

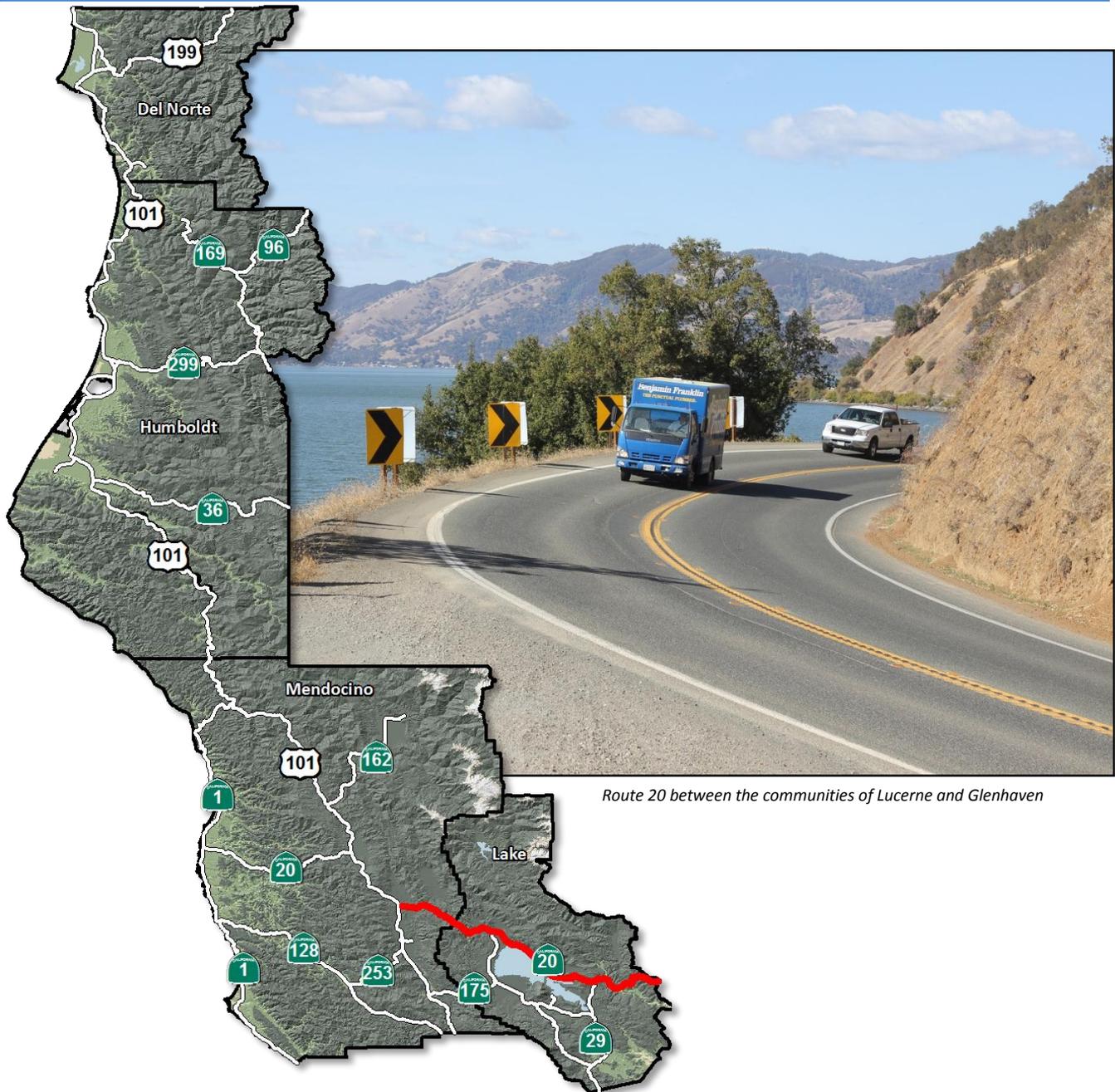


# Transportation Concept Report

## State Route 20-East

### District 01

October 2015



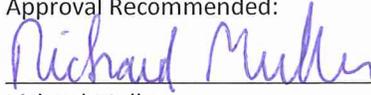
Route 20 between the communities of Lucerne and Glenhaven

*Disclaimer: The information and data contained in this document are for planning purposes only and should not be relied upon for final design of any project. Any information in this Transportation Concept Report (TCR) is subject to modification as conditions change and new information is obtained. Although planning information is dynamic and continually changing, the District 1 System Planning Division makes every effort to ensure the accuracy and timeliness of the information contained in the TCR. The information in the TCR does not constitute a standard, specification, or regulation, nor is it intended to address design policies and procedures.*

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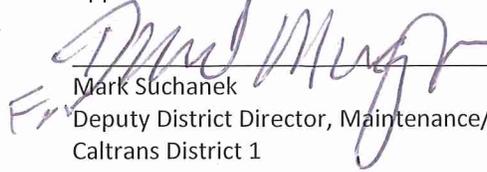
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## ABOUT THE TRANSPORTATION CONCEPT REPORT

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 evaluating conditions and proposing enhancements to the SHS. Through System Planning, Caltrans focuses on developing an integrated multimodal transportation system that meets Caltrans' goals of Safety & Health; Stewardship & Efficiency; Sustainability, Livability & Economy; System Performance; and Organizational Excellence.

