Cover Page

US 50 Integrated Corridor Management – Sacramento Region

Project Name	US 50 Integrated Corridor Management Project
Eligible Entity Applying to Receive Federal Funding	California Department of Transportation
Total Project Cost (from all sources)	$32,510,000
ATCMTD Request	$12,000,000
Are Matching Funds restricted to a specific component? If so, which one?	No
State(s) in which the project is located	California
Is the project currently programmed in the: • Transportation Improvement Program (TIP) • Statewide Transportation Improvement Program (STIP) • MPO Long Range Transportation Plan • State Long Range Transportation Plan	The US 50 ICM Project will be programmed in the State Highway System Management Plan, which is the long-range plan for the State Highway Operation and Protection Program (SHOPP).
Technologies Proposed to be Deployed	• Arterial Management System (AMS) Integration – System Detection, Bluetooth Readers, Traveler Information Signs, Signal Central System Upgrades, and Stop Sign to Signal Upgrades • Signal Controller Upgrades • Signal Cabinet and Communication Upgrades • HOV Ramp Metering Modifications, Intersection Video Surveillance upgrades • Signal Central System • Ramp Metering Central System • Dynamic Corridor Ramp Metering • Fiber Optics • ICM System integration and upgrades

Contents

1. Introduction

The US 50 corridor contains an array of freeway, arterial, multimodal transit and bicycle and pedestrian networks that are independently maintained and operated by Caltrans and its partners. Recent studies have shown that the US 50 corridor experiences frequent operational deficiencies. Specifically, incident and collision analysis were completed for 2013 using TASAS (Traffic Accident, Surveillance and Analysis System) data and in 2015 using the California Highway Patrol Computer Aided Dispatch (CHP-CAD) incident data. These analyses ranked the US 50 corridor as having some of the highest Incidents per mile (2015 CHP CAD) in District 3. US 50 also ranked high in Vehicle Miles Travelled (VMT) and VMT per mile (2015 PeMS). The US 50 Corridor consistently experiences significant delay due to incidents. When reviewing motorist delay performance indicators, I-80, US 50 and SR 99 were found to experience the greatest delays.

When incidents occur, whether it be on a freeway or an arterial, some motorists often choose to sit in congestion, frustrated. However, many choose to embark on various un-organized detour routes. This pattern of unorganized action has steadily increased as cellular based applications (e.g. WAZE, Google Maps, etc) provide route guidance suggestions to motorists to get around areas of congestion. This often results in movements through areas that are not designed for the increase in traffic. Implementing US 50 Integrated Corridor Management (ICM) would help soothe this problem and is one of the congestion relief strategies identified in the Sacramento Area's Council of Government's (SACOG's) Congestion Management Plan.

Also a part of the Congestion Management Plan is SACOG's Sacramento Transportation Area Network (STARNET). Since 2003, SACOG has been working with its regional partners on improving the operational, informational, and institutional gaps in current corridor operations. In 2005, a Memorandum of Understanding (MOU) for participation in the Regional ITS Deployment Strategy was signed by thirteen regional partners. This led to the development of the Sacramento Transportation Area Network (STARNET).

First deployed in 2009, STARNET and its Concept of Operations is an information exchange network that is designed to be utilized by transportation facilities and their operators and emergency responders in the Sacramento region. STARNET enables the real-time sharing of live video and data pertaining to the operation of roadways and public transit. This information assists operations personnel in the coordination of their activities and provides the public with comprehensive information about current travel conditions and options. STARNET is comprised of the physical fiber data sharing amongst partners and a software Graphical User Interface (GUI) which allows the regional operators to view, share, and control some of the ITS elements.

The US 50 ICM Project, which STARNET is an integral component, is a "system of systems" and is not only a technology upgrade, but is also an optimization of institutions and cultures to fully exploit the network capacity of the corridor. These improvements lay the foundation for our partners, to improve their local network that ultimately advances the transportation system in the Sacramento region. The US 50 ICM project can be described in two parts:

I. Architectural Engineering (AE)
II. Software Development (SD)

AE will include new and upgraded communications, Changeable Message Signs (CMS), Dynamic Message Signs (DMS), Ramp Meter Systems (RMS), Cameras, Queue Warning Systems, Traffic Signals, Vehicle-to-Infrastructure (V2I) and Automated Vehicle (AV) communication access points and Maintenance Vehicle Pullouts (MPV) will be added where required. This is consistent with the City of Sacramento's Smart Cities initiative where networks of local arterials have been identified for deploying autonomous vehicle infrastructure technologies.

The SD will include configuring and integrating Caltrans' furnished Decision Support System (DSS) to interface with the Data Hub used to store and access data, the Data Bus used to access field elements and the information Exchange Network (IEN) used to translate incompatible information to leverage existing system assets. Developing a new coordinated ramp metering system with in the US 50 Corridor will assist ICM incident performance and address recurring congestion that impacts both the highway and parallel arterial facilities.

Caltrans and its partners propose to manage the US 50 corridor as one multimodal system. The US 50 Integrated ICM Implementation Plan identified projects and formed partnerships that will improve incident management and overall system management, which will improve travel time reliability and predictability, manage congestion, and empower travelers through better information and more travel choices through all facilities and modes.

The improvements made through the US 50 ICM project lays the IT infrastructure foundation for this multijurisdictional consortium to develop a cohesive network for the deployment of advanced vehicle technologies, such vehicle-to-infrastructure and autonomous vehicles, while reducing incidents, traffic congestion, and meeting California's statewide greenhouse gas (GHG) reduction targets.

Table 1: US 50 ICM Project Cost Estimate

Project Limits	Segment	Phase	Improvements	Cost
Downtown Urban Core (I-80 to Hornet Drive - Howe/Power Inn)	1	1	• Arterial Management System (AMS) Integration – System Detection, Bluetooth Readers, Traveler Information Signs, Signal Central System Upgrades, and Stop Sign to Signal Upgrades • Caltrans D3 Signal Controller Upgrades, Signal Cabinet and Communication Upgrades, HOV Ramp Metering Modifications, Intersection Video Surveillance upgrades	$3,552,500
Suburban Sacramento County (Hornet Drive - Howe/Power Inn to Folsom Blvd. - Iron Point LRT Station)	2	1	• Arterial Management System (AMS) Integration – System Detection, Bluetooth Readers, Traveler Information Signs, Signal Central System Upgrades, and Stop Sign to Signal Upgrades • Caltrans D3 Signal Controller Upgrades, Signal Cabinet and Communication Upgrades, HOV Ramp Metering Modifications, Intersection Video Surveillance upgrades	$4,634,000
Central Control Systems and Integration	1, 2	1	• Transit, Parking, Active Transportation, Signal Central System, Ramp Metering Central System, Dynamic Corridor Ramp Metering, and ICM System integration and upgrades	$3,300,000
Design, Engineering and Support	1, 2	1	• System Engineering, Design & Construction Support	$1,000,000
Total				**$12,486,500**

2. Entities Entering Into Agreement with FHWA

Caltrans will be entering into the agreement with FHWA in partnership with the local government and transit agencies:

- Sacramento County
- City of Sacramento
- City of West Sacramento
- City of Rancho Cordova
- City of Folsom
- Sacramento Regional Transit (SacRT)
- Yolo County Transit District (YCTD)

A Memorandum of Understanding (MOU) will be executed between Caltrans and its partners. Caltrans has executed a significant number of MOUs with its partners and can guarantee that the agreements will be in place.

