City of Petaluma

BICYCLE AND PEDESTRIAN PLAN

An Appendix to the General Plan 2025

MAY 2008

Prepared for the
City of Petaluma
by the
Petaluma Pedestrian and Bicycle Advisory Committee

ACKNOWLEDGMENTS

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The Pedestrian and Bicycle Advisory Committee (PBAC) is a body selected by the City Council to monitor and pursue improvements to the bicycle and pedestrian transportation network. This Plan was written in 2004-2007 by members of the PBAC. Past and present members of PBAC involved in the creation of this Plan include:

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CHAPTER 1:

INTRODUCTION

We are all aware of the increasing traffic congestion in Petaluma, even in the face of rising fuel prices. Not all of our citizens use cars; and to encourage even more walking, bicycling, and transit use, we must make these travel modes safe, convenient, and effective. Walking and bicycling provide health, financial, and environmental benefits that improve our quality of life.

Complete streets promote these benefits by serving all users, be they moving by car, truck, transit, bicycle, wheelchair, or foot. Complete streets allow all users to travel in a safe and welcoming way.

This Bicycle and Pedestrian Plan has been prepared for the purpose of making Petaluma a pedestrian- and bicycle-friendly community by means of 'complete' streets, infrastructure improvements, and transportation planning for the benefit of all.

To promote the creation, expansion, and maintenance of a safe, comprehensive, and integrated bicycle and pedestrian system for recreational users and commuters throughout Petaluma.

- Petaluma Pedestrian and Bicycle Advisory Committee Mission Statement

BICYCLE PLAN REQUIREMENTS

Section 891.2 of the California Streets and Highways Code describes what components should be in a Bicycle Transportation Plan. Fulfilling these requirements is necessary if a city wants to apply for the Bicycle Transportation Account (BTA), a competitive grant program administered by Caltrans to fund bicycle projects. This plan will fulfill these requirements as listed below:

- Estimated number of existing bicycle commuters in the plan area and the estimated increase in the number of bicycle commuters resulting from implementation of the plan.
- A map and description of existing and proposed land use and settlement patterns which shall include, but not be limited to, locations of residential neighborhoods, schools, shopping centers, public buildings, and major employment centers. *[see Existing Land Use Map p.31]*
- A map and description of existing and proposed bikeways. Note: Not all facilities can be depicted on the map; new projects should be evaluated for feasibility of connecting

internal circulation to existing facilities. *[see Bicycle Facilities Map p.13]*

- A map and description of existing and proposed end-of-trip bicycle parking facilities. These shall include, but not be limited to, parking at schools, shopping centers, public buildings, and major employment centers. *[Bicycle Facilities Map p. 13]*
- A map and description of existing and proposed bicycle transport and parking facilities for connections with and use of other transportation modes. These shall include, but not be limited to, parking facilities at transit stops, rail and transit terminals, ferry docks and landings, park and ride lots, and provisions for transporting bicyclists and bicycles on transit or rail vehicles or ferry vessels.
- A map and description of existing and proposed facilities for changing and storing clothes and equipment. These shall include, but not be limited to, locker, restroom, and shower facilities near bicycle parking facilities.
- A description of bicycle safety and education programs conducted in the area included within the plan, efforts by the law enforcement agency having primary traffic law enforcement responsibility in the area to enforce provisions of the Vehicle Code pertaining to bicycle operation, and the resulting effect on accidents involving bicyclists.
- A description of the extent of citizen and community involvement in development of the plan, including, but not limited to, letters of support.
- A description of how the bicycle transportation plan has been coordinated and is consistent with other local or regional transportation, air quality, or energy conservation plans, including, but not limited to, programs that provide incentives for bicycle commuting.
- A description of the projects proposed in the plan and a listing of their priorities for implementation.
- A description of past expenditures for bicycle facilities and future financial needs for projects that improve safety and convenience for bicycle commuters in the plan area.

What About Pedestrians?

Walking is such a basic mode of transportation that it is often overlooked. Some of the latest buzz words in the planning field – Smart Growth, New Urbanism, mixed-use development, transit-

oriented development – all emphasize the importance of walkable communities. As a result, more funding is being made available for projects that provide pedestrian amenities. Just as the "Bicycle Advisory Committee" has evolved into the "Pedestrian and Bicycle Advisory Committee," this plan includes pedestrian related policies, programs, projects, and design recommendations.

GOAL, POLICIES, PROGRAMS

The PBAC has established a central goal with supporting policies and programs to guide the implementation of this plan. This goal and its accompanying policies and programs are included in the General Plan 2025.

Goal

Create and maintain a safe, comprehensive, and integrated bicycle and pedestrian system throughout Petaluma that encourages bicycling and walking and is accessible to all.

BICYCLE IMPROVEMENTS

Policy 1 **Implement the bikeway system as outlined in the Bicycle and Pedestrian Plan, and expand and improve the bikeway system wherever the opportunity arises.**

Program A Fund and implement the Bicycle Plan and complete gaps in the bikeway network through new development, redevelopment and the Capital Improvements Program.

Program B Develop and update guidelines and standards for the design of bicycle facilities.

Program C Design and maintain bikeways at or above local, state, and federal standards in order to maximize safety for bicyclists (e.g. width).

Program D Develop and implement a uniform bicycle signage program to enhance safety and ease of travel for all who use the city transportation network.

Program E Identify loop detectors along bikeways with stencils where (a) the outline of the loop is not identifiable on the surface of the roadway, or (b) where it is unclear which of

the identifiable loops will activate the signal.

Program F Preserve the Highway 101 pedestrian/bicycle over-crossing south of East Washington Street interchange.

Program G Continue to outfit local transit busses with bike racks; and encourage regional transit providers to provide bike racks as well.

Washington Creek Trail

Policy 2 **If Class II bike lanes are not possible on streets designated as such on the Bicycle Facilities Map, those streets shall become enhanced Class III bike routes using such markings as edge striping, shared lane markings, and signs.**

Policy 3 **The City shall discourage using sidewalks as designated bicycle routes.**

Policy 4 **The City shall require Class II bike lanes on all new arterial and collector streets.**

Policy 5 **All new and redesigned streets shall be bicycle and pedestrian friendly in design.**

Policy 6 **Ensure that new development provides connections to and does not interfere with existing and proposed bicycle facilities.**

Policy 7 **Strive to create a five percent bicycle commute share by 2025.**

PEDESTRIAN IMPROVEMENTS

Policy 8 **Preserve and enhance pedestrian connectivity in existing neighborhoods and require a well connected pedestrian network linking new and existing developments to adjacent land uses.**

Program A Improve the pedestrian experience through streetscape enhancements, focusing improvements where there is the greatest need, and by orienting development toward the street.

Program B Improve street crossings and complete gaps in the sidewalk system through development review and capital improvement projects.

Program C Allocate funds and/or identify funding sources (including the potential formation of assessment districts) for pedestrian and streetscape improvements in existing neighborhoods.

Program D Create a pedestrian priority program emphasizing pedestrian circulation needs and safe street crossings.

Program E Conduct an inventory of key pedestrian facilities and routes to identify missing or deficient links, pedestrian crossings or intersections, and focusing initially on pedestrian priority areas.

Program F Establish a prioritization and funding mechanism for completing gaps in the sidewalk system, identifying locations for improving street crossings, and installing curb ramps to meet ADA specifications.

Program G Improve the integration of pedestrian projects into the Capital Improvement Program and consider opportunities to construct pedestrian improvements concurrently with other roadway improvements.

Program H Develop guidelines and standards for the design of pedestrian facilities and establish pedestrian-friendly residential and commercial design guidelines.

Program I Review and update the City's street design standards to address pedestrian-friendly street designs such as maximum lane widths, maximum curb radii, detached sidewalks, dual left turn lanes at intersections, pedestrian refuge islands, and curb ramp standards.

Program J Collaborate with the Santa Rosa Junior College to identify measures that enhance pedestrian circulation to and within the Petaluma Campus.

Program K Establish a Pedestrian Safety Program that provides pedestrian educational materials and a regularly updated pedestrian safety report.

Drinking fountain, benches, and lighting along the Corona Creek Trail.

Program L Conduct regular maintenance of pedestrian related facilities.

Policy 9 Require the provision of pedestrian site access for all new development.

Policy 10 Give priority to the pedestrian network and streetscape amenities near schools, transit, shopping, and mixed use corridors emphasized in the General Plan.

MULTI-USE TRAILS

Policy 11 Establish a network of multi-use trails to facilitate safe and direct off-street bicycle and pedestrian travel. At the minimum, Class I standards shall be applied unless otherwise specified.

Program A Review the status of ownership and use of railroad rights-of-way, creek maintenance rights-of-way, and other public lands and seek to include new bicycle and pedestrian routes by working with all appropriate agencies.

Program B Fully implement the non-motorized components of the Petaluma River Access and Enhancement Plan.

Program C Support the implementation of the SMART bicycle/pedestrian path along the NWPRR corridor and integrate it with the citywide bicycle network.

Program D Study, seek funding for, construct and maintain a "Petaluma Ring Trail," a connected system of multi-use trails in the Urban Separator, or otherwise approximately parallel with (if not immediately adjacent to) the Urban Growth Boundary. The Petaluma Ring Trail shall form a continuous, unbroken path around the city.

Program E Build new river (upstream of navigable waters) and creek crossings for bicycles and pedestrians to provide greater connectivity and more efficient cross-town routes.

Policy 12 Require all new development and those requiring new city entitlements with "frontage" along creeks and the river to permit through travel

adjacent to creeks and the river with access points from parallel corridors spaced at minimum intervals of 500 -1,000 feet.

Policy 13 **Locate connections to Class I facilities from parallel routes along the parcel line of adjoining properties to provide separation from parking lots and buildings; design connections as Class I facilities.**

Policy 14 **Allow bicyclists and pedestrians use of all emergency access routes required of existing and new developments.**

Program A Design new emergency access routes to accommodate bicycle and pedestrian use.

Policy 15 **Work with the Bay Area Ridge Trail Council to implement a revised route (for bicyclists, hikers, and equestrians) through the City located off surface streets and along greenways wherever possible with connections to regional destinations (e.g. Petaluma Adobe State Park, Jack London State Historic Park, Helen Putnam Regional Park, and Mt. Burdell).**

Policy 16 **Require all new development abutting any public trail to provide access to the trail.**

SUPPORT FACILITIES

Policy 17 **Make bicycling and walking more desirable by providing or requiring development to provide necessary support facilities throughout the city.**

Program A Provide secure, protected parking facilities and support services for bicycles at locations with high bicycle-parking demands such as multi-family housing and shopping and employment centers.

Program B Install drinking fountains serving people and their pets in strategic locations to make it easier and healthier for pedestrians and bicyclists to be outdoors and travel long distances.

Program C Provide easily accessible and aesthetically pleasing public restrooms wherever feasible.

Program D Require projects subject to discretionary approval to install public benches where appropriate.

Program E Install non-glare lighting along multi-use paths that serve as commuter routes.

Bicycle safety promotion during Bike to Work Day 2005

SAFETY, EDUCATION, AND PROMOTION

Policy 18 Promote bicycle and pedestrian safety and increased use of non-motorized transportation alternatives through engineering, education, and enforcement programs.

Program A Request an annual bicycle and pedestrian report from the Police Department to the City Council and PBAC. Encourage an annual meeting with the Police and Public Works Departments to analyze annual collision data, identify collision "hot spots," and develop and implement measures to improve safety.

Program B Encourage the Police Department to positively reinforce the Motor Vehicle Code for pedestrians, bicyclists, and motorists – especially violations that are most likely to cause injury such as running red lights, speeding, wrong-way riding, riding on sidewalks where illegal,, and not yielding to pedestrians - through education and enforcement.

Program C Encourage helmet use among all bicyclists, and enforce the law for those under the age of 18.

Program D Implement the use of bicycle- and pedestrian-friendly traffic calming methods.

Program E Make bicycle and pedestrian safety improvements at street crossings a priority.

Program F Publicize existing bikeways and recommended travel routes throughout the community.

Program G Participate in and support recommendations of the Safe Routes to Schools Program.

Program H Work with Petaluma schools to encourage more children to walk and bicycle to school.

Program I Promote the benefits of walking and bicycling through Bike to Work Week, Walk and Roll to School Week, and develop new citywide programs.

Program J Conduct annual bicycle and pedestrian counts to monitor the growth of bicycle use and walking.

Program K Encourage and recognize Petaluma employers that (a) install more bicycle- and pedestrian-friendly facilities and (b) implement incentives to facilitate bicycling and walking as transportation.

MAINTENANCE

Policy 19 Fund and perform regular maintenance on all public bicycle and pedestrian facilities.

Program A Conduct regular scheduled street sweeping, vegetation management, and re-striping on designated bikeways, especially on bike lanes.

Program B Respond in a timely manner to citizen requests regarding maintenance concerns on all public bicycle and pedestrian facilities.

Program C Give special attention to the construction and maintenance of speed humps, drainage ditches, manhole covers, sewer and drainage grates, railroad crossings, and asphalt/concrete interfaces to eliminate hazards to bicyclists and pedestrians.

Program D Give priority to trail maintenance, including vegetation removal, pavement quality, and litter control.

Program E Repair, or require the property owner to repair, broken sidewalks.

Trail connecting a residential neighborhood to the Petaluma Ring Trail near the airport.

IMPLEMENTATION

Policy 20 Utilize a creative variety of measures to fully implement all projects and programs of the Petaluma Bicycle and Pedestrian Plan.

Program A Appoint a staff member as "Bicycle and Pedestrian Coordinator" whose job shall include monitoring bicycling and

Dan Burden gave a presentation in Petaluma in July 2004 about traffic calming and traditional neighborhood street design for emergency response.

pedestrian issues both within the entire transportation network and with regard to development and redevelopment.

Program B Research, apply for, and obtain available funding for bicycle and pedestrian improvements.

Program C Continue the institutional structure that gives the Pedestrian and Bicycle Advisory Committee review of development and redevelopment projects that require discretionary approval.

Policy 21 Encourage continuing education and training for City staff to create awareness of bicycle and pedestrian needs and of the importance of planning for bicycle and pedestrian travel at the start of the development process.

Policy 22 Review, and update as necessary, the Petaluma Bicycle and Pedestrian Plan every five years, concurrent with the General Plan.

Program A Amend the Municipal Code, development related codes, and design and construction standards & specifications to implement the goal, policies, and programs of the Bicycle and Pedestrian Plan.

Program B At the time of update, coordinate efforts with the SCTA Countywide Bicycle Plan.

Policy 23 Continue to solicit and review progressive ideas from other communities and organizations related to bicycling and walking.

Policy 24 Coordinate efforts and resources with the County to construct bikeways called for in the SCTA Countywide Bicycle Plan.

Policy 25 Promote public/private partnerships in the development, implementation, operation, and maintenance of bicycle and pedestrian facilities.

Policy 26 Provide loan bicycles for City staff.

Policy 27 Continue to provide facilities or bicycles on City buses.

Many people believe that dealing with overweight and obesity is a personal responsibility. To some degree they are right, but it is also a community responsibility. When there are no safe, accessible places for children to play or adults to walk, jog, or ride a bike that is a community responsibility.

- David Satcher, Surgeon General, *Call To Action To Prevent ad Decrease Overweight and Obesity*, 2001.

WRITING THIS PLAN

The March 2000 Bicycle Plan was written as a component of the Petaluma General Plan 1987-2005. In the eight years since its adoption, the City of Petaluma has changed dramatically: new bikeways have been implemented; new local, regional, and federal plans and policies supporting non-motorized transportation have been adopted; and the City completed a new General Plan. Clearly, a revised bicycle plan was necessary.

The motivation for writing this Plan was to fulfill requirements for funding opportunities and to establish priority projects. The Bicycle Facilities, Pedestrian Facilities, and Multi-Use Trail chapters list priority projects for each category. Additionally, five projects were chosen as the top bicycle and pedestrian priorities:

- Petaluma Boulevard North and South corridor bikeways
- Washington Street corridor bikeways
- Petaluma River Trail
- McDowell Boulevard North sidewalks
- Bicycle education programs

This Plan was also written to encourage developers and the City to provide quality bicycle and pedestrian facilities in projects and to equip PBAC members so that they may respectfully and knowledgeably fulfill their duties to the City. Facility design standards and recommendations are offered as measures to plan and design safer and more accessible facilities. It should be noted that these designs are in no way all-inclusive; they are merely some of the basic design elements used to provoke more interest in good pedestrian and bicycle design. Also, "standards" are constantly evolving with new research. Designers need to keep abreast of national, state, and local standards and should exceed the minimum design requirements expected from standards.

The Pedestrian and Bicycle Advisory Committee has written and reviewed this Plan, which is an appendix to the General Plan 2025. Input from other members of the public was received during Draft General Plan and Draft Environmental Impact Report workshops.

The Bicycle and Pedestrian Plan, including the bikeways map and policies, shall be updated at least every five years in conjunction with General Plan review.

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FIGURE 1: BICYCLE FACILITIES MAP

CHAPTER 2:

BACKGROUND

This chapter provides some background information that helps the community understand the role of bicycling and walking in Petaluma. First, a brief description of additional plans and policies that affect non-motorized transportation in Petaluma is presented. This is followed by an overview of local land use, commuting statistics, and collision data that gives some insight into cycling and walking conditions in Petaluma.

RELEVANT PLANS

This Bicycle and Pedestrian Plan is shaped and influenced by a number of existing planning documents and policies.

Bay Area 2005 Ozone Strategy, January 2006

The Bay Area has made considerable progress towards improving ozone conditions over the years, however, the region fails to meet the State one-hour ozone standard. The Bay Area Air Quality Management District (BAAQMD), in cooperation with the Metropolitan Transportation Committee and the Association of Bay Area Governments (ABAG), has prepared the Bay Area 2005 Ozone Strategy to show how the Bay Area will achieve compliance with air quality standards. Transportation control measures (TCM) that reduce motor vehicle emissions through reduced vehicle use are critical programs proposed in the 2005 Strategy. The TCMs proposed in the 2005 Strategy that relate to bicycling and walking include:

- TCM #1: Support Voluntary Employer-Based Trip Reduction Programs – provide incentives and assistance to help employers develop programs to reduce single-occupancy vehicle use to work

- TCM #5: Improve Access to Rail & Ferries – Safe Routes to Transit program sponsored by the MTC; develop a master plan for innovative secure bicycle storage strategies at key transit hubs

- TCM #9: Improve Bicycle Access and Facilities – fund the Regional Bicycle Plan and Safe Routes to Transit improvements; continue Transportation Development Act

(TDA) Article 3, Transportation for Livable Communities (TLC), and Transportation Fund for Clean Air (TFCA) funding for bike improvements; develop on-line bicycle mapping tool as part of the regional 511 traveler information number; promote Bike-to-Work Week/Day; encourage local jurisdictions to develop safe and convenient bicycle lane and route networks, provide secure bike racks and storage, and require bicycle access and amenities as conditions of approval of development projects; explore innovative bicycle programs, such as "station bike" or bike sharing programs at transit stations, downtowns, and activity centers; encourage public education about bicycle safety for both bicyclists and motorists

- TCM #10: Youth Transportation – encourage Safe Routes to School program

- TCM #15: Local Land Use Planning and Development Strategies – MTC will implement a new planning grant program to fund station area plans around major transit facilities; MTC to continue Transportation for Livable Communities (TLC) planning, capital grant, and HIP programs; BAAQMD will continue the TFCA program; ABAG encourage transit-oriented development by promoting multi-jurisdictional planning along select transit corridors.

- TCM #19: Improve Pedestrian Access and Facilities – review and comment on general/specific plan policies to promote development patterns that encourage walking; encourage amending zoning ordinances to include pedestrian-friendly design standards; MTC will continue to fund TLC, support SR2S, and support the Regional Pedestrian Committee and associated pedestrian safety programs; identify and fund projects that enhance pedestrian movement in neighborhoods, downtowns, and near transit stops

- TCM #20: Promote Traffic Calming Measures – implement projects such as pedestrian-only streets, residential and neighborhood traffic calming measures, and arterial and major route traffic calming measures

Bay Area Ridge Trail

When fully implemented as envisioned, the Bay Area Ridge Trail will be a 580-mile multi-use trail (hikers, bicyclists, and equestrians) encircling the Bay Area along ridge tops. Over 300 miles of the trail are currently opened to the public; approximately 27 miles of which are in Sonoma County. Much of

the county's share of the trail runs through regional and state parks along existing trails, while some of the Ridge Trail follows streets. The trail portions in Petaluma are on Casa Grande Road, McDowell Boulevard South, Caulfield Lane, Payran Street, East D Street, Steamer Landing Park, D Street, 6th Street, G Street to McNear Park, and Helen Putnam Regional Park. The proposed realignment in Petaluma would move the trail off most of the streets to follow Adobe Creek from Ely Boulevard to the Alman Marsh Trail to the Marina and then along the NWP railroad right-of-way to Steamer Landing. The Bay Area Ridge Trail Council, a nonprofit association in San Francisco, manages the Bay Area Ridge Trail project and they coordinate with local jurisdictions to implement the system.

Bay Trail Plan, July 1989

The Bay Trail Plan was developed by the Association of Bay Area Governments (ABAG) to guide the development of a 500-mile bicycling and hiking trail around the San Francisco and San Pablo Bays. The trail system is comprised of spine, spur, and connector trails. Spine trails are the primary trails along the shorelines. Spur trails provide access from the spine trail to points of interest away from the shoreline. Connector trails link inland locations to the spine trail or connect to other regional trails such as the Bay Area Ridge Trail. Over one-half of the trail has been constructed. The alignment in the Petaluma area includes on-street bikeways and sidewalks on Casa Grande Road, Adobe Road (Casa Grande Road to Highway 116), and Lakeville Highway (from Casa Grande Road to Highway 37), and Shollenberger Park.

California Blueprint for Bicycling and Walking, May 2002

The California Blueprint for Bicycling and Walking was a report submitted to the Legislature outlining the State's goals and objectives for increasing bicycling and walking, reducing bicycle and pedestrian injuries, and funding facilities. The three main statewide goals are:

- 50 percent increase in bicycling and walking trips by 2010
- 50 percent decrease in bicycle and pedestrian fatality rates by 2010
- Increased funding for bicycle and pedestrian programs

Achieving the first two goals lies largely on local agencies. Policies and programs in this Plan will allow Petaluma to actively work towards fulfilling these goals.

Central Petaluma Specific Plan, June 2003

A Specific Plan examines a particular area in greater detail than is possible in a General Plan. Central Petaluma - delineated by Highway 101, Lakeville Street/Highway, the Lakeville Street bridge over the Petaluma River, and Petaluma Boulevard – had a number of critical issues that needed to be addressed, including large areas of underutilized land and interest on a renewed focus on the river and downtown. The Central Petaluma Specific Plan (CPSP) was developed as an amendment to the General Plan to guide development within the city's core.

The Land Use Element strongly promotes compact, mixed-use development throughout the CPSP planning area – perfect conditions for non-motorized transportation. Most policies in the Land Use Element are directed at specific uses but several policies support walking and cycling. Policy 1.6 encourages pedestrian oriented land use through low parking to floor area ratios, emphasizing pedestrian access, and restoring heritage trolley service. Policy 2.2 recommends preserving and rehabilitating the Petaluma Train Depot as the city's primary transit center and to include bicycle parking and bicycle-related services at the center.

The Community Design Element emphasizes the importance of the river and the look and feel of Central Petaluma to the vitality of the city. Goal 3 states, "[s]trengthen linkages to and along the river and to other districts of the city." Accomplishing this goal involves implementation of the River Access Plan and connecting the river corridor to surrounding neighborhoods with bikeways, sidewalks, and pedestrian bridges. Goal 5 urges pedestrian-scale development with smaller parcels and mixed uses.

Steamer Landing is a new park along the Petaluma River off East D Street.

The Public Space & River Access Element endorses more parks along the riverfront, trails along the river banks, and streets near the Turning Basin that are inviting to pedestrians.

Goal 3 of the Circulation Element of the CPSP states: "Reinforce the role of Central Petaluma as a center for transit and non-vehicular modes of travel." This is supported by recommendations that promote mixed-use developments, endorse density, implement the River Trail, improve streetscapes, and provide the facilities necessary for a functional bicycle and pedestrian system.

Appendix D lists all relevant goals, objectives, and policies.

A "SmartCode" was adopted with the CPSP to guide the design of Central Petaluma in accordance with the goals and policies of the CPSP. Important to bicycling and walking are the Thoroughfare Standards that illustrate the preferred cross sections of all the streets, including bike lane and sidewalk widths.

Petaluma River Access and Enhancement Plan, May 1996

The Petaluma River Access and Enhancement Plan was created to guide future development along the Petaluma River with the objective of making the river a central feature of the city. One goal of the River Plan is to "expand public access to and awareness of the river." This goal is supported with a proposed continuous bicycle and pedestrian trail system along the entire 6.5-mile corridor.

A section of the River Trail was constructed with the Downtown River Apartments.

Existing segments of the River Trail can be found at Denman Reach, Petaluma Village Premium Outlets, between Lynch Creek and Lakeville Street, downtown (Water Street, Basin Street Landing, Downtown River Apartments), Steamer Landing Park, and the McNear Landing subdivision.

Regional Bicycle Plan, December 2001

The Regional Bicycle Plan is a component of the Metropolitan Transportation Commission's Regional Transportation Plan (RTP) which establishes a 25-year investment plan. The overall goal of the plan is to ensure that bicycling is a convenient, safe, and practical means of transportation throughout the Bay Area for all Bay Area residents. To achieve this goal, the plan established a regional bicycle network, programs to enhance bicycling, and projected the cost to implement these improvements and possible funding sources. To help implement recommended improvements in the Plan, MTC adopted a policy that regional discretionary funds allocated through the federal Surface Transportation Program/Congestion Mitigation and Air Quality improvement program (STP-CMAQ) for bicycle projects be used for those projects and programs that support the Regional Bicycle Network.

The regional bikeway network in Petaluma includes Petaluma Boulevard North and South, Lakeville Highway, Frates Road, the SMART rail-with-trail corridor, and the Bay Trail. Programs identified to enhance bicycling include safe routes to transit, a comprehensive network leading to major transit hubs; annual bicycle counts; more detailed collision data collection; and

increased outreach and marketing efforts such as training programs, emphasis on Bike to Work Week, and a web-based trip planner.

SCTA Countywide Bicycle Plan – 2003 Update

The Sonoma County Transportation Authority (SCTA) and the Countywide Bicycle Advisory Committee created this bicycle plan with the vision of developing a safe and efficient countywide network. Proposed Petaluma area bikeways on the county system that will be sponsored by the County are Western-Chileno Valley (Bantam Way to Helen Putnam Park), East Washington Street (Adobe Road to Petaluma limits), Casa Grande Road (Adobe Road to Petaluma limits), Corona Road (Adobe Road to Petaluma limits), South Petaluma Boulevard (Rovina Lane to NB Highway 101 exit), Bodega Avenue (Paula Lane to Eastman Lane), Bodega Avenue (King Road to Ramen Road), Stony Point (Highway 116 to Redwood Highway), and Ely Road (Redwood Highway to Corona Road). A new county-wide bicycle and pedestrian plan is currently being completed.

