
TRANSPORTATION ELEMENT

INTRODUCTION

PURPOSE AND CONTENT

A city is both defined and constrained by the network of highways, roads, trails, railroads, and transit services that move its residents and goods in, through, and out of the community. A comprehensive, well-planned, and efficiently functioning transportation system is essential to Redding's long-term growth and vitality. The Transportation Element (referred to by the Government Code as the *Circulation Element*) provides the necessary framework to guide the growth and development of the Planning Area's transportation-related infrastructure and integrates land use and transportation planning by ensuring that all existing and future developments have adequate circulation. The element is not limited to automobile-related transportation, but addresses the development of a balanced, multimodal transportation system for the City, although the street and highway (circulation/access) system supports the movement of all transportation modes, except rail, in Redding. Recognition of the regional nature of transportation facilities that various transport modes use and the need for interagency coordination is also emphasized.

Background data and information for this element are contained within Chapter 6 of the City of Redding *General Plan Background Report*.

Specific topics addressed within the policy document include:

- ▶ Streets and Highways.
- ▶ Regional Transportation Planning.
- ▶ Neighborhood Streets.
- ▶ Pedestrianism.
- ▶ Parking.
- ▶ Bicycle System.
- ▶ Public Transportation and Facilities.
- ▶ Air Transportation and Facilities.
- ▶ Railroad Services and Facilities.

AUTHORITY

Pursuant to Government Code Section 65302(b), a general plan is required to include:

A Circulation Element consisting of the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, and other local public utilities and facilities, all correlated with the Land Use Element of the plan.

The provisions of a Transportation Element affect a community's physical, social, and economic environment and are inexorably linked with a land use element. Its provisions must also be integrated with applicable state and regional transportation plans.

The City of Redding has chosen to address utility-oriented facilities, such as energy, water, sewage, storm drainage, and communications, within a comprehensive Public Facilities and Services Element.

GOALS AND POLICIES

COMPLETE STREETS

The City of Redding desires to develop and maintain an efficient transportation system that provides safe multimodal transportation choices for independent mobility, encourages healthy, active living, and supports greater social interaction. This system will provide safe and convenient travel along and across streets through the development and maintenance of a comprehensive, integrated transportation network designed to provide safe and convenient transportation alternatives for all users, including pedestrians, bicyclists, public transportation riders, and motorists. Such a transportation network is accomplished through the development of a system of "Complete Streets."

The goals and policies below reinforce various policies of the General Plan's Community Development and Design Element, Transportation Element, and Recreation Element intended to encourage development of infill parcels and mixed-use developments that help to lessen reliance on automobiles and to provide pedestrian and bicycle connections between neighborhoods, transit, recreational amenities, schools, employment centers, and services. Together these actions will help to establish a land use and transportation network that is efficient, accessible, and builds on the existing strengths of the Redding community.

GOAL T1

PROVIDE SAFE, EFFICIENT, AND COMFORTABLE ROUTES FOR WALKING, BICYCLING, AND PUBLIC TRANSPORTATION TO INCREASE USE OF THESE MODES OF TRANSPORTATION, ENABLE CONVENIENT AND ACTIVE TRAVEL AS PART OF DAILY ACTIVITIES, AND MEET THE NEEDS OF ALL USERS OF THE STREETS.

Policies to achieve this goal are to:

T1A. Ensure that multimodal infrastructure improves transportation choices for pedestrians, bicyclists, motorists, and public transportation riders of all ages and abilities and that all users

are considered and included in the planning, design, approval, construction, and operation of new streets, and the alteration and maintenance phases of existing streets by:

- ▶ Including infrastructure that promotes a safe means of travel for all users along the right of way, such as sidewalks, shared-use paths, bicycle lanes, and paved shoulders.
- ▶ Provide pedestrian and bike connections from developments to adjacent main streets, open space areas, parks, transit stops, schools, commercial and employment centers, and other activity centers as opportunities arise.
- ▶ Designing new development to incorporate street connectivity for all users.
- ▶ Including new or alteration of existing infrastructure that facilitates safe crossing of the right-of-way for all users, such as: accessible curb ramps, high-visibility crosswalks, pedestrian refuge islands, smaller curb radii, corner bulbouts, pedestrian signals, and bicycle detection at traffic signals where warranted.
- ▶ Incorporating street design features and techniques that promote safe and comfortable travel along streets by pedestrians, bicyclists, and public transportation riders. Examples include: constructing traffic-calming mechanisms in neighborhoods; providing pedestrian refuge medians on busy streets; reducing the number of motor vehicle lanes and/or widths where appropriate; providing transit turnouts; and constructing physical buffers and separations between vehicular traffic and other users.
- ▶ Providing features that improve the comfort, convenience, and safety of users such as pedestrian-oriented/wayfinding signs, pedestrian-scale lighting, benches and other street furniture, bicycle parking facilities, comfortable and attractive public transportation stops and facilities, street trees, landscape, and planting strips.

GOAL T2

ESTABLISH A SYSTEMATIC COMPLETE STREETS RETROFIT PROGRAM THAT WILL EFFECTIVELY ALTER EXISTING APPROPRIATELY IDENTIFIED STREETS INTO COMPLETE STREETS AS RESOURCES BECOME AVAILABLE.

Policies to achieve this Goal are to:

- T2A.** Identify and prioritize physical improvements that would make bicycle and pedestrian travel safer along current key bicycling and walking routes. Establish an implementation strategy to construct needed improvements. Undertake improvements as part of street projects where feasible.
- T2B.** Identify intersections and other locations where collisions have occurred or that present safety challenges for pedestrians, bicyclists, or other users, including, but not limited to, intersections within one mile of schools; consider gathering additional data through methods such as walkability/bikeability audits.
- T2C.** Ensure that the transportation capital improvement program and other budgetary tools include funding for Complete Streets infrastructure to the fullest feasible extent. Utilize grant funds and other funding sources to augment City resources. Undertake street modifications with existing capital projects such as overlays, sidewalk repair, ADA curb ramps, and similar projects to reduce costs while providing multimodal accessibility.

GOAL T3

ENSURE THAT EXISTING STANDARDS, PROGRAMS, AND PROCEDURES INCLUDE COMPLETE STREETS IMPLEMENTATION AS A MAIN FOCUS.

Policies to achieve this Goal are to:

- T3A.** Review the City's construction standards for streets, intersections, pedestrian facilities, bicycle facilities, and transit facilities and

revise as necessary to incorporate Complete Streets standards that support all users.

- T3B.** Consider establishing Multimodal Level of Service Criteria, including pedestrians and cyclists to guide development of the street network.
- T3C.** Collaborate with the Redding Area Bus Authority (RABA) to incorporate infrastructure to assist users in employing multiple means of transportation in a single trip in order to increase transportation access and flexibility. Examples include, but are not limited to, provisions for bicycle access on public transportation, secure bicycle racks at transit stops, and public transportation access to trails and recreational locations.
- T3D.** Consider development of a Complete Streets Design Manual that can serve as a guide for public and private development projects that propose new streets or modifications of existing streets.
- T3E.** Encourage new development in close proximity to existing employment, housing, schools, commercial centers, and other services and amenities.