3. Project Boundaries

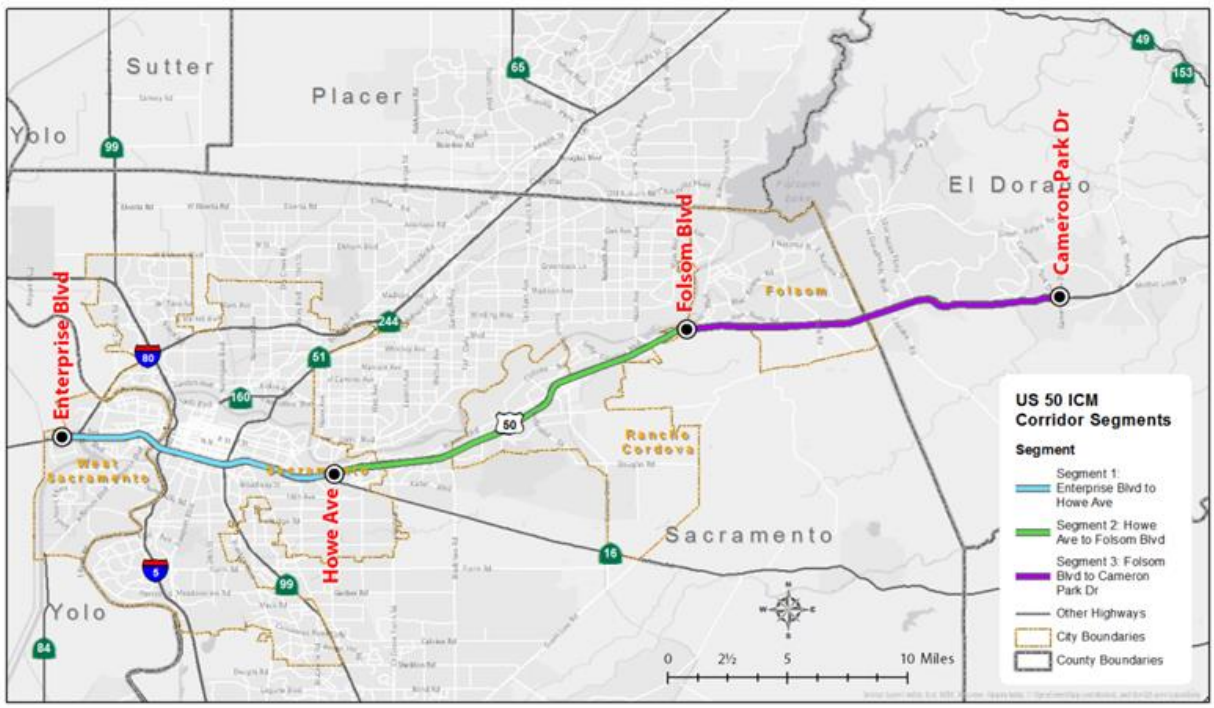

Figure 1: US 50 ICM Corridor Segments

The US 50 multimodal transportation corridor through Yolo, Sacramento, and El Dorado counties (as shown above) is under consideration for ICM deployment. The multimodal transportation corridor includes the freeway facility, arterials running parallel and connecting to the freeway facility, public transit systems, park and ride lots, transit parking structures, surface lots, and both bicycle and pedestrian facilities.

The US 50 ICM corridor was divided into three sub-segments for initial data collection and implementation. The US 50 ICM Project will be implementing Segments 1 and 2. The segments are as follows:

- Segment 1 (10 miles) – Enterprise Blvd. in West Sacramento through the City of Sacramento to Howe Ave./ Hornet Drive in Sacramento County
- Segment 2 (14 miles) – Howe Ave./Hornet Drive through the cities of Sacramento, Rancho Cordova, and Folsom to Folsom Blvd/Iron Point LRT Station.

4. US 50 Corridor Challenges and Issues

The deployment of the US 50 ICM project, will address many of the issues and challenges that are currently present on the US 50 Corridor. Recent studies have shown that the US 50 corridor experiences frequent operational deficiencies stemming from non-recurrent traffic collision incidents. The analysis included number of collisions per mile, total vehicle miles traveled and vehicle hours of delay. Additional factors were considered, such as multimodal opportunities (transit, light rail, bicycle facilities, park and ride/transit stops, and the maturity of transit facilities), adjoining and parallel arterial networks, as well and as the participating agencies and their capabilities to implement ICM without major systems reconstruction.

The incident or collision analysis was completed for 2014 using TASAS (Traffic Accident, Surveillance and Analysis System) data and for 2016 using the California Highway Patrol Computer Aided Dispatch (CHP-CAD) incident data. Per analysis, the US 50 corridor was ranked as having the second or third highest incident rate in the Region depending on the year analyzed. Although State Route 51 and Interstate 80 had a greater number of incidents per mile, when evaluated considering the variables detailed above, the study participants elected to move forward with US 50 which also had a significant number of incidents per mile (see Table 2 and Figure 2).

Table 2: TASAS and CHP CAD Incident Data

Freeway Corridor	Freeway Miles	2014 TASAS Collisions	Collisions per mile	2016 CHP CAD Incidents	Incidents per mile
I-5	127	1,116	9	6,136	48
US 50	109	1,838	17	8,922	82
SR 51	9	639	71	3,351	372
SR 65	30	218	7	62	2
SR 70	81	224	3	768	9
I-80	132	2,123	16	12,866	97
SR 99	117	1,539	13	5,756	49
SR 113	38	87	2	205	5
SR 160	48	89	2	267	6

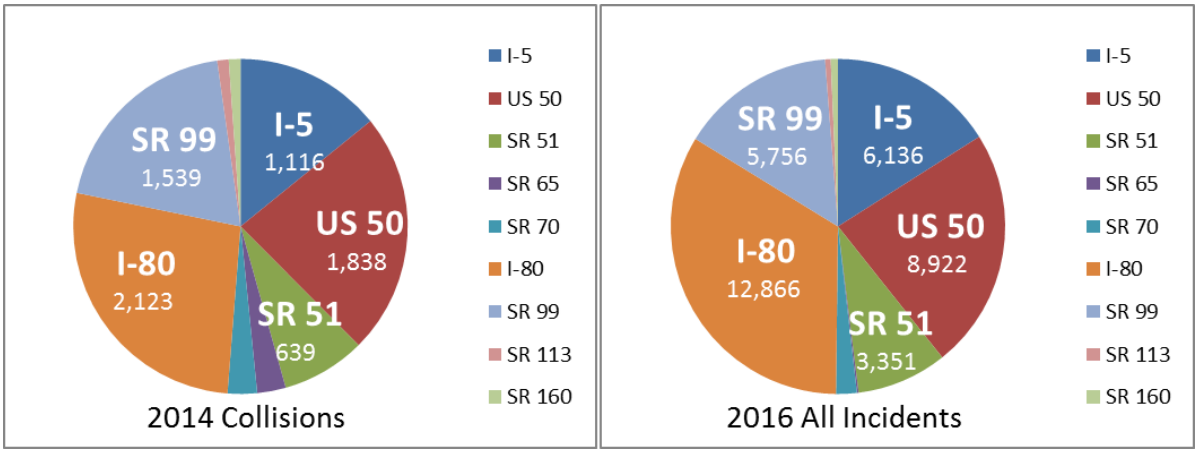

Figure 2: 2014 and 2016 Incidents by Route

Table 3: District 3 Caltrans Performance Management System - VMT and VHD

Freeway Corridor	Detection Coverage Miles	2016 Vehicle Miles Traveled (VMT)	VMT per mile	2016 Vehicle Hours Delay (VHD)	VHD per mile
I-5	46	1,693,751,000	29,946,000	1,814,000	39,400
US 50	47	2,321,711,000	43,503,000	2,399,000	51,000
SR 51	9	478,643,000	52,212,000	2,051,000	227,900
SR 65	13	303,522,000	22,829,000	270,000	20,800
SR 70	10	187,067,000	15,404,000	245,000	24,500
I-80	105	3,475,781,000	30,316,000	2,911,000	27,700
SR 99	48	1,778,030,000	37,122,000	2,170,000	45,700
SR 113	15	329,753,000	13,531,000	191,000	12,700
SR 160	4	64,844,000	14,295,000	209,000	59,700

