APPENDIX A
STAKEHOLDER LIST

Appendix A: Stakeholder Agency Listing

Agency	District	Agency Type (Federal/State/ Regional/Local/Transit)
State/Federal		
Caltrans HQ	N/A	State
Caltrans -District 1	1	State
Caltrans -District 2	2	State
Caltrans -District 3	3	State
Federal Highway Administration (FHWA)	N/A	Federal
USFS Lassen National Forest	2	Federal
National Park Service	N/A	Federal
Butte County (D3)	**3**	
Butte County		Local
Chico		Local
Paradise		Local
Oroville		Local
Gridley		Local
Biggs		Local
Butte Regional Transit (B-Line)		Transit
Butte College Bus		Transit
Butte County Association of Governments (BCAG)		Regional
Butte County Office of Emergency Management		Regional
Colusa County (D3)	**3**	
Colusa County		Local
City of Colusa		Local
City of Williams		Local
Colusa County Transit		Transit
Colusa County Emergency Services		Regional
Del Norte County (D1)	1	
Del Norte County		Local
Crescent City		Local
Redwood Coast Transit Authority		Transit
Yurok Tribal Transit		Transit
Del Norte Emergency Services		Regional

Agency	District	Agency Type (Federal/State/ Regional/Local/Transit)
Glenn County (D3)	**3**	
Glenn County		Local
City of Willows		Local
City of Orland		Local
Glenn Ride		Transit
Glenn County Transportation Commission and Regional Transit Committee		Regional
Glenn County Emergency Services		Regional
Humboldt County (D1)	1	
Humboldt County		Local
Eureka		Local
Arcata		Local
Fortuna		Local
Humboldt Transit Authority		Transit
Blue Lake Rancheria Transit		Transit
Arcata & Mad River Transit		Transit
Eureka Transit		Transit
Redwood Transit System		Transit
South Humboldt Intercity/Local		Transit
Tish Non-Village Transit		Transit
Willow Creek Intercity		Transit
Klameth-Trinity Non-Emergency Transportation		Transit
Humboldt County Association of Governments (HCAOG)		Regional
Humboldt Emergency Services		Regional
Lake County (D1)	1	
Lake County		Local
Clearlake		Local
Lake Transit Authority		Transit
Lake County/City Area Planning Council		Regional
Lake County Emergency Services		Regional
Lassen County (D2)	2	
Lassen County		Local
Susanville		Local

Agency	District	Agency Type (Federal/State/ Regional/Local/Transit)
Lassen Rural Bus		Transit
Susanville Indian Rancheria Public Transportation Program		Transit
Lassen County Transportation Commission		Regional
Lassen County Emergency Services		Regional
Mendocino County (D1)		
Mendocino County		Local
Ukiah		Local
Mendocino Transit Authority		Transit
Mendocino Emergency Services		Regional
Modoc County (D2)	2	
Modoc County		Local
Alturas		Local
Sage Stage		Transit
Modoc County Transportation Commission		Regional
Modoc County Emergency Services		Regional
Nevada County (D3)	3	
Nevada County		Local
Truckee		Local
Grass Valley		Local
Nevada City		Local
Gold County Stage		Transit
Nevada County Transportation Commission (NCTC)		Regional
Nevada County Emergency Services		Regional
Plumas County (D2)	2	
Plumas County		Local
Portola		Local
Plumas Transit		Transit
Plumas County Transportation Commission		Regional
Plumas County Emergency Services		Regional
Shasta County (D2)	2	
Shasta County		Local
Anderson		Local
Redding		Local

Agency	District	Agency Type (Federal/State/ Regional/Local/Transit)
City of Shasta Lake		Local
Redding Area Bus Authority (RABA)		Transit
Shasta Regional Transportation Agency		Regional
Shasta County Emergency Preparedness		Regional
Shascom 911		Regional
Sierra County (D3)	3	
Sierra County		Local
Loyalton		Local
Sierra County Emergency Services		Regional
Siskiyou County (D2)	2	
Siskiyou County		Local
Dorris		Local
Dunsmuir		Local
Etna		Local
Fort Jones		Local
Montague		Local
Mount Shasta		Local
Tulelake		Local
Weed		Local
Yreka		Local
Siskiyou Transit and General Express (STAGE)		Transit
Siskiyou County Local Transportation Commission		Regional
Siskiyou County Emergency Services		Regional
Tehama County (D2)	2	
Tehama County		Local
Corning		Local
Red Bluff		Local
City of Tehama		Local
Tehama Rural Express (TRAX)		Transit
Tehama County Transportation Commission		Regional
Tehama County Emergency Services		Regional

Agency	District	Agency Type (Federal/State/ Regional/Local/Transit)
Trinity County (D2)	**2**	
Trinity Transit		Transit
Trinity County/ Trinity County Transportation Commission (TCTC)		Local/Regional
Trinity County Emergency Services		Regional

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APPENDIX B
EXISTING ITS INVENTORY

Appendix B1: Existing ITS Devices/Systems

Agency	District	Type	County	Route	Postmile	Notes
Caltrans	1	CCTV	Mendocino	SR 20	0.3	FORT BRAGG
Caltrans	1	CCTV	Lake	SR 20	7.76	JCT 20/29
Caltrans	1	CCTV	Lake	SR 20	30.67	W/O JCT 53
Caltrans	1	CCTV	Lake	SR 20	32.1	
Caltrans	1	CCTV	Lake	SR 20	32.25	E/O JCT 53
Caltrans	1	CCTV	Mendocino	SR 20	32.29	W/O WILLITS
Caltrans	1	CCTV	Mendocino	SR 20	35.6	E/O 101/20 SEP
Caltrans	1	CCTV	Lake	SR 29	9.9	SB 29 n/o Hartmann Road
Caltrans	1	CCTV	Humboldt	SR 299	17.18	Lord Ellis
Caltrans	1	CCTV	Humboldt	SR 299	28.4	Vista Pt
Caltrans	1	CCTV	Humboldt	SR 299	29.15	Berry Summit
Caltrans	1	CCTV	Lake	SR 53	5.1	S/O JCT 20 (Oglin Canyon Rd)
Caltrans	1	CCTV	Mendocino	US-101	9.52	S/O Hopland
Caltrans	1	CCTV	Del Norte	US-101	20.74	S/O CUSHING CREEK
Caltrans	1	CCTV	Del Norte	US-101	22.41	N/O CUSHING CREEK
Caltrans	1	CCTV	Mendocino	US-101	26	N. STATE UKIAH
Caltrans	1	CCTV	Del Norte	US-101	28.5	S/O 101/199 SEP
Caltrans	1	CCTV	Mendocino	US-101	29.82	S/O JCT 20 (NEAR CALPELLA)
Caltrans	1	CCTV	Mendocino	US-101	31.6	N/O JCT 20 (NEAR CALPELLA)
Caltrans	1	CCTV	Del Norte	US-101	37.54	N/O 101/197
Caltrans	1	CCTV	Mendocino	US-101	39.77	N/O WILLITS-RIDGEWOOD GRADE
Caltrans	1	CCTV	Mendocino	US-101	40.26	S/O WILLITS-RIDGEWOOD GRADE
Caltrans	1	CCTV	Mendocino	US-101	48.492	N/O WILLITS
Caltrans	1	CCTV	Humboldt	US-101	55.96	S/O JCT 36 NEAR
Caltrans	1	CCTV	Humboldt	US-101	58.69	N/O JCT 36
Caltrans	1	CCTV	Humboldt	US-101	73.05	SPRUCE POINT
Caltrans	1	CCTV	Humboldt	US-101	77.3	WABASH-SHOP 1
Caltrans	1	CCTV	Humboldt	US-101	77.49	Broadway/14th
Caltrans	1	CCTV	Humboldt	US-101	79.16	4TH AND R
Caltrans	1	CCTV	Humboldt	US-101	79.2	5TH AND R
Caltrans	1	CCTV	Humboldt	US-101	87.67	S/O 01/299 SEP
Caltrans	1	CCTV	Humboldt	US-101	89.43	N/O 101/299 SEP
Caltrans	1	CCTV	Mendocino	US-101		Reynolds I/C
Caltrans	1	CCTV	Del Norte	US-199	33.42	COLLIER REST AREA
Caltrans	1	CCTV	Del Norte	US-199	36.19	S/O STATE LINE
Caltrans	1	CMS	Mendocino	SR 20	0.25	Fort Bragg

Agency	District	Type	County	Route	Postmile	Notes
Caltrans	1	CMS	Lake	SR 20	7.76	w/o Jct 29
Caltrans	1	CMS	Lake	SR 20	30.45	w/o Jct 53
Caltrans	1	CMS	Lake	SR 20	31.94	e/o Jct 53
Caltrans	1	CMS	Mendocino	SR 20	32.29	Willits
Caltrans	1	CMS	Mendocino	SR 20	35.6	Calpella
Caltrans	1	CMS	Lake	SR 53	5.1	s/o 20/53
Caltrans	1	CMS	Del Norte	US-101	20.57	Cushing Creek
Caltrans	1	CMS	Del Norte	US-101	22.37	Cushing Creek
Caltrans	1	CMS	Del Norte	US-101	28.5	s/o 101/199
Caltrans	1	CMS	Mendocino	US-101	29.8	Calpella s/o 101/20
Caltrans	1	CMS	Mendocino	US-101	31.6	Calpella n/o 101/20
Caltrans	1	CMS	Del Norte	US-101	37.54	n/o 101/197
Caltrans	1	CMS	Mendocino	US-101	43.17	s of 101/20 Willits
Caltrans	1	CMS	Mendocino	US-101	45.83	Willits
Caltrans	1	CMS	Humboldt	US-101	55.96	Metropolitan Heights
Caltrans	1	CMS	Humboldt	US-101	58.7	Drake Hill Road
Caltrans	1	CMS	Humboldt	US-101	87.7	s/o 101/299
Caltrans	1	CMS	Humboldt	US-101	89.4	n/o 101/299
Caltrans	1	CMS	Del Norte	US-199	36.1	s/o State Line
Caltrans	1	EMS - HAR Flasher	Mendocino	CA-1	58.96	
Caltrans	1	EMS - HAR Flasher	Mendocino	CA-1	60.1	
Caltrans	1	EMS - HAR Flasher	Mendocino	CA-20	1.29	
Caltrans	1	EMS - HAR Flasher	Mendocino	CA-20	32.29	
Caltrans	1	EMS - HAR Flasher	Lake	CA-29	20.49	
Caltrans	1	EMS - HAR Flasher	Humboldt	CA-299	1.68	
Caltrans	1	EMS - HAR Flasher	Lake	CA-53	3.02	
Caltrans	1	EMS - HAR Flasher	Del Norte	US 101	25.26	
Caltrans	1	EMS - HAR Flasher	Del Norte	US 101	27.55	
Caltrans	1	EMS - HAR Flasher	Mendocino	US 101	41.2	
Caltrans	1	EMS - HAR Flasher	Mendocino	US 101	48.414	EMS for Willits HAR
Caltrans	1	EMS - HAR Flasher	Humboldt	US 101	74.7	

Agency	District	Type	County	Route	Postmile	Notes
Caltrans	1	EMS - HAR Flasher	Humboldt	US 101	74.7	
Caltrans	1	EMS - HAR Flasher	Humboldt	US 101	87.48	
Caltrans	1	EMS - HAR Flasher	Del Norte	US 199	33.1	
Caltrans	1	EMS - HAR Flasher	Del Norte	US 199	34.94	
Caltrans	1	HAR	Mendocino	SR 1	59.9	Fort Bragg
Caltrans	1	HAR	Lake	SR 53	1.47	SR 53 and Dam Road
Caltrans	1	HAR	Del Norte	US-101	27	CC Mtc Yard
Caltrans	1	HAR	Mendocino	US-101	46.4	Willits Jct Hwy 20
Caltrans	1	HAR	Humboldt	US-101	77.3	SHOP 1
Caltrans	1	HAR	Humboldt	US-101	77.4	D.O.
Caltrans	1	HAR	Humboldt	US-101	88.8	299 I/C
Caltrans	1	HAR	Del Norte	US-199	33.4	Collier Tunnel Rest Area
Caltrans	1	RWIS	Humboldt	SR 299	29.15	Berry Summit
Caltrans	1	RWIS	Mendocino	US-101	9.5	Hopland Overhead
Caltrans	1	RWIS	Del Norte	US-101	20.59	South Cushing Creek
Caltrans	1	RWIS	Del Norte	US-101	22.4	North Cushing Creek
Caltrans	1	RWIS	Mendocino	US-101	41.2	Ridgewood Summit
Caltrans	1	RWIS	Humboldt	US-101	73.05	Spruce Pt
Caltrans	1	RWIS	Humboldt	US-101	77.35	Eureka Shop 1
Caltrans	1	RWIS	Mendocino	US-101	82	Rattlesnake Sand House
Caltrans	1	RWIS	Humboldt	US-101	133.5	Near Sandhouse
Caltrans	1	RWIS	Del Norte	US-199	36.19	St Line
Caltrans	1	Safety Warning System	Humboldt	SR 211	78.586	Rte 211 @ both ends of Eel River Bridge, Push Button/Loop-Activated Bicycle Presence Flashing Beacon Warning Sign System with proprietary detector-controllers, Google Maps old (2012), unconfirmed
Caltrans	1	Safety Warning System	Del Norte	US-101	4.038	Rte 101 @ both ends of Klamath River Bridge, Push Button/Loop=Activated Bicycle Presence Flashing Beacon Warning Sign system with proprietary detector-controller.
Caltrans	1	Safety Warning System	Del Norte	US-101	27.2	Crescent City @ Patriot Gas Station, Pedestrian Hybrid Beacon

Agency	District	Type	County	Route	Postmile	Notes
Caltrans	1	Safety Warning System	Mendocino	US-101	44.08	Walker Rd/Rte 101 intersection, Loop-Activated Vehicle Presence Flashing Beacon Warning Sign System. Old Google (2015) unconfirmed, no intersection
Caltrans	1	Safety Warning System	Mendocino	US-101	99.76	Rte 101/Confusion Hill Rd intersection, Loop-Activated Vehicle Presence Flashing Beacon Warning Sign System, Old Google (2012) unconfirmed
Caltrans	1	Safety Warning System	Del Norte	US-199	33.4	COLLIER REST AREA, HAR flasher, bicyclist in Tunnel Warning System
Caltrans	1	Safety Warning System	Del Norte	US-199	33.42	COLLIER TUNNEL, HAR flasher, bicyclist in Tunnel Warning System
Caltrans	1	TMC	Countywide			Located in Eureka
Caltrans	1	WIM	Lake	SR 29	44.4	LAKEPORT
Caltrans	1	WIM	Lake	SR 29	44.46	south of Park Way interchange
Caltrans	1	WIM	Mendocino	US-101	21.9	UKIAH
Caltrans	1	WIM	Humboldt	US-101	65.6	LOLETA
Humboldt Transit Authority	1	Adv Transit Fare Payment	Humboldt			Phone app - Token Transit
Humboldt Transit Authority	1	AVL	Humboldt			Trapeze software
Humboldt Transit Authority	1	Real-time transit info system	Humboldt			Swiftly for Passenger Information App and on-time performance
Lake Transit Authority	1	AVL	Lake			Swiftly software, similar to NextBus, uses cell network
Lake Transit Authority	1	CAD	Lake			Routematch software for route planning
Redwood Coast Transit Authority	1	AVL	Del Norte			Geotabs entry-level AVL system that uses the cell phone network to transmit basic location and operating data. Being implemented.
Redwood Coast Transit Authority	1	CAD	Del Norte			tablet computers in buses integrate with CTS Trip Master paratransit scheduling software for dispatching and data reporting
Butte County Association of Governments	2	Adv Transit Fare Payment	Butte			e-card readers

Agency	District	Type	County	Route	Postmile	Notes
Butte Regional Transit	2	AVL	Butte			
Caltrans	2	CCTV	Siskiyou	I-5	2.61	Central Dunsmuir
Caltrans	2	CCTV	Shasta	I-5	4.35	Deschutes Road UC (Anderson)
Caltrans	2	CCTV	Siskiyou	I-5	5.92	Mott Road
Caltrans	2	CCTV	Shasta	I-5	6.72	Riverside Avenue OC (Anderson)
Caltrans	2	CCTV	Siskiyou	I-5	7.1	Dunsmuir Truck Inspection Station
Caltrans	2	CCTV	Siskiyou	I-5	8.467	I5-SR89 Separation
Caltrans	2	CCTV	Shasta	I-5	12.15	South Bonnyview OC (Redding)
Caltrans	2	CCTV	Siskiyou	I-5	13.17	Abrams Lake OC
Caltrans	2	CCTV	Shasta	I-5	13.96	Hartnell OC
Caltrans	2	CCTV	Siskiyou	I-5	14.08	Black Butte Summit
Caltrans	2	CCTV	Siskiyou	I-5	15.339	Summit Drive
Caltrans	2	CCTV	Shasta	I-5	15.42	I5-SR44 (Central Redding)
Caltrans	2	CCTV	Siskiyou	I-5	18.38	South Weed
Caltrans	2	CCTV	Siskiyou	I-5	19.27	I5-US97
Caltrans	2	CCTV	Siskiyou	I-5	20.66	North Weed
Caltrans	2	CCTV	Shasta	I-5	20.98	Pine Grove OC (Shasta Lake City)
Caltrans	2	CCTV	Siskiyou	I-5	22.64	Shasta River Bridge
Caltrans	2	CCTV	Siskiyou	I-5	25.46	Weed Airport (SRRA)
Caltrans	2	CCTV	Shasta	I-5	26.023	Fawndale OC
Caltrans	2	CCTV	Tehama	I-5	26.53	Red Bluff (SR36-I5 Jct)
Caltrans	2	CCTV	Shasta	I-5	28.2	Pit River Bridge
Caltrans	2	CCTV	Tehama	I-5	28.38	North Red Bluff
Caltrans	2	CCTV	Shasta	I-5	29.97	Sidehill (Viaduct)
Caltrans	2	CCTV	Tehama	I-5	30.974	Wilcox Road OC (NB)
Caltrans	2	CCTV	Tehama	I-5	31.06	Wilcox Road OC (SB)
Caltrans	2	CCTV	Shasta	I-5	32.22	O'Brien
Caltrans	2	CCTV	Tehama	I-5	32.22	Jellys Ferry
Caltrans	2	CCTV	Shasta	I-5	37.44	Salt Creek (Near Gillman Road)
Caltrans	2	CCTV	Shasta	I-5	39.17	Sacramento Hill
Caltrans	2	CCTV	Tehama	I-5	40.52	Cottonwood Truck Scales
Caltrans	2	CCTV	Shasta	I-5	40.6	Antlers Bridge
Caltrans	2	CCTV	Shasta	I-5	41.5	Sugarloaf
Caltrans	2	CCTV	Tehama	I-5	41.5	Bowman Road OC
Caltrans	2	CCTV	Shasta	I-5	42.35	Lakehead (Riverview UC)
Caltrans	2	CCTV	Siskiyou	I-5	45.12	South Yreka (North of Walters Ln OC)
Caltrans	2	CCTV	Shasta	I-5	45.75	Vollmers UC
Caltrans	2	CCTV	Siskiyou	I-5	47.82	Central Yreka (Miner Street UC)

Agency	District	Type	County	Route	Postmile	Notes
Caltrans	2	CCTV	Shasta	I-5	49.19	La Moine Road
Caltrans	2	CCTV	Shasta	I-5	50.39	Pollard Flat
Caltrans	2	CCTV	Siskiyou	I-5	53.08	Anderson Grade Summit
Caltrans	2	CCTV	Shasta	I-5	53.26	Gibson Road
Caltrans	2	CCTV	Shasta	I-5	57.87	Sims Road
Caltrans	2	CCTV	Siskiyou	I-5	58	Collier SRRA
Caltrans	2	CCTV	Siskiyou	I-5	68.34	Hilt Sandhouse OC
Caltrans	2	CCTV	Siskiyou	I-5	68.6	North Hilt OC
Caltrans	2	CCTV	Modoc	SR 139	22.65	Perez Inspection Station
Caltrans	2	CCTV	Shasta	SR 273	18.62	Lake Blvd.
Caltrans	2	CCTV	Shasta	SR 299	22.22	Eureka Way (@ Buenaventura Blvd.)
Caltrans	2	CCTV	Trinity	SR 299	48.12	Oregon Mountain
Caltrans	2	CCTV	Modoc	SR 299	50.3	Cedar Pass (Sandhouse)
Caltrans	2	CCTV	Shasta	SR 299	58.51	Montgomery Creek
Caltrans	2	CCTV	Shasta	SR 299	68.18	Hatchet Mountain
Caltrans	2	CCTV	Trinity	SR 299	69.7	Buckhorn Sandhouse
Caltrans	2	CCTV	Shasta	SR 299	80.08	SR299-SR89 (Four Corners)
Caltrans	2	CCTV	Plumas	SR 36	6.3	SR36-SR89
Caltrans	2	CCTV	Lassen	SR 36	11.89	Fredonyer Summit
Caltrans	2	CCTV	Plumas	SR 36	13.91	Johnson Grade (SR36/A-13)
Caltrans	2	CCTV	Lassen	SR 36	19.2	SR36-SR44
Caltrans	2	CCTV	Lassen	SR 36	24.04	Town Hill (West Susanville)
Caltrans	2	CCTV	Lassen	SR 36	26.49	East Riverside Drive (Susanville)
Caltrans	2	CCTV	Shasta	SR 44	0.85	Sundial Bridge
Caltrans	2	CCTV	Lassen	SR 44	14.72	Bogard SRRA
Caltrans	2	CCTV	Shasta	SR 44	27.74	Shingletown (East)
Caltrans	2	CCTV	Shasta	SR 44	49.38	Lassen Park (SR44 entrance)
Caltrans	2	CCTV	Plumas	SR 70	33.04	SR70-SR89 (Greenville Wye)
Caltrans	2	CCTV	Plumas	SR 70	50.86	Spring Garden
Caltrans	2	CCTV	Siskiyou	SR 89	29.29	Snowman Summit
Caltrans	2	CCTV	Tehama	SR 99	4.49	Vina (SR99 @ South Ave)
Caltrans	2	CCTV	Lassen	US-395	21.88	Doyle (Hall Road)
Caltrans	2	CCTV	Lassen	US-395	53.1	Janesville (Sears Road)
Caltrans	2	CCTV	Lassen	US-395	61.094	SR36-US395 (Susanville)
Caltrans	2	CCTV	Siskiyou	US-97	20.2	Grass Lake (Maintenance Station)
Caltrans	2	CCTV	Siskiyou	US-97	34.46	Mount Herbron (@ WIM Station)
Caltrans	2	CCTV	Siskiyou	US-97	51.64	Dorris Hill
Caltrans	2	CMS	Tehama	I-5	3.52	Sour Grass Road