The System Planning process for District 1 is primarily composed of three parts: the District System Management Plan (**DSMP**), the DSMP Project List, and the Transportation Concept Report (**TCR**). The district-wide DSMP is a strategic policy and planning document that focuses on maintaining, operating, managing, and developing the transportation system. The DSMP Project List is a 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. These System Planning products are also intended as resources for stakeholders, the public, regional agencies, 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 CA Gov. Code §65086 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

Stakeholder participation was sought throughout the development of the Route 20-East TCR. Outreach involved internal and external stakeholders including: District 1 functional units, Lake County/City Area Planning Council (LC/CAPC), the Mendocino Council of Governments (MCOG), and Caltrans District 3. This TCR was also sent to the following sovereign governments: the Coyote Valley Reservation, the Habematolel Pomo of Upper Lake, the Robinson Rancheria, Middletown Rancheria, Big Valley Rancheria, Scotts Valley Rancheria, the Koi Nation, and the Elem Indian Colony. A preliminary site visit was conducted to study local highway/community conditions and to meet with regional partners. Draft copies of this TCR were circulated to both internal and external partners. District 3's 2009 SR 20 Transportation Corridor Concept Report and the 2013 Interregional Transportation Strategic Plan were reviewed for background and route concepts outside of District 1. The final document was presented to our regional partners in the area as a method of information sharing and to receive any additional comments.

## EXECUTIVE SUMMARY

Route 20 is generally a curvilinear 2-lane conventional highway. Three of the four segments of Route 20-East are part of the North Coast – Northern Nevada Corridor identified in the 2015 Interregional Transportation Strategic Plan (ITSP) update. Segment 3, the Minor Arterial portion of Route 20 that is not a part of the Route 20 Corridor, traverses numerous small communities along the North Shore of Clear Lake. For the purpose of this TCR only Route 20 from U.S. 101 east will be covered. For information on Route 20 west of U.S. 101 please refer to the Route 20-West TCR.

### Concept Summary

Segment Post Miles	Segment Description	Existing Facility	20-25 Year Capital Facility Concept	20-25 Year System Operations and Management Concept	Ultimate Facility Concept
1 33.2/44.1	Junction US 101 to MEN/LAK county line	2-lane, Conventional/ Expressway	4-lane, Freeway or Expressway, "C" LOS	Safety improvements as identified, maintain and rehabilitate	4-lane Freeway or Expressway, "C" LOS
2 0.0/8.3	MEN/LAK county line to Junction SR 29	2-lane, Conventional	4-lane, Freeway or Expressway, "C" LOS	Safety improvements as identified, maintain and rehabilitate	4-lane Freeway or Expressway, "C" LOS
3 8.3/31.6	Junction SR 29 to Junction SR 53	2-lane, Conventional	2-lane, Conventional, no concept LOS	Safety improvements as identified, maintain and rehabilitate	2-lane Conventional, no concept LOS
4 31.6/46.5	Junction SR 53 to LAK/COL county line	2-lane, Conventional	2-lane, Conventional with Passing Lanes, "D" LOS	Safety improvements as identified, maintain and rehabilitate	2-lane, Conventional with Passing Lanes, "D" LOS

SR=State Route

### Proposed Projects and Strategies:

#### PROJECTS TO ACHIEVE CONCEPT TABLE – ROUTE 20-EAST

Segment	Description	Location	Source	Purpose	Implementation Phase
1 and 2	4-lane Freeway or Expressway**	All	Caltrans District 1, MCOG, LC/CAPC*	Achieve Concept	Long Term
3	Additional traffic calming measures in developed areas, "Complete Streets" improvements in communities	Upper Lake, Nice, Lucerne, Glenhaven, Clearlake Oaks	Caltrans District 1	Safety/ Livable Communities	Short Term

\*MCOG: Mendocino Council of Governments. LC/CAPC: Lake County/City Area Planning Council

\*\* The Route 29 portion of the Route 20 ITSP Corridor, between the Cities of Lakeport and Clearlake, is a priority to development to 4-lane freeway or expressway standards.