GOAL T4

WORK WITH THE PUBLIC, STAKEHOLDERS, AND OTHER JURISDICTIONS AND AGENCIES TO PROMOTE, DESIGN, AND CONSTRUCT AN EFFECTIVE TRANSPORTATION SYSTEM THAT SERVES ALL USERS.

Policies to achieve this Goal are to:

- T4A.** Undertake targeted outreach and public participation in community decisions concerning street design and use.
- T4B.** In collaboration with Shasta County, City of Anderson, City of Shasta Lake, and the Regional Transportation Planning Agency, integrate bicycle, pedestrian, and public transportation facility planning into regional and local transportation planning programs to

encourage connectivity between jurisdictions. Encourage coordination among these agencies to develop joint prioritization, capital planning and programming, and implementation of street improvement projects and programs.

STREETS AND HIGHWAYS

Traffic Planning and Level of Service

Land use planning can have a significant impact on managing local traffic problems and, to some extent, regional problems. For instance, this General Plan includes land use policies aimed at giving more residents the choice of living closer to their jobs. It also contains policies supporting mixed-use developments, higher-density development in the Downtown and other areas, and locating neighborhood shopping facilities closer to residential neighborhoods. These policies can be found in the Community Development and Design Element. But these strategies alone will not solve existing congestion problems, nor will they prevent additional circulation problems from occurring in the future.

A driver's perception of traffic flow is directly related to expectations. People may expect and accept occasionally heavy traffic, but will not accept continuous delays throughout their course of travel. In

Redding, most drivers have come to expect virtually free-flow traffic, unlike what they may have encountered in larger cities in which they have resided or have visited. But it is important to realize that, while all streets are designed to carry traffic, they are not all the same. Some serve major commercial corridors and are directly linked to Interstate 5 and the state highway system. Other streets function as links between places of work and residential areas. Still others provide basic organization to areas like Downtown, such as a "grid" system, that have their own flavor and hence a different driving experience. It is not reasonable to expect that every street should have free-flow traffic 24 hours a day.

Traffic engineers use quantitative measures known as Level of Service (LOS) to describe traffic conditions. Factors taken into consideration include volume of traffic, street and intersection design, signal timing, and other variables. Each LOS is assigned a letter, ranging from "A" (less than a 10-second wait at intersections and no restrictions on speed along arterials) to "F" (delays of more than one green cycle at intersections and "stop and go" movement along the street). LOS is normally used to describe peak-hour conditions, the morning or afternoon hour when traffic is the heaviest. The following table describes the Level of Service categories:

**Table 2-1
Level of Service Descriptions**

Service Level Category	Descriptions of Traffic Conditions	
	Signalized Intersections (Average Length of Wait ¹)	Arterials (Average Speed ²)
Free-Flowing (LOS A)	Most vehicles do not have to stop. On the average, each driver waits less than 5 seconds to get through intersection.	Vehicles can maneuver completely unimpeded and without restrictions on speed caused by other cars and delays at intersections. <i>Cypress Avenue at 7 a.m. on a Sunday.</i>
Minimal Delays (LOS B)	Some vehicles have to stop, although waits are not bothersome. Average wait at intersection is 5 to 15 seconds.	Drivers feel somewhat restricted within traffic stream and slightly delayed at intersections. <i>Hilltop Drive at 10 a.m. on a weekday.</i>
Acceptable Delays (LOS C)	Significant number of vehicles have to stop because of steady, high traffic volume. Still, many pass through without stopping. On the average, vehicles have to wait 15 to 25 seconds to get through intersection. <i>Typical LOS at major intersections during mid-day.</i>	Traffic still stable, but drivers may feel restricted in their ability to change lanes. They begin to feel the tension of traffic. Delays at intersections contribute to lower average speeds. <i>Cypress Avenue at 11 a.m. most weekdays.</i>

Service Level Category	Descriptions of Traffic Conditions	
	Signalized Intersections (Average Length of Wait ¹)	Arterials (Average Speed ²)
Tolerable Delays (LOS D)	Many vehicles have to stop. Drivers are aware of heavier traffic. Cars may have to wait through more than one red light. Queues begin to form, often on more than one approach. On the average, vehicle wait is 25 to 40 seconds. <i>Common afternoon peak-hour LOS at many intersections.</i>	High traffic volumes and delays at intersections reduce average travel speeds somewhat compared to free-flow. Drivers aware of slower pace of traffic. <i>Cypress Avenue at noon—most intersections.</i>
Significant Delays (LOS E)	Cars may have to wait through more than one red light. Long queues form, sometimes on several approaches. Average waits of 40 to 60 seconds. <i>Apparent at major arterial intersections at peak hour.</i>	High traffic volume and many signalized intersections with long queues reduce average travel speed to one-third of free-flow. <i>Cypress Avenue at 5 p.m. at Bechelli Lane.</i>
Excessive Delays (LOS F)	<i>Intersection is jammed.</i> Many cars have to wait through more than one red light or more than 60 seconds. Traffic may back up into "upstream" intersections. Generally caused by obstruction or irregular occurrence (e.g., signal preemption for a train). This condition often viewed as "gridlock."	Travel is "stop and go"—one-third or one-fourth of free-flow. Usually caused by a "downstream" obstruction, such as lanes reduced from 4 to 3 or a stalled car or signal preemption for a train. <i>At times, Cypress Avenue experiences LOS "F" at the freeway interchange area and when the Cypress Bridge over the Sacramento River is closed to only one lane in a single direction (due to accidents or other problems).</i>

¹ "Average wait" is a measure of traffic conditions at intersections. It is an estimate of the average delay for all vehicles entering the intersection in a defined period of time, for example, the evening peak hour. It is expressed as a range rather than a single value. Some drivers will actually wait more or less time than indicated by the range.

² "Average speed" is a measure of traffic conditions on arterials. "Average speed" is based on the total time it takes to travel a certain distance, including the time spent waiting at intersections. It is determined more by traffic volume and conditions at intersections than by the legal speed limit.

Quantitative measures of LOS are useful aids to understanding the community and helping to identify potential problems with street design and land use impacts. However, LOS is theoretical in nature and must be tempered by judgment and interpretation. For instance, minor adjustments in signal timing, turning-lane provisions, points of access from adjoining properties, and other modifications can improve the actual operation of a given street or intersection. Further, LOS describes the conditions based on a "peak hour," usually corresponding to the morning or afternoon commute. Intersections may be impacted for shorter periods of time without affecting the LOS rating.

This General Plan uses a multilevel approach to assigning LOS expectations. It recognizes that the same level of service for all streets is not appropriate or necessary. For example, moving traffic through Downtown without delay detracts from efforts to establish an active, pedestrian-friendly area. A different level of service is also appropriate for certain principal arterial streets as well as for state highway facilities, including those indicated on Figure 2-1.

GOAL T5
COORDINATE TRANSPORTATION AND
LAND USE PLANNING; PROTECT EXISTING AND
PLANNED LAND USES FROM TRANSPORTATION-
RELATED CONFLICTS; PROMOTE MULTI-MODAL
TRANSPORTATION OPTIONS.

Policies to achieve this goal are to:

T5A. Establish the following peak-hour LOS standards for transportation planning and project review. They reflect the special circumstances of various areas of the community, as depicted in Figure 2-1:

- ▶ Use LOS "C"—"acceptable delays"—for most arterial streets and their intersections.
- ▶ Use LOS "D"—"tolerable delays"—for the Downtown area where vitality, activity, and pedestrian and transit use are primary goals.

