7 TRANSPORTATION

This element identifies long-range future transportation needs, primarily through policies and standards to enhance capacity and provide new linkages to further an integrated multi-modal transportation system.

The transportation system serving Pittsburg is comprised of the roadway system, public transportation, and alternative modes, including carpooling, bicycling, and walking. Several routes of regional significance provide access to Pittsburg: State Route 4, Pittsburg-Antioch Highway, Kirker Pass Road, Bailey Road, Leland Road, and Willow Pass Road. State Route 4, which runs east-west and bisects the City, connects Highway 160 in East Antioch, Highway 242 and I-680 in Concord, and I-80 in Hercules. A system of surface streets collects and distributes traffic to and from the highway and regional routes, and between the commercial, industrial, and residential areas of the City.

Bay Area Rapid Transit (BART) provides commuter rail service between Pittsburg and the rest of the Bay Area via the Pittsburg/Bay Point line. The Pittsburg/Bay Point BART station is located at the southwest quadrant of the State Route 4/Bailey Road interchange. Local bus service is provided by Tri-Delta transit and the County Connection services. Existing bicycle lanes along East Leland Road, Loveridge Road, Harbor Street, Buchanan Road, and Crestview Avenue provide access throughout Pittsburg. The Delta De Anza Trail is a multi-use path connecting Pittsburg to neighboring communities.

7.1 REGULATORY CONTEXT

The City of Pittsburg has jurisdiction over all City streets and City-operated traffic signals. The freeways, freeway ramps, ramp signal lights, and State Routes (such as State Route 4) are under the jurisdiction of the California Department of Transportation. The transit service providers have jurisdiction over their services. These include BART, Tri-Delta Transit and County Connection fixed-route bus service.

Several regional agencies oversee and coordinate funding for transportation improvement programs affecting Pittsburg, including the Contra Costa Transportation Authority, TRANSPLAN Regional Transportation Planning Committee, and the Metropolitan Transportation Commission.

CONTRA COSTA TRANSPORTATION AUTHORITY

In 1988, voters in Contra Costa County passed Measure C, increasing the sales tax by ½ percent for 20 years to finance construction of a specified set of public transit and highway improvement projects. This ballot measure created the Contra Costa Transportation Authority (CCTA) that oversees the improvements contained in the Measure C Growth Management Program, including the widening of State Route 4. In 2004, County voters approved a 25-year extension of Measure C when they approved the Contra Costa County Transportation Sales Tax Expenditure Plan (Measure J). In order to qualify for Measure J funding, the CCTA requires each jurisdiction to include a Growth Management Element in its General Plan (see Chapter 3: Growth Management).

CCTA is also the Congestion Management Agency (CMA) that sets State and Federal funding priorities for improvements affecting the Contra Costa County Congestion Management Program (CMP) Roadway System. CMP roadway system components (or Routes of Regional Significance) in the Pittsburg Planning Area include State Route 4, Bailey Road (north of Leland Road), Willow Pass Road, West Tenth Street, Leland Road (east of Bailey Road), Buchanan Road, a portion of Somersville Road, and Railroad Avenue. Proposed Routes of Regional Significance include East Tenth Street, Pittsburg-Antioch Highway, Buchanan Bypass, Bailey Road (south of Leland Road), and Leland Road (west of Bailey Road). San Marco Boulevard is a Proposed Route of Regional Significance proposed by the City of Pittsburg.

TRANSPLAN

Measures C and J requires all Contra Costa County jurisdictions to participate in the preparation of *Action Plans for Routes of Regional Significance* to determine the appropriate measures and programs for mitigation of regional traffic impacts. TRANSPLAN is the Regional Transportation Planning Committee (RTPC) for eastern Contra Costa County, comprised of the cities of Antioch, Brentwood, Oakley, Pittsburg and unincorporated Contra Costa County. One elected official from each of these jurisdictions serves on the TRANSPLAN Committee. The Action Plans from the TRANSPLAN Committee are integrated with Action Plans from other regional transportation planning committees to form the CCTA *Countywide Comprehensive Transportation Plan.*

METROPOLITAN TRANSPORTATION COMMISSION

The transportation planning agency for the entire Bay Area is the Metropolitan Transportation Commission (MTC). MTC is the clearinghouse for both State and Federal funds for transportation improvements. Each county's CMA, including CCTA, forwards their capital improvement project list to MTC. MTC reviews the lists submitted by all nine Bay Area counties and submits a regional priority list to the California Transportation Commission and/or the Federal Highway Administration for selection of projects to receive funding.

CALIFORNIA DEPARTMENT OF TRANSPORTATION

The California Department of Transportation (Caltrans) has authority over the State highway system, including mainline facilities and interchanges. Caltrans must be involved in and approve the planning and design of improvements for state highway facilities. State highway facilities in the Pittsburg Planning Area include State Route 4 and the interchanges at Willow Pass Road, Bailey Road, Railroad Avenue, and Loveridge Road.

7.2 ROADWAY SYSTEM & TRAFFIC STANDARDS

ROADWAY CLASSIFICATION SYSTEM

The roadway system within the City is based around a conventional suburban hierarchy of streets. The top of the hierarchy consists of arterial streets that carry large volumes of traffic, while the bottom consists of low-volume local streets intended to provide access to adjacent property. Definitions of the roadway classifications are presented below, while more specific classification standards relating to intersections, driveways, on-street parking, and traffic volumes are presented in Table 7-1. A map of the roadway system serving the City of Pittsburg is presented in Figure 7-1.

- *Freeways*. Freeways are limited-access, high-speed travelways included in the State and Federal highway systems. Their purpose is to carry regional through-traffic (traffic passing through Pittsburg without stopping). Access is provided by interchanges spaced one mile or greater. No access is provided to adjacent land uses. State Route 4 is the only freeway connecting the City of Pittsburg to regional destinations.

- *Major Arterials*. Major arterials primarily serve through-traffic. They are generally multi-lane facilities with signalized traffic control at major intersections. Major arterials are typically divided facilities (with raised medians) that provide limited access to abutting development sites as a secondary function. Major arterial examples in Pittsburg include Railroad Avenue, Kirker Pass Road, Willow Pass Road, Bailey Road, Pittsburg-Antioch Highway, Leland Road, Loveridge Road, and Buchanan Road.

- *Minor Arterials*. Minor Arterials are intended to provide balance between mobility and access. They carry a mix of local and regional traffic, providing circulation between neighborhoods, activity centers, and highways and other regional routes. Minor arterials are typically two to four lane roadways that also provide access to adjacent development, often using signalized intersections for entry to major generators. Minor arterial examples in Pittsburg include Harbor Street, North Parkside Drive, California Avenue, and Century Boulevard.

Table 7-1

Roadway Functional Classifications, City of Pittsburg

	Function	*Traffic Lanes*[1]	*Intersections*	*Driveways*	*Left-Turn Pockets*	*On-Street Parking*	*Traffic Speed*	*Traffic Volume*[2]
Major Arterial	Primary function is to provide mobility. Secondary function is to provide access. Provides circulation between neighborhoods, activity centers, and highways and other regional routes.	2-6	Minimum number of intersection is preferred. Traffic signals required where warranted.	Driveways are generally not permitted, but may be allowed subject to restrictions. Driveways to major generators should be consolidated, preferably at signalized intersections.	Preferred	Not desirable	Moderate to High 35-50 mph	Moderate to High 15,000-55,000 VPD
Minor Arterial	Provide balance between mobility and access. Carry a mix of local and regional traffic. Provides circulation between neighborhoods, activity centers, and highways and other regional routes.	2-4	Minor arterials allow a higher level of access than major arterials. Traffic signals required where warranted.	Driveways are generally not permitted, but may be allowed subject to restrictions. Driveways to major generators should be consolidated, preferably at signalized intersections.	Preferred	Not desirable	Moderate to High 35-50 mph	Moderate to High 15,000-40,000 VPD
Collector	Provides circulation within and between neighborhoods.	2-4	Allowed. Subject to restrictions.	Driveways are permitted subject to restrictions.	As traffic conditions require	Allowed. Subject to restrictions.	Low to Moderate 30-35 mph	Low to Moderate 15,000 VPD or less
Local	Provides access to individual sites.	2	Least restrictive.	Driveways allowed.	No	Allowed. Subject to restrictions.	Low 25-30 mph	Low 5,000 VPD or less

