State Route 99 North

Corridor System Management Plan

May 2009

csmp

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State Route 99 North
Corridor System Management Plan

APPROVED BY:

Jody Jones 6/3/09

JODY JONES, Date
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I accept this Corridor System Management Plan for the State Route 99 North Corridor as a document informing the regional transportation planning process.

ACCEPTED BY:

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Corridor System Management Plan

May 2009

stakeholder acknowledgement

District 3 wishes to acknowledge the time and contributions of many stakeholders and partner agencies. These representatives participated in project development team and focused group meetings, provided essential information, advice and feedback for the preparation of this CSMP. The stakeholders/partners include:

- California Highway Patrol;
- The County of Butte;
- The City of Chico;
- Butte County Association of Governments (BCAG);
- Transit service providers: B-Line and Amtrak; and
- Chico Area Bicycle Advocates.

A website, **www.corridormobility.org**, is available to support the development of the CSMPs and to provide stakeholders and the public with more information and an opportunity to provide input and review documents.

DISCLAIMER

The information, opinions, commitments, policies and strategies detailed in this document are those of Caltrans District 3 and do not necessarily represent the information, opinions, commitments, policies and strategies of partner agencies or other organizations identified in this document.

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executive summary

Caltrans and its partners are taking a dynamic turn in transportation planning and operations, with the creation of Corridor System Management Plans (CSMPs). These are being prepared for corridors associated with the Corridor Mobility Improvement Account (CMIA) and Highway 99 Bond Program projects. Californians rely on transportation facilities and services to get to business, recreational, and service destinations, regardless of which agency may operate or fund a facility or service. CSMPs are being developed to plan and manage transportation across modes and jurisdictional boundaries. The CSMP approach is consistent with the goals and objectives of the Governor's *Strategic Growth Plan*, including public accountability for bond-funded projects.

CSMPs provide a foundation to support integrated management of all modes and infrastructure to enhance mobility.

The CSMP outlines a foundation to support the partnership based, integrated corridor management of all travel modes (transit, cars, trucks, bicycles) and infrastructure (rail tracks, roads, highways, information systems, bike routes), to provide mobility in the most efficient and effective manner possible. This approach brings facility operations and transportation service provisions together with capital projects into a coordinated system management strategy that focuses on high demand travel corridors as State Route 99 (SR 99) in the Chico area.

This CSMP directly supports the implementation of the Highway 99 Bond Program project in the corridor; to construct northbound and southbound auxiliary lanes from SR 32 to East 1st Avenue.

The objectives of the CSMP are to improve safety on the transportation system, reduce travel time or delay on all modes, reduce traffic congestion, improve connectivity between modes and facilities, improve travel time reliability, and expand mobility options along the corridor in a cost effective manner.

This CSMP includes the following sections:

- **Current Corridor System Management Strategies**
- **Major Corridor Mobility Challenges**
- **Performance Measures**
- **Corridor System Management Strategies**

The SR 99 CSMP Transportation Network includes SR 99 from the intersection of Southgate Avenue south of the City of Chico to the intersection of Esplanade north of the City of Chico, as well as select parallel roads, transit services, and bike routes. Together, these facilities comprise the CSMP managed network.

Major mobility challenges along the corridor include highway and roadway traffic congestion; a lack of real time operations data collection, parallel roadway capacity, highway auxiliary lanes; transit facilities approaching ridership capacity; inadequate transit capital and operations funding

needed to grow transit ridership; gaps and barriers within the bicycle network; and lengthy barriers restricting cross-corridor travel by all modes.

This CSMP identifies corridor management strategies to be applied on a network wide basis. To implement some of these strategies, key capital projects are identified. The list is not meant to be inclusive of all projects in the corridor; rather, the CSMP incorporates by reference all projects contained in the Butte County Association of Governments (BCAG) Regional Transportation Plan (RTP).

The system will be continuously monitored using identified performance measures and will be reported in an annual State of the Corridor Report and subsequent CSMP updates. This information will be used to continually improve system performance.

SR 99 from the Skyway overcrossing

what is a CSMP?

A CSMP is a foundation document supporting the **partnership based, integrated management** of all **travel modes** (transit, cars, trucks, bicycles) and **infrastructure** (rail tracks, roads, highways, information systems, bike routes) in a corridor so that mobility along the corridor is provided in the most efficient and effective manner possible.

CSMP success is based on the premise of managing a selected set of transportation components within a designated corridor as a system rather than as independent units.

Caltrans has traditionally prepared a Transportation Corridor Concept Report (TCCR) that served as the long range planning document for SR 99. The TCCR would identify existing route conditions and future needs, including existing and forecasted travel data, concept Level of Service (LOS) standard, and the facility needed to maintain the concept LOS over the next 20 years. With the development of the more comprehensive CSMP, the need for a separate TCCR is eliminated. This CSMP will serve as the TCCR for this segment of SR 99 within the CSMP boundaries and includes the information regarding the future facility needed to maintain an acceptable LOS (Concept LOS and Concept Facility, see page 25).

The State Route 99 (SR 99) /Chico Area CSMP includes SR 99 from the intersection of Southgate Avenue to the intersection of SR 99 and Esplanade as well as select parallel roads, transit services and bike routes. Together, these facilities comprise the CSMP managed network, as indicated in Figure 1 and Table 1.

The parallel roadway, transit and bike route components of the managed network were selected in consultation with the respective local agency. It is anticipated that as the CSMP concept matures, additional facilities will be added to the managed CSMP transportation network. There will also be more integration with Blueprint Planning and emerging air quality and greenhouse gas emission reduction strategies.

The CSMP focuses on strengthening partnerships, data gathering and analysis, system performance monitoring, operational strategy implementation and strategic capital investments. This document will evolve over time and changes will be documented annually to report implementation progress.

The CSMP focuses on strengthening institutional partnerships, gathering and analyzing data, monitoring system performance, implementing operational strategies, and identifying and implementing strategic capital investments. The CSMP will evolve with changing development patterns, travel demands, and technological innovations. An annual State of the Corridor Report will be produced to document

system performance and track CSMP implementation progress. The CSMP document will be updated every two years.

CSMPs are being created for corridors associated with the Corridor Mobility Improvement Account (CMIA) and Highway 99 Bond Programs, supported by the ***Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006,*** Proposition 1B. Figure 2 shows the general location of each of the CSMP corridors within the Caltrans District 3 area and identifies Proposition 1B projects associated with the respective CSMP.

Each CSMP identifies current system management strategies, existing travel conditions, corridor performance management, management strategies and capital improvements.

The CSMP is consistent with the BCAG RTP, City of Chico and Butte County general plans, and regional blueprint planning. The CSMP, by reference, incorporates all projects listed in the current RTP. Because the CSMP is corridor focused, it highlights key locations where modes interact and land use decisions may have the greatest potential of reducing the need for travel and influencing modal choice.

CSMPs will assist in fulfilling the goals of recently enacted legislation such as Assembly Bill 32 that addressed air quality and greenhouse gas emissions and Senate Bill 375 that address land use by:

- Improving mobility on the state highway system to more optimum speeds to reduce vehicle emissions, and
- Providing viable transportation alternatives and accessibility across modes to encourage transit and bicycling and decrease single occupant auto use.