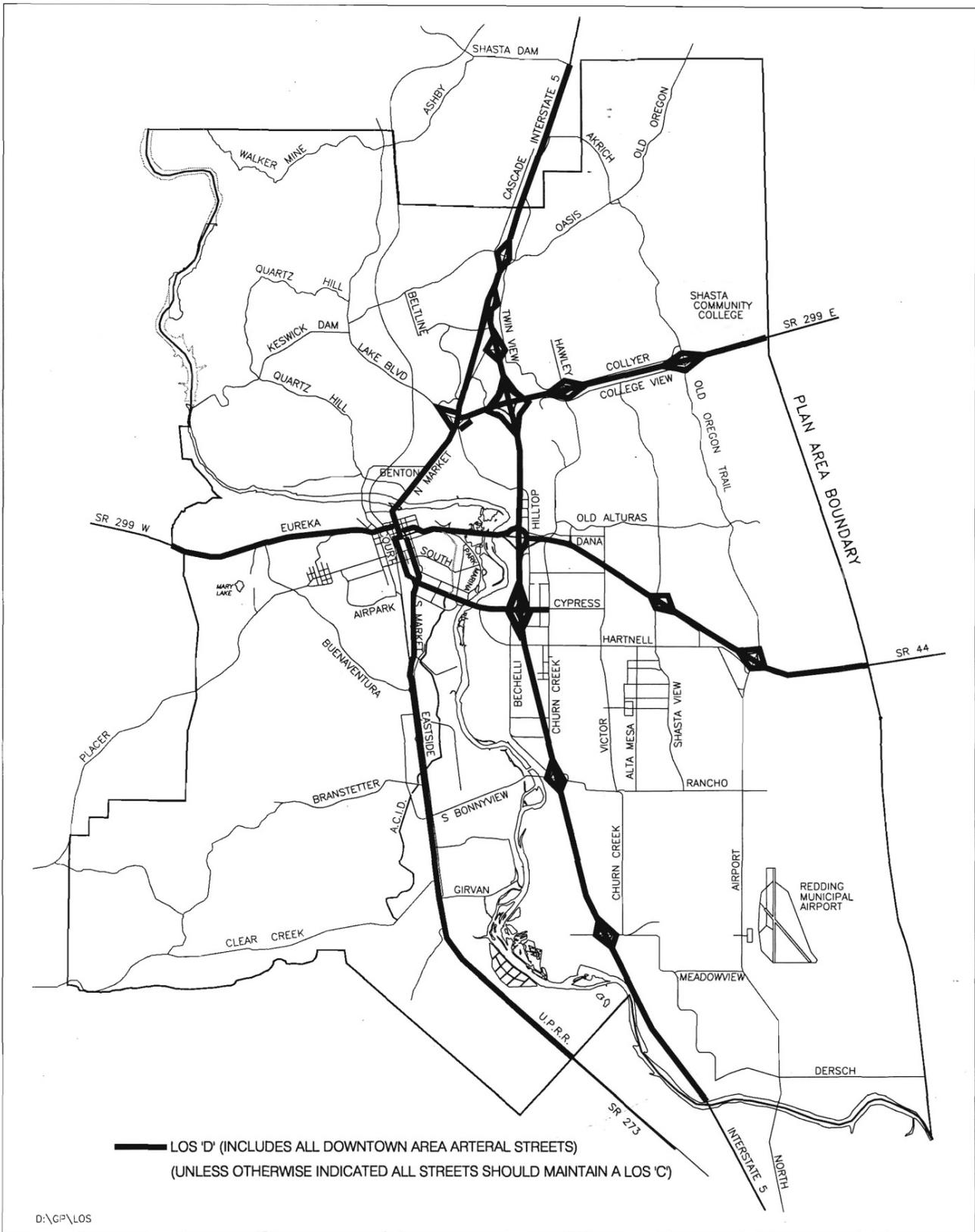


Figure 2-1 Peak Hour Level Of Service



- ▶ Use LOS "D" —"tolerable delays"—for streets within the state highway system and interchanges.
- ▶ Use LOS "D"—"tolerable delays"—for river-crossing street corridors whose capacity is affected by adjacent intersections.

- T5B. Require development projects to construct both on- and off-site improvements as necessary to mitigate the effects of increased traffic generated by the project and maintain peak-hour LOS standards established by Policy T1A. The traffic analysis used to establish mitigating measures shall be based on the City's Traffic Model or other City-approved method. Improvements may be deferred by the City upon approval of a Deferred Improvement Plan which identifies improvements needed, costs, funding sources, and other pertinent data required by the City.
- T5C. Obtain needed street right-of-way dedications with ministerial projects and with the approval of subdivisions, use permits, and other discretionary actions.
- T5D. Encourage employers to provide incentives for employees utilizing alternatives to the single-occupant automobile, such as car pools, van pools, buses, bicycling, and walking.
- T5E. Encourage employers, including government agencies, to allow telecommuting and flex time and to promote staggered shifts or base work hours that do not coincide with peak-period traffic to reduce peak-hour trips.
- T5F. Route through truck traffic around existing and future residential neighborhoods and incompatible commercial areas to the extent feasible.
- T5G. Continue to utilize signage and enforcement to clearly demonstrate the City's intent to reduce truck traffic and parking in residential districts.

GOAL T6

USE TRANSPORTATION SYSTEMS TO REINFORCE THE URBAN LAND USE PATTERN OF DOWNTOWN.