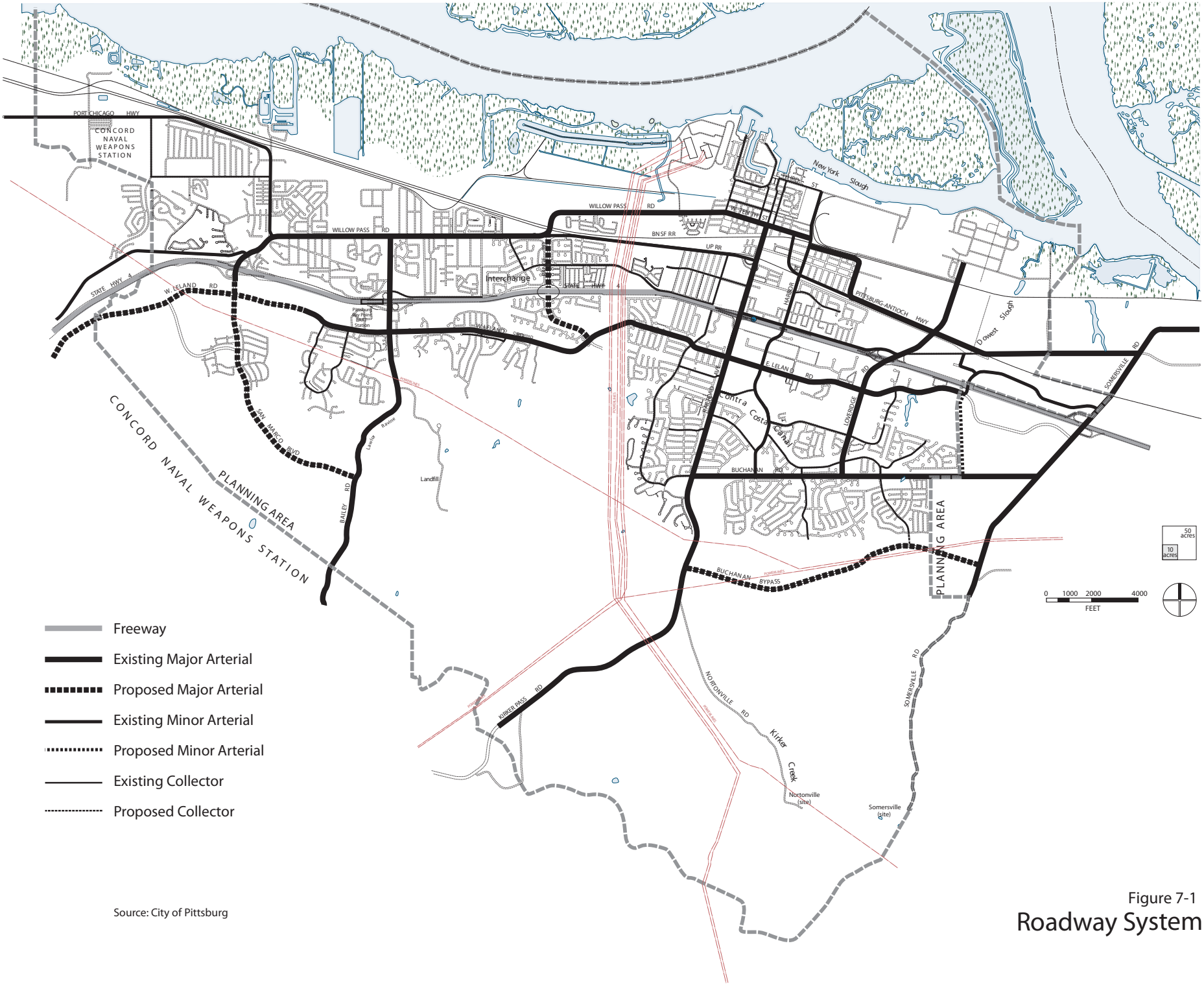
[1]. Bikeways shall be provided in accordance with Figure 7.2.

[2] MPH = miles per hour, VPD = vehicles per day

All street design parameters (cross-sections, pavement, intersection spacing, driveways, parking, etc.) are subject to traffic evaluation and conformance to city design standards.

(See Figure 7.1 for a functional classification of Pittsburg's street system.)

Source: Pittsburg Community Development Department, 2000.



Source: City of Pittsburg

Figure 7-1
Roadway System

Collectors. Collectors provide land access and traffic circulation within residential, commercial and industrial areas. They connect arterials with local streets. Collectors are typically designed with two travel lanes, parking lanes, planter strips, and sidewalks. Traffic control at intersections is generally signalized along these facilities, but can include all-way stop control. Collector streets in Pittsburg include Atlantic Avenue, Stoneman Avenue, Gladstone Drive, and Yosemite Drive.

- *Local Streets.* Local streets, also known as minor streets, provide direct access to abutting properties as their primary function. Local streets rarely have more than two travel lanes, and speed limits are generally kept low (25 mph).

LEVEL OF SERVICE (LOS) STANDARDS

The CCTA/TRANSPLAN East County Action Plan (Draft; December 1999) defines Level of Service (LOS) as "a measure of traffic conditions on a road or intersection." LOS is expressed in ratings from 'A' to 'F', with 'A' representing free-flow traffic conditions and 'F' signifying long delays and stop-and-go conditions. LOS is measured as a comparison between the amount of traffic on a road and the capacity for which the road or intersection was designed. Traffic LOS definitions are explained in Table 7-2.

Level of Service standards applicable to non-freeway Routes of Regional Significance in Eastern Contra Costa County include:

- D or better at signalized intersections along non-freeway State Route 4;
- E or better at unsignalized intersections along non-freeway State Route 4;
- E or better on non-freeway State Route 4 from Balfour Road to the San Joaquin County line;
- E or better (<95% capacity) on Kirker Pass Road;
- D or better (<85% capacity) on intersections along Major Arterials, except for intersections along Bailey Road; and
- E or better at intersections along Bailey Road between West Leland Road and State Route 4.

Table 7-2
Traffic Level of Service (LOS) Definitions

LOS	*Traffic Flow Conditions*	*MAX Volume to Capacity Ratio*
A	Free flow; speed is controlled by driver's desires, stipulated speed limits, or physical roadway conditions.	0.6
B	Stable flow; operating speeds beginning to be restricted; little or no restrictions on maneuverability from other vehicles.	0.7
C	Stable flow; speeds and maneuverability more closely restricted; occasional backups behind left-turning vehicles at intersections.	0.8
D	Unstable flow; temporary restrictions may cause extensive delays; little freedom to maneuver; at intersections, some motorists may have to wait through more than one signal change.	0.9
E	Unstable flow with stoppages and delays; approaching capacity; maneuverability severely limited.	1.0
F	Forced flow; stoppages for long periods; low operating speeds; delays at intersections often more than one signal change.	>1.0

EXISTING TRAFFIC VOLUMES

Traffic data used to define existing roadway and intersection service levels include average daily traffic (ADT) and peak hour traffic. The ADT is defined as the total number of vehicles passing a point on a roadway, in both directions, on an average weekday. Peak hour is defined as the total number of vehicles passing a point on a roadway during the busiest one hour in the morning or afternoon on an average weekday. Typically, peak hour turning movement volumes are used to measure service levels at intersections.

Historically, State Route 4 has been heavily congested in the westbound direction during the weekday morning peak period (7:00 to 9:00 AM) and in the eastbound direction during the evening peak period (4:00 to 6:00 PM). The highly directional peak hours are the result of significantly more housing than employment in East County communities. Based on Caltrans' mainline counts, volumes on State Route 4 range from nearly 80,000 to over 90,000 vehicles per day in the vicinity of Pittsburg. Weekday volumes generally peak between 5:00 to 6:00 PM, with peak hour traffic volumes at nearly 8,000 vehicles per hour. Traffic on State Route 4 has increased significantly over the past 10 years, about 48 percent, as continued housing construction occurs in Antioch and Brentwood.