The CSMP also supports Caltrans policies such as Deputy Directive (DD) 64-Complete Streets-Integrating the Transportation System, and DD 98, Integrating Bus Rapid Transit into State Facilities by bringing many modes under the same active management effort thereby ensuring that each mode is analyzed and optimized to work together.

The CSMP is based on technical information depicted in four supporting working papers:

North End of SR 99 Corridor at Garner Lane

- Working Paper 1 provided an overview of the corridor system management planning process and a definition of the CSMP transportation network, including a rationale for the selection of the specific corridor limits and modes to be included in the corridor planning process.
- Working Paper 2 defined current services being provided by the CSMP transportation network, proposed performance measures for the corridor, and provided baseline data regarding the current CSMP transportation network for the proposed performance measures.
- Working Paper 3 described existing corridor management activities, including all facilities and services currently in use to maximize mobility within and through the corridor, such as traffic operations systems elements, facilities such as auxiliary lanes, traveler information services, and transportation demand management programs.
- Working Paper 4 provided an assessment of current corridor performance by identifying the major problems inhibiting efficient corridor operations for each element (mode) of the CSMP transportation network.

Figure 1: SR 99 Chico CSMP Transportation Network

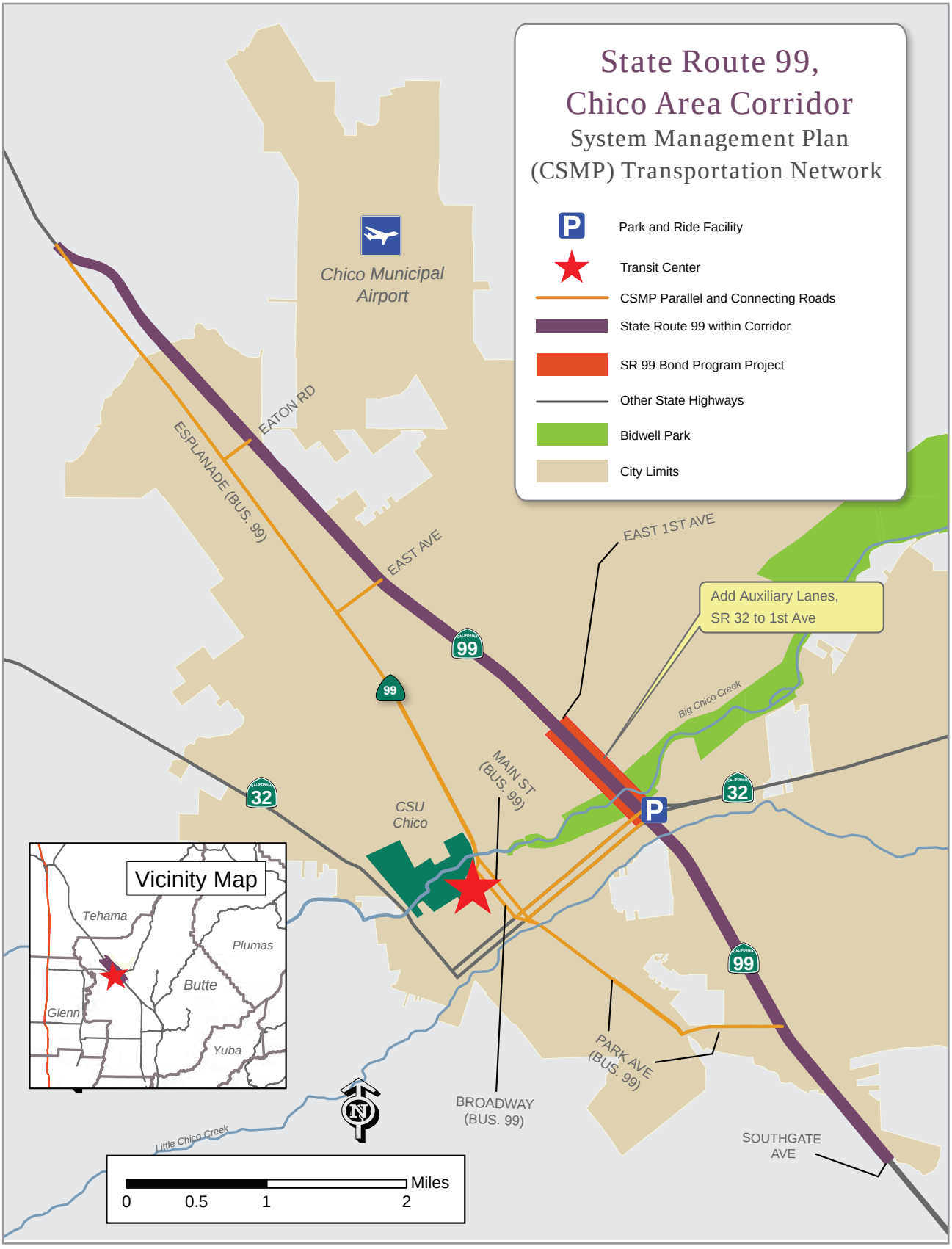
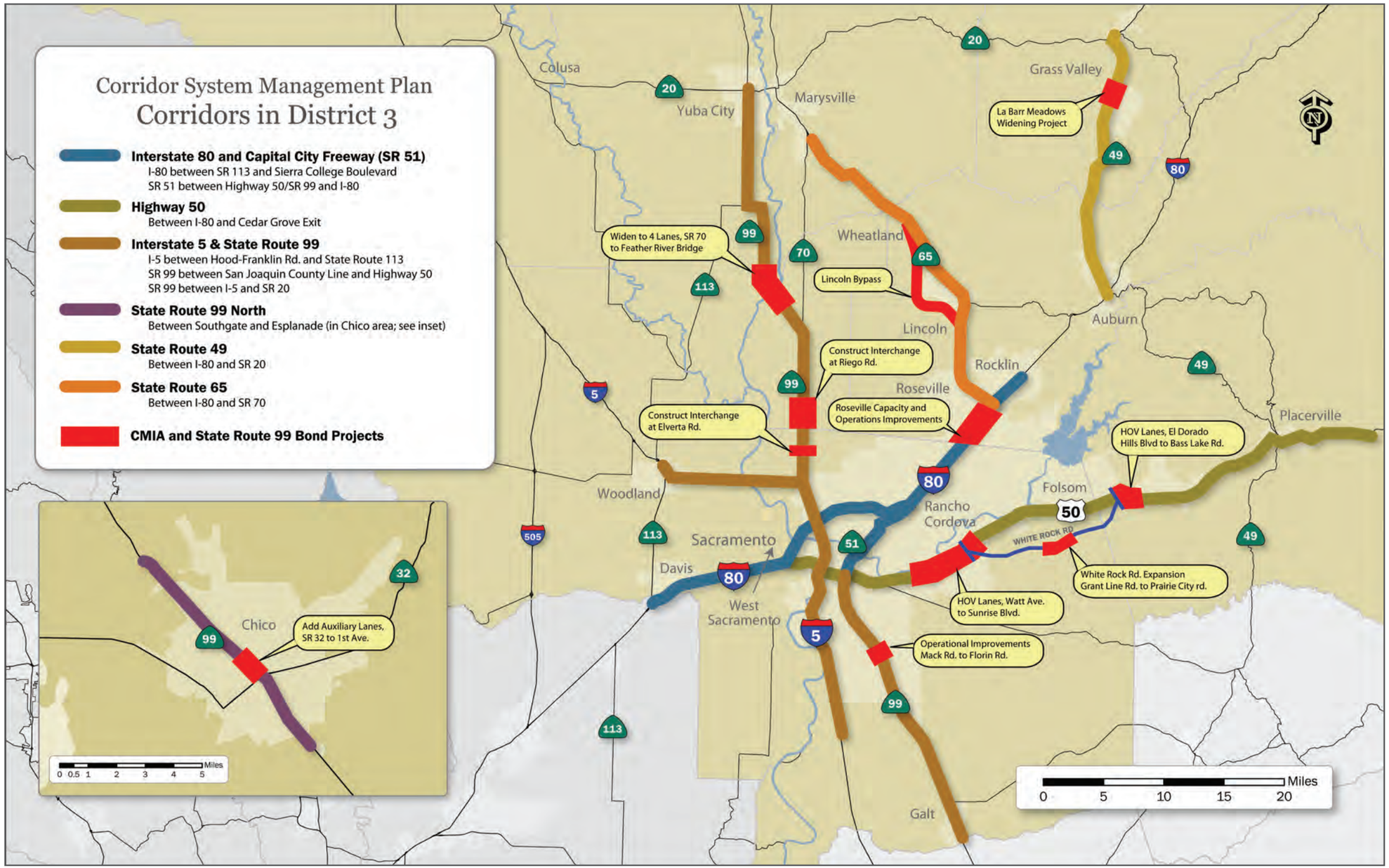


