHT THRU LEFT
360 319 329

LEFT 572 --- 1.0 1.1 2.1 1.0 1.0 --- 192 RIGHT
Split? N

THRU 719 ---> 2.0 (NO. OF LANES) 1.0<--- 434 THRU

STREET NAME:
Buchanan Rd

RIGHT 607 --- 1.0 2.0 2.1 1.1 1.0 --- 36 LEFT

N
W + E
S

177 148 11
LEFT THRU RIGHT Split? N

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: Somersville Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	11	11	1650	0.0067	
THRU (T)	148	148	3300	0.0448	
LEFT (L)	177	177	3000	0.0590	0.0590
T + R		159	3300	0.0482	
SB RIGHT (R)	360	360	1650	0.2182	0.2182
THRU (T)	319	319	3300	0.0967	
LEFT (L)	329	329	1650	0.1994	
T + R		679	3300	0.2058	
EB RIGHT (R)	607	510 *	1650	0.3091	
THRU (T)	719	719	3300	0.2179	
LEFT (L)	572	572	1650	0.3467	0.3467
WB RIGHT (R)	192	0 *	1650	0.0000	
THRU (T)	434	434	1650	0.2630	0.2630
LEFT (L)	36	36	1650	0.0218	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.89
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIG

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated AM Future with Bypass 09/02/05

INTERSECTION 1 S.R. 4 WB Ramps/California Ave City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 8-PHASE SIGNAL

```
                RIGHT THRU LEFT
                  27  102   62
                   |   |   |
                   |   |   |
                   v   |   |
              <--- v   |   |
LEFT     5 ---  1.0  1.1 2.2 1.1  1.0 ---  191  RIGHT
                                                    STREET NAME:
THRU   554 ---> 2.0  (NO. OF LANES)   1.0<--- 1236  THRU  California Ave

RIGHT   34 ---  1.0  2.1 1.1 1.9  2.0 ---  1115  LEFT
                 |  <---  ^  --->  |
                 v       |   |   v
                         |   |
  N                      |   |                    SIG WARRANTS:
W + E                   251  28  135                 Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? Y
```

STREET NAME: S.R. 4 WB Ramps

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	135	135	1650	0.0818	
	THRU (T)	28	28	1650	0.0170	
	LEFT (L)	251	251	3000	0.0837	
	T + L		279	3000	0.0930	0.0930
SB	RIGHT (R)	27	27	1650	0.0164	
	THRU (T)	102	102	3300	0.0309	
	LEFT (L)	62	62	1650	0.0376	
	T + R		129	3300	0.0391	
	T + L		164	3300	0.0497	
	T + R + L		191	3300	0.0579	0.0579
EB	RIGHT (R)	34	0 *	1650	0.0000	
	THRU (T)	554	554	3300	0.1679	
	LEFT (L)	5	5	1650	0.0030	0.0030
WB	RIGHT (R)	191	129 *	1650	0.0782	
	THRU (T)	1236	1236	1650	0.7491	0.7491
	LEFT (L)	1115	1115	3000	0.3717	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.90
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=2025BMIT.INT,VOL=WITHBYPN.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated AM Future with Bypass 09/02/05

INTERSECTION 15 Kirker Pass/Buchanan Rd Byps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 8-PHASE SIGNAL

```
                RIGHT THRU LEFT
                  880    0   50
                   |   |   |
                   |   |   |
                   v   |   |
              <--- v   |   |
LEFT   630 ---  2.0  2.5 0.0 1.0  1.0 ---   20  RIGHT
                                                    STREET NAME:
THRU   770 ---> 2.0  (NO. OF LANES)   2.0<--- 2000  THRU  Buchanan Rd Byps

RIGHT    0 ---  0.0  0.0 0.0 0.0  0.0 ---    0  LEFT
                 |  <---  ^  --->  |
                 v       |   |   v
                         |   |
  N                      |   |                    SIG WARRANTS:
W + E                    0   0   0                  Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? N
```

STREET NAME: Kirker Pass

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB	RIGHT (R)	880	250 *	3000	0.0833	0.0833
	LEFT (L)	50	50	1650	0.0303	
EB	THRU (T)	770	770	3300	0.2333	
	LEFT (L)	630	630	3000	0.2100	0.2100
WB	RIGHT (R)	20	0 *	1650	0.0000	
	THRU (T)	2000	2000	3300	0.6061	0.6061

TOTAL VOLUME-TO-CAPACITY RATIO: 0.90
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=2025BMIT.INT,VOL=WITHBYPN.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated PM Future with Bypass 09/02/05

INTERSECTION 1 S.R. 4 WB Ramps/California Ave City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 8-PHASE SIGNAL

```
                    RIGHT THRU LEFT
                      23   74  112
                       |    |   |
                       |    |   |
                  <----    v   ---->        | Split? N
LEFT    46 ---  1.0   1.1  2.2  1.1   1.0 ---  104  RIGHT
                                                STREET NAME:
THRU  1390 ---> 2.0  (NO. OF LANES)   1.0<---  362  THRU  California Ave

RIGHT   32 ---  1.0   2.1  1.1  1.9   2.0 ---  588  LEFT
                  |  <---    ^   --->       |
                  v          |   |          v
  N               |          |   |                       SIG WARRANTS:
W + E            398        60  684                       Urb=Y, Rur=Y
  S              LEFT THRU RIGHT Split? Y
```

STREET NAME: S.R. 4 WB Ramps

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	684	684	1650	0.4145	
THRU (T)	60	60	1650	0.0364	
LEFT (L)	398	398	3000	0.1327	
T + L		458	3000	0.1527	0.1527
SB RIGHT (R)	23	23	1650	0.0139	
THRU (T)	74	74	3300	0.0224	
LEFT (L)	112	112	1650	0.0679	0.0679
T + R		97	3300	0.0294	
T + L		186	3300	0.0564	
T + R + L		209	3300	0.0633	
EB RIGHT (R)	32	0 *	1650	0.0000	
THRU (T)	1390	1390	3300	0.4212	0.4212
LEFT (L)	46	46	1650	0.0279	
WB RIGHT (R)	104	0 *	1650	0.0000	
THRU (T)	362	362	1650	0.2194	
LEFT (L)	588	588	3000	0.1960	0.1960

TOTAL VOLUME-TO-CAPACITY RATIO: 0.84
INTERSECTION LEVEL OF SERVICE: D

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated AM Future + Project with Bypass 09/02/05

INTERSECTION 1 S.R. 4 WB Ramps/California Ave City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 8-PHASE SIGNAL

RIGHT THRU LEFT
27 102 62

LEFT 5 --- 1.0 1.1 2.2 1.1 1.0 --- 191 RIGHT
Split? N

THRU 554 ---> 2.0 (NO. OF LANES) 1.0<--- 1236 THRU

RIGHT 34 --- 1.0 2.1 1.1 1.9 2.0 --- 1171 LEFT

STREET NAME: California Ave

N
W + E
S
251 28 135
LEFT THRU RIGHT Split? Y

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: S.R. 4 WB Ramps

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	135	135	1650	0.0818	
THRU (T)	28	28	1650	0.0170	
LEFT (L)	251	251	3000	0.0837	
T + L		279	3000	0.0930	0.0930
SB RIGHT (R)	27	27	1650	0.0164	
THRU (T)	102	102	3300	0.0309	
LEFT (L)	62	62	1650	0.0376	
T + R		129	3300	0.0391	
T + L		164	3300	0.0497	
T + R + L		191	3300	0.0579	0.0579
EB RIGHT (R)	34	0 *	1650	0.0000	
THRU (T)	554	554	3300	0.1679	
LEFT (L)	5	5	1650	0.0030	0.0030
WB RIGHT (R)	191	129 *	1650	0.0782	
THRU (T)	1236	1236	1650	0.7491	0.7491
LEFT (L)	1171	1171	3000	0.3903	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.90
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=2025BPMI.INT,VOL=WITHBYPN.AMV+BYPSPRON.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated AM Future + Project with Bypass 09/02/05

INTERSECTION 3 Loveridge Road/E. Leland Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 6-PHASE SIGNAL

RIGHT THRU LEFT
450 744 394

LEFT 247 --- 2.0 1.0 2.0 2.0 1.0 --- 641 RIGHT
Split? N

THRU 347 ---> 2.0 (NO. OF LANES) 2.0<--- 1339 THRU

RIGHT 323 --- 1.0 1.0 2.0 1.0 2.0 --- 383 LEFT

STREET NAME: E. Leland Road

N
W + E
S
321 666 76
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	76	0 *	1650	0.0000	
THRU (T)	666	666	3300	0.2018	
LEFT (L)	321	321	1650	0.1945	0.1945
SB RIGHT (R)	450	314 *	1650	0.1903	
THRU (T)	744	744	3300	0.2255	0.2255
LEFT (L)	394	394	3000	0.1313	
EB RIGHT (R)	323	2 *	1650	0.0012	
THRU (T)	347	347	3300	0.1052	
LEFT (L)	247	247	3000	0.0823	0.0823
WB RIGHT (R)	641	424 *	1650	0.2570	
THRU (T)	1339	1339	3300	0.4058	0.4058
LEFT (L)	383	383	3000	0.1277	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.91
INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED
INT=2025BPMI.INT,VOL=WITHBYPN.AMV+BYPSPRON.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated AM Future + Project with Bypass 09/02/05

INTERSECTION 15 Kirker Pass/Buchanan Rd Byps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 8-PHASE SIGNAL

```
                    RIGHT THRU LEFT
                      880    0   54
                       |     |    |
                       ^     |    ^
                       |     |    |
                     <---    v   --->
LEFT   630 ---  2.0   2.5  0.0  1.0   1.0 ---   31  RIGHT
                                                  STREET NAME:
THRU   779 ---> 2.0  (NO. OF LANES)    2.0<--- 2028  THRU  Buchanan Rd Byps

RIGHT    0 ---  0.0   0.0  0.0  0.0   0.0 ---    0  LEFT
               |     <---    ^   --->     |
               v       |    |    |       v
  N            |       |    |    |                SIG WARRANTS:
W + E          |       0    0    0                  Urb=Y, Rur=Y
  S            |     LEFT THRU RIGHT Split? N
```

STREET NAME: Kirker Pass

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB RIGHT (R)	880	250 *	3000	0.0833	0.0833
LEFT (L)	54	54	1650	0.0327	
EB THRU (T)	779	779	3300	0.2361	
LEFT (L)	630	630	3000	0.2100	0.2100
WB RIGHT (R)	31	0 *	1650	0.0000	
THRU (T)	2028	2028	3300	0.6145	0.6145
TOTAL VOLUME-TO-CAPACITY RATIO:					0.91
INTERSECTION LEVEL OF SERVICE:					E

* ADJUSTED FOR RIGHT TURN ON RED

INT=2025BPMI.INT,VOL=WITHBYPN.AMV+BYPSPRON.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated PM Future + Project with Bypass 09/02/05

INTERSECTION 1 S.R. 4 WB Ramps/California Ave City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 8-PHASE SIGNAL

RIGHT THRU LEFT
23 74 112

<--- v ---> | Split? N

LEFT 46 --- 1.0 1.1 2.2 1.1 1.0 --- 104 RIGHT

STREET NAME:

THRU 1390 ---> 2.0 (NO. OF LANES) 1.0<--- 362 THRU California Ave

RIGHT 32 --- 1.0 2.1 1.1 1.9 2.0 --- 624 LEFT
<--- ^ --->

N
W + E 398 60 684 SIG WARRANTS:
S LEFT THRU RIGHT Split? Y Urb=Y, Rur=Y

STREET NAME: S.R. 4 WB Ramps

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	684	684	1650	0.4145	
THRU (T)	60	60	1650	0.0364	
LEFT (L)	398	398	3000	0.1327	
T + L		458	3000	0.1527	0.1527
SB RIGHT (R)	23	23	1650	0.0139	
THRU (T)	74	74	3300	0.0224	
LEFT (L)	112	112	1650	0.0679	0.0679
T + R		97	3300	0.0294	
T + L		186	3300	0.0564	
T + R + L		209	3300	0.0633	
EB RIGHT (R)	32	0 *	1650	0.0000	
THRU (T)	1390	1390	3300	0.4212	0.4212
LEFT (L)	46	46	1650	0.0279	
WB RIGHT (R)	104	0 *	1650	0.0000	
THRU (T)	362	362	1650	0.2194	
LEFT (L)	624	624	3000	0.2080	0.2080

TOTAL VOLUME-TO-CAPACITY RATIO: 0.85
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=2025BPMI.INT,VOL=WITHBYPN.PMV+BYPSPRON.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated PM Future + Project with Bypass 09/02/05