RELEVANT POLICIES

Federal Policies

Accommodating Bicycle and Pedestrian Travel: A Recommended Approach

"Accommodating Bicycle and Pedestrian Travel: A Recommended Approach" is a policy statement adopted by the United States Department of Transportation. USDOT hopes that public agencies, professional associations, advocacy groups, and others adopt this approach as a way of committing themselves to integrating bicycling and walking into the transportation mainstream. The Policy Statement states:

"*Multimodal planning* – planning highways, streets, transit systems, pedestrian facilities, and other modes in a coordinated manner – has, in theory and on the basis of the experience of progressive cities, been recognized as an essential goal for urban areas."

-from *Transportation for Livable Cities*, Vukan R. Vuchic, 1999.

1. Bicycle and pedestrian ways shall be established in new construction and reconstruction projects in all urbanized areas unless one or more of three conditions are met:

- Bicyclists and pedestrians are prohibited by law from using the roadway. In this instance, a greater effort may be necessary to accommodate bicyclists and pedestrians elsewhere within the right of way or within the same transportation corridor.

- The cost of establishing bikeways or walkways would be excessively disproportionate to the need or probable use.

Excessively disproportionate is defined as exceeding twenty percent of the cost of the larger transportation project.

- Where sparsity of population or other factors indicate an absence of need. For example, the Portland Pedestrian Guide requires "all construction of new public streets" to include sidewalk improvements on both sides, unless the street is a cul-de-sac with four or fewer dwellings or the street has severe topographic or natural resource constraints.

2. In rural areas, paved shoulders should be included in all new construction and reconstruction projects on roadways used by more than 1,000 vehicles per day. Paved shoulders have safety and operational advantages for all road users in addition to providing a place for bicyclists and pedestrians to operate.

   Rumble strips are not recommended where shoulders are used by bicyclists unless there is a minimum clear path of four feet in which a bicycle may safely operate.

3. Sidewalks, shared use paths, street crossings (including over- and undercrossings), pedestrian signals, signs, street furniture, transit stops and facilities, and all connecting pathways shall be designed, constructed, operated and maintained so that all pedestrians, including people with disabilities, can travel safely and independently.

4. The design and development of the transportation infrastructure shall improve conditions for bicycling and walking through the following additional steps:

- Planning projects for the long-term. Transportation facilities are long-term investments that remain in place for many years. The design and construction of new facilities that meet the criteria in item 1) above should anticipate likely future demand for bicycling and walking facilities and not preclude the provision of future improvements. For example, a bridge that is likely to remain in place for 50 years, might be built with sufficient width for safe bicycle and pedestrian use in anticipation that facilities will be available at either end of the bridge even if that is not currently the case

- Addressing the need for bicyclists and pedestrians to cross corridors as well as travel along them. Even where bicyclists and pedestrians may not commonly use a particular travel corridor that is being improved or constructed, they will likely need to be able to cross that corridor safely and conveniently.

Therefore, the design of intersections and interchanges shall accommodate bicyclists and pedestrians in a manner that is safe, accessible and convenient.

- Getting exceptions approved at a senior level. Exceptions for the non-inclusion of bikeways and walkways shall be approved by a senior manager and be documented with supporting data that indicates the basis for the decision.

- Designing facilities to the best currently available standards and guidelines. The design of facilities for bicyclists and pedestrians should follow design guidelines and standards that are commonly used, such as the AASHTO *Guide for the Development of Bicycle Facilities*, AASHTO's *A Policy on Geometric Design of Highways and Streets*, and the ITE Recommended Practice "*Design and Safety of Pedestrian Facilities*".

State Policies

Deputy Directive 64 (DD-64)

Deputy Directive 64 "Accommodating Non-Motorized Travel" became effective on March 26, 2001. The policy states that Caltrans will fully consider the needs of non-motorized travelers - including pedestrians, bicyclists, and persons with disabilities - in all programming, planning, maintenance, construction, operations, and project development activities and products.

"… the Legislature of the State of California hereby encourages all cities and counties to implement the policies of the California Department of Transportation Deputy Directive 64 and the United States Department of Transportation's design guidance document on integrating bicycling and walking when building their transportation infrastructure.

- from ACR 211, 2002.

Assembly Concurrent Resolution 211 (ACR 211)

On August 12, 2002, the state legislature approved Assemblyman Joe Nation's Assembly Concurrent Resolution 211. This resolution encourages California's cities and counties to implement the policies of both DD-64 and the USDOT's design guidance on integrating walking and bicycling.

Local Policies

MTC Resolution No. 2178, Revised

The Metropolitan Transportation Commission (MTC) is the Metropolitan Planning Organization (MPO) for the nine counties of the San Francisco Bay Area. In 1990 MTC began requiring every city and county to establish a Bicycle Advisory Committee (BAC) to review and prioritized projects recommended for

Transportation Development Act (TDA) Article 3 funding and to help develop bicycle plans.

To comply with these requirements, the Petaluma City Council established the Petaluma Bicycle Advisory Committee (PBAC) in 1993, which evolved into the Petaluma Pedestrian and Bicycle Advisory Committee.

MTC Resolution No. 3765

The MTC entered into Resolution No. 3765 on June 28, 2006, that states that the MTC adopts the recommendations from the study *Routine Accommodation of Pedestrians and Bicyclists in the Bay Area*. These recommendations deal with policy, project planning and design, funding and review, and training. The recommendations most applicable to Petaluma are:

- Projects funded all or in part with regional funds (e.g. federal, STIP, bridge tolls) shall consider the accommodation of bicycle and pedestrian facilities, as described in Caltrans Deputy Directive 64. These recommendations shall not replace locally adopted policies regarding transportation planning, design, and construction. These recommendations are intended to facilitate the accommodation of pedestrians, which include wheelchair users, and bicyclists needs into all projects where bicycle and pedestrian travel is consistent with current, adopted regional and local plans. In the absence of such plans, federal, state, and local standards and guidelines should be used to determine appropriate accommodations.
- To promote local bicyclists and pedestrian involvement, Caltrans District 4 will maintain and share, either quarterly or semi-annually at the District 4 Bicycle Advisory Committee, a table listing ongoing Project Initiation Documents (PIDS) for Caltrans and locally-sponsored projects on state highway facilities where bicyclists and pedestrians are permitted.
- MTC will continue to support funding for bicycle and pedestrian planning, with special focus on the development of new plans and the update of plans more than fiver years old.
- MTC's-fund programming policies shall ensure project sponsors consider the accommodation of bicyclists and pedestrians consistent with Caltrans' Deputy Directive 64. Projects funded all or in part with regional discretionary funds must consider bicycle and pedestrian facilities in the full project cost consistent with Recommendation 1 above. The Federal Highway Administration recommends including up to 20% of the pro-

ject cost to address non-motorized access improvements; MTC encourages local agencies to adopt their own percentages.

- TDA Article 3, Regional Bike/Ped, and TLC funds shall not be used to fund bicycle and pedestrian facilities needed for new roadway or transit construction projects that remove or degrade bicycle and pedestrian access. Funding to enhance bicycle and/or pedestrian access associated with new roadway or transit construction projects should be included in the funding for that project.
- MTC, its regional bicycle and pedestrian working groups, the Partnership's Local Streets and Roads committee, and the county congestion management agencies (CMAs) shall develop a project checklist to be used by implementing agencies to evaluate bicycle and pedestrian facility needs and to identify its accommodation associated with regionally-funding roadway and transit projects consistent with applicable plans and/or standards. The form is intended for use on projects at their earliest conception or design phase and will be developed by the end of 2006.
- Caltrans and MTC will continue to promote and host project manager and designer training sessions to staff and local agencies to promote routine accommodation consistent with Deputy Directive 64.

LAND USE

Land uses in Petaluma reflect historical trends and the significance of transportation needs. Commercial, office, and industrial uses are located along the Petaluma River and major arterials in the city: Petaluma Boulevard, McDowell Boulevard, Lakeville Street/Highway, and Washington Street. Large business parks housing light industrial, office, and R & D uses and are located on the far southeastern side of Petaluma off Lakeville Highway and far northwestern side along North McDowell Boulevard. Large shopping centers are centrally located on McDowell Boulevard at Washington Street in addition to the outlet mall on Petaluma Boulevard North. The large Redwood Gateway Center on North McDowell Boulevard near Redwood Way is under construction with some stores already in operation, and a large retail and housing development is proposed for the former Kenilworth Junior High School site on Washington Street near Highway 101.

Large residential subdivisions, especially on the east side, illustrate the development trends at the time of construction. Long blocks that assumed dependence upon the automobile characterize much of the northeast quadrant while curvilinear streets and cul-de-sacs designed to reduce cut-through traffic comprise much of the northwest section of Petaluma. Older residential areas closer to downtown are generally built on a grid system creating smaller blocks.

A map of existing land use is provided on page 29.

COMMUTING

The US Census collects information on which mode of transportation employed people over the age of 16 primarily used to get to work. Table 1 shows this information for the State of California, Sonoma County, and Petaluma based on the 2000 Census.

Compared to the state and county, Petaluma has a slightly higher percentage of people who bicycle to work but lower numbers of people who walk to work. These figures can be expected to increase as more bicycle improvements are made and proposed development in Central Petaluma allows residents to live closer to jobs and other destinations.

TABLE 1 - 2000 CENSUS JOURNEY TO WORK

Transportation Mode	California		Sonoma County		Petaluma	
	#	%	#	%	#	%
Drove Alone	10,432,462	71.8	168,134	85.6	19,899	83.9
Carpool	2,113,313	14.5	28,283	14.4	3,815	19.2
Transit	736,037	5.1	5,507	2.4	1,385	5.0
Motorcycle	36,262	0.2	517	0.2	51	0.2
Bicycle	120,567	0.8	1,744	0.8	245	0.9
Walk	414,581	2.9	6,929	3.1	714	2.6
Other	115,064	0.8	1,587	0.7	198	0.7
Worked at Home	557,036	3.8	12,246	5.4	1,293	4.7

The California Blueprint for Bicycling and Walking recommends increasing bicycling and walking by 50% by 2010 and Petaluma should work to achieve this goal at the minimum. Using this guideline, 1.5% of commuters should bicycle to work and 3.9% should be walking to work by 2010.

It is important to keep in mind that these Census figures do not accurately portray the number of people that bicycle and walk on a regular basis, such as children who walk or bike to school and people who conduct errands on foot or with a bicycle. The results of the 2001 National Household Travel Survey found that commute trips (all modes) only accounted for about 15 percent of all trips. Family and personal reasons (shopping, running errands) generated 45 percent of all trips.

COLLISIONS

The California Highway Patrol (CHP) maintains a database called the Statewide Integrated Traffic Records System (SWITRS). All traffic collisions to which a police officer responds is entered into this database, including collisions that involve bicyclists and pedestrians. Table 2 summarizes the number of bicyclists and pedestrians involved in collisions recorded in the years 2000 through 2007.

TABLE 2 - BICYCLE AND PEDESTRIAN COLLISIONS IN PETALUMA, 2000-2007

	BICYCLE			PEDESTRIAN		
Year	Property Damage Only	Injury	Fatality	Property Damage Only	Injury	Fatality
2000	8	18	1	2	26	1
2001	11	26	1	4	35	0
2002	14	22	1	0	28	0
2003	4	22	1	2	30	0
2004	4	30	0	1	24	0
2005	6	21	0	1	27	0
2006	4	23	0	1	22	1
2007	3	32	0	1	26	1
TOTAL	**54**	**194**	**4**	**12**	**218**	**3**

The police officer at the scene of a collision collects a variety of information, including the cause. Table 3 lists the number of bicyclists and pedestrians involved in collisions by cause.

TABLE 3 - CAUSES OF BICYCLE AND PEDESTRIAN COLLISIONS 2000-2007

Cause	Bicycle	Pedestrian
Automobile right-of-way violation	43	10
Driving under the influence	4	8
Following too closely	1	0
Hazardous parking	1	0
Improper passing	2	0
Improper turning	17	1
Lights	2	0
Other	2	1
Other equipment	2	0
Other hazardous movement	31	7
Other improper driving	10	12
Other than driver	3	8
Pedestrian or other under the influence	0	2
Pedestrian right-of-way violation	3	83
Pedestrian violation	3	43
Stopped in road	2	0
Traffic signals or signs	17	2
Unknown	41	25
Unsafe lane change	2	0
Unsafe speed	8	8
Unsafe starting or backing	3	23
Wrong side of road	55	0

The highest number of people involved in bicycle collisions, 55 (22%), were caused by the bicyclist riding on the wrong side of the road against traffic, two of these leading to bicyclist fatalities. The highest number of people involved in pedestrian collisions, 83 (36%), were caused by motorists not yielding to the pedestrian right-of-way.

In a separate analysis of bicycle collisions involving riders aged 18 and under, two-thirds of the collisions happened outside of normal commute-to-school periods. Just under half of all bicycle collisions reported in Petaluma involve this age group.

The highest number of bicycle collisions took place in the vicinity of the following intersections: East Washington Street/McDowell Boulevard (12), East Washington Street/Highway 101 (8), East

Washington Street/Maria Drive (6), East Washington Street/Ellis Street (6), East Washington Street/Wilson Street (5), Eat Washington Street/Edith Street (5), McDowell Boulevard South / McNeil Avenue (5). The highest number of pedestrian collisions took place in the vicinity of the following intersections: Washington Street/Keller Street (6), East Washington Street/McDowell Boulevard (6), Washington Street/Petaluma Boulevard (5), East Washington Street/Ellis Street (5), Washington Street/Kentucky Street (5), and East Washington Street/Maria Drive (5).

The California Office of Traffic Safety ranks collision data against cities of similar size. Petaluma is ranked against the other cities with populations between 50,001 and 100,000. A ranking of 1/92 indicates that the city had the highest number of victims/collisions per 1,000 residents. The results for the years 2001-2006 are in Table 4. Note that pedestrian and bicyclist victim rankings do not take into account the size or demographics of a city's pedestrian/bicyclist population. Also, OTS rankings are only indicators of potential problems; there are many factors that may either understate or overstate a city ranking.

Research into bicycle collisions has found that a majority of bicyclists taken to the hospital had collisions with other bicyclists or alone. This information is generally not reported to local police departments and, therefore, do not show up on SWITRS records. The *real* number of bicycle accidents is unknown.

TABLE 4 – PETALUMA'S OFFICE OF TRAFFIC SAFETY RANKINGS FOR BICYCLE AND PEDESTRIAN FATAL AND INJURY COLLISIONS, 2001-2006

Year	Type of Ranking	Type of Collision				
		Pedestrians	Pedestrians <15 years	Pedestrians 65+ years	Bicyclists	Bicyclists <15 years
2001	Ranking by Vehicle Miles Traveled	23/92	46/92	8/92	22/92	37/92
	Ranking by Population	24/92	50/92	10/92	22/92	42/92
2002	Ranking by Vehicle Miles Traveled	18/92	37/92	84/92	26/92	24/92
	Ranking by Population	26/92	30/92	81/92	28/92	23/92
2003	Ranking by Vehicle Miles Traveled	18/92	23/92	20/92	20/92	60/92
	Ranking by Population	12/92	23/92	23/92	21/92	64/92
2004	Ranking by Vehicle Miles Traveled	52/97	95/97	6/97	8/97	6/97
	Ranking by Population	60/97	96/97	7/97	9/97	6/97
2005	Ranking by Vehicle Miles Traveled	33/100	32/100	14/100	17/100	29/100
	Ranking by Population	34/100	33/100	16/100	13/100	25/100
2006	Ranking by Vehicle Miles Traveled	41/103	48/103	69/103	20/103	25/103
	Ranking by Population	37/103	49/103	66/103	17/103	24/103

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FIGURE 2 EXISTING LAND USE MAP

CHAPTER 3:

BICYCLE FACILITIES

Most of Petaluma lies on the relatively flat floor of the Petaluma River valley and offers easy bicycle riding conditions. Past efforts of the PBAC, implementation of parts of the 2000 Bicycle Plan, and increased awareness of bicycling needs by City staff have all contributed to improving the cycling environment. Despite these conditions, bicycling is an activity many Petalumans avoid. Some key corridors are intimidating and other facilities are inadequate. Perhaps the most significant barrier to increasing bicycling in Petaluma is the lack of sufficient east/west and north/south safe commuter routes with a minimum of Class II bike lanes. This chapter identifies ways to make Petaluma a more enjoyable bicycling environment.

R44 Bike Path Exclusion Sign for Class 1 Bike Paths

BIKEWAY CLASSIFICATIONS

Chapter 1000 of the California *Highway Design Manual* describes three kinds of bikeways: Class I, Class II, and Class III. Jurisdictions that fund bikeways with Caltrans money are required to meet the minimum design criteria in Chapter 1000, but cities are recommended to follow these specifications for all bikeway projects. Below is a brief summary of each class of bikeway.

R81 Bike Lane Sign for Class II Bike Lanes

Class I Bike Path

Class I is an off-street pathway that may be shared with pedestrians.

Class II Bike Lane

Class II are on-street bikeways specifically for bicycle use. They are delineated by striping, stenciling, and signage.

Class III Bike Route

Class III are on-street bikeways that are generally delineated only by signs. Bike routes are used to connect discontinuous segments of a bikeway or for streets that are too narrow for bike lanes but serve as an important through street. Signed bike routes should provide better bicycling conditions than other streets through increased maintenance, traffic control devices that favor bicyclists (such as bicycle sensitive detectors at signals), and restricted on-

D11-1 Bike Route sign

street parking in particularly narrow locations. A 4-inch white edge stripe separating the traffic lanes from the shoulder can provide safer shared use on roadways that have wider outside travel lanes.

Jurisdictions have been working on ways to improve Class III bike routes to make bicyclists feel more secure. Two methods have been used in the San Francisco area that can be models for Petaluma developers. These are bicycle boulevards and the shared roadway bicycle marking.

Bicycle Boulevard

Berkeley Bicycle Boulevard

One type of Class III facility that has gained a lot of interest in California is the bicycle boulevard, a concept that was developed in Palo Alto and implemented on a larger scale in Berkeley. Bicycle Boulevards are generally comprised of residential streets that parallel a major street designed to give priority to bicyclists. By emphasizing bicycle use over automobiles, the walking environment is also improved. One or more of the following conditions shall exist to increase the safety and convenience of a bicycle boulevard:

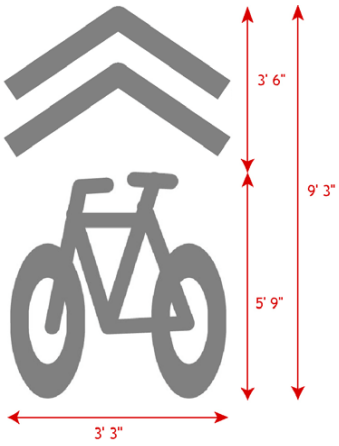
- Low traffic volumes
- Discourage non-local motor vehicle traffic, generally through traffic calming devices
- Free-flow travel for bicycles by assigning right-of-way to the bicycle boulevard at intersections wherever possible (i.e. removing unnecessary stop signs)
- Traffic control to help bicycles cross major streets (i.e. bicycle sensitive detectors at signals)
- Distinct "look" to alert bicyclists and motorists that the route is a priority for bicyclists (pavement markings, special signs)

Recreational Trail

An off-street pathway for multi-use or pedestrian use only where topography or other constraints limit the feasibility of constructing a Class I pathway but public access is highly desired.

Shared Roadway Bicycle Marking

The shared roadway bicycle marking has recently been approved by Caltrans for Class III bikeways. This marking is placed 11 feet from the curb on bike routes with on-street parking to encourage bicyclists to ride at a distance that prevents them from being struck by an opened car door. Other advantages of the marking are that it encourages bicyclists to ride in the correct direction, discourages riding on sidewalks, and alerts motorists of where to expect cyclists. The markings should be placed every 250 feet but may be placed with more or less frequency depending upon conditions.



EXISTING FACILITIES

Bikeways

There are currently (2008) 19.0 miles of Class I, 20.3 miles of Class II, and 1 mile of Class III bikeways in Petaluma. Existing bikeways in Petaluma vary between the east side of the city and the west. Because the east side has been built over the past few decades, bikeways have been included in development or streets were wide enough to accommodate bike lanes at a later time. Streets with bike lanes include Ely Road, Sonoma Mountain Parkway, Rainier Avenue, Casa Grande Road, McDowell Boulevard, Caulfield Lane, and Maria Drive. Multi-use pathways are more prevalent on the east side including the pathways along the urban separator, Lynch Creek, Capri Creek, Corona Creek, East Washington and Washington Creeks.

Petaluma was recognized as the Most Improved Bicycle Community by the Bay Area Bicycle Coalition in May 2005.

Retrofitting the west side of the city has been more difficult. Narrower streets and minimal right-of-way to increase street widths restrict which streets qualify for bike lanes. There are limited opportunities to add trails because of established development and limited new development potential. Western Avenue, Bodega Avenue, B Street, and Industrial Avenue are the longest stretches of bike lanes west of Highway 101. Existing trails are present along parts of the Petaluma River, in Helen Putnam Regional Park, and in the Westridge and West Haven neighborhoods.

Conditions of Approval for projects constructed over the past several years often included bike lanes. In some instances these are short segments of bike lanes that do not connect to other bikeways. Future efforts need to focus on filling these gaps in order to provide a functional and integrated bikeway system.

Bicycle Parking

Bike rack built by Petaluma High School students.

Bicycle parking is located throughout the city, primarily in major shopping centers, downtown, schools, newer office parks, and the new Theatre District parking garage. Parking is prevalent in newer developments because the City's Zoning Ordinance requires short- and long-term bicycle parking.

A unique partnership was forged between the City and Petaluma High School. The school's Manufacturing Technology department held a contract to manufacture post-and-loop bike racks as part of the downtown streetscape improvements. These racks will be a welcome addition to downtown as existing bike racks are scarce.

Valet parking involves a fenced bike parking lot with attendants parking the bikes and keeping them safe. Valet parking has been provided by the Sonoma County Bicycle Coalition for special events. The PBAC provided valet parking for the opening day of the new Boulevard Cinema on May 19, 2005, which coincided with Bike to Work Day. Free popcorn was given to theater-goers with a valet bike parking ticket.

Transit

Linking bicycle trips with transit enables people to commute longer distances or forgo riding at night or during inclement weather. Bicycle parking at bus stops and bike racks on buses are necessary to make this link happen.

All Petaluma transit buses are equipped with front-loading bike racks that hold two bicycles. Exterior racks are also provided on all Golden Gate Transit buses that are 40 feet long or less. In summer 2002, Sonoma County Transit became one of the first transit operators to install the new three bicycle front loading bicycle racks on its fleet of full-sized buses.

During busy commute hours, bike-bus riders are often faced with full front-loading bike racks when their bus arrives. It is important that bike racks be installed at bus stops so riders can leave their bicycles in a secure location. Major bus stops in Petaluma are equipped with bicycle racks. The Park and Ride on Lakeville Highway at US 101 also has bicycle lockers.

Showers and Changing Facilities

The Zoning Ordinance requires shower facilities in certain buildings over 10,000 square feet. The showers and locker facilities that have been installed in these buildings are only available to people who work there. There are no public shower facilities in Petaluma.

FACILITY IMPROVEMENTS

Streets designated as bikeways need more than just striping and signs to become functional bikeways, and constructing bikeways alone is often not enough to convince people to bicycle on a regular basis. This section highlights some of the other facilities and design issues that are important components of a bicycle-friendly system.

Bicycle Parking

Encouraging bicycle use in Petaluma requires proper facilities, including safe, secure, and convenient bicycle parking. Racks are often installed because the zoning ordinance requires them but they are rarely given much thought. The PBAC has developed recommended design, location, and installation tips for bike racks so that parking is more efficient for bicyclists.

Bike Rack Styles

There are numerous bike rack styles available, but preferred models should:

- keep the bike upright by supporting the frame in two places,
- allow the frame and one or both wheels to be secured with a U-lock,
- be securely anchored or heavy enough that it cannot be stolen, and
- be durable enough to resist being cut or vandalized.

Examples of well-designed bike racks are illustrated in the margin of this page.

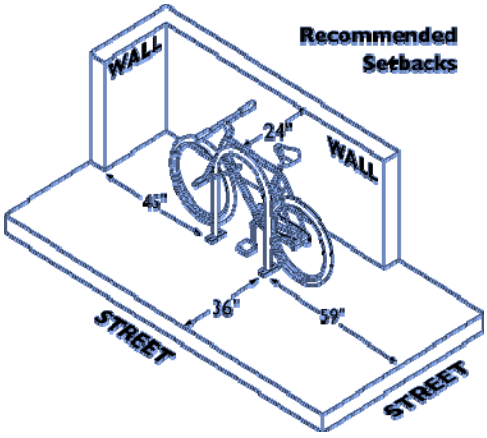
Bike Rack Locations

Using the tips below will help determine where to place bike racks on a site that will enable the racks to be visible, convenient, and to protect bicycles from the weather.

- Bike racks should be located within 50 feet, but no more than 120 feet, from the entrance bicyclists use.
- Racks should be as close - if not closer - than the nearest car parking space.
- Whenever possible, racks should be in a covered area protected from the elements. Outdoor parking should be located under awnings or overhangs.
- Racks should be located in a clearly visible area with high pedestrian activity and lighting to deter vandalism.

Bike Rack Installation

Bike racks should be installed to allow easy access to one's bicycle and placement away from objects that may not allow proper use of the bicycle rack.



Graphic courtesy of DERO bike racks.

- Position racks so there is enough room between adjacent parked bicycles. If it becomes too difficult for a bicyclist to easily lock their bicycle, they may park it elsewhere and the bicycle capacity is lowered. For example, a row of inverted "U" racks should be situated on 30-inch centers.
- Bike racks should be located at least 24 inches from a parallel wall.
- Allow a 5-foot aisle behind parking to enable bicyclists to maneuver in and out of a parking spot.
- Empty racks should not pose a tripping hazard for visually impaired pedestrians. Position racks out of the walkway's clear zone (space reserved for walking).

Bike racks provide short-term parking, but commuters often want parking that provides long-term protection. Bike lockers, bike lids, and attended bicycle parking allow bicyclists to store their bicycles in a place that protects it from the weather and vandalism. Employers may also choose to devote space inside their building for employee parking.

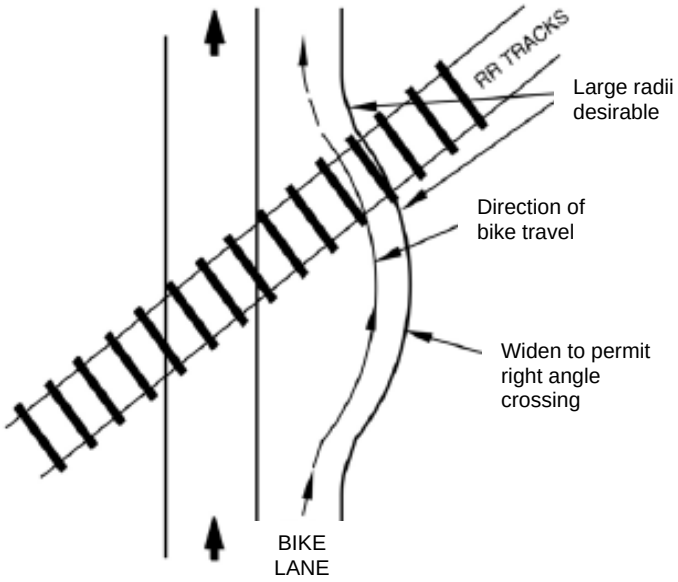
Signals

Bicyclist-actuated buttons are common in Petaluma, especially in the east side. These buttons are located on the side of the road and allow a cyclist to trigger a signal if there are no automobiles present and tells the signal to remain green long enough to allow a bicycle to safely cross the intersection. Because these buttons are situated at the curb, they are neither convenient nor safe for bicyclists in a left turn lane and can cause conflicts between bicyclists waiting on the right hand side of the roadway and vehicles turning right.