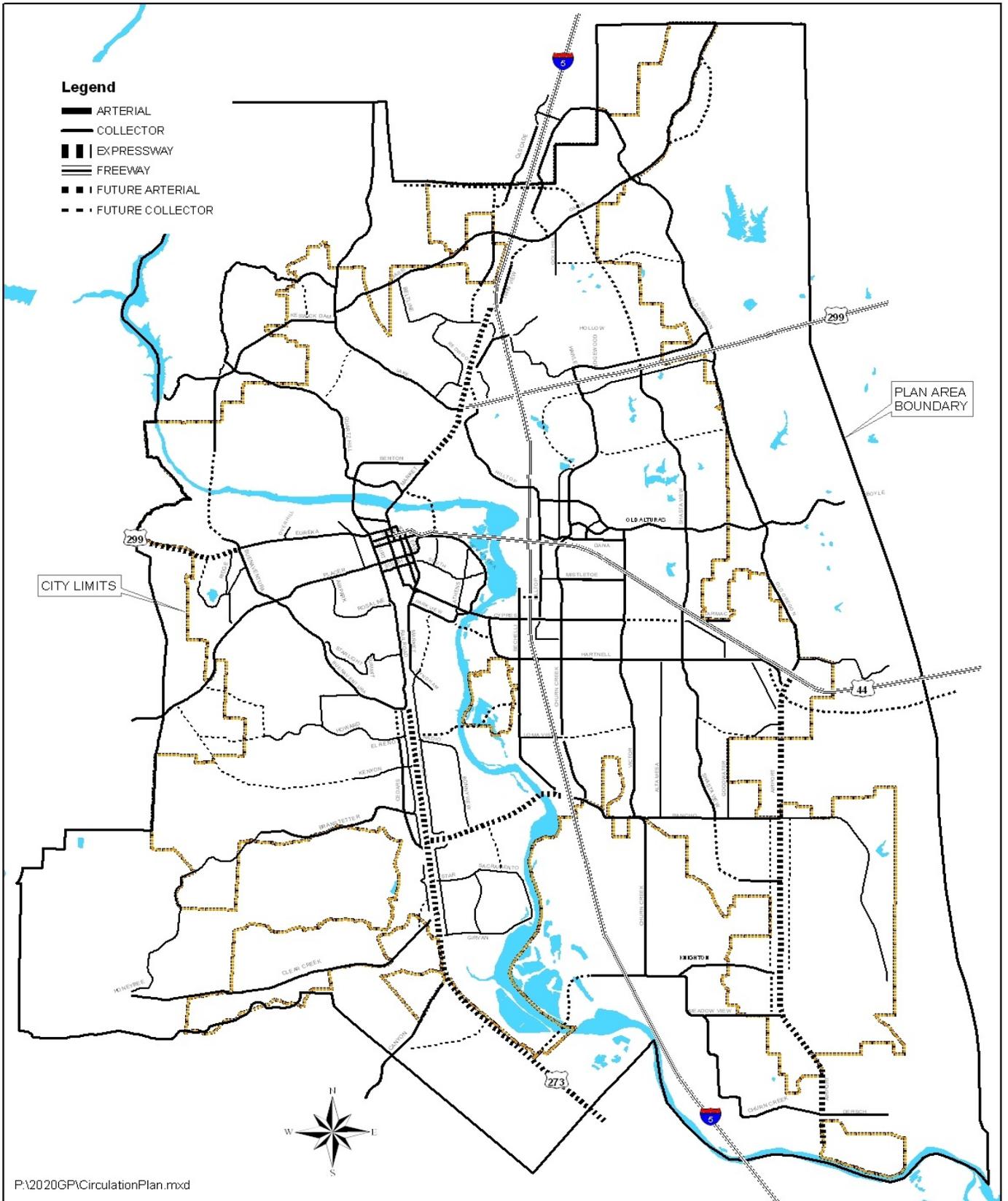
Policies to achieve this goal are to:

- T6A. Retain alleys in the Downtown area to provide pedestrian circulation and convenient service access to local businesses.
- T6B. Establish motorized and/or non-motorized transportation linkages to connect Downtown Redding to the Park Marina, Turtle Bay, and Civic Center areas; augment the transit system to establish frequent and convenient access to these destination areas.

PROVIDING EFFICIENT ROADWAYS

The street network is, and will remain, the basic element of the transportation system for the foreseeable future. That network is made up of a number of different types of streets, each performing a special function and serving different types of traffic. The street classifications Redding uses are listed in the table below. Each class, with the exception of Freeways and Expressways, also has subclasses, depending on the nature and quantity of traffic they are designed to carry. Figure 2-2 depicts the City's basic circulation system, including new street links that will be needed between now and buildout of the City. Appendix "A" notes the types of street improvements that will be needed over the next 40 to 50 years. Appendix "B" provides a list of the City's expressway, arterial, and collector streets. These improvements have been projected through the use of the "Shasta County Travel Demand Model." This computer model utilizes existing and planned land uses to estimate future traffic levels and roadway deficiencies. It is based on a countywide system, thereby taking into account traffic originating from areas outside the city as well as those generated from within.

Given significant barriers such as Interstate 5, the Sacramento River, the Union Pacific Railroad, Redding Cemetery, and often difficult topography, Redding has done an admirable job of planning for and constructing an efficient system of cross-town arterial streets. Most traffic flows smoothly, even during peak hours. The system, however, must be continually enhanced as



Transportation Element

Figure 2-2 Circulation Plan

traffic levels increase.

GOAL T7

BUILD AND MAINTAIN A SAFE AND EFFICIENT LOCAL STREET SYSTEM WITH THE AIM OF MEETING LOS STANDARDS.

Policies to achieve this goal are to:

- T7A. Establish a system of street cross-sections that will:
- ▶ Accommodate all improvements necessary to handle forecasted volumes at adopted LOS standards.
 - ▶ Accommodate bicycles and transit facilities.
 - ▶ Attain the design objectives for streets as addressed in the Community Development and Design Element.
- T7B. Require streets to be dedicated and improved in accordance with adopted street standards; allow modifications to standard street sections when approved by the Planning Commission and City Engineer.
- T7C. Maximize intersection and driveway spacing on arterial and collector streets. Require shared/common driveways wherever feasible.
- T7D. Provide right-turn lanes for arterial-to-arterial and arterial-to-collector intersections wherever feasible.
- T7E. Pursue financing in a timely manner for all components of the transportation system to achieve and maintain adopted level of service standards.
- T7F. Assess fees on new development sufficient to cover the fair share portion of that development's impacts on the local and regional transportation system. Exceptions may be when new development generates significant public benefits (e.g., low-income housing, primary-wage-earner employment), and alternative sources of funding for the improvements can be obtained to offset

Street Classification System

Freeways. Drivers use freeways primarily for long-distance trips. Cars can enter a freeway only at an interchange; major streets cross only at underpasses or overpasses. These facilities range from 4 to 6 lanes.

Expressways. Drivers also use expressways for regional trips. Other roads may cross expressways at intersections with traffic signals, or they may have underpasses or overpasses. It is usually not possible to enter an expressway from an adjacent parcel of land. These 4- to 6-lane facilities require right-of-way generally between 110 feet and 150 feet in width.

Arterial. Drivers use these streets to travel to activity centers, freeways, expressways, and other arterials and collectors. Driveways may connect adjacent land uses directly; collector streets conduct traffic to the arterials. Right-of-ways necessary to accommodate traffic projected for these 4- to 6-lane streets generally range from 84 feet to 135 feet.

Collectors. Drivers use these streets to travel within and between residential areas and neighborhood commercial areas. Access to adjacent land uses may be restricted in residential areas. These streets collect traffic from local streets and route it to arterials. Collector street right-of-ways range from 60 feet for 2-lane residential collectors to 125 feet for 4-lane facilities.

Local Streets. Drivers travel on these streets only to reach adjacent land uses. Local streets serving residential areas are designed to protect residents from through traffic. Right-of-ways generally range from 28 feet to 60 feet in width.

foregone revenues.

- T7G. Utilize intelligent transportation control systems, where appropriate, to improve traffic flow and safety on the street and highway system.
- T7H. Utilize information in Appendices "A" and "B" and Figure 2-2 in addition to any information obtained from project-specific traffic studies when determining right-of-way needs and the type/level of improvements required to maintain and upgrade the street system.
- T7I. Require assurance of long-term, private maintenance for all private streets constructed within the City.

REGIONAL TRANSPORTATION PLANNING

Regional planning is a key element in dealing with traffic congestion and air pollution that results from vehicle commuting. To address regional transportation issues, Redding works closely with the Shasta County Regional Transportation Planning Agency (RTPA).

This agency coordinates local land use planning and establishes capital improvement programs under a state referendum approved in 1990. The agency is made up of representatives from Shasta County and the Cities of Redding, Shasta Lake, and Anderson.