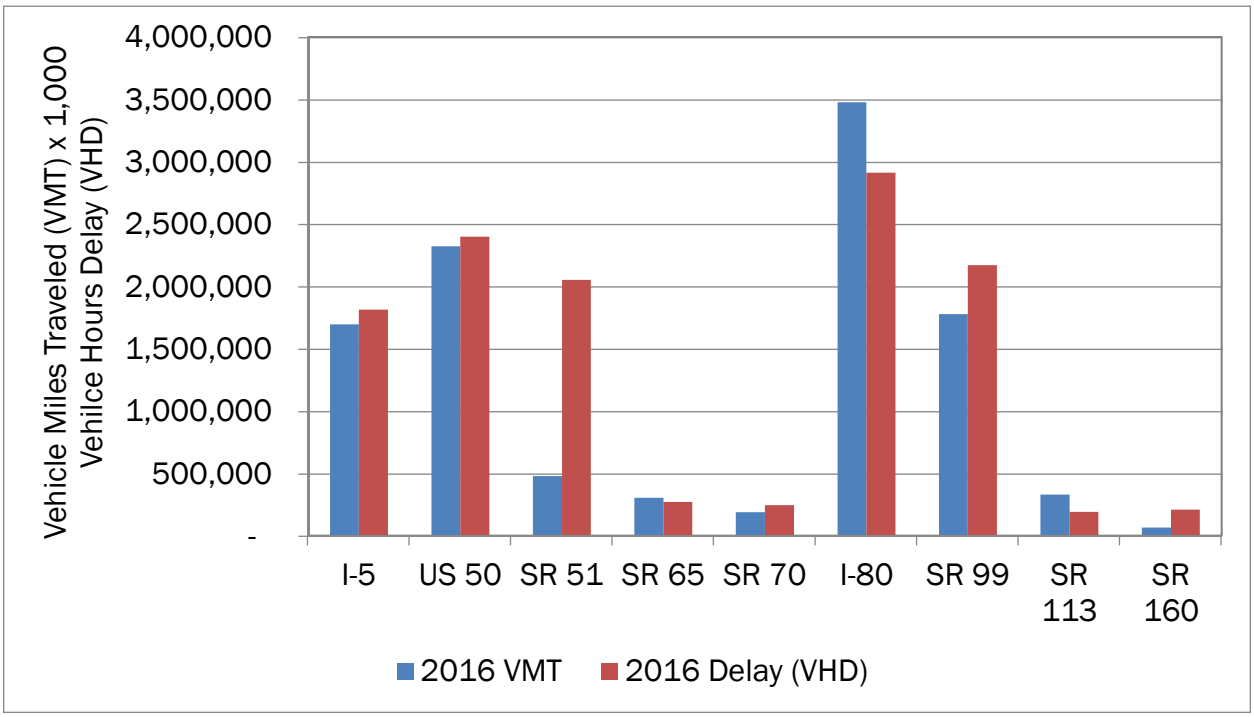

Figure 3: 2016 VMT and VHD by Route

The primary purpose of the US 50 ICM project is to improve the safety and travel time reliability on the US 50 Corridor, enhance transportation system management and integration, reduce the growth of daily vehicle hours of delay, improve incident response, maintain ITS element health, reduce primary and secondary collisions, more effectively coordinate multimodal traveler information improve roadside safety, and reduce GHGs.

After determining to move forward with the US 50 corridor, Caltrans and its partners examined the three proposed segments by the same factors for comparison purposes and to assure the participants that no one segment dominated the statistics (see Table 4). It can be observed that the higher hours of delay in the downtown urban core segment (Segment 1) align with the highest incident rate segment.

Segments 1 and 2 pass through three different jurisdictions and bordered on two additional agencies at the boundaries. The incident rates, VMT and VHD, are significant for ICM testing purposes and the ability to incorporate multiple transit agencies make these two segments a good initial test bed choice.

Table 4 US 50 ICM Corridor Attributes

Attributes	*Segment 1*	*Segment 2*	*Segment 3*
Description	Sacramento Downtown Urban Core	Suburban Sacramento County	Suburban El Dorado County
Limits	Enterprise Blvd (West Sac) to Howe Ave (Sac County)	Howe Ave (Sac. County) to Folsom Blvd (Folsom)	Folsom Blvd (Folsom) to Cameron Park Dr (El Dorado County)
Length	10 Miles	14 Miles	13 Miles
Local Arterial Jurisdictions	West Sacramento, Sacramento	Sacramento, Rancho Cordova, Folsom, Sacramento County	El Dorado County, Folsom
Transit Agencies	Yolo Bus, SacRT(bus and light rail)	SacRT, CordoVan, El Dorado Transit, Folsom Stage Lines	El Dorado Transit, Folsom Stage Lines
Multimodal hubs	Howe/Power Inn	Watt, Bradshaw, Mather Field, Sunrise, Hazel, Iron Point	Latrobe Road (Post Street)
Existing (2016) Vehicle Miles Traveled (VMT)	559,703,000	806,968,000	641,253,000
Existing (2016) Delay (vehicle-hours)	1,370,000	619,000	288,000
Existing (2014) TASAS Collisions	674	543	190
Existing (2016) CHP CAD Incidents	3,869	2,981	1,212

Implementing ICM strategies in both Segments 1 and 2 will improve performance of a Transportation Management System (TMS) without increasing capacity on US 50, leading to better Transportation System Management and Operations (TSMO).

This US 50 ICM project provides the opportunity for Caltrans and its partners to address multiple Concepts for ICM Implementation that were identified in the US 50 ICM Implementation Plan.

<u>Ranked Concepts for ICM Implementation:</u>

1. Address non-recurrent congestion
2. Provide corridor-specific traveler information system
3. Optimize multimodal operations
4. Manage goods movement and truck traffic

5. Address recurrent congestion

The concept of ICM will allow managers across agency boundaries to coordinate their actions, assess available capacity, and address a surge in demand at any one facility (e.g., as a result of an incident). When implemented in conjunction with Traveler Information (TI), the public can plan their points of exit from and entrance to the highway and ease impact on the local arterials and residential streets. By monitoring the performance of the corridor, additional capacity can be allocated in the direction of demand and reduce travel delay in a coordinated fashion, as illustrated in **Figure 5**.