Along City streets, traffic volumes have also increased over the past 10 years. Traffic volumes along the major arterials in Pittsburg have experienced significant increases due to current congestion levels on State Route 4, with many drivers finding alternative access along local streets to avoid the congestion. Pittsburg experiences substantial through-traffic on local arterials and collectors as commuters from adjacent communities use these streets to access Kirker Pass Road, a regional connection to Concord, Walnut Creek and the Highway 24/I-680 junction. Railroad Avenue, Buchanan Road, and Leland Road accommodate the greatest amounts of through traffic in Pittsburg.

PROJECTED TRAFFIC VOLUMES

Traffic projections for buildout of the General Plan were developed using the East County Travel Demand Forecasting Model. This model was developed and adopted by CCTA for regional transportation planning. It produces both average daily traffic projections and peak hour turning movement projections at key intersections. The model encompasses the entire County, but is focused on the communities of North Concord, Bay Point, Pittsburg, Antioch, Oakley and Brentwood. The General Plan Diagram (Figure 2-2) and associated buildout projections (Section 2.3) constitute model assumptions for Pittsburg. Within the remainder of the region, land use assumptions equal year 2025 employment and population projections developed by the Association of Bay Area Governments (ABAG). Additionally, the traffic projections reflect planned and improved street, highway and interchange improvements within Pittsburg and throughout the region.

Table 7-3 compares existing average daily traffic volumes with year 2025 traffic projections. Substantial increases in traffic are projected for key roadway segments in Pittsburg. Traffic volumes on State Route 4 will double over the next 25 years, due partly to growth in Pittsburg, but primarily due to substantial growth in the Eastern Contra Costa County communities of Antioch, Oakley, Brentwood, and growth in other communities along State Route 4 such as Discovery Bay. Regionally important through routes such as Bailey Road, Railroad Avenue/Kirker Pass Road, Leland Road, and Pittsburg-Antioch Highway will experience substantial growth in traffic volumes, with increases ranging from 35 percent to over 200 percent. Other key streets in Pittsburg will also experience growth ranging from 15 percent to nearly 300 percent. This growth on local Pittsburg streets is a combination of locally generated traffic and through traffic seeking alternative routes to congested highways and regional routes.

According to the CCTA East County Model used to generate projected traffic volumes for year 2025, increases in freeway traffic in Contra Costa County are expected to be most substantial along State Route 4 in the vicinity of Pittsburg and Antioch. Table 7-4 shows projected vehicle miles traveled (VMT) and vehicle hours traveled (VHT) for Pittsburg and Contra Costa County under buildout of the proposed General Plan. Total VMT are expected to exceed 18,250 on roadways within the Planning Area.

Table 7-3

Existing and Projected Average Daily Traffic Volumes, City of Pittsburg

Roadway Segment	*Existing 1997*	*Projected 2025*	*Percent Change*
State Route 4 (west of Bailey Rd.)	94,000	172,200	83%
State Route 4 (west of Railroad Ave.)	80,000	164,500	106%
State Route 4 (east of Railroad Ave.)	77,000	155,000	101%
State Route 4 (east of Loveridge Rd.)	81,000	161,000	99%
Bailey Road (north of Leland Rd.)	20,300	48,300	138%
West Leland Road (west of Bailey Rd.)	8,600	21,700	152%
West Leland Road (east of Range Rd.)	13,700	24,600	80%
East Leland Road (east of Harbor St.)	21,100	31,800	51%
Railroad Avenue (north of Leland Rd.)	30,000	40,600	35%
Railroad Avenue (north of Buchanan Rd.)	15,600	25,200	62%
Railroad Avenue (north of California Ave.)	30,000	49,800	66%
Railroad Avenue (north of 10th St.)	9,900	13,500	36%
Tenth Street (east of Railroad Ave.)	12,500	16,500	32%
California Avenue (east of Railroad Ave.)	14,200	16,400	15%
Willow Pass Road (west of Range Rd.)	13,900	23,100	66%
Harbor Street (south of SR 4)	14,200	32,000	125%
Harbor Street (north of Buchanan Rd.)	5,200	20,700	298%
Atlantic Avenue (east of Railroad Ave.)	10,900	10,100	-7%
Loveridge Road (north of Buchanan Rd.)	16,600	20,200	22%
Buchanan Road (east of Harbor St.)	16,800	11,400	68%
Delta-Fair Boulevard (east of Loveridge Rd.)	14,800	35,500	140%
Pittsburg Antioch Highway (east of Loveridge Rd.)	9,500	28,900	204%

Source: Fehr & Peers Associates, 2000.

PLANNED TRANSPORTATION IMPROVEMENTS

The City and regional transportation authorities have several planned transportation improvements within the Planning Area which are expected to meet Pittsburg's transportation needs to 2020:

- 1995 CMP Capital Improvement Program – Projects with committed funding:
  - Widen State Route 4 to 6 lanes plus 2 High Occupancy Vehicle (HOV) lanes between Bailey Road and Railroad Avenue.
  - Provide a transit corridor for future BART extensions.
- 1995 CCTA Countywide Comprehensive Transportation Plan & East County Action Plan (currently being updated) – MTC Track 1 projects are included in the regional transportation plan and could be funded with expected revenues. Candidate Track 2 projects are those without forecast funding. MTC is exploring potential funding sources for these projects:
  - Construct a Park and Ride Lot near the State Route 4/Railroad Avenue interchange (already built at Harbor Street and Bliss Avenue).
  - Modify State Route 4/Loveridge Road interchange and construct parallel truck facility (MTC Track 1).
  - Widen State Route 4 to 6 lanes plus HOV lanes between Railroad Avenue and State Route 4 Bypass at Antioch (Candidate Track 2).
  - Construct 2-lane Buchanan Bypass (Candidate Track 2).
  - Construct truck-climbing lanes on Kirker Pass Road between Clearbrook Road and Buchanan Road (Candidate Track 2).
  - Extend BART to Hillcrest Avenue in Antioch (Candidate Track 2).
- Caltrans-approved Project Study Report (PSR) – Potential funding sources include local sales tax (Measure C) and East County Regional Fee and Finance Authority (ECRFFA):

Table 7-4

Projected VMT and VHT, Pittsburg and Contra Costa County

Type	*VMT*	*VHT*	*Average MPH*
Pittsburg Planning Area			
Highway	96,369	3,957	24.4
Expressway	13,774	329	41.9
Major Arterial	62,755	2,354	26.7
Minor Arterial	8,119	516	15.7
Collector	1,503	87	17.3
Totals	**182,521**	**7,243**	**25.2**
Contra Costa County			
Highway	1,167,115	44,591	26.2
Expressway	190,235	9,150	20.8
Major Arterial	763,389	33,770	22.6
Minor Arterial	345,695	18,302	18.9
Collector	57,994	3,493	16.6
Totals	**2,524,429**	**109,307**	**23.1**

Source: Fehr & Peers, 2000.

  - Modify State Route 4/Railroad Avenue interchange to increase the interchange's capacity and improve operations of the existing closely spaced ramp intersections.
  - Widen existing median on State Route 4 to accommodate future travel lanes, the BART extension, and a BART Station at Railroad Avenue.

- CCTA Major Investment Study (MIS) – CCTA Major Investment Study projects are those without forecast funding:
  - Continue preliminary engineering work on State Route 4 East, between Railroad Avenue and Route 160.
  - Investigate in greater detail the issues surrounding future BART Stations.