INTERSECTION 2 Loveridge Road/S.R. 4 EB Ramps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 2-PHASE SIGNAL

RIGHT THRU LEFT
308 672 0

<--- v ---> | Split? Y

LEFT 226 --- 1.0 1.0 2.0 0.0 0.0 --- 0 RIGHT

STREET NAME:

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU S.R. 4 EB Ramps

RIGHT 574 --- 1.0 0.0 2.0 1.0 0.0 --- 0 LEFT
<--- ^ --->

N
W + E 0 1802 392 SIG WARRANTS:
S LEFT THRU RIGHT Split? N Urb=Y, Rur=Y

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	392	392	1800	0.2178	
THRU (T)	1802	1802	3600	0.5006	0.5006
SB RIGHT (R)	308	82 *	1800	0.0456	
THRU (T)	672	672	3600	0.1867	
EB RIGHT (R)	574	574	1800	0.3189	0.3189
LEFT (L)	226	226	1800	0.1256	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.82
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=2025BPMI.INT,VOL=WITHBYPN.PMV+BYPSPRON.PMV,

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated AM Future without Bypass 09/02/05

INTERSECTION 1 S.R. 4 WB Ramps/California Ave City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 8-PHASE SIGNAL

```
                    27  102   62
                     |   |    |
                     ^   |    ^
                     |   v    |
                <--- v   ---> | Split? N
LEFT     5 ---  1.0  1.1  2.2  1.1  1.0 ---  191  RIGHT
                                                    STREET NAME:
THRU   554 ---> 2.0  (NO. OF LANES)  1.0<---  1236  THRU  California Ave

RIGHT   34 ---  1.0  2.1  1.1  1.0  2.0 ---  1073  LEFT
                |    <---  ^   --->  |
                v          |    |    v
  N             |    |     |                    SIG WARRANTS:
W + E          251   28   135                     Urb=Y, Rur=Y
  S      LEFT THRU RIGHT Split? Y
```

STREET NAME: S.R. 4 WB Ramps

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	135	0 *	1650	0.0000	
	THRU (T)	28	28	1650	0.0170	
	LEFT (L)	251	251	3000	0.0837	
	T + L		279	3000	0.0930	0.0930
SB	RIGHT (R)	27	27	1650	0.0164	
	THRU (T)	102	102	3300	0.0309	
	LEFT (L)	62	62	1650	0.0376	
	T + R		129	3300	0.0391	
	T + L		164	3300	0.0497	
	T + R + L		191	3300	0.0579	0.0579
EB	RIGHT (R)	34	0 *	1650	0.0000	
	THRU (T)	554	554	3300	0.1679	
	LEFT (L)	5	5	1650	0.0030	0.0030
WB	RIGHT (R)	191	129 *	1650	0.0782	
	THRU (T)	1236	1236	1650	0.7491	0.7491
	LEFT (L)	1073	1073	3000	0.3577	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.90
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=2025MIT.INT,VOL=FUTURE-P.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated AM Future without Bypass 09/02/05

INTERSECTION 3 Loveridge Road/E. Leland Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 6-PHASE SIGNAL

```
                    450 1113  394
                     |   |    |
                     ^   |    ^
                     |   v    |
                <--- v   ---> | Split? N
LEFT   247 ---  2.0  1.0  2.0  2.0  1.0 ---  641  RIGHT
                                                    STREET NAME:
THRU   347 ---> 2.0  (NO. OF LANES)  2.0<---  1339  THRU  E. Leland Road

RIGHT  323 ---  1.0  1.0  2.0  1.0  2.0 ---  379  LEFT
                |    <---  ^   --->  |
                v          |    |    v
  N             |    |     |                    SIG WARRANTS:
W + E          321  808    62                     Urb=Y, Rur=Y
  S      LEFT THRU RIGHT Split? N
```

STREET NAME: Loveridge Road

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	62	0 *	1650	0.0000	
	THRU (T)	808	808	3300	0.2448	
	LEFT (L)	321	321	1650	0.1945	0.1945
SB	RIGHT (R)	450	314 *	1650	0.1903	
	THRU (T)	1113	1113	3300	0.3373	0.3373
	LEFT (L)	394	394	3000	0.1313	
EB	RIGHT (R)	323	2 *	1650	0.0012	
	THRU (T)	347	347	3300	0.1052	
	LEFT (L)	247	247	3000	0.0823	0.0823
WB	RIGHT (R)	641	424 *	1650	0.2570	
	THRU (T)	1339	1339	3300	0.4058	0.4058
	LEFT (L)	379	379	3000	0.1263	

TOTAL VOLUME-TO-CAPACITY RATIO: 1.02
INTERSECTION LEVEL OF SERVICE: F

* ADJUSTED FOR RIGHT TURN ON RED
INT=2025MIT.INT,VOL=FUTURE-P.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated AM Future without Bypass 09/02/05

INTERSECTION 7 Harbor Street/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

			56	35	61				
			↑	↑	↑				
			<---	v	--->		Split? N		
LEFT	91	--- 1.0	1.1	1.1	1.0	1.0	---	29	RIGHT
THRU	719	---> 2.1	(NO. OF LANES)			2.0	<---	1227	THRU
RIGHT	15	--- 1.1	1.1	1.1	1.1	1.0	---	1	LEFT
				<---	^	--->			
			v		↑	↑	v		
N					↑	↑			
W + E			83		114	2			
S			LEFT		THRU	RIGHT	Split? Y		

STREET NAME: Buchanan Road

STREET NAME: Harbor Street

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	2	2	1650	0.0012	
	THRU (T)	114	114	1650	0.0691	
	LEFT (L)	83	83	1650	0.0503	
	T + R		116	1650	0.0703	
	T + L		197	1650	0.1194	
	T + R + L		199	1650	0.1206	0.1206
SB	RIGHT (R)	56	56	1650	0.0339	
	THRU (T)	35	35	1650	0.0212	
	LEFT (L)	61	61	1650	0.0370	
	T + R		91	1650	0.0552	0.0552
EB	RIGHT (R)	15	15	1650	0.0091	
	THRU (T)	719	719	3300	0.2179	
	LEFT (L)	91	91	1650	0.0552	0.0552
	T + R		734	3300	0.2224	
WB	RIGHT (R)	29	0 *	1650	0.0000	
	THRU (T)	1227	1227	3300	0.3718	0.3718
	LEFT (L)	1	1	1650	0.0006	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.60
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=2025MIT.INT,VOL=FUTURE-P.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated AM Future without Bypass 09/02/05

INTERSECTION 8 Loveridge Road/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 3-PHASE SIGNAL

			831	0	354				
			↑	↑	↑				
			<---	v	--->		Split? N		
LEFT	541	--- 1.0	1.0	0.0	1.0	1.0	---	258	RIGHT
THRU	383	---> 2.0	(NO. OF LANES)			2.0	<---	667	THRU
RIGHT	0	--- 0.0	0.0	0.0	0.0	0.0	---	0	LEFT
				<---	^	--->			
			v		↑	↑	v		
N					↑	↑			
W + E			0		0	0			
S			LEFT		THRU	RIGHT	Split? N		

STREET NAME: Buchanan Road

STREET NAME: Loveridge Road

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB	RIGHT (R)	831	290 *	1720	0.1686	
	LEFT (L)	354	354	1720	0.2058	0.2058
EB	THRU (T)	383	383	3440	0.1113	
	LEFT (L)	541	541	1720	0.3145	0.3145
WB	RIGHT (R)	258	0 *	1720	0.0000	
	THRU (T)	667	667	3440	0.1939	0.1939

TOTAL VOLUME-TO-CAPACITY RATIO: 0.71
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=2025MIT.INT,VOL=FUTURE-P.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated AM Future without Bypass 09/02/05

INTERSECTION 11 Somersville Road/Buchanan Rd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 6-PHASE SIGNAL

```
                    111  107   93
                     |    |    |
                     |    |    |
                <----|    v    |---->
LEFT   482 ---> 1.0  1.1  2.1  1.0  1.0 ---> 333  RIGHT
                                                STREET NAME:
THRU   242 ---> 2.0  (NO. OF LANES)  2.0 ---> 574  THRU  Buchanan Rd

RIGHT   92 ---> 1.0  2.0  2.1  1.1  1.0 ---> 19   LEFT
                     |    ^    |    |
                     v    |    v    v
  N                  |    |    |                SIG WARRANTS:
W + E               598  636   33                 Urb=Y, Rur=Y
  S                 LEFT THRU RIGHT Split? N
```

STREET NAME: Somersville Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	33	33	1650	0.0200	
THRU (T)	636	636	3300	0.1927	
LEFT (L)	598	598	3000	0.1993	0.1993
T + R		669	3300	0.2027	
SB RIGHT (R)	111	111	1650	0.0673	0.0673
THRU (T)	107	107	3300	0.0324	
LEFT (L)	93	93	1650	0.0564	
T + R		218	3300	0.0661	
EB RIGHT (R)	92	0 *	1650	0.0000	
THRU (T)	242	242	3300	0.0733	
LEFT (L)	482	482	1650	0.2921	0.2921
WB RIGHT (R)	333	240 *	1650	0.1455	
THRU (T)	574	574	3300	0.1739	0.1739
LEFT (L)	19	19	1650	0.0115	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.73
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=2025MIT.INT,VOL=FUTURE-P.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated PM Future without Bypass 09/02/05

INTERSECTION 1 S.R. 4 WB Ramps/California Ave City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 8-PHASE SIGNAL

RIGHT THRU LEFT
23 74 112

LEFT 46 --- 1.0 1.1 2.2 1.1 1.0 --- 104 RIGHT | Split? N
THRU 1390 ---> 2.0 (NO. OF LANES) 1.0<--- 362 THRU
RIGHT 32 --- 1.0 2.1 1.1 1.0 2.0 --- 560 LEFT

STREET NAME: California Ave

N
W + E 398 60 684 SIG WARRANTS: Urb=Y, Rur=Y
S
LEFT THRU RIGHT Split? Y

STREET NAME: S.R. 4 WB Ramps

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	684	376 *	1650	0.2279	0.2279
THRU (T)	60	60	1650	0.0364	
LEFT (L)	398	398	3000	0.1327	
T + L		458	3000	0.1527	
SB RIGHT (R)	23	23	1650	0.0139	
THRU (T)	74	74	3300	0.0224	
LEFT (L)	112	112	1650	0.0679	0.0679
T + R		97	3300	0.0294	
T + L		186	3300	0.0564	
T + R + L		209	3300	0.0633	
EB RIGHT (R)	32	0 *	1650	0.0000	
THRU (T)	1390	1390	3300	0.4212	0.4212
LEFT (L)	46	46	1650	0.0279	
WB RIGHT (R)	104	0 *	1650	0.0000	
THRU (T)	362	362	1650	0.2194	
LEFT (L)	560	560	3000	0.1867	0.1867

TOTAL VOLUME-TO-CAPACITY RATIO: 0.90
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=2025MIT.INT,VOL=FUTURE-P.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated PM Future without Bypass 09/02/05

INTERSECTION 2 Loveridge Road/S.R. 4 EB Ramps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 2-PHASE SIGNAL

RIGHT THRU LEFT
308 1164 0

LEFT 226 --- 1.0 1.0 2.0 0.0 0.0 --- 0 RIGHT | Split? Y
THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU
RIGHT 461 --- 1.0 0.0 2.0 1.0 0.0 --- 0 LEFT

STREET NAME: S.R. 4 EB Ramps

N
W + E 0 1728 692 SIG WARRANTS: Urb=Y, Rur=Y
S
LEFT THRU RIGHT Split? N

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	692	692	1800	0.3844	
THRU (T)	1728	1728	3600	0.4800	0.4800
SB RIGHT (R)	308	82 *	1800	0.0456	
THRU (T)	1164	1164	3600	0.3233	
EB RIGHT (R)	461	461	1800	0.2561	0.2561
LEFT (L)	226	226	1800	0.1256	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.74
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=2025MIT.INT,VOL=FUTURE-P.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated PM Future without Bypass 09/02/05

INTERSECTION 3 Loveridge Road/E. Leland Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 6-PHASE SIGNAL

RIGHT THRU LEFT
230 766 355

Split? N

LEFT 631 --- 2.0 1.0 2.0 2.0 1.0 --- 195 RIGHT

STREET NAME:

THRU 1278 ---> 2.0 (NO. OF LANES) 2.0<--- 423 THRU E. Leland Road

RIGHT 282 --- 1.0 1.0 2.0 1.0 2.0 --- 280 LEFT

N
W + E
S

SIG WARRANTS:
Urb=Y, Rur=Y

232 810 332
LEFT THRU RIGHT Split? N

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	332	178 *	1650	0.1079	
THRU (T)	810	810	3300	0.2455	
LEFT (L)	232	232	1650	0.1406	0.1406
SB RIGHT (R)	230	0 *	1650	0.0000	
THRU (T)	766	766	3300	0.2321	0.2321
LEFT (L)	355	355	3000	0.1183	
EB RIGHT (R)	282	50 *	1650	0.0303	
THRU (T)	1278	1278	3300	0.3873	0.3873
LEFT (L)	631	631	3000	0.2103	
WB RIGHT (R)	195	0 *	1650	0.0000	
THRU (T)	423	423	3300	0.1282	
LEFT (L)	280	280	3000	0.0933	0.0933

TOTAL VOLUME-TO-CAPACITY RATIO: 0.85
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=2025MIT.INT,VOL=FUTURE-P.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated PM Future without Bypass 09/02/05

INTERSECTION 6 Railroad Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
22 591 40

Split? Y

LEFT 68 --- 1.0 1.0 2.0 1.0 1.1 --- 15 RIGHT

STREET NAME:

THRU 96 ---> 1.0 (NO. OF LANES) 1.1<--- 98 THRU Buchanan Road

RIGHT 7 --- 1.0 1.0 2.0 2.5 2.0 --- 899 LEFT

N
W + E
S

SIG WARRANTS:
Urb=Y, Rur=Y

38 972 1407
LEFT THRU RIGHT Split? Y

STREET NAME: Railroad Avenue

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	1407	508 *	3000	0.1693	
THRU (T)	972	972	3300	0.2945	0.2945
LEFT (L)	38	38	1650	0.0230	
SB RIGHT (R)	22	0 *	1650	0.0000	
THRU (T)	591	591	3300	0.1791	0.1791
LEFT (L)	40	40	1650	0.0242	
EB RIGHT (R)	7	0 *	1650	0.0000	
THRU (T)	96	96	1650	0.0582	0.0582
LEFT (L)	68	68	1650	0.0412	
WB RIGHT (R)	15	15	1650	0.0091	
THRU (T)	98	98	1650	0.0594	
LEFT (L)	899	899	3000	0.2997	0.2997
T + R		113	1650	0.0685	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.83
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=2025MIT.INT,VOL=FUTURE-P.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated PM Future without Bypass 09/02/05

INTERSECTION 7 Harbor Street/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 4-PHASE SIGNAL

```
                  37   97   72
                   |    |    |
                   |    |    |
              ^    |    |    |    ^
              |    |    |    |    | Split? N
              |   <---   v   --->  |
LEFT    55 --- 1.0  1.1  1.1  1.0  1.0 ---  49  RIGHT
                                                STREET NAME:
THRU  1447 ---> 2.1  (NO. OF LANES)   2.0<---  915  THRU  Buchanan Road

RIGHT   53 --- 1.1  1.1  1.1  1.1  1.0 ---  18  LEFT
               |   <---   ^   --->  |
               v          |    |    v
                          |    |
  N                       |    |                        SIG WARRANTS:
W + E                    19   58    1                     Urb=Y, Rur=Y
  S                     LEFT THRU RIGHT Split? Y
```

STREET NAME: Harbor Street

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	1	1	1650	0.0006	
	THRU (T)	58	58	1650	0.0352	
	LEFT (L)	19	19	1650	0.0115	
	T + R		59	1650	0.0358	
	T + L		77	1650	0.0467	
	T + R + L		78	1650	0.0473	0.0473
SB	RIGHT (R)	37	37	1650	0.0224	
	THRU (T)	97	97	1650	0.0588	
	LEFT (L)	72	72	1650	0.0436	
	T + R		134	1650	0.0812	0.0812
EB	RIGHT (R)	53	53	1650	0.0321	
	THRU (T)	1447	1447	3300	0.4385	
	LEFT (L)	55	55	1650	0.0333	
	T + R		1500	3300	0.4545	0.4545
WB	RIGHT (R)	49	0 *	1650	0.0000	
	THRU (T)	915	915	3300	0.2773	
	LEFT (L)	18	18	1650	0.0109	0.0109

TOTAL VOLUME-TO-CAPACITY RATIO: 0.59
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED

INT=2025MIT.INT,VOL=FUTURE-P.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated AM Future + Project without Bypass 09/02/05

INTERSECTION 1 S.R. 4 WB Ramps/California Ave City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 8-PHASE SIGNAL

```
                        RIGHT THRU LEFT
                          27  102   62
                           |   |    |
                           ^   |    ^
                           |   v    |
                        <---   --->     | Split? N
LEFT     5 ---  1.0   1.0  1.0  1.0  1.0 ---  191  RIGHT
                                                    STREET NAME:
THRU   554 ---> 2.0  (NO. OF LANES)   1.0<--- 1236  THRU  California Ave

RIGHT   34 ---  1.0   2.0  1.0  1.0  2.0 ---  1116  LEFT
                 |   <---   ^   --->   |
                 v          |    |    v
  N                         |    |                    SIG WARRANTS:
W + E                      251   28  135                 Urb=Y, Rur=Y
  S                      LEFT THRU RIGHT Split? N
```

STREET NAME: S.R. 4 WB Ramps

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	135	0 *	1650	0.0000	
	THRU (T)	28	28	1650	0.0170	
	LEFT (L)	251	251	3000	0.0837	0.0837
SB	RIGHT (R)	27	22 *	1650	0.0133	
	THRU (T)	102	102	1650	0.0618	0.0618
	LEFT (L)	62	62	1650	0.0376	
EB	RIGHT (R)	34	0 *	1650	0.0000	
	THRU (T)	554	554	3300	0.1679	
	LEFT (L)	5	5	1650	0.0030	0.0030
WB	RIGHT (R)	191	129 *	1650	0.0782	
	THRU (T)	1236	1236	1650	0.7491	0.7491
	LEFT (L)	1116	1116	3000	0.3720	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.90
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=2025PMIT.INT,VOL=FUTURE-P.AMV+PROJECT.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated AM Future + Project without Bypass 09/02/05

INTERSECTION 3 Loveridge Road/E. Leland Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 6-PHASE SIGNAL

```
                        RIGHT THRU LEFT
                          450 1130  394
                           |   |    |
                           ^   |    ^
                           |   v    |
                        <---   --->     | Split? N
LEFT   247 ---  2.0   1.0  2.0  2.0  1.0 ---  641  RIGHT
                                                    STREET NAME:
THRU   347 ---> 2.0  (NO. OF LANES)   2.0<--- 1339  THRU  E. Leland Road

RIGHT  323 ---  1.0   1.0  2.0  1.0  2.0 ---  381  LEFT
                 |   <---   ^   --->   |
                 v          |    |    v
  N                         |    |                    SIG WARRANTS:
W + E                      321  858   69                 Urb=Y, Rur=Y
  S                      LEFT THRU RIGHT Split? N
```

STREET NAME: Loveridge Road

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	69	0 *	1650	0.0000	
	THRU (T)	858	858	3300	0.2600	
	LEFT (L)	321	321	1650	0.1945	0.1945
SB	RIGHT (R)	450	314 *	1650	0.1903	
	THRU (T)	1130	1130	3300	0.3424	0.3424
	LEFT (L)	394	394	3000	0.1313	
EB	RIGHT (R)	323	2 *	1650	0.0012	
	THRU (T)	347	347	3300	0.1052	
	LEFT (L)	247	247	3000	0.0823	0.0823
WB	RIGHT (R)	641	424 *	1650	0.2570	
	THRU (T)	1339	1339	3300	0.4058	0.4058
	LEFT (L)	381	381	3000	0.1270	

TOTAL VOLUME-TO-CAPACITY RATIO: 1.02
INTERSECTION LEVEL OF SERVICE: F

* ADJUSTED FOR RIGHT TURN ON RED
INT=2025PMIT.INT,VOL=FUTURE-P.AMV+PROJECT.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated AM Future + Project without Bypass 09/02/05

INTERSECTION 7 Harbor Street/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
56 35 61

LEFT 91 --- 1.0 1.1 1.1 1.0 1.0 --- 29 RIGHT
Split? N

THRU 747 ---> 2.1 (NO. OF LANES) 2.0<--- 1312 THRU

RIGHT 15 --- 1.1 1.1 1.1 1.1 1.0 --- 1 LEFT

N
W + E
S
83 114 2
LEFT THRU RIGHT Split? Y

STREET NAME: Buchanan Road

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: Harbor Street

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	2	2	1650	0.0012	
	THRU (T)	114	114	1650	0.0691	
	LEFT (L)	83	83	1650	0.0503	
	T + R		116	1650	0.0703	
	T + L		197	1650	0.1194	
	T + R + L		199	1650	0.1206	0.1206
SB	RIGHT (R)	56	56	1650	0.0339	
	THRU (T)	35	35	1650	0.0212	
	LEFT (L)	61	61	1650	0.0370	
	T + R		91	1650	0.0552	0.0552
EB	RIGHT (R)	15	15	1650	0.0091	
	THRU (T)	747	747	3300	0.2264	
	LEFT (L)	91	91	1650	0.0552	0.0552
	T + R		762	3300	0.2309	
WB	RIGHT (R)	29	0 *	1650	0.0000	
	THRU (T)	1312	1312	3300	0.3976	0.3976
	LEFT (L)	1	1	1650	0.0006	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.63
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=2025PMIT.INT,VOL=FUTURE-P.AMV+PROJECT.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated AM Future + Project without Bypass 09/02/05

INTERSECTION 8 Loveridge Road/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 3-PHASE SIGNAL

RIGHT THRU LEFT
831 0 373

LEFT 541 --- 1.0 1.0 0.0 1.0 1.0 --- 315 RIGHT
Split? N

THRU 411 ---> 2.0 (NO. OF LANES) 2.0<--- 752 THRU

RIGHT 0 --- 0.0 0.0 0.0 0.0 0.0 --- 0 LEFT

N
W + E
S
0 0 0
LEFT THRU RIGHT Split? N

STREET NAME: Buchanan Road

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: Loveridge Road

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB	RIGHT (R)	831	290 *	1720	0.1686	
	LEFT (L)	373	373	1720	0.2169	0.2169
EB	THRU (T)	411	411	3440	0.1195	
	LEFT (L)	541	541	1720	0.3145	0.3145
WB	RIGHT (R)	315	0 *	1720	0.0000	
	THRU (T)	752	752	3440	0.2186	0.2186

TOTAL VOLUME-TO-CAPACITY RATIO: 0.75
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=2025PMIT.INT,VOL=FUTURE-P.AMV+PROJECT.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated AM Future + Project without Bypass 09/02/05

INTERSECTION 11 Somersville Road/Buchanan Rd City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD RIGHT THRU LEFT 6-PHASE SIGNAL

```
                    134  107   93
                     |    |    |
                     ^    |    |         ^
                     |   <---  v   --->  | Split? N
LEFT   550 ---  1.0  1.1  2.1  1.0  1.0 ---  333  RIGHT
                                                 STREET NAME:
THRU   265 ---> 2.0 (NO. OF LANES)   2.0<---  582  THRU  Buchanan Rd

RIGHT   92 ---  1.0  2.0  2.1  1.1  1.0 ---   19  LEFT
                     |   <---  ^   --->  |
                     v         |    |    v
  N                  |    |    |                      SIG WARRANTS:
W + E               598  636   33                       Urb=Y, Rur=Y
  S                LEFT THRU RIGHT Split? N
```

STREET NAME: Somersville Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	33	33	1650	0.0200	
THRU (T)	636	636	3300	0.1927	
LEFT (L)	598	598	3000	0.1993	0.1993
T + R		669	3300	0.2027	
SB RIGHT (R)	134	134	1650	0.0812	0.0812
THRU (T)	107	107	3300	0.0324	
LEFT (L)	93	93	1650	0.0564	
T + R		241	3300	0.0730	
EB RIGHT (R)	92	0 *	1650	0.0000	
THRU (T)	265	265	3300	0.0803	
LEFT (L)	550	550	1650	0.3333	0.3333
WB RIGHT (R)	333	240 *	1650	0.1455	
THRU (T)	582	582	3300	0.1764	0.1764
LEFT (L)	19	19	1650	0.0115	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.79
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED

INT=2025PMIT.INT,VOL=FUTURE-P.AMV+PROJECT.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated PM Future + Project without Bypass 09/02/05

INTERSECTION 1 S.R. 4 WB Ramps/California Ave City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 8-PHASE SIGNAL