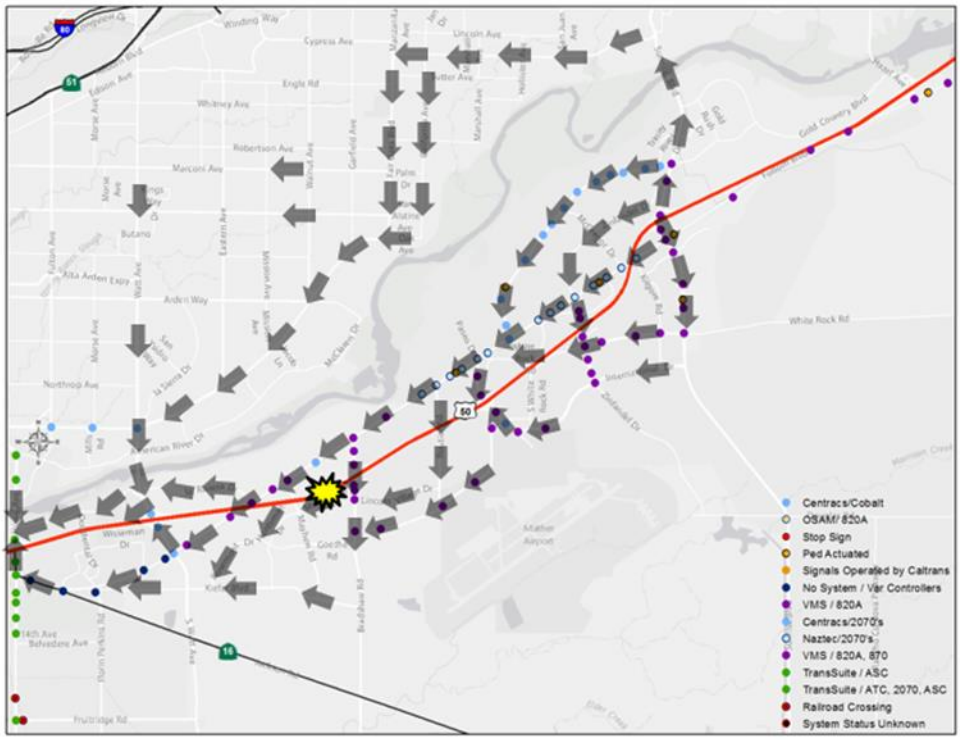

Figure 4: Typical Public Response to an Incident

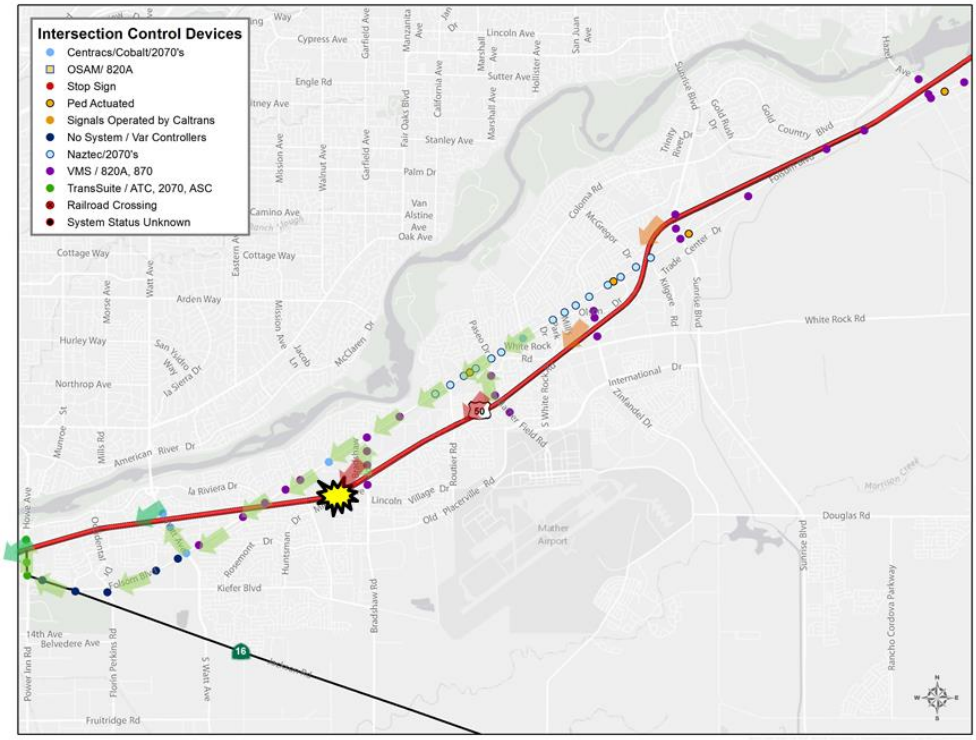

Figure 5: ICM Approach to Redistributed Demand

This coordinated approach to the demand will reduce the amount of "cut through traffic" in neighborhoods and on local streets, by enhancing capacity along the arterial network where applicable. As capacity of the arterial network is reached, Traveler Information can then be updated to inform public of the expected poor condition of the arterial network (and likely better conditions on the freeway by comparison) and discourage traffic from departing the highway system.

Traveler Information should also be used to inform motorists of other modes and/or route options available before beginning their trips or if already en route, before completing those trips. Providing real-time and accurate information on the status of the transit system and other available modes as part of the response plan allows the public to make informed decisions when choosing their mode, time of travel, and route to avoid traffic congestion. Caltrans and its partners worked together to take the following actions for the first phase of deployment for the US 50 ICM Project:

- Automatically detect congestion events
- Real-time (multimodal) decision support
- Network traffic prediction
- Real-time response strategy assessment
- Dynamic rerouting
- Freeway adaptive ramp metering
- Signal coordination with freeway ramp metering
- Regional arterial management
- En route traveler information
- Pre-trip traveler information

Additional strategies and systems for the US 50 integration are:

- Freeway system improvements
  - Corridor adaptive ramp metering
  - Advanced central signal control
  - Freeway vehicle detection and performance monitoring (VDS, Bluetooth/Wi-Fi, other sensors)
  - Traveler Information and Routing
- Arterial system improvements
  - Intersection control upgrades
  - Arterial vehicle detection and performance monitoring (VDS, Bluetooth/Wi-Fi, other sensors)
  - Trailblazer signing
- Other systems (transit, parking, active transportation, trucks)
- Integration System (decision support system, data hub, interfaces, etc.)
- Traveler information system
- Pre-planned and pre-approved response plans to various corridor conditions scenarios

Current congestion management approaches on freeways and arterials are not able to make full use of all network capacity as they have little to no visibility of conditions on adjacent facilities. Information on incidents, events, and changes in demand on one facility that may impact conditions on another are not communicated, even though this information may be critical in managing a response.

This multijurisdictional consortium realized that the pre-existing gaps in coordination, visibility and communications have prevented the full potential of the existing ITS system. Higher degrees of institutional integration and ITS build-out are needed in order to take full advantage of the transportation infrastructure capacity along the US 50 corridor.

Some of these have already been implemented or funded to be implemented along the corridor; however, the infrastructure will need additional investments before a complete proof of concept can be validated. Measurement of the performance of the transportation systems under before and after conditions will be required to determine the actual return on investment and gains in system performance. Data collection as required for the analysis should become a priority and investments should keep this data collection need in mind as choices are made on system investments.

5. Transportation Systems and Services

The 2006 Regional ITS Architecture and the California State ITS Architecture were reviewed to determine whether the Architecture flows required for implementation of the current vision of the ICM corridor were satisfied. The Regional ITS Architecture will soon be updated by SACOG and a review of technologies planned or envisioned for implementation within the ICM corridor should be completed and considered for inclusion as part of the upcoming update. The primary infrastructure components are presently supported by the regional architecture and should not present any limitations during the initial implementation phase.

A review of the market packages, as presented in Table 1, which were included in the 2006 ITS Regional Architecture showed that all potential infrastructure interfaces were included in the current version. The titles of each market package are self-explanatory and have been documented for review purposes. As the Architecture gets updated, inclusion of these market packages may be necessary.

Table 5: Market Package Analysis (Regional ITS Architecture 2006 version)

Area	Market Package	Name
Traffic Management	ATMS 01	Network Surveillance
	ATMS 02	Probe Surveillance
	ATMS 03	Surface Street Control
	ATMS 04	Freeway Control
	ATMS 06	Traffic Information Dissemination
	ATMS 07	Regional Traffic Control
	ATMS 08	Traffic Incident Management System
	ATMS 15	Railroad Operations Coordination
	ATMS 16	Parking Facility Management
Maintenance and Construction	MC 03	Roadway Weather Data Collection
	MC 04	Weather Information Processing and Distribution
	MC 07	Roadway Maintenance and Construction
	MC 08	Work Zone Management
	MC 10	Maintenance and Construction Activity Coordination
Public Transportation	APTS 01	Transit Vehicle Tracking
	APTS 02	Transit Fixed-Route Operations
	APTS 07	Multimodal Coordination
	APTS 08	Transit traveler Information
Traveler Information	ATIS 01	Broadcast Traveler Information
	ATIS 02	Interactive Traveler Information

The infrastructure necessary for the initial ICM implementation has been included in past versions of the Regional ITS Architecture. In most cases, an example of the ITS technology exists in some form within the regional transportation system. While the ITS elements exist, they are not necessarily widespread in their implementation and, consequently, additional ITS element construction will be needed.

Computer infrastructure will be required for the implementation of the ICM system, as well as to improve cross agency network connectivity. The Information Technology departments will need to be consulted as methodologies are developed to assure all network security is maintained. Obtaining support of concepts and preliminary approvals for those concepts will require working with the system developers, agency operations personnel and the IT policy makers to find solutions to these complex coordination concerns.

6. Deployment Plan (ConOps too)

The US 50 ICM Implementation Plan outlines implementation strategies that is will be used for the US 50 ICM project.

Formalize Partnership Group

Caltrans and its partners are currently outlining steps to formalize the US 50 ICM Implementation group through the development of a Charter. Caltrans and its partners have been meeting quarterly for the last year during the development of the US 50 ICM Implementation Plan and continue to meet in order to successfully implement the US 50 ICM Project.