- 1997 Pittsburg Traffic Mitigation Fee Study – Traffic Mitigation Fee Study projects are being funded by a mitigation fee imposed as a result of this study:
  - Widen California Avenue to four lanes from Railroad Avenue to Loveridge Road.
  - Extend West Leland Road (four lanes) from terminus to Avila Road.
  - Widen Avila Road to four lanes from Willow Pass Road to West Leland Road.
  - Widen Willow Pass Road to four lanes from Loftus Road to Range Road.
  - Improve East Third Street.
  - Connect North Park Plaza to Century Boulevard.
  - Construct the Bailey Bypass (San Marco Boulevard) from State Route 4 to Bailey Road.
  - Construct 4-lane Buchanan Bypass.
  - Construct an interchange at Range Road/State Route 4.

  - Implement signal interconnection (synchronization of intersection signals to improve traffic flow) on Leland and Buchanan Roads.
  - Install traffic signals and construct intersection improvements, as needed.

- Regional Traffic Mitigation Fee (TRANSPLAN) – Regional Traffic Mitigation Fee projects are being funded by the regional fee:
  - Widen State Route 4 to 6 lanes plus 2 High Occupancy Vehicle (HOV) lanes between Bailey Road and Railroad Avenue.
  - Construct 2-lane Buchanan Bypass.
  - Construct the State Route 4 Bypass from Antioch to Brentwood.

GOALS: STREET SYSTEM & TRAFFIC STANDARDS

7-G-1 *Achieve service level standards for roadway intersections that are based on the roadway's classification and location shown in Figure 7-2.*

7-G-2 *Work with Caltrans and the Contra Costa Transportation Authority to achieve timely construction of programmed freeway and interchange improvements.*

7-G-3 *Coordinate circulation system plans with other jurisdictions' and agencies' plans, including Antioch and Concord, the Contra Costa Transportation Authority, and Caltrans.*

7-G-4 *Work with the Contra Costa Transportation Authority to manage morning commute traffic from East to Central Contra Costa County by studying and implementing arterial metering management plans.*

7-G-5 *Provide adequate capacity on arterial roadways to meet LOS standards and to avoid traffic diversion to local roadways or the freeway.*

As congestion increases on State Route 4, monitor and evaluate the need to implement neighborhood traffic management controls on local streets to eliminate or minimize the impact of diverted traffic.

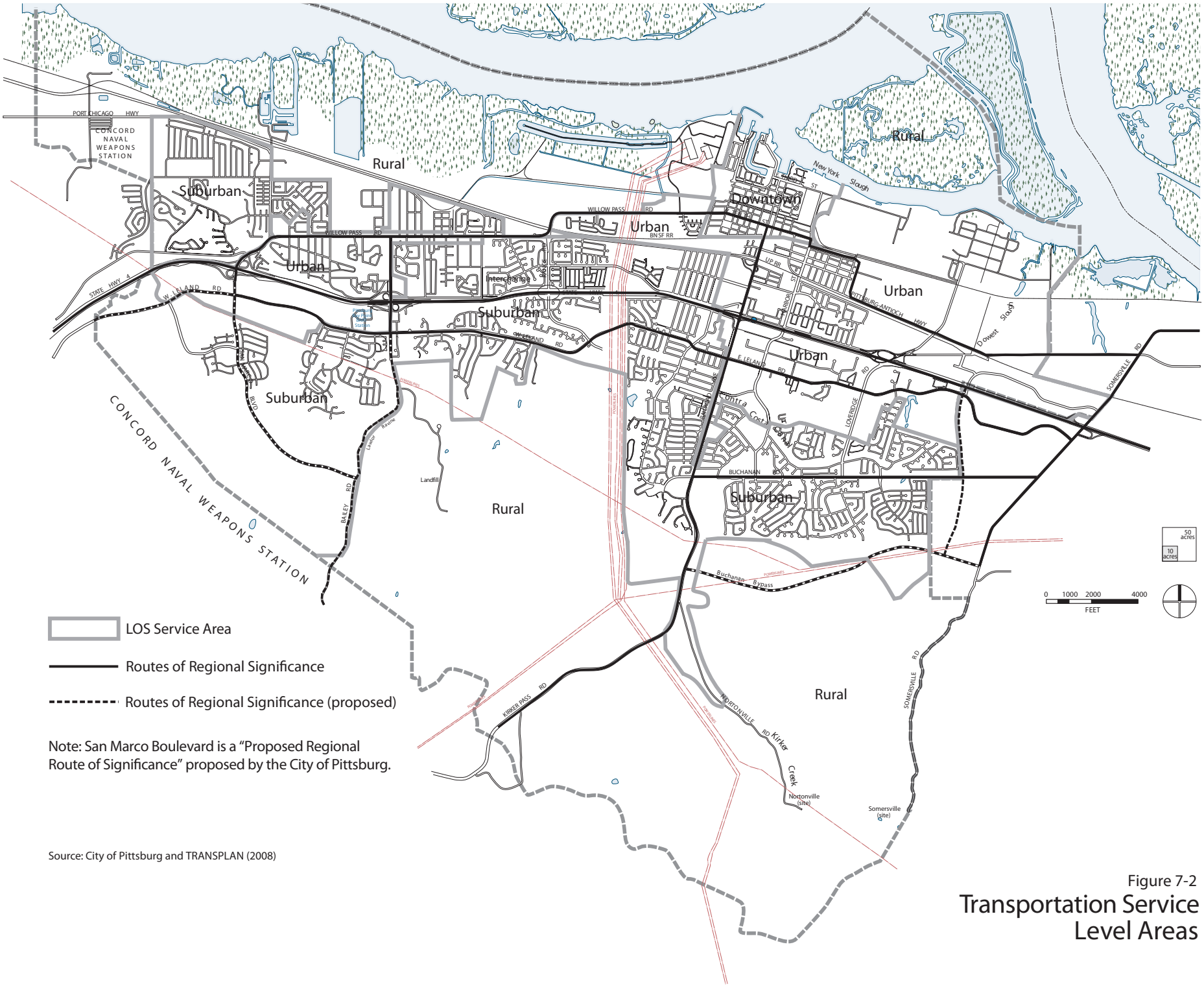


Figure 7-2
Transportation Service Level Areas

7-G-6 Locate high traffic-generating uses so that they have direct access or immediate secondary access to arterial roadways.

7-G-7 Complete arterial roadway improvements required to mitigate traffic impacts of an approved project before the project is fully occupied. Arterial improvements should be completed by creating funding sources, which include but are not limited to Traffic Mitigation Fees, Development Agreements, and Assessment Districts.

POLICIES: STREET SYSTEM AND TRAFFIC STANDARDS

7-P-1 Require mitigation for development proposals that are not part of the Traffic Mitigation Fee program which contribute more than one percent of the volume to an existing roadway or intersections with inadequate capacity to meet cumulative demand.

Development projects that contribute to future traffic congestion on existing roadways shall provide mitigation to ensure adequate future capacities. Traffic analysis of development plans will determine the proportion of cumulative impact each project is creating.

7-P-2 Use the adopted Regional and Local Transportation Impact Mitigation Fee ordinances to ensure that all new development pays an equitable pro-rata share of the cost of transportation improvements. Review the Traffic Impact Mitigation Fee schedule annually and update every five years at a minimum.

7-P-3 Review and update the City's Engineering Design Standards for each functional roadway classification, according to Table 7-1.

Roadway standards are illustrated in the City's Engineering Design Standards for typical midblock applications. Additional right-of-way may be needed for turn lanes at some intersection approaches.

7-P-4 Require that all traffic studies be conducted by professional transportation consultants selected by the Planning and Building and Engineering Departments, with the City acting as the lead agency. Ensure that all costs associated with the traffic study are paid by the applicant.

7-P-5 Apply for federal Congestion Mitigation Air Quality grant funding, designed to improve air quality through roadway improvement projects.

Level of Service (LOS) Standards

7-P-6 Ensure that all Regional Routes of Significance within the City maintain the following traffic levels of service (LOS) standards (applicable to non-freeway routes and routes not subject to a Traffic Management Program):

- *LOS mid D (peak hour volume to capacity ratio less than or equal to 0.85) at intersections along major arterials, except for intersections along Bailey Road;*
- *LOS high E (peak hour volume to capacity ratio less than or equal to 0.99) at intersections along Bailey Road between West Leland Raod and State Route 4; and*
- *LOW mid E (peak hour volume to capacity ratio less than or equal to 0.95) at intersections on Kirker Pass Road..*

7-P-7 Endeavor to implement Transportation Element improvements prior to deterioration in levels of service below those set forth in Goal 7-G-1.

