



Transportation Concept Report

State Route 29

District 1

August 2013



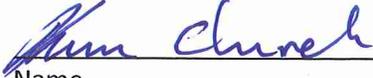
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California Department of Transportation
Caltrans Improves Mobility Across California

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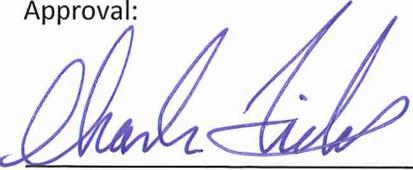
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ABOUT THE TRANSPORTATION CONCEPT REPORT

System Planning is the long-range transportation planning process for the California Department of Transportation (Caltrans). The System Planning process fulfills Caltrans' statutory responsibility as owner/operator of the State Highway System (SHS) (Gov. Code §65086) by identifying deficiencies and proposing improvements to the SHS. Through System Planning, Caltrans focuses on developing an integrated multimodal transportation system that meets Caltrans' goals of safety, mobility, delivery, stewardship, and service.

The System Planning process is primarily composed of four parts: the District System Management Plan (DSMP), the DSMP Project List, the Transportation Concept Report (TCR), and the Corridor System Management Plan (CSMP). The District-based **DSMP** is a long-range strategic policy and planning document that focuses on maintaining, operating, managing, and developing the transportation system. The **DSMP Project List** is a long-range list of planned and partially programmed transportation projects used to recommend projects for funding. The **TCR** is a planning document that identifies the existing and future route conditions as well as future needs for each route on the SHS. The **CSMP** is a complex, multi-jurisdictional planning document that identifies future needs within corridors experiencing or expected to experience high levels of congestion. District 1 does not have any corridors that meet the congestion criteria which warrant the preparation of a CSMP. These System Planning products are also intended as resources for stakeholders, the public, and partner, regional, and local agencies.

TCR Purpose

California's State Highway System needs long range planning documents to guide the logical development of transportation systems as required by law and as necessitated by the public, stakeholders, and system users. The purpose of the TCR is to evaluate current and projected conditions along the route and communicate the vision for the development of each route in each Caltrans District during a 20-25 year planning horizon. The TCR is developed with the goals of increasing safety, improving mobility, providing excellent stewardship, and meeting community and environmental needs along the corridor through integrated management of the transportation network, including the highway, transit, pedestrian, bicycle, freight, operational improvements and travel demand management components of the corridor.

STAKEHOLDER PARTICIPATION

A draft copy of this TCR has been circulated to our transportation partners in Lake County including the Lake County/City Area Planning Council (Lake APC) and several Native American Tribes with interest along the route. In addition, District 4's 1985 SR 29 Route Concept Report and 2001 TCCR Corridor #4 Data Sheet were reviewed for background and route concepts beyond our border to the south. The draft TCR was circulated to other functional units within the District and to Headquarters System Planning for compliance and compatibility with District and Statewide directives and policies. Input was received and revisions made as appropriate.

EXECUTIVE SUMMARY

In District 1, Route 29 begins at the Napa/Lake County line, and continues north through the community of Middletown, to the community of Lower Lake, then proceeds north-west through the community of Kelseyville and the City of Lakeport, terminating at the junction of Route 20 in the community of Upper Lake. The District 1 portion of the route is approximately 51.2 miles in length and has a post mile description of: 01-LAK-29-PM 0.00/52.53.

Route 29 from Route 53 in the community of Lower Lake to Route 20 in the community of Upper Lake is functionally classified as a Principal Arterial. It connects the two Cities in Lake County (Lakeport and Clearlake) and serves as a portion of the Route 20/South Shore Principal Arterial Corridor (PAC) routing between Route 101 near the City of Ukiah (Mendocino County) and I-5 in the City of Williams (Colusa County, District 3).

The southern portion of Route 29 in District 1 is functionally classified as a Minor Arterial. The route connects the Napa Valley to the Clear Lake area, passing through the communities of Middletown and Lower Lake. Currently, the community of Middletown experiences congestion during the morning peak hour associated with southbound commuter traffic. A series of grant-funded Engineered Feasibility and modeling studies (SR 29 Corridor EFS and Middletown Community Action Plan) are underway in an effort to develop future projects to alleviate these concerns and create a more complete street network for residents and commuters alike.

Concept Summary

Segment (1-LAK-29)	Segment Description	Existing Facility	20-25 Year Capital Facility Concept	20-25 Year System Operations and Management Concept	Post-25 Year Concept
1 0.00/5.80	Napa/Lake Co. line to Junction Route 175	2L, C/E	2L, C/E	Safety improvements as identified, maintain and rehabilitate	2L, C/E
2 5.80/20.30	Junction Route 175 to Junction Route 53	2L, C/E	2L, C/E	Safety improvements as identified, maintain and rehabilitate	2L, C/E
3 20.30/23.80	Junction Route 53 to North of Diener Drive	2L, Conv. with some passing lane	2L, Conv. with some passing lane	Safety improvements as identified, maintain and rehabilitate	4L Freeway or Expressway
4 23.80/31.60	North of Diener Dr to North of Junction Rte. 175	2L, C/E	4L Freeway or Expressway	Safety improvements as identified, maintain and rehabilitate	4L Freeway or Expressway
5 31.60/R34.58	No. of Junction Rte. 175 to Kelseyville	2L, Exp	2L, Expressway	Safety improvements as identified, maintain and rehabilitate	4L Freeway or Expressway
6 R34.58/R40.90	Kelseyville to 0.5 mile South of Lakeport (w/ Rte 175)	2L, Exp	2L, Expressway	Safety improvements as identified, maintain and rehabilitate	4L Freeway or Expressway
7 R40.90/48.58	0.5 mile South of Lakeport City limit to 0.7 mile North of Lucerne Cutoff	4L, Freeway	4L, Freeway	Safety improvements as identified, maintain and rehabilitate	4L Freeway
8 48.58/52.53	0.7 mile North of Lucerne Cutoff to Junction Route 20	2L, C/E	2-Lane, C/E	Safety improvements as identified, maintain and rehabilitate	4L Freeway or Expressway

C = Conventional
E = Expressway
L = Lanes

Concept Rationale

The corridor concept serves as a guide for long range planning of route improvements. It protects the State's investment in Route 29, while recognizing financial and environmental constraints, which will not allow the programming of extensive improvements for all State highways.