Inter-Agency Agreements (Letters of Support)

The US 50 ICM Implementation Plan and Project have received letters of support from the following:

- SACOG
- City of Sacramento
- City of West Sacramento
- City of Rancho Cordova
- City of Folsom
- Sacramento Regional Transit
- El Dorado County Transportation Commission
- Yolo Regional Transit District

Develop System Engineering Plan

The System Engineering Plan would include formal documentation of a Concept of Operations and System Requirements. Analysis of compatibility with other systems will be developed or deployed by Caltrans will be completed as part of this project to leverage other investments made elsewhere in the State, including Adaptive Ramp Metering System, ICM system, and advanced traveler information system. A review of STARNET investments made by SACOG will also be completed to ensure duplicative efforts are avoided for systems that already exist. Caltrans District 3 will continue to work with Caltrans Headquarter and other Districts as the US 50 ICM Project advances.

Performance monitoring and data collection will continue to occur in order to understand performance of past investments once the US 50 ICM Project is implemented.

The role of the Local Agencies or "Arterial Operators" should be to advance their capabilities to monitor and control flow through their signal systems, and develop "approvable" alternative signal operational timing patterns (while continuing to leverage and look for opportunities to advance the concept of ICM and infrastructure improvements). Local agency management should maintain a commitment for working with Caltrans and develop improved interagency communications or use of STARNET. All software and potential data source investments should consider including standardized data formatting and the requirements of an interface control document (ICD) to serve as a key to the data flows. Investment in mid-block detection or investments in increased detection at regular intervals and flow measurement will be helpful in collecting data to support the "existing condition" as well as performance improvements as ICM begins implementation.

Deployment Strategy and Phased Implementation

Developing a phased strategy to implement the ICM corridor will help guide the partners as the project moves forward. By implementing the ICM project in phases and by segment, the partnership will be able to demonstrate the benefits of ICM without overtaxing the funding programs across the region.

The estimated costs have been prepared in two separate phases. This allows for Phase 2 work to be augmented or adjusted as necessary as actual data of progress, additional options, and funding from Phase 1 is available. The decision to phase the work was not intended to preclude any agency that was ready and able to participate from doing so as soon as possible. The purpose of the phasing is to provide flexibility and allow for the concept to move to production as rapidly as possible.

Institutional barriers will require attention, with IT policies typically being some of the most difficult issues to tackle. Documenting the IT relationships desired and the types of information to be exchanged across network interfaces should be some of the first work undertaken. Continued work on the Systems

Engineering aspects of planning will remain in the forefront and should be completed without a large time or resource investment by the partners. This task should be part of the initial design, engineering, and support task.

Procurement Strategy

Caltrans and its partners should work towards securing funding for the Segment 3 and Phase 2 as identified in the US 50 ICM Implementation Plan. Spending resources early in the first phase of the process to finalize the Concept of Operations and User Requirements will result in long term dividends. Not only is the use of System Engineering required for technology projects of this nature by the FHWA, but it has been shown many times to save developmental funds.

Though additional effort is required to document the needs of the participants, the dividends are returned by reducing "risk" for the developer who will be able to anticipate participant requirements. There will also need to be excellent communication and education of the requirements to the software developers who often are not well-versed or knowledgeable regarding traffic operations. Caltrans and the partnership should continue to use the known methods for securing funding and possibly seek special funding for "central control and integration". The new Federal Administration that took office in January 2017 has indicated that infrastructure investments will be a high priority. ICM is likely a project that "qualifies" for this type of funding, and the District and Local agencies should continue to monitor the progress of funding opportunities and be prepared to apply if any grant funded programs are announced.

7. Institutional Challenges

Some of the institutional challenges that the US 50 ICM Project has faced were the current state-of-the-practice in corridor management, which has been highly disaggregated and siloed. Many of the implementation strategies identified in the 2009 US 50 Corridor System Management Plan (CMSP) and other CSMPs within District 3 have not yet been implemented. Individual freeway, parallel arterial, transit, bicycle and pedestrian networks are independently operated with little or no operational or institutional coordination among them, which can impede efforts to reduce overall transportation corridor congestion and improve mobility.

With our partners, Caltrans District 3 embarked on developing a strategic plan to assist in planning and implementing Transportation System Management and Operations (TSMO). However, Caltrans District 3 was able to leverage the US DOT's Federal Highway Administration's initiative on Regional Concept for Transportation Operations by developing its own RCTO. By doing so, Caltrans District 3 and its partners engaged in a yearlong dialogue to enhance collaboration across each agency responsible for transportation management for each of the corridors in the Sacramento metropolitan area.

8. Quantifiable System Performance Improvements

The challenges and issues described in Section 4 of the application lays the foundation for Caltrans District 3 and its partners on monitoring the performance for US 50 ICM project. System performance is a result of the project improvements that will be supporting the objectives and goal of this project, which is outlined in more detail in Section 10 of this application. The following are the anticipated performance improvements as a result of implementing the US 50 ICM project:

Improve System Performance (Mobility, Safety, Reliability, Productivity)

- Decrease delay and collision (fatalities)
- Improve Travel Time Reliability
- Stability vehicle flow rates and average speeds

Provide Transportation Choices

- Increase non-auto modes usage
- Increase multimodal options provided
- Improve coordination with operations on parallel routes

Increase Accessibility (Connectivity, Traveler Information)

- Improve distribution of traveler information, multimodal connections made

Enhance Sustainability (Non-Auto Modes)

- Increase non-auto modes usage
- Reduce need for system expansion
- Position corridor to take advantage of emerging/future technologies

Improve Environment (GHG Emissions, Green Infrastructure)

- Reduce GHG emissions
- Add green infrastructure

Improve Collaborative Partnerships

9. Quantifiable Safety, Mobility, and Environmental Benefit Projections

The multijurisdictional approach to managing the US 50 corridor through ICM would have many benefits to residents in the Sacramento region. First, a performance based ICM approach would provide benefits in the following areas:

I. Increased people throughput in the US 50 Corridor, which can be observed by the traveling public in terms of reduced travel time and travel time reliability, fuel savings, and reduced emissions.
II. Improved ability respond to incidents
III. Upgraded and enhanced detection and communication system will allow transportation system managers to measure and assess roadway performance
IV. Integrated real-time information can be provided to travelers to allow them to make better transportation choices

It is expected that the US 50 ICM project will increase travel time reliability for all corridor users in the Sacramento area. The US Department of Transportation identified ICM project benefits, as shown in **Table 6**, to be realized in the cities in San Diego, Dallas, and Minneapolis. There is no reason not to believe that the US 50 ICM Project would not improve in the same performance measure areas as San Diego, Dallas, and Minneapolis. The 2014 TASAS data and the 2016 CHP-CAD incident data will be used as the baseline for tracking the performance of US 50 from the improvements in Segments 1 and 2.

Table 6: Projected ICM Project Benefits in San Diego, Dallas, and Minneapolis

PERFORMANCE MEASURE AREAS	San Diego	Dallas	Minneapolis
Annual Travel Time Savings (Person-Hours)	246,000	740,000	132,000
Improvement in Travel-Time Reliability (Reduction in Travel-Time Variance)	10.6%	3%	4.4%
Fuel Saved Annually (in Gallons)	323,000	981,000	17,600
Tons of Mobile Emissions Saved Annually (in Tons)	3,100	9,400	175

There have been many recent studies that have shown real benefits achieved with: advanced corridor-wide ramp metering system and operations, advanced central control traffic signal operations, advanced proactive incident management operations, advanced corridor traveler information, and ICM deployment.