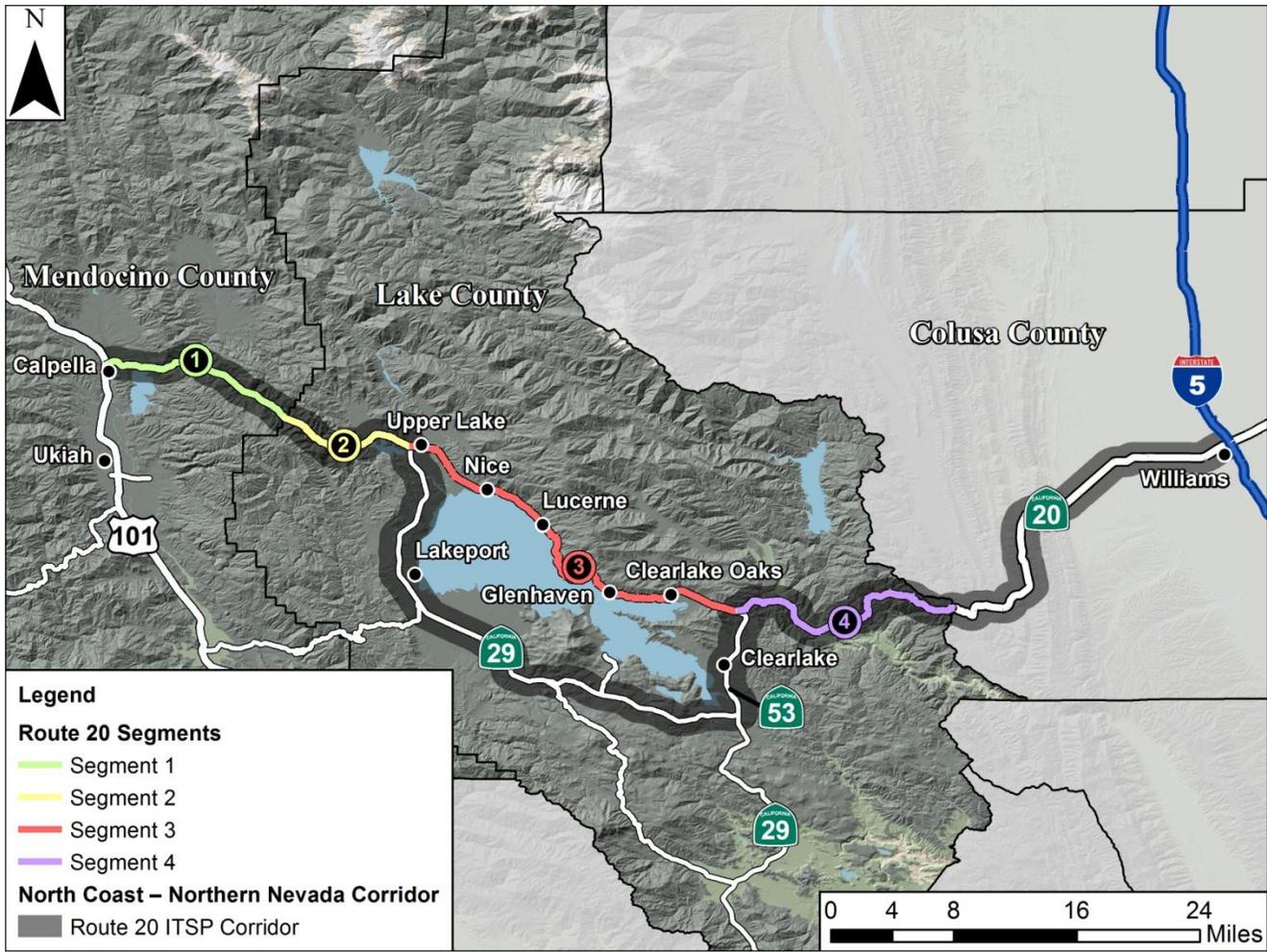
# CORRIDOR OVERVIEW

## ROUTE SEGMENTATION

The following table and map shows the segmentation of Route 20 for the purposes of this Transportation Concept Report.

**ROUTE SEGMENTATION TABLE AND MAP – ROUTE 20-EAST**

Segment	Location Description	County_Route_Beginning PM	County_Route_End PM
1	Junction US 101 to MEN/LAK county line	MEN_020_33.217E	MEN_020_44.114
2	MEN/LAK county line to Junction SR 29	LAK_020_0.000	LAK_020_8.337
3	Junction SR 29 to Junction SR 53	LAK_020_8.337	LAK_020_31.618
4	Junction Route 53 to LAK/COL county line	LAK_020_31.618	LAK_020_46.475



## **ROUTE DESCRIPTION**

### **Route Location:**

State Route 20 begins on the coast of Mendocino County at its junction with Route 1 (postmile MEN-20-0.00) south of Fort Bragg and proceeds eastward, intersecting with US 101 in the City of Willits (postmile MEN-20-33.16). From Willits there is a break in the route until approximately 5-miles north of the City of Ukiah where Route 20 continues east. East of U.S. 101 Route 20 passes through Mendocino County into Lake County and along the North Shore of Clear Lake before continuing into Colusa County in District 3. Route 20 continues to I-5 through the Central Valley and then to the Sierra Nevada mountain range. Route 20 passes through Yuba City, Grass Valley and Nevada City before terminating at its junction with Interstate 80.

Route 20 within District 1 is approximately 90 miles in length; and the easterly portion, the subject of this Transportation Concept Report (TCR), is just over 57 miles in length. Due to the break in the route and the substantially different operational characteristics between the portion of Route 20 west of Route 101 and the portion east of Route 101, this TCR addresses only Route 20-East (Route 20 from U.S. 101 to the Colusa County line). A separate Transportation Concept Report addresses the Route 20-West corridor (MEN-20-0.00/33.16).

Within District 1, Route 20-East traverses primarily rural areas. However, the North Shore segment passes through the communities of Upper Lake, Nice, Lucerne, Glenhaven, and Clearlake Oaks. In Lake County, Route 20 intersects with both Route 29 (PM 8.3) and Route 53 (PM 31.6).

### **Route Purpose:**

Route 20 serves a variety of traffic including local traffic, commuters, interregional freight and seasonal tourism. Along the North Shore of Clear Lake, Route 20 functions as “Main Street” for the communities of Nice, Lucerne, Glenhaven and Clearlake Oaks. Through these communities the route is widely used by pedestrians, cyclists and transit services. Route 20 is important to local Lake County traffic, regional traffic traveling to and from Lake County, and interregional traffic traveling between Route 101 and I-5.

### **Major Route Features:**

The principal arterial portion (Segments 1,2 and 4) of Route 20 are identified as part of the North Coast – Northern Nevada Corridor in the 2015 Interregional Transportation Strategic Plan (ITSP). The ITSP Corridors represent interregional corridors that are the State’s highest priority for completion to the facility concept. The ITSP Corridors serve as a system of high-volume principal arterials. The Route 20 ITSP Corridor provides important east/west connectivity between Route 101 and Interstate 5. The Route 20 ITSP Corridor starts on Route 20 at the junction with US 101, continues on Route 29, travels north along Route 53, and finally returns to Route 20. Segment 3 of Route 20, along the North Shore of Clear Lake, is not a part of the Route 20 ITSP Corridor due to restrictions on the transport of hazardous waste as well as physical and environmental constraints to the route. A large portion Segment 3 is constrained by rock cliffs and Clear Lake. Consequently expansion of Route 20 through Segment 3 is not practical. Despite the curvilinear nature of Segment 3, most through and truck traffic continues to use the segment as Route 29 and Route 53 require additional travel and fuel consumption.