Round loop detector sawcut.

Bicycle sensitive loop detectors are the preferred treatment in these instances. Traffic signals are often triggered by automobiles that are detected by inductive loop detectors buried in the pavement that work like a metal detector. If installed correctly, loop detectors can also detect the metal in bicycle wheels. The pattern of the loop detector affects where it will most likely sense a bicycle. The city standard in Petaluma is the round loop type. This loop is more likely to detect a bicycle on the outside edges rather than in the middle. A pavement marking should be placed at the spot where the detector is most sensitive to bicycles. The sensitivity of the sensor can also be adjusted to distinguish small amounts of metal. All left turn lanes at signalized intersections must have bicycle sensitive loop detectors.

The marking on the left is a bike loop detector pavement marking used to show bicyclists where to place their bikes in order to trigger the traffic signal. The image on the right is a button located on the side of the road to trigger traffic signals to turn.



A widened bike lane permits bicyclists to cross railroad tracks at a safer angle.
Source: *California Highway Design Manual*, Chapter 1000.

Railroad Crossings

Railroad tracks can be particularly dangerous obstacles for bicyclists. Wheels can easily get trapped in the rail flangeway, causing the bicyclist to lose control. Wherever possible, bikeways and trails should cross railroad tracks at right angles to the rails. If the crossing angle is less than 45 degrees, the approach should provide additional width so bicyclists can cross at a safer angle, preferably perpendicular.

As an additional safety feature, the flangeway should also be filled. Compressible flangeway fillers fill in this gap while allowing low-speed trains to continue to operate. Crossing surfaces also influence bicyclist (and pedestrian) safety. Rubberized or concrete crossing surfaces require less maintenance and provide a smoother surface than asphalt and timber crossings.

Share the Road Signs

These signs are used to remind motorists that bicycles have a right to use the roadway and to be aware of their presence. These signs should be used on streets with a good amount of bicycle traffic that do not have bike lanes or a separate bikeway facility.

The Fine Details

The following are some small construction and maintenance details to consider:

- Perform street sweeping more frequently on dangerous or heavily-traveled bikeways, and whenever gravel and other debris accumulate on bikeways.
- Manhole covers, sewer and drainage grates, and other metal objects imbedded in travel lanes should be constructed or retrofitted to be flush with the street.
- The interface of concrete gutters and asphalt roadways should be built and maintained smooth and flush.

- Drainage grates should not be of the parallel bar design because bicycle tires can get caught between the bars.

Colored Bike Lanes

Although widely used in Europe, colored bike lanes in the United States are found in only a handful of cities. Portland, Oregon's well-known blue bike lane experiment has generated interest in colored lanes, and a number of cities are now testing the effectiveness of colored lanes. The City of San Francisco is considering a citywide network of brick red lanes and blue lanes for shorter high-conflict locations. Petaluma installed a segment of colored lanes on Lakeville Street, between East Washington Street and East 'D' Street.

Blue bike lane in Beaverton, Oregon.
Photo: City of Portland, OR

Colored bike lanes increase motorists' awareness of bicycles on the roadway by distinctly delineating right-of-way for bicyclists which also helps bicyclists by showing their recommended path. Colored bike lanes are commonly used where bicycle/motorist conflicts are high, such as highway on- and off-ramps where merging motorists must cross a bike lane.

PROPOSED FACILITIES

Bicycle Network

When developing the bicycle network, several factors and characteristics were kept in mind: existing and desired bicycle travel routes, accessing major destinations, existing street widths, known development and redevelopment activities, and logical trail alignments. These features combined with the last bicycle map evolved into the proposed bicycle network shown on page 13.

One may notice proposed bike lanes on streets such as Petaluma Boulevard, Washington Street, Lakeville Street, and Bodega Avenue – all major arterial roadways that are currently not wide enough for bike lanes. These are vital routes for automobiles because they reach major destinations and provide good through-travel – the very same reasons bicyclists would like to have safe bikeways along these streets. Our hope is that any future street reconstruction involves the addition of bike lanes. If this is not feasible, then high-quality Class III bike routes should be installed.

Top Priority Bicycle Projects

Below are the top five bicycle facility projects and brief descriptions of recommended improvements.

Petaluma Boulevard North & South

Petaluma Boulevard is an important corridor for bicycling because it parallels Highway 101, travels through downtown, and leads to major employment centers. This street has been included as a proposed bikeway in the Central Petaluma Specific Plan, Sonoma Countywide Bicycle Plan, and the MTC Regional Bicycle Plan.

Ideally, cyclists would like to see Class II bike lanes along the entire corridor. Through downtown, the current lane configuration involves four narrow travel lanes and parking on both sides of the street. The Central Petaluma Specific Plan recommends eliminating two lanes to make room for bike lanes. This reconfiguration has not drawn support, therefore, the newly resurfaced and striped part of the Boulevard through downtown was left in the four-lane configuration. In instances such as these, improved Class III bike routes must be in place. If the street lacks wide outside lanes, then the shared roadway bicycle marking should be installed to make bicyclists feel more welcomed and warn motorists of bicyclists on the roadway. In addition, safer bicycle access in the Highway 101 interchange at Petaluma Boulevard South is needed. Bicycles are allowed on Highway 101 between Petaluma Boulevard South and the Atherton exit in Novato. Bicyclists trying to enter southbound 101, especially, face a challenge.

Washington Street

An interchange in Davis, CA, has pavement markings signaling bicyclists when to merge left to the other bike lane. This location also had signage.

Washington Street is the most vital east-west arterial in Petaluma. Bike counts at two locations along Washington Street in 2006 found an average of 95 bicycles during the four-hour counting periods; 75% rode on the sidewalk. This was, by far, the busiest street of the counting locations.

Class II bike lanes are currently in place between Sonoma Mountain Parkway/Ely Boulevard and the eastern city limit and in the vicinity of the Washington Street / McDowell Boulevard intersection. The most desirable treatment for the entire corridor is Class II bike lanes. Sections of Washington Street are too narrow to add lanes in the current configuration and reducing the number of travel lanes is the only financially feasible approach to acquire

enough right-of-way. If this technique is not supported, then improved Class III bikeways need to be in place.

Bicyclists traveling eastbound often find it difficult to negotiate the Highway 101 interchange as cars merge right to enter the highway. This location needs to be improved to warn motorists of bicyclists merging to the left of the right turn lane and to let bicyclists know where it is safer to move to the left.

Lakeville Street and Highway

The Lakeville Street/Highway corridor is a high-volume arterial street that serves eastside residential neighborhoods, the Lakeville Business Park, the Petaluma Marina, a park-and-ride at the Highway 101 interchange, the historic depot (Visitor's Center), numerous commercial and light industrial businesses, and the future Ellis Creek Water Recycling Facility and recreational area. Wherever possible, Lakeville Street and Lakeville Highway should be equipped with Class II bike lanes. There are a few locations where the right-of-way is extremely limited and improved Class III bike routes should connect the gaps between bike lane segments.

In addition to these on-street improvements, three specific sites require more attention. Westbound bicyclists on Lakeville are especially vulnerable at both Highway 101 on-ramps as cars merge right. These locations need bike lanes to the left of the right turn lanes and signage warning motorists of merging bicyclists. The second area of concern is the intersection with the Adobe Creek Trail. The trail on either side of the roadway are essentially dead ends as no facilities are in place to connect them, let alone make users aware that trail exists on the other side of Lakeville Highway. A mid-block at-grade crossing, signs and wide (8'-10') sidewalks directing users to the nearest signalized intersection, or a bicycle and pedestrian overcrossing should be analyzed. Thirdly, the NWP railroad tracks intersect Lakeville Street at an angle, not perpendicular. Compressible flangeway fillers should be installed where bicyclists are expected to cross the tracks.

Bike Rack Program

PBAC members have identified a number of locations that need bicycle racks:

- All city parks
- Howard & Bodega and Howard & Western for day laborers

- Restaurants and cafes, especially for employees
- Keller Street parking garage
- Phoenix Theater
- Churches
- Lucchesi ball fields
- Shopping centers need to provide more parking

A Bike Rack Program would provide and install free bicycle racks within the public right-of-way. Requests for racks would come from the public or business owners. Field visits by City staff would determine whether the location is suitable to site a bike rack. Most racks would be located in the "furnishings zone" of a sidewalk corridor, the space between the curb and clear walking space on a sidewalk, although plazas and parks would be other eligible locations. Bike racks must not interfere with pedestrian flow or transit boarding, should be two to three feet from other encroachments (planters, utility poles, trees, etc.) as well as the curb, and must be located in an area with a lot of foot traffic to deter vandalism. A number of Bay Area bike parking programs (San Francisco, Oakland, Berkeley) use Transportation Fund for Clean Air grants to fund their programs.

Bicycle racks on private property are paid for by the property owner. However, all bicycle racks installed in Petaluma should meet the design and siting recommendations in this plan.

Loop Detector Improvements

This scene at the intersection of Caulfield Lane with Payran Street is not uncommon. A bicycle push button is located on the far right side at the curb - an inconvenient location for bicyclists wanting to travel straight or turn left.

A common frustration for bicyclists is the loop detector that does not detect a bicycle, forcing the bicyclist to travel through a red light. This project recommends adjusting all loop detectors so bicycles are detected. These loop detectors also need to have the bike loop detector pavement marking, especially if it is not apparent where the loop is embedded in the pavement.

Other Priority Projects

The bikeway projects listed below were singled out as additional priority projects.

- Bike Boulevard Pilot Project: East D Street between Payran Street and Lakeville Street is an ideal candidate for a bike boulevard: it parallels a major corridor (Washington Street), is a residential street, and connects to major destinations. This is a short segment but crucial for many bicyclists traveling between the east and west sides. The project could be as simple as installing the large (30′ 3.5″ long by 6′ wide) bike boulevard pavement marking used in Berkeley and generating some press so the general public realizes the purpose.

- Bodega Avenue: Class II bike lanes from Webster Street to Howard Street

- Corona Road: Class II bike lanes from Petaluma Boulevard North to Adobe Road (in coordination with County); Class II needed on Highway 101 overpass

- D Street Bridge: Sidewalks should rarely be used as recommended bikeways, but this location may be one of those exceptions. Some bicycle riders feel uncomfortable riding in the travel lanes, especially when the grating is wet and slippery. With no ramp closer to the bridge, the eastbound cyclists must enter the sidewalk at First Street. Signage should be installed to allow bicyclists to utilize the sidewalks and signal where they should enter the sidewalk.

- Keokuk Street: Class II bike lanes from Washington Street to Magnolia Avenue

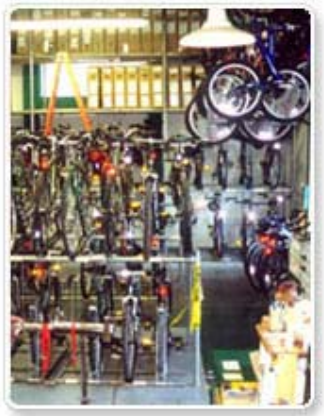
- Magnolia Avenue: Class III bike route from Petaluma Boulevard North to city limit

- Redwood Highway: Class II bike lanes on Highway 101 overpass

- Western Avenue: Class II bike lanes from Benjamin Lane to Chileno Valley Road in partnership with the County

Bicycle Station

Some major transit stations have included secure bicycle parking and support services to encourage the bike-transit linked trips.



Bikestation in Palo Alto.
Photo courtesy of Bikestation Palo Alto.

Parking cages may be staffed or require membership to ensure bikes will be safe. Related services could include bike shops and repair, self maintenance station with tools and air pump, bike rentals or lending, refreshment stands, showers and lockers, and commute information. Bikestation® is a non-profit organization that helps agencies develop the bicycle station concept and offers support to the local operators (non-profit, for-profit, or advocacy groups). Bay Area bike stations can be found at the Embarcadero BART station in San Francisco, Downtown Berkeley BART station, and the Palo Alto Caltrain depot. A similar concept is planned for the Petaluma depot when the SMART commuter rail is operational.

RESOURCES

Bicycle Facility Planning, Suzan Anderson Pinsof and Terri Musser, American Planning Association, Planning Advisory Service Report No. 459, 1995.

Bicycle Parking Guidelines, Association of Pedestrian and Bicycle Professionals, 2002.

http://www.bicyclinginfo.org/pdf/bikepark.pdf

California Highway Design Manual, Chapter 1000: Bikeway Planning and Design, California Department of Transportation, February 1, 2001.

http://www.dot.ca.gov/hq/oppd/hdm/pdf/chp1000.pdf

Guide for the Development of Bicycle Facilities, American Association of State Highway and Transportation Officials, 1999.

Manual of Uniform Traffic Control Devices (MUTCD), Federal Highway Administration, National Advisory Committee on Uniform Traffic Control Devices, 2003.

http://mutcd.fhwa.dot.gov/kno-2003r1.htm

MUTCD 2003 California Supplement, California Department of Transportation, May 20, 2004.

http://www.dot.ca.gov/hq/traffops/signtech/mutcdsupp/supplement.htm

Roundabouts: An Informational Guide, Federal Highway Administration (Publication No. FHWA-RD-00-067), June 2000.

http://www.tfhrc.gov/safety/00068.htm

CHAPTER 4:

PEDESTRIAN FACILITIES

Walkable communities encourage children to walk to school, which can help fight childhood obesity and related health issues. Seniors and people with disabilities can maintain a level of independence they would not have if walking were not a viable option. Walkable neighborhoods allow residents to be more in touch with the community by interacting with those they meet on the sidewalk and observing the environment around them. When more people choose to walk, communities have less traffic, better air quality, and a healthier populace. This chapter will discuss measures to enhance the existing pedestrian infrastructure and help guide future design and construction.

AMERICANS WITH DISABILITIES ACT OF 1990

No discussion of pedestrian facilities is complete without mention of "ADA." The Americans with Disabilities Act of 1990 (ADA) is a civil rights law that requires any entity open to the public to be fully accessible to people with disabilities. The U.S. Access Board is required to develop minimum guidelines to ensure that buildings, facilities (including sidewalks), rail passenger cars, and vehicles covered by Title II and Title III of the ADA are built to accommodate people with disabilities. The *Americans with Disabilities Act Accessibility Guidelines* (ADAAG) were first developed by the Board in 1991 and updated in 2004 (as the *Americans with Disabilities Act and Architectural Barriers Act Accessibility Guidelines*). Accessibility standards developed by the U.S. Department of Justice (USDOJ) and the U.S. Department of Transportation (USDOT) are enforceable under ADA but they must meet the minimum requirements of the ADAAG. The *ADA Standards for Accessible Design* are the enforceable standards adopted by the USDOJ and USDOT. Agencies that receive Federal funding must comply with these standards.

"People with disabilities represent over 53 million citizens of all ages in this nation, and they want – and deserve – to fully participate in all this country has to offer. Further improvements in the transportation system will go far in making such participation a reality."

- *Freedom to Travel*, US Department of Transportation, 2003.

The ADAAG provides limited guidance for designing elements of the public rights-of-way. The Access Board released draft guidelines in 2002 (and Revised Draft Guidelines in 2005) for new construction and alteration projects in the public rights-of-way. Finalized guidelines will become a supplement to the ADAAG. Among the topics addressed include crosswalks, curb ramps, street furnishings, pedestrian crossings at roundabouts, new pedestrian signals, and detectable warnings.

States can adopt their own accessibility guidelines but they must also meet the Federal minimum standards. Title 24 of the California Code of Regulations (also known as the California Building Standards Code) provides the regulations for barrier-free design in the state. Facilities that must comply with these regulations include: 1) publicly funded buildings, structures, sidewalks, curbs, and related facilities, 2) privately funded public accommodations and commercial facilities, and 3) public housing and private housing available for public use statewide.

Petaluma should strive to provide a fully-accessible pedestrian system and exceed the minimum design standards, especially as the population ages. While this chapter emphasizes designing pedestrian facilities for people with disabilities, it is in no way comprehensive. There are a vast array of "best practices" design guides available through the Access Board, U.S. Department of Transportation, U.S. Department of Justice, and numerous special interest groups that should be consulted when planning and designing facilities.

EXISTING CONDITIONS

On the whole, the pedestrian system in Petaluma is fairly comprehensive. Older Westside neighborhoods were built with walking in mind, and fortunately, the eastside neighborhoods that have been built primarily in the last 30 years included sidewalks unlike typical suburban development during this time in many parts of the country. While a vast majority of the streets have sidewalks, segments of some key corridors – namely Lakeville Highway, Petaluma Boulevard, and McDowell Boulevard North – are missing lengthy stretches of sidewalks. Curb ramps are lacking along many key corridors and within older and newer neighborhoods.

The Centers for Disease Control recommends that adults get at least 30 minutes of moderate-intensity physical exercise (such as brisk walking) on five or more days per week.

Recent notable pedestrian facility improvements include pedestrian countdown signals, "corrals" at Washington Street in front of the Downtown River Apartments and on the East Washington Creek Trail crossing of Ely Boulevard, and new trails along Washington Creek and East Washington Creek. The Public Works Department implemented the downtown streetscape improvements to make the area more pedestrian-friendly. The new Theatre District is also incorporating some designs, such as curb extensions, to make walking attractive.

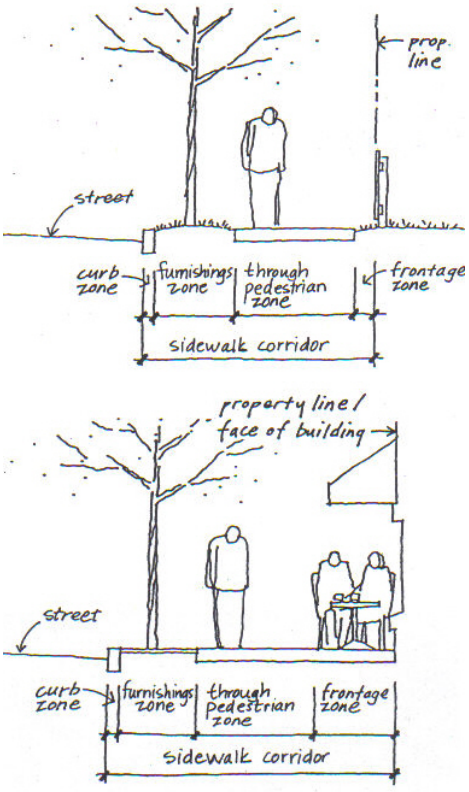
DESIGNING PEDESTRIAN FACILITIES

Designing cities and streets to encourage walking requires fully-functional facilities, land use strategies, and thoughtful site design. This section describes some of the essential components needed in a walkable community and suggestions for making them truly pedestrian-friendly. Federal agencies and Caltrans have developed minimum design requirements for many of these facilities, but the City and its developers should strive to construct facilities beyond the minimum requirements. When the Pedestrian and Bicycle Advisory Committee reviews site plans, these are many of the elements the committee will consider.

Sidewalks

Sidewalks are the pedestrian's domain; nothing is more important to a pedestrian than a well-designed, smooth, connected system of sidewalks. Achieving this is not a simple task.

A sidewalk corridor can be split into four "zones." Each zone has particular functions that provide and enhance the pedestrian experience. The key characteristics of each of these zones is highlighted below:



The Sidewalk Corridor zone concept on residential (top) and commercial (bottom) sidewalks. *Source: Portland Pedestrian Design Guide*, June 1998.

- *Curb Zone* – The three functions of this zone are to prevent street water from entering the pedestrian area, discourage vehicles from intruding on the pedestrian space, and make it easier for street sweepers to clean the streets.

- *Furnishings Zone* – This zone buffers the pedestrian from the roadway. This space is where one will find elements that do not belong in the street or in pedestrian traffic: street trees and other vegetation, parking meters, hydrants, street lights, driveway aprons, sign poles, etc. This area also shields pedestrians from open car doors. The wider the Furnishings Zone, the more comfortable pedestrians feel walking on the sidewalk.

- *Through Pedestrian Zone* – This zone is the space reserved for pedestrians; nothing should be in the zone. This zone should be at least five feet wide along residential streets and wider where pedestrian volume is higher.

- *Frontage Zone* – This zone is the space between the

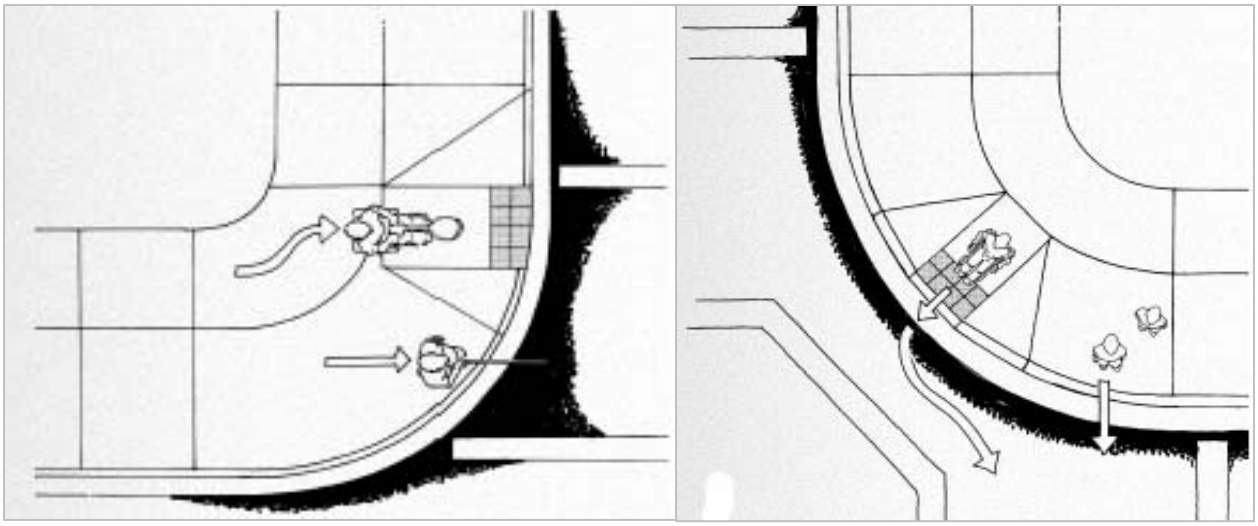
Through Pedestrian Zone and the property line. This area provides pedestrians with "shy" distance from buildings, fences, and hedges. This zone may include elements normally found in the Furnishings Zone, sidewalk dining, as well as elements typically found on buildings such as rails, signs, flags, awnings, etc.

Curb Ramps

Truncated domes at Kenilworth Junior High School

Curb ramps provide a transition from the sidewalk to the street for a variety of sidewalk users – people in wheelchairs, parents pushing strollers, small children on bicycles, delivery people using handcarts, and people with mobility impairments that have difficulty stepping from curbs. According to Title II of the Americans with Disabilities Act (ADA), all new or altered streets and sidewalks must have ramps or sloped areas wherever sidewalks or pathways cross curbs or other barriers.

Not only do curb ramps need to be designed for wheelchair users, but they need to provide cues for people with vision impairments. To a person with vision impairments, the curb delineates where the street is located. When a curb ramp is installed, the descent to the street is gradual and the curb is removed which makes it difficult to determine when one has entered the roadway. Therefore, "detectable warnings" are needed for these people so they know exactly where the street is. Truncated domes placed in a 24-inch strip where the ramp meets the street are recommended detectable warnings because they are distinct.



Left, the curb ramp is aligned with the crosswalk. Right, the diagonal curb ramp forces wheelchair users to cross in a different location from other pedestrians.
Source: Designing Sidewalks and Trails for Access: Best Practices Design Guide, 2001.

Determining whether a corner should have one or two curb ramps depends upon the characteristics of that particular corner, such as the curb radius, location of hydrants, poles, traffic signals, and drainage facilities. Wherever possible, curb ramps should be aligned with the direction of the crosswalk, which would usually call for two ramps on the corner. This provides orientation for visually impaired pedestrians and safer conditions for wheelchair users. Diagonal curb ramps at the apex of the corner force wheelchair users to cross at a different location than other pedestrians and requires them to turn at the top and bottom of the ramp so they can access the ramp straight on to reduce their risk of tipping over.

Marked Crosswalks

In California, pedestrians are only prohibited from crossing a street at unmarked locations between two adjacent signalized crossings. Crosswalks are generally marked to indicate the preferred locations for pedestrians to cross the street and to designate right-of-way for motorists to yield to pedestrians.

Crosswalk getting a fresh coat of paint.

Crosswalk markings should not be used indiscriminately. In 2002, the Federal Highway Administration released the results of a nationwide study[1] of 1,000 marked crosswalks and 1,000 unmarked crossings at uncontrolled (no stop signs or traffic signals) intersections that lacked any kind of traffic calming or special pedestrian crossing devices (i.e. bulb outs, flashing beacons). The study found that marked crosswalks alone did not significantly reduce the number of pedestrian crashes. In fact, on multi-lane streets with over 12,000 vehicles per day, marked crosswalks were associated with higher incidents of pedestrian crashes.

In general, crosswalks may be marked under the following conditions:

- At locations with traffic signals or stop signs.
- At non-signalized crossings in designated school zones.

[1] Zegeer, Charles V., Stewart, Richard, Huang, Herman H., and Lagerwey, Peter A., *Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Locations*, Federal Highway Administration, February 2002.

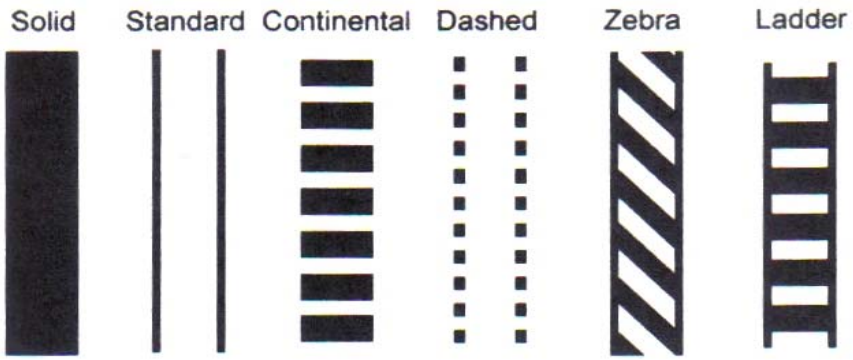
- At non-signalized locations where an engineering judgment may find a crosswalk desirable due to the number of vehicle lanes, traffic speeds, traffic volumes, and the geometry of the location.

In some instances, marked crosswalks alone may not be sufficient:

- On streets where the speed limit exceeds 40 miles per hour.
- On roadways with four or more lanes, average daily traffic over 12,000, and without a raised median or crossing island.
- On roadways with four or more lanes that do have a raised median or crossing island but with average daily traffic exceeding 15,000.

These locations call for enhancements to increase pedestrian safety in addition to crosswalk markings. These can include traffic calming measures (i.e. curb extensions, raised crosswalks, "road diets"), traffic signals and pedestrian signals where warranted, enhanced overhead lighting, or other substantial crossing improvements.

The best material for marking crosswalks is inlay tape because it is highly reflective, long-lasting, and slip resistant. Inlay tape is most effective when used on newly paved streets. Thermoplastic is a good alternative for rougher surfaces. Paint is less expensive but requires more maintenance.



Crosswalk Markings
Source: Pedestrian Facilities Users Guide: Providing Safety and Mobility, March 2002.

There is a number of crosswalk marking patterns, as shown in the graphic above. The "standard" marking is the most common but "continental" and "ladder" markings are better for locations that require highly visible crossings, such as busy roadways.