GOAL T8

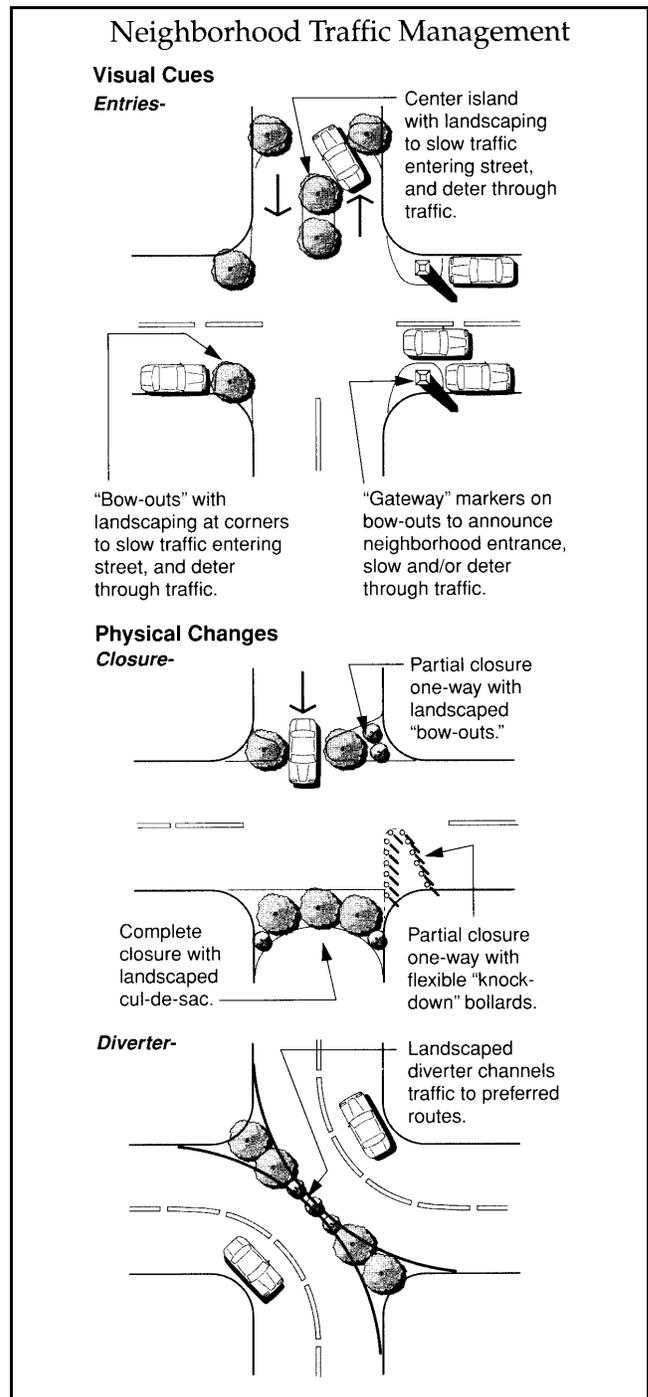
ENSURE INTERAGENCY AND REGIONAL COORDINATION WITH REGARD TO TRANSPORTATION PLANNING AND IMPROVEMENTS.

Policies to achieve this goal are to:

- T8A. Participate in multijurisdictional efforts to plan, upgrade, and expand the regional road network.
- T8B. Work closely with Caltrans and the RTPA to ensure that state facilities which go through the City—including SR 299, SR 44, SR 273, Interstate 5, and intersections/interchanges that involve those facilities—are maintained at an acceptable LOS as defined in this element.
- T8C. Encourage Caltrans and the RTPA to incorporate desired City design features (Intelligent Transportation System programs, landscaped medians, Class II bike lanes, and detached sidewalks) within state facilities that function as arterials and gateways through the City.
- T8D. Work closely with Shasta County to ensure that adequate street rights-of-way and improvements are provided in areas likely to annex to the City.

NEIGHBORHOOD STREETS

Maintaining adequate traffic flows and acceptable levels of service is of primary concern on freeways, expressways, arterials, and collectors. However, the focus on residential streets is often to slow traffic down and create more livable street environments. Capacity thresholds for residential streets are usually designed to ensure that traffic flows remain within acceptable levels of service. The typical threshold given for local streets is 3,000 trips per day. Although this figure may indicate what is generally acceptable in terms of vehicular levels of service, it is actually much higher than the traffic volumes that most residents and



pedestrians would find acceptable. In general, residential streets that accommodate more than 2,000 trips per day are viewed as unsafe, noisy, and disruptive to the quality of a residential environment.

Even though Redding has a good system of arterials, drivers may be prompted by heavy traffic at some locations to take short-cuts through residential neighborhoods. Excessive traffic can destroy the feeling of comfort, safety, and cohesion in neighborhoods. The City should use a variety of

physical and program options to divert traffic in problem areas. The size and kind of problem should be verified by a special traffic study prior to carrying out any options. Careful review of proposed street designs (including street patterns and widths) in new subdivisions is also important to avoid the creation of new problems.

The speed vehicles travel in residential neighborhoods is a very real concern. Although residential streets are "designed" for a speed of 25 MPH, the average speed along the City's residential streets is in excess of 30 MPH. On certain streets, the average speed is considerably higher. Excessive speed not only poses serious pedestrian safety concerns, it also detracts from the general quality of life within the neighborhood.

Speed can be controlled through a number of means, including increased enforcement; traffic-calming devices, such as roundabouts and neck-downs; and narrowing the "pavement width" of the street. The latter two can work together when designed as an integral component of new neighborhoods as addressed in the Community Development and Design Element. Where problems occur on existing streets, the same types of techniques can be used to "retrofit" the street, thereby slowing vehicle speed. Speed bumps, street closures, and diversions should be used only as a last resort. These devices may cause longer response times for emergency vehicles and reduce access options.

GOAL T9

PROTECT RESIDENTIAL NEIGHBORHOODS FROM EXCESSIVE THROUGH TRAFFIC, WHERE FEASIBLE.

Policies to achieve this goal are to:

- T9A. Develop neighborhood protection plans when traffic studies or monitoring confirm excessive traffic volumes, substantial through traffic, speeding, or accidents in specific residential areas.
- T9B. Emphasize the use of landscape and other visual deterrents to through traffic; install physical measures only as a last resort.
- T9C. Establish street design standards and review criteria intended to avoid the creation of local

streets that will encourage excessive speed and/or which will ultimately function as collectors. Factors that may contribute to a local street functioning as a collector include:

- ▶ Excessive length (typically greater than one-half mile).
- ▶ Excessive width.
- ▶ The lack of other streets which may be used to convey traffic to nearby arterials.

T9D. Encourage new neighborhoods to incorporate detached sidewalks and to establish landscape "parkways" between the curb and sidewalk. Continuous and consistent tree-planting to form canopy closure is encouraged.

T9E. Route through traffic around the perimeters of neighborhoods where possible.

PEDESTRIANISM

The popularity of walking is continuing to increase. Not only does walking provide a good form of exercise, it can also be an effective "commuting" mode if complementary land uses are located nearby. In the past, the realm of the pedestrian has often been overlooked in Redding. In order to be effective, sidewalks and other pedestrian areas need to be reasonably attractive, impart a feeling of safety and separation from vehicles, and be designed for use by all individuals, including those with mobility impairments. These objectives can largely be achieved through facility design. Factors such as sidewalk width and the creation of an attractive separation between the sidewalk and the curb (usually by a maintained landscape strip) can contribute to the quality and perceived safety of the pedestrian's experience. This is particularly important on streets which carry heavy traffic volumes and/or have relatively high vehicle speeds.