Development approvals should require reasonable demonstration that traffic improvements necessary to serve the development will be in place in time to accommodate trips generated by the project.

7-P-8 Ensure that all non-Regional Routes within the City (not designated as Routes of Regional Significance in Figure 7-2) maintain the following traffic levels of service (LOS) standards based on their location in rural,

semi-rural, suburban, urban or downtown areas, as designated in Figure 7-2:

- *Rural – LOW low C (peak hour volume to capacity ratio less than or equal to 0.74)*
- *Semi-rural – LOS high C (peak hour volume to capacity ratio less than or equal to 0.79)*
- *Suburban – LOS low D (peak hour volume to capacity ratio less than or equal to 0.84)*
- *Urban – LOS high D (peak hour volume to capacity ratio less than or equal to 0.89)*
- *Downtown – LOS high D (peak hour volume to capacity ratio less than or equal to 0.89)*

Specific improvements should be identified and implemented on the basis of detailed traffic studies or Environmental Impact Reports. Improvements may include intersection approach lane expansion, related channelization improvements and traffic signal installations.

7-P-9 Implement the intersection improvements (including signalization and additional or reallocated lanes) as illustrated in Appendix A.

7-P-10 Require mitigation for development proposals which result in projected parking demand that would exceed the proposed parking supply on a regular and frequent basis.

Highways and Arterial Streets

7-P-11 Maximize the carrying capacity of arterial roadways by controlling the number of intersections and driveways, minimizing residential access, implementing Transportation Systems Management measures, and requiring sufficient on-site parking to meet the needs of each project (see also Table 7-1).

State Route 4, pictured here from the Harbor Street overpass, is a major highway that bisects the City.

Additional guidelines for arterial access include providing smooth ingress/egress to development. This includes designing parking areas so that traffic turning into the parking areas does not stack up on the arterial roadway; combining driveways to serve small parcels; and maintaining adequate distance between driveways and intersections to permit efficient traffic merges. In the built environment, roadway right-of-way may not be available to increase arterial capacity. Therefore, improving the efficiency of existing arterials through Transportation Systems Management (TSM) measures should be one of the first considerations to meet level of service standards. TSM measures include signal coordination, channelization and signal improvements at intersections, and implementation of new traffic control technology.

7-P-12 Continue to collect fees, plan and design for the future construction of Buchanan Bypass. Ensure preparation of a feasibility and environmental impact study to determine the precise alignment, costs, mitigation measures, and impacts on adjacent uses.

7-P-13 Upgrade or extend the hillside access routes from Bailey Road, Buchanan Road, Kirker Pass Road, and proposed San Marco Boulevard, as development potential warrants.

7-P-14 Increase access to alternative north-south routes providing connection to State Route 4, other than Railroad Avenue.

7-P-15 Support Caltrans' planned improvements to the Railroad Avenue and Loveridge Road interchanges in conjunction with State Route 4 widening projects. Work with Federal, State and regional authorities to ensure timely completion of these projects needed to adequately serve local circulation needs.

7-P-16 Continue to collect fees for the extension of West Leland Road to Willow Pass Road, subject to the Traffic Mitigation Fee program. As established by nexus, require new development adjacent to the extension to dedicate right-of-way and construct or fund new intersections and frontage improvements.

7-P-17 Pursue the design and construction of an interchange/overpass at State Route 4 and Range Road. Work with Caltrans to design an interchange facility that will accommodate future traffic demands.

7-P-18 Approve construction of the proposed San Marco Boulevard (Bailey Bypass). Ensure preparation of a feasibility and environmental impact study to determine the precise alignment, costs, mitigation measures, and impacts on adjacent uses. Evaluate topographic and geologic constraints, and projected traffic generation rates. Consider a road alignment within the Restricted Federal Easement area, if abandoned, for access to potential residential neighborhoods.

7-P-19 Rebuild the interchange/overpass between Willow Pass Road, Range Road, North Parkside Drive, and the BNSF Railroad tracks for safe and efficient movement of auto and bicycle traffic.

7-P-20 Encourage motorists to use State Route 4 for the peak-hour commute, rather than using arterial streets in Concord and other East County cities.

Collectors and Local Streets

7-P-21 Design local residential streets and implement traffic-control measures to keep traffic below 5,000 vehicles per day.

7-P-22 Avoid adding traffic roadways carrying volumes above the standards, and consider traffic control measures where perceived nuisance is severe.

7-P-23 Develop procedures and guidelines to mitigate neighborhood traffic impacts in areas where traffic speeds or volumes exceed posted speed limits or standards established above.

Measures that may be considered include:

- Installation of way-finding signs on arterial routes that encourage motorists to use routes that do not pass through residential areas.

- Operational changes such as signalization, turn lanes and extended turning bays on arterial streets that encourage their use as inter-community connectors.
- Traffic calming measures such as curb extensions or gateway features at intersections on streets leading into residential areas to inform motorists that they are entering a neighborhood area.
- Community educational and awareness programs to promote selection of routes within the City that do not pass through residential areas.

Goods Movement

7-P-24 Continue to designate appropriate truck routes, and discourage unnecessary through traffic in residential areas.

7-P-25 Require trucks accessing the industrial land uses east of Downtown to use the Pittsburg/Antioch Highway in order to bypass the Creeds/Central Addition neighborhood.

7.3 TRANSIT AND PUBLIC TRANSPORTATION

Figure 7-3 depicts existing and proposed transit services within the City.

TRI-DELTA TRANSIT BUS SERVICE

Tri-Delta Transit serves Eastern Contra Costa County including the cities of Pittsburg, Antioch, Oakley, Brentwood, and the unincorporated areas of East County, including Bay Point. All buses have bicycle racks and are wheel chair lift equipped. Within Pittsburg, Tri-Delta Transit operates seven bus routes serving all areas of Pittsburg. The primary lines serving Pittsburg carry approximately 3,400 passengers per day.

Tri-Delta's future service plan includes expanding service near the Railroad Avenue junction with State Route 4 (the location of the proposed Railroad Avenue BART Station). Tri-Delta's short-range transit plan indicates improvements to

transit service, including five additional buses to implement 7,100 more hours of service, and early morning service to the Pittsburg/Bay Point BART station.