## Route Designations and Characteristics:

### ROUTE DESIGNATIONS AND CHARACTERISTICS TABLE – ROUTE 20-EAST

Segment # and Description	1 Junction U.S. 101 to MEN/LAK County Line	2 MEN/LAK Co. Line to Junction SR 29	3 Junction SR 29 to Junction SR 53	4 Junction SR 53 to LAK/COL County Line
Freeway & Expressway	Yes	Yes	Yes	Yes
National Highway System	Yes	Yes	No	Yes
Strategic Highway Network	No	No	No	No
Scenic Highway	Eligible	Eligible	Eligible	Eligible
Interregional Road System	Yes	Yes	Yes	Yes
ITSP Corridor	Yes	Yes	No	Yes
Functional Classification	Principal Arterial	Principal Arterial	Minor Arterial	Principal Arterial
Goods Movement Route	Yes – STAA terminal Access Route	Yes – STAA terminal Access Route	No	Yes – STAA terminal Access Route
Truck Designation	Terminal Access	Terminal Access	Special Restrictions	Terminal Access
Rural/Urban/Urbanized	Rural	Rural	Rural	Rural
Regional Transportation Planning Agency	Mendocino Council of Governments	Lake County/City Area Planning Council	Lake County/City Area Planning Council	Lake County/City Area Planning Council
Local Agency	Mendocino County	Lake County	Lake County	Lake County
Tribes	Coyote Valley Band of Pomo Indians	Habematolel Pomo of Upper Lake	Robinson Rancheria Pomo Indians	Sulfur Bank Rancheria
Air District	NCUAQMD	LCAQMD	LCAQMD	LCAQMD
Terrain	Mountainous	Rolling	Rolling	Mountainous

NCUAQMD - North Coast Unified Air Quality Management District

LCAQMD - Lake County Air Quality Management District

## COMMUNITY CHARACTERISTICS

Virtually all of the communities traversed by Route 20-East are in Lake County. According to the 2010 U.S. Census, Lake County had a population of 64,665 in 2010. The current Census estimate for Lake County (2013) is 63,860.

In Lake County a little over 73 percent of the population is white, about 18 percent is Hispanic, and the remaining 9 percent is made up primarily of Native Americans and African Americans. About 19 percent of the population is 65 years of age or older (the statewide average is about 12 percent) and both per capita and median household income are about 2/3 of the statewide average.

The most populated area along SR 20-East is the North Shore of Clear Lake (Segment 3) in the communities of Clearlake Oaks, Lucerne, Nice and Upper Lake.



Route 20 through the community of Lucerne

## **LAND USE**

As noted in the following table, the land use/placetype for most of Route 20-East (Segments 1, 2, and 4) is undeveloped land, with some scattered rural residential development, agricultural, and recreational use. Segment 3 traverses a number of small communities and includes considerable residential and commercial development. Much of Segment 3 also includes access to recreational opportunities on Clear Lake.

Little development is occurring in the area of Route 20 at this time, but Segment 3 has historically experienced relatively rapid growth. Growth has been a result of generally low land prices, recreational opportunities, close proximity to Sonoma County and Napa County, and the reputation of Lake County as a good place to retire. Consequently, affordable housing and proximity to Napa County and Santa Rosa has spurred the development of bedroom communities in Lake County.

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.

The following table shows land use adjacent to Route 20.

**Land Use/Place Types Table - Route 20-East**

<b>Segment/Description</b>	<b>Land Use/Place Type</b>
1	Scattered rural residential, recreational, agricultural, and undeveloped land (open space)
2	Scattered rural residential, recreational, and undeveloped land (open space)
3	Residential, mixed commercial development, and recreational (also some undeveloped and tribal lands)
4	Primarily agricultural (grazing) and undeveloped land (open space)

## SYSTEM CHARACTERISTICS

Route 20 is generally a curvilinear 2-lane conventional highway. A portion of Segment 1 in Mendocino County has been developed to expressway standards, and numerous passing lanes have been developed in Segment 4, east of the Route 20/53 Junction. Segment 3 traverses numerous small communities along the North Shore of Clear Lake, and both traffic volumes and traffic speeds have been a local concern as the route serves as a “Main Street” for many communities.

**EXISTING AND CONCEPT FACILITY TABLE – ROUTE 20-EAST**

Segment #	1	2	3	4
<b>Existing Facility</b>				
<b>Facility Type</b>	Conventional/ Expressway	Conventional	Conventional	Conventional
<b>General Purpose Lanes</b>	2	2	2	2
<b>Lane Miles</b>	23.55	16.6	46.6	30.3
<b>Centerline Miles</b>	10.9	8.3	23.3	14.9
<b>Passing Lanes (lane miles)</b>	2.64	1.01	None	8.05
<b>Median width</b>	Most – None Some – 4’ to 12’	None	Most – None Some – Two way Lt. Turn	None
<b>Median characteristics</b>	Paved	N/A	60-180 ft	N/A
<b>Concept Facility</b>				
<b>Facility Type</b>	E/F	E/F	C	C (with passing lanes)
<b>General Purpose Lanes</b>	4	4	2	2
<b>Lane Miles</b>	43.6	33.2	46.6	59.6
<b>Centerline Miles</b>	10.9	8.3	23.3	14.9
<b>TMS Elements</b>				
<b>TMS Elements (BY)</b>	Mainline Detection, CMS	Mainline Detection, Traffic Camera	Mainline Detection, CMS, Traffic Camera	Mainline Detection, CMS, Traffic Camera
<b>TMS Elements (HY)</b>	Mainline Detection, CMS	Mainline Detection, Traffic Camera	Mainline Detection, CMS, Traffic Camera	Mainline Detection, CMS, Traffic Camera

*CMS: Changeable Message Sign*

*BY: Base Year*

*HY: Horizon Year, 2032, based on the 20 year planning period.*

## **BICYCLE FACILITIES**

Bicycles are allowed on all State Highways within District 1 including Route 20. The 2011 Lake County Regional Transportation Bikeway Plan includes a number of planned bikeway projects that connect with or include portions of Route 20.