TABLE 1: CSMP TRANSPORTATION NETWORK TABLE

Location		SR 99		Parallel/Connecting Roadways			Mass Transit						Bike Routes		
							Heavy Rail and Light Rail			Bus					
County	**City**	**From**	**To**	**Roadway**	**From**	**To**	**Operator/ Service**	**From**	**To**	**Operator/ Service/ Route**	**From**	**To**	**Route**	**From**	**To**
Butte	Unincorporated/ City of Chico	Southgate Boulevard Esplanade		**Park Avenue/ East Park Avenue**	SR 99	East 11th Street	Amtrak	Los Angeles	Seattle	B-Line/ Various	Chico	Chico/Paradise/ Oroville	**Midway Class I**	Southgate	East 20th Street
				Oroville Avenue (Business 99)	East 11th Street	East 9th Street				Glenn Ride	Glenn County	Chico	**Salem Street Class II**	SR 32	2nd Street
				Main/Broadway/ Shasta (Business 99)	East 9th Street	East 1st Street				Greyhound	Redding	Sacramento	**Oleander Avenue Class III**	Memorial Way	3rd Ave
				Esplanade	East 1st Street	SR 99	Amtrak-Thruway Rail	Redding	Sacramento				**Arcadian Avenue Class III**	Sol-Wil- Le-No Avenue	3rd Ave
				Eaton Road	Esplanade	SR 99									
				East Avenue	Esplanade	SR 99									
				East 8th Street and East 9th Street (SR 32)	Broadway Street	SR 99									

Figure 2: CSMP Corridors in District 3



need, purpose, goal and objectives

There is a **need** for a planning approach that brings facility operations and transportation service provision together with capital projects into one coordinated system management strategy that focuses on high demand travel corridors such as SR 99 in the Chico area.

A CSMP is needed for the SR 99/Chico corridor to address traffic congestion that is straining the capacity of existing facilities, transit ridership demands that stress the capacity of the transit system, and bicycle facilities that do not provide a fully linked network of bike routes.

The **purpose** of the CSMP is to create a partnership planning process that focuses on system management strategies and coordinated capital investments so that all the pieces of the corridor function as an efficient transportation system and performance evaluation measures are implemented to track the effectiveness of strategies and projects.

The CSMP provides a planning approach and creates a partnership process to improve mobility along the corridor.

The CSMP directly supports the implementation of the Highway 99 Bond project known as the "Chico Auxiliary Lanes".

The **goal** of the CSMP is to improve mobility along the SR 99 corridor by focusing on the integrated management of a subset of the entire transportation network within the corridor, including select freeway and parallel roadways, transit and bicycle components of the corridor.

The **objectives** of the CSMP are to **reduce travel time or delay** on all modes, **improve connectivity** between modes and facilities, **improve travel time reliability, improve safety** on the transportation system, and **expand mobility options** along the corridor in a cost effective manner. Implementation of the CSMP will **increase access** to jobs, housing, and commerce.

CONSISTENCY WITH OTHER STATE TRANSPORTATION PLANS AND POLICIES

The CSMP approach is consistent with the goals and objectives of the Governor's ***Strategic Growth Plan***, which among other things commits to minimizing increases in traffic congestion. Key elements of the strategy are illustrated in Figure 3.

At the base of the pyramid, and the foundation of transportation system management, is system monitoring and evaluation. It is essential to understand what is happening on the transportation system so that the best decisions can be made based on reliable data. The next few layers up the pyramid are focused on making the best use of existing resources and reducing the demand for transportation, particularly during peak travel hours. The top layer of the pyramid is system expansion. This layer assumes that all the underlying components are being addressed and that system capacity expansion investments are necessary.

Corridor system management is consistent with the **Caltrans Mission:**

Improve Mobility Across California

Corridor system management is consistent with **Caltrans' Goals:**

- **SAFETY:** Provide the safest transportation system in the nation for users and workers.
- **MOBILITY:** Maximize transportation system performance and accessibility.
- **DELIVERY:** Efficiently deliver quality transportation projects and services.
- **STEWARDSHIP:** Preserve and enhance California's resources and assets.
- **SERVICE:** Promote quality service through an excellent workforce.

The CSMP is also consistent with the California Transportation Plan (CTP), the statewide, long-range transportation plan for meeting future mobility needs. The CTP defines goals, policies, and strategies to achieve our collective vision for California's future transportation system.