COUNTY CONNECTION TRANSIT SERVICE

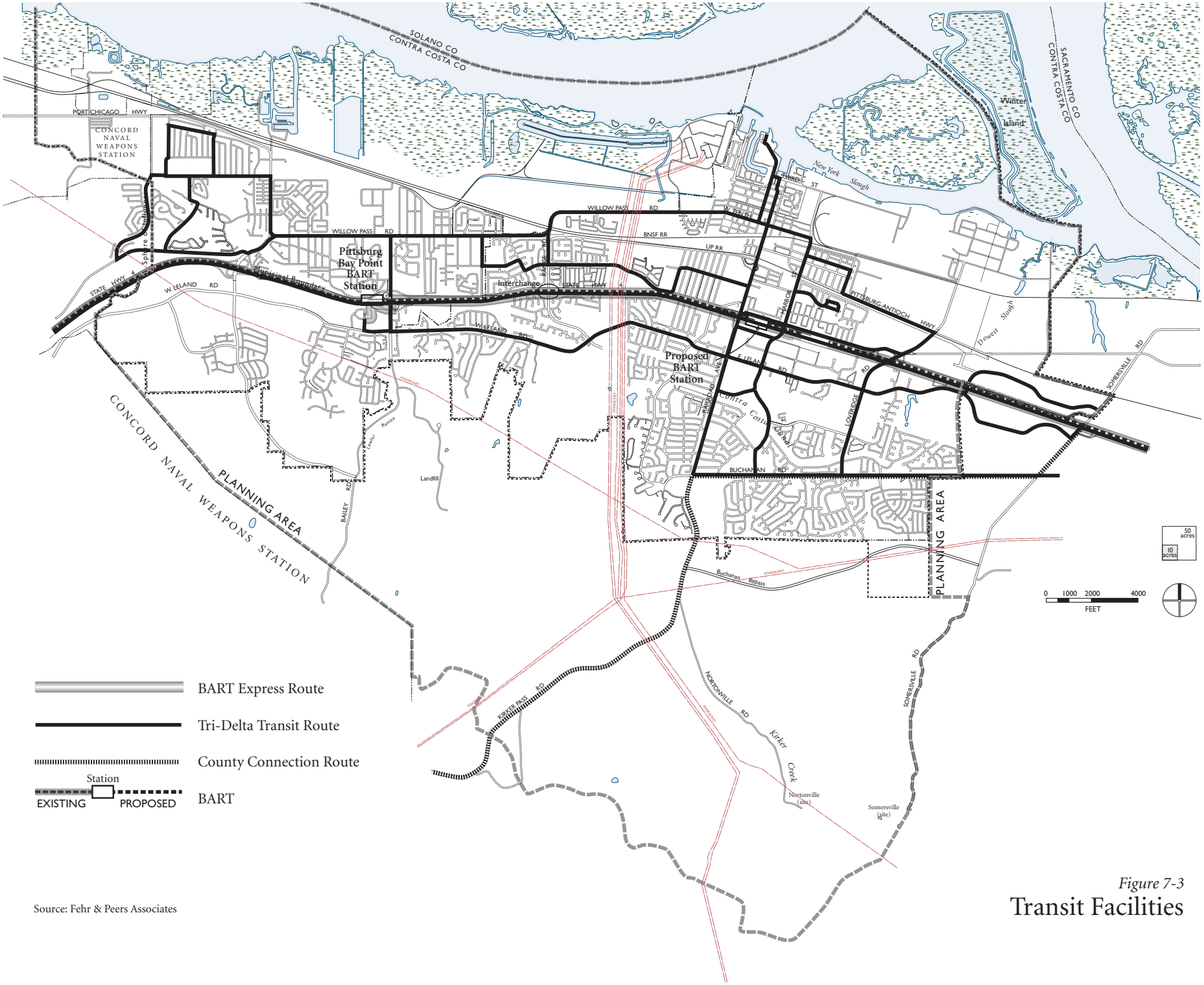
The County Connection transit service, operated by the Contra Costa County Transit Authority (CCCTA), serves most Contra Costa County cities, with limited service to East County areas. County Connection operates Line 930 through Pittsburg, which originates in Walnut Creek and travels on Ygnacio Valley Road/Kirker Pass Road to Buchanan Road. Its terminus is at the Hillcrest Park & Ride Lot in Antioch. Route 930 serving Pittsburg has consistently fallen below CCCTA's productivity thresholds, resulting in service reductions in 1997. County Connection has no immediate plan to increase its service in the East County.

BART Service

The Pittsburg/Bay Point BART Station is located at the southwest quadrant of the State Route 4/Bailey Road interchange. During weekdays, scheduled trains complete 75 round-trips between the Pittsburg/Bay Point BART Station and other Bay Area destinations. The Pittsburg/Bay Point line had an average weekday ridership of approximately 7,200 passengers in 1997, an increase of 23 percent since the station opened in 1996. BART projects ridership at this station is anticipated to grow 6 percent annually through the year 2005. BART also provides express bus service between the Pittsburg/Bay Point Station, Antioch and Brentwood (Routes PE and PE1).

BART's future service plan includes adding 30 new trains to its present 43 online trains and reducing headways to accommodate the increase in service. In addition, BART expects to provide an additional 350 parking spaces at the Pittsburg/Bay Point Station by the year 2005. BART's short-range transit plan (1997-2005) does not include extension of the line further east; this proposed extension is considered a long-range improvement.

The Pittsburg/Bay Point BART Station, which connects the City to a variety of Bay Area destinations, is pictured here from its parking lot.



Source: Fehr & Peers Associates

Figure 7-3
Transit Facilities

GOALS: TRANSIT AND PUBLIC TRANSPORTATION

7-G-8 Cooperate with public agencies and other jurisdictions to promote local regional public transit serving Pittsburg and provide an express bus system between Pittsburg, Brentwood, Oakley, Antioch, and the Pittsburg/Bay Point BART Station.

The City should encourage transit development, expansion, coordination and aggressive marketing throughout eastern Contra Costa County to serve a broader range of local and regional transportation needs including commuter and express service.

7-G-9 Continue to support public and private organizations' efforts to provide paratransit service for the elderly and disabled.

POLICIES: TRANSIT AND PUBLIC TRANSPORTATION

7-P-26 Require mitigation for development proposals which increase transit demand above the service levels provided by public transit operators and agencies.

7-P-27 Support the expansion of the existing transit service area and an increase in the service levels of existing transit. Support increased Tri-Delta and County Connection express bus service to the Pittsburg/Bay Point BART Station to reduce traffic demand on State Route 4.

7-P-28 Encourage the extension of BART to Railroad Avenue within the median of State Route 4. Cooperate with BART and regional agencies to develop station area plans and transit-oriented development patterns.

7-P-29 Preserve options for future transit use when designing improvements for roadways. Ensure that developers provide bus turnouts and/or shelters, where appropriate, as part of projects.

7-P-30 Work with Tri-Delta and planning area residents to plan for local bus routes that more effectively serve potential riders within local neighborhoods.

7-P-31 Work with Tri-Delta and County Connection to schedule signal timing for arterials with heavy bus traffic, where air quality benefits can be demonstrated.

7-P-32 Support efforts by public agencies and/or private interests to promote regional heavy and light passenger rail transit as an alternative or adjunct to BART, with connections to BART and other multi-modal transit.

7.4 BIKEWAYS AND PEDESTRIAN MOVEMENT

BICYCLE FACILITIES

The City of Pittsburg maintains limited bikeways and storage facilities for local residents. Existing on-street bicycle facilities include portions of East Leland Road and Railroad Avenue, Kirker Pass Road, Buchanan Road, Harbor Street, Willow Pass Road, Crestview Drive, and Loveridge Road. Additionally, the Delta de Anza Trail, which runs east-west throughout the length of the City, provides a multi-use trail that local bicyclists may use. Local bicycle facilities include bike paths, bike lanes, and bike routes:

- *Bike paths* are paved facilities that are physically separated from roadways used by motor vehicles by space or a barrier and are designated for bicycle use. Existing bike paths in Pittsburg are multi-use paths and permit not only bicycles, but also pedestrians, skaters, scooters, and handicapped persons in wheelchairs. (Caltrans Class I facility)

- *Bike lanes* are lanes on the outside edge of roadways reserved for the exclusive use of bicycles. Bike lanes are designated with special signage and pavement markings. (Caltrans Class II facility)

- *Bike routes* are roadways recommended for use by bicycles and often connect roadways with bike lanes and bike paths. Bike routes are designated with signs only. (Caltrans Class III facility)

In 2001, TRANSPLAN and the City adopted the East Contra Costa County Bikeway Plan, which designates on-street bike facilities (bike lanes and/or routes). Bicycle lanes are planned for all major streets, including West Leland Road, proposed San Marco Boulevard, Montezuma Street, and Century Boulevard. Table 7-5 and Figure 7-4 describe existing and planned future bike lanes in Pittsburg.