RIGHT THRU LEFT
23 74 112

LEFT 46 ---> 1.0 1.0 1.0 1.0 1.0 ---> 104 RIGHT
Split? N

THRU 1390 ---> 2.0 (NO. OF LANES) 1.0<--- 362 THRU

RIGHT 32 ---> 1.0 2.0 1.0 1.0 2.0 ---> 588 LEFT

N
W + E
S

398 60 684
LEFT THRU RIGHT Split? N

STREET NAME:
California Ave

STREET NAME:
S.R. 4 EB Ramps

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: S.R. 4 WB Ramps

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	684	361 *	1650	0.2188	0.2188
THRU (T)	60	60	1650	0.0364	
LEFT (L)	398	398	3000	0.1327	
SB RIGHT (R)	23	0 *	1650	0.0000	
THRU (T)	74	74	1650	0.0448	
LEFT (L)	112	112	1650	0.0679	0.0679
EB RIGHT (R)	32	0 *	1650	0.0000	
THRU (T)	1390	1390	3300	0.4212	0.4212
LEFT (L)	46	46	1650	0.0279	
WB RIGHT (R)	104	0 *	1650	0.0000	
THRU (T)	362	362	1650	0.2194	
LEFT (L)	588	588	3000	0.1960	0.1960

TOTAL VOLUME-TO-CAPACITY RATIO: 0.90
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=2025PMIT.INT,VOL=FUTURE-P.PMV+PROJECT.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated PM Future + Project without Bypass 09/02/05

INTERSECTION 2 Loveridge Road/S.R. 4 EB Ramps City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 2-PHASE SIGNAL

RIGHT THRU LEFT
308 1172 0

LEFT 226 ---> 1.0 1.0 2.0 0.0 0.0 ---> 0 RIGHT
Split? Y

THRU 0 ---> 0.0 (NO. OF LANES) 0.0<--- 0 THRU

RIGHT 510 ---> 1.0 0.0 2.0 1.0 0.0 ---> 0 LEFT

N
W + E
S

0 1761 692
LEFT THRU RIGHT Split? N

STREET NAME:
Loveridge Road

SIG WARRANTS:
Urb=Y, Rur=Y

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	692	692	1800	0.3844	
THRU (T)	1761	1761	3600	0.4892	0.4892
SB RIGHT (R)	308	82 *	1800	0.0456	
THRU (T)	1172	1172	3600	0.3256	
EB RIGHT (R)	510	510	1800	0.2833	0.2833
LEFT (L)	226	226	1800	0.1256	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.77
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=2025PMIT.INT,VOL=FUTURE-P.PMV+PROJECT.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated PM Future + Project without Bypass 09/02/05

INTERSECTION 3 Loveridge Road/E. Leland Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 6-PHASE SIGNAL

RIGHT THRU LEFT
230 823 355

LEFT 631 --- 2.0 1.0 2.0 2.0 1.0 --- 195 RIGHT
Split? N

THRU 1278 ---> 2.0 (NO. OF LANES) 2.0<--- 423 THRU
STREET NAME: E. Leland Road

RIGHT 282 --- 1.0 1.0 2.0 1.0 2.0 --- 288 LEFT

N
W + E
S
232 843 337
LEFT THRU RIGHT Split? N

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Loveridge Road

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	337	179 *	1650	0.1085	
THRU (T)	843	843	3300	0.2555	
LEFT (L)	232	232	1650	0.1406	0.1406
SB RIGHT (R)	230	0 *	1650	0.0000	
THRU (T)	823	823	3300	0.2494	0.2494
LEFT (L)	355	355	3000	0.1183	
EB RIGHT (R)	282	50 *	1650	0.0303	
THRU (T)	1278	1278	3300	0.3873	0.3873
LEFT (L)	631	631	3000	0.2103	
WB RIGHT (R)	195	0 *	1650	0.0000	
THRU (T)	423	423	3300	0.1282	
LEFT (L)	288	288	3000	0.0960	0.0960
TOTAL VOLUME-TO-CAPACITY RATIO:					0.87
INTERSECTION LEVEL OF SERVICE:					D

* ADJUSTED FOR RIGHT TURN ON RED
INT=2025PMIT.INT,VOL=FUTURE-P.PMV+PROJECT.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated PM Future + Project without Bypass 09/02/05

INTERSECTION 6 Railroad Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
22 591 105

LEFT 68 --- 1.0 1.0 2.0 1.0 1.1 --- 52 RIGHT
Split? Y

THRU 96 ---> 1.0 (NO. OF LANES) 1.1<--- 98 THRU
STREET NAME: Buchanan Road

RIGHT 7 --- 1.0 1.0 2.0 2.5 2.0 --- 917 LEFT

N
W + E
S
38 972 1439
LEFT THRU RIGHT Split? Y

SIG WARRANTS: Urb=Y, Rur=Y

STREET NAME: Railroad Avenue

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	1439	522 *	3000	0.1740	
THRU (T)	972	972	3300	0.2945	0.2945
LEFT (L)	38	38	1650	0.0230	
SB RIGHT (R)	22	0 *	1650	0.0000	
THRU (T)	591	591	3300	0.1791	0.1791
LEFT (L)	105	105	1650	0.0636	
EB RIGHT (R)	7	0 *	1650	0.0000	
THRU (T)	96	96	1650	0.0582	0.0582
LEFT (L)	68	68	1650	0.0412	
WB RIGHT (R)	52	52	1650	0.0315	
THRU (T)	98	98	1650	0.0594	
LEFT (L)	917	917	3000	0.3057	0.3057
T + R		150	1650	0.0909	
TOTAL VOLUME-TO-CAPACITY RATIO:					0.84
INTERSECTION LEVEL OF SERVICE:					D

* ADJUSTED FOR RIGHT TURN ON RED
INT=2025PMIT.INT,VOL=FUTURE-P.PMV+PROJECT.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated PM Future + Project without Bypass 09/02/05

INTERSECTION 7 Harbor Street/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
37 97 72

LEFT 55 --- 1.0 1.1 1.1 1.0 1.0 --- 49 RIGHT
Split? N

STREET NAME:
THRU 1544 ---> 2.1 (NO. OF LANES) 2.0<--- 970 THRU Buchanan Road

RIGHT 53 --- 1.1 1.1 1.1 1.1 1.0 --- 18 LEFT

SIG WARRANTS:
N
W + E 19 58 1 Urb=Y, Rur=Y
S
LEFT THRU RIGHT Split? Y

STREET NAME: Harbor Street

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	1	1	1650	0.0006	
THRU (T)	58	58	1650	0.0352	
LEFT (L)	19	19	1650	0.0115	
T + R		59	1650	0.0358	
T + L		77	1650	0.0467	
T + R + L		78	1650	0.0473	0.0473
SB RIGHT (R)	37	37	1650	0.0224	
THRU (T)	97	97	1650	0.0588	
LEFT (L)	72	72	1650	0.0436	
T + R		134	1650	0.0812	0.0812
EB RIGHT (R)	53	53	1650	0.0321	
THRU (T)	1544	1544	3300	0.4679	
LEFT (L)	55	55	1650	0.0333	
T + R		1597	3300	0.4839	0.4839
WB RIGHT (R)	49	0 *	1650	0.0000	
THRU (T)	970	970	3300	0.2939	
LEFT (L)	18	18	1650	0.0109	0.0109

TOTAL VOLUME-TO-CAPACITY RATIO: 0.62
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=2025PMIT.INT,VOL=FUTURE-P.PMV+PROJECT.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Mitigated PM Future + Project without Bypass 09/02/05

INTERSECTION 10 Meadows Avenue/Buchanan Road City of Pittsburg
Count Date Time Peak Hour

CCTA METHOD 4-PHASE SIGNAL

RIGHT THRU LEFT
3 0 49

LEFT 10 --- 1.0 1.1 1.1 1.0 1.1 --- 40 RIGHT
Split? N

STREET NAME:
THRU 1181 ---> 2.0 (NO. OF LANES) 1.1<--- 549 THRU Buchanan Road

RIGHT 22 --- 1.0 1.0 1.1 1.1 1.0 --- 255 LEFT

SIG WARRANTS:
N
W + E 19 1 94 Urb=N, Rur=Y
S
LEFT THRU RIGHT Split? N

STREET NAME: Meadows Avenue

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	94	94	1650	0.0570	
THRU (T)	1	1	1650	0.0006	
LEFT (L)	19	19	1650	0.0115	
T + R		95	1650	0.0576	0.0576
SB RIGHT (R)	3	3	1650	0.0018	
THRU (T)	0	0	1650	0.0000	
LEFT (L)	49	49	1650	0.0297	0.0297
T + R		3	1650	0.0018	
EB RIGHT (R)	22	3 *	1650	0.0018	
THRU (T)	1181	1181	3300	0.3579	0.3579
LEFT (L)	10	10	1650	0.0061	
WB RIGHT (R)	40	40	1650	0.0242	
THRU (T)	549	549	1650	0.3327	
LEFT (L)	255	255	1650	0.1545	0.1545
T + R		589	1650	0.3570	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.60
INTERSECTION LEVEL OF SERVICE: A

H. COMMUNITY NOISE ASSESSMENT

METHODS

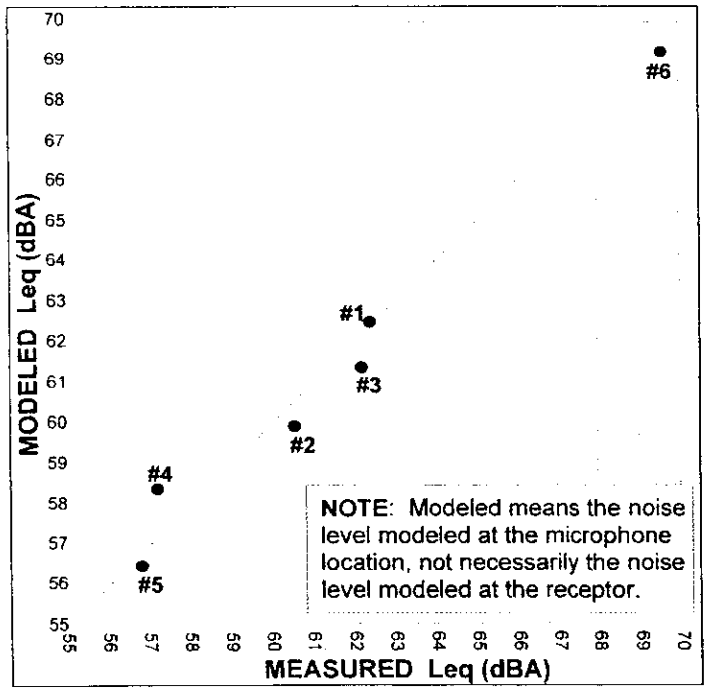
Existing and future cumulative noise levels for the proposed Sky Ranch II residential subdivision in the City of Pittsburg, California, were forecast using FHWA standard Traffic Noise Model (TNM). The TNM model translates traffic volume, vehicle speed, and distance from a road's centerline to a receptor into an Leq noise level at that receptor. Ten (10) receptor locations were included in this assessment. In addition to the modeling results (Table H-1, H-5, H-6, and H-7), this appendix sets forth the modeling assumptions.

Traffic assumptions including PM Peak Hour volumes were taken from the Traffic Impact Study by Whitlock & Weinberger Transportation (W-Trans). Assumptions used for this community noise impact assessment are presented in Tables H-2, H-3, and H-4.

Generally, community noise level modeling is relatively more accurate for simple flat terrain, in an open setting without buildings, and relatively few noise sources. Specifically, the accuracy of community noise level modeling can be improved by performing measurements of existing noise levels at the locations being studied and using the measured noise levels to test the validity of model adjustments for terrain, ground absorption and shielding.

The latter procedure was used for the current impact assessment. Existing sound level measurements were performed on January 21, January 27, and January 28, 2005. These measurements then were used in conjunction with TNM and existing traffic volumes to validate model adjustments. As seen by inspection of Figure H-1, the model generally projects community noise levels accurately within ± 0.8 decibels (dBA). For Receptor Locations #7,

FIGURE H-1
MODEL FIT



8, 9, and 10, existing community noise levels cannot be modeled using TNM because proximate transportation noise sources are absent.
Several of the Receptor Locations (#1, 3, 5, and 6) are located behind sound walls; therefore, sound reduction created by the existing walls was included in the modeling. Table H-4 presents noise reductions for existing and proposed sound walls and embankments.