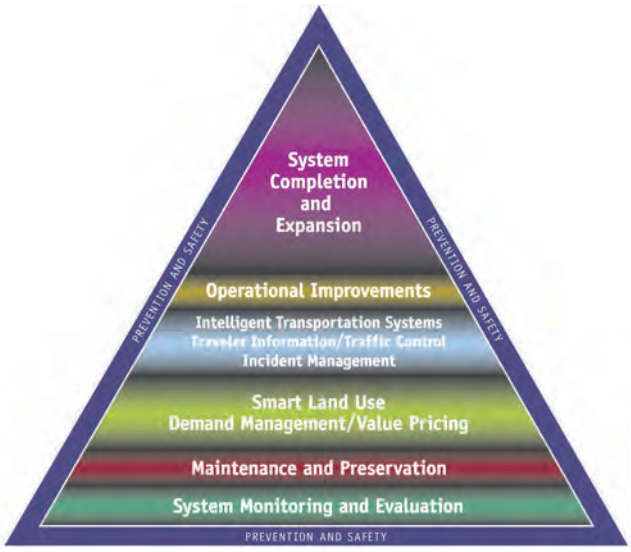


Figure 3: Strategic Growth Plan Strategy

AIR QUALITY PLANNING

Corridor System Management seeks to create conditions where vehicle flow on highways and roads occurs at a steady pace and travelers have a range of mobility options that enable them to travel other than by single occupant vehicle. System expansion is focused only where needed when travel demand exceeds the capacity of the well-managed existing system. These conditions are beneficial to attaining air quality goals and reducing green house gas emissions.

current corridor system management strategies

The SR 99/Chico Area corridor is an important north-south corridor in Northern California. The CSMP network includes the highway, roads, transit station, and bicycle routes depicted in Figures 1 and 4. The route is not complete to freeway standards and has a general lack of adequate capacity.

The corridor provides access to recreational areas to the north. Peak commute and recreational travel periods are heavily congested, with demand for travel often exceeding the capacity of existing facilities and services. Severe traffic congestion is common and commute transit services often operate near or at maximum ridership capacity. There is urban development along many parts of the corridor, which suggests increased future transportation demand.

Lack of system management strategies and tools to manage the operation of the corridor contribute to congestion and decrease the effectiveness of the exixting facilities.

There are few system management strategies and no traffic operations systems elements currently being implemented on SR 99. There is presently some system management coordination among the entities but not on a comprehensive, corridor-wide basis. Transit system information is not readily available at multiple locations. Bicycle signal triggers are not widely implemented. Beyond some synchronized traffic signals in Chico, the bulk of the network has little to no system management principles currently being applied.

STATE HIGHWAY SYSTEM

The state highway system in the Chico area is not complete to expressway and freeway standards with auxiliary lanes and ramp metering as is common in urban areas.

TRANSIT AND RIDESHARING

B-LineTransit is installing a Global Positioning System (GPS) for locating buses in route, referred to as an Automatic Vehicle Location (AVL) system. The AVL System will allow users to see where their bus is located within the last minute as well as allow the transit service to make better decisions when needing to route on-call services to passengers. The transit routes identified in the CSMP network are shown in Figure 4.

Park and Ride in Chico is currently limited to one lot that is located adjacent to the SR 99 corridor at the intersection of SR 32 and Fir Street, and is utilized by commuters to connect with transit, vanpool, or carpool. There are 204 spaces in the lot and eight bike lockers. It has typically been occupied at near 100% of capacity.

BICYCLE FACILITIES

Bicycle facilities in the corridor are not actively managed in the same manner as motor vehicle facilities. However, there are traffic operation systems that can serve bicyclists

such as dedicated bicycle lanes, bicycle detection loops at signalized intersections, video detection, other non-loop type detection, and bicyclist activated signal change buttons.

B-Line buses are equipped with bicycle racks. There are eight weatherproof bicycle lockers at the Park and Ride. The City of Chico is developing plans to add bike lockers at this location due to the demand.

The Chico Area Bicycle Advocates maintain an active role in identifying hazardous conditions such as potholes and improvements such as bike triggers that would improve safety conditions for bicyclists. In addition, BCAG maintains an area bicycle map on their website, which was recently updated.

The bicycle routes included in the CSMP network are shown on Figure 5.

B-Line bus

Chico State University students biking

PEDESTRIAN FACILITIES

Pedestrian facilities are not included as part of the managed network because they do not directly provide corridor mobility. However, complete and safe pedestrian access to appropriate corridor modes, such as bike routes and transit services, is an important component of corridor system management. Therefore, subsequent updates of the CSMP will seek to identify key pedestrian facilities and barriers to pedestrian mobility with regard to access and modal connectivity.