**BICYCLE FACILITIES TABLE – ROUTE 20-EAST**

Segment	Post Mile	Location Description	Bicycle Access Prohibited	Facility Type	Outside Paved Shoulder Width	Posted Speed Limit
1	MEN-33.2/44.1	Junction US 101 to MEN/LAK county line	No	Shared	2-10 ft.	55 mph
2	LAK-0.0/8.3	MEN/LAK county line to Junction SR 29	No	Shared	2-8 ft.	45-55 mph
3	LAK-8.3/31.6	Junction SR 29 to Junction SR 53	No	Shared	0-10 ft.	35-55 mph
4	LAK-31.6/46.5	Junction Route 53 to LAK/COL county line	No	Shared	0-9 ft.	55 mph

## **PEDESTRIAN FACILITIES**

Historically, pedestrian safety has been a concern in Segment 3, the North Shore. Relatively high traffic and pedestrian volumes in the numerous small communities along the North Shore were contributing to this concern. A “Pedestrian Safety Corridor” was designated, and Caltrans joined other agencies and local interests to enhance pedestrian safety in this corridor. Solutions implemented included interactive signing, pavement marking enhancements, and increased enforcement.

The Lake County/City Area Planning Council contracted for a “Highway 20 Traffic Calming and Beautification Plan” which was completed in 2005. The plan details traffic calming and beautification concepts for the North Shore Communities of Nice, Lucerne, and Clearlake Oaks.

**PEDESTRIAN FACILITIES TABLE – ROUTE 20-EAST**

Segment	Post mile	Location Description	Ped. Access Prohibited	Sidewalk Present	Facility Description	Alt. Facility
1	MEN-33.2/44.1	Junction US 101 to MEN/LAK County line	No	No	Pedestrians use existing shoulders of varying widths. No crosswalks or signalized intersections	No
2	LAK-0.0/8.3	MEN/LAK county line to Junction SR 29	No	No	Pedestrians use existing shoulders of varying widths. No crosswalks or signalized intersections	No
3	LAK-8.3/31.6	Junction SR 29 to Junction SR 53	No	Varies	Pedestrians use shoulders of varying widths and sidewalks within communities. Marked crosswalks in communities and at SR 20/Nice-Lucerne Cutoff Intersection.	At some locations
4	LAK-31.6/46.5	Junction Route 53 to LAK/COL County line	No	No	Pedestrians use existing shoulders of varying widths. No crosswalks or signalized intersections	No

## **TRANSIT FACILITIES**

Lake Transit Authority provides bus transit for Lake County. Two of Lake Transit’s bus routes serve portions of SR 20: bus route 1 from Lakeport to Clearlake, and bus route 7 from Lakeport to Ukiah via SR 29, SR 20, and U.S. 101. Lake Transit offers Dial-A-Ride service for eligible riders and “Flex Stop” service. A bus will travel up to one-mile off its regular route to provide curbside “Flex Stop” service.

**TRANSIT FACILITIES TABLE – ROUTE 20-EAST**

Segment	Mode & Collateral Facility	Service Provider	Route End Points	Stations	
				Cities/ Communities	Postmiles (all LAK)
1&2	Traditional Bus (Route 7)	Lake Transit	Ukiah/Lakeport	Ukiah (4), Blue Lakes, Upper Lake, Robinson Rancheria, Lakeport (2)	2.5, 8.8 and 11.1
3	Traditional Bus (Route 1)	Lake Transit	Lakeport/Clearlake	Lakeport (2), Upper Lake, Robinson Rancheria, Nice, Lucerne, Glenhaven, Clearlake Oaks and Clearlake (3)	8.8, 11.1, 14.2, 16.9, 24.4 and 28.8

*Traditional Bus: single deck 30-40 passenger bus*

## **FREIGHT**

The Route 20 ITSP Corridor is a key goods movement corridor between U.S. 101 and I-5 for the North Region of California. This corridor is used for the movement of essential manufactured goods to the North Coast, as well as the movement of raw materials and agricultural goods to manufacturing centers. Consequently, the Route 20 ITSP corridor experiences the highest average east-west truck traffic north of Route 37<sup>1</sup>.

