



Appendix F

Summary of Prioritized Market Packages for the Sacramento Area

High Priority	Medium Priority	Low Priority
§ Transit Vehicle Tracking (APTS1)	§ ITS Data Mart (AD1)	§ Autonomous Route Guidance (ATIS3)
§ Transit Fixed-Route Operations (APTS2)	§ ITS Data Warehouse (AD2)	§ ISP Based Route Guidance (ATIS5)
§ Transit Passenger and Fare Management (APTS4)	§ ITS Virtual Data Warehouse (AD3)	§ Yellow Pages and Reservation (ATIS7)
§ Transit Security (APTS5)	§ Demand Response Transit Operations (APTS3)	§ Dynamic Ridesharing (ATIS8)
§ Multi-Modal Coordination (APTS7)	§ Transit Maintenance (APTS6)	§ In-Vehicle Signing (ATIS9)
§ Transit Traveler Information (APTS8)	§ Interactive Traveler Information (ATIS2)	§ Prove Surveillance (ATMS02)
§ Broadcast Traveler Information (ATIS1)	§ Dynamic Route Guidance (ATIS4)	§ Electronic Toll Collection (AMTS10)
§ Network Surveillance (ATMS01)	§ Integrated Transportation Management/Route Guidance (ATIS6)	§ Virtual TMC and Smart Prove Data (ATMS12)
§ Surface Street Control (ATMS03)	§ HOV Lane Management (ATMS05)	§ Advanced Railroad Grade Crossing (ATMS14)
§ Freeway Control (ATMS04)	§ Traffic Forecast and Demand Management (ATMS09)	§ Railroad Operations Coordination (ATIS15)
§ Traffic Information Dissemination (ATMS06)	§ Emissions Monitoring and Management (ATMS11)	§ Parking Facility Management (ATIS16)
§ Regional Traffic Control (ATMS07)	§ Standard Railroad Grade Crossing (ATMS13)	§ Regional Parking Management (ATIS17)
§ Traffic Incident Management System (ATMS08)	§ Speed Monitoring (ATMS19)	§ Reversible Lane Management (ATIS18)
§ Emergency Call-Taking and Dispatch (EM01)	§ HAZMAT Management (CVO10)	§ Roadway Closure Management (ATIS21)
§ Disaster Response and Recovery (EM08)	§ Emergency Routing (EM02)	§ Driver Safety Monitoring (AVSS2)
§ Disaster Traveler Information (EM10)	§ Roadway Service Patrols (EM04)	§ Longitudinal Safety Warning (AVSS3)
§ Work Zone Management (MC08)	§ Transportation Infrastructure Protection (EM05)	§ Lateral Safety Warning (AVSS4)
§ Maintenance and Construction Activity Coordination (MC10)	§ Wide-Area Alert (EM06)	§ Intersection Safety Warning (AVSS5)
	§ Early Warning System (EM07)	§ Pre-Crash Restraint Deployment (AVSS6)
	§ Evacuation and Reentry Management (EM09)	§ Driver Visibility Improvement (AVSS7)
	§ Road Weather Data Collection (MC03)	§ Intersection Collision Avoidance (AVSS10)
	§ Weather Information Processing and Distribution (MC04)	§ Fleet Administration (CVO1)
	§ Roadway Maintenance and Construction (MC07)	§ Electronic Clearance (CVO2)
	§ Work Zone Safety Monitoring (MC09)	§ Weigh-In-Motion (CVO3)
		§ Roadside CVO Safety (CVO7)
		§ On-Board CVO and Fright Safety and Security (CVO8)

		§ CVO Fleet Maintenance (CVO9) § Roadside HAZMAT Security Detection and Mitigation (CVO11) § CV Driver Security Detection and Mitigation (CVO12) § Freight Assignment Tracking (CVO13) § Mayday Support (EM3) § Maintenance and Construction Vehicle and Equipment Tracking (MC1) § Maintenance and Construction Vehicle Maintenance (MC2) § Roadway Automated Treatment (MC5) § Winter Maintenance (MC6)
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High Priority Market Packages for the Sacramento Area