Figure 4 Transit Network Map

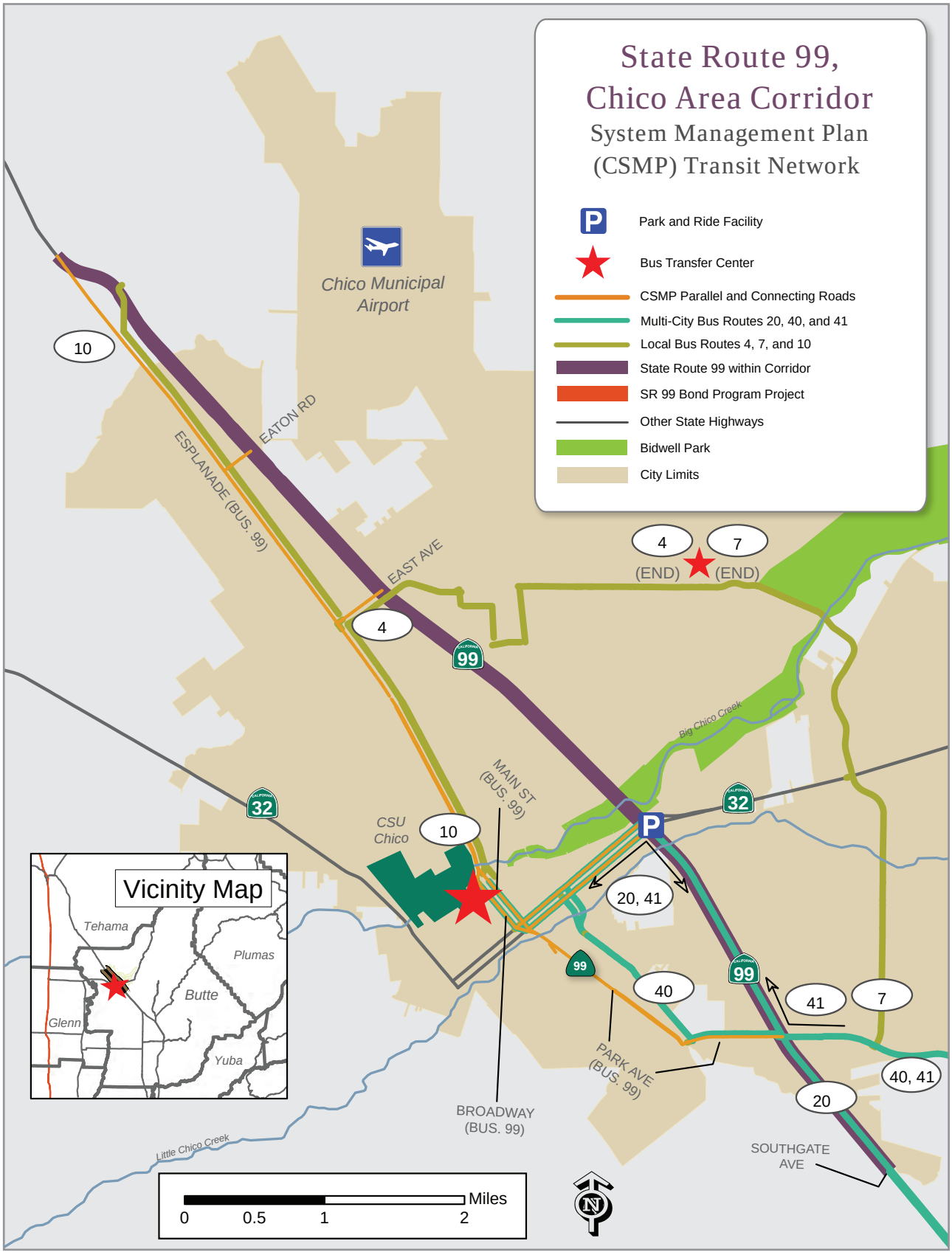
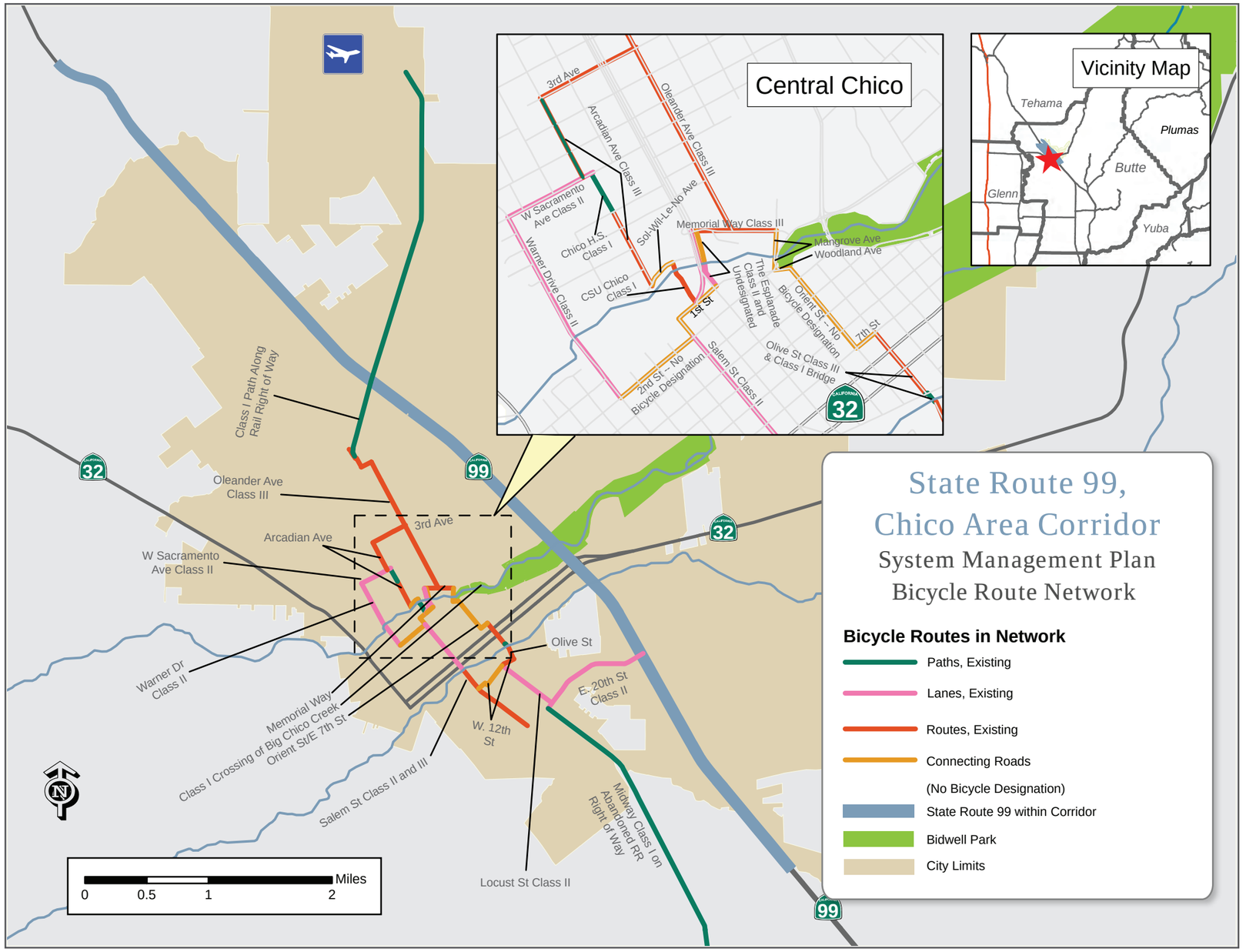


Figure 5 Bicycle Network Map



major corridor mobility challenges

High demand for mobility services, especially during peak commute periods, is creating significant traffic congestion and impairing mobility in the corridor. Heavy congestion and stop-and-go traffic contributes to increased vehicle emissions and added travel costs. Many transit services are operating at maximum passenger carrying capacity and buses must contend with the same congestion as autos. In many locations, bicyclists have to compete for space on these same facilities.

Much of the congestion can be attributed to population growth, residential and commercial development, job/housing imbalances, work schedules that require commute trips during peak travel times, recreational trip generators, and truck traffic. The City also serves as the region's government and medical services center and has an expanding university located in the heart of the City of Chico. Current and forecasted data is depicted in Table 2.

Growth in the area has contributed to increases in congestion that cannot be effectively managed without on-going data collection and analysis.

The overall amount of travel in the corridor has increased substantially over the past ten years and is projected to increase further as **Chico expects to add approximately 60,000 new residents by 2035** per the 2008 BCAG RTP.

A critical component of identifying and resolving corridor mobility challenges is the need for detailed data, analysis, and communication regarding system performance and is a component of Intelligent Transportation Systems planning. Data collection is very limited in the Chico area. Implementing greatly expanded data gathering, analysis, and dissemination of information is a major challenge for this corridor.

General challenges along the corridor include

- recurrent highway and roadway traffic congestion
- limited parallel roadway capacity
- lack of signal coordination on key arterials
- a lack of freeway auxiliary lanes
- non-existent ramp metering
- transit facilities approaching capacity
- inadequate transit capital and operations funding needed to grow transit ridership
- gaps and barriers within the bicycle route network.