TABLE H-1
EXISTING AND PROJECTED
PM PEAK HOURLY Leq NOISE LEVELS

Receptor Identification	Modeled Leq (dBA)				Changes in Leq (dBA)			
	Existing Conditions	Cumulative 2025 without Project	Cumulative 2025 with Project	Cumulative with Project and Buchanan Bypass	Change Caused by Other Development	Change Caused by Project	Change Caused by Buchanan Bypass	Overall Change from Existing Conditions
1	63.7	64.3	64.9	62.8	+0.6	+0.6	-2.1	-0.9
2	62.9	63.1	63.7	61.8	+0.2	+0.6	-1.9	-1.1
3	60.1	60.4	60.9	60.5	+0.3	+0.5	-0.4	+0.4
4	58.4	59.2	62.6	64.0	+0.8	+3.4	+1.4	+5.6
5	57.3	58.1	58.5	56.5	+0.8	+0.4	-2.0	-0.8
6	71.3	71.6	71.9	70.3	+0.3	+0.3	-1.6	-1.0
7	50.1	51.1	53.1	60.2	+1.0	+2.0	+7.1	+10
8	50.1	50.1	51.5	68.6	±0.0	+1.4	+17	+18
9A	50.1	50.1	59.1	60.3	±0.0	+9.0	+1.2	+10
257	50.1	50.1	59.3	70.1	±0.0	+9.2	+11	+20
258	50.1	50.1	59.3	64.7	±0.0	+9.2	+5.4	+15
10	50.1	51.2	53.3	62.1	+1.1	+2.1	+8.8	+12

NOTES:

1. Noise levels are representative of a specific location called the "receptor location." Modeled peak hourly noise levels (Leq), not shown, are representative of a specific time called the weekday "PM Peak Hour."
2. Modeled noise levels are based on traffic volumes, vehicle speeds, and receptor distances from roads, and other assumptions.
3. Ldn is approximated by adding 2 dBA to the PM Peak Hour Leq sound level.

TABLE H-2
TRAFFIC VOLUME ASSUMPTIONS

ROAD SEGMENT	Existing PM Peak			2025 without Project			2025 with Project		
	LDV	MDT	HDT	LDV	MDT	HDT	LDV	MDT	HDT
Current Roads (without Buchanan Bypass)									
Buchanan Road[1]	1649	69	0	1883	78	0	2126	89	0
Buchanan Road[2]	1659	69	0	1793	75	0	1950	81	0
Buchanan Road[3]	1690	70	0	1926	80	0	2082	87	0
Buchanan Road[4]	2166	93	0	2369	99	0	2526	105	0
Ventura Drive[5]	349	15	0	361	15	0	361	15	0
Ventura Drive[6]	260	11	0	314	13	0	715	30	0
Ventura Drive[10]	NA	NA	NA	0	0	0	385	16	0
Loveridge Road	848	35	0	1842	77	0	1940	81	0
Meadows Avenue	60	2	0	235	10	0	235	10	0
Somersville Road	1246	52	0	1554	65	0	1554	65	0
"B" Street	NA	NA	NA	NA	NA	NA	318	13	0
Bypass Segment[7]	NA	NA	NA	NA	NA	NA	67	3	0
Metcalf Street	NA	NA	NA	74	3	0	74	3	0
Future Roads (with Buchanan Bypass)									
Buchanan Road[1]	NA	NA	NA	1159	48	0	1290	54	0
Buchanan Road[2]	NA	NA	NA	1220	51	0	1320	55	0
Buchanan Road[3]	NA	NA	NA	1196	50	0	1296	54	0
Buchanan Road[4]	NA	NA	NA	1632	68	0	1742	73	0
Buchanan Bypass[8]	NA	NA	NA	3456	144	0	3546	148	0
Buchanan Bypass[9]	NA	NA	NA	3456	144	0	3514	146	0
Ventura Drive[5]	NA	NA	NA	361	15	0	361	15	0
Ventura Drive[6]	NA	NA	NA	715	30	0	992	41	0
Ventura Drive[10]	NA	NA	NA	0	0	0	272	11	0
Loveridge Road	NA	NA	NA	1336	56	0	1426	59	0
Meadows Avenue	NA	NA	NA	235	10	0	235	10	0
Somersville Road	NA	NA	NA	2245	94	0	2245	94	0
"B" Street	NA	NA	NA	NA	NA	NA	318	13	0
Metcalf Street	NA	NA	NA	74	3	0	74	3	0

NOTES:
NA Not Applicable LDV Light Duty Vehicle MDT Medium duty truck HDT Heavy duty truck

[1] PM peak-hour volume just east of Loveridge Rd.
[2] PM peak-hour volume just east of Ventura Dr.
[3] PM peak-hour volume just east of Meadows Ave.
[4] PM peak-hour volume just west of Somersville Rd.
[5] PM peak-hour volume north of Buchanan Rd.
[6] PM peak-hour volume south of Buchanan Rd.
[7] PM peak-hour volume west of "B" Street
[8] PM peak-hour volume west of "B" Street
[9] PM peak-hour volume east of "B" Street
[10] PM peak-hour volume north of Bypass

SOURCES: environmental service, 2005; W-Trans, 2004.

TABLE H-3
SOURCE-RECEPTOR DISTANCES AND VEHICLE SPEEDS

RECEPTOR ID	DESCRIPTION OF RECEPTOR OR MONITORING LOCATION	TRAFFIC NOISE SOURCE	DISTANCE (FEET)	SPEED (MPH)
1	Rear yards of houses along the north side of Autumnwind Court, west of Woodborough Place.	Buchanan Road Loveridge Road (ext.)	60 250	45 35
2	Highlands Ranch: Future Park Site within Highlands Ranch, near the corner of Ventura Drive and Buchanan Road.	Buchanan Road Ventura Drive	100 325	45 35
3	Front face of house at 1566 Ventura Drive, on the west side of Ventura Drive, north of Buchanan Road.	Buchanan Road Ventura Drive	104 75	45 35
4	Highlands Ranch: Front faces of seven (7) houses along Ventura Drive between Rangewood Drive and Glen Canyon Drive or Circle.	Buchanan Road Ventura Drive	800 50	45 35
5	Highlands Ranch: Back yard of house along Silver Saddle Drive and Saddlehorn Court, just east of Meadows Avenue.	Buchanan Road Meadows Avenue	92 200	45 35
6	Chateau Mobile Park homes in the southwest quadrant of Buchanan Road and Somersville Road.	Buchanan Road Somersville Road	115 840	45 45
7	Sky Ranch II: Lots 5, 6, and 7, east of Ventura Drive, along the north side of the proposed Buchanan Bypass.	Buchanan Bypass Ventura Drive	100 160	50 35
8	Sky Ranch II: Lots 29-37 along the north side of the proposed Buchanan Bypass	Buchanan Bypass	88	50
9A	Sky Ranch II : Lots 236 & 260 (Lots 234-237, 256, 259- 262, and 297), along proposed "B" Street, just north of the proposed "A" Street and "J" Court.	Buchanan Bypass "B" Street	450 60	50 25
9B	Sky Ranch II: Lots 257 and 258	Buchanan Bypass "B" Street:	75-150 60	50 25
10	Black Diamond Ranch (Sky Ranch I): Westridge Court Lot 127	Buchanan Bypass Metcalf Street	115 38	50 25

NOTES:

1. Distances measured on aerial photographs on-line at www.terraserver.com, Vesting Tentative Map Sky Ranch II, and Vesting Tentative Map Sky Ranch I.
2. Vehicle speeds may vary from posted limits or may reflect actual conditions as observed. In the case of dual speeds in the PM peak hour, the average northbound and southbound or westbound and eastbound speed is used.
3. 1457, 1473, and 1485 Autumnwind Ct. have second story exposures. 1461, 1465, 1469, 1477, and 1481 Autumnwind Ct. do not have second story exposures.
4. 9 Saddlehorn Ct. and 511, 529, and 531 Silver Saddle Drive have second story exposures. 3 & 15 Saddlehorn Ct. and 501, 507, 517, and 523 Silver Saddle Drive do not.

TABLE H-4
NOISE REDUCTION FROM WALLS OR BERMS

RECEPTOR ID	Wall or Berm?	STREET	WALL GEOMETRY (feet)			INSERTION LOSS (dBA)	NOTES
			Distance from Centerline	Effective Height	Pad Elevation[a]		
1	Y	Buchanan Road	40	8	+1	-4	Insertion loss could be -7 dBA with return wall segments.
2	N	Buchanan Road	na	na	na	0	There are no sound walls, but the embankment west of Ventura Drive shields portions of the park.
3	Y	Buchanan Road	40	5.5	0	-4.5	Wall shields 1566 Ventura Drive.
4	N	Ventura Drive	na	na	na	0	Frontage houses with driveways.
5	Y	Buchanan Road	60	11.5	+6	-6.5	Wall has a masonry return segment on Meadows Avenue and a wooden fence along the eastern boundary of Highlands Ranch.
6	Y	Buchanan Road	50	5.5	0	0	There is a chain link fence with slats.
7	Y	Buchanan Bypass	50	6	-20	-7.4 -12	Insertion losses are outdoor noise reductions at the second story and first story, respectively.
8	Y	Buchanan Bypass	50	6	-4	0 -7.3	Insertion losses are outdoor noise reductions at the second story and first story, respectively.
9A	N	"B" Street and Buchanan Bypass	na	na	na	0	Lots 236, 237, 259, and 260 would not be shielded. Lot 256 would be partially shielded by a proposed sound wall.
9B	Y	"B" Street and Buchanan Bypass	50 (west) 85 (east)	6	Varies	-5.1 -7.0	Partial shielding applies to the bypass. Effective wall height varies owing to road grade. There is no shielding from "B" Street traffic noise.
10	N	Buchanan Bypass	85	8	+8	-4.5	Embankment (elevation: 198 feet) and depressed source (elevation: 190 feet). Line-of-sight to a 5.5-foot tall receptor is broken by 3-foot or taller fence at the top of embankment. The line-of-sight is not broken at the second story.

NOTES: [a] (+) elevated above road elevation or (-) depressed below road elevation.

SOURCE: environmental service, January 31, 2005

TABLE H-5
NOISE LEVEL MODELING EXISTING CONDITIONS

RECEPTOR ID	EXISTING NOISE LEVEL (Leq)[a]	NOISE COMPONENTS					INSERTION LOSS[b]
		Buchanan Road	Loveridge Road	Ventura Drive	Meadows Avenue	Somersville Road	
1	63.7	63.5	49.8	NA	NA	NA	-4[d]
2	62.9	62.9	NA	42.5	NA	NA	No wall
3	60.1	58.1	NA	55.9	NA	NA	-4.5
4	58.4	45.8	NA	58.2	NA	NA	No wall
5	57.3	57.2	NA	NA	39.9	NA	-6.5
6	71.3	71.3	NA	NA	NA	44.4	Chain link
7	50.1[c]	NA	NA	NA	NA	NA	No wall
8	50.1[c]	NA	NA	NA	NA	NA	No wall
9A	50.1[c]	NA	NA	NA	NA	NA	No wall
9B	50.1[c]	NA	NA	NA	NA	NA	No wall
10	50.1[c]	NA	NA	NA	NA	NA	No wall

NOTES:

[a] Modeled PM Peak Hour (Leq) noise levels.

[b] Adjustment to account for presence of a sound wall.

[c] Measured ambient sound level.

d Wall would be more effective (-7 dBA) but lacks a return segment on Woodborough Place.

SOURCE: environmental service, January 31, 2005

TABLE H-6
BASELINE (UNMITIGATED) NOISE LEVELS
FUTURE WITHOUT PROJECT

RECEPTOR IDENTIFICATION	FUTURE NOISE LEVEL (Leq)		UNMITIGATED NOISE COMPONENTS— NO PROJECT												
			Current Roads— Without Buchanan Bypass						Future Roads— With Buchanan Bypass						
	Current Roads	Future Roads	Buchanan Road	Loveridge Road	Ventura Drive	Meadows Avenue	Somersville Road	Metcalf Street	Buchanan Road	Loveridge Road	Ventura Drive	Meadows Avenue	Somersville Road	Buchanan Bypass	Metcalf Street
1	64.3	62.3	64.0	53.2	NA	NA	NA	NA	61.9	51.8	NA	NA	NA	NA	NA
2	63.1	61.5	63.1	NA	43.3	NA	NA	NA	61.3	NA	46.9	NA	NA	NA	NA
3	60.4	59.3	58.4	NA	56.0	NA	NA	NA	56.5	NA	56.0	NA	NA	NA	NA
4	59.2	62.6	46.3	NA	59.0	NA	NA	NA	44.4	NA	62.5	NA	NA	NA	NA
5	58.1	56.2	57.8	NA	NA	46.1	NA	NA	55.8	NA	NA	46.1	NA	NA	NA
6	71.6	70.0	71.6	NA	NA	NA	45.4	NA	70.0	NA	NA	NA	47.0	NA	NA
7	Bkgr	67.3	NA	NA	Bkg	NA	NA	NA	NA	NA	Bkg	NA	NA	67.3	NA
8	Bkgr	68.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	68.5	NA
9A	Bkgr	Bkgr	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9B	Bkgr	Bkgr	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10	51.2	62.1	NA	NA	NA	NA	NA	51.2	NA	NA	NA	NA	NA	61.7	51.2

NOTES:

NA Not Applicable. Traffic on the stated road does not contribute substantial noise at the specified receptor.