Transit Vehicle Tracking (APTS01)	High Priority
<p>This market package monitors current transit vehicle location using an Automated Vehicle Location System. The location data may be used to determine real-time schedule adherence and update the transit system's schedule in real-time.</p>	
<p>Existing Infrastructure</p> <p>§ LRT</p>	<p>Responsible Agency</p> <p>§ Sacramento RT § Yolo County Transportation District § Davis Community Transit § Roseville Transit</p>
<p>Planned Projects</p> <p>§ Implement ITS, Phase I, joint project of Yolo County Transportation District, Unitrans, and Davis Community Transit.</p> <p>§ Sacramento Regional Transit District - Light Rail and Bus TMC</p> <p>§ Public Transit - Implement/Expand AVI/AVL/CAD technologies</p> <p>§ Provide transit information at Roseville transit stops</p>	
<p>Objectives Being Met</p> <p>§ Enhance and integrate transit services</p> <p>§ Market ITS to encourage the use of multi-modal transportation system</p> <p>§ Provide current traveler information via 511</p> <p>§ Provide real-time transit vehicle arrival information system</p> <p>§ Integrate transit services where practical and desirable</p> <p>§ Provide more predictable travel times</p> <p>§ Improve reliability of alternate modes</p> <p>§ Promote increased use of alternate modes (walking, bicycle, transit, carpool, vanpool)</p> <p>§ Increase ridership on transit vehicles by improving reliability</p> <p>§ Provide advantageous transit service over the use of automobiles</p> <p>§ Improve access to and reliability of alternate modes</p> <p>§ Provide safer transit service</p>	
<p>Performance Measures</p> <p>§ On-Time Performance. Percentage of runs with on-time performance.</p> <p>§ Response times to bus operator calls for assistance. Measured in minutes from call to arrival of assistance.</p>	

Transit Fixed-Route Operations (APTS02)	High Priority
<p>This market package performs vehicle routing and scheduling, as well as automatic driver assignment and system monitoring for fixed-route transit services. This service determines current schedule performance using AVL data and provides information displays for the Transit Management Subsystem. Static and real time transit data is exchanged with Information Service Providers where it is integrated with that from other transportation modes (e.g. rail, ferry, air) to provide the public with integrated and personalized dynamic schedules.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § LRT § BRT 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Sacramento RT § Yolo County Transportation District § Davis Community Transit § Roseville Transit
<p>Planned Projects</p> <ul style="list-style-type: none"> § Expansion of Capitol Corridor Train Service § Commuter rail service between Davis/Dixon and Auburn using the UP/Amtrak facilities § LRT extended to Natomas Town Center and Sacramento Airport, from Meadowview to Cosumnes River College and Elk Grove, from Watt to Antelope, and from Downtown Sacramento to West Sacramento. § Watt Corridor - Phase 2 and 3 - transit priority, monitoring equipment and traveler and communications. § Bus Rapid Transit on the Sunrise Boulevard corridor. § Bus Rapid Transit on Watt Avenue corridor. § Implement ITS, Phase I, joint project of Yolo County Transportation District, Unitrans, and Davis Community Transit. § Sacramento Regional Transit District - Light Rail and Bus TMC § Amtrak Folsom Light Rail Extension § South Line Phase II (South Sacramento Corridor) § Downtown/Natomas/Airport (DNA) - new transit options between downtown Sacramento and South and North Natomas and the Sacramento International Airport § California High Speed Rail § Elk Grove - Rancho Cordova - El Dorado Connector 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Enhance and integrate transit services § Market ITS to encourage the use of multi-modal transportation system § Provide current traveler information via 511 § Provide real-time transit vehicle arrival information system § Integrate transit services where practical and desirable § Provide more predictable travel times § Improve reliability of alternate modes § Promote increased use of alternate modes (walking, bicycle, transit, carpool, vanpool) § Increase ridership on transit vehicles by improving reliability § Provide advantageous transit service over the use of automobiles § Improve access to and reliability of alternate modes § Provide safer transit service § Improve traffic flow by improving facilities for alternative transportation modes such as transit § Introduce new Bus Rapid Transit (BRT) transit trunk lines to enhance the local and regional transit service § Provide priority for transit vehicles using transit priority, queue jumper lanes, and signal coordination 	

- § Improve transit level of service in existing and new transit corridors through greater frequency, timeliness, and easier transfers
- § Improve transit service to jobs, services and housing

Performance Measures

- § On-Time Performance. Percentage of runs with on-time performance.
- § Response times to bus operator calls for assistance. Measured in minutes from call to arrival of assistance.