TABLE 2: CURRENT AND FORECASTED TRAFFIC DATA

Location		Current Traffic Data—2007					Future Traffic Data — 2027 (No Build)[4]			Future Traffic Data — 2027 (Build)[4]		
County	Description and Location	% of Trucks	Peak Directional Split[1]	Peak Hour Traffic	Average Annual Daily Traffic[2]	Volume over Capacity[3]	Peak Hour Traffic	Average Annual Daily Traffic[2]	Volume over Capacity[3] (No-Build)	Peak Hour Traffic	Average Annual Daily Traffic[2]	Volume over Capacity[3] (Build)
BUT	Southgate Ave to Skyway/Park Ave	10%	57%	3,000	34,000	.45	6,300	64,870	.84	5,940	61,200	.79
BUT	Skyway/Park Ave to End of Freeway	7%	51%	7,300	76,000	.89	10,980	114,330	1.34	12,045	125,400	.97
BUT	End of Freeway to Esplanade	9%	58%	1,550	16,300	.55	2,670	28,070	.95	2,635	27,710	.43

[1] Peak Directional Split: The percentage of total traffic in the heaviest traveled direction during the peak hour.
[2] Average Annual Daily Traffic (AADT): The average number of vehicles per day in both directions.
[3] Volume over Capacity (V/C): The volume of traffic compared to the capacity of the roadway.
[4] Data derived from BCAG traffic models.

performance measures

Continuous corridor monitoring and performance measures are an integral part of corridor management and investment decision making and help identify immediate, efficient, and effective system operational strategies and capital improvements. Performance measures provide **the important dynamic daily information needed to rapidly address operational problems caused by recurrent and non-recurrent traffic congestion.** Measures are also used to identify the best improvement actions to generate the desired results.

Performance measures guide investment decisions toward the best improvements to achieve the desired effects.

Table 3 identifies the performance measures to be used as part of the corridor system management process.

BASELINE DATA FOR PERFORMANCE MEASURES

Tables 4. 5 and 6 display baseline data for the performance measures for the CSMP transportation network.

The performance data was primarily compiled from the year 2007 edition of the *Traffic Volumes Manual*, year 2000 edition of the *Highway Capacity Manual*, Caltrans Traffic Accident Surveillance and Analysis System (TASAS), 2007 Caltrans Division of Maintenance *Pavement Summary Report*, data provided by the City of Chico and Butte County and ridership records provided by the transit providers.

Data collection for non-auto modes is not as robust as what is needed for active system management. Subsequent updates of this CSMP will seek to expand the availability of transit and bicycle performance data collection.

TABLE 3: PERFORMANCE MEASURES: DEFINITIONS AND APPLICABILITY		
Performance Measure	**Definition of Performance Measure**	**Applicability to Corridor**
STATE HIGHWAY SYSTEM		
LOS	A "report card" measurement with "A" being the least amount of congestion and "F" being the most congestion.	LOS is a relatively simple and widely used measure, which offers comparison opportunities.
Total Vehicle Hours of Delay	The additional travel time in hours experienced by **all** vehicles on the highway segment per day or at peak hour due to congestion.	This measurement is used to determine the cost, in time, which congestion can add to the regular travel time that it takes to traverse a segment of road, and is useful in quantifying the performance of a particular roadway in an understandable format.
Total Person Minutes of Delay	The additional travel time in minutes experienced by **all** persons in vehicles on the highway segment per day or at peak hour due to congestion.	This measurement is used to determine the cost, in time, which congestion can add to the regular travel time that it takes to traverse a given segment of road, and is useful in quantifying the performance of a particular roadway in an understandable format and for comparison of improvement options.
Minutes of Delay per Vehicle	The additional travel time in minutes experienced by **each** vehicle on the highway segment at peak hour due to congestion.	This measurement is used to determine the cost, in time, which congestion can add to the regular travel time that it takes to traverse a given segment of road.
Minutes of Delay per Person	The additional travel time in minutes experienced by **each** person in vehicles on the highway segment at peak hour due to congestion.	This measurement is used to determine the cost, in time, which congestion can add to the regular travel time that it takes to traverse a given segment of road.
Vehicle Travel Time (Minutes)	The average time spent by vehicles traversing between two points on a road or highway.	Travel time is a measure used to quantify travel time deficiencies and provide a personal indicator of congestion impacts.

TABLE 3: PERFORMANCE MEASURES DEFINITIONS AND APPLICABILITY *(CONTINUED)*		
Performance Measure	**Definition of Performance Measure**	**Applicability to Corridor**
STATE HIGHWAY SYSTEM		
Distressed Pavement	Pavement that rides rougher than established maximums and/or exhibits substantial structural problems as determined by the Pavement Condition Survey (PCS).	This measurement provides a ride quality indicator and an indicator for structural roadway problems.
Reported Collision Rate	Comparison of the actual total collision rate (%) along a highway segment above, or below, the statewide average for fatal, injury, and property damage-only collisions on comparable facilities.	Comparing the total collision and rate with statewide average rate provides an opportunity to assess safety conditions through the corridor.
Reliability	Identifies day-to-day variation in travel time for the same trip at the same time of day. Focuses on the predictability of travel time, particularly for repetitive trips.	Estimates reliability by defining the extra time travelers must add to their average travel time when planning trips to ensure on-time arrival (0 percent: no day-to-day variations, 100 percent: double allotted travel time).
Lost Productivity	Measures the capacity of the corridor to accommodate vehicle or person throughput and is calculated as actual volume divided by the capacity of the highway.	As traffic volumes increase to roadway capacity, speeds decline rapidly and vehicle throughput drops dramatically, which increases traffic congestion and delay, and results in lost productivity.
PARALLEL AND CONNECTING ROADWAYS		
LOS	A "report card" measurement with "A" being the least amount of congestion and "F" being the most congestion.	LOS is a relatively simple and often used measure, which offers comparison opportunities.
TRANSIT		
Available Capacity	Ratio (%) of available transit capacity alternatives within the corridor.	This measure indicates the available capacity to accommodate diverted travelers from single occupant vehicles.

TABLE 4: SR 99 CHICO AREA PERFORMANCE MEASURES

County	Location	Post Miles	Distance (Miles)	Average Daily Traffic[1]	Performance Measures											
					LOS[1]	Total Vehicle Hours of Delay[2]		Total Person Minutes of Delay[2]		Minutes of Delay per Vehicle[2]	Minutes of Delay per Person[2]	Vehicle Travel Time (Minutes)[2]	Distressed Pavement (Lane Miles)[4]	Reported Collision Rate Comparison (%)[5]	Reliability[6]		Lost Productivity[7]	
						Daily	Peak Hour[3]	Daily	Peak Hour[3]	Peak Hour[3]	Peak Hour[3]	Peak Hour[3]			Eastbound	Westbound	Lost Lane Miles AM Peak Period	Lost Lane Miles PM Peak Period
STATE HIGHWAY SYTEM:																		
BUT	Southgate Avenue to Skyway/Park Avenue	29.37 to 30.32	.95	34,000	B	0.0	0.0	0.0	0.0	0.0	0.0	0.91	2	-61%	PeMS Data Unavailable	PeMS Data Unavailable	PeMS Data Unavailable	PeMS Data Unavailable
	Skyway/Park Avenue to End of Freeway	30.32 to 37.45	7.13	76,000	E	155	39	16,094	2,977	0.87	0.68	7.45	27	-15%	PeMS Data Unavailable	PeMS Data Unavailable	PeMS Data Unavailable	PeMS Data Unavailable
	End of Freeway to Esplanade	37.45 to 38.22	.77	16,300	E	3.8	1.3	395.9	96.7	0.12	0.09	0.89	2	-3%	PeMS Data Unavailable	PeMS Data Unavailable	PeMS Data Unavailable	PeMS Data Unavailable
	Total	--	8.85	--	--	158.8	40.3	16,489.9	3,073.7	.99	.689	9.25	29	--	--	--	--	--