Table 7-5
Bicycle Facilities, Pittsburg Planning Area

Street Name	*From*	*To*	*Existing Class*	*Proposed Class*
Avila Road	West City Limits	West Leland Road		II
Bailey Road	State Route 4	Willow Circle	III	II
Bay Side Drive	River Park Drive	Marina Boulevard	II	
Bliss Avenue (north of)	Railroad Avenue	Harbor Street		I
Black Diamond Street	West 10th Street	East 5th Street		III
Buchanan Road	Ventura Drive	East City Limits	III	II
Buchanan Road	Heights Avenue	Ventura Drive	II	
Buchanan Road	Railroad Avenue	Heights Avenue	III	II
California Avenue	Loveridge Road	Markstein Drive		II
CC Canal Trail	County/ Bay Point	Antioch City Limits		I
Central Avenue	Railroad Avenue	Harbor Street		II
Central Avenue	Railroad Avenue	Columbia Street	II/III	
Century Boulevard	East Leland Road	CCC Wasteway		II
Civic Avenue	Railroad Avenue	Columbia Street		II
Crestview Drive	West Buchanan Road	Olympia Drive	II	
Crestview Drive	Olympia Drive	Frontage Road	III	II
Crestview Drive	Frontage Road	Buchanan Road	III	
Cumberland Street	East 10th Street	East Third Street		III
Davi Avenue	Civic Avenue	Power Avenue		III
Delta DeAnza Trail (EBMUD ROW)	County/ Bay Point	Antioch City Limits	I	
East 3rd. Street	Marina Boulevard	Harbor Street		II
East Leland Road	Railroad Avenue	Antioch City Limits	II	
Frontage Road	Los Medanos School	Crestview		II

Table 7-5
Bicycle Facilities, Pittsburg Planning Area

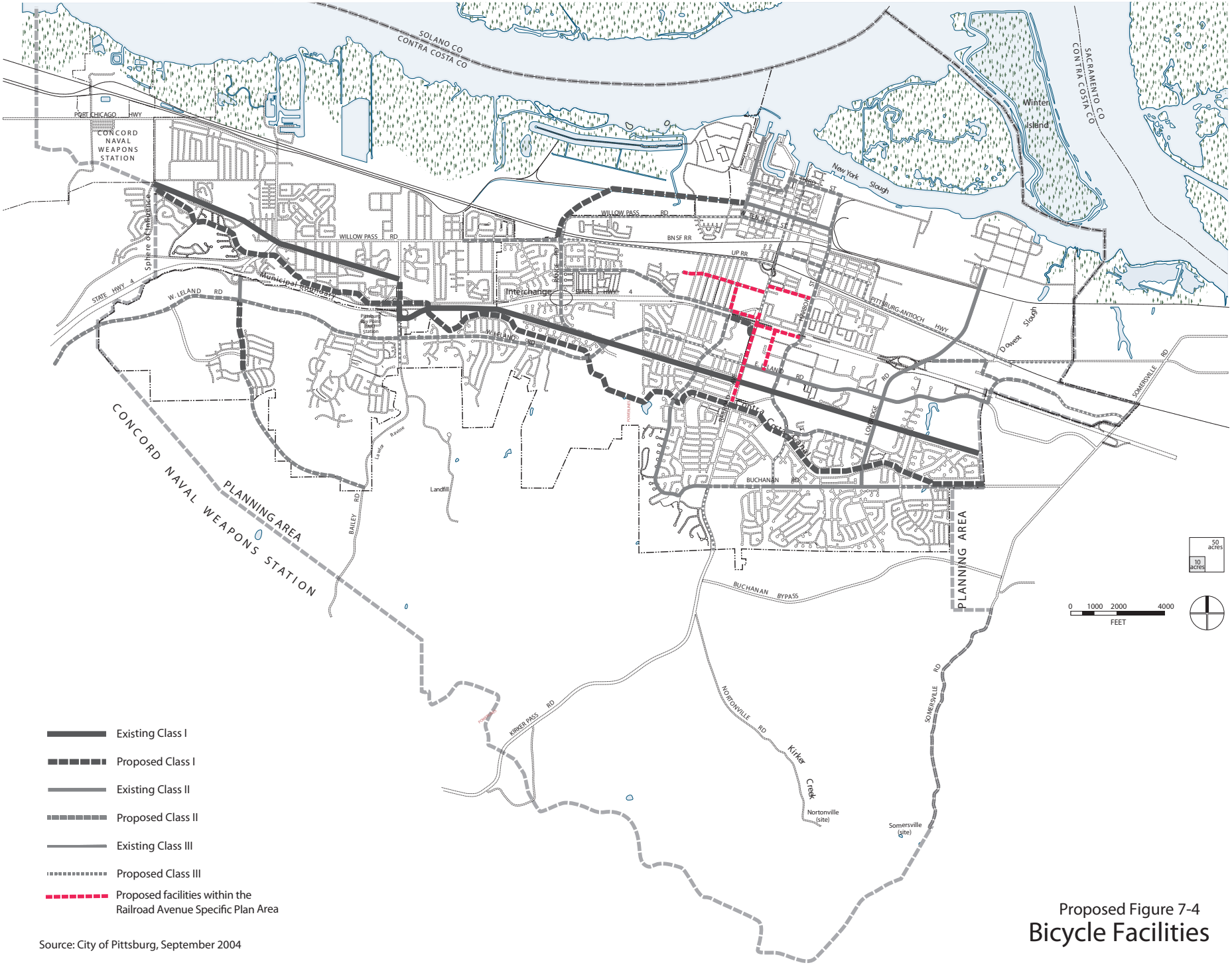
Street Name	*From*	*To*	*Existing Class*	*Proposed Class*
Frontage Road	Railroad Avenue	West of Burton Avenue	I	
Harbor Street	Buchanan Road	East 10th Street	III/II*	
Harbor Street	Buchanan Road	Contra Costa Canal		III
Harbor Street	Contra Costa Canal	East Third Street		II
Herb White Way	W. 10th Street	Marina Boulevard		II
Kirker Pass Road	Buchanan Road	South City Limits	III	
Leland Road	Railroad Avenue	Bailey Road		II
Loveridge Road	Buchanan Road	Pittsburg Waterfront Road	II	
Marina Boulevard	Herb White Way	Pelican Loop		II
Markstein Drive	California Avenue	Northpark Boulevard	II	
New North/South Roadway (see Fig. 6.8 of the Railroad Avenue Specific Plan)	Bliss Avenue (north of)	Leland Road		II
Northpark Boulevard	Markstein Drive	Century Boulevard	II	
North Parkside Drive	Range Road	Railroad Avenue		III
Pittsburg-Antioch Highway	Columbia Street	East City Limits		III
Polaris/Power Ave	Range Road	Railroad Avenue		II
Railroad Avenue	State Route 4	East Eighth Street		III
Railroad Avenue	Frontage Road	Delta De Anza Trail		I**
Range Road	West Leland Road	Willow Pass Road		II
San Marco Boulevard	State Route 4	West Leland Road	II	
San Marco Boulevard	West Leland Road	Rio Verde Circle		I
San Marco Boulevard	Rio Verde Circle	Bailey Road		II
School Street	Railroad Avenue	Harbor Street		III
Seventeenth Street	Davi Avenue	Parkside Elementary School		II/III***
SR4/Frontage Road	Crestview Avenue	Railroad Avenue		I

Table 7-5
Bicycle Facilities, Pittsburg Planning Area

Street Name	*From*	*To*	*Existing Class*	*Proposed Class*
SR4 (north of)	Railroad Avenue	Range Road		I/II
Stoneman Avenue	Loveridge Road	Harbor Street		II
West/East Eight Street	Herb White Way	Harbor Street	II	
UPRR ROW	Herb White Way	Willow Pass Road		I
West Buchanan Road	Crestview Avenue	Railroad Avenue	II	
West Leland Road	Avila Road	Bailey Road		II
West Leland Road	Bailey Road	Burton Avenue	III	II
West Leland Road	Burton Avenue	Railroad Avenue		III
West 10th Street	Herb White Way	Black Diamond Street		II
Willow Pass Road	West City Limits	Range Road		II
Willow Pass Road	Range Road	Herb White Way		III

** Existing Class III facility, planned Class II;*
*** Multi-use pedestrian and bicycle pathway proposed to be located in the existing greenway along the west side of Railroad Avenue from Delta De Ana Trail to State Route 4;*
**** Depending on available right-of-way.*

Source: City of Pittsburg, September 2004; Railroad Avenue Specific Plan, 2009



Source: City of Pittsburg, September 2004

Proposed Figure 7-4

Bicycle Facilities

PEDESTRIAN FACILITIES

Pedestrian facilities include sidewalks, paths, pedestrian bridges, crosswalks, and crossing signals. Most streets in Pittsburg have sidewalks on both sides with signals and crosswalks at signalized intersections to accommodate pedestrian circulation.