Agency	District	Type	County	Route	Postmile	Notes
Caltrans	2	CMS	Shasta	I-5	6.72	Riverside Avenue OC (Anderson)
Caltrans	2	CMS	Siskiyou	I-5	7.57	Dunsmuir Truck Inspection Station
Caltrans	2	CMS	Siskiyou	I-5	9.65	Ream Road OC
Caltrans	2	CMS	Tehama	I-5	9.97	Gallagher Avenue
Caltrans	2	CMS	Shasta	I-5	10.86	Smith Road OC (Redding)
Caltrans	2	CMS	Shasta	I-5	10.86	Smith Road OC (Redding)
Caltrans	2	CMS	Siskiyou	I-5	13.18	Abrams Lake [Wind Warning]
Caltrans	2	CMS	Siskiyou	I-5	13.19	Abrams Lake Road
Caltrans	2	CMS	Shasta	I-5	19.4	Oasis Road OC (Redding)
Caltrans	2	CMS	Shasta	I-5	19.4	Oasis Road OC (Redding)
Caltrans	2	CMS	Shasta	I-5	20.98	Pine Grove OC (Shasta Lake City)
Caltrans	2	CMS	Tehama	I-5	23.38	Riverside OC
Caltrans	2	CMS	Tehama	I-5	31.046	Wilcox Road OC
Caltrans	2	CMS	Shasta	I-5	36.1	Black Oak (South of Gilman Road OC)
Caltrans	2	CMS	Tehama	I-5	36.78	Nine-Mile Hill
Caltrans	2	CMS	Tehama	I-5	39.54	Truck Scales; CHP Controlled (NB)
Caltrans	2	CMS	Tehama	I-5	39.82	Truck Scales (NB)
Caltrans	2	CMS	Tehama	I-5	41.53	Bowman Road OC
Caltrans	2	CMS	Shasta	I-5	44.17	Lakehead SRRA
Caltrans	2	CMS	Siskiyou	I-5	44.3	Walters Lane OC
Caltrans	2	CMS	Siskiyou	I-5	44.3	Walters Lane OC
Caltrans	2	CMS	Siskiyou	I-5	45.12	South Yreka [Wind Warning]
Caltrans	2	CMS	Shasta	I-5	49.49	La Moine Road
Caltrans	2	CMS	Siskiyou	I-5	62.04	Henley Road
Caltrans	2	CMS	Siskiyou	I-5	66.623	ODOT CMS
Caltrans	2	CMS	Shasta	SR 299	21.9	Eureka Way (West of Buenaventura Blvd.)
Caltrans	2	CMS	Shasta	SR 299	22.61	Eureka Way (East of Buenaventura Blvd.)
Caltrans	2	CMS	Shasta	SR 299	25.07	Hawley Road
Caltrans	2	CMS	Shasta	SR 44	2.77	Airport Road
Caltrans	2	CMS	Lassen	SR 70	3.52	Hallelujah Sandhouse
Caltrans	2	CMS	Lassen	SR 70	3.53	Hallelujah Jct. (US395/SR70)
Caltrans	2	CMS	Plumas	SR 70	50.07	Spring Garden [ICWS]
Caltrans	2	CMS	Plumas	SR 70	51.64	Spring Garden [ICWS]
Caltrans	2	CMS	Shasta	SR 89	22.33	Jct. SR89-SR299 (Burney Falls)
Caltrans	2	CMS	Lassen	US-395	1.7	US395 Bug Station N/B Wind Warning
Caltrans	2	CMS	Lassen	US-395	60.9	US395/SR36 S/B Wind Warning

Agency	District	Type	County	Route	Postmile	Notes
Caltrans	2	CMS - Curve Warning	Shasta	I-5	29.97	Sidehill (Viaduct)
Caltrans	2	CMS - Curve Warning	Shasta	I-5	32.22	O'Brien
Caltrans	2	CMS - Curve Warning	Shasta	I-5	37.47	Salt Creek
Caltrans	2	CMS - Curve Warning	Shasta	I-5	49.19	La Moine Road
Caltrans	2	CMS - Curve Warning	Shasta	I-5	57.87	Sims Road
Caltrans	2	EMS - Icy Curve Warning	Lassen	SR 36	10.45	Fredonyer Summit [ICWS]
Caltrans	2	EMS - Icy Curve Warning	Lassen	SR 36	11.37	Fredonyer Summit [ICWS]
Caltrans	2	EMS - Icy Curve Warning	Lassen	SR 36	13.32	Fredonyer East [ICWS]
Caltrans	2	EMS - Icy Curve Warning	Lassen	SR 36	14.35	Fredonyer East [ICWS]
Caltrans	2	EMS - FCS	Siskiyou	I-5	46.8	Experimental D2 Flashing Chain Sign FNBT
Caltrans	2	EMS - FCS	Siskiyou	I-5	62.46	Experimental D2 Flashing Chain Sign FSBT
Caltrans	2	EMS - HAR Flasher	Lassen	CA-139	1.265	**Flasher FNBT and FSBT** BBS Installed
Caltrans	2	EMS - HAR Flasher	Lassen	CA-139	65.67	Flasher FNBT anf FSBT BBS installed
Caltrans	2	EMS - HAR Flasher	Modoc	CA-299	1.34	Flasher FEBT and FWBT BBS installed
Caltrans	2	EMS - HAR Flasher	Shasta	CA-299	21.88	**Flasher FWBT** BBS Installed
Caltrans	2	EMS - HAR Flasher	Lassen	CA-299	24.9	Flasher FEBT and FWBT BBS installed
Caltrans	2	EMS - HAR Flasher	Shasta	CA-299	25.4	**Flasher FEBT** BBS Installed
Caltrans	2	EMS - HAR Flasher	Shasta	CA-299	28.38	Flasher FWBT
Caltrans	2	EMS - HAR Flasher	Modoc	CA-299	38.69	Flasher FEBT and FWBT BBS installed
Caltrans	2	EMS - HAR Flasher	Trinity	CA-299	48.1	Flasher FEBT and FWBT BBS installed
Caltrans	2	EMS - HAR Flasher	Shasta	CA-299	49.01	Flasher FEBT BBS installed
Caltrans	2	EMS - HAR Flasher	Trinity	CA-299	52.82	Flasher FEBT and FWBT BBS installed
Caltrans	2	EMS - HAR Flasher	Shasta	CA-299	60.03	Flasher FWBT BBS installed
Caltrans	2	EMS - HAR Flasher	Shasta	CA-299	79.7	Flasher FEBT BBS installed

Agency	District	Type	County	Route	Postmile	Notes
Caltrans	2	EMS - HAR Flasher	Shasta	CA-299	80.42	Flasher FWBT BBS installed
Caltrans	2	EMS - HAR Flasher	Plumas	CA-36	6.1	Flasher FEBT
Caltrans	2	EMS - HAR Flasher	Plumas	CA-36	6.4	Flasher FWBT
Caltrans	2	EMS - HAR Flasher	Plumas	CA-36	9.41	Flasher FEBT and FWBT
Caltrans	2	EMS - HAR Flasher	Lassen	CA-36	23.79	**Flasher FEBT** and **FWBT** - BBS Installed
Caltrans	2	EMS - HAR Flasher	Trinity	CA-36	31.74	Flasher FNBT and FSBT
Caltrans	2	EMS - HAR Flasher	Tehama	CA-36	42.93	**EMS FEBT** BBS Installed
Caltrans	2	EMS - HAR Flasher	Tehama	CA-36	43.65	EMS FWBT
Caltrans	2	EMS - HAR Flasher	Tehama	CA-36	44.62	**Flasher FEBT and FWBT** BBS Installed
Caltrans	2	EMS - HAR Flasher	Shasta	CA-44	1.56	Flasher FEBT
Caltrans	2	EMS - HAR Flasher	Shasta	CA-44	8	Flasher FWBT
Caltrans	2	EMS - HAR Flasher	Lassen	CA-70	3.52	Flasher FEBT
Caltrans	2	EMS - HAR Flasher	Plumas	CA-70	32.966	Flasher FEBT
Caltrans	2	EMS - HAR Flasher	Plumas	CA-70	42.08	Flasher FEBT and FWBT BBS installed
Caltrans	2	EMS - HAR Flasher	Plumas	CA-70	45.23	Flasher FEBT and FWBT BBS installed
Caltrans	2	EMS - HAR Flasher	Plumas	CA-89	8.72	Flasher FSBT
Caltrans	2	EMS - HAR Flasher	Shasta	CA-89	21.35	Flasher FNBT BBS installed
Caltrans	2	EMS - HAR Flasher	Plumas	CA-89	29.27	Flasher FNBT
Caltrans	2	EMS - HAR Flasher	Plumas	CA-89	41.9	Flasher FNBT
Caltrans	2	EMS - HAR Flasher	Tehama	I-5	3.52	Flasher FNBT BBS installed
Caltrans	2	EMS - HAR Flasher	Tehama	I-5	9.91	Flasher FNBT in median; BBS installed
Caltrans	2	EMS - HAR Flasher	Tehama	I-5	10.02	Flasher FSBT in median; BBS installed
Caltrans	2	EMS - HAR Flasher	Siskiyou	I-5	13.6	**FNBT and FSBT** in median; Black Butte B Rehab

Agency	District	Type	County	Route	Postmile	Notes
Caltrans	2	EMS - HAR Flasher	Siskiyou	I-5	17.82	Flasher FNBT BBS installed
Caltrans	2	EMS - HAR Flasher	Shasta	I-5	21	EMS FSBT
Caltrans	2	EMS - HAR Flasher	Tehama	I-5	25.21	Flasher FNBT BBS installed
Caltrans	2	EMS - HAR Flasher	Siskiyou	I-5	25.59	Flasher FSBT BBS installed
Caltrans	2	EMS - HAR Flasher	Shasta	I-5	46.03	FNBT
Caltrans	2	EMS - HAR Flasher	Siskiyou	I-5	52.75	Flasher FNBT and FSBT in median; BBS installed
Caltrans	2	EMS - HAR Flasher	Shasta	I-5	57.37	FSBT
Caltrans	2	EMS - HAR Flasher	Siskiyou	I-5	68	Flasher FSBT BBS installed
Caltrans	2	EMS - HAR Flasher	Lassen	SR 139	1.265	Skyline Drive, need to determine associated beacon
Caltrans	2	EMS - HAR Flasher	Modoc	SR 299	1.34	East of Adin (SR139-SR299), need to determine associated beacon
Caltrans	2	EMS - HAR Flasher	Shasta	SR 299	21.88	Buenaventura (@ Wildwood Drive), need to determine associated beacon
Caltrans	2	EMS - HAR Flasher	Shasta	SR 299	25.4	Hawley Road, need to determine associated beacon
Caltrans	2	EMS - HAR Flasher	Shasta	SR 299	28.38	Stillwater Way, need to determine associated beacon
Caltrans	2	EMS - HAR Flasher	Lassen	SR 36	23.79	CDF (West Susanville), need to determine associated beacon
Caltrans	2	EMS - HAR Flasher	Shasta	SR 44	1.56	Victor Avenue, need to determine associated beacon
Caltrans	2	EMS - HAR Flasher	Shasta	SR 44	8	Silver Bridge Road, need to determine associated beacon
Caltrans	2	EMS - HAR Flasher	Lassen	SR 70	3.52	Hallelujah Sandhouse, need to determine associated beacon
Caltrans	2	EMS - HAR Flasher	Plumas	SR 89	29.27	Canyon Dam, need to determine associated beacon
Caltrans	2	EMS - HAR Flasher	Plumas	SR 89	41.9	Jct. SR36-SR89, need to determine associated beacon
Caltrans	2	EMS - HAR Flasher	Lassen	US 395	1.7	Flasher FNBT & FSBT
Caltrans	2	EMS - HAR Flasher	Modoc	US 395	20.94	Flasher FNBT and FSBT BBS installed
Caltrans	2	EMS - HAR Flasher	Modoc	US 395	23.74	Flasher FNBT and FSBT BBS installed
Caltrans	2	EMS - HAR Flasher	Lassen	US 395	51.7	**Flasher FNBT** and **FSBT** - BBS Installed

Agency	District	Type	County	Route	Postmile	Notes
Caltrans	2	EMS - HAR Flasher	Lassen	US 395	60.03	Flasher FNBT and FSBT
Caltrans	2	EMS - HAR Flasher	Siskiyou	US 97	2.588	Flasher FSBT BBS installed
Caltrans	2	EMS - HAR Flasher	Siskiyou	US 97	2.603	Flasher FNBT BBS installed
Caltrans	2	HAR	Tehama	I-5	10.118	Corning SRRA
Caltrans	2	HAR	Siskiyou	I-5	13.2	Abrams Lake
Caltrans	2	HAR	Shasta	I-5	16.13	Redding (I5 @ Hilltop OC)
Caltrans	2	HAR	Siskiyou	I-5	20	Weed Sandhouse
Caltrans	2	HAR	Siskiyou	I-5	25.69	Weed NB SRRA
Caltrans	2	HAR	Tehama	I-5	26.58	Red Bluff (SR36-I5 Jct)
Caltrans	2	HAR	Siskiyou	I-5	44.3	Walters Road
Caltrans	2	HAR	Shasta	I-5	50.8	Pollard Flat
Caltrans	2	HAR	Siskiyou	I-5	52.75	Anderson Grade
Caltrans	2	HAR	Siskiyou	I-5	65.14	Bailey Hill
Caltrans	2	HAR	Butte	SR 191	0.07	Butte 191 (SR70-SR191 Jct)
Caltrans	2	HAR	Lassen	SR 299	25.58	Adin (at Maintenance Station)
Caltrans	2	HAR	Trinity	SR 299	51.2	Weaverville (at Maintenance Station)
Caltrans	2	HAR	Shasta	SR 299	54.07	Montgomery Creek
Caltrans	2	HAR	Shasta	SR 299	80.2	Four Corners (SR89-SR299 Jct)
Caltrans	2	HAR	Plumas	SR 36	13.94	Chester (SR36/A-13)
Caltrans	2	HAR	Plumas	SR 70	33	Greenville Wye (SR70-SR89 Jct)
Caltrans	2	HAR	Plumas	SR 70	45.241	Quincy (at Maintenance Station)
Caltrans	2	HAR	Lassen	US-395	1.58	Bug Station (US395 @ Nevada border)
Caltrans	2	HAR	Modoc	US-395	23.07	Alturas (at Maintenance Station)
Caltrans	2	HAR	Lassen	US-395	60.06	Susanville
Caltrans	2	RWIS	Siskiyou	I-5	2.61	Central Dunsmuir
Caltrans	2	RWIS	Siskiyou	I-5	14.08	Black Butte Summit
Caltrans	2	RWIS	Siskiyou	I-5	20.72	North Weed
Caltrans	2	RWIS	Siskiyou	I-5	25.46	Weed Airport (SRRA)
Caltrans	2	RWIS	Shasta	I-5	37.94	Antlers Summit OC
Caltrans	2	RWIS	Shasta	I-5	45.85	Vollmers UC
Caltrans	2	RWIS	Siskiyou	I-5	53.08	Anderson Grade
Caltrans	2	RWIS	Siskiyou	I-5	53.73	Anderson Grade Summit
Caltrans	2	RWIS	Siskiyou	I-5	57.75	Collier SRRA
Caltrans	2	RWIS	Shasta	I-5	57.87	Sims Road
Caltrans	2	RWIS	Siskiyou	I-5	61.93	Hornbrook (N of Henley Road UC)

Agency	District	Type	County	Route	Postmile	Notes
Caltrans	2	RWIS	Siskiyou	I-5	68.04	Hilt (South of Hilt Road OC)
Caltrans	2	RWIS	Modoc	SR 139	22.65	Perez Inspection Station
Caltrans	2	RWIS	Trinity	SR 299	48.12	Oregon Mountain
Caltrans	2	RWIS	Shasta	SR 299	68.18	Hatchet Mountain
Caltrans	2	RWIS	Trinity	SR 299	69.7	Buckhorn Sandhouse
Caltrans	2	RWIS	Lassen	SR 36	11.89	Fredonyer Summit [ICWS]
Caltrans	2	RWIS	Lassen	SR 36	13.74	Fredonyer East [ICWS]
Caltrans	2	RWIS	Lassen	SR 44	14.72	Bogard SRRA
Caltrans	2	RWIS	Plumas	SR 70	50.86	Spring Garden [ICWS]
Caltrans	2	RWIS	Siskiyou	SR 89	29.34	Snowmans Hill
Caltrans	2	RWIS	Lassen	US-395	21.88	Doyle (Hall Road) [Wind WS]
Caltrans	2	RWIS	Lassen	US-395	53.1	Janesville (Sears Road) [Wind WS]
Caltrans	2	RWIS	Siskiyou	US-97	51.64	Dorris Hill
Caltrans	2	TMC	Countywide			Located in Redding
Caltrans	2	Traffic Detection	Shasta	I-5	7.396	Redding Area
Caltrans	2	Traffic Detection	Shasta	I-5	8.335	Redding Area
Caltrans	2	Traffic Detection	Shasta	I-5	9.33	Redding Area
Caltrans	2	Traffic Detection	Siskiyou	I-5	52.77	Anderson Grade
Caltrans	2	Traffic Detection	Siskiyou	I-5	65.14	Bailey Hill
Caltrans	2	Traffic Detection	Siskiyou	I-5	66.79	North Bailey Hill
Caltrans	2	Traffic Detection	Shasta	SR 299	27.11	Old Oregon Trail EB Off-Ramp
Caltrans	2	WIM	Siskiyou	I-5	11.4	Mt Shasta
Caltrans	2	WIM	Shasta	I-5	24.9	Redding
Caltrans	2	WIM	Lassen	US-395	83.2	Honey Lake
Caltrans	2	WIM	Siskiyou	US-97	34.5	Macdoel
Lassen Rural Bus	2	AVL	Lassen			
Caltrans	3	BTR	Butte	SR 70	52.4	70/149 Jct
Caltrans	3	CCTV	Colusa	I-5	576.155	Rte 20, S/O (Williams)
Caltrans	3	CCTV	Colusa	I-5	578.263	Rte 20, N/O (Williams)
Caltrans	3	CCTV	Placer	I-80	170.444	Kingvale UC (EB), just south of study area
Caltrans	3	CCTV	Placer	I-80	171.027	Kingvale UC (WB), just south of study area
Caltrans	3	CCTV	Nevada	I-80	173.888	Soda Springs OC (EB)

Agency	District	Type	County	Route	Postmile	Notes
Caltrans	3	CCTV	Nevada	I-80	174.02	Soda Springs OC (WB)
Caltrans	3	CCTV	Nevada	I-80	175.799	Castle Peak, W/O
Caltrans	3	CCTV	Nevada	I-80	176.768	Donner Summit
Caltrans	3	CCTV	Nevada	I-80	180.477	Donner Lake UC
Caltrans	3	CCTV	Nevada	I-80	184.155	Truckee (Old Ag Inspection Area)
Caltrans	3	CCTV	Nevada	I-80	184.773	Rte 80/89 South Junction
Caltrans	3	CCTV	Nevada	I-80	189.876	Truckee Scales
Caltrans	3	CCTV	Nevada	I-80	197.994	Floriston
Caltrans	3	CCTV	Nevada	SR 267	0.361	Truckee Bypass
Caltrans	3	CCTV	Nevada	SR 267	187.228	80/267 Interchange (Jct80_267)
Caltrans	3	CCTV	Butte	SR 32	20.763	9th and Main (Chico)
Caltrans	3	CCTV	Placer	SR 89	80.45	W. River St (Truckee) S/O, just south of study area
Caltrans	3	CMS	Colusa	I-5	576.155	5/20 Jct/Williams
Caltrans	3	CMS	Colusa	I-5	578.263	5/20 Jct/Williams
Caltrans	3	CMS	Nevada	I-80	163.076	Eagle Lakes
Caltrans	3	CMS	Placer	I-80	168.149	Rainbow, just south of study area
Caltrans	3	CMS	Placer	I-80	171.022	Kingvale, just south of study area
Caltrans	3	CMS	Nevada	I-80	175.809	Castle Peak
Caltrans	3	CMS	Nevada	I-80	181.406	Vista Pt/DLI
Caltrans	3	CMS	Nevada	I-80	183.879	Donner Park
Caltrans	3	CMS	Nevada	I-80	184.51	80/89 Jct
Caltrans	3	CMS	Nevada	I-80	188.757	Prosser Village Rd
Caltrans	3	CMS	Placer	SR 267	2.066	Truckee Airport, just south of study area
Caltrans	3	EMS - HAR Flasher	Butte	CA-149	4.367	
Caltrans	3	EMS - HAR Flasher	Butte	CA-191	0.149	
Caltrans	3	EMS - HAR Flasher	Placer	CA-267	2.004	Just south of region
Caltrans	3	EMS - HAR Flasher	Butte	CA-70	52.39	
Caltrans	3	EMS - HAR Flasher	Butte	CA-70	54.597	
Caltrans	3	EMS - HAR Flasher	Nevada	CA-89	80.793	
Caltrans	3	EMS - HAR Flasher	Nevada	CA-89	83.362	
Caltrans	3	EMS - HAR Flasher	Butte	CA-99	366.011	

Agency	District	Type	County	Route	Postmile	Notes
Caltrans	3	EMS - HAR Flasher	Nevada	I-80	163.47	
Caltrans	3	EMS - HAR Flasher	Placer	I-80	167.683	Just south of region
Caltrans	3	EMS - HAR Flasher	Placer	I-80	167.72	Just south of region
Caltrans	3	EMS - HAR Flasher	Nevada	I-80	173.378	
Caltrans	3	EMS - HAR Flasher	Nevada	I-80	173.89	
Caltrans	3	EMS - HAR Flasher	Nevada	I-80	180.293	
Caltrans	3	EMS - HAR Flasher	Nevada	I-80	183.434	
Caltrans	3	EMS - HAR Flasher	Nevada	I-80	190.35	
Caltrans	3	EMS - HAR Flasher	Nevada	I-80	197.869	
Caltrans	3	EMS - HAR Flasher	Nevada	SR 89	80.793	Deerfield Dr & Mouse Hole, need to determine associated beacon
Caltrans	3	EMS - HAR Flasher	Nevada	SR 89	83.362	Alder Creek Rd, need to determine associated beacon
Caltrans	3	Fiber	Placer	I-80	170.413	I-80 at Kingvale, just south of study area
Caltrans	3	Fiber	Nevada	I-80	188.832	I-80 at Truckee Scales
Caltrans	3	HAR	Placer	I-80	171.026	Kingvale, just south of study area
Caltrans	3	HAR	Nevada	I-80	176.925	Donner Summit
Caltrans	3	HAR	Nevada	I-80	186.159	Truckee
Caltrans	3	HAR	Nevada	I-80	198.012	Floriston
Caltrans	3	HAR	Butte	SR 70	0.074	Oroville
Caltrans	3	HUB	Placer	I-80	171.121	I-80 at Kingvale Maintenance Station, just south of study area
Caltrans	3	HUB	Nevada	I-80	189.797	I-80 at Truckee California Highway Patrol scales
Caltrans	3	RMS	Butte	SR 99		Skyway (WB)
Caltrans	3	RWIS	Nevada	I-80	176.293	Donner Summit
Caltrans	3	RWIS	Nevada	I-80	184.77	Donner Lake
Caltrans	3	RWIS	Nevada	I-80	189.923	Truckee Scales
Caltrans	3	RWIS	Nevada	I-80	198.011	Floriston
Caltrans	3	RWIS	Nevada	SR 267	0.361	Truckee Bypass
Caltrans	3	TMC	Countywide			In Rancho Cordova, outside of study area
Caltrans	3	Traffic Detection	Placer	I-80	170.761	Kingvale UC, just south of study area

Agency	District	Type	County	Route	Postmile	Notes
Caltrans	3	Traffic Detection	Nevada	I-80	173.632	Soda Springs OC
Caltrans	3	Traffic Detection	Nevada	I-80	176.251	Castle Peak UC
Caltrans	3	Traffic Detection	Nevada	I-80	180.169	Donner Lake UC
Caltrans	3	Traffic Detection	Nevada	I-80	183.801	Donner Park OC
Caltrans	3	Traffic Detection	Nevada	I-80	184.103	Truckee Inspection Station
Caltrans	3	Traffic Detection	Nevada	I-80	184.77	Donner Lake UC
Caltrans	3	Traffic Detection	Nevada	I-80	184.816	Rte 80/89 South Junction
Caltrans	3	Traffic Detection	Nevada	I-80	187.727	Truckee Radar/Jct 267, E/O
Caltrans	3	WIM	Glenn	I-5	10.9	Willows