[1] Source: Average Daily Traffic and Level of Service (LOS) calculated is based on 2007 Caltrans Traffic Volumes on *California State Highways* and *Highway Capacity Manual* and Cambridge Systematics from 2008.
[2] Source: Delay is the average additional travel time by vehicles/persons traveling under 60 mph. Data derived from 2007 HICOMP report, SACMET Travel Demand Model, PeMSs traffic data, and Caltrans District 3 Traffic Operations Probe vehicle Tach runs.
[3] Peak Hour is during PM.
[4] Source: 2007 Caltrans Division of Maintenance *Pavement Summary Report*
[5] Source: 2005 through 2007 Caltrans Traffic Accident Surveillance and Analysis System summary data of the percentage above, or below, the statewide average for fatal, injury, and property damage-only collisions on comparable facilities.
[6] Reliability: Data taken from April 2007 PeMS covering a 24-hour period of time on Tuesday, Wednesday, and Thursday and aggregated into a single average 24-hour day. Data analyzed to determine highest average AM and PM travel time. That average was compared to the best possible average travel time to determine additional travel time spent traveling the segment. The difference between the best average travel time and the highest average travel time is the additional time necessary to add to a trip to arrive on time.
[7] Lost Productivity: Data taken April 2007 PeMS. As traffic increases to the capacity of the highway, speeds decline, throughput drops dramatically, and the efficiency of the highway to provide mobility decreases. This decline in the potential carrying capacity of the freeway is expressed in terms of how many equivalent lane miles of roadway are lost.

TABLE 5: PARALLEL AND CONNECTING ROADWAYS PERFORMANCE MEASURES

County	Location	Average Daily Traffic[1]	Performance Measures								
			LOS[1]	Total Vehicle Hours of Delay		Total Person Minutes of Delay		Minutes of Delay per Vehicle	Minutes of Delay per Person	Vehicle Travel Time (Minutes)	Distressed Pavement (Lane Miles)
				Daily	Peak Hour	Daily	Peak Hour	Peak Hour	Peak Hour	Peak Hour	
PARALLEL AND CONNECTING ROADWAYS											
BUT	East Park from SR 99 to Park	26,000	D	Data is unavailable for these performance measures at this time, however will be pursued in the next phase of the CSMP.							
	Park from East Park to East 11th Street	13,100	D								
	Oroville Avenue from East 11th Street to East 9th Street	18,500	B								
	Main Street from East 9th Street to East 1st Street	13,800	B								
	Shasta Street from Big Chico Creek to West 2nd Avenue	17,000	B								
	Broadway from West 2nd Avenue to West 8th Street	10,100	C								
	Esplanade from East 1st Street to Eaton	23,700	D								
	Esplanade from Eaton to SR 99	8,400	B								
	Eaton from Esplanade to SR 99	14,600	C								
	East from Esplanade to SR 99	28,500	E								
	SR 32 from Main/Broadway to SR 99	17,700	C								

[1] Source: Average Daily Traffic and Level of Service (LOS) are from the City of Chico.

TABLE 6: TRANSIT PERFORMANCE MEASURE

County	Transit Provider	Route	Performance Measures
			Available *Daily* Capacity (%)[1] / Available *Peak Hour* Capacity[1]
TRANSIT			
BUT	**B-Line (Bus)**	Route 1	Overall capacity is at 62%
		Route 10	Overall capacity is at 55%
		Route 20	Overall capacity is not available
		Route 40	Overall capacity is not available
		Route 41	Overall capacity is at 75%
BIKE[2]			

[1] Source: Average Daily and Peak Hour Available Capacity calculated from each transit provider's route ridership data.
[2] Bicycle performance measure(s) will be identified, applied, and included in the subsequent CSMPs.

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planned corridor system management strategies

CONCEPT LOS AND CONCEPT FACILITY

"Concept LOS" and "Concept Facility" have traditionally been used in Caltrans TCCRs to reflect the minimum level or quality of operations acceptable for each route segment within the 20-year planning period and the highway facility needed in the next 20-years to maintain the Concept LOS.

Typical Concept LOS standards in Caltrans District 3 are LOS "D" in rural areas and LOS "E" in urban areas. However, some heavily congested route segments now have a Concept LOS "F" because the improvements required to bring the LOS to "E" are not feasible due to environmental, right of way, financial, and other constraints. The application of multi-modal corridor management strategies should reduce the severity and duration of congestion and provide viable travel options and information that will enable a traveler to avoid severe freeway congestion.

The Concept LOS and Concept Facility for SR 99 Chico Area are shown in Table 7. The segment of SR 99 between Skyway/Park and the end of the freeway is forecasted to operate under LOS "F" conditions in 20 years under the No-Build scenario. However, implementation of operational strategies and key capital projects could reduce the severity and the duration of the traffic congestion.

CORRIDOR MANAGEMENT STRATEGIES

The SR 99 Chico Area CSMP also proposes specific strategies to enhance corridor mobility (see Table 8), based on the following principles:

- Manage all modes and facilities in the corridor as a single system, beginning with the transportation network defined in this CSMP.
- Implement comprehensive and dynamic multimodal monitoring and reporting for the system and for all modes.
- Use demand modeling to identify mobility challenges and to evaluate proposed solutions.
- Complete the projects included in the regional transportation plans, with an emphasis on the completion of the key mobility improvement projects identified in this CSMP (see Tables 9 and 10).
- Implement the specific strategies outlined in this CSMP.

The **Near-Term Priority Improvement Projects** would include continuing the effort to add auxiliary lanes and improving the Skyway Interchange that would provide system-wide travel benefits. These improvements are targeted for completion through 2013.

VISIONARY PROJECTS

Visionary projects are not yet included in the BCAG RTP, but appear to offer considerable corridor mobility benefits and merit further analysis and consideration for inclusion in the next RTP. These are displayed in Table 10.

TABLE 7: CONCEPT LOS AND FACILITY TYPE

Location				Forecasted Level of Service1 (LOS) and Facility Type					
County	**Description and Location**	**From Post Mile**	**To Post Mile**	**Current LOS[1]**	**20-Yr No- Build LOS[1,2]**	**20-Yr Build LOS[1,3]**	**Existing Facility[4]**	**Concept Facility[4,5,6]**	**Ultimate Facility[4,5,7]**
BUT	Southgate Avenue to Skyway/Park Avenue	29.37	30.32	B	D	D	4E from Southgate to PM 30.24/ then 4F	4F	6F + 2 Aux Lanes
BUT	Skyway/Park Avenue to End of Freeway	30.32	37.45	E	F	E	4F	4F+ 2 Aux Lanes (2018)	6F + 2 Aux Lanes
BUT	End of Freeway to Esplanade	37.45	38.22	E	F	B	2C	4C	4F + 2 Aux to Garner, 4E to Tehama County Line

[1] Level of Service (LOS): A "report card" for evaluating traffic flow with "A" being the best and "F" being the worst.
[2] 20-Year LOS (No Build): The LOS that would be expected at 20 years with no improvements.
[3] 20-Year Concept LOS: The minimum acceptable LOS over the next 20 years.
[4] Facility Type Codes: C=Conventional Highway; E=Expressway; F=Freeway; HOV=High Occupancy Vehicle Lanes; Aux=Auxiliary Lanes.
[5] Operational Improvements are included in future facilities for all segments. Examples of operational improvements include TOS improvements and Auxiliary lanes.
[6] Concept Facility: the future roadway with improvements needed in the next 20 years. If LOS "F," no further degradation of service from existing "F" is acceptable, as indicated by delay performance measurement.
[7] Ultimate Facility: The future roadway with improvements needed beyond a 20 year timeframe.