Transit Passenger and Fare Management (APTS04)	High Priority
<p>This market package manages passenger loading and fare payments on-board transit vehicles using electronic means. It allows transit users to use a traveler card or other electronic payment device. Sensors mounted on the vehicle permit the operator and central operations to determine vehicle loads, and readers located either in the infrastructure or on-board the transit vehicle allows electronic fare payment. Data is processed, stored, and displayed on the transit vehicle and communicated as needed to the Transit Management Subsystem.</p>	
<p>Existing Infrastructure</p> <p>§ LRT</p>	<p>Responsible Agency</p> <p>§ Sacramento RT § Yolo County Transportation District § Davis Community Transit § Roseville Transit</p>
<p>Planned Projects</p> <p>§ Expansion of bus and van service regionwide, including a large increase in service for elderly and disabled persons.</p>	
<p>Objectives Being Met</p> <p>§ Enhance and integrate transit services § Market ITS to encourage the use of multi-modal transportation system § Reduce time residents spend in congestion § Provide electronic payment and/or regional fare collection system for transit (possibly multi-modal) § Integrate transit services where practical and desirable § Improve access and mobility by introducing local paratransit services with door-to-door service § Optimize operations (reduce congestion, improve the traveler experience) § Reduce conflicts between motorized and non-motorized modes and vehicles § Increase ridership on transit vehicles by improving reliability § Integrate transit services across different modes where practical and desirable § Improve convenience of transit by introducing door-to-door paratransit service § Provide advantageous transit service over the use of automobiles § Provide safer transit service</p>	
<p>Performance Measures</p> <p>§ Data collection costs. Measured as costs per year for fare data collection. Reduction in the cost of collecting fare data is expected. § Data collection accuracy. Measured as uncertainty of data collection statistics. Improvement in the accuracy of data collection is expected. § Reduction in fare evasion. Estimated through data collection information.</p>	

Transit Security (APTS05)	High Priority
<p>This market package provides for the physical security of transit passengers. An on-board security system is deployed to perform surveillance and warn of potentially hazardous situations. Public areas (e.g. stops, park and ride lots, stations) are also monitored. Information is communicated to the Transit Management Subsystem using wireless or wireline infrastructure. Security related information is also transmitted to the Emergency Management Subsystem when an emergency is identified that requires an external response. Incident information is communicated to the Information Service Provider.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § LRT § BRT § Paratransit 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Sacramento RT § Yolo County Transportation District § Davis Community Transit § Roseville Transit
<p>Planned Projects</p> <ul style="list-style-type: none"> § None at this time 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Market ITS to encourage the use of multi-modal transportation system § Improve safety for all modes (i.e., surveillance on transit vehicles, traffic calming) § Improve coordination among traffic, public safety and transit agencies § Improve transit safety by deploying surveillance cameras on board transit vehicles and at transit stops § Provide advantageous transit service over the use of automobiles § Improve transit safety by deploying surveillance cameras on board transit vehicles and at transit stops § Provide safer transit service 	
<p>Performance Measures</p> <ul style="list-style-type: none"> § Response times to bus operator calls for assistance. Measured in minutes from call to arrival of assistance. § Response times to traveler calls for assistance. Measured in minutes from call to arrival of assistance. 	