Bkg Background noise level

SOURCE: environmental service, January 31, 2005

TABLE H-7
BASELINE (UNMITIGATED) NOISE LEVELS
FUTURE WITH PROJECT

RECEPTOR IDENTIFIER	FUTURE NOISE (Leq)		UNMITIGATED TRAFFIC NOISE COMPONENTS— WITH PROJECT																			
			Current Roads— Without Buchanan Bypass										Future Roads— With Buchanan Bypass									
	Current Roads	Future Roads	Buchanan Road	Loveridge Road	Ventura Drive	Meadows Avenue	Somersville Road	Bypass Segment	Metcalf Street	"B" Street			Buchanan Road	Loveridge Road	Ventura Drive	Meadows Avenue	Somersville Road	Buchanan Bypass	Metcalf Street	"B" Street		
1	64.9	62.8	64.6	53.4	NA	NA	NA	NA	NA	NA			62.4	52.1	NA	NA	NA	NA	NA	NA		
2	63.7	61.8	63.6	NA	46.9	NA	NA	NA	NA	NA			61.6	NA	48.3	NA	NA	NA	NA	NA		
3	60.9	60.5	59.2	NA	56.0	NA	NA	NA	NA	NA			58.6	NA	56.0	NA	NA	NA	NA	NA		
4	62.6	64.0	46.6	NA	62.5	NA	NA	NA	NA	NA			44.8	NA	63.9	NA	NA	NA	NA	NA		
5	58.5	56.5	58.2	NA	NA	46.1	NA	NA	NA	NA			56.1	NA	NA	46.1	NA	NA	NA	NA		
6	71.9	70.3	71.9	NA	NA	NA	45.4	NA	NA	NA			70.3	NA	NA	NA	47.0	NA	NA	NA		
7	53.1	60.2	NA	NA	50.0	NA	NA	50.2	NA	NA			NA	NA	48.5	NA	NA	NA	NA	NA		
8	51.5	68.6	NA	NA	NA	NA	NA	51.5	NA	NA			NA	NA	NA	NA	NA	68.6	NA	NA		
9A	59.1	60.3	NA	NA	NA	NA	NA	37.2	NA	59.1			NA	NA	NA	NA	NA	54.3	NA	59.1		
257	59.3	70.1						46.3		59.1								69.8	NA	59.1		
258	59.3	64.7						45.8		59.1								63.3		59.1		
10	53.3	62.1	NA	NA	NA	NA	NA	49.1	51.2	NA			NA	NA	NA	NA	NA	61.7	51.2	NA		

NOTES: NA Not Applicable. Traffic on the stated road does not contribute substantial noise at the specified receptor. "Unmitigated" includes noise reduction of proposed sound walls shown on the Vesting Tentative Map. Receptors "257" and "258" refer to Lots 257 and 258.

SOURCE: environmental service, January 31, 2005

I. DUST MITIGATION FOR LARGE CONSTRUCTION PROJECTS

Dust Mitigation for Large Construction Projects

Emission Sources	Dust Mitigation Options
Track-out	• Gravel pad • Grizzly • Wheel wash system • Wet sweeping • HEPA filter vacuum (applies if working in an exposed serpentinite environment)
Disturbed surface areas and inactive storage piles	• Apply water • Maintain a crust • Apply dust suppressants or chemical stabilizers • Cover with tarps or vegetative cover • Install wind barriers
Traffic on unpaved on-site roads	• Restrict vehicles to 15 MPH or less • Keep roads adequately wetted • Apply dust suppressants • Cover with non-asbestos gravel
Active storage piles	• Keep wet • Cover with tarps
Earthmoving activities	• Pre-wet to depth of cuts • Suspend grading when winds are high • Apply water
Off-site transport of material	• Ensure trucks are maintained such that no spillage can occur from holes or other openings in cargo compartments • Ensure that loads are wet and tarped or wet and loaded with 6 inches of freeboard
Post-construction disturbed areas	• Establish and maintain a vegetative cover • Cover with at least 3 inches of non-asbestos material (applies if working in exposed serpentinite environment) • Pave

J. URBEMIS MODEL OUTPUT

The supporting technical exhibits and calculations are reproduced herein.

Identifier	ADDITIONAL LABEL	Page Count	Page No.
URBEMIS	3x Daily Water and no speed limit on unpaved roads	6 pp.	661-666
URBEMIS	3x Daily Water and speed <15 mph on unpaved roads	6 pp.	667-672
URBEMIS	3x Daily Water, speed <15 mph, and diesel particle filters	6 pp.	673-678

URBEMIS 2002 For Windows 7.5.0

ile Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\Sky Ranch II 3x water no speed or wat
r Name: Sky Ranch II
r Location: San Francisco Bay Area
n Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Tons/Year)

ONSTRUCTION EMISSION ESTIMATES

*** 2005 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (tpy, unmitigated)	6.72	55.61	47.21	0.00	220.78	2.59	218.19
TOTALS (tpy, mitigated)	6.72	55.61	47.21	0.00	111.69	2.59	109.10

*** 2006 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (tpy, unmitigated)	4.94	38.02	36.72	0.00	157.60	1.75	155.85
TOTALS (tpy, mitigated)	4.94	38.02	36.72	0.00	79.68	1.75	77.93

*** 2007 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (tpy, unmitigated)	14.37	0.21	5.46	0.00	0.00	0.00	0.00
TOTALS (tpy, mitigated)	14.37	0.21	5.46	0.00	0.00	0.00	0.00

*** 2008 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (tpy, unmitigated)	4.95	0.15	3.36	0.00	0.00	0.00	0.00
TOTALS (tpy, mitigated)	4.95	0.15	3.36	0.00	0.00	0.00	0.00

*** 2009 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (tpy, unmitigated)	0.10	0.05	1.02	0.00	0.00	0.00	0.00
TOTALS (tpy, mitigated)	0.10	0.05	1.02	0.00	0.00	0.00	0.00

REA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (tpy, unmitigated)	3.99	1.61	2.03	0.01	0.17
T (tpy, mitigated)	3.99	1.61	2.03	0.01	0.17

PE IONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (tpy, unmitigated)	5.98	6.98	67.78	0.05	7.26
TOTALS (tpy, mitigated)	5.98	6.98	67.78	0.05	7.26

UM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (tpy, unmitigated)	9.97	8.59	69.80	0.06	7.43
TOTALS (tpy, mitigated)	9.97	8.59	69.80	0.06	7.43

URBEMIS 2002 For Windows 7.5.0

File Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\Sky Ranch II 3x water no speed or wat
Project Name: Sky Ranch II
Project Location: San Francisco Bay Area
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Tons/Year)

Construction Start Month and Year: June, 2005
Construction Duration: 48
Total Land Use Area to be Developed: 180 acres
Maximum Acreage Disturbed Per Day: 19 acres
Single Family Units: 415 Multi-Family Units: 0
Retail/Office/Institutional/Industrial Square Footage: 0

CONSTRUCTION EMISSION ESTIMATES UNMITIGATED (tons/year)

Source	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
*** 2005***							
Phase 1 - Demolition Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 2 - Site Grading Emissions							
Fugitive Dust	-	-	-	-	218.19	-	218.19
Off-Road Diesel	6.65	55.51	45.43	-	2.59	2.59	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.07	0.10	1.78	0.00	0.00	0.00	0.00
Total tons/year	6.72	55.61	47.21	0.00	220.78	2.59	218.19
Phase 3 - Building Construction							
Bldg Const Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Bldg Const Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Arch Coatings Off-Gas	0.00	-	-	-	-	-	-
Arch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Off-Gas	0.00	-	-	-	-	-	-
Asphalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Asphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total all phases tons/yr	6.72	55.61	47.21	0.00	220.78	2.59	218.19
*** 2006***							
Phase 1 - Demolition Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 2 - Site Grading Emissions							
Fugitive Dust	-	-	-	-	155.85	-	155.85
Off-Road Diesel	4.75	37.90	33.75	-	1.75	1.75	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.05	0.05	1.28	0.00	0.00	0.00	0.00
Total tons/year	4.80	37.95	35.03	0.00	157.60	1.75	155.85
Phase 3 - Building Construction							
Bldg Const Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Bldg Const Worker Trips	0.14	0.07	1.69	0.00	0.00	0.00	0.00
Arch Coatings Off-Gas	0.00	-	-	-	-	-	-
Arch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Off-Gas	0.00	-	-	-	-	-	-
Asphalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Asphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	0.14	0.07	1.69	0.00	0.00	0.00	0.00
Total all phases tons/yr	4.94	38.02	36.72	0.00	157.60	1.75	155.85

*** 2007***

hase 1 - Demolition Emissions							
ugitive Dust	-	-	-	-	0.00	-	0.00
ff-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
n-[illegible] Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
[illegible]rips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
[illegible] tons/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
hase 2 - Site Grading Emissions							
ugitive Dust	-	-	-	-	0.00	-	0.00
ff-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
n-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
orker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
hase 3 - Building Construction							
ldg Const Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
ldg Const Worker Trips	0.24	0.12	3.12	0.00	0.00	0.00	0.00
rch Coatings Off-Gas	13.95	-	-	-	-	-	-
rch Coatings Worker Trips	0.18	0.09	2.34	0.00	0.00	0.00	0.00
sphalt Off-Gas	0.00	-	-	-	-	-	-
sphalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
sphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	14.37	0.21	5.46	0.00	0.00	0.00	0.00
Total all phases tons/yr	14.37	0.21	5.46	0.00	0.00	0.00	0.00

*** 2008***

hase 1 - Demolition Emissions							
ugitive Dust	-	-	-	-	0.00	-	0.00
ff-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
n-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
orker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
hase 2 - Site Grading Emissions							
ugitive Dust	-	-	-	-	0.00	-	0.00
ff-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
n-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
o[illegible] Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
[illegible] tons/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
hase 3 - Building Construction							
ldg Const Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
ldg Const Worker Trips	0.24	0.12	2.64	0.00	0.00	0.00	0.00
rch Coatings Off-Gas	4.65	-	-	-	-	-	-
rch Coatings Worker Trips	0.06	0.03	0.72	0.00	0.00	0.00	0.00
sphalt Off-Gas	0.00	-	-	-	-	-	-
sphalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
sphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	4.95	0.15	3.36	0.00	0.00	0.00	0.00
Total all phases tons/yr	4.95	0.15	3.36	0.00	0.00	0.00	0.00

*** 2009***

hase 1 - Demolition Emissions							
ugitive Dust	-	-	-	-	0.00	-	0.00
ff-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
n-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
orker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
hase 2 - Site Grading Emissions							
ugitive Dust	-	-	-	-	0.00	-	0.00
ff-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
n-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
orker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
hase 3 - Building Construction							
ldg Const Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
ldg Const Worker Trips	0.10	0.05	1.02	0.00	0.00	0.00	0.00
rch [illegible]oatings Off-Gas	0.00	-	-	-	-	-	-
r[illegible] atings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
s[illegible] Off-Gas	0.00	-	-	-	-	-	-

sphalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
sphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T al tons/year	0.10	0.05	1.02	0.00	0.00	0.00	0.00
. .l all phases tons/yr	0.10	0.05	1.02	0.00	0.00	0.00	0.00

hase 1 - Demolition Assumptions: Phase Turned OFF

hase 2 - Site Grading Assumptions
tart Month/Year for Phase 2: Jun '05
hase 2 Duration: 12 months
n-Road Truck Travel (VMT): 0
ff-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
20	Rubber Tired Dozers	352	0.590	8.0
20	Tractor/Loaders/Backhoes	79	0.465	8.0

hase 3 - Building Construction Assumptions
tart Month/Year for Phase 3: Jun '06
hase 3 Duration: 36 months
Start Month/Year for SubPhase Building: Jun '06
SubPhase Building Duration: 36 months
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day

Start Month/Year for SubPhase Architectural Coatings: Apr '07
SubPhase Architectural Coatings Duration: 12 months
Start Month/Year for SubPhase Asphalt: Sep '06
SubPhase Asphalt Duration: 12 months
Acres to be Paved: 0
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
i family housing	5.98	6.98	67.78	0.05	7.26
OTAL EMISSIONS (tons/yr)	5.98	6.98	67.78	0.05	7.26

ncludes correction for passby trips.
oes not include double counting adjustment for internal trips.