Crosswalks shall be white unless it is located in a school zone, where they are to be yellow.

Pedestrian Signals

We are all familiar with the pedestrian signals of the walking person and raised hand or DON'T WALK at traffic signals, but pedestrian signals can be enhanced with other technologies.

Accessible Pedestrian Signals (APS)

Accessible pedestrian signals (APS) are devices that communicate information about the pedestrian signal timing in non-visual formats such as audible tones, verbal messages, and/or vibrating surfaces. These devices should be used at signalized intersections that are difficult to cross for pedestrians with visual disabilities, including those locations with complex signal operations, right turn on red, wide streets, quiet traffic, and traffic circles.

When audible tones are used, the sound will only activate during the WALK interval. These sounds can be bells, buzzing, birdcalls, or speech messages ("Washington. Walk sign is on to cross Washington"). The APS format used in Petaluma is the chirp (for east/west travel) and cuckoo (for north/south travel).

Vibrotactile APS involves either the pushbutton or a raised arrow on the housing vibrating during the WALK interval. The vibration may be slow during the DON'T WALK interval and fast during WALK.

Countdown Signals

Countdown signals display how many seconds remain in the pedestrian change interval (flashing upraised hand). This reduces the number of pedestrians that get stranded in the middle of the street when the light changes. This application is particularly useful at wide crossings and where there are a high number of mobility-impaired pedestrians.

Push Buttons

The push buttons used to activate a pedestrian signal have its own design requirements. Before ADA, pushbuttons were small buttons that sometimes require a fair amount of force to push. Push buttons are now required to be a minimum of 2 inches in diameter so they can be operated using a closed fist. This is especially helpful for persons with mobility impairments or if

one's hands are full and cannot activate a button with their fingers. Retrofitting the city's push buttons with larger buttons would enhance crossings for a wide variety of users.

Push buttons should be located convenient to the corresponding crosswalk so as to encourage their use by both pedestrians and people in wheelchairs. Push buttons should be located no more than five feet from the crosswalk and should be placed on signal poles if they are adjacent to the crosswalk area. Separate pedestrian push button posts should be used when the signal poles are more than five feet from the crosswalk.

Mid-Block Crossings

As children, we are taught to cross the street at intersections because motorists are more likely to expect pedestrians to cross there than at random mid-block locations. However, there are instances when a mid-block crossing is desirable, especially on long blocks where crossings are far apart, where trails may intersect a roadway at a mid-block location, or where there is a concentration of pedestrians crossing mid-block anyway. With proper design and placement, mid-block crossings can provide safety benefits. Before installing a mid-block crossing, consideration must be given to traffic speeds and volumes, roadway width, sight distance, nearby land uses, and lighting. As roadway widths, traffic volumes, and traffic speeds increase, mid-block crossings require more safety features. For example, a crossing on a two-lane local road may need no more than just a marked crosswalk whereas a four-lane arterial street may require a marked crosswalk, signage, beacons, and a refuge island.

If gaps in traffic flow are inadequate and pedestrians become impatient, they may endanger themselves by crossing when it is not safe. Mid-block crossings along busy streets may need to be improved with pedestrian actuated signals. Locations in Petaluma with these enhanced crossings include Sonoma Mountain Parkway at Monroe Street where pedestrians can activate flashing beacons over the roadway and warning signs for motorists say "Vehicles Yield When Lights Flashing," Riesling Road at the Parkway Plaza where pedestrian push buttons activate in-roadway warning lights, and at several mid-block crossings downtown where pedestrian motion detectors trigger in-roadway warning lights.

Reducing Crossing Widths

The less time a pedestrian spends in the roadway, the smaller the risk of conflict with automobiles. Reducing pedestrian crossings is a desirable design feature when feasible. Crossing islands (center islands, refuge islands, pedestrian islands, median slow points) are placed in the center of the street and allow pedestrians to cross one direction of traffic at a time. This treatment is especially helpful for children, seniors, and people with disabilities who may not be able to cross the entire width during short gaps in traffic. Islands and medians are also traffic calming devices because they narrow the roadway which often slows motorists. A well-designed island provides a cut-through (rather than ramps) that is at least four feet wide and eight feet long with detectable warnings at both ends.

Mid-block crossing on Petaluma Boulevard at Putnam Plaza includes in-roadway warning lights.

Two mid-block pedestrian "corrals" have been installed in Petaluma recently, one on Ely Boulevard at the crossing of the East Washington Creek Trail, and the other in front of the Downtown River Apartments on Washington Street. In these situations, the crosswalks are off-set to require pedestrians in the median to turn to face traffic before crossing the other direction of traffic.

The pedestrian corral on Washington Street includes in-roadway warning lights.

Another way to narrow crossing widths is with curb extensions or bulb outs that extend the sidewalk into the parking lane and usually reduces the radius of the corners to slow turning vehicles. This brings pedestrians closer to the travel lanes, making them more visible to motorists. An example of a curb extension at a mid-block crossing is on Petaluma Boulevard at Putnam Plaza. The new Theatre District has incorporated bulb outs at several intersections and mid-block crossings.

Bulb-outs such as these at the intersection of C and Second Streets are prevalent in the new Theatre District.

Transit Stops

The pedestrian network is particularly important to transit riders, most of whom normally begin and end their trips as pedestrians. Because people with disabilities and senior citizens often rely on transit as a vital means of transportation, accessible routes to

transit stops and site design must accommodate their needs.

As a general rule, riders are willing to walk one-quarter mile to and from a transit stop. At a minimum, the City needs to ensure that dense pedestrian networks - including paved sidewalks, curb ramps, and safe crossings - are in place within a quarter mile radius of transit stops.

4th and C Street bus stop.

Bus stops must be designed with safety and accessibility in mind. They should be equipped with bus stop signage, lighting, trash receptacles, bicycle parking, and shelters with seating. If a bus shelter is in place, there must be a clear path allowing pedestrians to comfortably pass. Stops should be located on the far side of intersections so pedestrians cross the street behind the bus where motorists are more likely to see pedestrians. It is also imperative to provide a wider sidewalk at stops to allow enough room to operate wheelchair lifts.

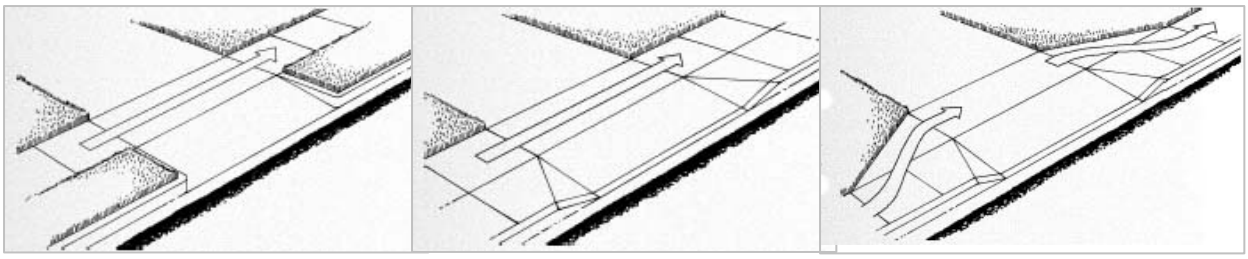
Access to transit will be an extremely important concern if the SMART commuter rail begins operation. Stations have been proposed at the former depot on Lakeville Street between Washington Street and East D Street and on Corona Road near McDowell Boulevard. The City of Petaluma must provide a complete network of pedestrian facilities and aesthetically pleasing walking environments to encourage transit use.

MTC Resolution 3434 included a Transit Oriented Development (TOD) policy that applies to certain regional transit extensions, including SMART. One of the key elements of this TOD policy is the development of local station area plans that address future land use changes, station access needs, circulation improvements, pedestrian-friendly design, and other key features in a transit-oriented development. Circulation plans must emphasize pedestrian, bicycle, and wheelchair access. The Central Petaluma Specific Plan included these elements for the depot site on Lakeville Street. Any future SMART stations should be developed using recommendations of the TOD policy which creates exceptional bicycle and pedestrian access.

Driveway Crossings

Driveways can be an especially challenging obstacle for people in wheelchairs or using walkers. Problems occur most often when the sidewalk is located adjacent to the curb which forces pedestrians to walk across the driveway apron. Driveway aprons are constructed similar to curb ramps with flares on either side of the ramp. So when the sidewalk leads right to the driveway

apron, pedestrians must travel over the flares. These flares and ramps can have slopes greater than two percent that can cause wheelchairs to tip and provides an unstable surface for walkers. Driveway crossings must be designed with a level pedestrian zone as illustrated in the examples below.



Three examples of good driveway crossings.
Source: Designing Sidewalks and Trails for Access: Best Practices Design Guide, 2001.

Roundabouts

Roundabouts are gaining in popularity because the device allows more vehicles to move through an intersection with lower collision rates. However, these intersections can be problematic for bicyclists and pedestrians, especially pedestrians with disabilities. Some of the safety issues associated with pedestrians at roundabouts are listed below.

- Roundabouts can eliminate the crossing gaps that people with vision impairments use to determine when it is safe to cross and makes it more difficult for slower pedestrians such as children, the elderly, or people with cognitive impairments.

- Vehicles exiting a roundabout are not typically required to yield to pedestrians.

- Crosswalks are placed away from the intersection to increase pedestrian visibility but it requires pedestrians to walk longer distances and may be difficult for pedestrians with vision impairments to identify.

More research is needed to guide jurisdictions on the appropriate locations for roundabouts and design features necessary to make them fully accessible. Until standards are developed, professional engineering judgment and review of existing research should be consulted to design roundabouts for pedestrians with disabilities. A few basic design considerations are listed below:

- Add pedestrian refuge islands to reduce the crossing distance and allow pedestrians to cross one direction of traffic at a time.

- The pedestrian refuge (splitter island) should be at least 6 feet wide to adequately provide shelter for persons pushing a stroller or walking a bicycle.

- At single-lane roundabouts, the pedestrian crossing should be located one vehicle-length (25 feet) away from the yield line. At double-lane roundabouts, the pedestrian crossing should be located one, two, or three car lengths (25 ft, 50 ft, 75 ft) away from the yield line.

- The pedestrian refuge should be designed at street level, rather than elevated to the height of the splitter island.

- It is recommended that a detectable warning surface be applied to the surface of the refuge within the splitter island and on curb ramps.

- Single lane roundabouts have a shorter crossing distance and minimizes the number of conflict points with vehicles than multi-lane roundabouts.

- Sidewalks should be set back from the edge of the circulatory roadway and landscaped to discourage pedestrians from crossing through the central island.

Roundabout at the intersection of Corona Road and Sonoma Mountain Parkway.

Land Use

Land use substantially influences one's walking and bicycling habits. Someone living near downtown is more likely to run errands on foot or with their bike than someone living in a large residential subdivision on the east side.

In the 1990s, the term "smart growth" became a popular planning strategy to counter sprawl. As illustrated by the smart growth principles listed here, smart growth creates more livable communities by promoting variety, preserving the environment, and making alternative modes of transportation viable. The three styles of development listed below are smart growth examples that result in walkable neighborhoods.

Transit-oriented development

Transit-oriented development (TOD) emphasizes compact growth around transit hubs. It is reminiscent of the streetcar days when development would concentrate around rail stops. The developments contain a mix of residential, employment, and shopping destinations so people can walk and use transit for a majority of their trips. Some definitions of TOD state that these developments are within one-quarter mile of the transit stop.

Mixed-use development

Mixed-use developments involve mixing housing and retail / commercial uses within the development. These areas are generally compact with multi-story buildings often with businesses on the ground level and residential upper floors. Live/work buildings fit into this kind of construction. Such dense developments with an assortment of uses create an ideal neighborhood for walking.

Traditional neighborhood development

Traditional neighborhood development (TND), characterized in older, pre-WWII neighborhoods, is becoming a popular development pattern in cities. These developments tend to have a variety of housing styles, commercial and civic uses within the neighborhood, an interconnected grid of streets forming smaller blocks, and streetscapes focused on pedestrians rather than

Smart Growth Principles:

- Mix land uses
- Take advantage of compact building design
- Create a range of housing opportunities and choices
- Create walkable neighborhoods
- Foster distinctive, attractive communities with a strong sense of place
- Preserve open space, farmland, natural beauty, and critical environmental areas
- Strengthen and direct development towards existing communities
- Provide a variety of transportation choices
- Make development decisions predictable, fair, and cost effective
- Encourage community and stakeholder collaboration in development decisions

accommodating vehicles. The variety of uses combined with smaller-scaled development makes walking and bicycling a logical transportation mode for residents.

Short-Cuts

The Washington Creek subdivision constructed a short-cut from a cul-de-sac to Prince Park.

Newer developments are generally designed with motorists in mind. Residential subdivisions are designed with cul-de-sacs and curvilinear streets rather than grid systems to reduce cut-through traffic and speeds. Walls may be erected around the perimeter of a development to minimize its effect on neighboring land uses and to force people to enter through limited access points. All of these characteristics are detrimental for bicyclists and, especially, pedestrians because they are forced to travel longer distances. Developers need to provide convenient short-cuts for cyclists and pedestrians to encourage these modes, such as: easements from cul-de-sacs to other streets, trails connecting subdivisions, and gates in fences/walls provide direct routes to adjacent land uses and streets.

Support Facilities

There are a number of elements that are not necessary for pedestrians but do enhance the pedestrian environment.

- Benches should be placed in retail areas, in parks, and at bus stops. Benches along trails should be located every 300 to 400 feet.
- Drinking fountains (with dog fountains) should be provided where pedestrians and bicyclists may be outdoors for a length of time or be traveling long distances.
- Trash receptacles provide a service for pedestrians and keep pedestrian areas clean.
- Landscaping can create a more inviting environment in which to walk, especially when trees provide much needed shade on a warm day. Trees and bushes need to be maintained so as not to intrude upon the pedestrian space – both horizontally and vertically – and to not block motorists' ability to see pedestrians at intersections and driveways.

PROJECTS AND PROGRAMS

Priority Sidewalk Projects

Below are the top five sidewalk facility projects and brief descriptions of recommended improvements.

Petaluma Boulevard North

Petaluma Boulevard North between Sycamore Lane/Shasta Avenue and Skillman Lane/Corona Road lacks sidewalks, but it is not uncommon to see families walking to Albertsons or the Petaluma Village Premium Outlets. And as more development occurs along this section of the Boulevard, the number of pedestrians should increase. Pedestrians are now forced to walk on the dirt or asphalt shoulders, parking lots, and driveways along the east side of the roadway. The walk is made even less comfortable for pedestrians with a posted speed limit of 45 miles per hour. Very little of the roadway has curbs and gutters, so standard concrete sidewalks cannot be installed. But better accommodations for pedestrians need to be explored, whether it be wider shoulders to safely share with bicyclists, asphalt pathways, and/or signage warning motorists that pedestrians may be present near the travel lanes.

The sidewalk on Petaluma Boulevard North ends at the bus stop near Shasta Avenue.

Petaluma Boulevard North between Sycamore Lane/Shasta Avenue and downtown should also be studied for improvements because it is not a particularly inviting street to walk. The corridor lacks streetscaping and has many driveways that create more potential areas for vehicle/pedestrian conflicts. There are few signalized intersections but many marked crosswalks. However, crossing the street can be a challenge as pedestrians need to cross four travel lanes and the middle turn lane. Pedestrian refuge islands and signage should be considered where feasible.

McDowell Boulevard North

A majority of the McDowell Boulevard North corridor between Old Redwood Highway and Corona Road lacks sidewalks. Although pedestrian use has been somewhat low due to the nature of the adjacent land uses, predominately office and industrial, this is changing. The Redwood Gateway shopping center, anchored by a Kohl's department store, has contributed to increased pedestrian activity. A SMART rail station proposed at the southeast corner of McDowell Boulevard North and Corona Road will provide an attractive transportation alternative to employees along the McDowell Boulevard North corridor and the

high-tech companies north of Old Redwood Highway. Transit-oriented development is also planned at the station site. Sidewalks need to be installed on both sides of the street to provide continuous pedestrian access between the future SMART station and Old Redwood Highway.

Washington Street

The General Plan envisions Washington Street as a boulevard enhanced for pedestrians. Streetscape improvements, including wider sidewalks and street trees, would serve to calm traffic and provide amenities inviting to pedestrians. The number of driveways should be reduced to lower pedestrian/vehicle conflicts. Marked crosswalks at uncontrolled intersections should also be improved.

Western Avenue

New residential developments under construction and planned along Windsor Drive will generate more pedestrian traffic along Western Avenue. There are no sidewalks between Windsor Drive and Benjamin Lane, only shoulder.

Improved Pedestrian Crossings

The arterial streets have marked crosswalks at uncontrolled intersections. These streets have four lanes of traffic and speeds that exceed the posted speed limit, which can make crossing difficult. Some locations may only require signs alerting motorists of crosswalks while other crossings may benefit with pedestrian refuge islands or flashing beacons, if warranted.

Other Priority Projects

The list below includes additional projects that were singled out as priorities.

- Industrial Avenue - continuous sidewalk
- Kenilworth overpass: reconstruct to be ADA compliant and equipped with lighting
- Lakeville Highway – continuous sidewalk to city limits
- Lakeville Street: East D Street to Lakeville Highway – wider sidewalks, improved crossings, curb ramps

- Lakeville Street: Washington Street to Madison Street – fill sidewalk gap on north side of street
- Magnolia Avenue: Gossage Avenue to Petaluma Boulevard – improved pedestrian access
- Pedestrian overpass across Lakeville Highway in the vicinity of Casa Grande Road
- Petaluma Boulevard South: downtown to former Dutra Quarry site – streetscaping, fill sidewalk gaps, improve crossings, install curb ramps, provide connections to the River

Magnolia Avenue near Liberty Street

Curb Ramp Installation

Title II of the ADA requires curb ramps for all pedestrian facilities. Cities are not required to upgrade existing sidewalks at one time, but should have a plan in place that eventually creates accessible routes citywide. Curb ramps can be installed in several ways. First, all new construction or reconstructed sidewalks are required to have curb ramps. Second, streets that have been altered must also include curb ramps. According to a Department of Justice technical assistance letter at Title II of the ADA,

> "When streets, roads, or highways are newly built or altered, they must have ramps or sloped areas wherever there are curbs or other barriers to entry from a sidewalk or path. Likewise, when new sidewalks or paths are built or altered, they must contain curb ramps or sloped areas wherever they intersect with streets, roads, or highways. Resurfacing beyond normal maintenance is an alteration. Merely filling potholes is considered to be normal maintenance."

A third approach to install curb ramps is to develop a program that upgrades existing facilities. Curb ramp locations could either be determined by city staff or as a response to citizen requests. Priority locations should be in downtown areas, streets near transit stops, schools, parks, medical facilities, shopping areas, and near residences of people who use wheelchairs.

According to Petaluma's 2005 Budget, $100,000 will be devoted towards curb ramps in FY 2005/06 through FY 2008/09 which should provide approximately 50 new ramps during this period. This program should be continued and/or provided with more funding through FY 2008/09 to address the large need for new and reconstructed curb ramps.

Sidewalk Repair

Chapter 13.10.020 of the Petaluma Municipal Code says that:

> "… owners of lots or portions of lots adjacent to or fronting on any portion of a sidewalk area between the property line of the lots and the street line, including landscape planting strips, sidewalks, curbs and gutters, and persons in possession of such lots by virtue of any permit or right shall repair and maintain such sidewalk areas and pay the costs and expenses therefore."

At one time, the City did have a program that paid one-half of the cost to repair sidewalks damaged by trees, but great demand and a small budget forced its termination. This Plan recommends reinstating a sidewalk repair program. One contractor could be hired by the City to do all work to keep costs low.

RESOURCES

ADA Standards for Accessible Design (28 CFR Part 36), Department of Justice, July 1, 1994.

http://www.usdoj.gov/crt/ada/stdspdf.htm

Americans with Disabilities Act and Architectural Barriers Act Accessibility Guidelines, United States Access Board, July 23, 2004.

http://www.access-board.gov/ada-aba/index.htm

California Highway Design Manual, Topic 105 – Pedestrian Facilities, California Department of Transportation, November 1, 2001.

http://www.dot.ca.gov/hq/oppd/hdm/pdf/chp0100.pdf

Designing Sidewalks and Trails for Access: Best Practices Design Guide, Federal Highway Administration (Publication No. FHWA-EP-01-027), September 2001.

http://www.fhwa.dot.gov/environment/sidewalk2/

Manual of Uniform Traffic Control Devices (MUTCD), Federal Highway Administration, National Advisory Committee on Uniform Traffic Control Devices, 2003.

http://mutcd.fhwa.dot.gov/kno-2003r1.htm

MUTCD 2003 California Supplement, California Department of Transportation, May 20, 2004.

http://www.dot.ca.gov/hq/traffops/signtech/mutcdsupp/supplement.htm

Pedestrian Facilities Users Guide: Providing Safety and Mobility, Federal Highway Administration (Publication No. FHWA-RD-01-102), March 2002.

http://www.walkinginfo.org/pdf/peduserguide/peduserguide.pdf

Roundabouts: An Informational Guide, Federal Highway Administration (Publication No. FHWA-RD-00-067), June 2000.

http://www.tfhrc.gov/safety/00068.htm

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CHAPTER 5:

MULTI-USE TRAILS

One gauge of a city's quality of life is by its trail system. Trails provide recreational spaces, bring environmental benefits, and encourage the use of alternative transportation, not to mention fostering social interaction among users. Petaluma has been very supportive of trails and residents enjoy the recreational opportunities and convenience that they provide. This chapter presents additional trail design recommendations and priority projects.

EXISTING FACILITIES

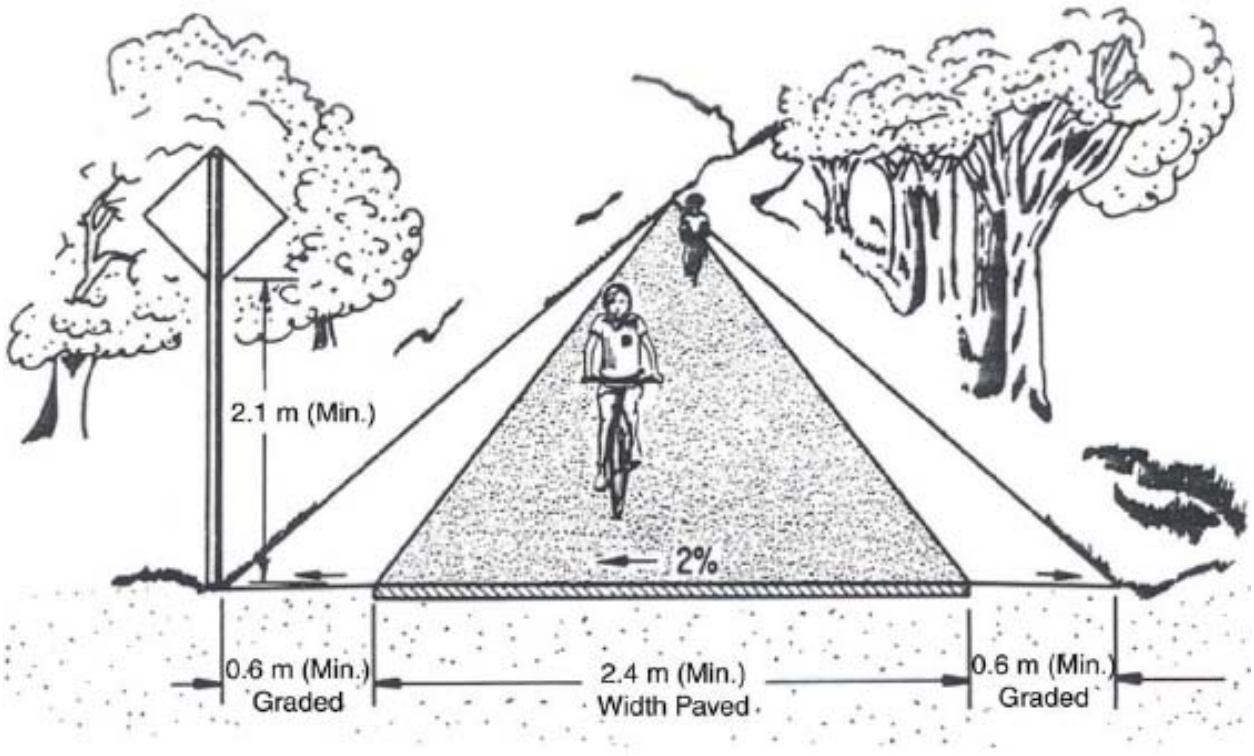
Many of Petaluma's trails attract users from all over the city while others appear to be neighborhood secrets. The most popular trail in Petaluma is at Shollenberger Park with connections to the Alman Marsh Trail and emerging Adobe Creek Trail, and will offer a future link to the trails proposed at the Ellis Creek Water Recycling Facility. The Petaluma Ring Trail system provides a nearly continuous off-street trail along most of the eastern edge of the city from Kenilworth Junior High School to Casa Grande Road. Trails along Capri Creek, Corona Creek, and Washington Creek have been constructed as development occurred. The Lynch Creek Trail offers an alternative to Washington Street for travel between the eastside and westside. The River Trail system has become a high-profile priority for the City to complement downtown redevelopment.

This bridge provides a shortcut from the Corona Creek Trail to Marble Way.

DESIGN GUIDELINES

Trails are designed according to anticipated number and type of users, local conditions, or determined by the funding source. In California, Chapter 1000 of the *Highway Design Manual* provides statewide minimum design standards for Class I bike paths. Paths that are constructed using Caltrans funds must meet these standards.

The minimum width of a two-way path is eight feet, but if pedestrian usage is expected to be high, 12-foot wide paths are recommended. Both sides of the path should have a two-foot (three feet is preferred) graded shoulder to provide clearance from poles, trees, walls, fences, guardrails, or other obstructions.

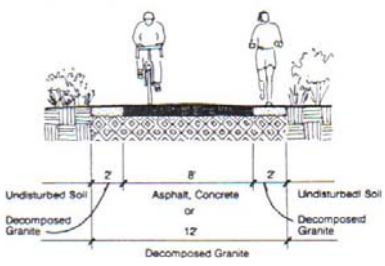


Typical cross section of a Class I bike path.
Source: Chapter 1000, *Highway Design Manual*.

Surface Materials

The type of trail surface can both encourage and discourage users; a hard surface will attract the greatest number of users.

Well-designed trails are firm and stable. A firm trail surface will not significantly give way when force is applied; it is a vertical measure. For instance, your foot will sink into a sandy trail but not one made of concrete. Stability describes how much the surface material will shift when a turning motion is applied, such as a wheels or a twisting foot.



Recommended design of bicycling and walking trails along the river.

Recommended surfaces for multi-use trails are concrete, asphalt, and crushed stones (stones less than 3/8" diameter) mixed with stabilizing agents. These trails will last longer, limit maintenance needs, are slip resistant, stay firm and stable during wet conditions, and are usable by people in wheelchairs. Soil types and drainage issues may also influence the choice of surface. Below are some additional conditions to consider when selecting an appropriate trail surface:

- Consider who will be using the trail. Is the trail primarily used for recreational purposes? If so, a softer surface will be more acceptable. However, if the trail leads to major destinations and is used by commuters and people going about their daily routine, the trail should be asphalt or concrete.
- Trail surfaces should also be able to withstand the load of an occasional maintenance or emergency vehicle.
- Soil types and drainage issues will also influence the choice of surface.
- Areas susceptible to flooding or runoff should have paved surfaces.
- In general, the least expensive surface treatments will require the most on-going maintenance.