Multi-Modal Coordination (APTS07)	High Priority
<p>This market package establishes two way communications between multiple transit and traffic agencies to improve service coordination. Multimodal coordination between transit agencies can increase traveler convenience at transit transfer points and clusters (a collection of stops, stations, or terminals where transfers can be made conveniently) and also improve operating efficiency. Transit transfer information is shared between Multimodal Transportation Service Providers, Transit Agencies, and ISPs. Coordination between traffic and transit management is intended to improve on-time performance of the transit system to the extent that this can be accommodated without degrading overall performance of the traffic network. More limited local coordination between the transit vehicle and the individual intersection for signal priority is also supported by this package.</p>	
<p>Existing Infrastructure</p> <p>§ LRT § BRT</p>	<p>Responsible Agency</p> <p>§ Sacramento RT § Yolo County Transportation District § Davis Community Transit § Roseville Transit</p>
<p>Planned Projects</p> <p>§ STARNET Various traffic and transit operation centers in the region; hardware and software upgrades enabling a wide-area network to share transportation data and operations. Fiber optic and wireless infrastructure is included in the project.</p> <p>§ A Rancho Cordova to South Placer Multi-modal Connector.</p> <p>§ Implement ITS, Phase I, joint project of Yolo County Transportation District, Unitrans, and Davis Community Transit.</p> <p>§ Sacramento International Airport Transportation Management Center</p> <p>§ Sacramento Regional Transit District - Light Rail and Bus TMC</p> <p>§ Traveler Information Management (includes 511 system, DMS, kiosks, web pages, HAR, media, NOAA Weather radio)</p> <p>§ Downtown/Natomas/Airport (DNA) - new transit options between downtown Sacramento and South and North Natomas and the Sacramento International Airport</p> <p>§ Advanced Railroad Highway Interface Deployment</p>	
<p>Objectives Being Met</p> <p>§ Enhance and integrate transit services</p> <p>§ Improve traveler experience and reduce congestion by providing traveler information</p> <p>§ Market ITS to encourage the use of multi-modal transportation system</p> <p>§ Reduce time residents spend in congestion</p> <p>§ Provide current traveler information via 511</p> <p>§ Provide real-time transit vehicle arrival information system</p> <p>§ Integrate transit services across different modes where practical and desirable</p> <p>§ Improve convenience of transit by introducing door-to-door paratransit service</p> <p>§ Optimize operations (reduce congestion, improve the traveler experience)</p> <p>§ Reduce conflicts between motorized and non-motorized modes and vehicles</p> <p>§ Disseminate accurate, multimodal traveler information via STARNET</p> <p>§ Improve traffic signal timing, coordination, and management across jurisdictional boundaries</p> <p>§ Provide more predictable travel times</p> <p>§ Implement transit signal priority</p> <p>§ Improve coordination among traffic, public safety and transit agencies</p> <p>§ Provide for enhanced multi-modal transit transfers</p> <p>§ Improve travel time along corridors</p> <p>§ Promote increased use of alternate modes (walking, bicycle, transit, carpool, vanpool)</p> <p>§ Increase ridership on transit vehicles by improving reliability</p> <p>§ Provide advantageous transit service over the use of automobiles</p>	

- § Integrate Sacramento region initiatives with adjacent regions
- § Improve accessibility by integrating operations across jurisdictional boundaries via their TOCs. Interconnected TOCs can then optimize operations through actions such as accident response, real-time signal optimization, and provision of alternate routes when needed.
- § Expedite commercial vehicle deliveries
- § Improve transit level of service in existing and new transit corridors through greater frequency, timeliness, and easier transfers
- § Develop compatible/consistent ITS deployment initiatives across region for similar deployments (i.e., transit priority deployed in one corridor has same technology as transit priority in another)
- § Improve access to and reliability of alternate modes
- § Improve transit service to jobs, services and housing
- § Provide electronic payment and/or regional fare collection system for transit (possibly multi-modal)

Performance Measures

- § On-Time Performance. Percentage of runs with on-time performance for those routes that have transit signal priority.