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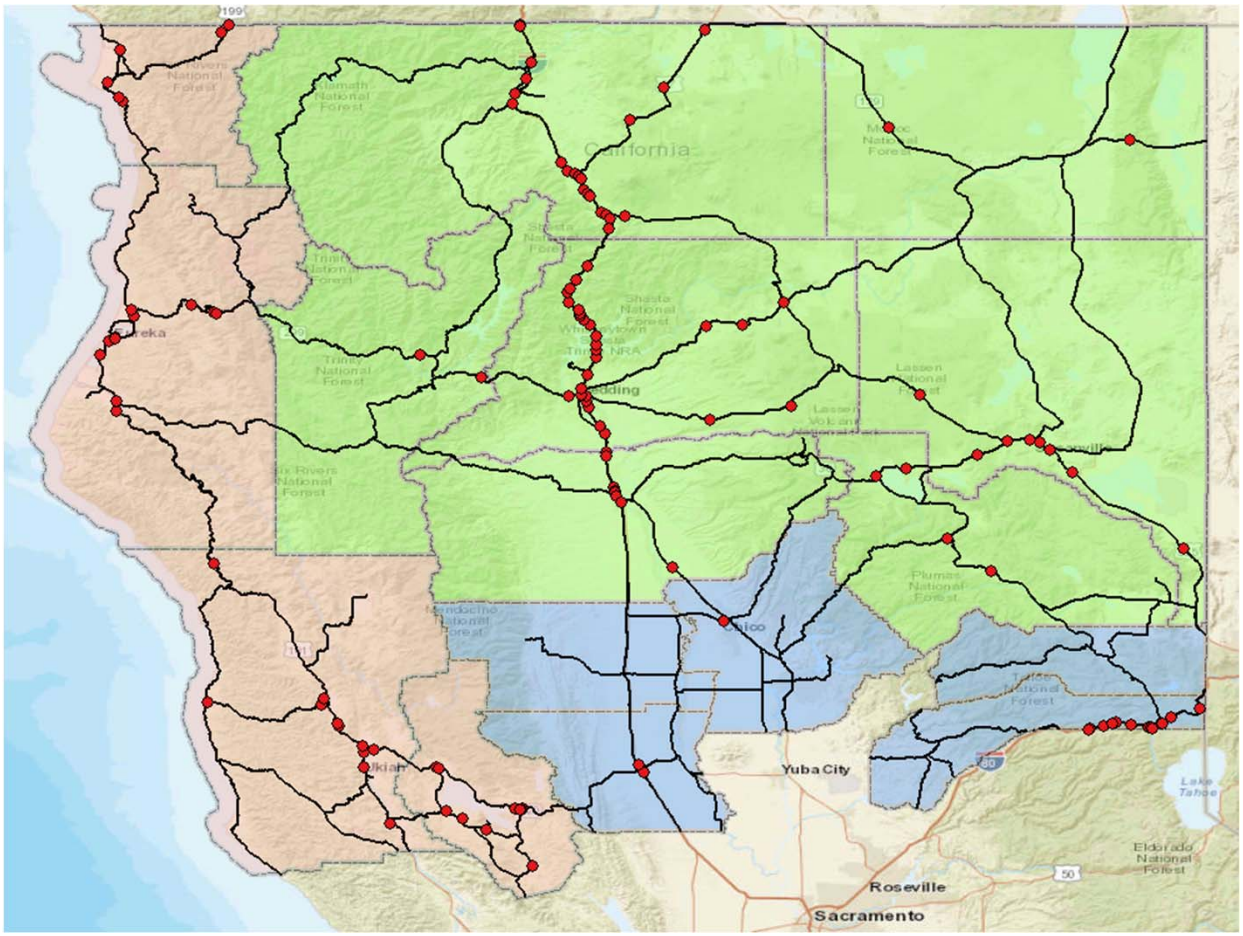
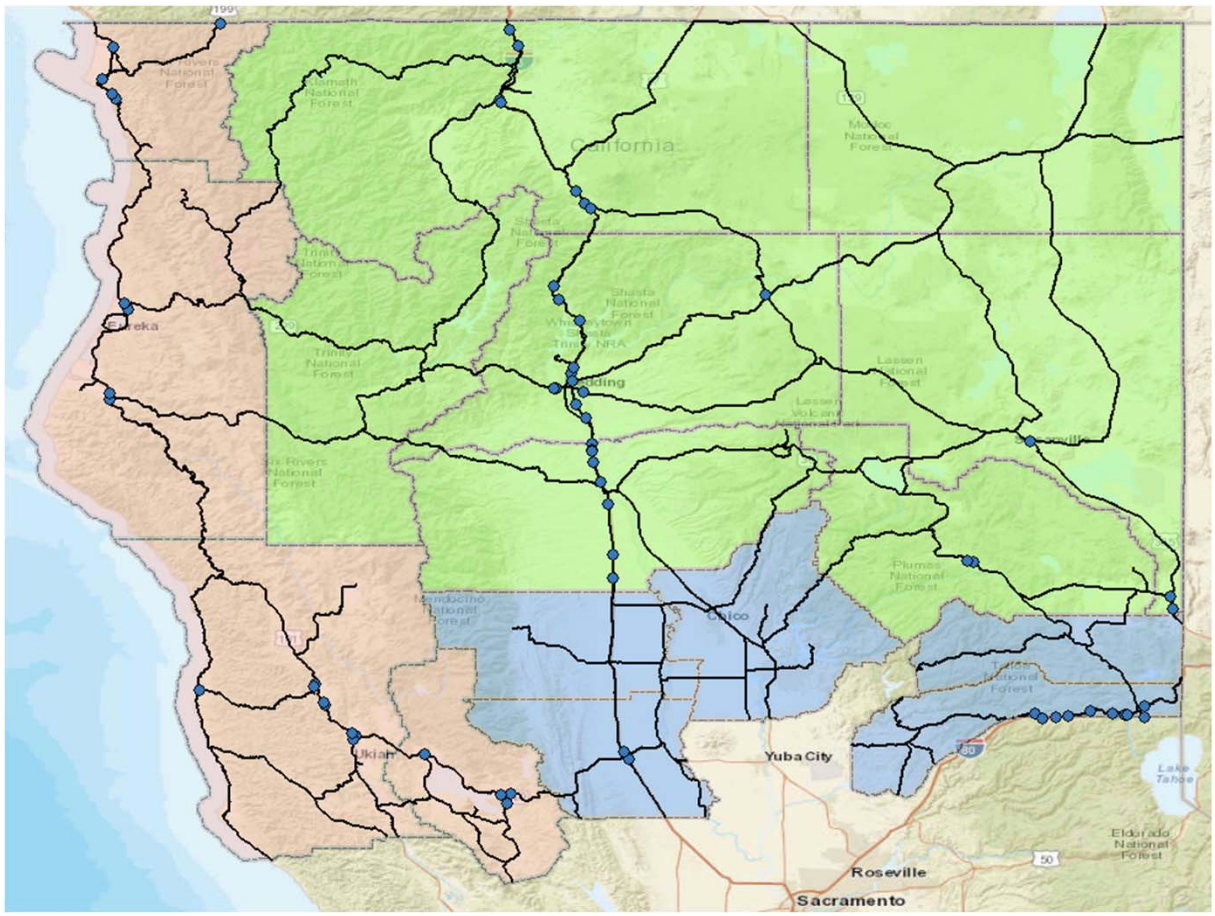
Existing ITS Inventory

Close Circuit Television (CCTV)



Existing ITS Inventory

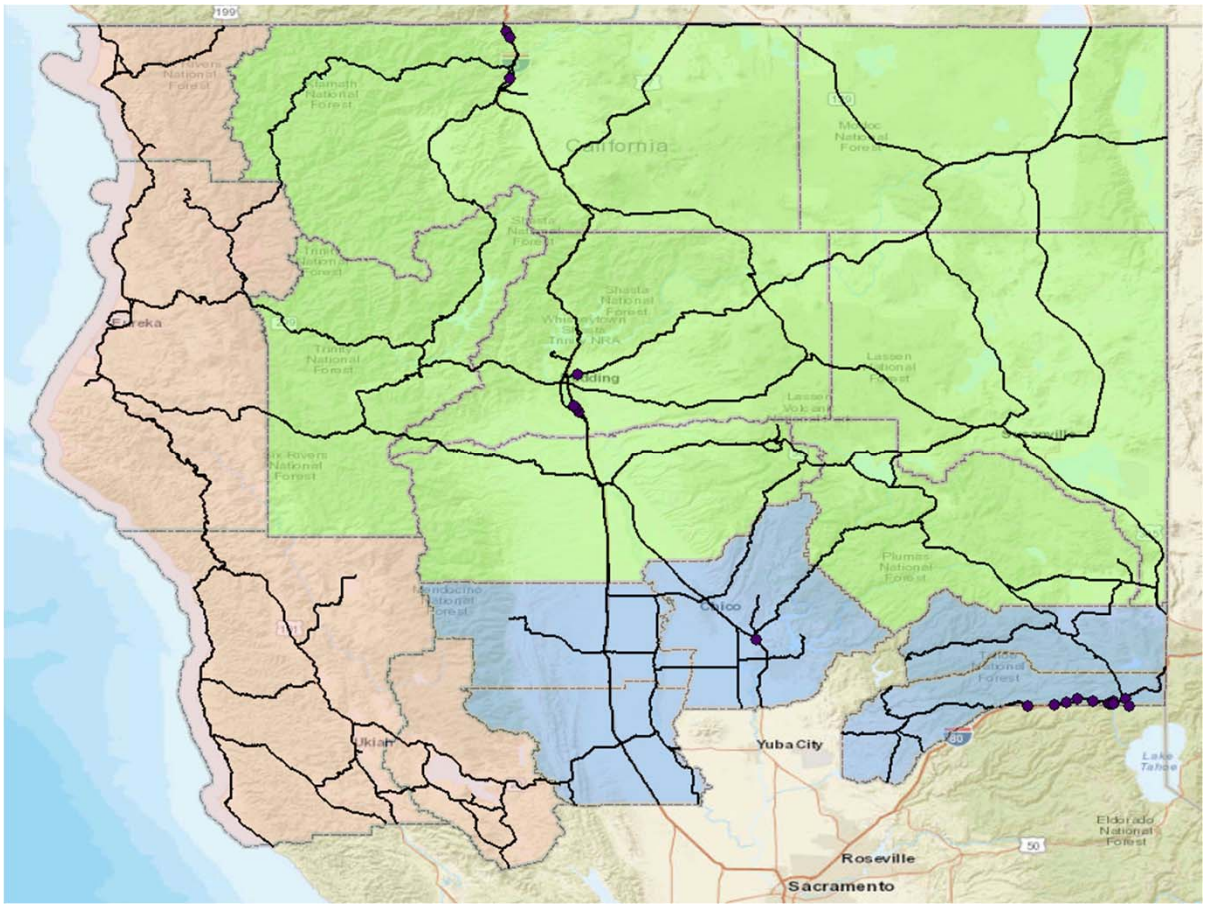
Changeable Message Signs (CMS)



Existing ITS Inventory

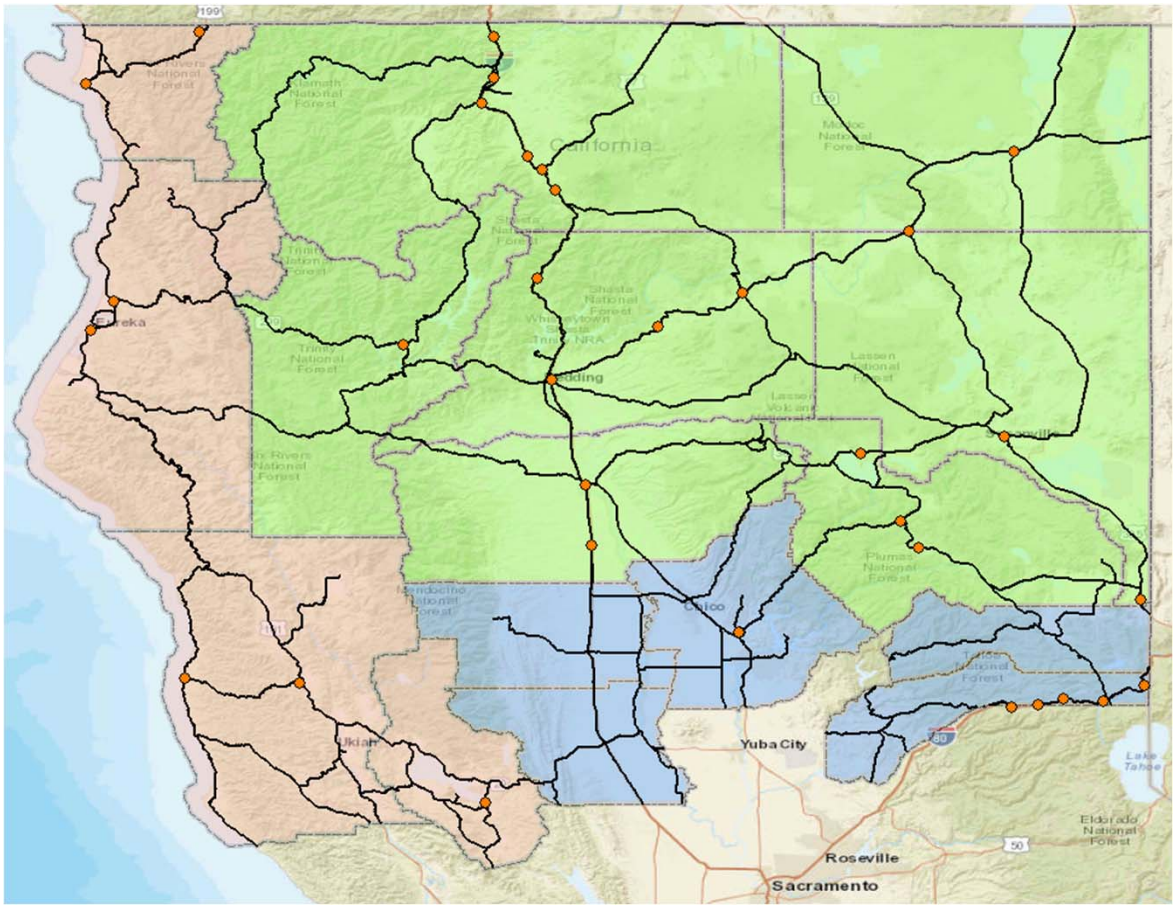
Detection Systems:

Bluetooth Readers, Vehicle Detectors, Traffic Monitoring Stations



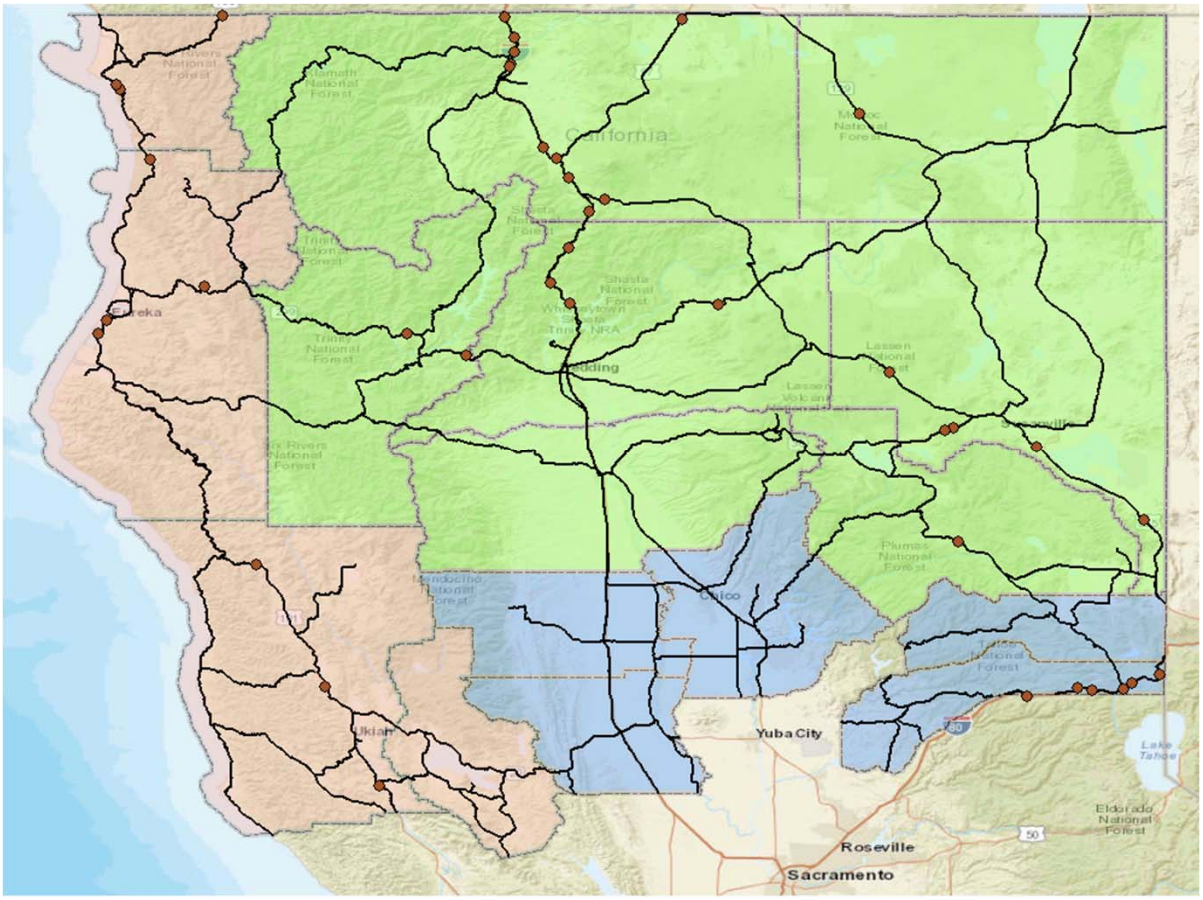
Existing ITS Inventory

Highway Advisory Radio (HAR) Beacons



Existing ITS Inventory

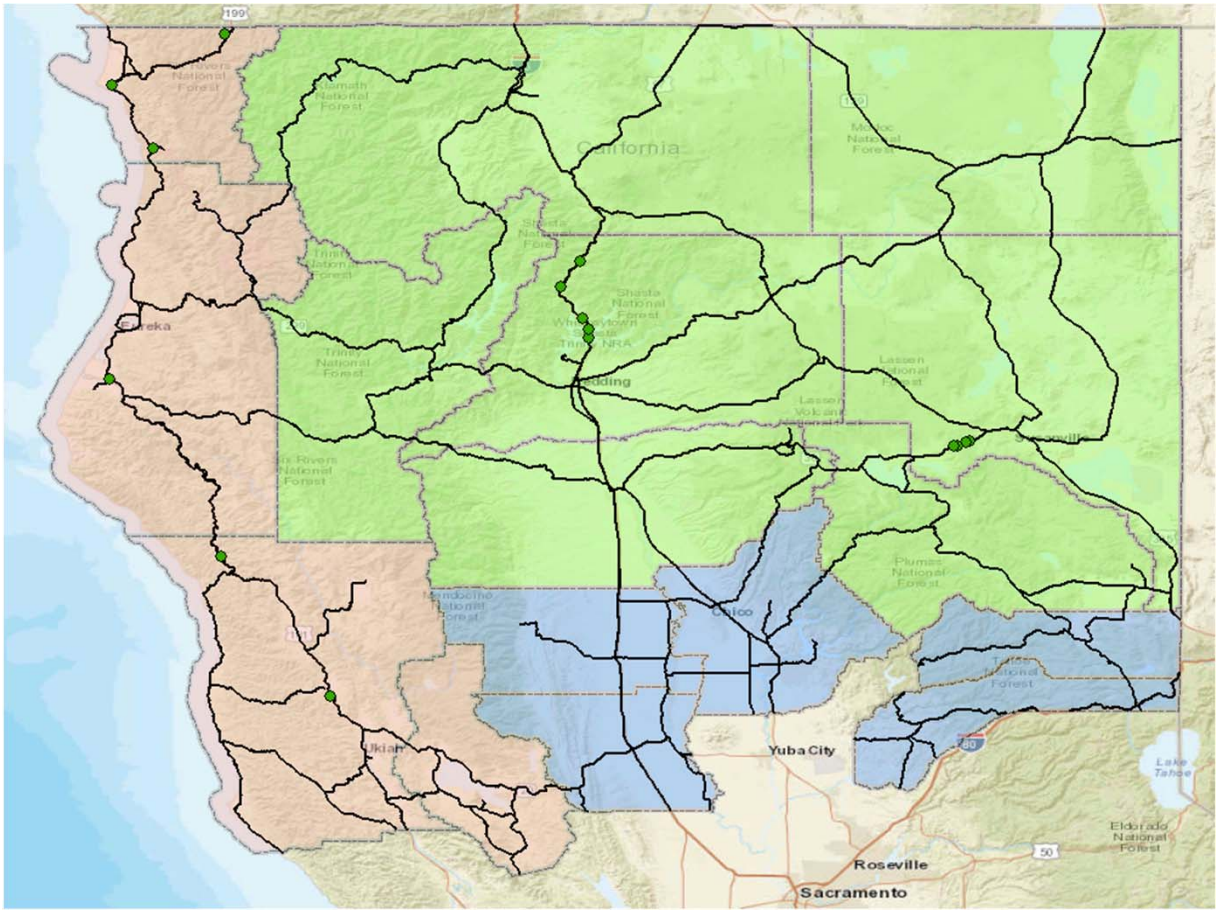
Ramp Weather Information System (RWIS)



Existing ITS Inventory

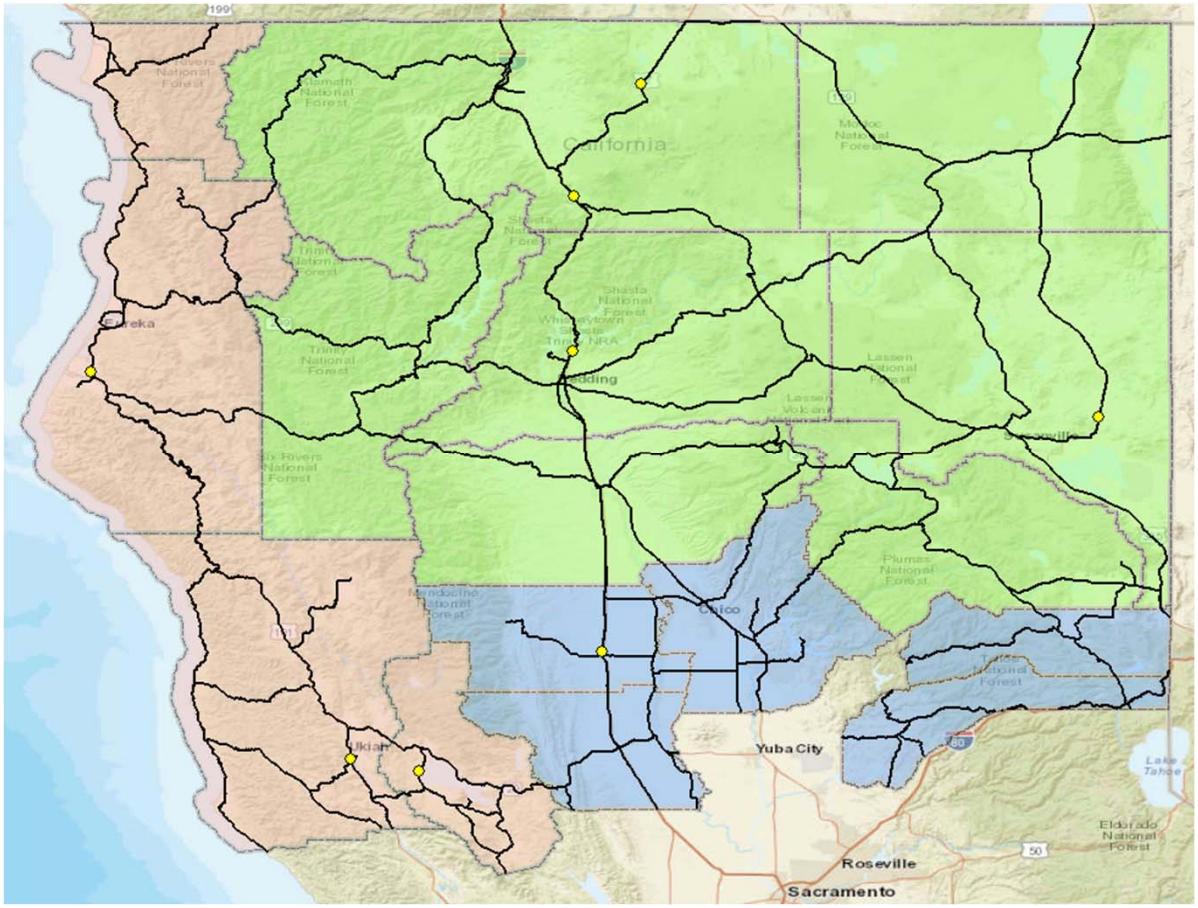
Safety Warning Systems:

Bike in Tunnel, Curve Warning, Vehicle Presence



Existing ITS Inventory

Weight-in-Motion Systems



Appendix B2: Existing Caltrans Traffic Signals

Agency	District	County	Route	Postmile	Notes	Connected to TSMSS
Caltrans	1	Mendocino	SR 1	50.80	Little Lake Rd (Mendocino)	
Caltrans	1	Mendocino	SR 1	59.80	Jct. Rte 20/1 (Ft Bragg)	
Caltrans	1	Mendocino	SR 1	59.99	Oceanview Dr (Ft Bragg)	
Caltrans	1	Mendocino	SR 1	60.68	Cypress Ave (Ft Bragg)	
Caltrans	1	Mendocino	SR 1	60.93	Chestnut St (Ft Bragg)	
Caltrans	1	Mendocino	SR 1	61.30	Oak St (Ft Bragg)	
Caltrans	1	Mendocino	SR 1	61.47	Redwood Ave (Ft Bragg)	
Caltrans	1	Mendocino	SR 1	61.56	Laurel St (Ft Bragg)	
Caltrans	1	Mendocino	SR 1	62.00	Elm St (Ft Bragg)	
Caltrans	1	Humboldt	SR 255	8.35	K St (Arcata)	
Caltrans	1	Humboldt	SR 255	8.53	H St (Arcata)	
Caltrans	1	Humboldt	SR 255	8.58	G St (Arcata)	
Caltrans	1	Lake	SR 29	5.81	Jct. Rte 175/29 (Middletown)	
Caltrans	1	Lake	SR 29	5.98	Wardlaw St (Middletown)	
Caltrans	1	Lake	SR 29	20.31	Jct. Rte 53/29 (Lower Lake)	
Caltrans	1	Lake	SR 29	27.90	Jct. Rte 281/29 (Soda Bay Rd)	
Caltrans	1	Lake	SR 29	34.75	Live Oak Dr (Kelseyville)	
Caltrans	1	Lake	SR 29	38.60	Highland Springs Rd (Lakeport)	
Caltrans	1	Lake	SR 29	40.14	Jct. Rte 175/29 (Lakeport)	
Caltrans	1	Lake	SR 53	1.47	Dam Rd	
Caltrans	1	Lake	SR 53	1.99	18th St	
Caltrans	1	Lake	SR 53	2.96	Lakeshore Dr / 40th Ave (Clear Lake)	
Caltrans	1	Lake	SR 53	3.92	Olympic	
Caltrans	1	Del Norte	US-101	25.84	Elk Valley Rd (Crescent City)	
Caltrans	1	Del Norte	US-101	26.27	Front & L (101 SB)	
Caltrans	1	Del Norte	US-101	26.42	5th & M (101 Nb)	
Caltrans	1	Del Norte	US-101	26.50	5th & L (101 Sb)	
Caltrans	1	Del Norte	US-101	26.72	9th & L (101 Sb)	
Caltrans	1	Del Norte	US-101	26.90	Cooper Ave (Crescent City)	
Caltrans	1	Del Norte	US-101	27.01	Northcrest Dr (Crescent City)	
Caltrans	1	Mendocino	US-101	45.39	Evergreen Shopping Center (Willits)	
Caltrans	1	Mendocino	US-101	45.95	Holly St (Willits)	
Caltrans	1	Mendocino	US-101	46.36	Jct. Rte 20/101 (Willits)	
Caltrans	1	Mendocino	US-101	46.99	Commercial St (Willits)	
Caltrans	1	Mendocino	US-101	47.24	Sherwood Rd (Willits)	

Agency	District	County	Route	Postmile	Notes	Connected to TSMSS
Caltrans	1	Humboldt	US-101	75.24	K - Mart Ent (Eureka)	
Caltrans	1	Humboldt	US-101	75.54	Piersons Ent	
Caltrans	1	Humboldt	US-101	75.91	Mccullens Ave	
Caltrans	1	Humboldt	US-101	76.08	Bayshore South Ent	
Caltrans	1	Humboldt	US-101	76.30	Bayshore North Ent	
Caltrans	1	Humboldt	US-101	76.65	Henderson St	
Caltrans	1	Humboldt	US-101	77.30	Wabash Ave	
Caltrans	1	Humboldt	US-101	77.49	14th St	
Caltrans	1	Humboldt	US-101	77.80	Washington St	
Caltrans	1	Humboldt	US-101	77.90	6th St	
Caltrans	1	Humboldt	US-101	78.44	4th & E	
Caltrans	1	Humboldt	US-101	78.45	5th & E	
Caltrans	1	Humboldt	US-101	78.50	4th & F	
Caltrans	1	Humboldt	US-101	78.51	5th & F	
Caltrans	1	Humboldt	US-101	78.56	4th & G	
Caltrans	1	Humboldt	US-101	78.56	5th & G	
Caltrans	1	Humboldt	US-101	78.61	4TH & H	
Caltrans	1	Humboldt	US-101	78.63	5TH & H	
Caltrans	1	Humboldt	US-101	78.68	4th & I	
Caltrans	1	Humboldt	US-101	78.68	5th & I	
Caltrans	1	Humboldt	US-101	78.73	4th & J	
Caltrans	1	Humboldt	US-101	78.75	5th & J	
Caltrans	1	Humboldt	US-101	78.86	5th & L	
Caltrans	1	Humboldt	US-101	79.17	4th & R	
Caltrans	1	Humboldt	US-101	79.17	5th & R	
Caltrans	1	Humboldt	US-101	79.40	4th & V	
Caltrans	1	Humboldt	US-101	79.40	5th & V	
Caltrans	2	Shasta	I-5	1.10	Cottonwood	
Caltrans	2	Shasta	I-5	1.11	Cottonwood	
Caltrans	2	Shasta	I-5	4.29	Anderson	
Caltrans	2	Shasta	I-5	5.30	Anderson	
Caltrans	2	Shasta	I-5	5.30	Anderson	
Caltrans	2	Tehama	I-5	7.48	Corning	
Caltrans	2	Tehama	I-5	7.49	Corning	
Caltrans	2	Shasta	I-5	12.16	Redding	
Caltrans	2	Shasta	I-5	12.17	Redding	
Caltrans	2	Shasta	I-5	14.46	Redding	
Caltrans	2	Shasta	I-5	14.47	Redding	
Caltrans	2	Shasta	I-5	15.50	Redding	

Agency	District	County	Route	Postmile	Notes	Connected to TSMSS
Caltrans	2	Shasta	I-5	17.25	Redding	
Caltrans	2	Shasta	I-5	17.32	Redding	
Caltrans	2	Shasta	I-5	19.66	Redding	
Caltrans	2	Shasta	I-5	19.67	Redding	
Caltrans	2	Tehama	I-5	24.70	Red Bluff	
Caltrans	2	Tehama	I-5	24.87	Red Bluff	
Caltrans	2	Tehama	I-5	26.32	Red Bluff	X
Caltrans	2	Tehama	I-5	26.71	Red Bluff	X
Caltrans	2	Tehama	I-5	27.40	Red Bluff	
Caltrans	2	Tehama	I-5	27.50	Red Bluff	
Caltrans	2	Lassen	SR 139	1.14	Susanville	
Caltrans	2	Shasta	SR 151	6.79	Shasta Lake	
Caltrans	2	Shasta	SR 151	6.87	Shasta Lake	
Caltrans	2	Shasta	SR 273	4.12	Anderson	
Caltrans	2	Shasta	SR 273	4.30	Anderson	
Caltrans	2	Shasta	SR 273	4.45	Anderson	
Caltrans	2	Shasta	SR 273	4.92	Anderson	
Caltrans	2	Shasta	SR 273	5.21	Anderson	
Caltrans	2	Shasta	SR 273	5.44	Anderson	
Caltrans	2	Shasta	SR 273	5.83	Anderson	
Caltrans	2	Shasta	SR 273	6.40	Anderson	
Caltrans	2	Shasta	SR 273	6.90	Anderson	
Caltrans	2	Shasta	SR 273	7.07	Anderson	
Caltrans	2	Shasta	SR 273	9.90	Anderson	
Caltrans	2	Shasta	SR 273	11.09	Redding	
Caltrans	2	Shasta	SR 273	11.57	Redding	
Caltrans	2	Shasta	SR 273	11.83	Redding	
Caltrans	2	Shasta	SR 273	12.27	Redding	
Caltrans	2	Shasta	SR 273	12.68	Redding	
Caltrans	2	Shasta	SR 273	14.18	Redding	
Caltrans	2	Shasta	SR 273	14.48	Redding	
Caltrans	2	Shasta	SR 273	14.96	Redding	
Caltrans	2	Shasta	SR 273	15.16	Redding	
Caltrans	2	Shasta	SR 273	15.40	Redding	
Caltrans	2	Shasta	SR 273	15.66	Redding	
Caltrans	2	Shasta	SR 273	15.97	Redding	
Caltrans	2	Shasta	SR 273	16.26	Redding	
Caltrans	2	Shasta	SR 273	16.32	Redding	
Caltrans	2	Shasta	SR 273	16.36	Redding	

Agency	District	County	Route	Postmile	Notes	Connected to TSMSS
Caltrans	2	Shasta	SR 273	16.40	Redding	
Caltrans	2	Shasta	SR 273	16.43	Redding	
Caltrans	2	Shasta	SR 273	16.44	Redding	
Caltrans	2	Shasta	SR 273	16.50	Redding	
Caltrans	2	Shasta	SR 273	16.54	Redding	
Caltrans	2	Shasta	SR 273	16.58	Redding	
Caltrans	2	Shasta	SR 273	16.59	Redding	
Caltrans	2	Shasta	SR 273	16.73	Redding	
Caltrans	2	Shasta	SR 273	16.91	Redding	
Caltrans	2	Shasta	SR 273	17.03	Redding	
Caltrans	2	Shasta	SR 273	17.39	Redding	
Caltrans	2	Shasta	SR 273	17.56	Redding	
Caltrans	2	Shasta	SR 273	17.80	Redding	
Caltrans	2	Shasta	SR 273	18.62	Redding	
Caltrans	2	Shasta	SR 273	18.80	Redding	
Caltrans	2	Shasta	SR 273	19.77	Redding	
Caltrans	2	Shasta	SR 299	22.23	Redding	
Caltrans	2	Shasta	SR 299	23.24	Redding	
Caltrans	2	Shasta	SR 299	23.46	Redding	
Caltrans	2	Shasta	SR 299	23.65	Redding	
Caltrans	2	Shasta	SR 299	23.82	Redding	
Caltrans	2	Shasta	SR 299	23.97	Redding	
Caltrans	2	Shasta	SR 299	24.24	Redding	
Caltrans	2	Shasta	SR 299	24.39	Redding	
Caltrans	2	Shasta	SR 299	24.45	Redding	
Caltrans	2	Shasta	SR 299	25.54	Redding	
Caltrans	2	Shasta	SR 299	27.22	Redding	
Caltrans	2	Shasta	SR 299	31.47	Redding	
Caltrans	2	Shasta	SR 299	75.27	Burney	
Caltrans	2	Shasta	SR 299	75.47	Burney	
Caltrans	2	Lassen	SR 36	24.86	Susanville	
Caltrans	2	Lassen	SR 36	25.01	Susanville	
Caltrans	2	Lassen	SR 36	25.16	Susanville	
Caltrans	2	Lassen	SR 36	25.28	Susanville	
Caltrans	2	Lassen	SR 36	25.36	Susanville	
Caltrans	2	Lassen	SR 36	25.76	Susanville	
Caltrans	2	Lassen	SR 36	26.22	Susanville	
Caltrans	2	Lassen	SR 36	26.51	Susanville	
Caltrans	2	Tehama	SR 36	40.00	Red Bluff	

Agency	District	County	Route	Postmile	Notes	Connected to TSMSS
Caltrans	2	Tehama	SR 36	40.31	Red Bluff	
Caltrans	2	Tehama	SR 36	41.00	Red Bluff	
Caltrans	2	Tehama	SR 36	41.15	Red Bluff	
Caltrans	2	Tehama	SR 36	41.29	Red Bluff	
Caltrans	2	Tehama	SR 36	41.67	Red Bluff - at Gilmore/Belle Mill Rd	X
Caltrans	2	Tehama	SR 36	42.18	Red Bluff - at Sale Lane	X
Caltrans	2	Tehama	SR 36	42.79	Red Bluff	
Caltrans	2	Siskiyou	SR 36	47.26	Yreka	
Caltrans	2	Siskiyou	SR 36	47.60	Yreka	
Caltrans	2	Siskiyou	SR 36	48.16	Yreka	
Caltrans	2	Siskiyou	SR 36	49.24	Yreka	
Caltrans	2	Shasta	SR 44	0.000	Redding	
Caltrans	2	Shasta	SR 44	0.10	Redding	
Caltrans	2	Shasta	SR 44	0.14	Redding	
Caltrans	2	Shasta	SR 44	0.16	Redding	
Caltrans	2	Shasta	SR 44	0.17	Redding	
Caltrans	2	Shasta	SR 44	0.24	Redding	
Caltrans	2	Shasta	SR 44	0.24	Redding	
Caltrans	2	Shasta	SR 44	0.32	Redding	
Caltrans	2	Shasta	SR 44	0.67	Redding	
Caltrans	2	Shasta	SR 44	0.85	Redding - WB Off at Sundial Bridge Drive	X
Caltrans	2	Shasta	SR 44	0.96	Redding - EB Off at Park Marina Drive	X
Caltrans	2	Shasta	SR 44	1.23	Redding	
Caltrans	2	Shasta	SR 44	1.25	Redding	
Caltrans	2	Shasta	SR 44	1.32	Redding	
Caltrans	2	Shasta	SR 44	2.1	Redding	
Caltrans	2	Shasta	SR 44	3.44	Redding	
Caltrans	2	Plumas	SR 70	43.79	Quincy	
Caltrans	2	Plumas	SR 70	45.59	Quincy	
Caltrans	2	Plumas	SR 70	75.96	Portola	
Caltrans	2	Tehama	SR 99	12.30	Los Molinos	
Caltrans	2	Lassen	US-395	61.58	Susanville	
Caltrans	2	Siskiyou	US-97	0.31	Weed	
Caltrans	2	Siskiyou	US-97	0.43	Weed	
Caltrans	3	Colusa	020/045	31.09		
Caltrans	3	Glenn	032/45	9.23		
Caltrans	3	Butte	070/191	21.87		
Caltrans	3	Glenn	162/5	65.50		

Agency	District	County	Route	Postmile	Notes	Connected to TSMSS
Caltrans	3	Glenn	162/5	65.63		
Caltrans	3	Nevada	I-80	15.84		
Caltrans	3	Nevada	I-80	16.80		
Caltrans	3	Nevada	I-80	16.81		
Caltrans	3	Nevada	I-80	16.81		
Caltrans	3	Butte	SR 162	16.02		
Caltrans	3	Butte	SR 162	16.39		
Caltrans	3	Butte	SR 162	16.68		
Caltrans	3	Butte	SR 162	17.14		
Caltrans	3	Butte	SR 162	17.30		
Caltrans	3	Butte	SR 162	17.55		
Caltrans	3	Butte	SR 162	17.81		
Caltrans	3	Butte	SR 162	17.82		
Caltrans	3	Butte	SR 162	18.00		
Caltrans	3	Butte	SR 162	18.46		
Caltrans	3	Butte	SR 162	20.13		
Caltrans	3	Butte	SR 162	22.90	Kelley Ridge	X
Caltrans	3	Glenn	SR 162	65.33		
Caltrans	3	Glenn	SR 162	65.66		
Caltrans	3	Glenn	SR 162	66.15		
Caltrans	3	Glenn	SR 162	66.63		
Caltrans	3	Butte	SR 191	11.39		
Caltrans	3	Nevada	SR 20	4.66		
Caltrans	3	Nevada	SR 20	6.70		
Caltrans	3	Nevada	SR 20	12.28		
Caltrans	3	Nevada	SR 20	12.90		
Caltrans	3	Nevada	SR 20	14.30		
Caltrans	3	Nevada	SR 20	14.77		
Caltrans	3	Nevada	SR 20	14.78		
Caltrans	3	Nevada	SR 20	14.79		
Caltrans	3	Nevada	SR 20	14.80		
Caltrans	3	Nevada	SR 20	14.81		
Caltrans	3	Colusa	SR 20	32.44		
Caltrans	3	Nevada	SR 267	0.20		
Caltrans	3	Glenn	SR 32	0.35		
Caltrans	3	Glenn	SR 32	0.39		
Caltrans	3	Glenn	SR 32	0.40		
Caltrans	3	Glenn	SR 32	0.55		
Caltrans	3	Glenn	SR 32	1.02		

Agency	District	County	Route	Postmile	Notes	Connected to TSMSS
Caltrans	3	Glenn	SR 32	1.02		
Caltrans	3	Butte	SR 32	6.23		
Caltrans	3	Butte	SR 32	7.09		
Caltrans	3	Butte	SR 32	7.70		
Caltrans	3	Butte	SR 32	7.71		
Caltrans	3	Butte	SR 32	7.79		
Caltrans	3	Butte	SR 32	8.43		
Caltrans	3	Butte	SR 32	8.49		
Caltrans	3	Butte	SR 32	8.50		
Caltrans	3	Butte	SR 32	8.62		
Caltrans	3	Butte	SR 32	9.13		
Caltrans	3	Butte	SR 32	9.17		
Caltrans	3	Butte	SR 32	9.40		
Caltrans	3	Butte	SR 32	9.41		
Caltrans	3	Butte	SR 32	9.44		
Caltrans	3	Butte	SR 32	9.45		
Caltrans	3	Butte	SR 32	9.46		
Caltrans	3	Butte	SR 32	9.46		
Caltrans	3	Butte	SR 32	9.50		
Caltrans	3	Butte	SR 32	9.51		
Caltrans	3	Butte	SR 32	9.57		
Caltrans	3	Butte	SR 32	9.58		
Caltrans	3	Butte	SR 32	10.15		
Caltrans	3	Butte	SR 32	10.16		
Caltrans	3	Butte	SR 32	11.01		
Caltrans	3	Butte	SR 32	11.02		
Caltrans	3	Butte	SR 32	11.27		
Caltrans	3	Butte	SR 32	11.28		
Caltrans	3	Butte	SR 32	11.70		
Caltrans	3	Nevada	SR 49	2.19		
Caltrans	3	Nevada	SR 49	7.17		
Caltrans	3	Nevada	SR 49	9.15		
Caltrans	3	Nevada	SR 49	10.55		
Caltrans	3	Nevada	SR 49	13.66		
Caltrans	3	Nevada	SR 49	15.39		
Caltrans	3	Butte	SR 70	4.06	E. Gridley	X
Caltrans	3	Butte	SR 70	11.60		
Caltrans	3	Butte	SR 70	12.50		
Caltrans	3	Butte	SR 70	13.90		

Agency	District	County	Route	Postmile	Notes	Connected to TSMSS
Caltrans	3	Nevada	SR 89	0.34		
Caltrans	3	Nevada	SR 89	0.35		
Caltrans	3	Nevada	SR 89	1.15		
Caltrans	3	Butte	SR 99	4.13	Magnolia	X
Caltrans	3	Butte	SR 99	4.24	Sycamore	X
Caltrans	3	Butte	SR 99	4.24	(master)	X
Caltrans	3	Butte	SR 99	4.30	Hazel	X
Caltrans	3	Butte	SR 99	4.39	Spruce	X
Caltrans	3	Butte	SR 99	7.69		
Caltrans	3	Butte	SR 99	13.16		
Caltrans	3	Butte	SR 99	24.12		
Caltrans	3	Butte	SR 99	24.14		
Caltrans	3	Butte	SR 99	26.04		
Caltrans	3	Butte	SR 99	28.36		
Caltrans	3	Butte	SR 99	29.37		
Caltrans	3	Butte	SR 99	30.58		
Caltrans	3	Butte	SR 99	30.60		
Caltrans	3	Butte	SR 99	31.48		
Caltrans	3	Butte	SR 99	31.49		
Caltrans	3	Butte	SR 99	31.50		
Caltrans	3	Butte	SR 99	33.28		
Caltrans	3	Butte	SR 99	34.22		
Caltrans	3	Butte	SR 99	34.23		
Caltrans	3	Butte	SR 99	34.24		
Caltrans	3	Butte	SR 99	34.25		
Caltrans	3	Butte	SR 99	34.26		
Caltrans	3	Butte	SR 99	34.92		
Caltrans	3	Butte	SR 99	34.93		X
Caltrans	3	Butte	SR 99	37.77		X

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APPENDIX C
GOST MATRIX

Appendix C: ITS Goals-Objectives-Strategies-Tactics (GOST) Table

Goals	Objectives	Strategies	Tactics
Goal 1. Provide accurate, timely and reliable traveler Information	Accurately, timely, and reliable predicted road and transit information to travelers planning a trip	Collect timely and accurate data on existing conditions	• CCTV • RWIS • Traffic detection • Transit vehicle tracking/AVL
		Provide accurate, timely, and reliable information to road travelers	• CMS • HAR • Website • Data portal • Phone system • Reverse 911 notification system • Mobile App • Portable CMS
	Accurately, timely, and reliable predicted road and transit information to travelers en route	Provide accurate, timely, and reliable information to transit travelers	• Website • Data portal • Phone system • Reverse 911 notification system • Mobile App
		Establish platform for data warehousing and exchange (Data warehousing and)	• Data warehouse • Data portal • Performance measurement and reporting system • Sharing protocols and procedures

Goals	Objectives	Strategies	Tactics
Goal 2. Improve highway incident management	Detect and report incidents in a timely fashion	Collect timely and accurate data on existing conditions/Timely detection of incidents	• CCTV • Traffic detection • RWIS • 3rd party data • Advanced 1st responder reporting systems
	Improve operators' situational awareness		• Advanced 1st responder reporting systems • Post-incident review
	Respond quickly and effectively	Respond to incidents with appropriate emergency services and maintenance	• CCTV • Communication network upgrades • Maintenance vehicle dispatch • Maintenance vehicle AVL • Advanced 1st responder reporting systems
	Communication Systems for all operators and responders	Ensure good communications (data and voice)	• Communication upgrades
Goal 3. Improve emergency management	Coordinate highway system operators with emergency services	Include highway operations and maintenance in all emergency planning	• Emergency response procedures and protocols • Advanced 1st responder reporting systems
	Increase efficiency of emergency evacuations	Maximize capacity of emergency evacuation routes	• CMS and traffic controls to facilitate reverse running on high-capacity emergency routes
	Facilitate movement of emergency services personnel and equipment	Facilitate emergency vehicle response	• Communications upgrades • Emergency vehicle preemption