The 2000 U.S. Census found that there are over 50 million Americans – nearly 1 in 5 people – with disabilities.

Recreational trail between McNear Avenue and Mount Rose Lane

Accessible Trails

The Access Board is in the process of developing accessibility standards for trails based upon recommendations of the Recreation Access Advisory Committee (RAAC) and subsequent Regulatory Negotiation Committee on Accessibility Guidelines for Outdoor Developed Areas. Until new guidelines are officially adopted, good sources of information on accessible trail design includes the Regulatory Negotiation Committee on Accessibility Guidelines for Outdoor Developed Areas Final Report (1999) and *Designing Sidewalks and Trails for Access: Best Practices Design Guide* (2001) by the US Department of Transportation.

The American Association of State Highway Transportation Officials' (AASHTO) Guide for the Development of Bicycle Facilities (1999) is often considered the primary source on bikeway design, including shared use trails. The Outdoor Developed Areas Final Report comments that the AASHTO Guide often requires a higher degree of accessibility because of the special needs of bicyclists and skaters. Table 5 compares the major accessibility issues in both documents.

Pedestrians are already using the SMART right-of-way as proven by the well-worn path alongside the tracks.

Recreational Trails

In some areas of Petaluma, multi-use trails would be desirable but the steep topography makes an accessible trail cost prohibitive. This is particularly true along the western urban separator. In these instances, developers are encouraged to construct recreational trails suitable for hiking and off-road biking; linkages to surface streets to provide convenient access is required, including paths through residential developments.

TABLE 5 – COMPARISON OF AASHTO GUIDELINES FOR BICYCLE FACILITIES AND THE PROPOSED GUIDELINES FOR TRAILS

Outdoor Developed Areas Accessibility Guidelines	AASHTO Guide for the Development of Bicycle Facilities
16.2.1 Surface: Firm and stable.	Bicycles need the same firmness and stability as wheelchairs; skaters usually require a smooth, paved surface. Most shared use paths are paved, although crushed aggregate surfaces are used on some paths.
16.2.2, Clear Tread Width: 36 inches (3 feet; 915 mm); exception for 32 inches (815 mm).	Shared use paths usually require a minimum 3 meter (10 foot) width, plus a 0.6 meter (2 foot) safety buffers on both sides. A 2.4 m (8 ft) width may be allowed in low use facilities. Posts or bollards installed to restrict motor vehicle traffic should be spaced 1.5 m (5 feet) apart. Posts or bollards should be brightly painted and reflectorized for visibility. When more than one post is used, use an odd number, with one on the centerline to help direct opposing traffic.
16.2.3, Surface Openings (Gaps): To prevent wheelchair wheels and cane tips from being caught in surface openings or gaps, openings in trail surfaces shall be of a size which does not permit passage of a ½ inch (13 mm) diameter sphere, elongated openings must be perpendicular or diagonal to the direction of travel; exception to permit parallel direction elongated openings if openings do not permit passage of a ¼ inch (6 mm) sphere; second exception to permit openings which do not permit passage of a ¾ inch (19 mm) sphere.	The AASHTO Guide does not specify a maximum dimension for a surface opening, but openings should be minimized. Openings should not permit a bicycle wheel to enter. Grates should be flush with the surface, and elongated openings should be perpendicular to the direction of travel. (Diagonal openings are more difficult for bicyclists to negotiate). Where openings are unavoidable, they should be clearly marked.
16.2.4, Protruding Objects: ADAAG 4.4; provide a warning if vertical clearance is less than 80 inches (2030 mm).	Protruding objects should not exist within the clear tread width of a shared use path. Vertical clearance on shared use paths should be a minimum of 3 m (10 feet) or the full clear width and the safety buffers. Where vertical

Outdoor Developed Areas Accessibility Guidelines	AASHTO Guide for the Development of Bicycle Facilities
	barriers and obstructions, such as abutments, piers, and other features are unavoidable, they should be clearly marked.
16.2.5, Tread Obstacles (Changes in level, roots, rocks, ruts): Up to 2 inches (50 mm); exception up to 3 inches (75 mm).	Tread obstacles are hazardous to bicyclists and skaters. The surface of a shared use path should be smooth and should not have tread obstacles.
16.2.6, Passing Space: At least 60 inches (1525 mm) width within 1,000 foot (300 m) intervals. Appendix note recommends more frequent intervals for some trail segments.	Shared use paths should have a minimum clear width of 3 m (10 ft), exception for 2.4 m (8 ft).
16.2.7.1 Cross slope: 1:20 (5%) maximum; exceptions for open drains up to 1:10 (10%).	For drainage, shared use paths should have a minimum 2% (1:50) cross slope on a paved surface. On unpaved shared use paths, particular attention should be paid to drainage to avoid erosion. Curves on shared use paths may require super elevation beyond 2% (1:50) for safety reasons. The Guide suggests limited cross slope for accessibility reasons.
16.2.7.2 Running Slope: 1:20 (5%) any length 1:12 (8.33%) for up to 200 feet 1:10 (10%) for up to 30 feet 1:8 (12.5%) for up to 10 feet No more than 30% of the total trail length shall exceed 1:12	Running slopes on shared use paths should be kept to a minimum; grades greater than 5 percent are undesirable. Grades steeper than 3 percent may not be practical for shared use paths with crushed stone or other unpaved surfaces. Where terrain dictates, grade lengths are recommended as follows: < 5% (< 1:20) any length 5-6% (1:20-16.7) for up to 240 m (800 ft) 7% (1:14.3) for up to 120 m (400 ft) 8% (1:12.5) for up to 90 m (300 ft) 9% (1:11.1) for up to 60 m (200 ft)

Outdoor Developed Areas Accessibility Guidelines	AASHTO Guide for the Development of Bicycle Facilities
	10% (1:10) for up to 30 m (100 ft) 11+% (1:9.1) for up to 15 m (50 ft)
16.2.8, Resting Intervals: Size: 60 inch (1525 mm) length, at least as wide as the widest trail segment adjacent to the rest area. Less than 1:20 (5%) slope in any direction. Resting areas are required where trail running slopes exceed 1:20 (5%), at intervals no greater than the lengths permitted under running slope (see 16.2.7.2 above).	The Guide does not address resting intervals.
16.2.9, Edge protection: Where provided, 3 inch (75 mm) minimum height. Handrails are not required.	The Guide does not address edge protection. Some kinds of edge protection may be hazardous to bicyclists and skaters. The Guide has minimum railing height recommendations when needed for safety reasons.
16.2.10, Signs: Accessible trails require designation with a symbol of accessibility, and information on total length of the accessible segment. No traffic control sign information.	Guidance on signing and marking is provided in the Manual on Uniform Traffic Control Devices (MUTCD), incorporated by reference as a Federal regulation (23 CFR 655.601). A proposed amendment for Part 9 (Traffic Controls for Bicycle Facilities) was published in the Federal Register on June 24, 1999 (64 FR 33802-33806). A rulemaking is scheduled for March 2000 that will have an update for Part 4 (Signals), that will include provisions for pedestrian signals for people with disabilities.

Source: Regulatory Negotiation Committee on Accessibility Guidelines for Outdoor Developed Areas Final Report, September 30, 1999.

PROJECTS

Top Priority Trail Projects

The five projects listed below are the top priority multi-use trail projects.

River Trail

The River Trail is a proposed trail system along the entire length of the Petaluma River through the city. In addition to the trail itself, connections to the trail from major streets (especially Petaluma Boulevard) will greatly enhance the usefulness of the trail. The most critical gap at this time is between Washington Street and Lakeville Street. Once this segment is completed, users could travel from downtown to Prince Park without traveling on surface streets.

SMART Rail-with-Trail

The Sonoma Marin Area Rail Transit (SMART) District is working to develop and implement commuter rail service along the Northwestern Pacific Railroad right-of-way from Cloverdale to a ferry terminal offering service to San Francisco (Larkspur or San Quentin). A Class I pathway within or adjacent to most of the 75-mile railroad right-of-way is also a component of this project. A proposed alignment has been developed as part of the EIR. One of the biggest obstacles in Petaluma is how to cross the river at the

Corona Creek Trail at Ely Road: no curb ramp on one end of crosswalk, the trail entrance is on Fieldstone Lane, and landscaping and a berm make it difficult to see that there is a trail on the other side.

swing bridge on the southern end of the city.

Trail/Roadway Intersection Improvements

Users unfamiliar with a trail may be led to believe that trails end at arterial streets. There are no signs, no crosswalks, missing curb ramps, and one often cannot see the trail on the other side of the street. Examples of such trail/roadway intersections include the Petaluma Ring Trail at Washington Street, Corona Creek Trail at Sonoma Mountain Parkway, Lynch Creek Trail at McDowell Boulevard North, Lynch Creek Trail at Sonoma Mountain Parkway, and the Adobe Creek Trail at Lakeville Highway.

Several trails are missing curb ramps (or bike ramps when ADA-compliant curb ramps are not necessary), which forces bicyclists to either dismount to enter/exit the trail or ride on the sidewalk to the nearest ramp. In some instances, this was done intentionally to keep bicyclists from entering a street mid-block. A study should be conducted to determine (1) how best to connect the trails at arterial roadways and (2) installation of curb ramps or bike ramps and other design features deemed necessary for safe access at mid-block locations.

Eastside Petaluma Ring Trail Gap Closure

An important asset to the Eastside is the Petaluma Ring Trail. While most of this trail is complete, the City should work to provide a continuous trail between Corona Road and Casa Grande Road. The longest gap in the system exists between Corona Road and Kenilworth Junior High School. The trail crossing at Washington Street is non-existent, so improvements are necessary to encourage users to take full advantage of the trail system.

Lynch Creek Trail Gap Closure

Paved sections of the Lynch Creek Trail are east of Sonoma Mountain Parkway and west of McDowell Boulevard. Between McDowell Boulevard and Sonoma Mountain Parkway, the trail is merely dirt or surfaced with wood chips. This section should be replaced with a paved trail to provide all-weather access between the Petaluma Ring Trail and the River Trail.

Other Trail Projects

Listed below are other trail projects that are also considered priorities. Additionally, several trail enhancements – signage, light-

ing, maintenance, and an Adopt-a-Trail program – are recommended improvement projects.

McDowell Boulevard North pathway

- **Adobe Creek Trail:** A complete Adobe Creek Trail would be a major asset to the east side of Petaluma as it would provide a link to Shollenberger Park and Alman Marsh, as well as new retail development along Lakeville Highway. It is also a proposed link in the Bay Area Ridge Trail for hikers, bicyclists and equestrians. Sections of the trail are now in operation and a neighborhood group is working with several agencies to revitalize the segment between Sartori Drive and Spyglass Road. A critical component of this trail system will be a safe crossing at Lakeville Highway.

- **Capri Creek Trail:** Surface improvements along Sunrise Park from Maria Drive to North McDowell Boulevard.

- **Lynch Creek Trail Upgrade:** The asphalt trail should continue from the end of the Lynch Creek Trail near Holly Lane to beginning of new River Trail near Washington Creek.

- **McDowell Boulevard North path:** An asphalt off-street pathway parallels McDowell Boulevard North between Lynch Creek Way and Pala Verde Way. The asphalt is in poor condition and a lip has developed between the pathway and sidewalk that is a tripping hazard and could cause bicyclists to loose their balance. The path should be replaced, preferably with a concrete trail.

- **Rail-with-Trail along proposed trolley line:** The revival of a historic trolley line has been proposed between the Petaluma Village Premium Outlets and the Foundry Wharf. This right-of-way does have a fair amount of pedestrian and mountain bike activity now. A rail-with-trail should be considered within the right-of-way as it would be a good alternative to Petaluma Boulevard. Additionally, a trail should reduce loitering and dumping that appear to be common now.

Bicyclists and pedestrians are common along the proposed trolley right-of-way.

- **Petaluma Ring Trail Upgrade:** Sections of the existing Petaluma Ring Trail are in dire need of improvement. The pathway through Wiseman Park is an eight-foot wide trail, half asphalt and half quarry fines. The asphalt has suffered damage over the years and parts of the quarry fines segment have been washed away. This section needs to be replaced with a wide, paved trail. The section between Wiseman Park and Sky Ranch Drive is not paved, so this, too, needs to be replaced

with a wide trail. In addition the width along the segment adjacent to Prince Park should be increased along with surface improvements.

Signage examples from the Contra Costa County Trail Design Guidelines.

- **Petaluma Ring Trail on Westside:** A trail is envisioned within the Urban Separator on the Westside of Petaluma, but unlike the trail on the Eastside, the Westside trail would be recreational in nature (not built to ADA standards) because of the hilly terrain.

- **Shollenberger Park Trail:** Improve surface and width on southern and eastern half of loop trail.

Trail Signage Program

Negotiating the city's trails can be frustrating to users unfamiliar with them. Many trails intersect at major roadways but trail users are given no signage indicating that the trail continues. Examples include the Petaluma Ring Trail at East Washington Street, Lynch Creek Trail at Sonoma Mountain Parkway and North McDowell Boulevard, and Corona Creek Trail at Sonoma Mountain Parkway. Signs posted where trails intersect roadways can also educate motorists about our trail system. Motorists often do not even realize they drive by these trails on a daily basis.

A standardized trail signage program can include wayfinding signs, traffic control signs (stop, yield), and street name signs. Contra Costa County has developed a Trail Design Resource Handbook to ensure consistency in signage, design, and construction of the county's trails for a user-friendly trail system. A similar guide would be especially useful in Petaluma.

Water run-off has damaged the urban separator trail near airport.

Lighting

Very few trails in Petaluma have lighting. Lighting can encourage twilight and nighttime riding and deter vandalism. Although it is not feasible or desirable to install lighting on all trails, lighting should be installed on trails popular with commuter cyclists and pedestrians.

The Lynch Creek Trail would be a priority location because it is an important link between the east and west side. Parts of the River Trail, especially between Lynch Creek and downtown, will generate a great deal of commuter traffic when complete. This section of River Trail, in particular, is susceptible to questionable behavior and lighting may deter illegal activities.

Maintenance

Trail maintenance is divided between the Public Works and Parks and Recreation Departments. Public Works is responsible for maintaining paved trails while Parks and Recreation maintains unpaved trails. As more trails are constructed throughout the city, maintaining this infrastructure becomes a larger task. Both types of trails require regular tree trimming, mowing, and litter removal. Asphalt trails need crack patching and segments replaced due to tree root damage. Unpaved trails necessitate weed abatement, regularly applied soil stabilizer, and repairs caused by standing water or tree roots. In order to protect the initial investment of trails, the City must devote more monies towards maintenance.

Adopt-a-Trail Program

Safe, clean trails attract more users than those with minimal maintenance. An "Adopt-a-Trail" program could help the City with some minor, routine maintenance while fostering a sense of community pride for the volunteers. These programs are similar to the Adopt-a-Highway programs in that individuals, groups, and organizations would "adopt" a section of trail for a specified time of year. Volunteers would be responsible to walk the trails on a weekly basis to pick up litter and debris and report any vandalism, suspicious activity, or maintenance issues to the Parks and Recreation or Public Works Department.

Art Paths

The Arts Council's Art Paths Project envisions a system of "art paths" that would incorporate public art, landscaping, and artistic design features along select multi-use trails. These trails will benefit the public in many ways including the introduction of art into the public realm, highlighting beauty in functionality, creating an imaginative tourist attraction, and encouraging more human-based transportation in Petaluma.

Painted benches, such as this one along the Prince Memorial Greenway in Santa Rosa, could be incorporated into art paths.

The "hub" of art paths is the former depot site that currently houses the Petaluma Visitor's Center and a proposed art center in the depot's freight building. Existing and future trails emanating from the hub will consist of varied art elements for the user to interact with and enjoy, and/or the path may wind alongside or lead to a destination that has something to do with art.

Art Paths is a broad based project with infinite possibilities, from gardens to murals to embedded mosaics and beyond. The Arts Council hopes to get various groups involved in creating art paths, including school groups, neighborhoods, the Latino community, and senior citizens, with collaboration from the PBAC and the Public Art Committee.

RESOURCES

California Highway Design Manual, Chapter 1000: Bikeway Planning and Design, California Department of Transportation, February 1, 2001.

http://www.dot.ca.gov/hq/oppd/hdm/pdf/chp1000.pdf

Designing Sidewalks and Trails for Access: Best Practices Design Guide, Federal Highway Administration (Publication No. FHWA-EP-01-027), September 2001.

http://www.fhwa.dot.gov/environment/sidewalk2/

Guide for the Development of Bicycle Facilities, American Association of State Highway and Transportation Officials, 1999.

Rails-with-Trails: Lessons Learned, Alta Planning + Design, Inc., US Department of Transportation, (Publication No. FTA-MA-26-0052-04-1), August 2002.

Regulatory Negotiation Committee on Accessibility Guidelines for Outdoor Developed Areas, Final Report, September 30, 1999.

Trails for the Twenty-First Century: Planning, Design, and Management Manual for Multi-Use Trails, Charles A. Flink, Kristine Olka, and Robert M. Searns, Rails-to-Trails Conservancy, 2001.

CHAPTER 6:

SAFETY AND EDUCATION

Achieving the safest possible bicycling environment is a task with many diverse elements. It includes proper bicycle etiquette through education, as well as law enforcement. Safety also means well-maintained streets and proper bikeway markings, regularly swept and well-lighted streets and bikeways, and a comprehensive bikeway system.

Safety also includes reminding drivers that all roads have a multi-modal function and that bicyclists and pedestrians have a right to use the city streets. It must be noted that on all major arterials, bicyclists are routinely intimidated by motorists for no reason other than being a bicyclist riding on the road. One has only to ride on any of these roads for a few days to understand this important reason why more Petalumans are discouraged from riding bicycles.

EXISTING PROGRAMS

The Police Department is always concerned about bicycle and pedestrian safety and has programs to support this cause. PBAC has increased its involvement in education and promotional programs over the past several years, and some community organizations are also adding new and innovative programs.

Bicycle Rodeos

Bicycle rodeos teach the importance of wearing helmets, safety rules of the road, and proper riding techniques. The Petaluma Police Department conducts bicycle rodeos for interested elementary schools or community groups. The County of Sonoma Health Services Department Safe Kids program loans out its Bike Safety Rodeo Kit to event organizers.

Free Helmets

Both the Petaluma Police Department and the County of Sonoma Safe Kids Program offer free helmets, while supplies last, to children upon request.

The Pedestrian and Bicycle Advisory Committee marched in the 2004 Butter and Egg Day Parade to promote Bike to Work Week.

This lucky gentleman received a new lighting system on Bike to Work Day 2004.

Walk and Roll to School Day 2004 at Miwok Elementary School.

Bike to Work Week/Day

California's Bike to Work Week/Day is held during the third week (third Thursday is Bike to Work Day) of May to encourage people to give bicycling a try. The PBAC actively promotes Bike to Work Day with "energizer stations" providing free food and gifts for morning bicycle commuters, a raffle for prizes, and recognition at a City Council meeting to the employer and schools with the most employees or students participating in Bike to Work Week.

In response to growing numbers of bicycle collisions, the PBAC added a safety component to Bike to Work Day 2004. Free helmets and lighting systems were handed out at the intersections of McDowell Boulevard and Washington Street and Howard Street and Washington Street to bicyclists who had neither and agreed to use them.

Walk and Roll to School Week/Day

Surveys conducted by the California Department of Health Services have found disheartening facts about the health of schoolchildren:

- Less than one in five children in California walk to school.
- One in three children and one in five teens is at risk of becoming overweight or already overweight in California.
- Less than half of California's children aged 9-11 got the recommended one hour or m ore of moderate physical activity per day.
- Only 31 percent of children who live within one mile of school walk to school; only 2 percent of children living within two miles of school travel by bicycle.

Other studies have found that parents driving their children to school make up 20-25 percent of the morning commute traffic. The declining

health of our children and cities has prompted efforts to encourage walking and bicycling to school. Walk & Roll to School Week is held during the first full week of October, with Walk & Roll to School Day on the Wednesday of that week.

Over the years, the PBAC has encouraged Petaluma's schools to participate in this event. The largest Walk & Roll to School Day thus far occurred on October 6, 2004. McDowell, Miwok, LaTercera, Bernard Eldredge, and Sonoma Mountain elementary schools all held special events to commemorate the day, many providing prizes and snacks for children who walked. Administration, teachers, parents, and community volunteers were very supportive of the event. It is our hope that more schools participate in the future.

Bicycle Safety Classes

Martin Clinton, a certified League of American Bicyclists (LAB) instructor, teaches a popular bike skills class to interested groups. He has taught some classes in Petaluma but often conducts classes through the Sonoma County Bicycle Coalition. SCBC has plans to obtain LAB certification for more local instructors.

Rotary Walks

The Rotary Club of Petaluma Valley initiated the Rotary Walks program in September 2005 as a way for Petalumans to get active, learn about the trails in the city, and to meet other people from the community.

User Maps

The Petaluma Green Lane is a new non-profit group created to support and promote bicycling and walking in Petaluma. The group has created a bike user map that is available on their website (www.healthycommunity.info/greenlane.htm) or can be purchased at bike shops. Petaluma Green Lane is also working with Petaluma High School woodshop students to build and install kiosks along trails. These kiosks contain the Petaluma Green Lane map on one side and directions and distances to destinations on the other side.

Kiosk along the River Trail

PROPOSED PROGRAMS

Safe Routes to School

In 2005 the City hired Whitlock & Weinberger Transportation, Inc. to conduct a Safe Routes to School Plan that focused on existing conditions and identifying infrastructure improvements – primarily bicycle and pedestrian access routes - in the vicinity of 12 elementary schools. Studies like this are valuable but a broader Safe Routes to School (SR2S) program is necessary to make any significant changes to the number of students that walk and bicycle to school.

Left: Fluorescent yellow-green School Crossing placards can be found in crosswalks near several elementary schools to remind motorists to be on the watch for pedestrians. *Right:* The overflowing bike cage at Kenilworth Junior High School illustrates the growing popularity of bicycling at the new site.

The goal of any SR2S program is to increase the number of students walking and bicycling to school. A successful SR2S program will result in less traffic congestion, promote healthier lifestyles, and a cleaner environment. Safe Routes to School programs teach bicycle and pedestrian safety skills through a combination of classroom instruction, literature for parents, and special events such as bike rodeos. The program requires support and cooperation from the school district, principals, teachers, students, parents, elected officials, and City staff.

Successful SR2S programs incorporate elements of the following four approaches:

- Encouragement – promotion through walk and bike to school days, walking school buses and bike trains, contests, classroom activities, mailings, and interest from the media

- Education – teach safety skills to students, develop walking and cycling maps of primary routes to schools, educate drivers about traffic safety

- Engineering – physical infrastructure improvements surrounding the school including bikeways, sidewalks, crosswalks, traffic calming, signals, etc.

- Enforcement – increase law enforcement around schools during drop-off/pick-up hours and increase police visibility; encourage schools to enforce helmet use

The Sonoma County Bicycle Coalition has volunteers working on a countywide SR2S program, using the successful Marin County program as a model. Healthy Communities Consortium, a Petaluma nonprofit is collaborating with local officials, schools, parents, and advocates to introduce SR2S into Petaluma's schools.

Safe Routes to Transit

Safe Routes to Transit implies that there should be a dense network of pedestrian and bicycle facilities radiating from transit centers and bus stops, as well as safe bicycle parking at the center/stop and wayfinding. In the short term, the City should focus its attention on access to the proposed Transit Center on Copeland and bus stops.

The 2002 National Survey of Pedestrian and Bicyclist Attitudes and Behaviors found that the average bicycle trip (not including those for exercise or recreation) was 2.2 miles, and the average walking trip (not including those for exercise or recreation) was 0.8 mile. These distances could be used to establish improvement zones around transit stops.

Transportation Demand Management

Transportation Demand Management (TDM) involves implementing various strategies to reduce traffic congestion through more efficient use of transportation resources. Employers should be encouraged to implement TDM programs not only because they reduce congestion, but it reduces the demand for parking, supports transit, employees enjoy financial savings by using their cars less often, benefits the environment, and improves the livability of the community.

There are numerous employer-sponsored TDM programs that employers may want to consider. Some possibilities are listed below.

- Develop a rideshare program or offer free or reduced transit passes.
- Provide preferential parking to carpools and vanpools for office buildings.
- Provide protected, secure, and convenient bicycle parking for employees.
- Provide a shower and locker facility for site employees that bicycle or walk.
- Provide short-term bicycle parking for retail customers and other non-commute trips that would be more convenient than auto parking.
- Offer cash incentives or purchase commuter bikes for employees who bicycle to work.
- Offer "flextime" so employees have more flexible work schedules rather than rigid working hours, and allow for telecommuting.
- Discourage the use of the single-occupant automobile when the use of an alternative is available and feasible.
- Make lender bicycles available to employees for conducting authorized company business.

Police Enforcement

In promoting public safety, law enforcement must ensure that motorists who disobey the law to the detriment of cyclists and pedestrians are cited. As the public becomes aware of a no-tolerance stance, they will more respect the rules of the road. But pedestrians and bicyclists also need to follow traffic laws for their own safety and to build respect from motorists. When bicyclists and pedestrians are at fault, it is recommended that police focus on educating, not punishing.

Listed below are measures the Police Department may consider to address bicycle and pedestrian law enforcement and public safety.

- Laws impacting bicycle and pedestrian safety, especially bicycles riding against traffic, lack of reflectors and headlights, helmet use, and motorists not yielding to pedestrians should be enforced because these will reduce the number of collisions.

- Special citations for youth violators should be explored, particularly those that involve parental notification or bicycle diversion programs. Positive reinforcement - free food coupons, trinkets – would also appeal to younger bicyclists and pedestrians.

- Bicycle patrols can better tackle pedestrian and bicycle problems on the street level and increase awareness of safety issues. Officers on bicycles should undergo additional training related to bicycle and pedestrian rights, safety, and enforcement.

- Bike patrols on trails may deter vandalism and make trail users feel safer.

- Increasing police presence around schools, residential areas, and other areas with high pedestrian and bicycle activity can influence more cautious behavior.

- The Petaluma Police Department has occasionally conducted pedestrian crosswalk stings. Decoys are used to target motorists who violate the right-of-way of pedestrians crossing the street, especially those who do not stop for the pedestrian when the cars in the adjacent lane have stopped.

City Staff Education

The Public Works, Community Development, and Parks and Recreation Departments are mostly responsible for planning, designing, and implementing bicycle and pedestrian facilities. City staff should be encouraged to attend training seminars and conferences related to non-motorized transportation so facilities are planned, constructed, and maintained in the most efficient and effective manner.

Other Promotional Activities

Promotional activities are designed to encourage more cycling and walking. They can be spearheaded by non-profits, service organizations, and other groups in the community and need not be initiated by the City or carried out with City funds. The possibilities are endless, but some ideas are listed below.

- Bicycle tours: develop brochures with suggested bicycle loop routes emanating from the Visitors Center, organize special-interest bike tours (progressive meal bike rides or walks, ARTrails, Heritage Homes tours).

- Bicycle criterium: Although plans for a criterium in downtown did not materialize in 2005, planning for future races should continue. These events boost the local economy by attracting spectators who patronize local businesses and increases interest in cycling.

- Media campaign: inserts in utility bills, regular column in newspaper to highlight bicycling and walking news.

- Continue to provide free used bikes, street skills classes, and basic bicycle repair classes at the Mary Isaak Center.