PERATIONAL (Vehicle) EMISSION ESTIMATES

nalysis Year: 2010 Temperature (F): 85 Season: Annual

MFAC Version: EMFAC2002 (9/2002)

ummary of Land Uses:

nit Type	Trip Rate	Size	Total Trips
ingle family housing	9.25 trips / dwelling units	415.00	3,838.75

ehicle Assumptions:

leet Mix:

ehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
ight Auto	54.70	1.10	98.70	0.20
ight Truck < 3,750 lbs	15.20	2.00	96.00	2.00
ight Truck 3,751- 5,750	16.20	1.20	98.10	0.70
ed Truck 5,751- 8,500	7.30	1.40	95.90	2.70
ite-Heavy 8,501-10,000	1.10	0.00	81.80	18.20
ite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
ed-Heavy 14,001-33,000	1.00	0.00	20.00	80.00
eavy-Heavy 33,001-60,000	0.90	0.00	11.10	88.90
ine Haul > 60,000 lbs	0.00	0.00	0.00	100.00
rban Bus	0.20	0.00	50.00	50.00
otorcycle	1.60	68.80	31.20	0.00
chool Bus	0.10	0.00	0.00	100.00
o' ome	1.40	7.10	85.70	7.20

ravel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
rban Trip Length (miles)	11.8	4.6	6.1	11.8	5.0	5.0
ural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
rip Speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
of Trips - Residential	27.3	21.2	51.5			

hanges made to the default values for Land Use Trip Percentages

he Primary Trip % for Single family housing changed from 85 to 90
he ass-By Trip % for Single family housing changed from 5 to 0

h s made to the default values for Construction

he user has overridden the Default Phase Lengths
ite Grading Fugitive Dust Option changed from Level 1 to Level 2
hase 2 mitigation measure Soil Disturbance: Water exposed surfaces - 3x daily
has been changed from off to on.

hanges made to the default values for Area

he area souce mitigation measure option switch changed from off to on.
he natural gas residential percentage changed from 60 to 100.
he percentage of wood stoves changed from 35 to 1.
he fireplace percentage of residential units changed from 10 to 0.
he landscape year changed from 2004 to 2007.

hanges made to the default values for Operations

he operational emission year changed from 2004 to 2010.
he operational winter selection item changed from 2 to 1.
he operational summer selection item changed from 7 to 6.
he home based work selection item changed from 7 to 6.
he home based shopping selection item changed from 7 to 6.
he home based other selection item changed from 7 to 6.
he commercial based commute selection item changed from 7 to 6.
he commercial based non-work selection item changed from 7 to 6.
he commercial based customer selection item changed from 7 to 6.
he travel mode environment settings changed from both to: none

URBEMIS 2002 For Windows 7.5.0

ile Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\Sky Ranch II 3x water & spd 15 on unp
r[illegible] Name: Sky Ranch II
r Location: San Francisco Bay Area
n . Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Tons/Year)

ONSTRUCTION EMISSION ESTIMATES

*** 2005 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (tpy, unmitigated)	6.72	55.61	47.21	0.00	220.78	2.59	218.19
TOTALS (tpy, mitigated)	6.72	55.61	47.19	0.00	38.59	2.59	36.00

*** 2006 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (tpy, unmitigated)	4.94	38.02	36.72	0.00	157.60	1.75	155.85
TOTALS (tpy, mitigated)	4.94	38.02	36.70	0.00	27.47	1.75	25.72

*** 2007 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (tpy, unmitigated)	14.37	0.21	5.46	0.00	0.00	0.00	0.00
TOTALS (tpy, mitigated)	14.37	0.21	5.46	0.00	0.00	0.00	0.00

*** 2008 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (tpy, unmitigated)	4.95	0.15	3.36	0.00	0.00	0.00	0.00
TOTALS (tpy, mitigated)	4.95	0.15	3.36	0.00	0.00	0.00	0.00

*** 2009 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (tpy, unmitigated)	0.10	0.05	1.02	0.00	0.00	0.00	0.00
TOTALS (tpy, mitigated)	0.10	0.05	1.02	0.00	0.00	0.00	0.00

REA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (tpy, unmitigated)	3.99	1.61	2.03	0.01	0.17
TO[illegible] (tpy, mitigated)	3.99	1.61	2.03	0.01	0.17

PER[illegible]IONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (tpy, unmitigated)	5.98	6.98	67.78	0.05	7.26
TOTALS (tpy, mitigated)	5.98	6.98	67.78	0.05	7.26

UM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (tpy, unmitigated)	9.97	8.59	69.80	0.06	7.43
TOTALS (tpy, mitigated)	9.97	8.59	69.80	0.06	7.43

URBEMIS 2002 For Windows 7.5.0

ile Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\Sky Ranch II 3x water & spd 15 on unp
rc' ct Name: Sky Ranch II
r t Location: San Francisco Bay Area
n d Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Tons/Year)

onstruction Start Month and Year: June, 2005
onstruction Duration: 48
otal Land Use Area to be Developed: 180 acres
aximum Acreage Disturbed Per Day: 19 acres
ingle Family Units: 415 Multi-Family Units: 0
etail/Office/Institutional/Industrial Square Footage: 0

ONSTRUCTION EMISSION ESTIMATES UNMITIGATED (tons/year)

Source	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
*** 2005***							
hase 1 - Demolition Emissions							
ugitive Dust	-	-	-	-	0.00	-	0.00
ff-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
n-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
orker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
hase 2 - Site Grading Emissions							
ugitive Dust	-	-	-	-	218.19	-	218.19
ff-Road Diesel	6.65	55.51	45.43	-	2.59	2.59	0.00
n-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
orker Trips	0.07	0.10	1.78	0.00	0.00	0.00	0.00
Total tons/year	6.72	55.61	47.21	0.00	220.78	2.59	218.19
hase 3 - Building Construction							
ldg Const Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
ldg Const Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rch Coatings Off-Gas	0.00	-	-	-	-	-	-
rch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sr t Off-Gas	0.00	-	-	-	-	-	-
s] Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
sphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total all phases tons/yr	6.72	55.61	47.21	0.00	220.78	2.59	218.19
*** 2006***							
hase 1 - Demolition Emissions							
ugitive Dust	-	-	-	-	0.00	-	0.00
ff-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
n-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
orker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
hase 2 - Site Grading Emissions							
ugitive Dust	-	-	-	-	155.85	-	155.85
ff-Road Diesel	4.75	37.90	33.75	-	1.75	1.75	0.00
n-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
orker Trips	0.05	0.05	1.28	0.00	0.00	0.00	0.00
Total tons/year	4.80	37.95	35.03	0.00	157.60	1.75	155.85
hase 3 - Building Construction							
ldg Const Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
ldg Const Worker Trips	0.14	0.07	1.69	0.00	0.00	0.00	0.00
rch Coatings Off-Gas	0.00	-	-	-	-	-	-
rch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sphalt Off-Gas	0.00	-	-	-	-	-	-
sphalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
sphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	0.14	0.07	1.69	0.00	0.00	0.00	0.00
Total all phases tons/yr	4.94	38.02	36.72	0.00	157.60	1.75	155.85

*. _007***

hase 1 - Demolition Emissions							
ugitive Dust	-	-	-	-	0.00	-	0.00
ff-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
n-[illegible] Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c [illegible]rips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
[illegible] tons/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
hase 2 - Site Grading Emissions							
ugitive Dust	-	-	-	-	0.00	-	0.00
ff-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
n-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
orker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
hase 3 - Building Construction							
ldg Const Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
ldg Const Worker Trips	0.24	0.12	3.12	0.00	0.00	0.00	0.00
rch Coatings Off-Gas	13.95	-	-	-	-	-	-
rch Coatings Worker Trips	0.18	0.09	2.34	0.00	0.00	0.00	0.00
sphalt Off-Gas	0.00	-	-	-	-	-	-
sphalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
sphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	14.37	0.21	5.46	0.00	0.00	0.00	0.00
Total all phases tons/yr	14.37	0.21	5.46	0.00	0.00	0.00	0.00

*** 2008***

hase 1 - Demolition Emissions							
ugitive Dust	-	-	-	-	0.00	-	0.00
ff-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
n-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
orker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
hase 2 - Site Grading Emissions							
ugitive Dust	-	-	-	-	0.00	-	0.00
ff-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
n-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
o[illegible] Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
[illegible] tons/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
hase 3 - Building Construction							
ldg Const Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
ldg Const Worker Trips	0.24	0.12	2.64	0.00	0.00	0.00	0.00
rch Coatings Off-Gas	4.65	-	-	-	-	-	-
rch Coatings Worker Trips	0.06	0.03	0.72	0.00	0.00	0.00	0.00
sphalt Off-Gas	0.00	-	-	-	-	-	-
sphalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
sphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	4.95	0.15	3.36	0.00	0.00	0.00	0.00
Total all phases tons/yr	4.95	0.15	3.36	0.00	0.00	0.00	0.00

*** 2009***

hase 1 - Demolition Emissions							
ugitive Dust	-	-	-	-	0.00	-	0.00
ff-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
n-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
orker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
hase 2 - Site Grading Emissions							
ugitive Dust	-	-	-	-	0.00	-	0.00
ff-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
n-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
orker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
hase 3 - Building Construction							
ldg Const Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
ldg Const Worker Trips	0.10	0.05	1.02	0.00	0.00	0.00	0.00
rch [illegible]oatings Off-Gas	0.00	-	-	-	-	-	-
r [illegible]atings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
s [illegible] Off-Gas	0.00	-	-	-	-	-	-

sphalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
sphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T-al tons/year	0.10	0.05	1.02	0.00	0.00	0.00	0.00
.l all phases tons/yr	0.10	0.05	1.02	0.00	0.00	0.00	0.00

hase 1 - Demolition Assumptions: Phase Turned OFF

hase 2 - Site Grading Assumptions
tart Month/Year for Phase 2: Jun '05
hase 2 Duration: 12 months
n-Road Truck Travel (VMT): 0
ff-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
20	Rubber Tired Dozers	352	0.590	8.0
20	Tractor/Loaders/Backhoes	79	0.465	8.0

hase 3 - Building Construction Assumptions
tart Month/Year for Phase 3: Jun '06
hase 3 Duration: 36 months
Start Month/Year for SubPhase Building: Jun '06
SubPhase Building Duration: 36 months
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day

Start Month/Year for SubPhase Architectural Coatings: Apr '07
SubPhase Architectural Coatings Duration: 12 months
Start Month/Year for SubPhase Asphalt: Sep '06
SubPhase Asphalt Duration: 12 months
Acres to be Paved: 0
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
i family housing	5.98	6.98	67.78	0.05	7.26
OTAL EMISSIONS (tons/yr)	5.98	6.98	67.78	0.05	7.26

ncludes correction for passby trips.
oes not include double counting adjustment for internal trips.