The concepts for segments 1 and 2 were selected based on the Route's function as a Rural Minor Arterial. The concepts for segments 3 - 8 were selected based the Route's importance to the Route 20 (29, 53 and 49) East/West Focus Route.

Proposed Projects and Strategies

Projects Necessary to Achieve the Corridor Concept

No capacity increasing improvements should be necessary on the Minor Arterial portion of Route 29 (Segments #1 and #2, 01-LAK-29-0.00/20.30) or to Segment 7 (01-LAK-29- R40.90/48.58) to maintain the concept level of service (LOS) through the year 2035. Truck climbing/passing lanes may be necessary to maintain the concept LOS through 2035.

The following capacity increasing improvements are necessary to achieve the ultimate Corridor Concept on the Principal Arterial portion of Route 29 (01-LAK-29-20.30/52.53):

- Segment #3 (01-LAK-29-20.30/23.80) – Improve 2L conventional highway to 4L freeway or expressway
- Segment #4 (01-LAK-29-23.80/31.60) – Improve 2L conventional highway/expressway (H/E) to 4L freeway or expressway. Segment #4 is programmed for the environmental document in the 2012 State Transportation Improvement Program (STIP). It is anticipated that this project will be constructed in segments, with the first segment identified and programmed in the 2012 STIP.
- Segment #5 (01-LAK-29-31.60/R34.58) – Improve 2L expressway to 4L freeway or expressway
- Segment #6 (01-LAK-29-R34.58/R40.90) – Improve 2L expressway to 4L freeway or expressway
- Segment #8 (01-LAK-29-R48.58/52.53) – Improve 2L conventional H/E to 4L freeway or expressway.

Strategies Developed to Achieve and Maintain the Corridor Concept

- **Safety:** Safety is the highest priority of Caltrans and our Regional partners. Necessary safety improvements will be made as needs are identified.
- **Maintenance and Rehabilitation:** Maintain and rehabilitate as necessary. Consideration should be given to widening in conjunction with pavement rehabilitation projects where necessary to provide adequate paved shoulder width for both motorized and non-motorized traffic. Bridge replacement, storm damage and operational improvement projects will also be considered as necessary.
- **Access Management Strategy:** As residential and commercial development increases adjacent to the Route, whenever possible, access points should be consolidated and/or minimized. Safe access is the key component of the District's access management strategy. Access is managed via the Inter-Governmental Review (IGR) and encroachment permit processes.
- **Community Planning Strategy:** The District will cooperate with local transportation and land use planning agencies on Route 29 to assure that the highway will be a community asset as well as provide for the safe movement of motorized and non-motorized traffic.
- **Cooperation with Transportation Partners:** The District appreciates the cooperation of its transportation partners in the development of this Transportation Concept Report, and looks forward to continuing cooperation to achieve the selected concept.

CORRIDOR OVERVIEW

ROUTE SEGMENTATION

Segment #	Location Description	Beginning PM Prefix	Beginning PM	Beginning PM Suffix	County_Route_Beg. PM	End PM Prefix	End PM	End PM Suffix	County_Route_End PM
1	Napa/Lake Co. line to SR 175		0.00		LAK_029_0.00		5.80		LAK_029_5.80
2	SR 175 to Jct SR 53		5.80		LAK_029_5.80		20.30		LAK_029_20.30
3	SR 53 to North of Diener Dr		20.30		LAK_029_20.30		23.80		LAK_029_23.80
4	No. of Diener Dr. - No. of Jct Rte. 175		23.80		LAK_029_23.80		31.60		LAK_029_31.60
5	No. of Junction Rte. 175 to Soda Bay Road (Rte 281) (w/ Rte 175)		31.60		LAK_029_31.60	R	34.58		LAK_029_34.58
6	Soda Bay Road (Rte 281) to 0.5 mile South of Lakeport (w/ Rte 175)	R	34.58		LAK_029_34.58	R	40.90		LAK_029_40.90
7	0.5 mile So. of Lakeport City limit to 0.7 mile No. of Lucerne Cutoff	R	40.90		LAK_029_40.90	R	48.58		LAK_029_48.58
8	0.7 mile No. of Lucerne Cutoff to Jct SR 20	R	48.58		LAK_029_48.58		52.53		LAK_029_52.53



ROUTE DESCRIPTION

Route Location:

In District 1, Route 29 begins at the Napa/Lake County line, northeast of Robert Louis Stevenson State Park, and continues north through the community of Middletown, to the community of Lower Lake, then proceeds north-west through the community of Kelseyville and the City of Lakeport, terminating at the junction of Route 29 and 20 in the community of Upper Lake. South of District 1, Route 29 originates in Vallejo at Route 80 in District 4. The District 1 portion of the route is approximately 51.2 miles in length and has a postmile description of: 01-LAK-PM-0.00/52.53.

Route Purpose:

Route 29 South of Route 53 is functionally classified as a Minor Arterial. The route connects the Napa Valley to the Clear Lake area, passing through the communities of Middletown and Lower Lake. Route 29 from Route 53 in the community of Lower Lake to Route 20 in the community of Upper Lake is functionally classified as a Principal Arterial. It connects the two Cities in Lake County (Lakeport and Clearlake) and serves as a portion of the Route 20-South Shore Principal Arterial Corridor (PAC) routing between Route 101 near the City of Ukiah and I-5 in the City of Williams. Bus and bike routes not only connect many of the communities along the route, but offer interregional mobility options as well.

Major Route Features:

The Principal Arterial portion of Route 29 is part of the Route 20/29/53 corridor which is a “Focus Route” in the 1998 Interregional Transportation Strategic Plan (ITSP), and a “Focus Route” in the 2012 draft update of the ITSP. This is a major east/west corridor for the movement of people and goods across California’s northern Central Valley, linking U.S. 101, I-5, SR 99, SR 70 and I-80. It also provides a link for recreational travel from the Sierra to the Sacramento Valley, and from the Sacramento Valley to the north coast.

The rural Minor Arterial portion of Route 29 serves local and regional traffic, and also some commute traffic originating in Lake County, with destinations in Napa and Sonoma Counties.