The grid street pattern in Downtown, coupled with appropriate pedestrian facilities and linkages to waterfront paths, enable a walkable urban core. However, some older streets in the City contain sporadic pedestrian facilities. Pedestrian facility improvements will improve safety for pedestrians and also encourage the use of alternative modes of transportation.

GOALS: BIKEWAYS AND PEDESTRIAN MOVEMENT

7-G-10 Study the feasibility of a comprehensive network of on- and off-road bike routes to encourage the use of bikes for commute, recreational and other trips.

A continuous network of safe and convenient bikeways has the potential to connect neighborhoods with major activity centers, parks, schools, employment centers, civic uses, the waterfront, and the County bicycle system.

7-G-11 Coordinate with neighboring communities and regional agencies to establish a continuous regional system of bicycle and pedestrian facilities.

7-G-12 Seek assistance from major employers and developers in implementing programs to encourage use of bikes for commute purposes.

7-G-13 Continue to support programs to improve the mobility of the elderly and handicapped, and ensure that new development is accessible to those with physical impairments, as required by State law.

The City strives to provide a variety of bicycle facilities such as the bike trail along EBMUD Row (at West Leland Road) pictured here.

7-G-14 Develop urban design and streetscape standards and guidelines to improve pedestrian environments and accessibility in new development projects and in Downtown.

7-G-15 Encourage walking as a regular means of transportation for people who live within a half-mile walk of school, work, or routine shopping destinations.

7-G-16 Ensure that current bicycle-friendly roadways, featuring wide shoulders or marked bicycle lanes, are not redesigned to improve traffic LOS, unless all other alternative roadways possible to alleviate congestion are exhausted.

POLICIES: BIKEWAYS AND PEDESTRIAN MOVEMENT

Bicycle and Pedestrian Access

7-P-33 Require mitigation for development proposals which result in potential conflicts, or fail to provide adequate access, for pedestrians and bicycles.

7-P-34 As part of development approval, ensure that safe and contiguous routes for pedestrians and bicyclists are provided within new development projects and on any roadways that are impacted as a result of new development..

7-P-35 Work with school districts, school administrators and parents of elementary school students to develop a "suggested routes to school" program for students who bicycle and walk.

7-P-36 Ensure continued compliance with Title 24 of the Uniform Building Code, requiring removal of all barriers to disabled persons on arterial and collector streets.

7-P-37 Designate a Bicycle and Pedestrian Program Coordinator for the City of Pittsburg.

Pedestrian Facilities

7-P-38 Develop a series of continuous pedestrian systems within Downtown and residential neighborhoods, connecting major activity centers and trails with City and County open space areas.

Sidewalks should be creatively designed to invite safe use by pedestrians, and be free of obstacles, such as newspaper racks, bus benches, utility poles, and fire hydrants.

7-P-39 Ensure that residential and commercial developments provide pedestrian pathways between lots for direct routes to commercial centers, schools, and transit facilities.

7-P-40 Ensure provision of sufficiently wide sidewalks and pedestrian paths in all new residential development.

7-P-41 Ensure the provision of multi-use trails or trailheads within new hillside developments, preferably connecting to the regional trail network.

7-P-42 Improve pedestrian crossing safety at heavily used intersections by installing crossing controls that provide adequate time for pedestrians to cross the street.

Bicycle Lanes, Paths and Facilities

7-P-43 Provide adequate roadway width dedications for bicycle lanes, paths, and routes as designated in Figure 7-4.

7-P-44 Coordinate with Contra Costa County to develop a city-wide Bicycle Master Plan by year 2005. Cooperate with the Contra Costa County RTPC in implementing construction of bicycle facilities within the Bicycle Action Plan.

7-P-45 During review of development projects, encourage secure bicycle facilities and other alternative transportation facilities at employment sites, public facilities, and multi-family residential complexes.

7-P-46 Construction or expansion of roadways and intersections within the City shall not result in the severance of an existing bicycle route, unless an alternative exists or is provided.

7-P-47 Develop a multi-use bicycle path (approx. 2.5 miles) along the abandoned railroad tracks north of Willow Pass Road, providing linkage between Downtown and the Stake Point/Marina area.

7-P-48 Ensure that construction of bulb-outs and curb extensions at intersections for pedestrian safety does not endanger bicyclists by forcing them into traffic lanes.

7-P-49 Pursue construction of a bicycle path connecting Railroad Avenue to North Parkside Drive through City Park. Include appropriate signage and storage facilities.

7-P-50 Improve signage, notifying vehicles of bicyclists at dangerous intersections and underpasses, such as the Railroad Avenue/State Route 4 interchange.

7-P-51 Consider redesigning the Railroad Avenue linear park to accommodate bicycles. Ensure that future greenways throughout the City contain multi-use paths.

7-P-52 Require that new arterial and collector streets accommodate bicyclists.

7-P-53 Require that any grind and overlay of existing arterial and collector streets consider that needs of bicyclists.

7-P-54 Amend Engineering standards to require the use of bicycle grates on all new catch basins and storm drain inlet replacements on streets.

7.5 TRANSPORTATION DEMAND MANAGEMENT

Transportation Demand Management (TDM) programs are intended to reduce the amount of peak period (rush hour) traffic on City roadways and highways. Employees are encouraged to reduce their use of the single-occupant automobile as the primary mode of transportation to the workplace, and to travel during non-peak times. In order to fulfill the requirements of the CMP and the growth management requirements of Measure J, all jurisdictions within Contra Cost County must adopt a TDM Ordinance or Resolution.

Many major employers in East County have TDM programs, although the requirements for these programs have been overturned in the state legislature[1]. Employers should be encouraged to have TDM programs and new employment centers should be designed to incorporate on-site showers, bicycle storage facilities, and transit shelters where appropriate.

The City should consider developing a program of bicycle circulation improvements, including bike paths, bike lanes, and bike routes. Opportunities to connect private development to bicycle facilities should be included in future planning studies. Adding bicycle lanes to roadway widening projects and bicycle detection loops with new signal installations should be considered as part of the City's Capital Improvement Program.

Typical components of TDM programs include:

- A carpool/vanpool match program
- Preferential parking for carpools and vanpools
- Secure bicycle storage facilities
- On-site shower facilities
- Flex-time or staggered work hours that begin and/or end outside the peak commute hours

[1] Bay Area Air Quality Management District's Regulation 13, Rule 1, requiring employers with over 100 employees to decrease the average vehicle ridership was overturned.

- On-site shuttle bus service to transit stations
- A commitment to future shuttle bus service to BART stations

GOALS: TRANSPORTATION DEMAND MANAGEMENT

7-G-17 Encourage major employers to develop and implement Transportation Demand Management programs to reduce peak-period trip generation.

POLICIES: TRANSPORTATION DEMAND MANAGEMENT

7-P-55 Encourage major employers (for example: USS-POSCO, DOW Chemical, City of Pittsburg) to adopt Transportation Demand Management programs that would reduce peak-period trip generation by 15 percent or more.

7-P-56 Favor Transportation Demand Management programs that limit vehicle use over those that extend the commute hour.

Programs such as ridesharing and public transit reduce overall vehicle travel while flex-time and staggered work hours simply shift traffic to less congested times of day.

7-P-57 During review of development plans, encourage major employers to establish designated carpool parking areas and secure bicycle facilities in preferable on-site locations (for example, under parking shelters or closest to main entryways).

7-P-58 Allow the reduction of transportation impact fees on new non-residential development commensurate with provision of Transportation Demand Management measures.

Project proponents taking advantage of reductions must agree to adopt and implement specified TDM measures as a condition of project approval.

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