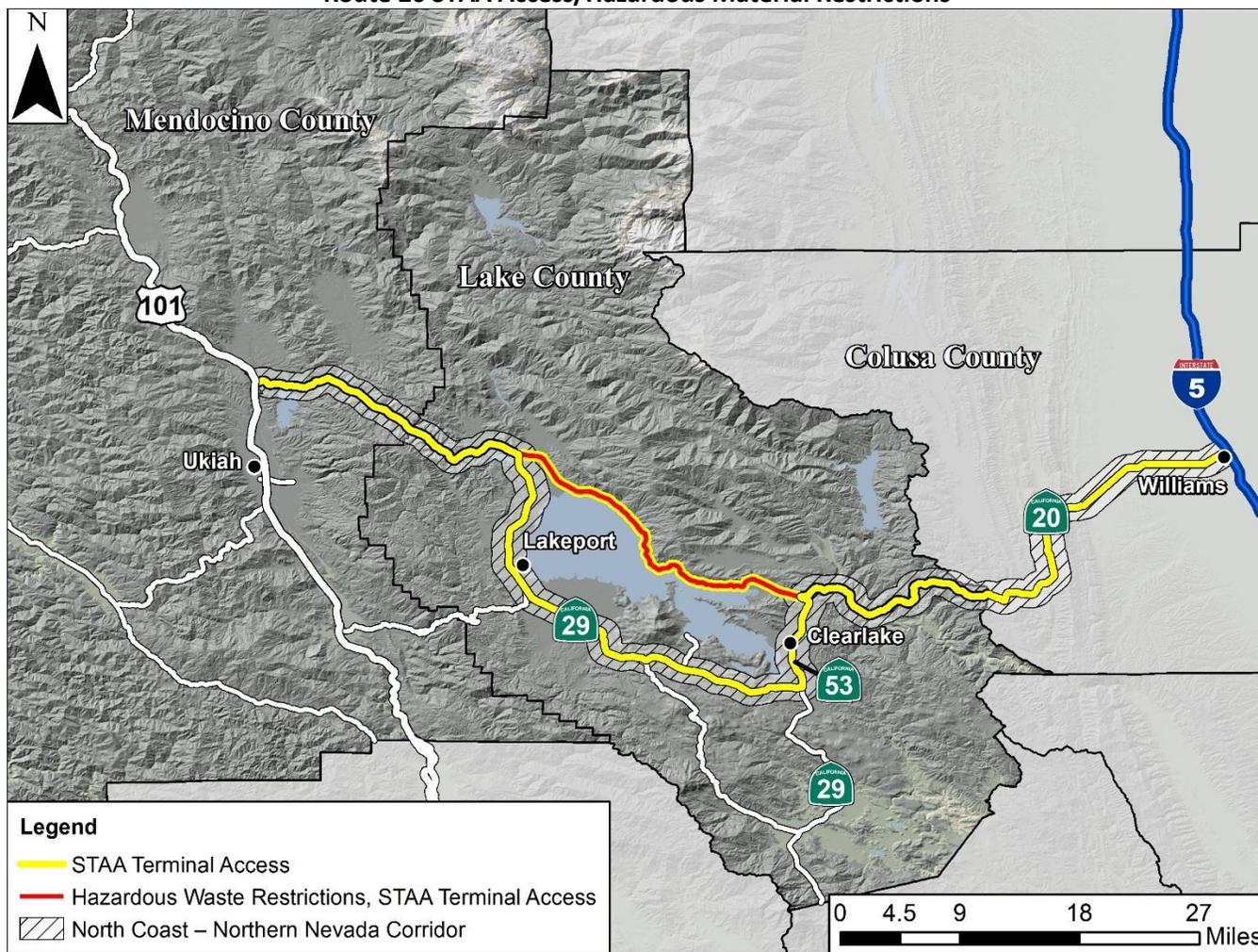
As a result of the elevated truck volumes and rolling to mountainous terrain there is a reduction of capacity, non-motorized service, and noise impacts to local communities. Therefore, it is a priority to improve the Route 20 ITSP corridor to encourage truck traffic to utilize Route 29 and Route 53 to bypass Segment 3. In addition, a reduction of Truck traffic in segment 3 will allow for more community enhancing improvements, and overall improved regional transportation efficiency.

<sup>1</sup>Average annual daily truck volumes were calculated from 2013 Truck Volumes of major east-west routes. The weighted average truck volumes for each route follows: Route 20 ITSP Corridor (780), Route 36 (480), Route 299 (720), and US 199 (660).

### FREIGHT FACILITIES TABLE – ROUTE 20-EAST

Facility Type/Freight Generator	Location	Mode	Major Commodity/ Industry	Comments/Issues
General Freight	Segments 1, 2 and 4	Truck	General Freight	STAA Terminal Access Route
General Freight	Segment 3	Truck	Agricultural products, General Freight	Hazardous materials/waste restriction - due to adjacent waters
Agriculture	Segments 1-4	Truck	Fruit	Cities and communities along the Route also generate freight

Route 20 STAA Access/Hazardous Material Restrictions



## **ENVIRONMENTAL CONSIDERATIONS**

### **Biological Resources**

The California Natural Diversity Database lists several species within one mile of Route 20 that have various endangered, threatened, or rare status. These species are listed in the summary table below.

**CNDDDB SUMMARY TABLE – ROUTE 20-EAST**

<b>Segment</b>	<b>Species</b>
1,2,3	glandular western flax
1,3,4	pallid bat
1,2	bristly sedge
1,3	osprey
2,3	Clear Lake hitch
3	silver-haired bat
3	Sacramento perch
3	tricolored blackbird
3,4	eel-grass pondweed
3,4	two-carpellate western flax
3,4	Colusa layia
4	Cobb Mountain lupine
4	adobe-lily
4	foothill yellow-legged frog
4	Jepson's milk-vetch
4	pappose tarplant
4	bent-flowered fiddleneck

Summary table for planning purposes only

### **Cultural Resources**

- The area that Route 20 travels through contains the traditional homeland of the Pomo People. Due to the high likelihood of archeologically sensitive areas existing at many locations along Route 20 the Coyote Valley Reservation, the Habematolel Pomo of Upper Lake, the Robinson Rancheria, Middletown Rancheria, Big Valley Rancheria, Scotts Valley Rancheria, the Koi Nation, and the Elem Indian Colony should be consulted early in the project planning process.

### **Hazardous Materials**

- Naturally Occurring Asbestos (NOA) can be found in the rock formations that make up a portion of the geology along the Route 20 corridor, specifically in the vicinity of PM 40.1/41.
- Although lead was removed from fuel in the 1980s Aerially Deposited Lead (ADL) may still be present within soils in the Caltrans Right of Way.

### **Water and Air**

- Impacts to wetlands or flood plains may be a concern at some locations, in addition to water quality impacts.
- While Lake County is not in a “non-attainment” area, mitigation for construction related air quality impacts may be required.

### **Visual Impacts**

- The visual impact of improvements necessary to achieve the selected concept will need to be analyzed and mitigated as necessary.