Lake County Principal Arterial Corridor



Route Designations and Characteristics:

Segment #	1	2	3	4	5	6	7	8
Freeway & Expressway	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
National Highway System	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Strategic Highway Network	No	No	No	No	No	No	No	No
Scenic Highway	Eligible	Eligible	Eligible	Eligible	Eligible	Eligible	Eligible	Eligible
Interregional Road System	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
High Emphasis	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Focus Route	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Functional Classification	MA	MA	PA	PA	PA	PA	PA	PA
Goods Movement Route*	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Truck Designation	California Legal	Terminal Access	Terminal Access	Terminal Access				
Rural/Urban/Urbanized	R	R	R	R	R	R	R/U	R
Regional Transportation Planning Agency	LC/CAPC	LC/CAPC	LC/CAPC	LC/CAPC	LC/CAPC	LC/CAPC	LC/CAPC	LC/CAPC
Local Agency	Lake County	Lake County	Lake County	Lake County	Lake County	Lake County	Lake County, City of Lakeport	Lake County
Tribes	Middletown Rancheria					Big Valley Rancheria		Upper Lake Rancheria
Air District	LCAQMD	LCAQMD	LCAQMD	LCAQMD	LCAQMD	LCAQMD	LCAQMD	LCAQMD
Terrain	Rolling	Rolling	Rolling	Rolling	Rolling	Flat	Flat	Rolling

* **Yes** or **No** indicates those segments on the Terminal Network (STAA)

MA - Minor Arterial / PA - Principal Arterial

RTPA - Regional Transportation Planning Agency (Lake County/City Area Planning Council)

LCAQMD - Lake Co. Air Quality Management District

COMMUNITY CHARACTERISTICS

According to the 2010 census, Lake County has a population of 64,665, of a racial makeup of 74% White, 18% Latino, 4% Native American and 2% Black. Of the 64,665 residents, nearly 18% are over 65, 58% are 21 - 65 and 24% are under 21. Both per capita and median household income average about 2/3 of the State average.

Government and health care account for about 45% of Lake County's employment, with trade/transportation/utilities making up another 20 percent. Furthermore, about 10% of Lake County's jobs come from tourism-related sources. Most of the County's population is located in close proximity to the shore of Clear Lake, with much of the remainder south of Clear Lake along the Principal Arterial portion of Route 29.

LAND USE

CORRIDOR DEVELOPMENT TYPE

Segment	Place Type*
1	Rural Settlements and Agricultural Lands
2	Rural Settlements and Agricultural Lands
3	Agricultural Lands
4	Agricultural Lands
5	Rural Settlements and Agricultural Lands
6	Rural Settlements and Agricultural Lands
7	Compact Community
8	Agricultural Lands

*Place Types are defined in Caltrans' Smart Mobility Framework:

http://www.dot.ca.gov/hq/tpp/offices/ocp/documents/smf_files/SMF_handbook_062210.pdf

From Caltrans' 2012 Smart Mobility Framework Factsheet: *The place types are a tool for general classification of towns, cities, and larger areas and can be used as a basis for making investment, planning, and management decisions. Place types identify: appropriate integrated transportation and land use planning activities, types of transportation projects and programs, types of land use, community development and conservation activities, and opportunities to increase location efficiency factors and Smart Mobility benefits. The place types are: Urban Centers, Close-in Compact Communities, Compact Communities, Suburban Communities, Rural and Agricultural Lands, Protected Lands, and Special Use Areas.*

Regional land use is primarily a mix of agricultural, recreational, open space with scattered rural residential, with a few rural communities. Land use by segment is as follows:

Segments 1, 2 and 5: Open space with scattered rural residential, rural communities

Segments 3, 4 and 8: Open space with scattered rural residential, recreational

Segment 6: Agricultural, rural residential

Segment 7: Agricultural, recreational, small urban city (bypassed)

Little development is occurring at this time, but relatively rapid historic growth has been experienced by all segments except 3, 4 (northwest of the community of Lower Lake), and 8 (north of the City of Lakeport). Growth has been a result of generally low land prices, the recreational opportunities available, and the reputation of Lake County as a good place to retire. It is anticipated that historic growth trends will resume as economic conditions improve.

Segments 3 through 8 of Route 29 are a part of the Route 20-South Shore Principal Arterial Corridor (PAC), a major east-west route in the State Highway System. It is included in the Interregional Road System (IRRS) as both a "high emphasis" and a "focus" route. Segments 1 and 2 are functionally classified as "Minor Arterial" and in addition to carrying local traffic, they serve as a regional commuter route for traffic traveling from Lake County to Napa and Sonoma Counties.

Long term right of way needs include the right of way necessary for the development of Segments 3 through 6 and Segment 8 from 2-lane conventional highway/expressway to 4-lane freeway/expressway.

While all residential development is sensitive to noise and air quality issues, moderate traffic volumes and generally scattered residential development along the Route helps to minimize these potential impacts.

SYSTEM CHARACTERISTICS

Segment #	1	2	3	4	5	6	7	8	
Existing Facility									
Facility Type	C/E	C/E	C	C/E	Exp	Exp	Fwy	C/E	
General Purpose Lanes	2	2	2	2	2	2	4	2	
Lane Miles	11.6	29.0	9.3	15.6	5.96	12.64	30.72	5.16	
Centerline Miles	5.8	14.5	3.5	7.8	2.98	6.32	7.68	2.58	
Median Width	N/A	N/A	N/A	N/A	N/A	N/A	36	N/A	
Median Characteristics	N/A	N/A	N/A	N/A	N/A	N/A	unpaved	N/A	
Truck Climbing Lanes	N/A	N/A	65%	N/A	N/A	N/A	N/A	N/A	
Concept Facility									
Facility Type	C/E	C/E	F/E	F/E	F/E	F/E	F	F/E	
General Purpose Lanes	2	2	4	4	4	4	4	4	
Lane Miles	11.6	29.0	28.0	31.2	11.92	25.28	30.72	10.32	
Centerline Miles	5.8	14.5	3.5	7.8	2.98	6.32	7.68	2.58	
Post 25 Year Facility									
Facility Type	C/E	C/E	F/E	F/E	F/E	F/E	Fwy	F/E	
General Purpose Lanes	2	2	4	4	4	4	4	4	
Lane Miles	11.6	29.0	28.0	31.2	11.92	25.28	30.72	10.32	
Centerline Miles	5.8	14.5	3.5	7.8	2.98	6.32	7.68	2.58	
TMS Elements									
TMS Elements (BY)	CMS, 2 Traffic Signals	Camera, CMS, Traffic Signal	N/A	N/A	Traffic Signal	2 Traffic Signals	N/A	N/A	