There have been many additional studies that have recently shown real benefits achieved with: advanced corridor-wide ramp metering system and operations, advanced central control traffic signal operations, advanced proactive incident management operations, advanced corridor traveler information, and ICM deployment. The following are few examples of the study results:

- Studies have shown that corridor-wide advanced ramp metering systems (such as the coordinated bottleneck algorithm) can increase mainline traffic flows by over 60%, reduce travel times by over 45%, and reduce collisions by nearly 40%, while maintaining less than 3 minutes delay at the ramps. (Source: R. Bertini, 2006)
- Studies have shown that corridor-wide advanced signal system with signal coordination can reduce delays by 14% to 44% and travel times by 8% to 41%. (Source: IDAS Database)
- Studies have shown that corridor-wide adaptive signal system can reduce delay over the coordinated signal system by 34% to 76%, reduce travel times by 15% to 55%, stops by 30% to 95%, collisions by 17% to 30%, and fuel and emissions by 20% to 30%. (Source: E. Basic, 2002; R. Chandra, 2012)
- Studies have shown that corridor-wide advanced incident management programs can reduce queues by 50%, clearance times by 11% to 36%, travel times by up to 25%, reduce collisions by up to 50%, reduce delays by 10% to 45%, and increase traffic throughput by 8% to 22%. (Source: RITA, 2011; Cisco Systems, 2003)
- Studies have shown that enhanced traveler information system results in benefit to cost ratio of 16:1 to 25:1 and modal shift from car to transit of up to 4%, nearly 8% when travel time savings were greater than 20 minutes. Studies have also shown that motorist who select better routes can reduce their carbon footprint by 20% during their daily commutes. Studies have also shown that customer satisfaction with regional 511 deployment range from 68% to 92%. (Source: RITA, 2011)
- Studies have shown that ICM deployment with arterial signal integration can result in 246,000 annual person-hours travel time savings, over 10% improvement in travel time reliability, over 300,000 gallons of fuel saved annually, and over 3,000 tons of emissions saved annually, (Source: V. Alexiadis, 2011)

The US 50 ICM deployment will incorporate these elements along the US 50 corridor. The I-15 ICM in San Diego is said to be yielding 10% to 15% mobility performance benefits. With the added advanced features in the US 50 ICM deployment proposed, additional benefits are expected.

10. Vision, Goals, and Objectives

The Caltrans District 3 and the US 50 ICM corridor local agency partners identified key goals and objectives for the ICM project to consider as part of the development. These key objectives were to:

- Improve system performance (mobility, safety, reliability, productivity)
  - Decrease delay and collisions (fatalities)
  - Improve travel time reliability
  - Stabilize vehicle flow rates and average speeds
- Provide transportation choices (alternate modes, alternate routes)
  - Increase non-auto modes usage
  - Increase multimodal options provided
  - Improve coordination with operations on parallel routes
- Increase accessibility (connectivity, traveler information)
  - Improve distribution of traveler information, multimodal connections made
- Enhance sustainability (non-auto modes)
  - Increase non-auto modes usage
  - Reduce need for system expansion
  - Position corridor to take advantage of emerging/future technologies
- Improve environment (GHG emissions, green infrastructure)
  - Reduce GHG emissions
  - Add green infrastructure
- Improve collaborative partnerships

The proposed US 50 ICM project would support the goals and objectives as identified as part of the District 3 RCTO. The RCTO goals and objectives align with the SACOG's 2016 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) guiding principles, which include the following:

- Smart Land Use – Design a transportation system to support good growth patterns, including increased housing and transportation options, focusing more growth inward, and improving the economic viability of rural areas.
- Environmental Quality and Sustainability – Minimize direct and indirect transportation impacts on the environment for cleaner air and natural resource protection.
- Financial Stewardship – Manage resources for a transportation system that delivers cost-effective results and is feasible to construct and maintain.
- Economic Vitality – Efficiently connect people to jobs and get goods to market.
- Access and Mobility – Improve opportunities for businesses and citizens to easily access goods, jobs, services, and housing.
- Equity and Choice – Provide real, viable travel choices for all people throughout our region.

ICM implementations across the nation have demonstrated these goals and objectives are reasonable and obtainable.

Table 7: RCTO Goals & Objectives and District Performance Targets

District 3 RCTO Goals & Objectives	District 3 Performance Targets
Goal 1 (Caltrans SMP Goal #1) - Safety and Health	
1. Reduce user fatalities and injuries	• Result in 0.5 or less fatalities per 100 million VMT on SHS every year • 10% reduction in number of fatalities in calendar year in each mode type
Goal 2 (Caltrans SMP Goal #2) - Stewardship and Efficiency	
1. Effectively manage transportation assets with asset management plan (fix-it-first)	• By 2020, maintain 90% or better ITS elements health
Goal 3 (Caltrans SMP Goal #3) - Sustainability, Livability, and Economy	
1. Provide mobility choice, increase accessibility to all transportation modes and create transportation corridors	• By 2020, increase non-auto modes (triple bicycles, double pedestrians, and double transit ridership)
2. Support statewide reduction of GHG emissions	• By 2020, 15% reduction of GHG (from 2010 levels) • By 2020, 20% increase incorporating green infrastructure into projects
Goal 4 (Caltrans SMP Goal #4) - System Performance	
1. Improve travel time reliability for all modes	• By 2020, improve buffer time index reliability ranking by one level or 15%
2. Reduce peak period travel times and delays for all modes	• By 2020, reduce to 8% rate of growth in daily vehicle hours' delay (DHVD) under 35 mph on urban SHS
3. Improve integration and operations	• By 2020, provide real-time multimodal system information to public along integrated corridors
4. Increase number of Complete Streets features on SHS	• By 2020, increase annual number of Complete Streets features by 5%
5. Develop integrated corridor management (ICM) strategies	• By 2020, complete one ICM implementation plan in District 3 • By 2025, implement one ICM corridor in District 3, reduce to 6% rate of DVHD growth on corridor
Goal 5 (Caltrans Goal #5) - Organizational Excellence	
1. Improve internal and external communication to demonstrate professionalism and service levels to the public and stakeholders	• By 2020, increase approval rating by stakeholders by at least 5% annually
2. Improve collaborative partnerships	• By 2020, have at least 75% approval rating by collaborative partners

Ultimately Caltrans and its partners would like to successfully implement the strategies outlined in the US 50 ICM Implementation Plan and to realize its vision:

> *"US 50 Integrated Corridor Management (ICM) is the proactive multiagency integration and management of the US 50 multimodal transportation corridor to move people and goods more effectively and ensure the greatest gains in operational performance across the entire corridor network."*

11. Enhancing and Sustaining Public Partnerships

The US 50 ICM Project is utilizing guidance that was developed by the US DOT on integrated corridor management. In addition to that, the US 50 ICM Project is an outcome of the Regional Concept of Transportation Operations, which is a Federal initiative to assist in planning and implementing TSMO strategies in a collaborative manner while simultaneously meeting customer demand. Caltrans District 3 initiated the RCTO to further build upon the Corridor System Management Plans and to take Transportation Operations to the next level. The RCTO goals and objectives, as shown in Table 7, were significantly vetted and approved by our partners. Caltrans District 3 RCTO corridor partner agencies included, but were not limited to, the list below.

El Dorado County Transportation Commission	Placer County Transportation Planning Agency
El Dorado County	Placer County
Sacramento Area Council of Governments	City of Citrus Heights
Sacramento County	City of Sacramento
City of Elk Grove	City of Folsom
Yolo County	City of Davis
City of Lincoln	Town of Loomis
City of Rancho Cordova	City of Rocklin
City of Roseville	City of West Sacramento
City of Woodland	

12. Leveraging and Optimizing Existing Local and Regional Advanced Transportation Technology Investments

The Caltrans District 3 US 50 Integrated Corridor Management ICM Plan provides the District and its regional partners with guidance to better coordinate the development and integration of transportation system management projects throughout the US 50 corridor. This Plan supports the *District 3 Regional Concept of Transportation Operations (RCTO)* by detailing the critical steps needed to proactively develop and move needed projects forward on the US 50 corridor.

This Plan has already led to improved interagency planning and operational coordination, Intelligent Transportation Systems (ITS) interoperability, and inter-modal connectivity and management of the freeway facility, parallel arterials, transit services, and bicycle/ pedestrian networks. The Plan also provides detailed guidance to Caltrans and regional partner agencies along the corridor to better manage the transportation corridor as one system, rather than as individual entities, to improve travel time reliability and predictability, help manage congestion, optimize system performance, and empower travelers through better information and more travel choices through all facilities and modes. The coordination efforts as part of the upcoming Regional ITS Master Plan by the Sacramento Area Council of Governments (SACOG) should improve the opportunity to develop a seamless transportation network.

The responsible transportation management agencies along the corridor already have strong working relationships and have collaborated on solving regional transportation issues over many years. The US 50 ICM Implementation Plan will take the partnership to the next level in transportation system management and integrated management and operations.