TABLE 8: SR 99 CSMP STRATEGIES

Strategy	Description	Implementation Challenges
Maintain and operate the existing corridor multi-modal transportation infrastructure.	Maintain the existing investment in all modes of the transportation system and provide adequate resources for daily operations, including operating revenues for transit services.	Funding availability, funding competition within the region.
Fully coordinate the delivery of transportation services and facilities in the corridor, including daily operations and system planning for enhancements	Interagency operational coordination to maximize the efficiency and effectiveness of all modes operating in the corridor with a focus on the CSMP transportation network defined in this CSMP. Use of an existing group or committee to provide initial oversight for this strategy	Diverse interests and competing priorities and limited resources.
Construct planned and programmed corridor capital improvement projects.	Implementation of the capital improvements in the corridor included within the approved Regional Transportation Plan for all transportation modes within the scope, schedule, and cost specified.	Funding availability, funding competition within the region.
Comprehensive daily monitoring of the status of all modes providing service on the CSMP transportation network.	Full deployment of multimodal transportation service status detection systems for all CSMP network components.	Funding availability, funding competition within region.
Provide traveler information to the public	Provide the public with real-time easily accessible information regarding the status of all CSMP transportation system components to allow travelers to make informed decisions about trip mode, time, and routing options.	Funding availability, funding competition within region.
Continually monitor and analyze the CSMP transportation network to improve system performance.	Monitor transportation performance measures and make system modifications, as appropriate, on a frequent and timely basis.	Staff resources and data availability.
Enhance transit service	Increase transit service frequency, provide express transit services, implement bus rapid transit routes, and reduce headways for buses.	Funding availability, funding competition within the region.
Enhance Transportation Demand Management strategies	Encourage employers to provide telecommuting and flexible working hour options to employees.	Acceptance by employers and resources to participate.
Optimize the timing and synchronization of traffic signals	Coordinate the optimization and timing of traffic signals on freeway ramps and along parallel and connecting roadways within and between jurisdictions to improve traffic flow and reduce congestion. Provide signal priority systems for transit vehicles.	Funding availability and coordination between cities and counties and Caltrans.

TABLE 8: SR 99 CSMP STRATEGIES *(CONTINUED)*

Strategy	Description	Implementation Challenges
Improve access management of freeways and parallel/connecting roadways	Develop and implement access management strategies to maintain the operational efficiency of freeways and parallel/connecting roadways.	Agreement between responsible jurisdictions as to where increased access control is needed. Increased access control on some parallel/connecting roadways may increase traffic volumes on non-corridor roads.
Develop innovative use of CMSs (e.g.; travel times)	Potential uses of CMSs to improve system efficiency include the use of CMSs along portions of all corridors near transit station to indicate travel times based on real-time existing traffic conditions on the freeway as well as on parallel roadways and express bus and light rail services. CMS can also be used to identify the number of parking spaces that are still available at the light-rail stations.	Funding availability, funding competition within the region.
Implement & expand Transit Automatic Vehicle Locator (AVL)/ Transit status information enhancements for system users.	Expand the use of AVL systems utilizing GPS technology to track in real-time the location of transit vehicles, monitor transit schedules, dispatch transit vehicles, and provide real-time passenger information such as “next bus” or “next train” arrival times.	Funding availability, funding competition within the region.
Expand Park-and-Ride lots at key locations	Add additional capacity to existing park-and-ride lots near transit stations and other locations that are approaching capacity.	Funding availability, funding competition within the region and available land.
Improve bike-pedestrian access in the CSMP transportation network.	Plan and program for construction of additional bicycle paths / lanes, and related improvements for access and connectivity to transit, park and ride lots, and destination points.	Funding availability and funding competition within the region.
Expand bicycle commute & transit fare strategies/subsidies	Increase participation by large employers in programs that subsidize transit fares for employees during peak-hour commute times and provide bicycling to work incentives.	Voluntary participation by large employers to pay subsidy to transit providers.

TABLE 9: KEY CAPITAL PROJECTS

County/Lead Agency	Route/ Roadway	From	To	Project Description	Programmed Funds	Additional Funding Needed	Total Cost Estimate (x $1,000)	Comp Year (FFY)
SR 99								
Butte/City of Chico	SR 99	SR 32	E. 1st Ave	Construct Auxiliary lanes Phases 1 and 2	$48,356	$0	$48,356	2013
Butte/City of Chico	SR 99	Southgate Ave Interchange		Construct Southgate Ave interchange and extend Otterson Drive, Entler Drive, Hegan Road and Speedway	$0	$25,000	$25,000	2020
Butte/City of Chico	SR 99	SR 99/ Cohasset Interchange		Cohasset Road Interchange Improvements	$0	$31,000	$31,000	2025
Butte/City of Chico	SR 99	SR 99/ Eaton Road Interchange		Eaton Road Interchange (Phase 2): Widen overpass	$8,800	$1,700	$20,000	2025
Butte/City of Chico	SR 99	Skyway Interchange		Widen Skyway Interchange overcrossing to 4 lanes	$0	$8,000	$8,000	2011
Butte/City of Chico	SR 99	Skyway/Park	East 20th Ave	Construct auxiliary lanes between Skyway/Park Avenue to East 20th Street	$0	$7,000	$7,000	2011-2025

TABLE 10: VISIONARY PROJECTS

Route / Roadway	From	To	Project Description
SR 99	Southgate Avenue	End of Freeway	Upgrading facility to 6-lane freeway with 2 auxiliary lanes
SR 99	End of Freeway	Garner Lane	Upgrading facility to 4-lane freeway with 2 auxiliary lanes
SR 99	Garner Lane	Corridor limits	Upgrading facility to 4-lane Expressway standards
SR 99	SR 99/Eaton Road	Garner Lane	Capacity and operational improvements
SR 99	SR 99/Garner Road	Esplanade	Operational improvements
SR 99	30.32	37.45	Install and Implement full range of TOS elements
SR 99	TBD	TBD	Construct additional Park & Ride lots
Local Roads	TBD	TBD	Construct additional transit centers
Local Roads	TBD	TBD	Coordinate signal timing on parallel roads
Bike Network	TBD	TBD	Complete bike route network with detection devices
SR 99	TBD	TBD	Install more bike detection devices
Bike Pathway	Skyway	Easton Road	Construct bicycle facility parallel to SR 99 approximately PM 30.6 to 36.3