BICYCLE FACILITIES

Segment	Post Mile	Location Description	Bicycle Access Prohibited	Facility Type	Outside Paved Shoulder Width	Posted Speed Limit
1	0.00-5.80	Napa/Lake Co. line to Jct Route 175	No	Shared	4- ft.	55/45/30mph
2	5.80-20.30	Jct Route 175 to Jct Route 53	No	Shared	4-ft.	45/55mph
3	20.30-23.80	Jct Route 53 to North of Diener Dr	No	Shared	4-ft.	45/55mph
4	23.80-31.58	North of Diener Drive to North of Jct SR 175	No	Shared	2-ft./ Variable	55mph
5	31.60-34.58	No. of Junction Rte. 175 to Soda Bay Road (Rte 281) (w/ Rte 175)	No	Shared	4-ft.	55mph
6	34.58-40.90	Soda Bay Road (Rte 281) to 0.5 mile South of Lakeport (w/ Rte 175)	No	Shared	4-ft.	55mph
7	40.90-48.58	0.5 mile South of Lakeport City limit to 0.7 mile North of Lucerne Cutoff	No	Shared	8-ft.	65mph
8	48.58-52.53	0.7 mile North of Lucerne Cutoff to Jct SR 20	No	Shared	4-ft.	55mph

Bicycles are allowed on all State Highways within District 1, including Route 29. Most of Route 29 has a minimum shoulder width of 4-foot or more, which is considered adequate for bicycle traffic. An exception is segment 4 (01-LAK-29-23.80/31.60), from north of Diener Drive to north of the junction with Route 175 south of Kelseyville. Much of this segment has 2-foot paved shoulders, and portions of this segment have no paved shoulders. Improvements are planned for this segment, which will include shoulders for bicycle traffic. The Lake County/City Area Planning Council's (Lake APC) 2011 Regional Transportation Bikeway Plan also contains a wide array of proposed and existing bicycle improvements along or adjacent to SR 29.

Lake APC 2011 Regional Transportation Bikeway Plan		
Proposed	Existing	Location
Separated Bikeway - 5 Yr Priority		West side of SR 29 between North 175 to Lakeport Dr. on Parallel Rd.
Bikeway Facilities		On-highway from North 175 to Bottle Rock Rd
Bikeway Facilities		East side of SR 29 through North Lakeport from Mountain View to Shady Lane
Bikeway Facilities		On-highway from north of Grange Rd through Middletown to Napa Co border
	Bikeway Facility	Through downtown Middletown, from Brennen Rd to Young Rd

PEDESTRIAN FACILITIES

Segment	Postmile	Location Description	Ped. Access Prohibited	Sidewalk Present	Facility Description	Alternate Facility
1	0.00-5.80	Napa/Lake Co. line to Jct SR 175	No	Yes	No obstruction, some sidewalks in Middletown cafes	
2	5.80-20.30	Jct SR 175 to Jct SR 53	No	No	No obstruction, some sidewalks in Middletown cafes	
3	20.30-23.80	Jct Route 53 to North of Diener Drive	No	No	No obstruction	
4	23.80-31.58	North of Diener Drive to North of Jct SR 175	No	No	No obstruction	
5	31.60-34.58	No. of Junction Rte. 175 to Soda Bay Road (Rte 281) (w/ Rte 175)	No	No	No obstruction	
6	34.58-40.90	Soda Bay Road (Rte 281) to 0.5 mile South of Lakeport (w/ Rte 175)	No	No	No obstruction	
7	40.90-48.58	0.5 mi So. of Lakeport City limit to 0.7 mi No. of Lucerne Cutoff	Yes	No	None	
8	48.58-52.53	0.7 mile North of Lucerne Cutoff to Jct SR 20	No	No	No obstruction	Main Street & Lakeport Blvd

Most of Route 29 has a minimum shoulder width of 4-foot or more, which is considered adequate for pedestrian traffic. An exception is Segment 4 (01-LAK-29-23.80/31.60), from north of Diener Drive to North of the Junction with Route 175 south of Kelseyville. Much of this segment has 2-foot paved shoulders, and portions of this segment have no paved shoulders.

District 1 is currently developing an Engineered Feasibility Study (EFS) to identify and analyze potential near- and long-term improvements through the corridor – including pedestrian, bicycle and transit options – that will make interregional and intraregional travel easier and more convenient, reduce congestion and address local community needs.

Caltrans is committed to complying with the Americans with Disabilities Act (ADA) improvements in conjunction with highway resurfacing, restoration, rehabilitation, or reconstruction. These improvements are likely to include sidewalks or sidewalk infill in communities on Route 29.

TRANSIT FACILITIES

Segment	Mode & Collateral Facility	Service Provider	Route End Points	Stations		# Parking Spaces
				Cities	Postmiles	
1-2	Traditional Bus	Lake County Transit	Clearlake to St. Helena Hospital (Napa County)	Communities of Middletown and Lower Lake	5.8 and 20.3	
3-6	Traditional Bus	Lake County Transit	Clearlake to Lakeport	Communities of Lower Lake and Kelseyville, and the City of Lakeport	20.3, 34.5, 42.0	
7-8	Traditional Bus	Lake County Transit	Lakeport to Ukiah	City of Lakeport	42.0	
1	Park and Ride lot	Middletown Park & Ride		Middletown	5.47	10
4	Park and Ride lot	Junction 29 & 175 Park & Ride		Kelseyville	30.97	10
6	Park and Ride lot	Kelseyville Park & Ride		Kelseyville	34.7	14
6	Park and Ride lot	Lakeport Park & Ride		Lakeport	39.8	20-25

Transit Facilities

Lake Transit provides fixed bus routes, regional flex route service, and local dial-a-ride services within Lake County. They also provide regional connections to St Helena hospital and the City of Ukiah in Mendocino County. The Ukiah service connects with intercity bus, since both Greyhound and AMTRAK buses serve the City of Ukiah.