Transit Traveler Information (APTS08)	High Priority
<p>This market package provides transit users at transit stops, transit centers and on-board transit vehicles with ready access to transit information. The information services include transit stop annunciation, imminent arrival signs with predicted arrival and departure times, and real-time transit schedule displays that are of general interest to transit users. Systems that provide custom transit trip itineraries and other tailored transit information services are also represented by this market package.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § Transit website § Automatic visual signs 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Sacramento RT § Yolo County Transportation District § Davis Community Transit § Roseville Transit
<p>Planned Projects</p> <ul style="list-style-type: none"> § Sacramento Regional Transit District: purchase computerized train tracking system that will provide automatic train locations and a public address system to advise customers of train approaches and service delays. § Sacramento Regional Transit District: retrofit existing communication kits with upgraded audio system and automatic interior exterior visual signs for stop announcements and train destinations. § Traveler Information Management (includes 511 system, DMS, kiosks, web pages, HAR, media, NOAA Weather radio) § Sacramento 511 § Provide advanced traveler information (ATIS) system and disseminate concise, useful road and traffic condition reports to drivers. § Regional Traveler Information System § Deploy a complete Advanced Traveler Information System (ATIS) consisting of HARs and trip planning systems over the Internet 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Enhance and integrate transit services § Improve traveler experience and reduce congestion by providing traveler information § Market ITS to encourage the use of multi-modal transportation system § Reduce time residents spend in congestion § Provide current traveler information via 511 § Provide real-time transit vehicle arrival information system § Integrate transit services where practical and desirable § Reduce conflicts between motorized and non-motorized modes and vehicles § Disseminate accurate, multimodal traveler information via STARNET § Provide more predictable travel times § Improve travel time along corridors § Increase ridership on transit vehicles by improving reliability § Provide advantageous transit service over the use of automobiles § Improve access into and out of economic centers § Improve transit service to jobs, services and housing § Provide real-time traveler information for ride-sharing and trip planning 	
<p>Performance Measures</p> <ul style="list-style-type: none"> § Use of transit information by travelers. Measured as number of page views on transit website. Also measured as number of page views on transit portion of 511 system. 	

Network Surveillance (ATMS01)	High Priority
<p>This market package includes traffic detectors, other surveillance equipment, the supporting field equipment, and wireline communications to transmit the collected data back to the Traffic Management Subsystem. The derived data can be used locally or remotely. The data generated by this market package enables traffic managers to monitor traffic and road conditions, identify and verify incidents, detect equipment faults, and collect census data for traffic strategy development and long range planning. The collected data can also be analyzed and made available to users and the Information Service Provider Subsystem.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § CCTV Cameras § Traffic Signal Controllers § Fiber optics, copper and wireless interconnect § Traffic Detectors § Ramp Meters 	<p>Agency</p> <ul style="list-style-type: none"> § TMCs in the cities in Sacramento § County of Sacramento TMC § Caltrans TMC
<p>Planned Projects</p> <ul style="list-style-type: none"> § STARNET Various traffic and transit operation centers in the region; hardware and software upgrades enabling a wide-area network to share transportation data and operations. Fiber optic and wireless infrastructure is included in the project § Install ramp meters, HOV Bypasses, additional on ramps, traffic monitoring stations and Closed Circuit TV installation on I-5 from Pocket Rd. to I-80. § Install ramp metering, traffic monitoring stations, Closed Circuit TV installation, message signs, and upgrade count stations to Traffic Management System on I-80 from Yolo Co. line to Route 244 (Longview Dr.). § Construct Traffic Operation System (Jct. 50 to I-5) § Smart Corridor on Arden Way from Del Paso to Watt Ave. § Watt Corridor - Phase 2 and 3. Traffic signal coordination, transit priority, monitoring equipment and traveler information on a major arterial corridor, plus supporting communications. § Yolo County portion of U.S. 50 traffic operations system and ramp metering at various locations. § U.S. 50 From I-80 to Sacramento County line—install traffic operations system (message signs, ramp metering, CCTV) § Yolo County portion of I-5 traffic operations system and ramp metering. § Implement ITS, Phase I, joint project of Yolo County Transportation District, Unitrans, and Davis Community Transit. § Caltrans District 3 TOS projects. Includes ramp meters, HOV onramp lanes, traffic monitoring stations, closed circuit television cameras, changeable message signs, highway advisory radio, weather monitoring systems, loop detectors, etc. § Upgrade Caltrans District 3 Regional TMC to manage US-50, I-80 and other ITS deployments (includes coordination with Nevada and Tahoe Basin to ensure consistency) § US 50 Surveillance (including 4 CCTV or web cameras and 6 traffic monitoring stations) § Initiate Traffic Management Center (TMC) in new Corporation Yard to manage signals and other devices (i.e. CCTV, DMS, etc.) § Deploy CCTV Cameras at key intersections § Traffic Monitoring Phase I - Deploy traffic monitoring devices (e.g. flow detectors, CCTV cameras) along segments of US 50 in South Shore area, and along Highways 28, 89 and 267 in the North Shore 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Reduce time residents spend in congestion § Provide current traveler information via 511 § Improve traffic management § Improve safety for all modes (i.e., surveillance on transit vehicles, traffic calming) § Optimize operations (reduce congestion, improve the traveler experience) § Provide more predictable travel times § Improve transit safety by deploying surveillance cameras on board transit vehicles and at transit stops 	