# CORRIDOR PERFORMANCE

Traffic volumes in the Route 20 corridor are moderate, with generally higher in the westerly segments, where the Route serves local, regional, and interregional traffic. Truck volumes are generally moderate throughout the route.

**CORRIDOR PERFORMANCE TABLE – ROUTE 20-EAST**

Segment # and Description	1 Junction US 101 to MEN/LAK County Line	2 MEN/LAK County Line to Junction SR 29	3 Junction SR 29 to Junction SR 53	4 Junction Route 53 to LAK/COL County Line
<b>Basic System Operations</b>				
Base Year AADT	10,100	8,500	7,700	5,100
Horizon Year AADT	15,000	12,300	10,000	6,800
Growth Factor (20 year)*	1.45	1.45	1.30	1.35
LOS Method	HCM	HCM	HCM	HCM
LOS (Base Year)**	D	D	D	D
LOS (Horizon Year)** With no Improvements	E	E	E	D
LOS Concept	C	C	na †	D
DVMT (Base Year)	118,300	69,900	181,700	86,200
DVMT (Horizon Year)	171,600	101,300	236,300	116,300
<b>Truck Traffic</b>				
Truck Average Annual Daily Traffic (TAADT) (BY)	660	780	890	890
Total Trucks (% of AADT) (BY)	6.5%	9.2%	8.6%	17.4%
5+ Axle Truck Average Annual Daily Traffic (TAADT)(BY)	220	320	370	330
5+ Axle Trucks (as % of TAADT)(BY)	33.3%	41.0%	41.6%	37.1%
<b>Peak Hour Traffic Data</b>				
Peak Period Length	1	1	1	1
Peak Hour Direction	East	East	East	East
Peak Hour Time of Day	PM	PM	PM	PM
Peak Hour Directional Split (BY)	60/40	60/40	60/40	60/40
Peak Hour VMT (BY)	12,560	7,200	19,300	12,000
Peak Hour VMT (HY)	18,210	10,460	25,100	16,200

\* Caltrans District 1 2013 growth factors were used for traffic volume projections.

\*\*AADT analysis obtained using HCM 2010 software

† No LOS Concept for segment 3 exists, as it is not part of the Route 20 ITSP Corridor, concept is further discussed in Concept Rational

## KEY CORRIDOR ISSUES

Key Corridor issues include:

- The lack of an adequate funding source to develop the Route 20 ITSP Corridor to its ultimate concept. As a consequence of the corridor's current configuration Segment 3 will continue to attract through traffic as it is the quickest route.
- Livable community issues exist in Segment 3, the North Shore. Continued use of Route 20 North Shore by relatively high volumes of through traffic reduces the function of route as a "Main Street" and detracts from a community sense of safety.



*Route 20/29 Junction looking east towards the community of Upper Lake*

# CORRIDOR CONCEPT

## CONCEPT RATIONALE

The corridor concept for Route 20-East consists of a facility concept that identifies the ultimate concept facility for 20-years and beyond. In addition, a level of service concept has been identified for segments of Route 20 which are included in the Route 20 ITSP Corridor in Mendocino and Lake Counties.

The corridor concept serves as a guide for long range planning of route improvements. It functions to protect the State’s investment in Route 20, while recognizing financial and environmental constraints which will not allow the programming of extensive improvements for all State highways. Furthermore, Facility Concept for Route 20 recognizes improvement to Route 29 is the current regional priority. Consequently, capacity enhancing improvements to Route 20 may not be feasible within the 20 year planning period.

The concepts for Segments 1 and 2 were selected based on their inclusion in the Route 20 ITSP Corridor. The concept for Segment 3 was selected based on its functional classification as a Minor Arterial and as a “Main Street” as well as the District and Region’s goal of calming traffic through North Shore communities. Finally the concept for Segment 4 was selected based on its generally lower traffic volumes, which, combined with numerous passing lanes provide an acceptable level of service through the 20 year planning period.

## FACILITY AND LEVEL OF SERVICE CONCEPTS

The facility concept for Segments 1 and 2 is a 4-lane freeway or expressway with a LOS C, or better.

The facility concept for Segment 3 is a 2-lane conventional highway. Additional Complete Streets treatments may be necessary in communities along Route 20-East. No LOS concept for Segment 3 has been established as no capacity enhancing projects are feasible nor would they be compatible with the function of the segment.

The facility concept for Segment 4 is a 2-lane conventional highway with passing lanes and a LOS D.

## PLANNED AND PROGRAMMED PROJECTS AND STRATEGIES

### PROJECTS TO ACHIEVE CONCEPT TABLE – ROUTE 20-EAST

Projects planned along Route 20 include projects to improve safety and function, and ADA improvements in conjunction with a Capital Maintenance project. Furthermore, Route 20 benefits from projects on routes included in the Route 20 ITSP Corridor. Currently a large scale project to upgrade Route 29 from postmile 23.80-31.60 to 4-lane expressway is programmed. This project is designed to improve safety and meet projected traffic volumes. Furthermore, the Route 29 expressway in concert with Complete Streets and traffic calming plans throughout the North Shore will work together to draw interregional traffic away from the North Shore<sup>2</sup>

Seg.	Description	Location	Source	Purpose	Implementation Phase
2/3	CAPM	PM 13.5-31.4	SHOPP	Capital Preventative Maintenance	Construction
2/3	CAPM/ADA Portion	PM 13.5-31.4	SHOPP	Upgrade 55 curb ramps and sidewalks, improve ADA access	Design
2	Route 20/29 Roundabout	PM 8.337	SHOPP	Safety, improve intersection	Construction
3	Clearlake SRTS	PM 28.2-28.850	Multiple	Safe Routes to School, CT oversite, installation of bulbouts, crosswalks, and construction of sidewalks	Planned
4	Route 20/53 Intersection Improvement	PM 31.318	SHOPP	Safety, improve intersection	Programmed
4	Potter Valley Restriping	PM 37.80-38.37	Safety	Restriping, lengthen eastbound passing lane, shorten westbound passing lane	Planned

<sup>2</sup> 2006 Lake 20/29/53 Comprehensive Corridor Study

## **PROJECTS AND STRATEGIES TO ACHIEVE CONCEPT**

The table below lists strategies to achieve the concept for Route 20 in District 1. In addition to the projects listed, it's anticipated that additional Complete Streets projects and strategies will be pursued in the numerous small communities in Segment 3, along the North Shore. While the concept for the first two segments of Route 20 is 4-lane freeway or expressway, the initial priority for development to 4-lane freeway or expressway standards is the Route 29 portion of the Route 20 ITSP Corridor.