As of August 2013, three of the Lake Transit bus routes utilize and serve portions of Route 29:

- Bus Route 3, which originates in the City of Clearlake, uses Route 29 from Lower Lake to the Lake/Napa County line in Lake County, then continues to St. Helena Hospital in Napa County. Service is provided Monday through Saturday, with five trips per day in each direction (four on Saturday).
- Bus Route 4, also originates in the City of Clearlake, and uses Route 29 from Lower Lake to the City of Lakeport. Service is provided Monday through Saturday, with eight trips per day in each direction, and slightly reduced service on Saturday.
- Bus Route 7, originates in the City of Lakeport, and uses Route 29 from Lakeport to Route 20 at the community of Upper Lake, continuing on to the City of Ukiah. Service is provided Monday through Saturday, with four trips per day in each direction.

GOODS MOVEMENT IN THE ROUTE 29 CORRIDOR

Facility Type/Freight Generator	Location	Mode	Name	Major Commodity/ Industry	Comments/Issues
Highway	Segment 1 (post miles 0.00/5.80)	Truck	Route 29	Agricultural products, general freight	California Legal Truck Access
Highway	Segments 2-8 (post miles 5.80/52.53)	Truck	Route 29	Agricultural products, general freight	STAA Terminal Access Route
Freight Generator	Segments 1-8 (post mile 0.00/52.53)	Truck	agricultural producers	Fruit	Cities and communities along the Route also generate freight

Route 29 from Lower Lake to Route 20 (01-LAK-29-20.30/52.53) is designated as a “terminal access route” for Surface Transportation Assistance Act (STAA) trucks. The STAA designation originated with the Interstate System, and these trucks are longer than “California Legal” trucks.



While no specific goods movement improvements are planned for Route 29 at this time, the planned improvement of Segment 4 (01-LAK-29-23.80/31.60) to 4-lane expressway will benefit truck traffic on this Route.

ENVIRONMENTAL CONSIDERATIONS

This section provides an overview of existing environmental conditions and restraints that influence current and future planning of Route 29.

- Endangered, Threatened and Rare Species: The California Natural Diversity Database lists several species in the vicinity of Route 29 that have various endangered, threatened, or rare status. These are included in the table below.

SPECIES	FEDERAL DESIGNATION	STATE DESIGNATION
Bald Eagle	Delisted	Endangered
Western Yellow Billed Cuckoo	Candidate	Endangered
California Wolverine	Candidate	Threatened
Loch Lomond Button Celery	Endangered	Endangered
Pacific Fisher	Candidate	Threatened
Burkes Goldfields	Endangered	Endangered
Lake County Stone Crop	Endangered	Endangered
Few Flowered Navarretia	Endangered	Threatened
Many Flowered Navarretia	Endangered	Endangered
Boggs Lake Hedge-hyssop	None	Endangered
Slender Orcutt Grass	Threatened	Endangered

- Naturally Occurring Asbestos (NOA) is found in the ultramafic rock formations that make up a portion of the geology along the Route 29 corridor, specifically in the vicinity of PM 8.2/9.2.
- The area that Route 29 travels through contains the traditional homeland of the Pomo Indians and 3 Pomo Rancherias; Middletown, Big Valley and Robinson. Due to the high likelihood of archeologically sensitive areas existing at many locations along Route 29, local tribes should be coordinated with and consulted early in the planning process, programming phases and especially pre-construction.

- Conversion of farmland may be an issue in obtaining right of way for planned future state highway improvements, therefore we encourage right of way preservation, if possible.

CORRIDOR PERFORMANCE

Segment #	1	2	3	4	5	6	7	8
Basic System Operations								
AADT* (Base Year)	8800	10800	9900	8900	10500	11900	14700	5900
AADT* (Horizon Year)	14960	18360	17820	16020	18900	21420	23520	9440
LOS Method	HCM	HCM	HCM	HCM	HCM	HCM	HCM	HCM
LOS (BY)	D	D	D	D	D	D	A	C
LOS (HY)	E	E	E	E	E	D	B	D
LOS Concept	E	E	C	C	C	C	C	C
DVMT (BY)	47,560 – 64,380	133,400- 166,750	30,800 – 38,150	63,180 – 74,100	31,290 – 31,886	58,776 – 66,992	45,312 – 112,128	15,222
DVMT (HY)	80,620 – 109,620	226,200 – 284,200	55,300- 68,600	113,880- 133,380	56,322- 57,514	105,544- 143,464	81,408- 201,984	24,252
Truck Traffic								
Total Average Annual Daily Truck Traffic (AADT) (BY)	738	735	700	665	622	727	971	392
Total Trucks (% of AADT) (BY)	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%
5+ Axle Average Annual Daily Truck Traffic (AADT)(BY)	124	123	117	112	104	122	163	66
5+ Axle Trucks (as % of AADT)(BY)	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8
Peak Hour Traffic Data								
Peak Hour Length	1	1	1	1	1	1	1	1
Peak Hour Direction	N	N	N	N	N	N	N	S
Peak Hour Time of Day	pm	pm	am	am	am	am	pm	pm
Peak Hour Directional Split (BY)	55/45	55/45	69/31	69/31	69/31	55/45	55/45	55/45
Peak Hour VMT (BY)	6,380	16,675	7,350	7,488	3,278	9,164	10,368	2,167
Peak Hour VMT (HY)	10,846	28,348	13,230	13,478	5,900	16,495	18,662	3,468

* AADT analysis obtained using HCS 2010 software

** Caltrans District 1 2006 growth factors were used for traffic volume projections.

Traffic volumes on Route 29 in District 1 range from a low of 5,900 between the City of Lakeport and Route 20, and a high of 14,600 near the south end of the City of Lakeport. Volumes are anticipated to increase to over one and one-half times current volumes over the next twenty years.

The Concept Level of Service (LOS) for the Minor Arterial segments of Route 29 (PM 0.00/20.30) is "E". The existing level of service for segments in that portion of the corridor is "D". It is anticipated that the Minor Arterial portion of Route 29 will operate at or above the Concept LOS for the 20-year planning period.