Sidewalks are particularly critical in areas where young children are likely to walk. This would include corridors between residential areas and parks or schools. The installation of handicapped ramps in accordance with Americans with Disabilities Act requirements is also important at intersections, so that those with mobility impairments can easily cross the street and safely return to a sidewalk system. In order

to encourage the highest level of use, pedestrian facilities need to be linked or connected to areas or destination points that people want to get to. These include, but are not limited to: a neighborhood store, place of employment, neighboring development, educational/recreational facilities, the river, or other creekside trail. Policies addressing this issue are included in the Community Development and Design Element.

When walking is not perceived as safe, convenient, or comfortable, it is not selected as the mode of travel by those who have a choice. Development of the type of pedestrian system described in this section is essential to increasing the number of individuals choosing to walk through the Redding community. The Recreation Element also addresses the establishment of a comprehensive trail system that will complement the City's sidewalk system.

GOAL T10
PROVIDE AN ATTRACTIVE, SAFE, AND
CONTINUOUS SYSTEM OF SIDEWALKS AND
OTHER PEDESTRIAN FACILITIES.

Policies to achieve this goal are to:

- T10A. Provide pedestrian-oriented features, such as benches, enhanced landscape, and trash receptacles, in commercial areas, particularly in the Downtown and Park Marina areas.
- T10B. Require new development to provide sidewalks or other pedestrian-dedicated facilities on both sides of new public streets. Exceptions may be appropriate where topography is difficult, proposed lots are of a rural or semi-rural nature, or where the development plan illustrates that pedestrians will be accommodated by alternative means.
- T10C. Work with neighborhoods to decide where curbs, gutters, and sidewalks are needed on unimproved local streets and how to pay for the improvements; establish sidewalk continuity wherever feasible.
- T10D. Pursue funding for the continued replacement and repair of sidewalks that have deteriorated due to age and tree-root invasion.

- T10E. Develop and implement a program to identify, prioritize, and fund the retrofitting of existing intersections that do not currently have handicapped access ramps at the street corners.
- T10F. Require all new or renovated pedestrian facilities to be of a sufficient width to ensure pedestrian comfort and safety and to accommodate the special needs of the physically disabled.
- T10G. Restrict speed limits in residential neighborhoods, Downtown, and other areas of the City where pedestrian activities are strongly encouraged to reduce the potential for pedestrian injuries and fatalities.

PARKING

Parking facilities are an important part of the transportation system. Allowing on-street parking along busy arterial streets, for instance, increases the possibility of pedestrian and vehicle conflicts and can disrupt the flow of traffic. Off-street parking often has its own drawbacks, particularly related to conflicts resulting from the number and location of driveways and the appearance they have from the street. The latter issue is addressed in the Community Development and Design Element. In certain areas, such as Downtown, on-street parking is desirable, the conflicts noted above notwithstanding. Traffic generally moves at a slower speed in the Downtown area and maintains a small-town feel to the streets.

GOAL T11
ENSURE THAT SUFFICIENT, WELL-DESIGNED,
AND CONVENIENT ON-STREET AND OFF-STREET
PARKING FACILITIES ARE PROVIDED TO SERVE
LAND USES THROUGHOUT THE CITY.

Policies to achieve this goal are to:

- T11A. Maintain adequate on-street and public off-street parking areas within the Downtown area to meet ongoing parking demands.
- T11B. Generally prohibit on-street parking on arterial streets outside the Downtown area to reduce congestion and conflicts.
- T11C. Pursue funding options and strategies for the construction and maintenance of shared-parking facilities/structures Downtown.

T11D. Establish maximum and minimum standards for parking spaces in transit corridors and Downtown to promote use of alternate modes.

BICYCLE SYSTEM

Bicycles can be an integral part of a city’s transportation system. As lifestyles and land use patterns continue to change, there is every reason to expect that this transportation mode will increase considerably. To make the most of commuter bicycle use, a comprehensive system of bikeways needs to be established. There are many opportunities within Redding’s existing arterial and collector street system to establish a viable commuter system. In many instances, this system can be linked to the system of multiuse trails that have been and will be constructed along the river, its tributary streams, and other areas. It will take commitment on the part of the City to ensure that proper facilities are provided as new streets are constructed and to establish an active program to retrofit existing streets to accommodate bike facilities. This work may consist of restriping streets to provide adequate width for bike facilities and/or providing additional paved width along shoulders. The preparation of a properly documented Bikeway Plan is necessary to identify existing deficiencies, recommend upgrades, and establish timing and funding priorities.

Until a Comprehensive Bikeway Plan is adopted, Figure 2-3 should be used to plan for a well-integrated bikeway system. The system should include all classes of facilities as addressed in Table 2-1.

**Table 2-1
Bikeway Classifications**

Bikeway Classification	Description of Facility
Class I	Paths developed within an entirely separate right-of-way for the exclusive use of bicycles and pedestrians. Except for occasional cross-flow points, these facilities completely separate cyclists from motorists.
Class II	Lanes within the road right-of-way designated specifically for one-way bicycle use. Class II facilities are delineated by signs and striping along street shoulders.
Class III	Bicycle routes indicated only by posted signs on existing streets. No specific bicycle lane is delineated.

GOAL T12

MAKE IT EASIER AND SAFER FOR PEOPLE TO TRAVEL BY BICYCLE.

Policies to achieve this goal are to:

- T12A. Develop and maintain a Comprehensive Bikeway Plan geared to establishing an integrated bicycle system.
- T12B. Incorporate facilities suitable for bicycle use in the design of interchanges, intersections, and other street-improvement/maintenance projects.
- T12C. Make improvements to streets, signs, and traffic signals as needed to improve bicycle travel.
- T12D. Keep bikeways free of overhanging shrubbery, debris, and other obstacles.
- T12E. Install bicycle parking in the Downtown area and at City parks, civic buildings, and other community centers.
- T12F. Support the efforts of the Redding Area Bus Authority (RABA) to provide bicycle racks on all buses within the system.
- T12G. Require new development to provide bicycle facilities or pay in-lieu fees based on the fair share of that development’s impacts on the bikeway system and needs identified on the Comprehensive Bikeway Plan.

PUBLIC TRANSPORTATION AND FACILITIES

Public transportation, particularly bus service, is essential to the circulation system. It is often the only means of transport for people who cannot or choose not to drive, including school children, the elderly, and disabled persons. In conjunction with fundamental land use changes that provide adequate densities to ensure the feasibility of transit, the availability of a quality public transportation system can help reduce residents' dependence on the automobile. Coordination between transit and air transportation services can also enhance the transportation options available to residents and visitors.