**PROJECTS TO ACHIEVE CONCEPT TABLE – ROUTE 20-EAST**

<b>Seg.</b>	<b>Description</b>	<b>Location</b>	<b>Source</b>	<b>Purpose</b>	<b>Implementation Phase</b>
1 and 2	4-lane Freeway or Expressway	All	Caltrans District 1, MCOG, and LC/CAPC	Achieve ITSP concept	Long Term
3	Additional traffic calming measures in developed areas, "Complete Streets" improvements in communities	Upper Lake, Nice, Lucerne, Glenhaven, Clearlake Oaks	Caltrans District 1	Safety/ Livable Communities	Short Term

*LC/CAPC: Lake County/City Area Planning Council*

In addition to the projects listed in the above table, the following are strategies to be used to achieve and maintain the Corridor concept:

- **Safety:** Safety is the highest priority of Caltrans and our Regional partners. 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 a key component of the District's access management strategy.
- **Community Planning Strategy:** The District will cooperate with its regional and local partners to assure that the highway will be a community asset as well as provide for the safe movement of motorized and non-motorized traffic. The "Highway 20 Traffic Calming and Beautification Plan", prepared for the Lake County/City Area Planning Council by RRM Design Group and W-Trans in August 2006, details Route 20 planning concepts for the north shore communities of Nice, Lucerne, and Clearlake Oaks, some of which have already been implemented.

# APPENDIX

## 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  
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

## **APPENDIX B 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 30<sup>th</sup>. 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.

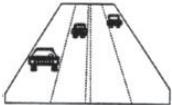
Headway – The time between two successive vehicles as they pass a point on the roadway, measured from the same common feature of both vehicles.

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

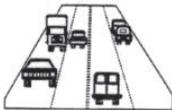
Intermodal Freight Facility – Intermodal transport requires more than one mode of transportation. An intermodal freight facility is a location where different transportation modes and networks connect and freight is transferred (or “transloaded”) from one mode, such as rail, to another, such as truck.

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 lane 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 C  
OUTREACH TO STAKEHOLDERS**

**INTERNAL OUTREACH**

Internal outreach included an announcement that the Route 20 Transportation Concept Report (TCR) was being updated, a summary of anticipated changes to the existing concept, and the opportunity to review the draft TCR prior to external circulation. Included in the internal outreach were the following:

- District 1 Executive Staff
- District 1 Functional Areas
- District 3 System Planning
- Headquarters System Planning

After external review, the revised draft was circulated to District 1 Executive Staff for review, with significant revisions noted.

**EXTERNAL OUTREACH**

External outreach included an announcement that the Route 20 Transportation Concept Report (TCR) was being updated, a summary of anticipated changes to the existing concept, and the opportunity to review the revised draft TCR after internal circulation. Included in the external outreach were the following:

- Lake County/City Area Planning Council
- Native American Tribes or Groups Identified by the District 1 Native American Liaison (Including: the Coyote Valley Reservation, the Habematolel Pomo of Upper Lake, the Robinson Rancheria, Middletown Rancheria, Big Valley Rancheria, Scotts Valley Rancheria, the Koi Nation, and the Elem Indian Colony)
- Clearlake Oaks Community Services District

## APPENDIX D RESOURCES

### WORKS REFERENCED

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3. 2002 California State Highway Log, District 1
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5. 2012 Traffic Volumes on California State Highways  
(<http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/index.htm>)
6. Interregional Road System ((<http://www.leginfo.ca.gov/cgi-bin/displaycode?section=shc&group=00001-01000&file=250-257>)
7. Freeway and Expressway System  
(<http://www.leginfo.ca.gov/cgi-bin/displaycode?section=shc&group=00001-01000&file=250-257>)
8. State Scenic Highways ( <http://www.dot.ca.gov/hq/LandArch/scenic/cahisys.htm>)
9. Truck Network Map (<http://www.dot.ca.gov/hq/traffops/trucks/truckmap/truck-route-list.xlsx>)
10. 2010 Lake County Regional Transportation Plan
11. 2013 Interregional Transportation Strategic Plan Status Update
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15. 2012 Truck Traffic on the California State Highway System  
(<http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/index.htm>)
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19. Level of Service Methodology, Highway Capacity Manual, Transportation Research Board, 2010
20. State Highway Growth Factors, Caltrans District 1, Feb. 2014.
21. National Highway System  
([http://www.dot.ca.gov/hq/tsip/hseb/highway\\_systems/NHS\\_statehighways.pdf](http://www.dot.ca.gov/hq/tsip/hseb/highway_systems/NHS_statehighways.pdf))
22. 2012 State Transportation Improvement Program
23. 2012 State Highway Operation and Protection Program
24. Highway 20 Traffic Calming and Beautification Plan  
(<http://www.lakeapc.org/docs/Hwy%2020%20Traffic%20Calming%20&%20Beautification%20Plan%20Final%20Report.pdf>)