- Offer seminars on bicycle commuting in Petaluma.

- Offer more street skills classes in Petaluma.

- Reach out to the Hispanic population with Spanish-language information and encourage Spanish-speaking police officers to conduct bicycle and pedestrian safety presentations.

- National Trails Day, a day established by the American Hiking Society, is held the first Saturday of June. This date would be an ideal time to promote the city's trails. Activities could include a community-wide trail clean-up day, organized walks or bike rides along trails, trail dedications, educational exhibits, gear demonstrations, or instructional workshops.

- Walking meetings with City officials: The mayor of Bolivar, Missouri, invites citizens who want to discuss business to join him on walks on the city's rail-trail.

RESOURCES

Online TDM Encyclopedia, Victoria Transport Policy Institute, last updated July 2005 (ongoing project). http://www.vtpi.org/tdm/

Safe Routes to School, National Highway Traffic Safety Administration (DOT HS 809 497), September 2002.

CHAPTER 7:

IMPLEMENTATION

After this Plan is adopted by the City Council, it is then forwarded to the MTC for approval followed by certification by Caltrans' Bicycle Facilities Unit that it meets all the requirements of the California Streets and Highways Code. And then work begins - implementing the recommended projects and programs

This chapter begins with a discussion about money, how much Petaluma has spent on bicycle and pedestrian facilities and an estimate of future expenditures. This is followed by a summary of various funding sources that can be tapped into to help alleviate the cost to the City. Finally, the chapter ends with additional measures needed to implement the goal, , policies, and programs recommended in this Plan.

IMPLEMENTATION COSTS

Past Expenditures

A variety of bicycle and pedestrian facilities are installed with new development as required Conditions of Approval (see page 99). But over the past eight years since the adoption of the previous Bicycle Plan, the City has contributed millions of dollars towards maintenance and expansion of the bikeway and pedestrian networks. Some of the projects include:

- Washington Creek Trail ($225,000)
- East Washington Creek Trail ($275,000)
- Denman Reach ($500,000)
- Steamer Landing ($250,000)
- River Trail between Washington Creek and Lakeville Street ($1,600,000)
- Water Street Phase I & II ($4,000,000)
- Safe Routes to School Study ($43,000)
- Sidewalk maintenance ($135,000)
- Pedestrian crossing improvements ($150,000)

FUNDING PROGRAMS

The number of grants available for non-motorized transportation projects has been growing over the years. This section provides a brief description of some of the grants available.

Project Funding Mechanisms

There are a variety of potential funding opportunities from Federal, State, regional, and local sources that can be used to complete bicycle and pedestrian projects. Project funding for non-motorized transportation projects is generally derived from one of two sources: programmed transportation funds or competitive source grant funds. While improvements to major roadways are likely to be financed through programmed funds, projects that have a recreational component, such as the River Trail, are likely to be funded through competitive source grants or some combination of the two sources. Additional sources include developer exactions, general funds, and legislative earmarks.

Programmed Transportation Funds

Programmed funds, which are typically derived from Federal dollars, can be used for a broad range of transportation projects. Federal Transportation funds, which are made available through the passage of Federal Transportation Legislation, are programmed through a variety of Federal, State, and regional programs. Federal funding programs have become increasingly flexible with each successive transportation bill re-authorization. Funds can be used for engineering, enforcement, and education, including ridesharing programs, transit facilities, clean air programs, ADA improvements, transit-oriented development, bike lanes and paths, pedestrian facilities, neighborhood traffic calming, and various transit station improvements. Projects typically require a minimum 11.5 percent local funding match, they must be sponsored by a public agency, be identified on a plan of some kind or have been formally studied, and are subject to all Federal regulations and environmental reviews.

Caltrans acts as the clearinghouse for Federal transportation dollars in California. Funds are either distributed directly from Caltrans, or they move from the State to the Regional Transportation Planning Agencies or Congestion Management Agencies for programming at the local level.

Competitive Source Funding Programs

There are a variety of competitive source funding programs that are available on a regional or statewide basis, which can be used to fund the improvements proposed in this Plan. Competitive source funding programs typically require the development of extensive applications with clear documentation of the project need, costs, and benefits, along with maps, cost estimates, schedules, letters of support, and proposed work scopes. A local match ranging between 10-50 percent is typically required. While the development of applications combined with securing local matching funds can be challenging, competitive source funding programs represent an outstanding opportunity to secure funds, especially for non-motorized projects and recreation improvements.

Federal

In 1991, our Federal representatives passed the Intermodal Surface Transportation Enhancements Act (ISTEA) with the purpose "to develop a National Intermodal Transportation System that is economically efficient, environmentally sound, provides the foundation for the Nation to compete in the global economy and will move people and goods in an energy efficient manner." ISTEA provided a significant amount of funding for non-motorized transportation projects. In 1998 the bill was renewed, this time as the Transportation Equity Act for the 21st Century (TEA-21). And finally, on August 10, 2005, President Bush signed into law the successor to TEA-21, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) which will be in effect until FY 2008-2009. Most of the funding of the various programs flows to the states, but some programs are assigned to the regional planning agencies such as the MTC.

The programs that fund bicycle and pedestrian projects are the Congestion Mitigation and Air Quality Improvement Program, Recreational Trails Program, Safe Routes to School Program, Surface Transportation Program, and Transportation Enhancements.

Congestion Mitigation and Air Quality Improvement Program (CMAQ)

- *Deadline:* August 31
- *Local match:* 11.47%
- *Grant amount:* $var-ies

CMAQ is one of the programs that MTC administers in the Bay Area. This program provides funding for projects that reduce transportation related emissions in air quality non-attainment and

maintenance areas for ozone, carbon monoxide, and particulate matter. The Congestion Management Agencies (Sonoma County Transportation Authority) selects projects for the Local Streets and Roads rehabilitation category which is then submitted to MTC for final approval. Projects must be consistent with the Regional Transportation Plan (RTP).

- *Deadline:* October
- *Local match:* 20%
- *Grant amount:* mostly $5,000-$100,000

Recreational Trails Program

The Recreational Trails Program is administered on the state level by the California Department of Parks and Recreation (DPR). These funds can be used to develop, construct, maintain, and rehabilitate trails and trail facilities. Forty percent of the state's apportion must go for diverse trail use projects, 30% for non-motorized recreation, and 30% for motorized recreation.

Safe Routes to School

The Safe Routes to School program is one of the new programs in SAFETEA-LU. Funding distribution to states will be based upon the number of students enrolled in kindergarten through eighth grade with no state receiving less than $1 million. Eligible projects can be both infrastructure and non-infrastructure projects, although non-infrastructure projects can only be 10-30% of the state's apportionment.

- Infrastructure: sidewalk improvements, traffic calming, crossing improvements, bikeways, bike parking, and traffic diversion improvements in the vicinity of schools (within two miles)

- Non-infrastructure: public awareness campaigns; outreach; traffic education and enforcement; student sessions on bicycle and pedestrian safety, health, and environment; training; and SR2S program managers

The details on how the program will be administered were not finalized at the time of this plan.

- *Deadline:* August 31
- *Local match:* 11.47%
- *Grant amount:* $var-ies

Surface Transportation Program (STP)

Another program Caltrans assigns to MTC and other regional planning agencies is the Surface Transportation Program (STP). A wide range of projects are eligible for STP funding, including pedestrian and bicycle facilities, transportation demand management, transportation control measures, and safety. Projects must be consistent with the Regional Transportation Plan (RTP).

Transportation Enhancement (TE)

- *Deadline:* August
- *Local match:* 11.47%
- *Grant amount:* $varies

Transportation Enhancement (TE) funds are for transportation projects that are over and beyond a normal transportation project. Eligible projects include bicycle and pedestrian facilities, bicycle ad pedestrian educational activities, and preservation of abandoned railway corridors for bicycle and pedestrian use. The State's share of TE monies are divided between the Regional Transportation Planning Agencies (75%) and the 12 Caltrans districts. One-half of the TE funds will be programmed through the MTC will go to projects in the County's TLC/HIP program and the other half will be programmed for eligible TE projects at the County's discretion. Projects must be consistent with the Regional Transportation Plan (RTP).

Land and Water Conservation Fund Program (LWCF)

- *Deadline:* May
- *Local match:* 50%
- *Grant amount:* no more than 5% of the annual local agency share of LWCF funds (varies each year)

The Land and Water Conservation Fund program has supplied billions of dollars for outdoor recreational programs since it was created in 1965. The LWCF provides funds for the acquisition and development of outdoor recreation areas and facilities, including parks and trails. Money for the LWCF is collected by the National Parks Service from federal recreation fees, sales of surplus real property, the federal motorboat fuels tax, and the Outer Continental Shelf mineral receipts and then allocates money to the State Department of Parks and Recreation for distribution in California. Eligible projects are property acquisition, construction of new and/or renovation of existing outdoor recreation facilities, and associated support facilities such as lighting, parking, restrooms, visitor information centers, and buildings that interpret resources of the project area.

State

Bicycle Transportation Account (BTA)

- *Deadline:* Dec. 1
- *Local match:* 10%
- *Grant amount:* $1,250,000 max.

The Bicycle Transportation Account (BTA) is a competitive Caltrans grant that funds city and county projects for the benefit of bicycle commuters. To be eligible, a city or county must have an adopted Bicycle Transportation Plan that complies with Street and Highways Code Section 891.2, has been approved by the MTC, and subsequently forwarded to Caltrans' Bicycle Facilities Unit for review and approval. An adopted Plan would establish eligibility for five consecutive BTA funding cycles.

BTA funds projects that are convenient for bicycle commuters, including:

- New bikeways serving major transportation corridors
- New bikeways removing travel barriers to potential bicycle commuters
- Secure bicycle parking at employment centers, park-and-ride lots, and rail and transit terminals
- Bicycle-carrying facilities on public transit vehicles
- Installation of traffic control devices to improve the safety and efficiency of bicycle travel
- Elimination of hazardous conditions on existing bikeways
- Planning
- Improvement and maintenance of bikeways

- *Deadline:* on hold
- *Local match:* none specified but highly encouraged
- *Grant amount:* no min./max.

California Coastal Conservancy - San Francisco Bay Area Conservancy Program

The California Coastal Conservancy is a state agency that works in partnership with local governments, other public agencies, nonprofit organizations, and private landowners to purchase, protect, restore, and enhance coastal resources, and to provide access to the shore. Unfortunately, as of January 2006, the Bay Conservancy has very little funding for new projects and funding will not be available until another bond act for parks, open space, and wildlife is passed. When this happens, grants will be offered for projects that meet the natural resource and recreation goals for the San Francisco Bay Area Conservancy Program. Eligible projects include trails as part of local and regional bay, coast, and ridge trail systems connecting to population centers and public facilities. The Lynch Creek Trail and Steamer Landing are past recipients of Coastal Conservancy funding.

- *Deadline:* October
- *Local match:* none specified but highly encouraged
- *Grant amount:* no min./max.

California River Parkways Program

The California River Parkways Program was created in 2004 as a result of the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Proposition 50). It is administered through the Office of the Secretary for Resources.

In addition to complying with the California Environmental Equality Act (CEQA) and being a part of a larger parkway plan,

River Parkway projects must meet at least two of the following conditions:

- Provide compatible recreational opportunities including trails along rivers and streams
- Protect, improve, or restore riverine or riparian habitat
- Maintain or restore the open-space character of lands along rivers and streams so that they are compatible with periodic flooding as part of a flood management plan or project
- Convert existing developed riverfront land into uses consistent with river parkways
- Provide facilities to support or interpret river or stream restoration or other conservation activities

Office of Traffic Safety (OTS) Program

- *Deadline:* January 31
- *Local match:* N/A
- *Grant amount:* reasonable amount for program

The Office of Traffic Safety awards traffic safety grants using federal highway safety funds. Grants are used to mitigate traffic safety program deficiencies, expand ongoing activity, or develop a new program. The program can fund roadway safety devices such as flashing beacons at school crosswalks, in-roadway warning lights at crosswalks, and countdown pedestrian signals. Programs to increase bicycle and pedestrian safety awareness and skills are also eligible. Possible programs include safety programs, education, enforcement, traffic safety and bicycle rodeos, safety helmet distribution, and court diversion programs for safety helmet violators.

Safe Routes to School (SR2S)

- *Deadline:* January
- *Local match:* none
- *Grant amount:* $1,000,000 max.

The Safe Routes to School program was established in 1999 and has been extended until January 1, 2008. This competitive funding program administered by Caltrans intends to reduce injuries and fatalities to school children and to encourage walking and bicycling to school. The types of construction projects eligible for SR2S funds are pedestrian facilities (except sidewalk repairs), traffic calming (except improvements to drop-off and pick-up areas), traffic control devices, bicycle facilities, and public outreach and education (up to 10% of the construction cost).

State Transportation Improvement Program (STIP)

- *Deadline:* CMAs submit list to MTC in October
- *Local match:* none
- *Grant amount:* no less than $100,000

The State Transportation Improvement Program is a multi-year capital improvement program funded with revenues from the State Highway Account. There are two sub-elements: the Regional Transportation Improvement Program (RTIP) which receives 75% of STIP funds and the Interregional Transportation Improvement Program (ITIP) which receives the remaining 25%. ITIP projects are nominated by Caltrans and help interregional movement of people and goods.

MTC is responsible for developing regional project priorities for the RTIP program in the Bay Area. Projects must be consistent with the Regional Transportation Plan (RTP) and be included in the County Congestion Management Plan (CMP). Each county congestion management agency solicits projects for the county's share of the RTIP. Eligible projects can include pedestrian and bicycle facilities, grade separation, transportation demand management, intermodal facilities, and safety.

Regional

Bay Trail

The Association of Bay Area Governments (ABAG) sponsors the San Francisco Bay Trail project. Until recently, ABAG provided grants for planning studies, trail design work, feasibility studies, and construction of new Bay Trail segments and associated amenities. Money from original funding source has been allocated. If a new bond act is passed to provide funds to the Bay Trail, a new grant program will be established with a focus on gap closures on the spine alignment.

Regional Bicycle and Pedestrian Program

- *Deadline:* January
- *Local match:* 11.5%
- *Grant amount:* $300,000 to $4 million

The Regional Bicycle and Pedestrian Program was created by the Metropolitan Transportation Commission (MTC) to fund regionally significant bicycle and pedestrian projects. Eligible projects include pedestrian and bicycle facilities that provide access to regional transit, lifeline transit, regional activity centers, or schools; bicycle facilities on the Regional Bicycle Network as defined in the Regional Bicycle Plan; and regionally significant pedestrian projects.

The Program is funded through $32 million in Congestion Mitigation and Air Quality Improvement (CMAQ) funds and will be available initially for four years (FY 2005-06 through FY 2008-

09), although MTC has committed $200 million over a 25-year period. The Program is divided into two programs. The County Portion (75%, $24 million) will be distributed to the county congestion management agencies (CMAs) based upon population and each CMA will develop criteria for allocating the funds in its county. The Regional Portion (25%, $8 million) will be administered by the MTC. Candidate projects for this portion will be evaluated based on the degree to which they address the following six factors:

- provide bike and/or pedestrian access to transit, schools, regional activity centers
- eliminate major gap or obstacle in a bike or pedestrian facilities,
- have community support as indicated by inclusion in an adopted plan or other document endorsed by community advisory groups,
- address safety concerns,
- provide local matching funds, and
- are regionally significant.

Safe Routes to Transit (SR2T)

- *Deadline:* Spring
- *Local match:* none
- *Grant amount:* minimum $100,000 for capital projects, $25,000 for planning projects

Regional Measure 2 has funded $20 million for a new Safe Routes to Transit program in the Bay Area coordinated by the Transportation and Land Use Coalition (TALC), East Bay Bicycle Coalition (EBBC), and the MTC. During the 10-year program, there will be five funding cycles with approximately $4 million available. The types of improvements that SR2T funds are pedestrian and bicycle facility construction, pedestrian and bicycle improvements on transit vehicles and at stations, secure bicycle parking on transit vehicles and at stations, and planning pedestrian and bicycle access around transit stations.

Basic eligibility calls for only pedestrian and bicycle projects that:

- improve pedestrian and/or bicycle access near or within regional transit facilities,
- should potentially reduce congestion on Bay Area bridges by improving bicycle and pedestrian access to transit stations, and

- must result in a "deliverable product."

Transportation Development Act (TDA) Article 3

- *Deadline:* solicit projects early in year
- *Local match:* none
- *Grant amount:* varies

TDA Article 3 monies are a key source of funding for pedestrian and bicycle projects. These funds are derived from a percentage of retail sales tax in the county, so the amount of available money varies from year to year.

Proposed projects are recommended at the city level and compete with other projects in the county. The Petaluma PBAC is responsible for developing a project list each year and recommending it before the City Council. When approved, the project list is forwarded to the Countywide Bicycle Advisory Committee of Sonoma County for evaluation and prioritization. Once the Sonoma County Transportation Authority adopts the countywide list of projects, it is forwarded to the MTC. The MTC will recommend that a project receives funding if the project meets the eligibility requirements and is within the fund estimate for the county.

Projects will fare well if they achieve one or more of the following objectives:

- Elimination or improvement of an identified problem area on routes that would otherwise provide relatively safe and direct bicycle or pedestrian travel use, given the character of the users.
- Roadway improvements or construction of a continuous interconnected route to provide reasonably direct access to activity centers where access did not previously exist or was hazardous.
- Secure bicycle parking facilities
- Other provisions that facilitate bicycle/transit trips
- Maintenance of Class I bikeways or restriping Class II bike lanes
- Projects identified in a comprehensive local bicycle or pedestrian plan adopted within past five years
- Projects that enhance or encourage bicycle or pedestrian commuting

- Projects in jurisdictions that have bicycle safety education and law enforcement, distribution of bicycle route information, a bicycle parking plan, and priority maintenance of bikeways

- Projects with documented local support – requests from the public or employers – or have local effort in terms of funding or preliminary studies

- Projects that provide connection to and continuity with longer routes to improve regional continuity

- Bicycle safety education programs (up to five percent of county's Article 3 fund)

- Comprehensive bicycle and pedestrian facilities plans

Transportation for Livable Communities Program (TLC)

To recognize the importance of transportation to the vibrancy of town centers, transit hubs, commercial streets, neighborhoods, and key streets as essential components of a vibrant community, the Metropolitan Transportation Commission created the Transportation for Livable Communities (TLC) Program. This program funds projects that provide transportation mode choices – transit, pedestrian, and bicycle – and promote in-fill development. The program supports three grant programs: Capital, Community Design Planning, and Housing Incentive Program.

The Capital Program funds transit, bicycle, and pedestrian infrastructure improvements including bicycle and pedestrian paths and bridges; on-street bike lanes; pedestrian plazas; pedestrian street crossings; streetscaping such as median landscaping, street trees, lighting, furniture; traffic calming design features such as pedestrian bulb-outs or transit bulbs; transit stop amenities; way-finding signage; and gateway features. Funds can be used for preliminary engineering (design and environmental), right-of-way acquisition, and/or construction.

- *Deadline:* unknown
- *Local match:* 11.5%
- *Grant amount:* $500,000 to $3 million

The Community Design Planning Program funds community design and planning processes to retrofit existing neighborhoods, downtowns, commercial cores, and transit station areas and stops in order to create pedestrian, bicycle, and transit-friendly environments. Project activities eligible for funding include conducting community design and visioning workshops; designing streetscape improvements that promote pedestrian, bicycle and transit activities; preparing neighborhood

- *Deadline:* unknown
- *Local match:* 20%
- *Grant amount:* up to $75,000

- *Deadline:* unknown
- *Local match:*
- *Grant amount:* $3 million maximum

revitalization plans to strengthen community identity; developing transportation and land-use plans for redevelopment areas; or preparing concept plans, drawings and design guidelines for capital projects.

The Housing Incentive Program funds transportation capital projects that support Transportation for Livable Communities (TLC) goals including pedestrian and bicycle facilities that connect the housing project to adjacent land uses and transit; improved sidewalks and crosswalk linking the housing to a nearby community facility such as a school or a public park; or streetscape improvements that support increased pedestrian, bicycle, and transit activities and safety.

Transportation Fund for Clean Air (TFCA)

- *Deadline:* June 30
- *Local match:* none if grant request <$100,000, 20% if more than $100,000
- *Grant amount:* $10,000 - $1 million

The Transportation Fund for Clean Air grant is administered by the Bay Area Air Quality Management District (BAAQMD) and funded by a $4 surcharge on motor vehicles registered in the Bay Area. The goal of the program is to implement projects that reduce vehicle emissions, including bicycle facilities (bike lanes, bike racks, bike lockers) and smart growth projects. All public agencies – including cities, school districts, and transit agencies – can apply for TFCA funds.

TFCA is composed of two funding channels. The Regional Fund accounts for 60% of revenue and is allocated directly by BAAQMD. Grants range between $10,000 and $1 million. The application deadline is June 30.

The Program Manager Fund (40% of revenues) is distributed to the county's Congestion Management Agency (CMA) which allocates the fund to projects within the county.

City Level

Traffic Impact Fee

Traffic Impact Fees are imposed on developers to help pay for the construction and implementation of improvements to key elements of the citywide transportation system to accommodate the traffic volumes generated by the new development. Approximately 4% of the fees collected go towards alternative transportation. PBAC should work with the Public Works Department and City Council to get more funding for non-motorized transportation through setting aside a dedicated portion of the Traffic Impact Fee for bicycle/pedestrian

improvements or implementing a new fee specifically for bicycle/pedestrian related improvements.

Other

Bikes Belong

Bikes Belong is a coalition of bicycle suppliers, distributors, and retailers that works to put more people on bicycles more often. The Coalition funds facility (bike trails, lanes, routes, parking, and transit, and mountain bike facilities) and education (Safe Routes to School, bike rider recruitment) projects from non-profit organizations and public agencies and capacity building projects of advocacy organizations. The Coalition awards approximately 15 grants each year to projects that have the potential to greatly impact bicycle ridership.

- *Deadline:* quarterly
- *Local match:* Bikes Belong will not be the sole funder of a project
- *Grant amount:* up to $10,000

OTHER IMPLEMENTATION ACTIONS

Conditions of Approval Process

Over the past several years, the Pedestrian and Bicycle Advisory Committee has been able to encourage bicycle and pedestrian facilities through the Conditions of Approval process. When a development or redevelopment plan is submitted to the City, the PBAC is allowed to comment on bicycle and pedestrian facilities and amenities. The items listed below are issues each development applicant must address at PBAC review:

- Bicycle parking: number of long-term (lockers, bike lids, attended parking facility) and short-term (racks) parking spaces, style of parking facility; note location of planned parking – should be close to main entrance(s), some or all racks could be in a covered location (under awning/overhang).

- Lighting: there shall be no direct glare into bicyclists' and pedestrians' eyes; lighting shall be directed downward to minimize light pollution.

- Employee showers/amenities: number of showers, locker space, food prep facilities, picnic benches.

- Benches and drinking fountains: number and placement of benches, location of outdoor drinking fountains.

- Public transit accommodations: shelters, benches, and bicycle racks at transit stops; make access improvements for people with disabilities.

- Intersection improvements: type and placement of crosswalks, curb ramps, type of pedestrian signals, loop detectors, accommodation for bikes (lanes to the left of right turn lanes)

- Class I, II, and III bikeways: width and materials used for Class I, width and markings for Class II, signage or markings for Class III

- School, park, and neighborhood links: accessibility from project to these destinations

- Through travel: look for pedestrian cut-throughs (especially from cul-de-sacs and on long blocks), links to existing/proposed trails, pedestrian access through a large parking lot, connectivity to existing or proposed future adjacent project, reserve public access easements if connection not imminent

- Pedestrian-friendly infrastructure: sidewalks on both sides of the street, width and placement of sidewalks, landscaping, curb ramps, crosswalks, driveway aprons, etc.

- Signs: directional signage, kiosks, pedestrian crossing signs, bike parking directional signs, etc.

- Incentives to walk, bicycle, or ride public transit to work: methods large employers plan to utilize to encourage non-motorized transportation

All plans for subdivisions of more than four parcels (residential or commercial) and all new commercial, industrial development applications shall include a circulation plan showing coordinated plans for vehicular, pedestrian, and bicycle movement to destinations within the development as well as access to and from the surrounding neighborhood.

Bicycle and Pedestrian Coordinator

This Plan recommends that the City of Petaluma assign a qualified staff person as the Bicycle and Pedestrian Coordinator. A full-time position would be preferred but, given the current economic situation of California's cities, a part-time Coordinator is suggested at this time. The tasks of a Bicycle and Pedestrian

Coordinator could be 25-50 percent of a staff person's job description. Staff could be chosen from either the Community Development or Public Works departments.

A Bicycle and Pedestrian Coordinator takes on a variety of roles to assure that bicycle and pedestrian interests are being addressed. Some of these duties could include:

- Serve as liaison with the PBAC and be allocated a sufficient number of hours to support the PBAC in its tasks and to follow up on bicycle and pedestrian issues within the City and County structure.

- Ensure that City staff provide pertinent documentation both to the Bicycle and Pedestrian Coordinator and to the PBAC.

- Have regular contact with all city departments – Public Works, Community Development, Parks and Recreation, Police, Fire – and be provided notice of funding requests regarding construction and maintenance of bicycle and pedestrian facilities.

- Solicit, as well as follow-up on, bicycle and pedestrian transportation feedback from local businesses, large and small, to facilitate better transportation choices within the City.

- Monitor bicycle and pedestrian issues both within the entire transportation network and with regard to development and redevelopment.

- Serve as a conduit for bicyclist and pedestrian concerns regarding facility maintenance.

- Meet with the Public Works Department including the Traffic Engineer twice a year to review the Capital Improvement Projects list and develop a list of bicycle/pedestrian projects, their priority, and appropriate funding sources.

- Review the County CIP to compare its goals to the Petaluma Bicycle and Pedestrian Plan projects and ideals.

- Develop inter-jurisdictional agreements as needed for acquisition, development, and maintenance of bicycle facilities.

- Review and monitor MTC's and the California Department of Transportation's (Cal Trans) improvement and funding plans as they pertain to bicycling and pedestrian issues.

Bicycle and Pedestrian Counts

Bicycle and pedestrian counts conducted on a selected number of streets on an annual basis will show increases or decreases in bicycling and walking, help determine the effectiveness of educational and safety programs, and signal possible improvements.

Counts should be conducted at approximately the same time every year. The last two weeks in September are considered good times because school is in session and the weather is generally pleasant.

Counts should be conducted on Tuesdays, Wednesdays, and Thursdays because travel patterns are more normal. Saturdays may also be an option for some bikeways, especially popular recreational routes. The recognized peak traffic periods of 7:00 – 9:00 a.m. and 4:00 – 6:00 p.m. should also be the counting periods for bicycles and pedestrians. The morning hours will capture both commuters and schoolchildren.

Volunteers conducting the counts take note of the number of bicyclists wearing helmets, the number of bicyclists riding on the street and sidewalks, and direction of travel. Direction of travel is important because bicyclists that ride in the wrong direction on both the street and sidewalk are more likely to be struck by a vehicle. Through monitor of this behavior, steps can be taken to encourage improvement through education, city signage, and creation of bikeways.

Any number of corridors can be selected for counts:

- Streets with high pedestrian/bicycle use
- Streets with high pedestrian/bicycle collisions
- Streets proposed for infrastructure improvements
- Trails that serve commuters and/or schoolchildren

Counts have been conducted by PBAC members in 2004 through 2006 at the locations listed below. The results are listed in

Appendix D. Additional locations should be added if more volunteers can be recruited to help with the effort.