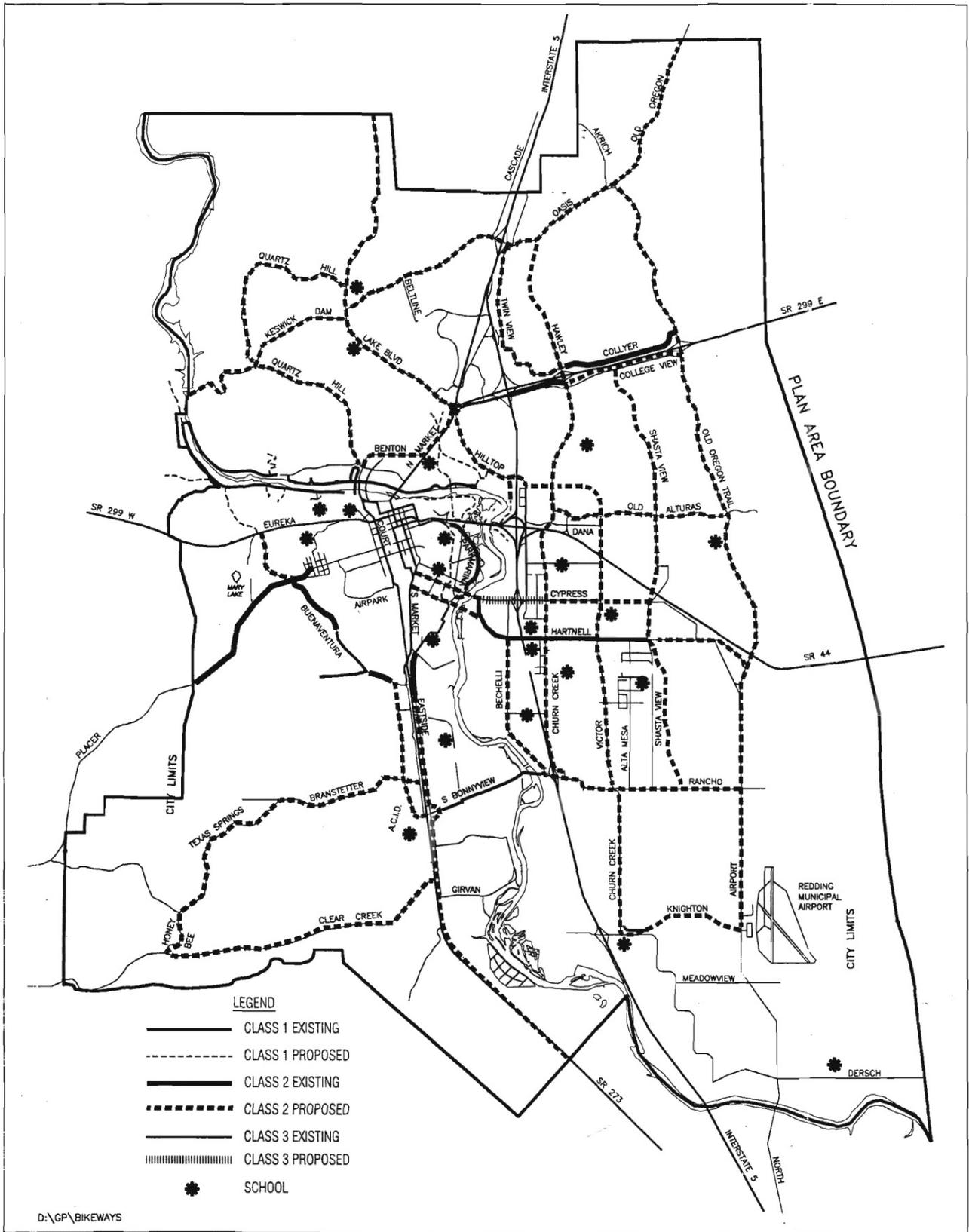


Figure 2-3 Bikeway System



GOAL T13

PROMOTE AND MAINTAIN A PUBLIC TRANSIT SYSTEM THAT IS SAFE, EFFICIENT, COST-EFFECTIVE, AND RESPONSIVE TO THE NEEDS OF RESIDENTS.

Policies to achieve this goal are to:

- T13A. Support the continuation and expansion of private commercial bus operations to provide additional regional transit opportunities for residents.
- T13B. Work with the Redding Area Bus Authority (RABA) on an ongoing basis to plan and implement additional transit services that are timely, cost-effective, responsive to growth patterns, and meet the needs of existing and future transit demand.
- T13C. Provide bus pull-outs along arterial streets at approximately ¼-mile intervals or as indicated in the Shasta County Transit Development Plan. Determine the precise locations during development plan review or at the time of major street improvement or reconstruction.
- T13D. Require development to install passenger amenities at designated bus stops when identified as a mitigating measure.
- T13E. Provide attractive, well-lighted, comfortable, and protected waiting areas for bus passengers.
- T13F. Promote coordination of transit and air transportation services to enhance the transportation options available for residents and visitors to the Redding community.

AIR TRANSPORTATION AND FACILITIES

Redding's two airports—Redding Municipal and Benton Airpark—provide the community with transportation options which not all cities have. Not only do these facilities provide a base for corporate, recreational, and emergency-response aircraft, they also play a key role in serving the commercial aviation needs of businesses and the traveling public. It is important that the community support activities to maintain and expand these facilities as needed in conjunction with the City's growth.

GOAL T14

PRESERVE AND ENHANCE THE AIR TRANSPORTATION OPPORTUNITIES PROVIDED BY THE REDDING MUNICIPAL AIRPORT AND BENTON AIRPARK, WHILE PROTECTING THE PUBLIC FROM AIRPORT-RELATED NOISE AND SAFETY HAZARDS.

Policies to achieve this goal are to:

- T14A. Continue to plan and develop the Redding Municipal Airport to maximize its contributions to business efficiency, economic development, and recreational opportunities within the region.
- T14B. Encourage the establishment of additional commercial airline providers at the Redding Municipal Airport to provide the widest range of aviation travel choices to residents and businesses within the region.
- T14C. Support Benton Airpark as a public-use, general aviation airport and commercial-reliever facility for the Redding Municipal Airport.
- T14D. Protect existing and planned local air transportation facilities from encroachment by potentially incompatible land uses and require developers to file an aviation easement with the City if a proposed development or expansion of an existing use is located in the area subject to the overlay district.

RAIL SERVICES AND FACILITIES

Redding is bisected by the Union Pacific railroad in a north-south direction. The railroad provides valuable opportunities for rail transit from several industrial areas and also serves passengers to a somewhat limited extent.

GOAL T15

ENCOURAGE MAXIMUM AVAILABILITY AND USE OF BOTH FREIGHT AND PASSENGER RAIL SERVICE.

Policies to achieve this goal are to:

- T15A. Support efforts to establish convenient rail transit service between Redding and the Sacramento area.
- T15B. Encourage the Union Pacific Railroad (UPRR) and Amtrak to increase passenger service by expanding rail schedules to include a greater number of stops and range of connection times and by providing safe and comfortable station facilities.
- T15C. Protect existing rail alignments and facilities through zoning from encroachment by potentially incompatible land uses.
- T15D. Work with UPRR to identify any surplus right-of-way that may be suitable for parking or other facilities associated with a future light-rail system.

- T15E. Seek the cooperation of UPRR in establishing a rail-side facility for freight-container unloading to augment goods-transportation opportunities.

GOAL T16
IMPROVE SAFETY AT LOCATIONS WHERE RAIL
AND OTHER TRANSPORTATION FACILITIES
INTERFACE.

Policy to achieve this goal is to:

- T16A. Provide for additional grade-separated railroad crossings at South Bonnyview Road and in the Downtown area.