Goals	Objectives	Strategies	Tactics
Goal 3. Improve emergency management (con't)		Ensure good communications	• Communications upgrades
		Provide info to travelling public	• HAR • CMS
Goal 4. Improve safety on roadway system	Reduce collisions for all modes on road system	Reduce risk through relevant driver information	• Advanced safety warning systems • Active devices at unsignalized intersections • CMS • HAR • Connected vehicle technology • Infrastructure enhancements for AVs
		Reduce collision risks at signals	• Advanced safety warning systems • CMS • Advanced signal operation/equipment • Connected vehicle technology • Infrastructure enhancements for AVs
		Monitor network for adverse conditions, incidents	• CCTV • RWIS • Traffic detection
	Improve accommodation of bicycles, pedestrians, transit, and commercial vehicles	Accommodate all modes better at signals	• Automated safety warning systems • Advanced signal operation/equipment

Goals	Objectives	Strategies	Tactics
Goal 5. Improve highway freight operations	Reduce delays to freight	Speed up commercial vehicle inspections	• WIM (expand) • Automated freight documentation system
		Improve truck operations at traffic signals	• Connected vehicle technology • Modify traffic signal operation to reduce truck operating costs
	Support autonomous and connected trucks	Provide AV/CV infrastructure	• Connected vehicle technology • Infrastructure enhancements for AVs
	Support electric trucks	Provide EV charging infrastructure	• EV charging stations at rest areas
Goal 6. Improve roadway maintenance	Improve winter maintenance activities	Monitor weather conditions	• RWIS • CCTV • On-vehicle weather condition sensors • 3rd party data resources (e.g. forecasting services)
		Automate winter maintenance activities	• Vehicle guidance systems • Infrastructure enhancements for AVs • On-vehicle sensors for deploying chemicals
	Improve efficiency and safety in work zones	Automate speed limits, traffic controls, and enforcement in work zones	• Construction area ATMS/ITS trailers • CCTV • Vehicle safety systems

Goals	Objectives	Strategies	Tactics
Goal 6. Improve roadway maintenance (cont.)	Improve pavement and bridge conditions assessment	Automated monitoring of pavement conditions	• Automated pavement and marking data collection (on-vehicle instrumentation/ detectors)
	Achieve high reliability of ITS equipment	Continuously monitor bridge parameters	• Bridge monitoring systems – bridge condition instrumentation/detectors
		Continuously monitor all ITS devices' health and performance	• Automated asset management tool
		Monitor roadway integrity	• Slide monitoring/ detection • Flood monitoring/ detection
	Improve maintenance vehicle fleet management	Monitor vehicle location	• AVL
		Monitor vehicle conditions	• Vehicle diagnostic system
Goal 7. Improve transit operations	Improve speed, reliability, and convenience of transit	Reduce transit vehicles delays	• Transit signal priority • Transit AVL • Transit management center
		Provide fare payment options	• Advanced fare payment
		Provide/improve real time information to transit riders	• Real-time transit information systems • Transit AVL

Goals	Objectives	Strategies	Tactics
Goal 7. Improve transit operations (cont.)	Improve on-board and off-board safety and security	Monitor on-board conditions	• In-vehicle CCTV • Radio on buses
		Reduce collision risks	• Bus safety/crash avoidance systems
	Detect and respond quickly to transit incidents	Collect timely and accurate data on existing conditions	• In-vehicle CCTV • Radio on buses • Transit management center
	Improve coordination of multi-agency transit services	Modern, multi-agency electronic fare payment	• Advanced fare payment
		Coordinate bus arrivals and departures	• Transit AVL • Transit management center • Inter-operator communication and coordination
	Improve transit fleet management	Monitor bus status	• Transit AVL • Automated passenger counting system • Vehicle diagnostic systems • Transit management center
Goal 8. Enhance transportation planning	Provide comprehensive data required by the transportation planning process	Collect transportation system performance and operations data	• Traffic detection • Advanced signal operation/equipment • Travel time monitoring (e.g. BTR) • 3rd party data • Archive data management

Goals	Objectives	Strategies	Tactics
Goal 8. Enhance transportation planning (cont.)	Measure performance of transportation network in terms matching transportation planning objectives	Measure point-to-point travel times	• Travel time monitoring • 3rd party data • System performance measurement and reporting
		Measure traffic volumes on all important road network segments	• Advanced signal operation/equipment • Traffic detection • System performance measurement and reporting
		Measure bicycle traffic at traffic signals	• Advanced signal operation/equipment • System performance measurement and reporting
		Measure speeds	• Travel time monitoring (e.g. BTR) • 3rd party data • System performance measurement and reporting
		Measure bus passengers on all significant routes	• Automated passenger counting system
	Ensure conformance with federal ITS architecture requirements	Update and coordinate ITS Architectures regularly	• Regional architecture
	Support data needs for tracking and reporting progress towards federal and statewide performance measure targets	Archive in data warehouse	• Data warehouse • System performance measurement and reporting

Goals	Objectives	Strategies	Tactics
Goal 9. Reduce variability of delays at intersections	Minimize delays at signalized intersections	Regularly review and re-optimize signal timing	• Advance signal operation/equipment
		Adjust signal timing in response to real-time traffic conditions	• Advance signal operation/equipment • Traffic detection
		Monitor/record signal heath and performance 24/7	• Advance signal operation/equipment
	Improve operations at unsignalized intersections	Measure traffic performance	• Traffic detection • Queue detection
		Active driver-assistance at safety-critical intersections	• Advanced safety warning systems
	Provide timely and reliable information to operators	Measure actual travel times to quantify delays	• Traffic detection • Travel time monitoring (e.g. BTR) • 3rd party data • System performance measurement and reporting • Communication upgrades • TMC
		Connect Caltrans signals to TSMSS server per Traffic Signal Operations Business Plan	• Communication upgrades • TMC

APPENDIX D
TACTIC DESCRIPTIONS

Appendix D: Tactic Descriptions

ID	Tactic	Description
A. Transportation Network Monitoring		
A1	CCTV Cameras	Cameras allow TMC operators to visually monitor and verify conditions, and to verify operation of other equipment (e.g. CMS messages, signals). This multi-functionality provides high cost-effectiveness compared to other, more focused monitoring devices such as detector stations. This tactic encompasses new CCTV camera installations, as well as enhancements to existing installations (e.g. camera upgrades, lighting for better night-time visibility).
A2	Roadway Weather Information Systems (RWIS) Stations	RWIS stations allow TMC operators and maintenance personnel to know what weather conditions the roadway is experiencing. RWIS stations can record a wide variety of environmental data, such as visibility, wind speed, surface elevation of water bodies near the roadway, and whether or not there is ice, snow, or water on the roadway, among other metrics. These stations support maintenance operations by providing information on roadway and environmental conditions that could affect maintenance deployment and scheduling. They also support traveler functions by combining with traveler information systems to warn drivers of hazardous environmental conditions. In addition to the deployment of new RWIS stations, this tactic includes expanding or enhancing capabilities at existing locations with more sensitive detection, faster refresh rates, and/or new types of detection.
A3	3rd Party travel information resources	This tactic involves the use of 3rd party or private travel information services as a supplement or alternative to agency-based monitoring and data collection. It may include simply checking website or mobile app to check current conditions, or may involve agreements for access to data for both traffic management and planning activities. For traffic management, data may include travel times and speeds, which help to identify congestion and incidents. For planning, similar data can possibly be coupled with OD patterns to help to identify recurring congestion patterns, where improvements are warranted. Examples of 3rd party/private sector providers of travel information include Google, INRIX, and WAZE. This tactic also includes the use of weather forecasting services.
A4	Traffic Monitoring Stations (TMSs)	These stations can provide real-time, near real-time and historical data to support traffic operations, maintenance planning and transportation planning. TMSs typically provide data on volumes, vehicle classification, and speeds. While some TMSs have been deployed, not all have operational real-time communications. This category includes existing traffic census stations.
A5	Travel time monitoring (e.g. BTR)	Includes roadside equipment to track vehicles along a corridor and associated system to compute travel times. May employ various technologies or methods including license plate matching and bluetooth readers (BTRs).

A6	Slide monitoring/detection	This tactic involves the deployment of instrumentation in the field to detect the movement of the roadway. Active monitoring allows for timely identification of issues helping to mitigate potential safety and operational impacts. This tactic may include deployment of new detectors, upgrades to existing detectors, and connection back to the TMC for remote monitoring.
A7	Flood monitoring/detection	This tactic involves the deployment of instrumentation in the field to measure water levels. Active monitoring allows for timely identification of issues helping to mitigate potential safety and operational impacts. This tactic may include deployment of new detectors, upgrades to existing detectors, and connection back to the TMC for remote monitoring.
A8	Unsignalized intersection queue detection	During periods of very high demand, long queues develop at critical unsignalized intersections, leading to unsafe driver behavior. By monitoring queue length and automatically alerting operators when critical thresholds are exceeded, personnel can be dispatched to manually control traffic or implement other suitable short-term countermeasures.
B. Traffic Operations and Management		
B1	Advanced signal operation/equipment	This tactic encompasses a variety of elements aimed at improving the safety and efficiency of signalized intersections. This can include: the installation of equipment to accommodate bicycles and pedestrians more safely and efficiently (e.g., detection, signals and operating firmware); installation of modern cabinets to accommodate additional ITS equipment at signalized intersections (e.g., communications, CCTV, CMS, AV/CV interface); upgrades to support connection to Caltrans' Traffic Signal Management and Surveillance System (TSMSS); full actuation at all isolated signals to maximize the efficiency of traffic flow under all conditions; and adaptive coordination of adjacent signals where warranted by large seasonal traffic variations or frequency of nearby incidents that unpredictably affect traffic demand.
B2	Advanced Safety warning systems	This tactic refers to systems that monitor a specific condition (e.g., vehicle speed, presence of ice on road, presence of pedestrians or cyclists) and provide an alert to approaching vehicles (e.g., EMS, flashing beacon). Future upgrades could accommodate CV/AV, such as displaying warning messages inside the vehicles via short range I2V communications. The system is autonomous and not connected to a communication system.
B3	Emergency vehicle pre-emption (EVP)	EVP provides signal preemption for public safety first responder vehicles. Both traditional signal preemption systems and new systems based on connected vehicle technology are covered. In more advanced systems, movement of public safety vehicles through the intersection can be facilitated by clearing queues and holding conflicting phases. In addition, this SP also covers the transition back to normal traffic signal operations after providing emergency vehicle preemption.

B4	Ramp metering	Ramp metering can reduce recurring or incident-related congestion on freeways. Applicable only to the few large urban areas in the Upstate, such as Redding, Chico and Eureka/Arcata as future growth occurs; more of a longer-term strategy.
B5	Automated performance reporting	This tactic involves automatically and routinely reporting measures of performance of various ITS elements (e.g., traffic signal operation using automatically calculate parameters such as arrivals during green and percentage vehicles stopped; effectiveness of speed warning signs by comparing advised speed with actual measured speeds). This is largely based on detection of actual vehicle characteristics and associated analysis software. Analysis of reports by staff would initiate corrective actions as necessary, such as signal retiming, equipment inspection).
B6	CVO Applications	This tactic encompasses a variety of applications intended minimize delays at roadside check facilities. This can include weigh-in-motion systems, electronic clearance, etc.
B7	EV charging stations	To support EVs, including commercial vehicles, this tactic involves the installation of EV charging stations within rest areas or other locations within the public right-of-way.
B8	Active Traffic Management	Active traffic management components may include back of queue warning, lane management, and variable advisory speed signs. Typically implemented on high volume, congested and high-risk freeway sections.
B9	Automated incident identification system	System uses information from roadside monitoring devices (e.g. TMSs, CCTV, etc.) to automatically identify potential incidents through changes in performance. Notifications or alerts are then sent to operators to verify and initiate response procedures.
C. Traveler Information Management		
C1	CMS	CMSs (also referred to as variable message signs or VMS) are large electronic signs that can post a range of standard and customized messages. They can be used to provide messages about roadway status (e.g., open, closed, construction, weather, incident, alternate routes) and, in certain circumstances, provide advice to drivers. CMSs are controlled by from a TMC.
C2	HAR	HAR is limited range radio that includes beacon and radio transmitter and typically a sign to inform approaching drivers that a message is being broadcast. Can allow for a more detailed or extended message than possible with a sign; good for scheduled activities (e.g., construction, major events) where it can forewarn travelers about upcoming conditions and schedule).
C3	Traveler Info Website Enhancements	Through Headquarters, Caltrans maintains a statewide traveler information website. Includes information on construction activities, incidents, road conditions, CMS and HAR messages, video images. This will continue to evolve during the ten-year plan. It is largely the responsibility of Caltrans HQ, but will be supported by Districts to provide the information.

C4	Traveler Info Phone System Enhancements	Through Headquarters, Caltrans maintains a statewide traveler information phone system. Includes information on construction activities, incidents, road conditions, CMS and HAR messages, video images. This will continue to evolve during the ten-year plan. It is largely the responsibility of Caltrans HQ, but will be supported by Districts to provide the information.
C5	Traveler Info Mobile App Enhancements	Through Headquarters, Caltrans maintains a statewide traveler information mobile app. Includes information on construction activities, incidents, road conditions, CMS and HAR messages, video images. This will continue to evolve during the ten-year plan. It is largely the responsibility of Caltrans HQ, but will be supported by Districts to provide the information.
C6	Reverse 911 notification system	This tactic is mainly for notification of emergency evacuations or warnings. Further analysis is required to determine whether the existing coverage and technology is adequate, and whether alternatives are needed to better accommodate the emerging trends in availability and use of telephone land lines and cellular phones.
C7	Real-time multi-modal information system	This system would potentially combine information related to roadway conditions, transit, parking, and other transportation services (rideshare, bikeshare, etc.) to provide travelers with a "one-stop" source for the full range of mobility options. Information could be disseminated through a website, mobile app, or via kiosks at transportation and other activity centers. This needs to be supported by various other systems including roadway monitoring, and transit AVL.
C8	Data portal	Builds off the data warehouse by providing access to other parties, notably 3rd party information services. Example is Caltrans' Commercial/Media Wholesale Web Portal (CWWP) that allows commercial and media Information Service Providers (ISPs) to access Caltrans-generated traveler information. This is handled through Caltrans HQ.
C9	Portable CMS	Trailer mounted CMSs that can be placed around construction sites.
D. Maintenance Management		
D1	Maintenance fleet tracking/AVL	This tactic tracks the location of maintenance and construction vehicles and other equipment to ascertain the progress of their activities. Checks can include ensuring the correct roads are being plowed and work activity is being performed at the correct locations. Location information can also be used by dispatchers to allocate maintenance vehicles efficiently in response to incidents and emergencies.
D2	on-vehicle weather condition sensors	This tactic involves equipping maintenance vehicles with environmental sensors that detect atmospheric conditions, as well roadway conditions (temperature, presence of ice, etc.). This information is communicated back to the dispatch center to support maintenance scheduling activities.
D3	Automated pavement condition and marking data collection	Instrument maintenance vehicles to automatically collect data and upload to database. This information would serve as inputs to maintenance management system.

D4	Bridge monitoring systems - bridge condition instrumentation/detectors	Sensors placed on bridge structures to automatically collect data and upload to database. This information would serve as inputs to maintenance management system.
D5	Automated asset management tool	System for monitoring status of equipment. Automated, input for ITS, failure alerts, job scheduling. 24/7 operation with automatic messaging to managers and technicians as appropriate. Install software that enables automated maintenance logs and proactive management of system health (notifications of equipment failure) for ITS infrastructure. Requires devices with reporting capability, communication link, and central system to process and notify. Would want to cover all ITS devices.
D6	Construction area ATMS/ITS trailers	Trailer mounted with sensors/detectors, CCTV, signals, portable CMS to be used for monitoring and managing traffic at work sites.
D7	Automated roadway treatment	This tactic covers on-vehicle equipment to automatically treat a roadway section based on environmental or atmospheric conditions. Treatments include fog dispersion, anti-icing chemicals, etc. Applicable equipment includes the environmental sensors that detect adverse conditions, the automated treatment system itself, and driver information systems (e.g., dynamic message signs) that warn drivers when the treatment system is activated.
D8	Vehicle guidance systems	Systems and equipment to help guide vehicle in adverse conditions (e.g. guide snow plows). Incorporates CV and AV elements.
D9	Vehicle diagnostic systems	This tactic includes on-board sensors capable of automatically performing diagnostics for maintenance and construction vehicles, and the systems that collect this diagnostic information and use it to schedule and manage vehicle and equipment maintenance.
E. Transit Management		
E1	Transit Fleet Automated Vehicle Location (AVL) System	This tactic involves monitoring current transit vehicle location using an Automated Vehicle Location (AVL) System. Vehicle tracking systems support safety and security, help dispatchers allocate resources and support transit information systems.
E2	Advanced Fare Payment	This tactic manages transit fare collection on-board transit vehicles and at transit stops using electronic means. It allows transit users to use a traveler card or other electronic payment device such as a smart phone. It may also involve integrated electronic payment capability for multiple transit services and other transportation-related fees (e.g. tolls, road use, parking). Generally, transit agencies are trending toward non-cash transactions, using smart cards or mobile devices which facilitate transfers on multi-route and multi-system trips. Humboldt Transit Authority currently uses a 3rd party app and the Butte County Association of Governments has e-card readers.
E3	Vehicle diagnostic systems	This tactic includes on-board sensors capable of automatically performing diagnostics for transit vehicles, and the systems that collect this diagnostic information and use it to schedule and manage vehicle and equipment maintenance.

E4	Real-time transit information systems	This tactic is intended to improve the convenience of transit for riders. It may include in-vehicle information (e.g., next stop announcement – most useful in the urbanized environments of the larger towns and cities), signs at stops informing arrival of next bus (useful at all stops) and on-line/mobile app notifications about bus location and next arrival (useful through the various transit networks, although particularly applicable to rural systems with limited service). This needs to be supported by AVL. Transit operators can implement these systems independently, although coordination between agencies would be useful if there are transfer locations between services.
E5	Transit signal priority (TSP)	TSP uses transit vehicle to infrastructure communications to allow a transit vehicle to request priority at one or a series of intersections. This tactic can contribute to improved operating performance of the transit vehicles by reducing the time spent stopped at a red light.
E6	Automated passenger counting system	An APC system counts the number of passengers entering and exiting a transit vehicle using sensors mounted on the vehicle and communicates the collected passenger data back to the management center. The collected data can be used to calculate reliable ridership figures and measure passenger load information at particular stops.
E7	On-vehicle CCTV	Installation of CCTV cameras on transit vehicles to support safety and security.
E8	Inter-operator communication and coordination	Establish formal venue for communication between various connecting transit agencies to aid in planning seamless transit.
E9	Transit vehicle safety/crash avoidance systems	This tactic involves the application of on-board sensors that monitor the driving environment surrounding the vehicle and encompasses all levels of driving automation ranging from basic systems that warn the driver through to full automation where the vehicle controls the steering and acceleration/deceleration, without driver intervention. Unlike the advanced safety warning system tactic, this tactic relies only on on-board systems without communication with other vehicles or the infrastructure.
F. System Integration and Management		
F1	Satellite TMC	Construction of a satellite TMC that may be used to distribute everyday management operations, or in the case of emergency. Given the size of the region, the efficiency of operations and maintenance could be improved by constructing satellite TMCs that provide staff in certain subareas to better monitor traffic and equipment, and coordinate their activities. Satellite TMCs may have higher bandwidth communications to the field equipment and field vehicles. Consideration may be given to setting this up to operate as an alternative TMC in the event of communications link failure to the main TMC. A satellite TMC in Marysville is of specific interest in District 3.

F2	Communication upgrades	Upgrades to provide more robust and reliable communications to all field devices. This may include expanding coverage or enhancing coverage (e.g. reliability, bandwidth) of current systems. Currently employ a variety of technologies and services. Applicable throughout the region, especially in remote areas where cellular coverage is limited. Caltrans has expressed a desire to reduce the reliance on leased communications.
F3	Regional architecture	The regional architecture and ITS standards provide a framework for technical interoperability. Close coordination and cooperation between various agencies will be required to ensure procedural and institutional interoperability. This may be achieved, in part, through the on-going activity of an ITS Coordinating Committee for the region, and the development of inter-agency agreements.
F4	Incident response procedures and protocols	No discussion with them about this. Also given how Caltrans-centric the plan and current deployments are, how important is this?
F5	Emergency response procedures and protocols	Development of procedures and protocols to be implemented in the case major emergencies. Development of these procedures in advance allows for more efficient response. Can involve individual agencies or multiple stakeholders, including emergency response providers.
F6	Experience Sharing	Support collective ITS knowledge by periodically reporting on recent experience. This may be done as part of scheduled inter-agency meetings.
F7	District coordination	Coordination of traffic management activities between the different Caltrans Districts. Emphasis is on real-time or near real-time coordination. May involve development of communication protocols, as well as more automated notifications.
F8	Archive data management/Data warehouse	System to compile and store data from various devices and subsystems. Ideally integrated across multiple agencies. Can be used to support system management and planning activities.
F9	System performance measurement and reporting	Systems to retrieve data from warehouse and/or field devices, and report traffic and transportation performance, equipment status and performance, and road infrastructure condition in real time, at predetermined schedule and on demand.
F10	District C2C integration	Integration of operating and management systems between Caltrans Districts. May involve allowing TMC in one District to monitor and control systems in another.
F11	Connected vehicle (CV) technology	This tactic involves the application of CV technology for a variety of purposes. From the public sector side, it generally involves the installation of infrastructure or equipment to support communication from roadside devices (e.g. traffic signals, CMSs, RWIS and safety systems) to CVs. This allows for information and messages to be communicated to drivers via in-vehicle displays. CVs can also be used as probes to support monitoring activities. Upgrades to signal equipment to create "smart" signals are also included. Also covers the application of CV technology on maintenance or transit fleet vehicles to enhance operation, guidance and safety.

F12	Automated Vehicle (AV) infrastructure enhancements	This tactic includes various potential enhancements to assist in the operation of AVs. Examples include upgrades to signing, striping and traffic control equipment. It may also include enhancements to help guide vehicles through within work zones, as well as the application of AV technology on maintenance vehicles. Viewed as a longer-term tactic, with direction coming from Caltrans HQ.