- Washington Street between McDowell and the northbound 101 off-ramp
- Washington Street between Copeland and Lakeville
- McDowell between Professional and Lynch Creek (@ bus stop)
- Petaluma Boulevard North at Oak
- Petaluma Boulevard South between C and D Streets
- Lynch Creek Trail near bridge
- East D Street at Copeland
- Lakeville Street between Lindberg Lane and the shopping center

Document Revisions

For the 2000 Plan, the PBAC reviewed the City of Petaluma Municipal Code, the City of Petaluma Zoning Ordinance, and the City of Petaluma Department of Engineering Design and Construction Standards & Specifications. The PBAC drafted new or clarified old Code, Ordinances and Standards & Specifications as necessary to provide the "teeth" by which the Bicycle Plan was carried out on a daily basis by staff.

As a result of the General Plan 2025, the City's Zoning Ordinance is being replaced by an Implementing Zoning Ordinance. Appendices A and B of this document list the current key City of Petaluma Municipal Code and Implementing Zoning Ordinance components with regard to bicycles and pedestrians. The Design and Construction Standards & Specifications will also be revised shortly, and the PBAC should be given the opportunity to assist with this process, as well.

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APPENDIX A

KEY MUNICIPAL CODE REGARDING BICYCLES AND PEDESTRIANS

This Appendix contains Appendix A.1 of the 2000 Bicycle Plan which includes sections of the Municipal Code pertaining to bicycles and bicycling.

TITLE 2

ADMINISTRATION

CHAPTER 2.9: PETALUMA BICYCLE ADVISORY COMMITTEE (PBAC)

2.90 Petaluma Bicycle Advisory Committee.

Establishment: A Petaluma Bicycle Advisory Committee is established by the City.

Appointment and Terms: There will be seven bicyclists, plus one liaison from the Planning Commission, one liaison from the Recreation, Music, and Parks Commission and one liaison (optional) from the City Council. If the City Council desires, up to two additional members serving as "citizen pedestrians" may be added to the PBAC. Terms are two years, with approximately half of the terms to come up for reappointment each year.

Duties: To monitor and pursue improvements to the bicycle and pedestrian transportation network within the City of Petaluma.

Staffing: There shall be a Bicycle Coordinator from the Planning Division.

Bicycle Coordinator/PBAC: This term shall be interpreted to mean both the Bicycle Coordinator and one or more members of the PBAC. Any bicycle-and pedestrian-related documentation or communication will be provided to the PBAC.

CHAPTER 11.08: TRAFFIC ADMINISTRATION

11.08.050 Traffic Committee Established – Composition-Compensation.

There is established an advisory traffic committee to serve without additional compensation, consisting of the traffic engineer or a senior representative, a representative of the Planning Di-

vision, a representative of the police department, a representative of the public works department, a member of the City Council and a bicyclist member of the Petaluma Bicycle Advisory Committee.

CHAPTER 11.12: ENFORCEMENT – OBEDIENCE TO REGULATIONS

11.12.040 Persons on bicycle or riding or driving animals.

Every person riding a bicycle or riding or driving an animal upon a street or highway has all of the rights and shall be subject to all of the duties applicable to the driver of a vehicle by this chapter, except those provisions which by their very nature have no application.

CHAPTER 11.32: MISCELLANEOUS DRIVING RULES

11.32.100 Vehicles crossing bicycle paths or lanes.

No person shall drive a vehicle upon or across a bicycle path or lane except to enter a driveway and except to park such vehicle or leave a parking space. No persons shall drive upon or across a bicycle lane or bicycle path as permitted by this section except after giving the right-of-way to all bicycles within the lane or path.

CHAPTER 11.36: PEDESTRIANS

11.36.50 Use of drainage facilities, public rights-of-way and maintenance roads.

No person shall walk in, ride in, or enter into, either on foot or by means of any vehicle, any drainage channel, ditch, culvert, undercrossing or other drainage or sewer facility, or the right-of-way therefore, if the area is posted "Keep Out." Nothing in this section shall prohibit entry of such facilities by the owner therefore any person designated by the owner or a person responsible for maintenance and operation thereof, for purposes of maintenance, repair or other necessary operations of said facility. The City of Petaluma shall strive to open all drainage facilities, rights-of-way, including PG&S, SCWA and Fish and Game, as well as maintenance roads, for public bicycle/pedestrian access, where appropriate.

CHAPTER 11.56: PARKING METERS

11.56.130 Attaching or leaning bicycle, newsrack or other article against meter.

No person shall attach anything to or allow a bicycle, newsrack or any other article or thing to lean against a parking meter or a parking meter standard.

CHAPTER 11.72: BICYCLES

11.72.010 Bicycle defined.

For the purposes of this chapter, the word "bicycle" shall be defined as a device upon which any person may ride, propelled by human power through a belt, chain or gears, and having either two or three wheels in tandem or tricycle arrangement. It is acceptable for a small electric

motor to supplement the human-power on the bicycle, as defined by Ordinance 2080, January 1999.

11.72.020 Violation of chapter by juveniles.

Where this chapter has been violated by juveniles under the age of eighteen years, in lieu of the fine and imprisonment as provided in general penalty for this code, and in lieu of filing charges in the juvenile court, the chief of police may prohibit the operation upon the streets, alleys and public places in the City for a period not to exceed thirty days, of a bicycle so used in such violation, in which event the bicycle so used in such violation shall be impounded by the chief of police and retained by him during the period of the operation which is prohibited. The juvenile may be required to take an exam on bicycle use to regain his or her bicycle.

11.72.060 Auction of unidentified bicycles.

All abandoned bicycle and unidentified bicycles remaining in the hands of the chief of police shall, at the end of three months, be sold at auction.

11.72.150 Bicycle report—generally.

All persons required by this chapter to make reports to the chief of police shall make the same in duplicate…The duplicate shall remain with the dealer…This report shall be known as 'the bicycle report.'

11.72.160 Dealers.

All persons engaged in the business of buying secondhand bicycles are hereby required to make a monthly report to the chief of police, giving the name and address of the person from whom each bicycle is purchased, the description of each bicycle purchased, the frame number thereof, and the number of the license plate found thereon if any.

All persons engaged in the business of selling new and secondhand bicycles are hereby required to make a monthly report to the chief of police, giving a list of all sales made by such dealers, the kind of bicycle sold, together with a description and frame number thereof.

11.72.190 Operational rules—Violation unlawful.

It is unlawful for any person to ride or operate a bicycle in the City in violation of any of the rules of the road as set forth in this chapter.

11.72.200 Certain bicycles prohibited.

It is unlawful for any person to ride or operate a bicycle in the City unless the bicycle is equipped as provided in this chapter and unless the bicycle is in a safe mechanical condition.

11.72.210 Riding where children playing.

No person shall ride or operate a bicycle upon any playground, park or school ground, where children are playing, without permission of the person having supervision thereof. This provision does not exclude the use of designated bikeways/pathways. Bikeways defined in Section 11.72.450 of this code.

11.72.220 Riding on sidewalks.

A. No person shall ride a bicycle upon any sidewalk in the central business district of the City unless traffic signs are posted informing bicyclists and pedestrians that the sidewalk has dual usage. For purposes of this section, the term "central business district" shall be defined as the area described in Section 11.56.010 of this code.

B. Every person who shall ride a bicycle upon a sidewalk in the City shall yield the right-of-way to any pedestrian and shall give audible signal before overtaking and passing any pedestrian.

C. Riding on sidewalks shall be permitted (per California Vehicle Code 21206) on all sidewalks except where the City of Petaluma regulates such riding.

11.72.240 Carrying passengers.

No person riding or operating a bicycle in the City shall carry another person on the bicycle, unless the person or passenger is seated upon an individual seat or carrier separate from that intended to be used by the operator, nor shall any person ride upon a bicycle as a passenger, unless he is seated upon an individual seat or carrier separate from that intended to be used by the operator.

11.72.250 Carrying articles.

No person riding or operating a bicycle in the City shall carry any package, bundles or article which prohibits the rider from having full control of the bicycle at all times.

11.72.260 Towing.

Towing restricted to trailers and devices specifically designed to be towed safely by bicycles.

11.72.270 Speed generally.

No person shall ride or operate a bicycle faster than is reasonable and proper, and every bicycle shall be operated with reasonable regard to the safety of the operator and other persons upon the streets, sidewalks, and public highways of the City.

11.72.280 Racing.

No person riding or operating a bicycle upon a public highway or street shall participate in any race, speed or endurance contest, unless…written permission of the City manger, and …under the supervision of the chief of police.

11.72.290 Obedience to traffic signals.

Every person operating a bicycle in the City shall obey all traffic control measures such as signs, signals, striping, etc.

11.72.300 Keeping to right.

Persons riding or operating bicycles on a highway or street shall keep the bicycles as close to the right hand curb as possible, except when preparing to make a left-hand turn. or except when proceeding straight at an intersection where the right lane becomes a right turn lane.

11.72.310 Parking.

A. No person shall park any bicycle against windows or parking meters or bicycle lockers or on the main traveled portion of a sidewalk, nor in such manner as to constitute a hazard to pedestrians, traffic or property; however, if there are no bicycle racks or other facilities intended to be used for parking of bicycles in the vicinity, bicycles may be parked on the sidewalk in an upright position parallel to and within twenty-four inches of the curb or safely next to a building as long as ADA access is not blocked.

11.72.320 Entering traffic from alleys, driveways, bikeways.

The operator of a bicycle emerging from an alley, driveway, bikeway or otherwise approaching upon a sidewalk or a sidewalk area extending along such alley, driveway, or bikeway path shall yield to right-of-way to all pedestrians approaching on said sidewalk or sidewalk area, and upon entering a bikeway shall yield the right-of-way to al bicycles approaching on said bikeway, and upon entering a roadway shall yield the right-of-way to all vehicles or bicycles approaching on said roadway.

11.72.330 Passing vehicles.

Every person operating a bicycle shall pass to the left when passing vehicles going in the same direction, and shall pass to the right when meeting vehicles going in the opposite direction.

11.72.340 Hand signals.

No person shall turn a bicycle or stop a bicycle …unless such movement can be made with safety and then only after giving the following appropriate signal during the last fifty feet traveled by the bicycle before turning or stopping:

Left Turn ...extending his left hand and arm horizontally behind the side of the bicycle.

Right Turn …extending his left hand and arm upward beyond the side of the bicycle.

11.72.350 Intoxication.

It is unlawful for any person to operate a bicycle upon any street or highway of the City while under the influence of intoxicating liquor or drugs.

11.72.360 Clinging to moving vehicles.

No person riding or operating a bicycle in the City shall cling or attach himself or his bicycle to any other moving vehicle or streetcar, or person in any other vehicle.

11.72.370 Trick riding.

No person riding or operating a bicycle shall perform or attempt to perform any acrobatics, fancy or stunt riding upon any public highway or street in the City.

11.72.380 Accident report — Procedure.

The operator of any bicycle involved in an accident shall take reasonable steps to ascertain whether or not anyone was injured, and he shall give his name, address and the license number of his bicycle to the person with whom he was in collision; and he shall obtain the same information from the other person.

It shall be the duty of the bicycle operator to make a written report of any accident result in death or injury to the police department with twenty-four hours of such accident.

11.72.390 Turning at intersections.

Every person riding or operating a bicycle upon the streets and highways of the City shall turn only at intersections except as otherwise provided in this division. Exceptions: areas where a bicycle lane ends or dangerous conditions cause a need to go onto a sidewalk and the sidewalk does not exclude bicycles. In all such situation, pedestrians have right-of-way.

11.72.400 Right turn generally.

Every person riding or operating a bicycle intending to turn to the right at an intersection or into an alley or driveway shall approach the turning point in the line of traffic nearest the right-hand curb of the street, unless the bicycle is riding legally on the sidewalk, in which case the turn shall be made from there. Such bicyclists shall only enter the street when it is safe to do so.

11.72.410 Right turn at red light.

The operator of a bicycle which is stopped as close as practicable to the entrance of an intersection in obedience to a red light or "stop" signal may make a right turn, unless a sign has been posted at the intersection prohibiting such turn, but shall yield the right of way to pedestrians and other traffic proceeding as directed by the signal at the intersection.

11.72.420 Left turn.

Every person riding or operating a bicycle intending to turn left at an intersection or to enter an alley or driveway shall approach the point of turning in the line of traffic nearest to the center of the roadway unless another lane is marked for bicycles. If no lane is marked for bicycles, bicycles shall use the left turn lane furthest to the right. The operator of a bicycle in turning left at an intersection shall pass to the right of the center of the intersection before turning, unless otherwise directed by markers, buttons or signs.

11.72.430 U-turns.

No bicycle shall be turned in any business district so as to proceed in the opposite direction, except at intersections; nor shall any bicycle operate in a residence district be turned so as to proceed in the opposite direction when any other vehicle is approaching from either direction within two hundred feet, except at an intersection.

11.72.450 Bikeways: Bicycle Paths, Bicycle Lanes, Bicycle Routes and Bicycle Boulevards.

Class I Bikeway (Bicycle/Pedestrian Path) - A bicycle/pedestrian path is physically separated from motorized vehicular traffic by an open space or barrier and is reserved for bicyclists and pedestrians. On occasion, bicycle/pedestrian paths may provide access only for pedestrians or bicyclists who walk their bicycles where safety issues dictate.

Class II Bikeway (Bicycle Lane) – Bicycle lanes are designated on roadway shoulders by striping, signs, and/or pavement markings for preferential use by bicyclists. They are separated from motorized vehicle travel lanes by a solid white line and are located outside the travel lanes. Motor vehicles and pedestrians are prohibited from using bicycle lanes.

Class III (Bicycle Route) - On Class III bicycle routes, bicyclists share the outside traffic lane with motorized vehicles. These routes are designated with a "Bicycle Route" sign.

Bicycle Boulevard - A City street, usually determined to be key to bicycle through-traffic, in which bicycles have been given precedence over cars by means of barriers, traffic calming, stop signs aimed at car travel, etc.

Persons riding bicycles upon bikeways shall be subject to the provisions of this code. Bikeways shall be built according to the Goals, Objectives, Policies, Program and Priorities of the Petaluma Bicycle Plan 1999.

11.72.470 Direction along Bikeways.

No person shall ride or operate a bicycle within a bicycle lane in any direction except that permitted for vehicular traffic traveling on the same side of the roadway; provided that bicycles may proceed in either direction along a lane where arrows appear on the surface of the lane.

No person shall ride or operate a bicycle within a bicycle lane or bicycle route in any direction except that permitted for vehicular traffic traveling on the same side of the roadway; except where arrows appear on the surface of lane designating two-way traffic. Bicycles may proceed in either direction along a bicycle path unless otherwise designated.

11.72.480 Establishment of Bikeways signs.

The traffic engineer as subject to the review of the PBAC, is authorized to erect or place signs upon any street in the City that is designated as a bikeway.

11.72.500 Bicycle access.

A. Full bicycle access shall be permitted wherever cars are allowed in all residential, commercial, retail and office centers/complexes.

B. "Drive-in-service," means sales of products or provision of services to occupants in vehicles including drive-in or drive-up windows. Excluding drive-in mechanical automobile washing, all drive-in services must provide full access to pedestrians and bicyclists.

11.72.510 General safety.

A. All potential on-street impediments to bicycles such as uneven speed bumps, unsafe drainage ditches, raised manhole covers, dangerous sewer and drainage grates and asphalt/concrete interfaces shall be built and maintained properly for bicycle safety. Curb cuts shall have zero up lips.

B. To reduce bicyclist discomfort, speed humps should have a minimum degree of slope necessary to compel auto speeds to the desired MPH.

C. All intersections shall have curb cuts usable for both wheelchair and bicycle. They shall be placed in line with crosswalks rather than at the point of the corner, for reasons of safety. All poles and other impediments to entering shall be moved or clearly marked.

11.72.540 Provisions of California Vehicle Code.

The provisions of Article 4 of Chapter 1 of Division 11 of the California Vehicle Code, as the same may be amended from time to time, are made applicable to all bicycle and all persons riding bicycles in the City.

CHAPTER 11.80: TRAFFIC IMPACT FEE ON DEVELOPMENT

11.80.020 Additional findings.

…the transportation improvements will be constructed or implemented with funds generated by this chapter and will significantly benefit the contributor in that the adverse impacts, such as noise, air pollution, delay, accidents, increased fuel consumption, harm to the local economy, and inconveniences caused by traffic congestion will be substantially mitigated.

11.80.030 Terms and definitions.

B. Transportation improvements mean those improvements necessary to complete the major street and interchange improvements necessary to meet the goals of the general plan, including paving, curb and gutter, sidewalks, medians, landscaping, drainage facilities, traffic signals, street lighting, noise walls, right-of-way acquisition, public park and ride facilities, bikeways and other bicycle/pedestrian facilities, public transit, bridges, grade separations, downtown parking facilities, and other improvement…Transportation improvements also shall include the architectural, administrative, engineering, legal, planning, environmental and other services required in connection with the implementation of this ordinance.

11.80.050 Rate of fee.

B. The City Council shall determine by resolution the net transportation improvement costs…and make a reasonable estimate of the total costs necessary to construct or provide the transportation improvements.

CHAPTER 11.90: TRIP REDUCTION ORDINANCE PROGRAM

11.90.010 Purpose.

The purpose of this chapter is to promote the development of trip reduction ordinance programs at employer work sites with one hundred or more employees during the afternoon peak traffic period, four p.m. to six p.m., in order to reduce traffic impacts within the City.

H. 'Vehicle trip' means a trip based on the means of transportation used for the greatest distance of an employee's home-to-work commute trip for employees who start work during the peak period. Each vehicle trip to the work site shall be calculated as follows:

Single-occupant vehicle=1…

Motorcycle, moped, motorized scooter, or motor bicycle =1…

Bicycle including those with small electric motor = 0

Walking and other non-motorized transportation modes = 0

11.90.050 Employer actions.

A. Employers with One Hundred or More Employees…shall do the following:

1. Information program…
2. Transportation coordinator…
3. Annual employee survey. Each year during the month of May October conduct an employee transportation survey at the work-site. The survey form shall be provided by the City. The survey will be conducted during a five day period set by the City. The first

survey will be conducted in 2000. A ninety percent return on employee surveys from each business is desired.

B. Showers And Clothes Lockers. All new office construction and renovations and shopping centers may be required to provide showers and clothes lockers for employee use. The purpose is so that bicyclists can change into work clothes at their destinations. Requirements are listed in the City of Petaluma Zoning Ordinance.

11.90.060 City responsibilities.

B. Technical Guidance and Support.

2. The City shall provide employers an employee commute survey form.
3. The City shall distribute survey results to all employers.

C. City Evaluation.

2. Report to City Council. The City transportation coordinator in conjunction with the Bicycle Coordinator/PBAC will submit an annual report to the City Council describing the results of the surveys and the achievement of the goals of this chapter.

D. City Support of Non-Motorized Commuting

1. The City shall reimburse City employees for non-motorized transportation commuting at a rate commensurate with automobile commuting, in accordance with formalized City procedures and policies.

TITLE 13

Streets and Other Public Places

CHAPTER 13.10: DUTY OF PROPERTY OWNER TO MAINTAIN SIDEWALKS AND PUBLIC STREET LANDSCAPE PLANTERS*

13.10.010 Trees – Property owner maintenance responsibility and duty to public.

A. The owner of a lot fronting on or adjacent to any portion of a street shall maintain any trees, shrubs, hedges or other landscaping along said street or within the street right-of-way adjacent to his or her property in such nondangerous condition that the trees, shrubs, hedges or other landscaping will not interfere with the public convenience or safety in the use of the streets and sidewalks. Said owners shall maintain such street trees so that there is a minimum eight-foot vertical pedestrian clearance from the top of the sidewalk and a minimum thirteen-foot vertical vehicular clearance from the top of the curb, to any part of a street tree.

B. For purposes of this part, maintenance of trees, shrubs, hedges and other landscaping includes but is not limited to: deep root watering, root pruning, installing root barriers, clearance and structural trimming, fertilizing, pest control, and removal of branches, leaves and other debris.

C. Property owners required by this section to maintain tress, shrubs, hedges and other landscaping shall owe a duty to members of the public using public streets and sidewalks to maintain such trees, shrubs, hedges or other landscaping in compliance with provisions under this title and city-adopted pruning guidelines, in a safe and nondangerous condition for users of the public streets and sidewalks.

D. If any fronting or adjacent property owner fails to maintain any adjacent trees, shrubs, hedges or other landscaping in a nondangerous condition as required by this section, and any person suffers damage or injury to person or property, the fronting or adjacent property owner shall be liable for all damages or injuries caused by the failure of the owner to maintain these areas.

13.10.020 Maintenance and repair of sidewalks and street landscape planters.

A. The owners of lots or portions of lots adjacent to or fronting on any portion of a sidewalk area between the property line of the lots and the street line, including landscape planting strips, sidewalks, curbs and gutters, and persons in possession of such lots by virtue of any permit or right shall repair and maintain such sidewalk areas and pay the costs and expenses therefore.

B. For the purpose of this chapter, maintenance and repair of sidewalk area shall include, but not be limited to, maintenance and repair of surfaces including grinding, removal and replacement of sidewalks, repair and maintenance of curb and gutters, removal of impervious paving materials from street tree planting strips, or other right-of-way landscape planters, removal of weeds and/or debris, tree root pruning and installing root barriers, trimming of shrubs and/or ground cover and trimming shrubs within the area between the property line of the adjacent property and the street pavement line, including planting strips and curbs, so that the sidewalk area will remain in a condition that is not dangerous to property or to persons using the sidewalk in a reasonable manner and will be in a condition which will not interfere with the public convenience in the use of said sidewalk area.

CHAPTER 13.20: FUTURE RIGHTS-OF-WAY

13.20.010 Short title.

This chapter shall be known and may be designated as the “Future Rights-of-Way Ordinance of the City.

13.20.020 Purpose.

D. To reserve areas for future widening, extension or creation of streets, bikeways or space for future utilities, pedestrian ways, vision clearance, fire and police emergency access, access to property and for other essential public services.…

13.20.070 Planning commission and department of public works report and recommendation—Hearings.

Before any action is taken by the City Council concerning proposed precise plan lines for future rights-of-way, the matter shall be refereed to the planning commission, department of public works and the Bicycle Coordinator/PBAC for a report and recommendations…

CHAPTER 13.24: WATERWAYS

13.24.080 Skateboard and bicycle restrictions.

Skateboards or bicycles are not permitted on any ramp, gangway or float of the turning basin and/or marina. Exemptions: where signage permits.

CHAPTER 13.23: USE OF PUBLIC PARKS [Missing In Document 13.23.010]

13.23.180 Unlawful acts in park.

No person, other than authorized City personnel, shall do any of the following unless written permission has been obtained from the director:…

J. Ride or drive…any motorized vehicle, bicycle or scooter elsewhere than on the roads or drives provided for such a purpose, or drive a motor vehicle in an erratic or hazardous manner on any park roads, paths or parking areas. Exemptions: bicycles with small electric motors shall be considered "bicycles" and not "motorized vehicles as defined by Ordinance 2080, January 1999.

APPENDIX B

KEY ZONING ORDINANCES REGARDING BICYCLES AND PEDESTRIANS

This Appendix replaces Appendix A.2 of the 2000 Bicycle Plan which contained the Zoning Ordinance Articles pertaining to bicycles and bicycling that served as an addendum to the City Zoning Ordinance at that time. As a result of the new General Plan 2025, an Implementing Zoning Ordinance has been developed and supersedes the former Appendix. The corresponding Chapters from the Implementing Zoning Ordinance are included below.

Chapter 11 Parking and Loading Facilities, Off-Street

11.010 - Purpose of Off-Street Parking and Loading
This chapter establishes regulations to reduce street congestion and traffic hazards in the City of Petaluma by incorporating safe, adequate, attractively designed facilities for off-street parking and loading as an integral part of every use of land in the City requiring such facilities and by providing adequate shower facilities in commercial settings to encourage employee bicycle commuting to and from the workplace.

11.020 - Definitions
The following definitions shall apply to this chapter:

A. **Floor Area.** In the case of office, merchandise or service uses, the gross area used or intended to be used by tenants, or for service to the public as customers, patrons, clients, or patients including areas occupied by fixtures and equipment used for display or sales of merchandise. It does not include areas used principally for non-public purposes, such as storage and incidental repair.

B. **Off-Street Parking Space.** A permanently surfaced area for automobile and bicycle parking which has been delineated, in accordance with City standards, located either within a structure or in the open, excluding aisles, driveways and access drives.

C. **Off-Street Parking Facility.** A site, or a portion of a site, devoted to off-street parking of automobiles and bicycles, including parking spaces, aisles, access drives and landscaped areas, and providing automobile and bicycle access to a public street or bikeway.

11.030 - Off-Street Parking – General Regulations
The following general requirements apply to off-street parking:

A. **Off-Street Parking.** There shall be provided on the same site with any use off-street parking, spaces for automobiles and bicycles in accordance with the requirements of this Chapter, or as provided in Section 11.040 (Alternatives to On-Site Parking). In all cases where bicycle parking is required, bicycle parking shall not be more inconveniently located than car parking and attempts should be made to have bicycle parking more convenient. All deviations from the City of Petaluma Municipal Code or the City of Petaluma Zoning Ordinance regarding bicycle parking shall be routed through the PBAC. Where existing buildings not now meeting these requirements are proposed to be enlarged or increased in capacity in excess of ten percent (10%), in any district except an agricultural (AG) or single dwelling district (RR, R1,R2), off-street parking shall be provided as required herein for the entire floor area of the structure.

B. **Off-Street Parking Facilities to Serve One Use.** Off-street parking facilities for one use shall not be considered as providing required off-street parking facilities for any other use except as provided for in Section 11.065(C).

C. **More Than One Use on a Site.** If more than one use is located on a site, the number of parking spaces provided shall be equal to the sum of the requirements prescribed in this Chapter for each use.

11.035 - Exception to Off-Street Parking
Sites and structures located in a municipal parking assessment district are exempt from the requirement to provide off-street parking facilities.

11.040 - Alternatives to On-Site Parking

A. The requirements of Section 11.030(A) shall be considered satisfied if the required parking is provided up to six hundred (600) feet from the site of the use being served and the required bicycle parking is provided up to 100 feet from the site, such distance being measured along the shortest available route of pedestrian access to the primary building entrance. The determination of the distance to be permitted (0-600') shall be made by the Community Development Director on a case-by-case basis. The Director shall consider the following in making the determination: type of use being served; ease of bicycle and pedestrian access from the off-site location to the site being served; characteristics of the off-site parking facility(s); potential adverse effects that reduced on-site parking may present to the immediate area; term of off-site rental/lease arrangements. This alternative does not apply to residential parking.

B. Requirements for the provision of parking facilities, with respect to two or more establishments on the same or different sites, may be satisfied by the permanent allocation of the requisite number of spaces for each use in a common parking facility, located not farther than three hundred (300) feet measured along the shortest available route of pedes-

trian access from the site of any such participating use. In such cases, bicycle parking shall still be required adjacent to each building.

11.070 - Standards for Off-Street Automobile Parking Facilities

All off-street parking facilities shall conform with the following standards:

A. **Aisles.** Access to each off-street automobile or bicycle parking space shall be from a driveway or aisle, which is sufficient for readily turning and maneuvering automobiles and bicycles.