The Concept Level of Service (LOS) for the Principal Arterial segments of Route 29 (PM 20.30/52.53) is "C". The existing level of service for segments in that portion of the corridor is both "C" and "D", with the 4-lane freeway section (Segment 7) operating at LOS "A". It is anticipated that segments of Principal Arterial portion of Route 29 fall below the "C" Concept LOS within the 20-year planning period if no capacity improvements are made.

Truck traffic in the Route 29 corridor is approximately 7% of the Annual Average Daily Traffic (AADT). Large truck traffic (5-axle) is about 20% of total truck traffic in the corridor.

Route 29 has no managed lanes or Performance Monitoring System (PeMS) monitoring stations.

KEY CORRIDOR ISSUES

Development of the Principal Arterial System

Route 29 from Lower Lake to Upper Lake (01-LAK-29-20.30/52.53) is part of the Route 29/South Shore PAC system, a west-east connector between Route 101 north of Ukiah with Interstate 5 at the City of Williams in Colusa County (District 3). Further, the Route 29 portion of this Principal Arterial system connects the only two Cities in Lake County, Lakeport and Clearlake. All but Segment 7 (01-LAK-29-40.90/48.58) of the Principal Arterial portion of Route 29 is 2-lane conventional highway or expressway, and a substantial length has limited shoulder width. The Lake County/City Planning Council and the District have long-range plans to upgrade this portion of Route 29 to 4-lane freeway or expressway.

No capacity increasing improvements are necessary on the Minor Arterial portion of Route 29 (Segments #1 and #2, 01-LAK-29-0.00/20.30) or to Segment 7 (01-LAK-29- R40.90/48.58) to maintain the concept level of service through the year 2035. Truck climbing/passing lanes may be necessary to maintain the concept LOS through 2035.

The following capacity increasing improvements are necessary to achieve the ultimate Corridor Concept on the Principal Arterial portion of Route 29 (01-LAK-29-20.30/52.53):

- Segment #3 (01-LAK-29-20.30/23.80) – Improve 2L conventional highway to 4L freeway or expressway
- Segment #4 (01-LAK-29-23.80/31.60) – Improve 2L conventional highway/expressway to 4L freeway or expressway. Segment #4 is programmed for the environmental document in the 2012 State Transportation Improvement Program (STIP). It is anticipated that this project will be constructed in segments, with the first segment to be identified and programmed in the 2014 STIP.
- Segment #5 (01-LAK-29-31.60/R34.58) – Improve 2L expressway to 4L freeway or expressway
- Segment #6 (01-LAK-29-R34.58/R40.90) – Improve 2L expressway to 4L freeway or expressway
- Segment #8 (01-LAK-29-R48.58/52.53) – Improve 2L conventional highway/expressway to 4L freeway or expressway.

Collision Reduction

Collision reduction continues to be a priority on Route 29. Future improvement efforts to improve safety will continue to be a high priority for this Route.

Traffic Congestion in Middletown

The signalized intersections in Middletown experience congestion during the morning peak hours when southbound through-traffic on Route 29 mixes with local through and cross traffic, much of which is generated by schools in the area.

District 1 is currently developing an Engineered Feasibility Study (EFS) to identify and analyze potential near- and long-term improvements through the corridor – including pedestrian, bicycle and transit options – that will make interregional and intraregional travel easier and more convenient, reduce congestion and address local community needs.

Passing Opportunities

Limited passing opportunities exist on two-lane segments of Route 29. This is particularly a concern on segments 4 and 5 (01-LAK-29-23.8/R34.58) of the Principal Arterial portion of Route 29.

CORRIDOR CONCEPT

The corridor concept for Route 29 consists of a facility concept that identifies the ultimate concept facility for 20-years and beyond, and a level of service concept that identifies the level of service selected for the facility. Improvements to the route are identified at locations where the concept level of service is not expected to be maintained through the planning period, based on the existing facility and projected traffic growth.

CONCEPT RATIONALE

The corridor concept serves as a guide for long range planning of route improvements. It functions to protect the State's investment in Route 29, while recognizing financial and environmental constraints, which will not allow the programming of extensive improvements for all State highways.

This facility concept is consistent with the function and functional classification of the Minor and Principal Arterial portions of Route 29, while recognizing environmental and financial constraints.

FACILITY CONCEPT

The facility concept for the Minor Arterial portion of Route 29 (01-LAK-29-0.00/20.30) is a 2-lane conventional highway/expressway, on existing alignment.

The facility concept for the Principal Arterial portion of Route 29 (01-LAK-29-20.30/52.53) is a 4-lane freeway or expressway. This portion of Route 29 is a vital link in the SR 20 (29, 53 and 49) East/West Focus Route identified in the 2012 Interregional Transportation Strategic Plan. It is the main passageway for goods moving east/west, as the alternative portion of Route 20 has restrictions on hazardous cargo due to its proximity to Clear Lake.

District 4's concept for Route 29 south of the Napa/Lake County line is to maintain the current 2-lane conventional highway throughout the entire segment.

LEVEL OF SERVICE CONCEPT

The level of service (LOS) is a qualitative measure describing operational conditions within a traffic stream and their perception by motorists. An uninterrupted flow LOS definition generally describes these conditions in terms of speed, travel time, freedom to maneuver, traffic interruption, comfort, and convenience.

The selected level of service concept for the Minor Arterial portion of Route 29 (01-LAK-29-0.00/20.30) is an uninterrupted flow LOS "E". This portion of Route 29 is classified as a minor arterial and continues south through windy, mountainous terrain as it passes through Robert Louis Stevenson State Park. Due to environmental and financial constraints there are no foreseeable capacity expanding projects for this portion. Based upon these factors the concept LOS has been set at "E". Most of the Minor Arterial portion of Route 29 currently operates at a "D" level of service.

The selected level of service concept for the Principal Arterial portion of Route 29 (01-LAK-29-20.30/52.53) is an uninterrupted flow LOS "C". While the segment of Route 29 constructed to 4-lane freeway (Segment 7 – 01-LAK-29-40.90/48.58) currently operates at a "A" level of service, most of the Principal Arterial portion of Route 29 currently operates at a "D" level of service.