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APPENDIX E
FUTURE ITS ELEMENTS

Appendix E: Future ITS Devices/Systems

Agency	District	Type	County	Status	Route	Postmile	Notes
Caltrans	1	CMS	Humboldt	Future	SR 36	1.243	Discussed at 10/19/2017 DKS/D1 meeting
Caltrans	1	Detection	Mendocino	Future	SR 175	2.1	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 175	11.2	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 175	16.22	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 175	19.5	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 175	23.47	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 175	28.038	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 20	3.63	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 20	8.293	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 20	8.319	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 20	8.8	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 20	9.2	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 20	12.2	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 20	12.3	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 20	31.52	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 20	31.62	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 281	15.06	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 29	5.98	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 29	6.355	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 29	9.87	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 29	20.307	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 29	21.19	PSR in development to change communication

Agency	District	Type	County	Status	Route	Postmile	Notes
Caltrans	1	Detection	Lake	Future	SR 29	21.65	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 29	27.89	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 29	31.053	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 29	32.35	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 29	34.74	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 29	38.6	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 29	40.144	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 29	44.46	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 29	52.539	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 53	1.47	PSR in Development to change communication
Caltrans	1	Detection	Lake	Future	SR 53	1.99	PSR in Development to change communication
Caltrans	1	Detection	Lake	Future	SR 53	2.96	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 53	3.923	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 53	5.15	PSR in development to change communication
Caltrans	1	Detection	Lake	Future	SR 53	7.413	PSR in development to change communication
Caltrans	1	Detection	Mendocino	Future	US-101	9.13	PSR in development to change communication
Caltrans	1	Detection	Mendocino	Future	US-101	10.89	PSR in development to change communication
Humboldt Transit Authority	1	APC	Humboldt	Future			
Humboldt Transit Authority	1	Real-time transit info	Humboldt	Future			Solar-powered signs at bus stops
Humboldt Transit Authority	1	Mobile fare media	Humboldt	Future			
Arcata & Mad River Transit System	1	TSP	Humboldt	Future	Hwy 255 at G and H Streets		Signal controls for transit operators to switch lights at intersections

Agency	District	Type	County	Status	Route	Postmile	Notes
Arcata & Mad River Transit System	1	Trip Planning Kiosk	Humboldt	Future			ITS Trip Planning Kiosk - to do trip planning on the statewide transit system, as proposed in the state transit/rail plan
Arcata & Mad River Transit System	1	Transit App	Humboldt	Existing (upgrade)			Bus tracking system
Lake Transit Authority	1	AVL	Lake	Existing (Upgrade)			Mobile radios with GPS, upgrade from current cell-based
Lake Transit Authority	1	e-farebox	Lake	Future			
Redwood Coast Transit Authority	1	AVL	Del Norte	Future			Geotabs AVL, currently being implemented
Redwood Coast Transit Authority	1	e-farebox	Del Norte	Future			
Redwood Coast Transit Authority	1	Mobile Ticketing	Del Norte	Future			
Caltrans	2	CCTV	Siskiyou	Future	I-5	0.04	Chain Control Area
Caltrans	2	CCTV	Shasta	Future	I-5	1.1	SB Shldr
Caltrans	2	CCTV	Shasta	Future	I-5	5.1	
Caltrans	2	CCTV	Tehama	Future	I-5	7.49	Possible detour route; Use tall pole due to b-rigs on OC
Caltrans	2	CCTV	Shasta	Future	I-5	9.77	Truck queue: taller pole due to b-rigs on OC
Caltrans	2	CCTV	Tehama	Future	I-5	10.1	Camera could mitigate vandalism to Corning HAR
Caltrans	2	CCTV	Shasta	Future	I-5	14.44	
Caltrans	2	CCTV	Shasta	Future	I-5	16.15	
Caltrans	2	CCTV	Shasta	Construction	I-5	17.3	Fiber optic project Constructed, awaiting power supply
Caltrans	2	CCTV	Shasta	Construction	I-5	18.6	Fiber optic project

Agency	District	Type	County	Status	Route	Postmile	Notes
Caltrans	2	CCTV	Shasta	Future	I-5	24.08	Fawndale Ops Truck Turnaround Site
Caltrans	2	CCTV	Tehama	Future	I-5	24.5	SB shoulder at crest
Caltrans	2	CCTV	Shasta	Existing (Upgrade)	I-5	37.44	Curve Warning - Upgrade CCTV to Pan/Tilt/Zoom BBS installed
Caltrans	2	CCTV	Siskiyou	Existing (Upgrade)	I-5	53.08	BBS installed - Pole relocation away from RWIS
Caltrans	2	CCTV	Shasta	Future	I-5	61.75	NB I-5 rt shldr jso bridge; Common incident area
Caltrans	2	CCTV	Siskiyou	Future	I-5	63.7	
Caltrans	2	CCTV	Siskiyou	Future	I-5	65.52	To view the ODOT CMS
Caltrans	2	CCTV	Shasta	Future	I-5	66.28	SB I-5 rt shldr for NB 5 Chain Control Area
Caltrans	2	CCTV	Siskiyou	Future	SR 263	49.07	Detour area
Caltrans	2	CCTV	Shasta	Future	SR 273	4.44	NE corner
Caltrans	2	CCTV	Shasta	Future	SR 273	5.83	SB Shldr
Caltrans	2	CCTV	Shasta	Future	SR 273	11.57	East side
Caltrans	2	CCTV	Shasta	Future	SR 273	12.68	NB Shldr
Caltrans	2	CCTV	Shasta	Future	SR 273	14.47	NW corner - Power lines check for clearance
Caltrans	2	CCTV	Shasta	Future	SR 273	14.96	NE corner
Caltrans	2	CCTV	Shasta	Future	SR 273	17.03	Possible Microwave Installation. Install Northwest corner near existing Cabinet.
Caltrans	2	CCTV	Shasta	Future	SR 299	0.18	
Caltrans	2	CCTV	Lassen	Future	SR 299	8.27	
Caltrans	2	CCTV	Shasta	Future	SR 299	8.65	EB Shldr
Caltrans	2	CCTV	Trinity	Future	SR 299	11.8	TC & rock slide area Incl. hillside lighting Place camera on wb shldr
Caltrans	2	CCTV	Modoc	Future	SR 299	12.73	
Caltrans	2	CCTV	Shasta	Future	SR 299	13.7	EB Shldr at West end of Bridge
Caltrans	2	CCTV	Shasta	Future	SR 299	16.55	
Caltrans	2	CCTV	Shasta	Future	SR 299	26.5	
Caltrans	2	CCTV	Shasta	Future	SR 299	75.47	Downtown Intersection
Caltrans	2	CCTV	Shasta	Future	SR 299	89.4	Limited roadside for cabinets
Caltrans	2	CCTV	Tehama	Future	SR 32	16.85	

Agency	District	Type	County	Status	Route	Postmile	Notes
Caltrans	2	CCTV	Trinity	Future	SR 36	10.3	
Caltrans	2	CCTV	Trinity	Future	SR 36	18.67	
Caltrans	2	CCTV	Siskiyou	Future	SR 36	41.69	Dave Guinea, Siskiyou Telephone 530-467-6107 No nearby utilities
Caltrans	2	CCTV	Trinity	Future	SR 36	83	Common Winter Closure
Caltrans	2	CCTV	Tehama	Future	SR 36	87.7	Existing phone and power at PM 87.0 at Forest Service's unpaved rdwy. Joe submitted PID to Don Anderson in 2013.
Caltrans	2	CCTV	Tehama	Future	SR 36	99.93	
Caltrans	2	CCTV	Shasta	Future	SR 44	1.24	
Caltrans	2	CCTV	Shasta	Future	SR 44	2.77	Exist power/phone at nearby CMS
Caltrans	2	CCTV	Shasta	Future	SR 44	7	NW Corner
Caltrans	2	CCTV	Shasta	Future	SR 44	26	Southside of Hwy-44
Caltrans	2	CCTV	Shasta	Future	SR 44	50.54	
Caltrans	2	CCTV	Shasta	Future	SR 44	62.68	
Caltrans	2	CCTV	Plumas	Future	SR 70	14.9	
Caltrans	2	CCTV	Butte	Future	SR 70	35.9	Typ. turnaround pt for road closures; USFS Ranger Station
Caltrans	2	CCTV	Plumas	Future	SR 70	55.24	
Caltrans	2	CCTV	Siskiyou	Future	SR 89	3.23	Solar Power; Phone 0.3 Mile; Tower addition required at Snowman; Potential site to install tower and connect microwave
Caltrans	2	CCTV	Siskiyou	Future	SR 96	46.05	
Caltrans	2	CCTV	Siskiyou	Future	SR 96	103.4	
Caltrans	2	CCTV	Lassen	Future	US-395	4.61	Existng power and phone nearby
Caltrans	2	CCTV	Modoc	Future	US-395	22.76	
Caltrans	2	CCTV	Lassen	Future	US-395	133.3	Radio infrastructure will add money to project
Caltrans	2	CCTV	Siskiyou	Future	US-97	49.83	
Caltrans	2	CCTV	0	Future	#N/A	VAR.	Add new intersection lights to exist CCTV sites to enable remote video when dark 30 locations at est. cost of $25K/site

Agency	District	Type	County	Status	Route	Postmile	Notes
Caltrans	2	CMS	0	Future	I-5	1	FSBT - Model 500 IRDAP required, unknown location
Caltrans	2	CMS	Siskiyou	Future	I-5	2.51	FNBT, for chain area
Caltrans	2	CMS	Tehama	Existing (Upgrade)	I-5	3.52	#31 FNBT - Model 510 Upgrade to Single Post Structure
Caltrans	2	CMS	Siskiyou	Future	I-5	5.9	FNBT
Caltrans	2	CMS	Shasta	Existing (Upgrade)	I-5	6.72	#33 FNBT - Model 500 Upgrade to Single Post Structure
Caltrans	2	CMS	Siskiyou	Existing (Upgrade)	I-5	9.65	#3 FNBT - Model 500 Upgrade to Single Post Structure
Caltrans	2	CMS	Tehama	Existing (Upgrade)	I-5	9.97	#32 FNBT - Model 510 Upgrade to Single Post Structure
Caltrans	2	CMS	Shasta	Existing (Upgrade)	I-5	10.86	#34 FSBT - Model 500 Upgrade to Single Post Structure
Caltrans	2	CMS	Shasta	Existing (Upgrade)	I-5	10.86	#1 FNBT - Model 500 Upgrade to Single Post Structure
Caltrans	2	CMS	Siskiyou	Existing (Upgrade)	I-5	13.18	#21 FNBT - Wind Warning Upgrade to Single Post Structure
Caltrans	2	CMS	Siskiyou	Existing (Upgrade)	I-5	13.19	#4 FSBT - Model 500 Upgrade to Single Post Structure
Caltrans	2	CMS	Tehama	Future	I-5	16	FSBT
Caltrans	2	CMS	Siskiyou	Future	I-5	18.183	Discussed at 10/18/2017 DKS/D2 meeting
Caltrans	2	CMS	Shasta	Existing (Upgrade)	I-5	19.4	#10 FSBT - Model 500 Upgrade to Single Post Structure
Caltrans	2	CMS	Shasta	Existing (Upgrade)	I-5	20.98	#2 FNBT - Model 500 Upgrade to Single Post Structure
Caltrans	2	CMS	Siskiyou	Future	I-5	21.256	Discussed at 10/18/2017 DKS/D2 meeting
Caltrans	2	CMS	Shasta		I-5	22.75	To be incl with Worker Safety Project. Model 500 CMS FNBT to be mounted to a sign bridge.

Agency	District	Type	County	Status	Route	Postmile	Notes
Caltrans	2	CMS	Tehama	Existing (Upgrade)	I-5	23.38	#17 FNBT - Model 510 Upgrade to Model 500 & Single Post Structure
Caltrans	2	CMS	Shasta		I-5	24.7	To be incl with Worker Safety Project. Model 500 CMS FNBT to be mounted to a sign bridge.
Caltrans	2	CMS	Siskiyou	Future	I-5	25.45	FSBT - For Edgewood Chain Control Area
Caltrans	2	CMS	Shasta		I-5	25.7	To be incl with Worker Safety Project. Model 500 CMS FNBT to be mounted to a sign bridge.
Caltrans	2	CMS	Tehama	Existing (Upgrade)	I-5	31.046	#18 FSBT - Model 500 Upgrade to Single Post Structure
Caltrans	2	CMS	Shasta	Existing (Upgrade)	I-5	36.1	#26 FNBT - Model 500 Upgrade phone service
Caltrans	2	CMS	Tehama	Future	I-5	41.24	CHP Multi-Message EMS (FSBT) "ALL TRUCKS/STOP AT SCALES"/ "SCALES CLOSED"
Caltrans	2	CMS	Tehama	Existing (Upgrade)	I-5	41.53	#7 FSBT - Model 500 Upgrade to Single Post Structure
Caltrans	2	CMS	Siskiyou	Existing (Upgrade)	I-5	44.3	#6 FSBT - Model 500 Upgrade to Single Post Structure
Caltrans	2	CMS	Siskiyou	Existing (Upgrade)	I-5	44.3	#5 FNBT - Model 500 Upgrade to Single Post Structure
Caltrans	2	CMS	Siskiyou	Future	I-5	48.856	SR-3 closure warning. Discussed at 10/18/2017 DKS/D2 meeting
Caltrans	2	CMS	Shasta	Future	I-5	65.5	FNBT, for chain area
Caltrans	2	CMS	Shasta	Future	SR 273	12	FNBT
Caltrans	2	CMS	Shasta	Future	SR 273	13.5	FSBT
Caltrans	2	CMS	Shasta	Future	SR 299	25.3	FWBT - Model 500
Caltrans	2	CMS	Shasta	Future	SR 299	26.5	FEBT - Model 500
Caltrans	2	CMS	Trinity	Future	SR 299	57.4	FEBT, along rdwy tangent near end of lane taper

Agency	District	Type	County	Status	Route	Postmile	Notes
Caltrans	2	CMS	Trinity	Future	SR 299	58.27	FWBT, along rdwy tangent at start of widened rt shldr
Caltrans	2	CMS	Shasta	Future	SR 299	78.85	FEBT - Model 510
Caltrans	2	CMS	Shasta	Future	SR 299	81.2	FWBT - Model 510
Caltrans	2	CMS	Tehama	Future	SR 32	24.135	Discussed at 10/18/2017 DKS/D2 meeting
Caltrans	2	CMS	Siskiyou	Future	SR 36	19.7	FSBT - Model 510 for Scott Mtn Closures
Caltrans	2	CMS	Lassen	Future	SR 36	21	FWBT - Model 510
Caltrans	2	CMS	Trinity	Future	SR 36	30.3	FNBT - Model 510
Caltrans	2	CMS	Trinity	Future	SR 36	30.5	FSBT - Model 510
Caltrans	2	CMS	Tehama	Future	SR 36	39.5	FEBT - Model 510
Caltrans	2	CMS	Shasta	Future	SR 44	0.38	FEBT - N/E Corner
Caltrans	2	CMS	Shasta	Future	SR 44	1.3	FWBT - Model 500
Caltrans	2	CMS	Shasta	Future	SR 44	62.6	FEBT - Model 510
Caltrans	2	CMS	Shasta	Future	SR 44	63	FWBT - Model 510
Caltrans	2	CMS	Shasta	Future	SR 89	0.4	FSBT - Model 510
Caltrans	2	CMS	Siskiyou	Future	SR 96	103.2	FWBT - Model 510
Caltrans	2	CMS	Siskiyou	Future	SR 96	103.8	FEBT - Model 510
Caltrans	2	CMS	Tehama	Future	SR 99	24	FNBT - Model 510
Caltrans	2	CMS	Tehama	Future	SR 99	24	FSBT - Model 510
Caltrans	2	CMS	Modoc	Future	US-395	20.9	FSBT - Model 510
Caltrans	2	CMS	Modoc	Future	US-395	27.05	FSBT - Model 510 Near Inspection Station
Caltrans	2	CMS	Lassen	Future	US-395	29.888	High wind warning,.Discussed at 10/18/2017 DKS/D2 meeting
Caltrans	2	CMS	Lassen	Future	US-395	34.447	High wind warning,.Discussed at 10/18/2017 DKS/D2 meeting
Caltrans	2	CMS	Nevada	Future	US-395	?	FNBT - Model 500 at Red Rock Road; 9 mi from Ca/Nv Stateline; Detour Location
Caltrans	2	FCS	Siskiyou		I-5	46.8	Experimental D2 Flashing Chain Sign FNBT
Caltrans	2	FCS	Siskiyou		I-5	62.46	Experimental D2 Flashing Chain Sign FSBT
Caltrans	2	HAR beacon	Glenn	Future	I-5	25.5	District 3, Superstation

Agency	District	Type	County	Status	Route	Postmile	Notes
Caltrans	2	HAR beacon	Shasta	Future	I-5	26.04	HAR #7 Simulcast; Install Fawndale HAR, plus upgrade Redding HAR equipment
Caltrans	2	HAR beacon	Shasta	Construction	I-5	40.6	Superstation
Caltrans	2	HAR beacon	Siskiyou	Existing (Upgrade)	I-5	44.3	#3 HAR - Standard - 1610AM - WPFK506 - Upgrade to superstation; synchronize with Bailey Hill & Anderson Grade
Caltrans	2	HAR beacon	Siskiyou	Existing (Upgrade)	I-5	52.75	#17 HAR - Superstation - 1610AM - WPFK506 - Synchronize with Bailey Hill & Walters Road
Caltrans	2	HAR beacon	Siskiyou	Existing (Upgrade)	I-5	65.14	#8 HAR - Superstation - 1610AM - WPFK506 - Synchronize with Anderson Grade & Walters Road
Caltrans	2	HAR beacon	Trinity	Future	SR 36	28.65	Superstation HAR
Caltrans	2	HAR beacon	Shasta	Future	SR 44	62.4	Superstation HAR
Caltrans	2	HAR beacon	Butte	Future	SR 99	32.3	District 3, Superstation
Caltrans	2	HAR beacon	Lassen	Existing (Upgrade)	US-395	1.58	#6 HAR - Standard - 1610AM - WPFK508 Upgrade to superstation
Caltrans	2	HAR beacon	Siskiyou	Future	US-97	49.83	Superstation HAR
Caltrans	2	HAR flasher	Modoc	Future	CA-139	0.4	**Flasher FNBT and FSBT** Addition Flashers for Alturas HAR
Caltrans	2	HAR flasher	Butte	Future	CA-191	0.25	District 3, double sided FB
Caltrans	2	HAR flasher	Modoc	Future	CA-299	21.4	**Flasher FWBT and FEBT** Additional Flashers for Alturas HAR
Caltrans	2	HAR flasher	Shasta	Existing (Upgrade)	CA-299	28.38	**Flasher FWBT - Upgrade w/ BBS**
Caltrans	2	HAR flasher	Glenn	Future	CA-32	0.2	District 3, double sided FB
Caltrans	2	HAR flasher	Butte	Future	CA-32	10.1	District 3, double sided FB
Caltrans	2	HAR flasher	Butte	Future	CA-32	10.4	District 3, double sided FB
Caltrans	2	HAR flasher	Trinity	Future	CA-36	0.4	Flasher FNBT and FSBT
Caltrans	2	HAR flasher	Trinity	Future	CA-36	28.25	Flasher FEBT and FWBT
Caltrans	2	HAR flasher	Trinity	Future	CA-36	29	Flasher FEBT and FWBT
Caltrans	2	HAR flasher	Tehama	Future	CA-36	40.8	Addt'l Red Bluff Flasher FEBT and FWBT

Agency	District	Type	County	Status	Route	Postmile	Notes
Caltrans	2	HAR flasher	Tehama	Existing (Upgrade)	CA-36	42.93	**EMS FEBT** BBS Installed **Replace with CMS FEBT**
Caltrans	2	HAR flasher	Tehama	Existing (Upgrade)	CA-36	43.65	**EMS FWBT** **Upgrade w/BBS**
Caltrans	2	HAR flasher	Shasta	Existing (Upgrade)	CA-44	1.56	**Flasher FEBT - Upgrade w/BBS**
Caltrans	2	HAR flasher	Shasta	Existing (Upgrade)	CA-44	8	**Flasher FWBT - Upgrade w/BBS**
Caltrans	2	HAR flasher	Butte	Future	CA-70	21.5	District 3, double sided FB
Caltrans	2	HAR flasher	Butte	Future	CA-70	22.3	District 3, double sided FB
Caltrans	2	HAR flasher	Plumas	Existing (Upgrade)	CA-70	32.966	**Flasher FEBT - Upgrade w/BBS**
Caltrans	2	HAR flasher	Plumas	Future	CA-70	33.1	Flasher FWBT Power, phone, and concrete pad already exit
Caltrans	2	HAR flasher	Butte	Future	CA-99	32.1	District 3, double sided FB
Caltrans	2	HAR flasher	Butte	Future	CA-99	32.5	District 3, double sided FB
Caltrans	2	HAR flasher	Shasta	Existing (Upgrade)	I-5	21	**EMS FSBT - Upgrade to Flasher w/BBS or replace w/ CMS**
Caltrans	2	HAR flasher	Glenn	Future	I-5	25.3	District 3, double sided FB
Caltrans	2	HAR flasher	Glenn	Future	I-5	25.7	District 3, double sided FB
Caltrans	2	HAR flasher	Shasta	Construction	I-5	40.6	FNBT
Caltrans	2	HAR flasher	Shasta	Construction	I-5	40.65	FSBT
Caltrans	2	HAR flasher	Lassen	Existing (Upgrade)	US 395	60.03	**Flasher FNBT and FSBT** **Upgrade w/BBS**
Caltrans	2	HAR flasher	Siskiyou	Future	US 97	49.6	Flasher FNBT and FSBT
Caltrans	2	HAR flasher	Siskiyou	Future	US 97	51	Flasher FNBT and FSBT
Caltrans	2	RWIS	Siskiyou	Existing (Upgrade)	I-5	2.61	Upgrade w/BBS NB PUCKS (2) @ PM 2.65 & PM 2.67 SB PUCK (1) @ PM 2.63
Caltrans	2	RWIS	Siskiyou	Existing (Upgrade)	I-5	20.72	Upgrade w/BBS & connect comm to ITS Node LAN NB (1) Puck and (1) Subsurface Probe @ PM 20.725 SB (2) PUCKS @ PM 20.85 & 21.11

Agency	District	Type	County	Status	Route	Postmile	Notes
Caltrans	2	RWIS	Shasta	Future	I-5	30.5	Packers Bay S/B Onramp at crest
Caltrans	2	RWIS	Shasta	Future	I-5	32.3	O'Brien N/B Onramp at crest
Caltrans	2	RWIS	Shasta	Existing (Upgrade)	I-5	37.94	Upgrade w/BBS & connect comm to ITS Node LAN NB (1) Puck @ PM 37.93 SB (1) Puck @ PM 37.93 and (1) Subsurface Probe @ PM 37.93
Caltrans	2	RWIS	Shasta	Existing (Upgrade)	I-5	45.85	Upgrade w/BBS & connect comm to ITS Node LAN NB (1)PUCK @ PM 45.85 and (1) Subsurface Probe @ PM 45.85 SB (1)PUCK @ PM 45.85
Caltrans	2	RWIS	Siskiyou	Existing (Upgrade)	I-5	61.93	Upgrade w/BBS & connect comm to ITS Node LAN (1) NB Puck and Subsurface Probe @ PM 61.96 (1) SB Puck @ PM 61.96
Caltrans	2	RWIS	Siskiyou	Existing (Upgrade)	I-5	68.04	Upgrade w/BBS & connect comm to ITS Node LAN (1) NB Puck and Subsurface Probe @ PM 68.04 (1) SB Puck @ 68.04
Caltrans	2	RWIS	Shasta	Future	SR 299	0.18	
Caltrans	2	RWIS	Lassen	Future	SR 299	8.27	
Caltrans	2	RWIS	Shasta	Future	SR 299	8.6	
Caltrans	2	RWIS	Modoc	Future	SR 299	12.73	
Caltrans	2	RWIS	Trinity	Existing (Upgrade)	SR 299	48.12	Upgrade w/BBS & connect comm to ITS Node LAN (1) EB Puck @ PM 48.24 (1) WB Puck and (1) WB Subsurface Probe @ PM 48.24
Caltrans	2	RWIS	Modoc	Future	SR 299	50.2	