C. **Site Distance.** Each entrance and exit to a parking lot or driveway shall be constructed and maintained so that any vehicle entering or leaving such parking lot shall be clearly visible a distance of not less than fifteen feet (15′) to a person approaching such entrance or exit on any abutting pedestrian walk or foot path and not less than thirty feet (30′) to a person approaching such entrance or exit on any abutting bikeway.

11.090 - Standards for Bicycle Facilities

The following bicycle facilities shall be provided:

A. **Number of A Bicycle Parking Spaces Required.** The number of bicycle parking spaces required shall be a minimum of 10% of the automobile spaces required, except for Commercial Recreation and Community Facilities which shall provide a minimum of 25% of the automobile spaces required.

B. **Type of Bicycle Parking.** The City shall require the installation of a certain percentage of Bicycle Parking (bicycle locker and guarded parking, covered and uncovered bicycle racks) depending on the type of land use. Unless otherwise specified on a case by case basis, of the total bicycle spaces required 60% should be bicycle lockers, another form of enclosed bicycle parking, or guarded parking and 40% should be bicycle racks covered. The intent of this requirement is to provide secure parking at locations where employees and customers will be parking for long periods of time, in particular adjacent to any areas close to public transportation. All deviations from this requirement shall be routed through the PBAC.

C. **Showers.** Employee shower facilities shall be provided for any new building constructed or for any addition to or enlargement of any existing building in compliance with the Table 11.2:

Table 11.2

Use	Number of Showers
Medical, Professional General Business Offices, Financial Services, Business and Trade Schools, General Business Services, Research and Development, Manufacturing	
Less than 10,000 gross square feet	None
10,000-19,999 gross square feet	**1**
20,000 – 49,999 gross square feet	**2**
More than 50,000 gross square feet	**4**
Retail, Personal Services, Eating and Drinking Establishments	
Less than 10,000 gross square feet	None
10,000 -24,999 gross square feet	**1**
25,000 – 49,999 gross square feet	**2**
More than 100,000 gross square feet	**4**

11.095 – Modifications

The provisions of this section as to square footage requiring showers may be modified. Any request for modification shall be routed through the Petaluma Bicycle Advisory Committee for recommendation to the Planning Commission.

11.105 - Power of the Zoning Administrator to (Director) to Modify of Increase Requirements

The provisions of this section as to number of spaces may be modified or increased by the Zoning Administrator (Director) in the following cases only. Any other request for modification shall be submitted as, and meet the tests for, a variance. If the modification pertains to bicycle parking, it shall be routed through the PBAC as well.

Chapter 24 Administrative Procedures

24.010- Site Plan and Architectural Review

G. **Standards for Review of Applications.** The appropriate reviewing body shall review the exhibits, together with the reports of the Director, and based on these documents, evidence submitted, and the considerations set forth below, may approve the project as applied for, approve the project with modifications, or disapprove the project. In taking action, the reviewing body shall consider the following:

3. Ingress, egress, internal circulation for bicycles and automobiles, off-street automobiles and bicycle parking facilities and pedestrian ways shall be so designed as to promote safety and convenience, and shall conform to approved City standards. Any plans pertaining to pedestrian, bicycle, or automobile circulation shall be routed to the PBAC for review and approval or recommendation.

Chapter 25 Amendments

25.030 - Accompanying Maps and Data

An application for an amendment shall be accompanied by maps, drawings, and data necessary to demonstrate that the proposed amendment is in conformance with the Petaluma General Plan, and that public necessity, convenience and general welfare require or permit the adoption of the proposed amendment. An accurate legal description and map of the land and any pertinent existing buildings shall be submitted with the application. The map shall include the following information:

E. The maps submitted with an application for an amendment to increase the amount of land zoned C-Commercial shall include the following information:

1. A site plan, drawn to scale, showing the proposed layout of structures and other improvements including, where appropriate, streets, bikeways, driveways, pedestrian ways, parking and loading areas, landscaped areas, fences and walls. The site plan shall indicate the locations of entrances and exits and the direction of traffic flow for automobiles, bicycles, and pedestrians into and out of parking and loading areas, the location of each automobile and bicycle parking space and each loading berth, and areas for turning and maneuvering vehicles.

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APPENDIX C

PERTINENT CENTRAL PETALUMA SPECIFIC PLAN GOALS, OBJECTIVES, & POLICIES

The Central Petaluma Specific Plan emphasizes multi-modal transportation. The following Central Petaluma Specific Plan goals, objectives, and policies support bicycling and walking. The Bicycle and Pedestrian section of the Circulation Element is included in its entirety.

LAND USE ELEMENT

Goals

- Goal 1: Support existing viable uses, and provide for new uses that complement and complete the urban fabric.
- Goal 2: Provide for a mix of new uses.
- Goal 3: Encourage intensification appropriate to the area's central location.
- Goal 4: Encourage flexibility in building form and in the nature of activities to allow for innovation and the ability to change over time.
- Goal 5: Orient activities to the Petaluma River.

Objectives & Policies

Objective 1: Provide for a mixture of industrial, office, retail, and compatible residential development.

- Policy 1.6: Encourage pedestrian oriented land use.

Objective 2: Create an intense mixed-use district oriented to the river and the proposed transit station.

- Policy 2.1: Create an active, publicly oriented commercial center at the riverfront.
- Policy 2.2: Preserve and rehabilitate the Petaluma Train Depot as the city's primary transit center.
- Policy 2.3: Provide for more intense retail uses oriented to the river.
- Policy 2.4: Promote mixed-use office development around the transit station.
- Policy 2.5: Encourage residential development on upper floors of commercial buildings.

Objective 3: Promote the development of retail, entertainment and related attractions that will establish a strong center focused on the Turning Basin and reinforce downtown businesses and new residential uses.

- Policy 3.6: Encourage the development of heritage trolley service.

Objective 4: Provide for a mix of compatible light industrial, office, retail and residential uses that maintains the unique character of the area.

- Policy 4.4: Encourage development of heritage trolley service.

Objective 5: Expand the Lower Reach area as a center of employment, mixed use and region-serving commercial activity consistent with maintaining river-dependent industrial uses.

- Policy 5.2: Locate a transit station in the vicinity of the Caulfield Lane extension.
- Policy 5.3: Allow for an intense Mixed Use development on land not utilized for industrial purposes.
- Policy 5.4: Provide for the continuation of thoroughfare-oriented retail uses along the west side of Lakeville Street from Lindberg Lane to the Highway 101 interchange.

COMMUNITY DESIGN ELEMENT

Goals

- Goal 1: Enhance Central Petaluma's identity and unique sense of place.
- Goal 2: Create a strong sense of entry and orientation within Central Petaluma.
- Goal 3: Strengthen linkages to and along the river and to other districts of the city.
- Goal 4: Enhance the livability of Central Petaluma.
- Goal 5: Establish a pedestrian scale within the public realm.
- Goal 7: Emphasize creativity and sustainability in design.

PUBLIC SPACE & RIVER ACCESS ELEMENT

Goals

- Goal 1: Establish a continuous and interconnected system of public spaces along the river.
- Goal 2: Utilize public spaces to extend the amenity of the waterfront inland.
- Goal 3: Provide urban public spaces that serve multiple purposes.
- Goal 5: Utilize public space to open up views and vistas from inland areas to the river and the mountains.
- Goal 6: Reinforce the watery open space within the Turning Basin.

- Goal 7: Complete a recreational loop on both sides of the river, including multiple gathering areas of various sizes.
- Goal 8: Enhance the public space character of city streets.
- Goal 9: Promote art in public spaces.

Objectives & Policies

Objective 1: Create a sequence of public spaces flanking both sides of the Turning Basin.

- Policy 1.1: Establish a band of public space around the Turning Basin.
- Policy 1.2: Provide for special events and activities.
- Policy 1.3: Establish a sequence of public spaces extending the amenity of the river inland.
- Policy 1.5: Provide for a new public plaza associated with the Depot buildings and the new transit center.

Objective 2: Encourage the establishment of public spaces to and along the riverfront.

- Policy 2.1: Establish a ribbon of landscaped and shaded public space on the west side of the river, connecting the flood control project to the East Washington Bridge.
- Policy 2.2: Provide for public space improvements near the Washington Street Bridge.
- Policy 2.3: Utilize landscape setbacks to create buffers between industrial and non-industrial uses.
- Policy 2.4: Encourage linkages from the river to Penry (formerly Hill Plaza) Park.
- Policy 2.5: Establish a new public park in the North River area.

Objective 3: Establish river access and public spaces within the Riverfront Warehouse District.

- Policy 3.1: Establish a specific design for shoreline access within the Riverfront Warehouse District.
- Policy 3.2: Provide for a new public space at Thompson Creek (at the foot of "F" Street).
- Policy 3.3: Improve the street ends as open spaces.
- Policy 3.4: Establish green connections from inland areas to and along the water.

Objective 4: Provide for major new public spaces extending from the river to inland areas.

- Policy 4.1: Provide for a major band of waterfront public space.
- Policy 4.2: Establish an integrated network of public space.
- Policy 4.3: Develop a central green within the new employment area.
- Policy 4.4: Establish a small plaza in conjunction with the planned transit terminal.
- Policy 4.5: Establish a new public park, as planned, at McNear Peninsula.

CIRCULATION ELEMENT

Goals

- Goal 1: Support diversity in the transportation system.
- Goal 2: Reduce the barrier effect of the diverse transportation corridors.
- Goal 3: Reinforce the role of Central Petaluma as a center for transit and non-vehicular modes of travel.
- Goal 4: Complete the urban pattern with a pedestrian-scaled grid of streets.

Objectives & Policies

Objective 1: Improve and promote transit service.

- Policy 1.1: Establish the Petaluma Train Depot as the city's transit hub, accommodating rail transit as well as regional and local bus service.
- Policy 1.2: Focus transit functions at the Petaluma Depot.
- Policy 1.3: Provide a transit station in the vicinity of Caulfield Lane.
- Policy 1.4: Pursue an additional at-grade railroad crossing at Caulfield Lane.
- Policy 1.5: Activate the P&SR railroad right-of-way as a heritage trolley route.

Objective 2: Provide a street system that strengthens the existing roadway network, serves new development, and balances the need for through movement with livability and pedestrian/bicycle orientation.

- Policy 2.1: Establish a system of local streets between downtown and the future downtown transit center that extends the fine-grained pattern and pedestrian quality of downtown Petaluma streets.
- Policy 2.2: Maintain the street grid pattern in the downtown and the Riverfront Warehouse District.
- Policy 2.3: Establish a roundabout on East Washington Street.
- Policy 2.4: Create new local streets to improve access and better serve potential development.
- Policy 2.5: Reduce the number of travel lanes and reconfigure Petaluma Boulevard to improve bicycle and pedestrian access and reduce vehicle speed.

Objective 3: Improve pedestrian and bicycle circulation.

The plan provides for the improvement of bicycle and pedestrian circulation through the planning area. New connections are proposed along the river, particularly along the river corridor. As described in the River Plan, a Class I (separate path) bicycle and pedestrian trail is proposed along the river and along the railroad right-of-way through the planning area.

The river trail would be phased in with new development and in consideration of adjacent uses. Consistent with policies throughout the plan that support industrial uses, bicycle and pedestrian trails are directed away from those uses where feasible alternative routes exist.

- Policy 3.1: Provide a multi-use recreational bicycle and pedestrian trail along the NWP right of way, with connections to McNear Peninsula and the riverfront.

  A new recreational trail is proposed, beginning near the Lakeville Street crossing and running along the railroad right-of-way the length of the planning area and beyond. This trail would experience minimal disruption from street crossings and would traverse a diverse urban landscape. This trail could pass under the U.S. Highway 101 bridge and ultimately link to the Bay Trail, south of Petaluma. If the southern portion of the Pomeroy site is redeveloped, the trail alignment could continue through a greenbelt edge to the riverfront, where a potential water crossing (i.e., water taxi) to McNear Peninsula could be taken. Another linkage from this trail to the McNear Peninsula is provided around the head of the McNear Channel, south of D Street.

- Policy 3.2: In the North of Washington Street River Area, establish a pedestrian and bicycle trail along the west side of the river. Provide a river crossing in association with new development on the east and west sides of the river.

  In the area north of Washington Street, the plan proposes to focus pedestrian access on the west side of the bank, away from the industrial uses on the east side. A bank top bicycle and pedestrian trail is proposed along the west side of the river in association with new development. At Hunt and Behren's, a trailway is planned to be provided as part of the U.S. Army Corps of Engineers flood control project. A new pedestrian bridge should be provided as part of new residential and commercial mixed-use development on both sides of the river. This alignment is recommended in lieu of an alignment across the utility easement to Copeland Street, as it would direct public access along a street that will be the only means of street and rail access to Dairymen's Feed and Spectrum Naturals.

- Policy 3.3: Establish a pedestrian-oriented promenade around the Turning Basin.

  A continuous promenade around the Turning Basin is recommended. On the east side, this promenade would be developed at the top of the bank in conjunction with a new public gathering place. This trail would connect to Water Street and the downtown via the existing Balshaw Bridge.

  On the west side of the Turning Basin, the promenade would continue along Water Street to First Street and C Street. Connection across the river could be made via the existing walkway on the D Street Bridge.

- Policy 3.4: Establish a trail between D and H streets, and provide for bicycles along First Street.

In the Riverfront Warehouse District, the waterfront promenade would continue as a boardwalk developed in association with new uses. In addition, First Street would be improved with sidewalks and bicycle facilities as well as landscaping and lighting amenities. Bicycle and pedestrian connections between First Street and the boardwalk trail would be made via existing street ends at G and H streets, as well as a new park at F Street.

- Policy 3.5: Provide on-street connections to the river trail (i.e., sidewalks, bike lanes and bike routes) to ensure a logical system of pedestrian and bicycle routes that links to citywide and regional systems.

  Sidewalks will be provided on all streets within the planning area. Provisions for bicycles, either within separate lanes (if adequate right-of-way exists) or as posted bike routes, will be incorporated along East Washington, Copeland Street (between East Washington and the McNear Channel, D Street, G Street, First Street and Caulfield Lane.

- Policy 3.6: Enhance street landscaping and design to improve the environment for pedestrians and bicyclists.

  Throughout the planning area, the plan recommends the enhancement of streets, including generous provisions for pedestrian circulation, street tree landscaping, and pedestrian-scaled light fixtures. Emphasis should be placed on street tree planting, particularly along gateway streets such as East Washington, Petaluma Boulevard and Lakeville, to improve the amenity for pedestrian and bicyclists as well as the overall district identity.

- Policy 3.7: Provide facilities for bicyclists in new commercial development and at transit stations.

  Secure and conveniently located bicycle parking facilities shall be provided at transit stations and in large new employment complexes in order to encourage the use of bicycles.

Objective 5: Develop transportation demand management programs that discourage single-occupancy vehicle trips and encourage the use of alternative modes of transportation.

- Policy 5.1: Apply TDM measures to new office development in Central Petaluma.

APPENDIX D:

BICYCLE AND PEDESTRIAN COUNTS

Yr	Time	Peds	Eastbound				Westbound				Helmet
			On-Street		Off-Street		On-Street		Off-Street		
			Right	Wrong	Right	Wrong	Right	Wrong	Right	Wrong	
E. Washington between McDowell & 101											
2004	7-9A	32	3	3	5	0	12	2	0	34	8
	4-6P	33	4	2	0	14	8	7	18	0	5
2005	7-9A	36	7	2	4	0	8	1	2	19	5
	4-6P	27	14	1	33	0	5	0	1	10	9
2006	7-9A	33	1	1	10	0	0	0	0	0	1
	4-6P	30	9	0	9	0	0	5	0	13	5
Washington between Lakeville and Copeland											
2004	7-9A	36	3	0	9	1	3	1	11	16	7
	4-6P	35	4	0	16	4	3	0	7	10	2
2005	7-9A	61	2	0	3	3	6	0	5	18	7
	4-6P	54	7	0	12	14	3	1	8	10	7
2006	7-9A	43	3	0	8	2	2	0	13	22	3
	4-6P	52	5	0	20	3	0	1	7	9	3

Yr	Time	Peds	Eastbound				Westbound				Helmet
			On-Street		Off-Street		On-Street		Off-Street		
			Right	Wrong	Right	Wrong	Right	Wrong	Right	Wrong	
E. D Street between Lakeville and Copeland											
2004	7-9A	29	5	0	11	1	9	0	9	5	16
	4-6P	40	7	1	11	6	12	0	5	7	18
2005	730-830A	24	5	1	3	5	4	0	3	4	10
	430-530P	36	11	3	0	0	8	1	0	0	11
2006	7-9A	29	5	1	17	0	8	0	8	14	24
	4-6P	40	8	2	14	3	10	1	7	15	12
Lakeville near Lindberg Lane											
2004	7-9A	5	2	0	2	2	1	0	5	1	3
	4-6P	6	2	0	3	0	0	0	6	0	3
2005	7-9A	10	4	1	3	0	2	0	1	0	5
	415-530P	20	2	0	1	2	3	0	2	3	2
2006	7-9A	5	3	0	1	2	4	0	4	1	2
	4-6P	19	2	0	3	0	4	0	2	4	4

Yr	Time	Peds	Northbound				Southbound				Helmet
			On-Street		Off-Street		On-Street		Off-Street		
			Right	Wrong	Right	Wrong	Right	Wrong	Right	Wrong	
Lynch Creek Trail near bike/ped bridge											
2004	7-9A	8			3				7		4
	4-6P	15			7				10		9
2005	7-9A	3			11				9		8
	4-6P	11			28				17		19
2006	7-9A	11			8		8		8		9
	4-6P	27			15		15		15		7
Petaluma Blvd N at Oak											
2004	7-9A	19	3	0	7	2	2	0	4	2	3
	4-6P	36	0	0	2	4	2	0	6	4	6
2005	7-9A	27	3	0	2	3	2	0	8	2	4
	4-6P	30	1	0	4	2	0	0	2	2	4
2006	7-9A	21	1	1	3	0	5	2	0	2	7
	4-6P	28	1	1	1	1	5	0	9	1	2

Yr	Time	Peds	Northbound				Southbound				Helmet
			On-Street		Off-Street		On-Street		Off-Street		
			Right	Wrong	Right	Wrong	Right	Wrong	Right	Wrong	
N. McDowell Blvd at PVH bus stop											
2004	7-9A	12	0	0	7	2	0	0	7	2	3
	4-6P	8	0	0	8	10	2	0	9	3	8
2005	7-9A	7	0	0	0	2	0	0	5	0	1
	4-6P	13	0	0	4	3	0	0	5	0	5
2006	7-9A	9	1	0	7	4	1	0	2	4	6
	4-6P	28	1	0	8	5	2	0	6	10	4
Petaluma Blvd S between C and D Streets											
2004	7-9A	66	1	0	2	0	4	0	3	3	7
	4-6P	58	1	0	12	0	1	0	12	0	6
2005*	7-9A	27	2	0	0	1	3	0	1	1	2
	4-6P	25	1	0	0	0	0	0	6	0	1
2006	7-9A	22	2	0	1	0	0	0	0	0	1
	4-6P	52	6	0	0	4	10	0	2	1	0

* Sidewalk along east side of Petaluma Boulevard South was closed due to construction in 2005.

APPENDIX E:

GLOSSARY

AASHTO -- American Association of State Highway Transportation Officials; a non-profit association representing highway and transportation departments in the 50 states, District of Columbia, and Puerto Rico with the primary goal to foster the development, operation, and maintenance of an integrated national transportation system.

ABAG -- Association of Bay Area Governments; a voluntary association of counties and cities that is the general planning agency for the nine-county San Francisco Bay Area.

ADA – Americans with Disabilities Act of 1990; prohibits discrimination on the basis of disability by public entities.

ADT -- Average Daily Traffic; the average number of vehicles passing a specific point during a 24-hour period.

Arterials – High to medium capacity roads that provide regional or intra-community travel.

BAAQMD -- Bay Area Air Quality Management District; local agency charged with controlling air pollution and attaining air quality standards.

Bay Area Ridge Trail -- A proposed 500-mile trail encircling the San Francisco Bay along the ridge tops, open to hikers, equestrians, and mountain bicyclists.

Bay Trail -- See "San Francisco Bay Trail."

Bicycle Boulevard -- A city street, usually determined to be key to bicycle through-traffic, in which bicycles have been given precedence over cars by means of barriers, traffic calming, stop signs aimed at car travel, etc.

Bikeway -- A general term, pertaining to any street, road, or pathway which in some manner is specifically designated for bicycle travel, regardless of whether the facility is designated for the exclusive use of bicycles or is to be shared with other transportation modes.

BTA – Bicycle Transportation Account; Caltrans funding program that provides state funds for city and county projects that improve safety and convenience for bicycle commuters.

Caltrans -- California Department of Transportation

CBAC - Countywide Bicycle Advisory Committee; an advisory committee to the SCTA composed of representatives from each jurisdiction. One staff and one citizen represent the urbanized areas and participate in the dispersal of funds to each of the city jurisdictions.

Central Petaluma Specific Plan -- The Central Petaluma Specific Plan (CPSP) provides specific land use and development regulations for nearly 400 acres within the geographic heart of the city, adjacent to downtown. It includes an area that is bounded by Lakeville Street on the east and north, Petaluma Boulevard on the west, and Highway 101 on the south. The CPSP was adopted in June of 2003 to direct new growth into this area.

CIP -- Capital Improvement Program; a list of projects, their estimated costs, and schedules contained within an approved report by the responsible agency.

Class I Bikeway (Bike Path) -- Provides a completely separated right of way for the exclusive use of bicycles and pedestrians with crossflow minimized.

Class II Bikeway (Bike Lane) -- Provides a striped lane for one-way bicycle travel on a street or highway.

Class III Bikeway (Bike Route) -- Provides for shared use with pedestrian or motor vehicle traffic.

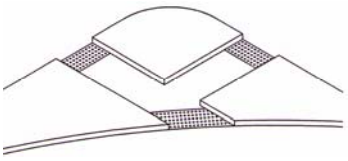
CMA – Congestion Management Agency; a countywide agency responsible for preparing and implementing a county's Conges-

tion Management Program. CMAs came into existence as a result of state legislation and voter approval of Prop. 111 in 1990.

CMAQ -- Congestion Mitigation and Air Quality Improvement Program; a pot of federal money for projects and activities that reduce congestion and improve air quality, both in regions not yet attaining federal air quality standards and those engaged in efforts to preserve their attainment status.

Collector – Low volume streets for circulation within or between neighborhoods.

Curb Cuts – "Slots" cut through a curb or through an island; an interruption of a curb at a pedestrian way, which separates surfaces that are substantially at the same elevation.



Curb cut in an island

Curb Ramps – A sloping pedestrian way, intended for pedestrian traffic, which provides access between a walk, or sidewalk, to a surface located above or below an adjacent curb face.

EIR -- Environmental Impact Report; a detailed review of a proposed project, its potential adverse impacts upon the environment, measures that may avoid or reduce those impacts, and alternatives to the project; prepared in response to State requirements found in the California Environmental Quality Act (CEQA).

EIS -- Environmental Impact Statement; an environmental impact document prepared for federally funded or approved projects pursuant to the National Environmental Policy Act (NEPA).

FHWA -- Federal Highway Administration; one of three groups under the DOT along with the Federal Transit Administration and the Federal Aviation Administration.

General Plan -- The general plan is a community's blueprint for future development. It describes a community's development goals and policies. It also is the foundation for land use decisions made by the planning commission and city council.

Local Streets – Streets that provide direct access to land uses.

Mixed Use -- Mixing residential with retail, industrial and/or office.

MPO -- Metropolitan Planning Organization; a federally required planning body responsible for the transportation planning and project selection in its region; the governor designates an MPO in every urbanized area with a population of over 50,000. MTC is the Bay Area's MPO.

MTC -- Metropolitan Transit Commission; the transportation planning, financing and coordinating agency for the nine counties that touch San Francisco Bay.

Multimodal – Refers to the availability of multiple transportation options, especially within a system or corridor. A multimodal approach to transportation planning focuses on the most efficient way of getting people or goods from place to place, be it by truck, train, bicycle, automobile, airplane, bus, boat or foot.

MUTCD – *Manual on Uniform Traffic Control Devices*; defines the standards used by road managers nationwide to install and maintain traffic control devices (signs, signals, pavement markings) on all streets and highways.

Open Areas -- "Open areas" is a general term used to refer to any park, right of way, City-owned property, utility corridor, publicly-used land, school yard, which is open land and useful for bicycle/pedestrian travel.

PBAC – Pedestrian and Bicycle Advisory Committee; the City Council appointed body charged with monitoring the bicycle and pedestrian transportation modalities in the City of Petaluma.

Petaluma River Access and Enhancement Plan -- A comprehensive plan completed in 1995 for the Petaluma River, 96% of which pertains to areas within the General Plan's urban limit line. The River Plan proposes a 6.5 mile long 300-acre linear open space system linked to neighborhoods, commercial centers, and other open spaces throughout the City and into the regional park and trail complex.

Planning Commission -- Non-paid citizen appointees by the City Council who serve 4 year terms (with a maximum of 2 terms) to

monitor the planning efforts within the Planning Division and in the City of Petaluma. Planning Commission decisions are binding and but can be appealed before the City Council if the applicant pays an appeal fee.

Rail Trail -- The Class I trail planned to follow the SMART corridor through Petaluma and into County lands both north and south.

River Plan-- A shortened term referring to the *Petaluma River Access and Enhancement Plan*.

San Francisco Bay Trail –A planned recreational corridor that, when complete, will encircle San Francisco and San Pablo Bays with a continuous 400-mile network of bicycling and hiking trails. Implementation of the Bay Trail is being coordinated by the Bay Trail Project, a nonprofit organization administered by the ABAG.

SCBC – Sonoma County Bicycle Coalition.

SCTA -- Sonoma County Transportation Authority; elected officials from each of 10 local jurisdictions (9 cities and the county) which serve as this region's Congestion Management Agency, sending projects to MTC for funding monies.

SMART – Sonoma Marin Area Rail Transit; a passenger rail corridor project along approximately 70 miles of the Northwestern Pacific Railroad alignment from Cloverdale to the ferry terminal in Larkspur.

Sonoma County BPAC -- Sonoma County Bicycle and Pedestrian Advisory Committee; a group which represents the rural areas of Sonoma County, planning the rural bicycle routes including connections to urban areas.

SPARC -- Site Plan and Architectural Review Committee; a non-paid citizen committee appointed by the City Council which holds the first public discussions on development plans, prior to the Petaluma Planning Commission.

SR2S – Safe Routes to School.

TDA -- Transportation Development Act; a state law enacted in 1971. TDA funds are generated from a tax of one-quarter of one percent on all retail sales in each county; used for transit, special transit for disabled persons, and bicycle and pedestrian purposes, they are collected by the state and allocated by MTC to fund transit operations and programs.

TDM - Transportation Demand Management; low-cost ways to encourage people to change their mode of travel , travel during off-peak periods, or not make the trip along at all, e.g., telecommuting, flextime, parking management, and ridesharing.

TIP -- Transportation Improvement Program; this is the primary spending plan for federal funding expected to flow to the region from all sources for transportation projects of all types. MTC prepares the TIP every two years with the assistance of local governments, transit operators and Caltrans. It covers at least a three-year period.

Urban Separator -- A 300-foot wide greenbelt at the edge of allowable development.

VPD – Vehicles Per Day; term used in calibrating how busy a street is.

Zoning - Local codes regulating the use and development of property. The zoning ordinance divides the city into land use districts or "zones," illustrated on zoning maps, and specifies the allowable uses within each such zone. It establishes development standards such as minimum lot size, maximum structure height, building setbacks, and yard size.