APPENDIX "A"
TRANSPORTATION ELEMENT

FUTURE ROADWAY NETWORK		
Roadway	Location	Improvements
New Roadway Extensions		
Auditorium Drive	Convention Center to North Market Street	2-lane collector
Bodenhamer Drive	Churn Creek Road to College View Drive	2-lane collector New Boulder Creek Bridge
Buenaventura Boulevard	Eureka Way to Keswick Dam Road	2-lane collector
Cedars Road	El Reno Lane to Buenaventura Boulevard	2-lane arterial
Creekside Drive	Sacramento Street to S. Bonnyview Road	2-lane collector
Cypress Avenue	Victor Avenue to Shasta View Drive	2-lane collector/Churn Creek bridge
Dana Drive Ramp	Hilltop Drive to SR 299 WB Ramp	Freeway - 2-lane ramp meter
George Drive	North terminus to Oasis Road	2-lane collector
Hilltop Drive	E. Lake Boulevard to Twin View Boulevard	2-lane arterial
Industrial Street	Bechelli Lane to Hilltop Drive	New - 2-lane overcrossing ¹
Kenyon Drive	West terminus to Placer Road	2-lane collector
Knighton Road	I-5 to SR 273	2-lane arterial/Sacramento River bridge
Loma Vista Drive	Churn Creek Road to Victor Avenue	2-lane collector
Old Oregon Trail	Paso Robles Avenue to La Crescenta Drive	Non-access, two lane arterial realignment
Palacio Drive	Churn Creek Road to Old Oregon Trail	2-lane collector/ Churn Creek bridge
Parkview Avenue	Freebridge Street to South Market Street	Modify to a 2-lane arterial; Sacramento River bridge
Presidio Drive	Churn Creek Road to Canby Road	New 2-lane extension
Santa Rosa Avenue	Quartz Hill Road to Lake Boulevard	2-lane collector
Shasta View Drive	Collyer Drive to Gold Hills Drive	4-lane arterial
Shasta View Drive	Collyer Drive to north City limits	4-lane arterial
Shasta View Drive	Rancho Road to Airport Road	4-lane arterial

FUTURE ROADWAY NETWORK		
Roadway	Location	Improvements
Unnamed	Akrich Road to Pine Grove Avenue	2-lane collector
Unnamed	Eastside Road to Bechelli Lane	2-lane collector/Sacramento River Bridge
Unnamed	Keswick Dam Road to Quartz Hill Road	2-lane collector
Unnamed	Placer Street to Sunglow Drive	2-lane collector
Unnamed	Westside Road to Clear Creek Road	2-lane collector
Unnamed	Southeast Municipal Airport Service Road	2-lane collector
Preserve Boulevard	Shasta View Drive to Airport Road	2-lane collector
Roadway Widening		
Airport Road	Old 44 Drive to Dersch Road	4 to 6-lane expressway with partial frontage road system
Browning Street	Churn Creek Road to Hilltop Drive	4-lane arterial
Buenaventura Blvd	Canyon Creek Road to South Market St.	4-lane arterial
Churn Creek Road	Old Alturas Road to College View Drive	4-lane arterial
Churn Creek Road	Denton Way to S. Bonnyview Road	4-lane arterial
Cypress Avenue	Athens avenue to Hartnell Avenue	Widen bridge to 6-lanes
Hartnell Avenue	Victor Avenue to Shasta View Drive	4-lane arterial/widen bridge
Hilltop Drive	E. Lake Boulevard to Browning Street	4-lane arterial/widen I5 overcrossing
Hilltop Drive	SR 44 ramp to Dana Drive	Left- and right-turn lane Widen freeway overcrossing
Interstate 5	Knighton Road to E. Lake Boulevard	6-lane freeway
Knighton Road	Churn Creek Road to Airport Road	4-lane arterial Widen Churn Creek Bridge
Lake Boulevard	North Point Drive to Hilltop Drive	6-lane arterial at approach to Market Street and Hilltop Drive
Oasis Road	Lake Boulevard to Old Oregon Trail	Widen per Oasis Road Specific Plan FEIR
Old Alturas Road	Bradford Avenue to Victor Avenue	4-lane arterial
Old Oregon Trail	Old 44 Drive to Viking Way	4-lane arterial
Placer Street	Airpark Drive to Boston Avenue	4-lane arterial
Railroad Avenue	Buenaventura Boulevard to Court Street	4-lane arterial
S. Bonnyview Road	Sacramento River to SR 273	4-lane expressway/railroad overcrossing
Shasta View Drive	Rancho Road to College View Drive/SR299 overcrossing	4-lane arterial

FUTURE ROADWAY NETWORK		
Roadway	Location	Improvements
SR 44	Airport Road to Deschutes Road	4-lane expressway
SR 44	Interstate 5 to Auditorium Drive	Add auxiliary lanes
Victor Avenue	Old Alturas Road to Churn Creek Road	4-lane arterial
Interchange Improvements		
Interstate 5	at Cypress Avenue	Ramp improvements
Interstate 5	at Knighton Road - widening	4-lane freeway overcrossing
Interstate 5	at Oasis Road	Expand freeway overcrossing per Oasis Road Specific Plan FEIR
Interstate 5	South Bonnyview	Ramp improvements
Interstate 5	SR 44 interchange	Ramp improvements
Downtown Circulation Revision		
EB 299	East Street to Auditorium Drive	Add third lane
Market Street	Tehama Street to Placer Street	Reestablish two lane collector
Shasta Street	Market to Court Street	3-lane one-way (westbound)
Gold Street	Union Pacific Railroad	Undercrossing ²

¹ This link may be reexamined if other options for modifying traffic flow in the East Cypress/Hilltop Drive/I-5 interchange area are identified and determined to be feasible.

² Crossing may be located at a location other than Gold Street.

APPENDIX "B"

TRANSPORTATION ELEMENT

The following streets will provide the basic framework for the City's expressway, arterial, and collector street systems. Unless otherwise indicated in Appendix "A," the ultimate right-of-way for arterial streets should accommodate a minimum of four lanes as well as necessary turn pockets, center medians, and detached sidewalks. Variations in ultimate right-of-way width are expected due to circumstances such as proximity to existing development, slopes, bridge approaches, and other site-specific factors.

Collector streets vary greatly in their design depending on their intended function. Some provide circulation between arterial streets in commercial areas, while others provide direct residential access. The list of collector streets below is not intended to be all-inclusive, and includes examples of the various types of streets within the collector street system.

EXPRESSWAY

State Route 273
Airport Road
Eureka Way (west of Ridge Drive)

ARTERIAL STREETS

Buenaventura Boulevard
Bechelli Lane (south of E. Cypress Ave.)
Branstetter Lane
Browning Street
Cedars Road
Churn Creek Road
Clear Creek Road
Cypress Avenue
Dana Drive
Eureka Way
Hartnell Avenue
Hilltop Drive
Knighton Road
Lake Boulevard
Oasis Road
Old Oregon Trail
Park Marina Drive
Placer Street
Quartz Hill Road
Rancho Road
Shasta View Drive
South Bonnyview Road
Victor Avenue

COLLECTOR STREETS

Airpark Drive
Benton Drive
College View Drive
Collyer Drive
Court Street
Cumberland Drive
Eastside Road
Freebridge Street
Girvan Road
Howard Drive
Lakeside Drive
Loma Vista Drive
Radio Lane
Redwood Boulevard
Sacramento Drive
South Street
Westside Road
Wisconsin Avenue
Wyndham Lane