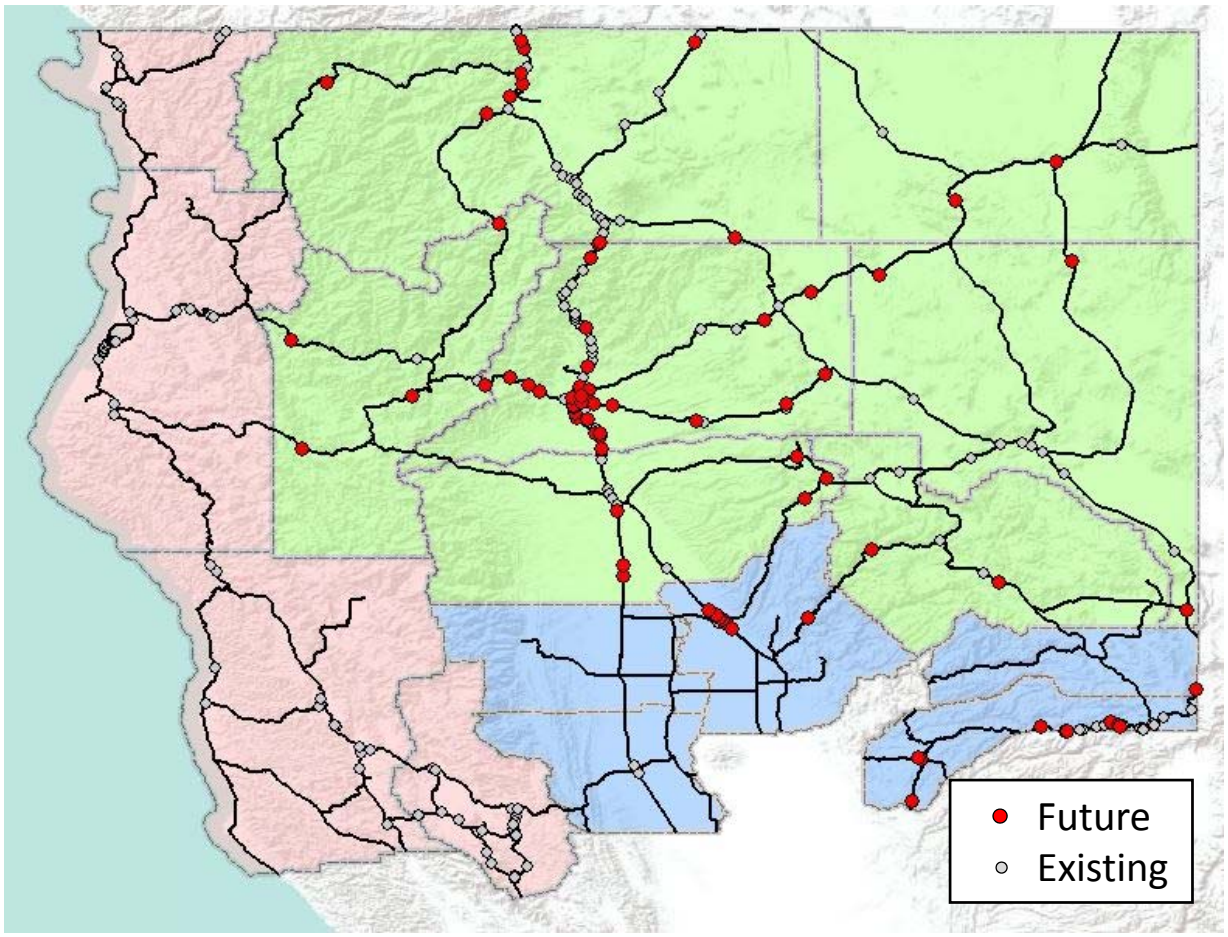
Agency	District	Type	County	Status	Route	Postmile	Notes
Caltrans	2	RWIS	Trinity	Existing (Upgrade)	SR 299	69.7	Upgrade w/BBS & connect comm to ITS Node LAN (1) EB Puck and Subsurface Probe @ PM 69.759 (1) WB Puck @ PM 69.766
Caltrans	2	RWIS	Tehama	Future	SR 32	16.85	
Caltrans	2	RWIS	Trinity	Future	SR 36	10.26	
Caltrans	2	RWIS	Trinity	Future	SR 36	18.67	
Caltrans	2	RWIS	Siskiyou	Future	SR 36	41.69	Dave Guinea, Siskiyou Telephone 530-467-6107 No nearby utilities
Caltrans	2	RWIS	Trinity	Future	SR 36	83	
Caltrans	2	RWIS	Tehama	Future	SR 36	87.79	Existing phone and power at PM 87.0 at Forest Service's unpaved rdwy. Joe submitted PID to Don Anderson in 2013.
Caltrans	2	RWIS	Shasta	Future	SR 44	26.3	WB lanes at top of luge for icy rds
Caltrans	2	RWIS	Shasta	Future	SR 44	50.54	
Caltrans	2	RWIS	Shasta	Future	SR 44	64	
Caltrans	2	RWIS	Plumas	Future	SR 70	55.24	
Caltrans	2	RWIS	Siskiyou	Future	SR 89	3.23	Solar Power; Phone 0.3 Mile; Tower addition required at Snowman; Potential site to install tower and connect microwave
Caltrans	2	RWIS	Siskiyou	Future	SR 89	3.23	Solar Power; Phone 0.3 Mile.
Caltrans	2	RWIS	Siskiyou	Existing (Upgrade)	SR 89	29.34	Upgrade w/BBS; connect comm to ITS Node LAN (1) NB, (1) SB Puck and (1) SB Subsurface Probe @ PM 29.31
Caltrans	2	RWIS	Siskiyou	Future	SR 96	46.05	
Caltrans	2	RWIS	Lassen	Future	US-395	133.3	Radio infrastructure will add money to project
Caltrans	2	RWIS	Siskiyou	Future	US-97	34.5	
Caltrans	2	RWIS	Siskiyou	Existing (Upgrade)	US-97	51.64	RAWS site - No Pucks - Upgrade to RWIS
Caltrans	2	Traffic Detection	Shasta	Existing (Upgrade)	I-5	9.33	MVDS in median - Solar

Agency	District	Type	County	Status	Route	Postmile	Notes
Caltrans	2	Traffic Detection	Shasta		I-5	17.7	
Caltrans	2	Traffic Detection	Shasta	Future	I-5	0.0 - 21.0	21 mile span; 4 TMS Sta/mi/dir; Est. $25k per TMS Sta; PEMS Interface $300K; Comm Infrastructure $5.5 Mil
Caltrans	3	BTR	Nevada	Future	SR 49		
Caltrans	3	BTR	Nevada	Future	SR 49		
Caltrans	3	BTR	Nevada	Future	SR 49		
Caltrans	3	BTR		Future	US-50		
Caltrans	3	CCTV	Sierra	Future	I-80	203.928	
Caltrans	3	CCTV	Nevada	Future	I-80		
Caltrans	3	CCTV	Nevada	Future	I-80		
Caltrans	3	CCTV	Nevada	Future	I-80		
Caltrans	3	CCTV	Nevada	Future	I-80		
Caltrans	3	CCTV	Nevada	Future	I-80		
Caltrans	3	CCTV	Placer	Future	I-80		
Caltrans	3	CCTV	Placer	Future	I-80		
Caltrans	3	CCTV	Nevada	Future	SR 49		
Caltrans	3	CCTV	Nevada	Future	SR 49		
Caltrans	3	CCTV	Nevada	Future	SR 49		
Caltrans	3	CCTV	Butte	Future	SR 99		
Caltrans	3	CCTV	Butte	Future	SR 99		
Caltrans	3	CCTV	Butte	Future	SR 99		
Caltrans	3	CCTV	Butte	Future	SR 99		
Caltrans	3	CCTV	Butte	Future	SR 99		
Caltrans	3	CCTV	Butte	Future	SR 99		
Caltrans	3	CCTV	Butte	Future	SR 99		
Caltrans	3	CCTV	Butte	Future	SR 99		
Caltrans	3	CMS	Glenn	Future	I-5		
Caltrans	3	CMS	Glenn	Future	I-5		
Caltrans	3	CMS	Nevada	Future	I-80		
Caltrans	3	CMS	Nevada	Future	I-80		
Caltrans	3	CMS	Nevada	Future	I-80		
Caltrans	3	CMS	Nevada	Future	I-80		
Caltrans	3	CMS	Colusa	Future	SR 20		
Caltrans	3	CMS	Nevada	Future	SR 20		
Caltrans	3	CMS	Nevada	Future	SR 49		
Caltrans	3	CMS	Nevada	Future	SR 49		

Agency	District	Type	County	Status	Route	Postmile	Notes
Caltrans	3	CMS	Butte	Future	SR 99		
Caltrans	3	CMS	Butte	Future	SR 99		
Caltrans	3	HAR beacon	Colusa	Future	I-5		
Caltrans	3	HAR beacon	Glenn	Future	I-5		
Caltrans	3	HAR beacon	Glenn	Future	I-5		
Caltrans	3	HAR beacon	Nevada	Future	I-80		
Caltrans	3	HAR beacon	Nevada	Future	SR 20		
Caltrans	3	RMS	Butte	Future	SR 99		
Caltrans	3	RMS	Butte	Future	SR 99		
Caltrans	3	RMS	Butte	Future	SR 99		
Caltrans	3	RMS	Butte	Future	SR 99		
Caltrans	3	RMS	Butte	Future	SR 99		
Caltrans	3	RMS	Butte	Future	SR 99		
Caltrans	3	RMS	Butte	Future	SR 99		
Caltrans	3	RMS	Butte	Future	SR 99		
Caltrans	3	RMS	Butte	Future	SR 99		
Caltrans	3	RMS	Butte	Future	SR 99		
Caltrans	3	RMS	Butte	Future	SR 99		
Caltrans	3	RMS	Butte	Future	SR 99		
Caltrans	3	RMS	Butte	Future	SR 99		
Caltrans	3	RWIS	Nevada	Future	I-80		
Caltrans	3	RWIS	Nevada	Future	I-80		
Caltrans	3	Traffic Detection	Nevada	Future	I-80		
Caltrans	3	Traffic Detection	Nevada	Future	SR 49		
Caltrans	3	Traffic Detection	Nevada	Future	SR 49		
Caltrans	3	Traffic Detection	Nevada	Future	SR 49		
Caltrans	3	Traffic Detection	Nevada	Future	SR 49		
Caltrans	3	Traffic Detection	Nevada	Future	SR 49		
Caltrans	3	Traffic Detection	Nevada	Future	SR 49		
Caltrans	3	Traffic Detection	Nevada	Future	SR 89		
Caltrans	3	Traffic Detection	Butte	Future	SR 99		
Caltrans	3	Traffic Detection	Butte	Future	SR 99		

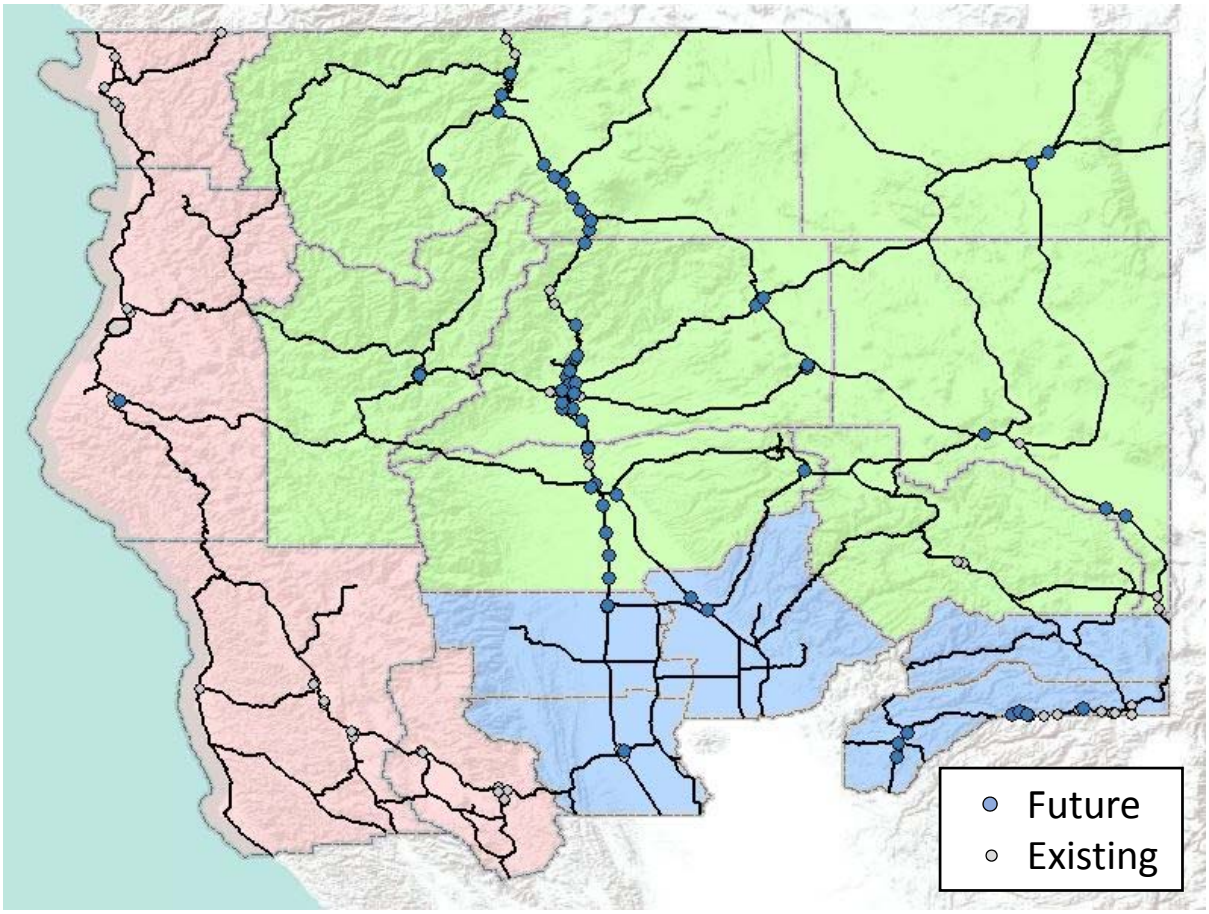
Future ITS Inventory

Closed Circuit Television (CCTV)



Future ITS Inventory

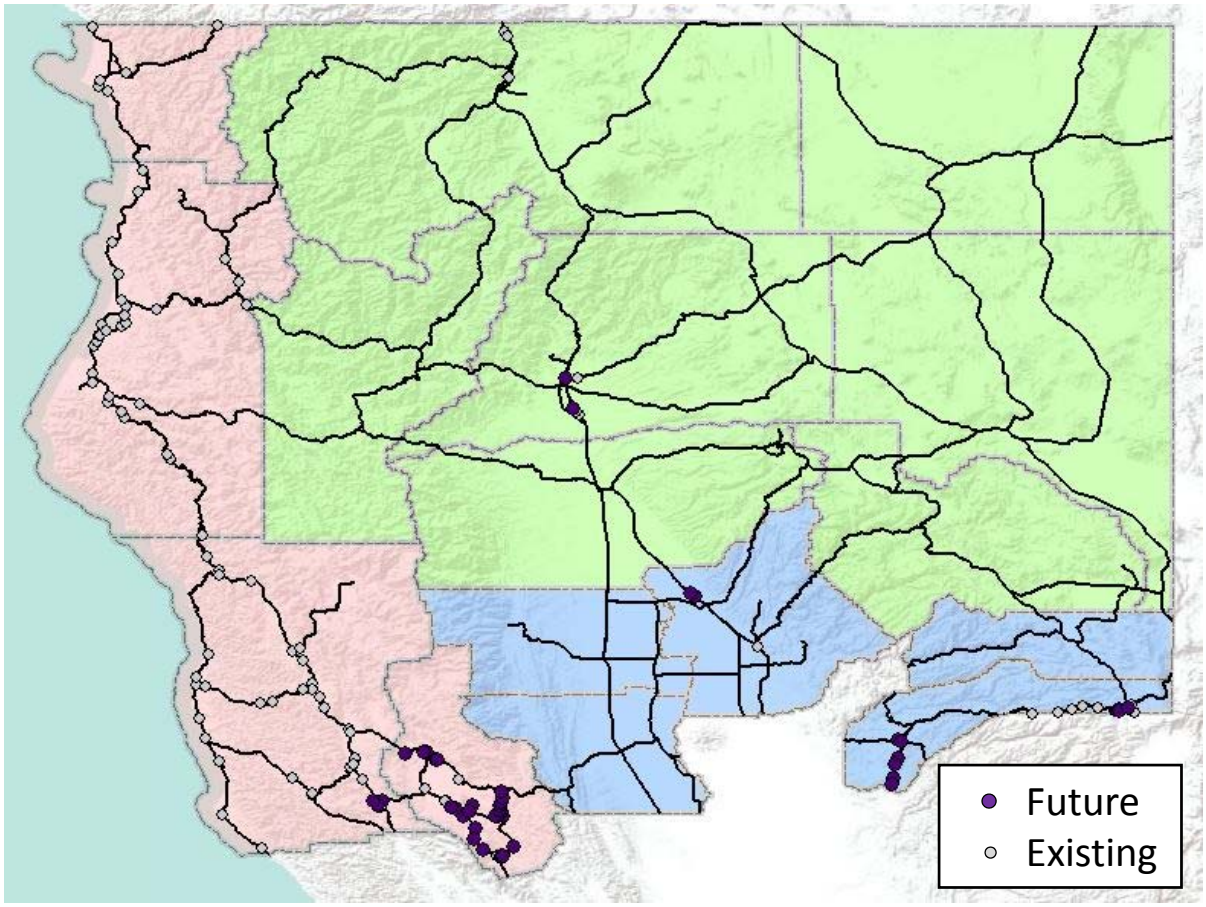
Changeable Message Signs (CMS)



Future ITS Inventory

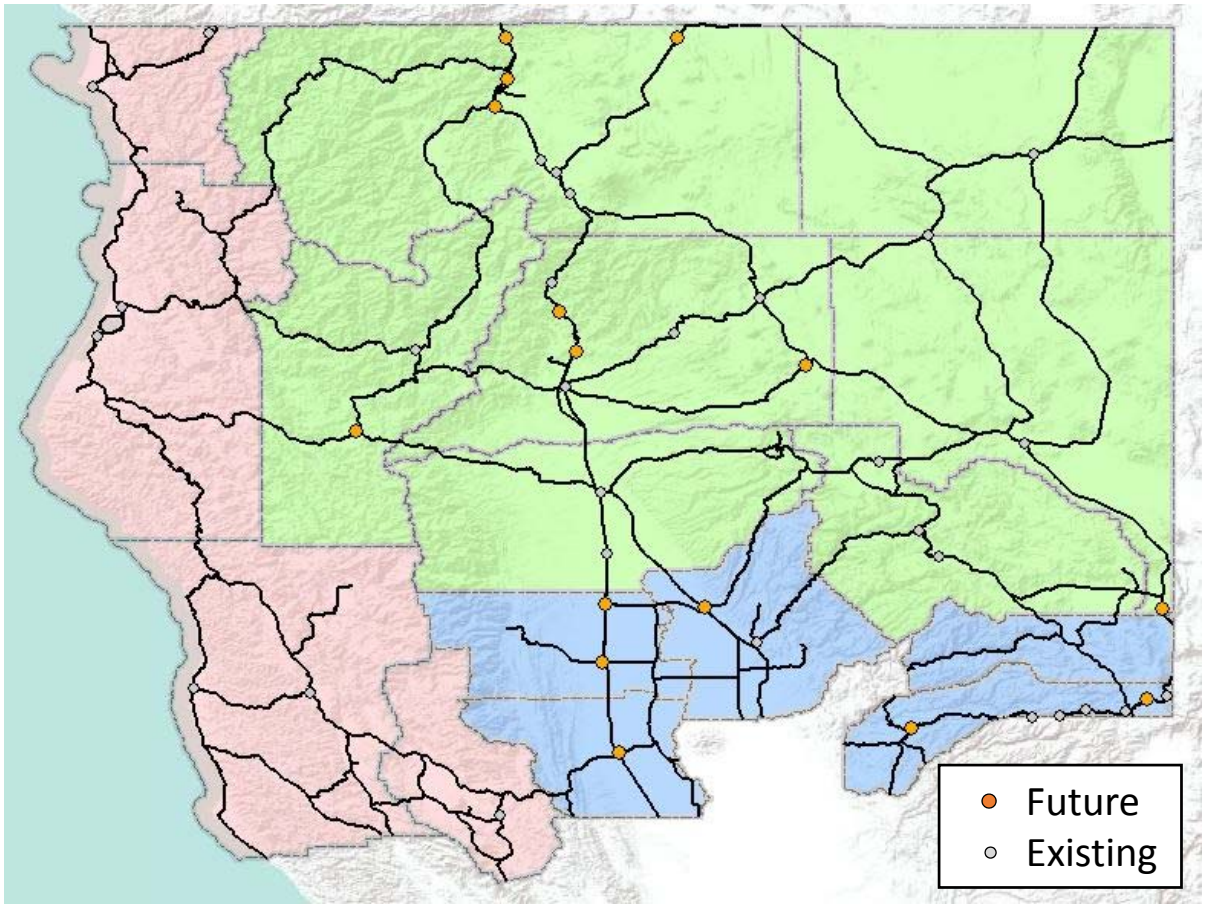
Detection Systems:

Bluetooth Readers, Vehicle Detectors, Traffic Detection



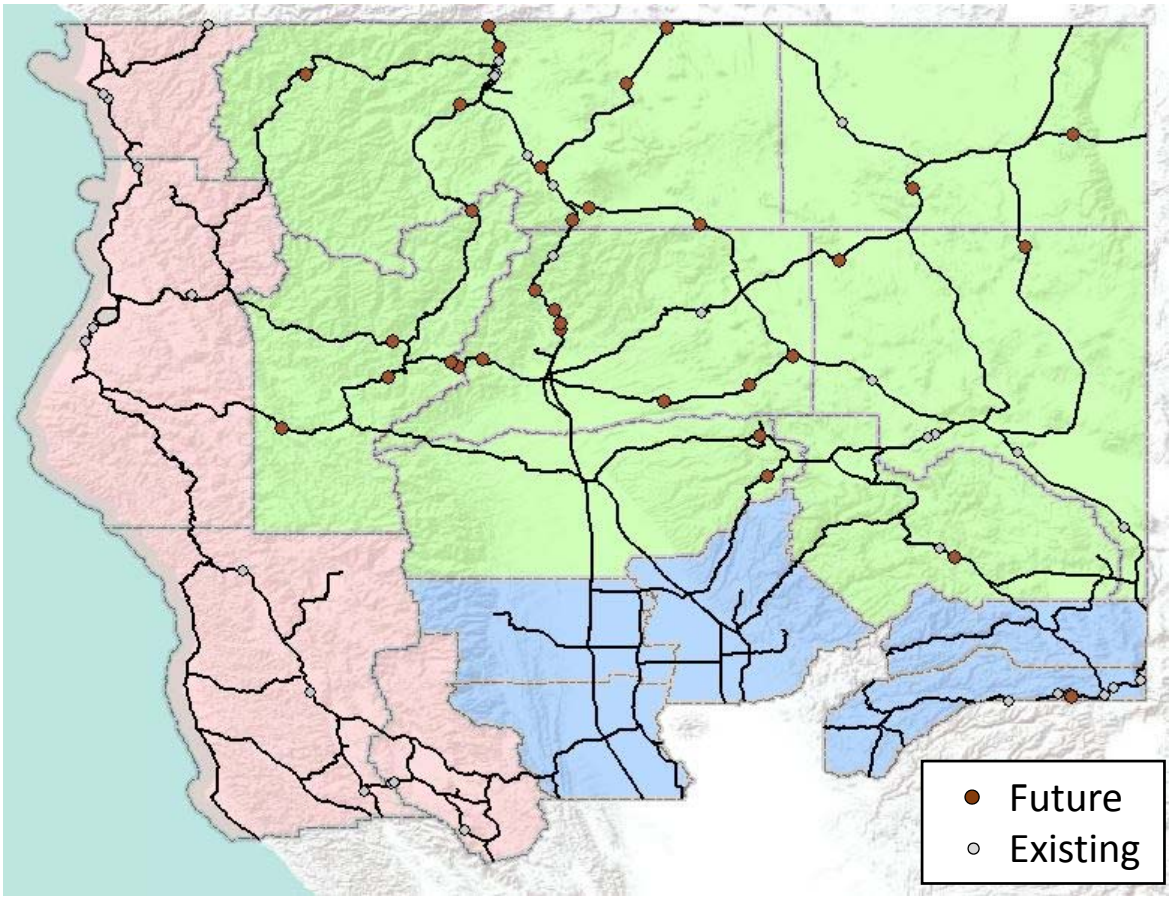
Future ITS Inventory

Highway Advisory Radio (HAR)



Future ITS Inventory

Road Weather Information System (RWIS)



APPENDIX F
ROLES AND RESPONSIBILITIES

Appendix F: Roles and Responsibilities

This Appendix describes the various arrangements that need to be in place to support the deployment and maintenance of Upstate ITS elements. Although a majority of the ITS elements expected to be deployed in the Upstate region are likely to fall under the jurisdiction of Caltrans, there are many stakeholders who may be involved, so it is important to consider the various roles and responsibilities of these stakeholders, and how they interact.