PERATIONAL (Vehicle) EMISSION ESTIMATES

nalysis Year: 2010 Temperature (F): 85 Season: Annual

MFAC Version: EMFAC2002 (9/2002)

ummary of Land Uses:

nit Type	Trip Rate	Size	Total Trips
ingle family housing	9.25 trips / dwelling units	415.00	3,838.75

ehicle Assumptions:

leet Mix:

ehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
ight Auto	54.70	1.10	98.70	0.20
ight Truck < 3,750 lbs	15.20	2.00	96.00	2.00
ight Truck 3,751- 5,750	16.20	1.20	98.10	0.70
ed Truck 5,751- 8,500	7.30	1.40	95.90	2.70
ite-Heavy 8,501-10,000	1.10	0.00	81.80	18.20
ite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
ed-Heavy 14,001-33,000	1.00	0.00	20.00	80.00
eavy-Heavy 33,001-60,000	0.90	0.00	11.10	88.90
ine Haul > 60,000 lbs	0.00	0.00	0.00	100.00
rban Bus	0.20	0.00	50.00	50.00
otorcycle	1.60	68.80	31.20	0.00
chool Bus	0.10	0.00	0.00	100.00
o' Home	1.40	7.10	85.70	7.20

ravel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
rban Trip Length (miles)	11.8	4.6	6.1	11.8	5.0	5.0
ural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
rip Speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
of Trips - Residential	27.3	21.2	51.5			

age: 6

hanges made to the default values for Land Use Trip Percentages

he Primary Trip % for Single family housing changed from 85 to 90
he Pass-By Trip % for Single family housing changed from 5 to 0

h s made to the default values for Construction

he user has overridden the Default Phase Lengths
ite Grading Fugitive Dust Option changed from Level 1 to Level 2
hase 2 mitigation measure Soil Disturbance: Water exposed surfaces - 3x daily
    has been changed from off to on.
hase 2 mitigation measure Unpaved Roads: Water all haul roads 3x daily
    has been changed from off to on.
hase 2 mitigation measure Unpaved Roads: Reduce speed on unpaved roads to < 15 mph
    has been changed from off to on.
hase 2 mitigation measure Worker Trips: Use shuttle to retail establishments @lunch
    has been changed from off to on.

hanges made to the default values for Area

he area souce mitigation measure option switch changed from off to on.
he natural gas residential percentage changed from 60 to 100.
he percentage of wood stoves changed from 35 to 1.
he fireplace percentage of residential units changed from 10 to 0.
he landscape year changed from 2004 to 2007.

hanges made to the default values for Operations

he operational emission year changed from 2004 to 2010.
he operational winter selection item changed from 2 to 1.
he operational summer selection item changed from 7 to 6.
he home based work selection item changed from 7 to 6.
he home based shopping selection item changed from 7 to 6.
he home based other selection item changed from 7 to 6.
he commercial based commute selection item changed from 7 to 6.
he commercial based non-work selection item changed from 7 to 6.
he commercial based customer selection item changed from 7 to 6.
he travel mode environment settings changed from both to: none

URBEMIS 2002 For Windows 7.5.0

ile Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\Sky Ranch II 3x water & diesel partic
ro[illegible] Name: Sky Ranch II
r Location: San Francisco Bay Area
n . Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Tons/Year)

ONSTRUCTION EMISSION ESTIMATES

*** 2005 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (tpy, unmitigated)	6.72	55.61	47.21	0.00	220.78	2.59	218.19
TOTALS (tpy, mitigated)	6.72	55.61	47.19	0.00	36.52	0.52	36.00

*** 2006 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (tpy, unmitigated)	4.94	38.02	36.72	0.00	157.60	1.75	155.85
TOTALS (tpy, mitigated)	4.94	38.02	36.70	0.00	26.07	0.35	25.72

*** 2007 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (tpy, unmitigated)	14.37	0.21	5.46	0.00	0.00	0.00	0.00
TOTALS (tpy, mitigated)	14.37	0.21	5.46	0.00	0.00	0.00	0.00

*** 2008 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (tpy, unmitigated)	4.95	0.15	3.36	0.00	0.00	0.00	0.00
TOTALS (tpy, mitigated)	4.95	0.15	3.36	0.00	0.00	0.00	0.00

*** 2009 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (tpy, unmitigated)	0.10	0.05	1.02	0.00	0.00	0.00	0.00
TOTALS (tpy, mitigated)	0.10	0.05	1.02	0.00	0.00	0.00	0.00

REA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (tpy, unmitigated)	3.99	1.61	2.03	0.01	0.17
T[illegible] (tpy, mitigated)	3.99	1.61	2.03	0.01	0.17

PE[illegible]IONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (tpy, unmitigated)	5.98	6.98	67.78	0.05	7.26
TOTALS (tpy, mitigated)	5.98	6.98	67.78	0.05	7.26

UM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (tpy, unmitigated)	9.97	8.59	69.80	0.06	7.43
TOTALS (tpy, mitigated)	9.97	8.59	69.80	0.06	7.43

URBEMIS 2002 For Windows 7.5.0

ile Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\Sky Ranch II 3x water & diesel partic
ro' ct Name: Sky Ranch II
r t Location: San Francisco Bay Area
n d Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Tons/Year)

onstruction Start Month and Year: June, 2005
onstruction Duration: 48
otal Land Use Area to be Developed: 180 acres
aximum Acreage Disturbed Per Day: 19 acres
ingle Family Units: 415 Multi-Family Units: 0
etail/Office/Institutional/Industrial Square Footage: 0

ONSTRUCTION EMISSION ESTIMATES UNMITIGATED (tons/year)

Source	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
*** 2005***							
hase 1 - Demolition Emissions							
ugitive Dust	-	-	-	-	0.00	-	0.00
ff-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
n-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
orker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
hase 2 - Site Grading Emissions							
ugitive Dust	-	-	-	-	218.19	-	218.19
ff-Road Diesel	6.65	55.51	45.43	-	2.59	2.59	0.00
n-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
orker Trips	0.07	0.10	1.78	0.00	0.00	0.00	0.00
Total tons/year	6.72	55.61	47.21	0.00	220.78	2.59	218.19
hase 3 - Building Construction							
ldg Const Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
ldg Const Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rch Coatings Off-Gas	0.00	-	-	-	-	-	-
rch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
s Off-Gas	0.00	-	-	-	-	-	-
s Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
sphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total all phases tons/yr	6.72	55.61	47.21	0.00	220.78	2.59	218.19
*** 2006***							
hase 1 - Demolition Emissions							
ugitive Dust	-	-	-	-	0.00	-	0.00
ff-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
n-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
orker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
hase 2 - Site Grading Emissions							
ugitive Dust	-	-	-	-	155.85	-	155.85
ff-Road Diesel	4.75	37.90	33.75	-	1.75	1.75	0.00
n-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
orker Trips	0.05	0.05	1.28	0.00	0.00	0.00	0.00
Total tons/year	4.80	37.95	35.03	0.00	157.60	1.75	155.85
hase 3 - Building Construction							
ldg Const Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
ldg Const Worker Trips	0.14	0.07	1.69	0.00	0.00	0.00	0.00
rch Coatings Off-Gas	0.00	-	-	-	-	-	-
rch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sphalt Off-Gas	0.00	-	-	-	-	-	-
sphalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
sphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	0.14	0.07	1.69	0.00	0.00	0.00	0.00
Total all phases tons/yr	4.94	38.02	36.72	0.00	157.60	1.75	155.85

*** 2007***

hase 1 - Demolition Emissions							
ugitive Dust	-	-	-	-	0.00	-	0.00
ff-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
n-[illegible] Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c [illegible] Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
[illegible] tons/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
hase 2 - Site Grading Emissions							
ugitive Dust	-	-	-	-	0.00	-	0.00
ff-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
n-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
orker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
hase 3 - Building Construction							
ldg Const Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
ldg Const Worker Trips	0.24	0.12	3.12	0.00	0.00	0.00	0.00
rch Coatings Off-Gas	13.95	-	-	-	-	-	-
rch Coatings Worker Trips	0.18	0.09	2.34	0.00	0.00	0.00	0.00
sphalt Off-Gas	0.00	-	-	-	-	-	-
sphalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
sphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	14.37	0.21	5.46	0.00	0.00	0.00	0.00
Total all phases tons/yr	14.37	0.21	5.46	0.00	0.00	0.00	0.00

*** 2008***

hase 1 - Demolition Emissions							
ugitive Dust	-	-	-	-	0.00	-	0.00
ff-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
n-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
orker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
hase 2 - Site Grading Emissions							
ugitive Dust	-	-	-	-	0.00	-	0.00
ff-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
n-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
o[illegible] Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
[illegible] tons/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
hase 3 - Building Construction							
ldg Const Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
ldg Const Worker Trips	0.24	0.12	2.64	0.00	0.00	0.00	0.00
rch Coatings Off-Gas	4.65	-	-	-	-	-	-
rch Coatings Worker Trips	0.06	0.03	0.72	0.00	0.00	0.00	0.00
sphalt Off-Gas	0.00	-	-	-	-	-	-
sphalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
sphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	4.95	0.15	3.36	0.00	0.00	0.00	0.00
Total all phases tons/yr	4.95	0.15	3.36	0.00	0.00	0.00	0.00

*** 2009***

hase 1 - Demolition Emissions							
ugitive Dust	-	-	-	-	0.00	-	0.00
ff-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
n-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
orker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
hase 2 - Site Grading Emissions							
ugitive Dust	-	-	-	-	0.00	-	0.00
ff-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
n-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
orker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
hase 3 - Building Construction							
ldg Const Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
ldg Const Worker Trips	0.10	0.05	1.02	0.00	0.00	0.00	0.00
rch Coatings Off-Gas	0.00	-	-	-	-	-	-
r[illegible] atings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
s [illegible] Off-Gas	0.00	-	-	-	-	-	-

age: 4

sphalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
sphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T al tons/year	0.10	0.05	1.02	0.00	0.00	0.00	0.00
al all phases tons/yr	0.10	0.05	1.02	0.00	0.00	0.00	0.00

hase 1 - Demolition Assumptions: Phase Turned OFF

hase 2 - Site Grading Assumptions
tart Month/Year for Phase 2: Jun '05
hase 2 Duration: 12 months
n-Road Truck Travel (VMT): 0
ff-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
20	Rubber Tired Dozers	352	0.590	8.0
20	Tractor/Loaders/Backhoes	79	0.465	8.0

hase 3 - Building Construction Assumptions
tart Month/Year for Phase 3: Jun '06
hase 3 Duration: 36 months
Start Month/Year for SubPhase Building: Jun '06
SubPhase Building Duration: 36 months
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day

Start Month/Year for SubPhase Architectural Coatings: Apr '07
SubPhase Architectural Coatings Duration: 12 months
Start Month/Year for SubPhase Asphalt: Sep '06
SubPhase Asphalt Duration: 12 months
Acres to be Paved: 0
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
i Family housing	5.98	6.98	67.78	0.05	7.26
OTAL EMISSIONS (tons/yr)	5.98	6.98	67.78	0.05	7.26

ncludes correction for passby trips.
oes not include double counting adjustment for internal trips.

PERATIONAL (Vehicle) EMISSION ESTIMATES

nalysis Year: 2010 Temperature (F): 85 Season: Annual

MFAC Version: EMFAC2002 (9/2002)

ummary of Land Uses:

nit Type	Trip Rate	Size	Total Trips
ingle family housing	9.25 trips / dwelling units	415.00	3,838.75

ehicle Assumptions:

leet Mix:

ehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
ight Auto	54.70	1.10	98.70	0.20
ight Truck < 3,750 lbs	15.20	2.00	96.00	2.00
ight Truck 3,751- 5,750	16.20	1.20	98.10	0.70
ed Truck 5,751- 8,500	7.30	1.40	95.90	2.70
ite-Heavy 8,501-10,000	1.10	0.00	81.80	18.20
ite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
ed-Heavy 14,001-33,000	1.00	0.00	20.00	80.00
eavy-Heavy 33,001-60,000	0.90	0.00	11.10	88.90
ine Haul > 60,000 lbs	0.00	0.00	0.00	100.00
rban Bus	0.20	0.00	50.00	50.00
otorcycle	1.60	68.80	31.20	0.00
chool Bus	0.10	0.00	0.00	100.00
o' ome	1.40	7.10	85.70	7.20

rave Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
rban Trip Length (miles)	11.8	4.6	6.1	11.8	5.0	5.0
ural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
rip Speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
of Trips - Residential	27.3	21.2	51.5			

hanges made to the default values for Land Use Trip Percentages

he Primary Trip % for Single family housing changed from 85 to 90
he Pass-By Trip % for Single family housing changed from 5 to 0

he changes made to the default values for Construction

he user has overridden the Default Phase Lengths
ite Grading Fugitive Dust Option changed from Level 1 to Level 2
hase 2 mitigation measure Soil Disturbance: Water exposed surfaces - 3x daily
has been changed from off to on.
hase 2 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
has been changed from off to on.
hase 2 mitigation measure On-Road Diesel Exhaust: Use diesel particulate filter
has been changed from off to on.
hase 2 mitigation measure Unpaved Roads: Water all haul roads 3x daily
has been changed from off to on.
hase 2 mitigation measure Unpaved Roads: Reduce speed on unpaved roads to < 15 mph
has been changed from off to on.
hase 2 mitigation measure Worker Trips: Use shuttle to retail establishments @lunch
has been changed from off to on.

hanges made to the default values for Area

he area souce mitigation measure option switch changed from off to on.
he natural gas residential percentage changed from 60 to 100.
he percentage of wood stoves changed from 35 to 1.
he fireplace percentage of residential units changed from 10 to 0.
he landscape year changed from 2004 to 2007.

hanges made to the default values for Operations

he operational emission year changed from 2004 to 2010.
he operational winter selection item changed from 2 to 1.
he operational summer selection item changed from 7 to 6.
he home based work selection item changed from 7 to 6.
he home based shopping selection item changed from 7 to 6.
he home based other selection item changed from 7 to 6.
he commercial based commute selection item changed from 7 to 6.
he commercial based non-work selection item changed from 7 to 6.
h mmercial based customer selection item changed from 7 to 6.
h ivel mode environment settings changed from both to: none