PLANNED AND PROGRAMMED PROJECTS AND STRATEGIES

Segment	Description	Planned or Programmed	Location	Source	Purpose	Implementation Phase
4	Upgrade existing 2L C to 4L F/E	Programmed through PA&ED	No. of Diener Dr. to No. of Junction Rte. 175 (PM 23.80/31.60)	2012 STIP	Capacity, Safety, and LOS Improvement	PA&ED

Segment #4 (01-LAK-29-23.80/31.60) is programmed through Project Approval and Environmental Document (PA&ED) in the 2012 State Transportation Improvement Program (STIP). It is anticipated that this segment will be further divided into fundable sub-segments, with the highest priority sub-segment programmed for construction.

PROJECTS AND STRATEGIES TO ACHIEVE CONCEPT

Seg.	Description	Location	Source	Purpose	Implementation Phase
2	Complete Streets Improvements	Community of Middletown (PM 5.30/6.00)	Caltrans District 1	Safety, accommodate non-motorized traffic	Planning
3	Upgrade existing 2L C to 4L F/E	Jct SR 53 to No. of Diener Drive (PM 20.30/23.80)	Caltrans District 1	Capacity, Safety, and LOS Improvement	Ultimate Concept Planning
4	Upgrade existing 2L C/E to 4L F/E	No. of Diener Dr. to North of Jct Rte. 175 (PM 23.80/31.60)	Caltrans District 1	Capacity, Safety, and LOS Improvement	Ultimate Concept Planning
5	Upgrade existing 2L E to 4L F/E	No. of Jct SR 175 to Soda Bay Road (PM 31.60/34.58)	Caltrans District 1	Capacity, Safety, and LOS Improvement	Ultimate Concept Planning
6	Upgrade existing 2L E to 4L F/E	Soda Bay Rd to 0.5 mile So. of Lakeport (PM 34.58/40.90)	Caltrans District 1	Capacity, Safety, and LOS Improvement	Ultimate Concept Planning
8	Upgrade existing 2L C to 4L F/E	Lakeport to SR 20 (PM 48.58/52.53)	Caltrans District 1	Capacity, Safety, and level of service Improvement	Ultimate Concept Planning

Appendix A
GLOSSARY OF TERMS AND ACRONYMS

Acronyms

AADT- Annual Average Daily Traffic
ADA – Americans with Disabilities Act of 1990
ADT- Average Daily Traffic
CALTRANS – California Department of Transportation
CMA- Congestion Management Agencies
CEQA- California Environmental Quality Act
CSS – Context Sensitive Solutions
FHWA – Federal highway Administration
FSR – Feasibility Study Report
FSTIP- Federal Statewide Transportation Improvement Program
FTIP – Federal Transportation Improvement Program
GHG- Green House Gas
GIS – Geographic Information System
HCP- Habitat Conservation Plan
IGR-Intergovernmental Review
ITS – Intelligent Transportation System
LOS – Level of Service
MPO- Metropolitan Planning Organizations
NOA – Naturally Occurring Asbestos
NCCP- Natural Community Conservation Plan
NEPA- National Environmental Policy Act
PA&ED – Project Approval and Environmental Document
PAC - Principal Arterial Corridor
PID-Project Initiation Document
PS&E – Plans Specifications and Estimate
PSR- Project Study Report
RHNA- Regional Housing Needs Allocation
RTP- Regional Transportation Plan
RTIP – Regional Transportation Improvement Program
RTPA- Regional Transportation Planning Agencies
SAFETEA - Safe, Accountable, Flexible and Efficient Transportation Equity Act of 2005
SCS- Sustainable Community Strategies
SHOPP- State Highway Operation Protection Program
STIP – State Transportation Improvement Program
TEA-21 Transportation Equity Act for the 21st Century
TDM – Transportation Demand Management
TMS – Transportation Management System
TSN- Transportation System Network
VMT – Vehicle Miles Traveled

Definitions

AADT – Annual Average Daily Traffic is the total volume for the year divided by 365 days. The traffic count year is from October 1st through September 30th. Traffic counting is generally performed by electronic counting instruments moved from location to location throughout the State in a program of continuous traffic count sampling. The resulting counts are adjusted to an estimate of annual average daily traffic by compensating for seasonal influence, weekly variation and other variables which may be present. Annual ADT is necessary for presenting a statewide picture of traffic flow, evaluating traffic trends, computing accident rates, planning and designing highways and other purposes.

Base year – The year that the most current data is available to the Districts

Bikeway Class I (Bike Path) – Provides a completely separated right of way for the exclusive use of bicycles and pedestrians with cross flow by motorists minimized.

Bikeway Class II (Bike Lane) – Provides a striped lane for one-way bike travel on a street or highway.

Bikeway Class III (Bike Route) – Provides for shared use with pedestrian or motor vehicle traffic.

Bottlenecks – A bottleneck is a location where traffic demand exceeds the effective carrying capacity of the roadway. In most cases, the cause of a bottleneck relates to a sudden reduction in capacity, such as a lane drop, merging and weaving, driver distractions, a surge in demand, or a combination of factors.

Capacity – The maximum sustainable hourly flow rate at which persons or vehicles reasonably can be expected to traverse a point or a uniform section of a lane or roadway during a given time period under prevailing roadway, environmental, traffic, and control conditions.

Capital Facility Concept – The 20-25 year vision of future development on the route to the capital facility. The capital facility can include capacity increasing, State Highway, bicycle facility, pedestrian facility, transit facility (Intercity Passenger Rail, Mass Transit Guideway etc.), grade separation, and new managed lanes.

Concept LOS – The minimum acceptable LOS over the next 20-25 years

Conceptual – A conceptual improvement or action is a project that is needed to maintain mobility or serve multimodal users, but is not currently included in a financially constrained plan and is not currently programmed.

Corridor – A broad geographical band that follows a general directional flow connecting major sources of trips that may contain a number of streets, highways, bicycle, pedestrian, and transit route alignments. Off system facilities are included as informational purposes and not analyzed in the TCR.

Facility Type – The facility type describes the state highway facility type. The facility could be freeway, expressway, conventional, or one-way city street.

Freight Generator – Any facility, business, manufacturing plant, distribution center, industrial development, or other location (convergence of commodity and transportation system) that produces significant commodity flow, measured in tonnage, weight, carload, or truck volume.