13. Deployment Schedule

US 50 ICM Project – Deployment Schedule for Segments 1 and 2									
2017		2018		2019		2020		2021	
1st Half	2nd Half	1st Half	2nd Half	1st Half	2nd Half	1st Half	2nd Half	1st Half	2nd Half
MOU's, Charter									
Concept of Operations, System Requirements, Validation Plan, SEMP									
				Detailed Design					
			Corridor Preparation Infrastructure and Upgrades						
				AMS					
				ICM Component Development System Integration					
					System Validation and Acceptance				
						System Training and Begin Operations			
				System Evaluation					

14. Leveraging of ITS Program/Innovative Technology Initiatives

The US 50 ICM Project was identified through the development of the US 50 ICM Implementation Plan. That plan was an outcome of the Regional Concept of Transportation Operations, a federal initiative to assist in planning and implementing TSMO strategies in a collaborative manner. In addition to enhancing collaboration between transportation management agencies, the US 50 ICM Project leveraged the guidance from US DOT's Intelligent Transportation Systems Joint Program Office's Intermodal Research on Integrated Corridor Management. As the region grows Caltrans and its partners wants to utilize the corridor to its full capacity through parallel roadways and transit services along US 50.

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Marlon Flournoy, PMP
Deputy District Director, Planning, Local Assistance, and Sustainability
California Department of Transportation
Office: (530) 741-4337
Mobile: (916) 798-1218
Email: marlon_flournoy@dot.ca.gov

Letters of Support

Malcolm Dougherty, Director of California Department of Transportation

Sacramento Area Council of Governments (SACOG)

El Dorado County Transportation Commission

City of Sacramento

City of Rancho Cordova

City of Folsom

Sacramento Regional Transit

Yolo County Transportation District

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Making Conservation a California Way of Life.

June 12, 2017

The Honorable Elaine L. Chao
United States Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590

Dear Secretary Chao:

The California Department of Transportation (Caltrans) respectfully submits the Advanced Transportation and Congestion Management Technologies Deployment Initiative (ATCMTD) grant application for the US 50 Integrated Corridor Management (ICM) Project. This project is a collaborative effort in partnership with the cities, counties, and regional agencies along US 50 from downtown Sacramento to El Dorado County.

ICM maximizes existing resources and helps agencies come together to implement solutions that benefit the broader region and have bigger impacts than one agency acting alone. Through improved collaboration, proactive system management, and advanced technologies, ICM will contribute to a more integrated and efficient multimodal transportation system.

The multijurisdictional partnership-based US 50 ICM Project will lay out a strategy to utilize the latest technologies and industry practices to improve multi-modal mobility for the entire corridor. This technology will assist in the collection, dissemination and use of real-time transportation-related information to reduce congestion, greenhouse gas emissions, improve travel time reliability, mobility and system performance, and provide for more efficient and accessible transportation on the state and local transportation network. Please contact Ray Zhang, Acting Caltrans District 3 Director, at (530) 741-4233, or by e-mail at <rihui.zhang@dot.ca.gov> if you have any questions.

Thank you for your consideration of this ATCMTD grant request from Caltrans and our partners.

Sincerely,

MALCOLM DOUGHERTY
Director

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability"

el dorado county
edctc
TRANSPORTATION COMMISSION
2828 Easy Street Suite 1, Placerville, CA 95667 | 530.642.5260 | www.edctc.org

June 9, 2017

Mr. Ray Zhang
California Department of Transportation, District 3
703 B Street
Marysville, CA 95901

Re: Support for US 50 Integrated Corridor Management (ICM) Deployment Project

Dear Mr. Zhang:

This letter is to express El Dorado County Transportation Commission's support for the Advanced Transportation and Congestion Management Technologies Deployment Initiative Funding grant application that Caltrans is submitting for the US 50 Integrated Corridor Management (ICM) Project. US 50 ICM is a collaborative effort in partnership with the cities, counties, and regional agencies along US 50 highway from downtown Sacramento to El Dorado County.

ICM maximizes existing resources and helps agencies come together to implement solutions that benefit the broader region and have bigger impacts than one agency acting alone. Through improved collaboration, proactive system management, and advanced technologies, ICM will contribute to a more integrated and efficient multimodal transportation system.

The partnership based US 50 ICM Project will lay out a strategy to utilize the latest technologies and industry practices to improve multi-modal mobility for the entire corridor. As one of the many key agencies within the US 50 Corridor, we are dedicated to partnering with Caltrans and other corridor stakeholders to contribute to this important project.

The US 50 ICM Project will use technology to assist in the collection, dissemination and use of real-time transportation-related information to reduce congestion and user frustration, improve system reliability and mobility, and provide for more efficient and accessible transportation on the state and local highways, which are key goals for both Caltrans and the Sacramento Area Council of Governments. We hope this initiative will be selected for funding, and thank you for the opportunity to support and partner in this grant application and project.

Sincerely,

Karen Thompson

for Woodrow Deloria
Executive Director
El Dorado County Transportation Commission

June 7, 2017

CITY OF
FOLSOM
DISTINCTIVE BY NATURE

Mr. Ray Zhang
California Department of Transportation, District 3
703 B Street
Marysville, CA 95901

Re: Support for US 50 Integrated Corridor Management (ICM) Deployment Project

Dear Mr. Zhang:

This letter is to express City of Folsom's support for the Advanced Transportation and Congestion Management Technologies Deployment Initiative Funding grant application that Caltrans is submitting for the US 50 Integrated Corridor Management (ICM) Project. US 50 ICM is a collaborative effort in partnership with the cities, counties, and regional agencies along US 50 highway from downtown Sacramento to El Dorado County.

ICM maximizes existing resources and helps agencies come together to implement solutions that benefit the broader region and have bigger impacts than one agency acting alone. Through improved collaboration, proactive system management, and advanced technologies, ICM will contribute to a more integrated and efficient multimodal transportation system.

The partnership based US 50 ICM Project will lay out a strategy to utilize the latest technologies and industry practices to improve multi-modal mobility for the entire corridor. As one of the many key agencies within the US 50 Corridor, we are dedicated to partnering with Caltrans and other corridor stakeholders to contribute to this important project.

The US 50 ICM Project will use technology to assist in the collection, dissemination and use of real-time transportation-related information to reduce congestion and user frustration, improve system reliability and mobility, and provide for more efficient and accessible transportation on the state and local highways, which are key goals for both Caltrans and the Sacramento Area Council of Governments. We hope this initiative will be selected for funding, and thank you for the opportunity to support and partner in this grant application and project.

Sincerely,

Dave Nugen, P.E.
Director of Public Works

PUBLIC WORKS DEPARTMENT
50 NATOMA STREET | FOLSOM, CALIFORNIA 95630
WWW.FOLSOM.CA.US

June 9, 2017

Mr. Amarjeet Benipal
California Department of Transportation, District 3
703 B Street
Marysville, CA 95901

Re: Support for US 50 Integrated Corridor Management (ICM) Deployment Project

Dear Mr. Benipal:

I am writing you on behalf of the City of Rancho Cordova to state our support for the US 50 ICM Deployment Project. ICM maximizes existing resources and helps agencies come together to implement solutions that benefit the broader region and have bigger impacts than one agency acting alone. Through improved collaboration, proactive system management, and advanced technologies, ICM will contribute to a more integrated and efficient multimodal transportation system.

The cities, counties, and regional agencies along US 50, in partnership with Caltrans, have made significant progress on the US 50 corridor. In 2014 and 2015, staff from our agency participated in the development of the Caltrans District 3 Regional Concept of Transportation Operations (RCTO), which proposes implementation of ICM on the US 50 corridor. The US 50 ICM Deployment project is the next step to build on what has been already been done so far between our agencies.

The partnership based US 50 ICM Deployment project will lay out a strategy to utilize the latest technologies and industry practices to improve multi-modal mobility for the entire corridor. Information, findings, and consensus gained from the Plan will be heavily utilized by corridor stakeholders during subsequent phases of the US 50 ICM deployment process. The Plan will provide our agency with a list of improvements and next steps that will help achieve the chosen US 50 ICM strategy.