F.1. Ownership Arrangements

Traditionally, each agency owns all the equipment installed within its own right of way, and this has often led to inefficiencies (or even resistance to cooperation) when an ITS program requires connections and equipment that cross jurisdictional boundaries. An example of this is transit signal priority (TSP), which when implemented at a per-intersection level, requires transmission equipment on buses and receiving equipment on the roadside connected to the traffic signal controller. Situations that may arise in this case include:

1. The agency owning the traffic signal refusing to accept TSP inputs to the traffic signal.
2. The signal agency agreeing to the operational arrangement, but not allowing any TSP equipment to be installed within their cabinet. The result of this is generally to install another cabinet adjacent to the signal cabinet.
3. The signal agency agreeing to have TSP equipment installed within their cabinet, but taking no responsibility for maintenance of the equipment.
4. The signal agency agreeing to accept ownership of all equipment installed within the cabinet and responsibility for its maintenance. This generally leads to an efficient operation.

Some ownership arrangements may require formal agreements between the agencies, and transfers of funds depending who has accepted financial responsibility for the program. Several different arrangements should be considered to cover efficient future implementation, maintenance and operation of various ITS programs, as described below. Each of these will have implications for inter-agency agreements related to funding and responsibility for installation, maintenance and operation, and the most appropriate for a particular project or local area should be selected.

1. Separation of ownership from maintenance responsibilities. Occasionally an agency that owns only a small number of signals, or whose signals are separated by long distances, will contract the maintenance to a private company or to another public agency that can more efficiently provide the service (e.g., a neighboring city or county, or an electric utility company that has appropriately qualified staff).
2. All equipment for all ITS programs is owned and maintained by the agency within whose ROW the equipment is installed.
3. All equipment for all ITS programs is owned by the agency within whose ROW the equipment is installed, but maintained by the agency with responsibility for the relevant ITS program (e.g., traffic monitoring, weather monitoring, TSP, incident management, freight management.).
4. When maintenance responsibility is separated from ownership, equipment housed in separate enclosures according to division of maintenance responsibility.
5. Equipment owned by each agency responsible for relevant ITS program and installed in ROW of another agency using encroachment permit. This would have implications for how funding programs are organized (e.g., all TSP equipment owned by relevant transit

agencies; all RWIS owned by Caltrans, regardless of classification of road on which it is installed.).

One important consideration is that the Upstate Caltrans Districts have little experience with mixing ownership and ROW, due to a lack of need. This has led to a standard operating procedure that heavily favors Caltrans installing, owning, and maintaining all ITS elements within the State ROW. For example, in the entirety of District 2 there is only one non-Caltrans ITS element in Caltrans ROW, an ODOT element by the Oregon border.

It is recommended that each District develop policies or principles regarding ownership, operation and maintenance of ITS equipment located within Caltrans ROW and/or connected to or interfaced with Caltrans systems. These principles should then guide both Caltrans and other agency staff to develop specific arrangements to accommodate each new project as it is developed.

F.2. Maintenance Arrangements

As described in the previous section, each Distict should develop guiding principles for maintenance of ITS elements within their District, and use these principles to develop specific maintenance arrangements to accommodate each new project. As a starting point, it would be appropriate for each agency to assume maintenance responsibility for ITS equipment installed within its ROW. However, certain elements of the ITS program that require specialist skills, such as maintenance of fiber optic cable, and some communications equipment, will be more appropriately maintained by a specialist group (e.g., from Caltrans HQ, another Caltrans District, or private contractor).

Each District and agency needs to include an adequate amount for maintenance of ITS equipment in their annual operating budgets. This should be based on the capital cost of the equipment for which the agency is responsible for maintenance, per the various operating agreements. As a rule of thumb, it is typical to allow approximately 10% of the capital cost of ITS equipment for the annual maintenance cost. Specific agreements and/or contracts will be necessary to formalize these arrangements, including key performance indicators.

When each implementation project is being planned and designed, the most cost-effective maintenance arrangements need to be determined, and built into the design. This will lead to decisions about communications system, remote trouble shooting, self-diagnosing and self-healing equipment and other equipment capabilities that are compatible with the agreed maintenance arrangements. These considerations and the agreed maintenance arrangements should be documented in the appropriate Concept of Operations or other design document, prior to completion of design documents.

F.3. Operations Arrangements

The operational arrangements for each ITS element describe the roles and responsibilities for the use, operations, and maintenance of the proposed system, and need to be agreed to and documented prior to completion of design documents for each project. Each District needs to set up guiding principles and policies that will govern the operation of each type of element within the various environments within which they are likely to be installed. For each category, the following questions should be considered:

1. Who is responsible for setting up, fine tuning, and monitoring each type of ITS element, in which location?
2. What elements need to be monitored by staff at a Caltrans facility? Is this the District office, or a regional office?
3. What elements need to be monitored by staff at a local agency facility?
4. What type of monitoring is required? (e.g., on-line 24/7, contact and report on schedule, contact and report when threshold conditions are met.)

During the development of individual ITS projects, the region should use the Systems Engineering (SE) process. A vital part of the SE process includes developing a Project Concept of Operations (ConOps), which describes the project purpose, goals, concept, and operations of a specific ITS system in lay person terms. The ConOps serves as the basis for developing system functional requirements, specifications, and designs, as well as cementing operational arrangements such as who will own, operate, monitor, control, and maintain the proposed system and equipment.

The selected arrangements will affect the cost of, and in turn be affected by the quality of, the communications network across the Super Region. It is likely that the most appropriate operations arrangement for an agency, a District, or an ITS program, will vary depending on the nature of the program and the location of the relevant ITS elements.

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APPENDIX G
ITS ARCHITECTURE SERVICE PACKAGES

Appendix G: ITS Service Packages

As defined under the National ITS Architecture, service packages, formerly known as market packages, collect together one or more functional objects that must work together to deliver a given ITS service and the information flows that connect them and other important external systems. In other words, they identify the pieces of the physical view that are required to implement a particular ITS service. Service packages are implemented through projects (or groups of projects, aka programs) and in transportation planning, are directly related to ITS strategies used to meet regional goals and objectives.

Based on the operational needs identified by stakeholder agencies, those service packages most relevant to the Upstate region were identified and are highlighted in the following table.

Legend:
Bold – Service Package that incorporates Tier 1 Tactic(s)
~~Strikeout~~ – Service Package omitted from the Upstate Regional ITS Architecture (not applicable or priority to region at this time, implemented by entities outside region).

Area	Short Name	Name	Remarks
Commercial Vehicle Operations	~~CVO01~~	~~Carrier Operations and Fleet Management~~	CVO systems are primarily private sector or statewide/national in nature, without significant interaction with local agencies and systems.
	~~CVO02~~	~~Freight Administration~~	
	CVO03	Electronic Clearance	
	CVO04	CV Administrative Processes	
	~~CVO05~~	~~International Border Electronic Clearance~~	
	~~CVO06~~	~~Freight Signal Priority~~	
	CVO07	Roadside CVO Safety	
	CVO08	Smart Roadside and Virtual WIM	
	~~CVO09~~	~~Freight-Specific Dynamic Travel Planning~~	
	~~CVO10~~	~~Road Weather Information for Freight Carriers~~	
	~~CVO11~~	~~Freight Drayage Optimization~~	
	CVO12	HAZMAT Management	
	~~CVO13~~	~~Roadside HAZMAT Security Detection and Mitigation~~	
	~~CVO14~~	~~CV Driver Security Authentication~~	
	~~CVO15~~	~~Fleet and Freight Security~~	
	~~CVO16~~	~~Electronic Work Diaries~~	
	~~CVO17~~	~~Intelligent Access Program~~	
	~~CVO18~~	~~Intelligent Access Program - Weight Monitoring~~	
	~~CVO19~~	~~Intelligent Speed Compliance~~	
Data Management	DM01	ITS Data Warehouse	Not a priority need at this time.
	DM02	Performance Monitoring	

Area	Short Name	Name	Remarks
Maintenance and Construction	**MC01**	**Maintenance and Construction Vehicle and Equipment Tracking**	In many cases, advances in this area will come through HQ. Near term focus on fleet management, monitoring and traveler information.
	MC02	Maintenance and Construction Vehicle Maintenance	
	MC03	Roadway Automated Treatment	
	MC04	**Winter Maintenance**	
	MC05	Roadway Maintenance and Construction	
	MC06	Work Zone Management	
	MC07	Work Zone Safety Monitoring	
	MC08	**Maintenance and Construction Activity Coordination**	
	MC09	**Infrastructure Monitoring**	
Parking Management	~~PM01~~	~~Parking Space Management~~	Not identified as a need in region at this time.
	~~PM02~~	~~Smart Park and Ride System~~	
	~~PM03~~	~~Parking Electronic Payment~~	
	~~PM04~~	~~Regional Parking Management~~	
Public Safety	PS01	Emergency Call-Taking and Dispatch	Public safety systems are primarily emergency responder and statewide in nature, without significant interaction with local agencies and systems.
	PS02	Routing Support for Emergency Responders	
	PS03	**Emergency Vehicle Preemption**	
	PS04	Mayday Notification	
	PS05	Vehicle Emergency Response	
	PS06	Incident Scene Pre-Arrival Staging Guidance for Emergency Responders	
	PS07	Incident Scene Safety Monitoring	
	PS08	Roadway Service Patrols	
	PS09	Transportation Infrastructure Protection	
	PS10	**Wide-Area Alert**	
	PS11	Early Warning System	
	PS12	**Disaster Response and Recovery**	
	PS13	Evacuation and Reentry Management	
	PS14	**Disaster Traveler Information**	
Public Transportation	**PT01**	**Transit Vehicle Tracking**	Consistent with limited existing transit service, most transit ITS packages are not considered a priority need at this time.
	PT02	Transit Fixed-Route Operations	
	PT03	Dynamic Transit Operations	
	PT04	**Transit Fare Collection Management**	
	PT05	Transit Security	
	PT06	Transit Fleet Management	
	PT07	Transit Passenger Counting	
	PT08	**Transit Traveler Information**	

Area	Short Name	Name	Remarks
	PT09	Transit Signal Priority	
	~~PT10~~	~~Intermittent Bus Lanes~~	
	PT11	Transit Pedestrian Indication	
	PT12	Transit Vehicle at Station/Stop Warnings	
	PT13	Vehicle Turning Right in Front of a Transit Vehicle	
	~~PT14~~	~~Multi-modal Coordination~~	
	~~PT15~~	~~Transit Stop Request~~	
	~~PT16~~	~~Route ID for the Visually Impaired~~	
	~~PT17~~	~~Transit Connection Protection~~	
	PT18	**Integrated Multi-Modal Electronic Payment**	
Support	~~SU01~~	~~Connected Vehicle System Monitoring and Management~~	These service packages relate primarily to connected vehicles. Not a priority need at this time.
	~~SU02~~	~~Core Authorization~~	
	SU03	Data Distribution	
	~~SU04~~	~~Map Management~~	
	~~SU05~~	~~Location and Time~~	
	~~SU06~~	~~Object Registration and Discovery~~	
	~~SU07~~	~~Privacy Protection~~	
	~~SU08~~	~~Security and Credentials Management~~	
	SU09	Center Maintenance	
	SU10	Field Equipment Maintenance	
	SU11	Vehicle Maintenance	
	SU12	Traveler Device Maintenance	
Sustainable Travel	~~ST01~~	~~Emissions Monitoring~~	Not a priority need at this time.
	ST02	Eco-Traffic Signal Timing	
	~~ST03~~	~~Eco-Traffic Metering~~	
	ST04	Roadside Lighting	
	~~ST05~~	~~Electric Charging Stations Management~~	
	~~ST06~~	~~HOV/HOT Lane Management~~	
	~~ST07~~	~~Eco-Lanes Management~~	
	~~ST08~~	~~Eco-Approach and Departure at Signalized Intersections~~	
	~~ST09~~	~~Connected Eco-Driving~~	
	~~ST10~~	~~Low Emissions Zone Management~~	
Traffic Management	**TM01**	**Infrastructure-Based Traffic Surveillance**	Traffic management is a basic function for Caltrans and local agencies. Near-term emphasis on more
	TM02	Vehicle-Based Traffic Surveillance	
	TM03	**Traffic Signal Control**	
	TM04	Connected Vehicle Traffic Signal	

Area	Short Name	Name	Remarks
		System	traditional ITS strategies.
	TM05	Traffic Metering	
	TM06	**Traffic Information Dissemination**	
	TM07	**Regional Traffic Management**	
	TM08	Traffic Incident Management System	
	TM09	Integrated Decision Support and Demand Management	
	~~TM10~~	~~Electronic Toll Collection~~	
	~~TM11~~	~~Road Use Charging~~	
	TM12	**Dynamic Roadway Warning**	
	TM13	Standard Railroad Grade Crossing	
	TM14	Advanced Railroad Grade Crossing	
	TM15	Railroad Operations Coordination	
	~~TM16~~	~~Reversible Lane Management~~	
	~~TM17~~	~~Speed Warning and Enforcement~~	
	~~TM18~~	~~Drawbridge Management~~	
	TM19	Roadway Closure Management	
	~~TM20~~	~~Variable Speed Limits~~	
	~~TM21~~	~~Speed Harmonization~~	
	TM22	Dynamic Lane Management and Shoulder Use	
	~~TM23~~	~~Border Management Systems~~	
Traveler Information	**TI01**	**Broadcast Traveler Information**	This area encompasses both public- and private-sector information services. In general, traveler information is priority need for region.
	TI02	**Personalized Traveler Information**	
	TI03	Dynamic Route Guidance	
	TI04	Infrastructure-Provided Trip Planning and Route Guidance	
	TI05	Travel Services Information and Reservation	
	TI06	Dynamic Ridesharing and Shared Use Transportation	
	~~TI07~~	~~In-Vehicle Signage~~	
Vehicle Safety	VS01	Autonomous Vehicle Safety Systems	This area largely encompasses AV and CV applications. Not identified as a priority need at this time. Considered longer-term. Expected to be largely statewide/ national and private sector lead.
	~~VS02~~	~~V2V Basic Safety~~	
	~~VS03~~	~~V2V Situational Awareness~~	
	~~VS04~~	~~V2V Special Vehicle Alert~~	
	VS05	Curve Speed Warning	
	VS06	Stop Sign Gap Assist	
	VS07	Road Weather Motorist Alert and Warning	
	VS08	Queue Warning	
	VS09	**Reduced Speed Zone Warning / Lane Closure**	

Area	Short Name	Name	Remarks
	VS10	**Restricted Lane Warnings**	
	VS11	**Oversize Vehicle Warning**	
	VS12	**Pedestrian and Cyclist Safety**	
	VS13	Intersection Safety Warning and Collision Avoidance	
	~~VS14~~	~~Cooperative Adaptive Cruise Control~~	
	VS15	Infrastructure Enhanced Cooperative Adaptive Cruise Control	
	VS16	Automated Vehicle Operations	
Weather	**WX01**	**Weather Data Collection**	Priority need. Encompasses a variety of tactics.
	WX02	**Weather Information Processing and Distribution**	
	WX03	**Spot Weather Impact Warning**	

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APPENDIX H
ITS ARCHITECTURE INVENTORY ELEMENTS

Appendix H: ITS Architecture Elements

An inventory of existing and potential future ITS elements is the basis for a regional ITS Architecture. Within this context, an ITS element can be a center, vehicle, traveler, or field equipment. For the latter, the ITS architecture considers types or groupings of field equipment rather than individual devices as presented in the ITS Inventory (Appendix B).

The table below lists the ITS elements relevant to the Super Region and that would serve as inputs to a regional architecture database using the ARC-IT package. In order to reduce the complexity of the architecture, some transportation elements with like functionality have been grouped together.

Element Name	Element Description	Stakeholder	Element Status
Agency/Subsystem Data Archive	Represents a small-scale data archived for a specific ITS system (e.g. a traffic signal or transit management system) or agency. May push information to a larger regional or statewide Archived Data Warehouse.	Cities, counties	Existing
Archived Data Users	Systems, individuals, or agencies that utilize archive data (agencies or third parties).	Archived Data Users	Existing
California Highway Patrol (CHP) Dispatch	Dispatch for WSP vehicles to carry out statewide policing and to enforce commercial vehicle violations.	CHP	Existing
CHP Vehicles	Vehicles used by the WSP.	CHP	Existing
Caltrans Communications Center (StateComm)	Statewide emergency and transportation coordination center that provides emergency, incident, and medical response across California. Provides transportation operations services and operates ITS equipment across the state.	Caltrans	Existing

Element Name	Element Description	Stakeholder	Element Status
Caltrans District Traffic Management Center	Districts 1, 2 and 3 each have their own TMC through which they coordinate cameras, CMSs, and other traffic control devices.	Caltrans	Existing
Caltrans District Maintenance Dispatch	Districts 1, 2 and 3 each have their own center responsible for maintenance dispatch including winter road maintenance.	Caltrans	Existing
Caltrans ITS Field Devices	Represents all Caltrans ITS devices including Dynamic Message Signs (DMS), Road Weather Information Systems (RWIS), Surveillance Cameras, Traffic Data Sensors, Traffic Signals, and other ITS devices.	Caltrans	Existing
Caltrans Maintenance Vehicles	Roadway and winter maintenance vehicles operated by Caltrans, including snow plows.	Caltrans	Existing
Caltrans Statewide Traveler Information System	Statewide traveler information system including the website, mobile applications, and telephone traveler information.	Caltrans	Existing
Caltrans Statewide Archived Data Warehouse	This data warehouse serves as a regional data clearinghouse and analytic tools for collecting, archiving, and sharing information. Primary example is PeMS.	Caltrans	Existing

Element Name	Element Description	Stakeholder	Element Status
Caltrans Work Zone Database	This database is a tool for scheduling and reporting construction and maintenance activity along state highways, and feeds into traveler information systems	Caltrans	Existing
Local Agency Traffic Operations Centers	For management of traffic signals and ITS devices on arterial/county roadways.	Cities, counties	Future
Local Agency Central Traffic Signal System	Central system for traffic signal control, monitoring, maintenance, and reporting.	Cities, counties	Existing
Local Agency DPW Maintenance Dispatch	Dispatch center for local agency (road and winter maintenance)	Cities, counties	Existing
Local Agency DPW Maintenance Vehicles	Roadway and winter maintenance vehicles operated by local agencies, including snow plows.	Cities, counties	Existing
Local Emergency Management Dispatch Center	Dispatch center for police, fire, EMS and other purposes.	Cities, counties	Existing
Local Agency ITS Field Devices	Represents all local agency ITS devices including CMSs, Surveillance Cameras, Traffic Data Sensors, Traffic Signals, and other ITS devices.	Cities, counties	Existing
Local Agency Public Safety Vehicles	Local agency police vehicles, fire trucks, and ambulances that are used to respond to a variety of emergencies.	Cities, counties	Existing

Element Name	Element Description	Stakeholder	Element Status
Local Police/Fire/Emergency Response Agency	Represents City and Regional emergency management agencies.	Local Emergency Responders	Existing
Media	News, radio, Internet, or other public information dissemination media.	Local Media	Existing
Public and Private Parking Facilities	Parking facilities (lots and garages) in major commercial, employment, and event centers, including downtown areas, universities, sporting venues, etc.	Various public agencies, private operators	Existing
Personal Information Devices	Personal electronic devices used to access traveler information, including smart phones, cellular phones, in-vehicle devices, and tablet computers.	Travelers	Existing
Private Ground Transportation Services	Operators and dispatchers for private taxi, limo, and transit services- e.g. Greyhound Lines,	Private Ground Transportation Providers	Existing
Private Utility Services	Private utility companies or employees that may provide information about work that may impact travel, such as through road closures -	Private Utilities	Existing
Railroad Operators	Rail operators in the Super Region, including Amtrak and BNSF.	Railroads	Existing

Element Name	Element Description	Stakeholder	Element Status
Regional Traveler Information Broker	A traveler information dissemination "clearinghouse" that provides real-time information from multiple agency sources to a variety of public and private traveler dissemination resources, including website and private traveler information services.		Future
Regional Archived Data Warehouse	This data warehouse would serve as a regional data clearinghouse and analytic tools for collecting, archiving, and sharing information.		Future
Regional Construction and Maintenance Event Clearinghouse	This web-based system provides regional information about planned construction and maintenance event information to facilitate interagency coordination and traveler information dissemination. The system includes the participation of local agencies, Caltrans, Transit, and private utility services.		Future
Regional Transportation Management Center	Multi-modal regional transportation management facility for the region, including control capabilities for Caltrans and certain local agency ITS devices.		Existing

Element Name	Element Description	Stakeholder	Element Status
State Emergency Operations Center	State emergency operations center for coordination of large-scale emergencies and natural disasters.	State Emergency Operations Center	Existing
Transit Facilities Surveillance Cameras	Fixed facility cameras (e.g. at transit centers and park and rides) used primarily for security surveillance and in support of transit operations.	Transit operators	Future
Transit Fare Payment Smart Card	A reloadable transit contactless fare card currently used for STA services. Includes electronic pass programs with local schools, colleges, universities, and employers.	Transit operators	Existing
Transit Fixed Route Dispatch	The dispatch center for fixed route vehicles uses Computer-Aided Dispatch/Automatic Vehicle Location (CAD/AVL) software as well as voice and data communications to assist in transit operations.	Transit operators	Existing
Transit Fixed Route Operators	Coach (bus) operator of fixed route vehicles.	Transit operators	Existing

Element Name	Element Description	Stakeholder	Element Status
Transit Fixed Route Vehicles	Buses equipped with Smart Bus technologies. This may include on-board fareboxes that have smart card functionality, video and audio surveillance, automatic vehicle location, automated passenger counters, automatic stop annunciation, crash avoidance systems, as well as equipment supporting future transit signal priority.	Transit operators	Existing/future
Transit Operations Personnel	Transit operations personnel managing transit operations in real time, either in the central dispatch facility or as field supervisors.	Transit operators	Existing
Transit Paratransit Dispatch	The dispatch center for paratransit vehicles that uses computer assisted reservations/scheduling software to assist with operations.	Transit operators	Existing
Transit Paratransit Operators	Operator of paratransit vehicles.	Transit operators	Existing
Transit Paratransit Vehicles	Paratransit vehicles which have mobile data terminals for coordinating with dispatch.	Transit operators	Existing

Element Name	Element Description	Stakeholder	Element Status
Transit Park and Ride Facilities	Transit park-and-ride facilities, which are often key passenger hubs and include ITS equipment such as security surveillance cameras, ticket vending machines, and real-time traveler information.	Transit operators	Existing
Transit Real-Time Customer Information Systems	Transit customer information system based on real-time information obtained from Smart Bus technologies, including electronic message signs at strategic locations, enhanced web and mobile applications, a real-time transit trip planner, and subscription-based transit information alerts.	Transit operators	Existing
Third-Party Transportation Data Sources		Third-Party Transportation Data Sources	Future
Third-Party Traveler Information Service Provider	A private company, public agency, or other external organization that provides traveler information to the public, such as real-time traffic or incident information.	Third-Party Traveler Information Service Providers	Existing
Travelers	Includes personal and commercial vehicle operators.	Travelers	Existing
Vehicles	Traveling vehicles that receive and transmit information to roadside devices.	Travelers	Existing

Element Name	Element Description	Stakeholder	Element Status
Weather Information Services	A service or system that can provide forecast information for the purposes of road conditions forecasting and/or dissemination to the public through information service providers.	Other Weather Service	Existing

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