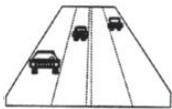
Headway – The time between two successive vehicles as they pass a point on the roadway, measured from the same common feature of both vehicles.

Horizon Year – The year that the future (20-25 years) data is based on.

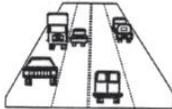
Intermodal Freight Facility – Intermodal transport requires more than one mode of transportation. An intermodal freight facility is a location where different transportation modes and networks connect and freight is transferred (or “transloaded”) from one mode, such as rail, to another, such as truck.

ITS – Intelligent Transportation System improves transportation safety and mobility and enhances productivity through the integration of advanced communications technologies into the transportation infrastructure and in vehicles. Intelligent transportation systems encompass a broad range of wireless and wire line communications-based information and electronics technologies to collect information, process it, and take appropriate actions.

LOS – Level of Service is a qualitative measure describing operational conditions within a traffic stream and their perception by motorists. A LOS definition generally describes these conditions in terms of speed, travel time, freedom to maneuver, traffic interruption, comfort, and convenience. Six levels of LOS can generally be categorized as follows:



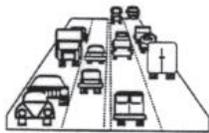
LOS A describes free flowing conditions. The operation of vehicles is virtually unaffected by the presence of other vehicles, and operations are constrained only by the geometric features of the highway.



LOS B is also indicative of free-flow conditions. Average travel speeds are the same as in LOS A, but drivers have slightly less freedom to maneuver.



LOS C represents a range in which the influence of traffic density on operations becomes marked. The ability to maneuver with the traffic stream is now clearly affected by the presence of other vehicles.



LOS D demonstrates a range in which the ability to maneuver is severely restricted because of the traffic congestion. Travel speed begins to be reduced as traffic volume increases.



LOS E reflects operations at or near capacity and is quite unstable. Because the limits of the level of service are approached, service disruptions cannot be damped or readily dissipated.



LOS F a stop and go, low speed conditions with little or poor maneuverability. Speed and traffic flow may drop to zero and considerable delays occur. For intersections, LOS F describes operations with delay in excess of 60 seconds per vehicle. This level, considered by most drivers unacceptable often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection.

Multi-modal – The availability of transportation options using different modes within a system or corridor, such as automobile, subway, bus, rail, or air.

System Operations and Management Concept – Describe the system operations and management elements that may be needed within 20-25 years. This can include Non-capacity increasing operational improvements (Aux. lanes, channelization’s, turnouts, etc.), conversion of existing managed lanes to another managed lane type or characteristic (e.g. HOV land to HOT lane), TMS Field Elements, Transportation Demand Management, and Incident Management.

Peak Hour – The hour of the day in which the maximum volume occurs across a point on the highway.

Peak Hour Volume – The hourly volume during the highest hour traffic volume of the day traversing a point on a highway segment. It is generally between 6 percent and 10 percent of the [ADT](#). The lower values are generally found on roadways with low volumes.

Peak Period – Is a part of the day during which [traffic congestion](#) on the road is at its highest. Normally, this happens twice a day, once in the morning and once in the evening; the time periods when the most people [commute](#). Peak Period is defined for individual routes, not a district or statewide standard.

Planned– A planned improvement or action is a project in a long-term financially constrained plan, such as an approved Regional Transportation Plan (RTP or MTP) or Capital Improvement Plan.

Post Mile – A post mile is an identified point on the State Highway System. The milepost values increase from the beginning of a route within a county to the next county line. The milepost values start over again at each county line. Milepost values usually increase from south to north or west to east depending upon the [general direction](#) the route follows within the state. The milepost at a given location will remain the same year after year. When a section of road is realigned, new milepost (usually noted by an alphabetical prefix such as "R" or "M") are established for it. If relocation results in a change in length, "milepost equations" are introduced at the end of each relocated portion so that mileposts on the remainder of the route within the county will remain unchanged.

Programmed – A programmed improvement or action is a project in a near-term programming document identifying funding amounts by year, such as the State Transportation Improvement Program or the State Highway Operations and Protection Program.

Railroad Class I – The Surface Transportation Board (STB) defines a Class I railroad in the U.S. as a carrier having annual operating revenues of \$250 million or more. This class includes the nation's major railroads. In California, Class I railroads include Union Pacific Railroad (UP) and Burlington Northern Santa Fe Railway (BNSF).

Railroad Class II – STB defines a Class II railroad in the U.S. as having annual carrier operating revenues of less than \$250 million but more than \$20 million. Class II railroads are considered mid-sized freight-hauling railroad in terms of operating revenues. They are considered "regional railroads" by the Association of American Railroads.

Railroad Class III – Railroads with annual carrier operating revenues of \$20 million or less. The typical Class III is a short line railroad, which feeds traffic to or delivers traffic from a Class I or Class II railroad.

Route Designation –A route's designation is adopted through legislation and identifies what system the route is associated with on the State Highway System. A designation denotes what design standards should apply during project development and design. Typical designations include but not limited to National Highway System (NHS), Interregional Route System (IRRS), Scenic Highway System,

Rural – Fewer than 5,000 in population designates a rural area. Limits are based upon population density.

**Appendix B
OUTREACH EFFORTS**

NAME	ORGANIZATION	CONTACT INFO
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**Appendix C
TRANSIT FACILITIES MAP**



Source: Lake Transit

Appendix D
RESOURCES/CONTACT INFORMATION

WORKS REFERENCED

CA Natural Diversity Database
2002 Lake County Regional Transportation Plan
2011 Lake County Bike Plan
Lake Transit Authority Webpage
1989 Route 29 Route Concept Report
2010 Traffic Volumes on California State Highways
2011 Truck Networks on California State Highways - District 1, June 23, 2011 revision
2005 Lake 20/29/53 Comprehensive Corridor Study
2010 Truck Traffic on the California State Highway System
District 1 Park and Ride Inventory
2012 State Transportation Improvement Program
2012 Draft Transportation Concept Report Guidelines
2012 SR 29 Corridor Engineered Feasibility Study & Middletown Community Action Plan
2012 Smart Mobility Framework Factsheet

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