The City of Rancho Cordova is committed to improving the operation and management of the US 50 corridor. As a partner on this project, the City of Rancho Cordova is committed to:

- Attend and be an active participant on the team responsible for developing and implementing the US 50 ICM Deployment project
- Provide and share needed data and information
- Complete timely reviews and comments on key deliverables
- Evaluate and pursue local, regional, and federal funding opportunities to advance ICM along the US 50 corridor

As one of the next steps of the ICM deployment process, we understand a Charter will need to be created to formalize commitment to ICM on the US 50 corridor. The Charter will outline details of the ICM, and the roles and responsibilities for each stakeholder agency. The City of Rancho Cordova requests to be an active participant in the development of this Charter.

As one of the many key agencies who have an interest in the US 50 Corridor, our staff is dedicated to partnering with Caltrans and other corridor stakeholders to participate and contribute to this important project.

Sincerely,

Albert Stricker
Public Works Director
City of Rancho Cordova

June 9, 2017

City of
SACRAMENTO
Department of Public Works

DEPARTMENT OF
PUBLIC WORKS

OFFICE OF THE DIRECTOR

City Hall
915 I Street, 2nd Floor
Sacramento, CA 95814-2604
916-808-7100

Date: June 8, 2017

Mr. Ray Zhang
California Department of Transportation, District 3
703 B Street
Marysville, CA 95901

Re: Support for US 50 Integrated Corridor Management (ICM) Deployment Project

Dear Mr. Zhang:

City of Sacramento is pleased to support California Department of Transportation grant application for the Advanced Transportation and Congestion Management Technologies Deployment Initiative Grant for the US 50 Integrated Corridor Management (ICM) Project.

ICM maximizes existing resources and helps agencies along this corridor to come together to implement solutions that benefit the broader region and have bigger impacts than one agency acting alone. Through improved collaboration, proactive system management, and advanced technologies, ICM will contribute to a more integrated and efficient multimodal transportation system.

The partnership based US 50 ICM Project will lay out a strategy to utilize the latest technologies and industry practices to improve multi-modal mobility for the entire corridor. As one of the many key agencies within the US 50 Corridor, we are dedicated to support Caltrans and other corridor stakeholders in this endeavor.

The US 50 ICM Project will use technology to assist in the collection, dissemination and use of real-time transportation-related information to reduce congestion and user frustration, improve system reliability and mobility, and provide for more efficient and accessible transportation on the state highway and local arterial roads, which are key goals for both Caltrans and the City of Sacramento. We hope this initiative will be selected for funding, and thank you for the opportunity to support and partner in this grant application and project.

Sincerely,

Hector Barron
Interim Public Works Director

Sacramento Area
Council of
Governments

1415 L Street,
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95814

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SACOG

June 6, 2017

Mr. Ray Zhang
California Department of Transportation, District 3
703 B Street
Marysville, CA 95901

Re: Support for US 50 Integrated Corridor Management (ICM) Deployment Project

Dear Mr. Zhang,

This letter is to express SACOG's support for the Advanced Transportation and Congestion Management Technologies Deployment Initiative Funding grant application that Caltrans is submitting for the US 50 Integrated Corridor Management (ICM) Project. US 50 ICM is a collaborative effort in multijurisdictional partnership with the cities, counties, and regional agencies along US 50 highway from downtown Sacramento to El Dorado County.

ICM maximizes existing resources and helps agencies come together to implement solutions that benefit the broader region and have bigger impacts than one agency acting alone. Through improved collaboration, proactive system management, and advanced technologies, ICM will contribute to a more integrated and efficient multimodal transportation system.

The partnership based US 50 ICM Project will lay out a strategy to utilize the latest technologies and industry practices to improve multi-modal mobility for the entire corridor.

ICM is one of the congestion management strategies identified as part of SACOG's Congestion Management Process (CMP), which is currently being updated. This project will use technology to assist in the collection, dissemination and use of real-time transportation-related information to reduce congestion and user frustration, improve system reliability and mobility, and provide for more efficient and accessible transportation on the state and local highways, which are key goals of the SACOG region's ITS Master Plan and the congestion management and ITS vision for the region. We hope this initiative will be selected for funding, and thank you for the opportunity to support and partner in this grant application and project.

Sincerely,

James Corless
Chief Executive Officer

JC:BA:sm

Regional Transit

Sacramento Regional Transit District
A Public Transit Agency
and Equal Opportunity Employer

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Sacramento, CA 95816
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Public Transit Since 1973

June 9, 2017

Mr. Ray Zhang
California Department of Transportation, District 3
703 B Street
Marysville, CA 95901

Re: Support for US 50 Integrated Corridor Management (ICM) Deployment Project

Dear Mr. Zhang:

This letter is to express Sacramento Regional Transit's support for the Advanced Transportation and Congestion Management Technologies Deployment Initiative Funding grant application that Caltrans is submitting for the US 50 Integrated Corridor Management (ICM) Project. US 50 ICM is a collaborative effort in partnership with the cities, counties, and regional agencies along US 50 highway from downtown Sacramento to El Dorado County.

ICM maximizes existing resources and helps agencies come together to implement solutions that benefit the broader region and have bigger impacts than one agency acting alone. Through improved collaboration, proactive system management, and advanced technologies, ICM will contribute to a more integrated and efficient multimodal transportation system.

The partnership based US 50 ICM Project will lay out a strategy to utilize the latest technologies and industry practices to improve multi-modal mobility for the entire corridor. As one of the many key agencies within the US 50 Corridor, we are dedicated to partnering with Caltrans and other corridor stakeholders to contribute to this important project.

The US 50 ICM Project will use technology to assist in the collection, dissemination and use of real-time transportation-related information to reduce congestion and user frustration, improve system reliability and mobility, and provide for more efficient and accessible transportation on the state and local highways, which are key goals for both Caltrans and the Sacramento Area Council of Governments. We hope this initiative will be selected for funding, and thank you for the opportunity to support and partner in this grant application and project.

Sincerely,

Neil W. Nance, Sr. P.E.
VP, Strategic Planning and System Development

c: Darryl Abansado, Director, Civil and Track Design
Sangita Arya, Associate Systems Engineer
Traci Canfield, Senior Strategic Planner
Craig Norman, Principal Systems Engineer
Roger Thorn, Director, Information Technology

City of Davis – City of West Sacramento – City of Winters
City of Woodland – County of Yolo
EX Officio – Caltrans District 3 – University of California, Davis

Yolo County Transportation District
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Woodland, CA 95776
530.661.0816 FAX: 530.661.1732
www.yolobus.com

June 9, 2017

Mr. Ray Zhang
California Department of Transportation, District 3
703 B Street
Marysville, CA 95901

Re: Support for US 50 Integrated Corridor Management (ICM) Deployment Project

Dear Mr. Zhang:

This letter is to express the Yolo County Transportation District's support for the Advanced Transportation and Congestion Management Technologies Deployment Initiative Funding grant application that Caltrans is submitting for the US 50 Integrated Corridor Management (ICM) Project. US 50 ICM is a collaborative effort in partnership with the cities, counties, and regional agencies along US 50 highway from Yolo County to El Dorado County.

ICM maximizes existing resources and helps agencies come together to implement solutions that benefit the broader region and have bigger impacts than one agency acting alone. Through improved collaboration, proactive system management, and advanced technologies, ICM will contribute to a more integrated and efficient multimodal transportation system.

The partnership based US 50 ICM Project will lay out a strategy to utilize the latest technologies and industry practices to improve multi-modal mobility for the entire corridor. As one of the many key agencies within the US 50 Corridor, we are dedicated to partnering with Caltrans and other corridor stakeholders to contribute to this important project.

The US 50 ICM Project will use technology to assist in the collection, dissemination and use of real-time transportation-related information to reduce congestion and user frustration, improve system reliability and mobility, and provide for more efficient and accessible transportation on the state and local highways, which are key goals for both

Caltrans and the Sacramento Area Council of Governments. We hope this initiative will be selected for funding, and thank you for the opportunity to support and partner in this grant application and project.

Sincerely,

Mike Luken, Deputy Director
Yolo Co. Transpirtation District