- § Improve access into and out of economic centers
- § Develop programs that have a regional focus
- § Decrease emergency response times and capabilities using cameras and emergency vehicle signal preemption

Performance Measures

- § Sensor coverage. Measured in miles of highway or arterials covered by surveillance.
- § Sensor functionality. Measured as availability of sensor information from highways or arterials (hours operational vs. total number of hours in measurement period).

Surface Street Control (ATMS03)	High Priority
<p>This market package provides the central control and monitoring equipment, communication links, and the signal control equipment that support local surface street control and/or arterial traffic management. A range of traffic signal control systems are represented by this market package ranging from static pre-timed control systems to fully traffic responsive systems that dynamically adjust control plans and strategies based on current traffic conditions and priority requests. This market package is consistent with typical urban traffic signal control systems.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § Closed Loop Signal Systems § Central Signal Systems § Traffic Signal Controllers § Ramp meters § Fiber optics, copper and wireless interconnect § Emergency Vehicle Traffic Signal Preemption 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Cities in Sacramento § County of Sacramento § Caltrans
<p>Planned Projects</p> <ul style="list-style-type: none"> § STARNET Various traffic and transit operation centers in the region; hardware and software upgrades enabling a wide-area network to share transportation data and operations. Fiber optic and wireless infrastructure is included in the project. § Install signals on U.S. 50 ramps at Ponderosa Road, South Shingle Springs, and North Shingle Road § Signal installation at U.S. 50 eastbound ramps § Install Smart Traffic Calming in south Midtown area. § Install ramp meters, HOV Bypasses, additional on ramps, traffic monitoring stations and Closed Circuit TV installation on I-5 from Pocket Rd. to I-80. § Smart Corridor on Arden Way from Del Paso to Watt Ave. § Watt Corridor - Phase 2 and 3. Traffic signal coordination, transit priority, monitoring equipment and traveler information on a major arterial corridor, plus supporting communications. § Connect 100 traffic signals, including ITS technology, that are located outside of the Central City to the City's existing Traffic Operations Center. § Widen Fair Oaks Blvd from Marconi Ave. to Engle Rd. from 4 to 6 lanes including signal modifications at Marconi, Stanley, Grant, and Engle Rd. § Bus Rapid Transit In Sacramento: Stockton Boulevard, construct bus rapid transit improvements from Cosumnes College to downtown Sacramento. § Bus Rapid Transit in Sacramento County, implement bus rapid transit on the Sunrise Boulevard corridor. § Bus Rapid Transit in Sacramento County, implement bus rapid transit on Watt Avenue corridor. § U.S. 50 Jefferson Blvd. interchange—expand the ramps and signals from 1 to 2 lanes, add ramp metering and turn lanes, and related street closures. § Implement ITS, Phase I, joint project of Yolo County Transportation District, Unitrans, and Davis Community Transit. § Caltrans District 3 TOS projects. Includes ramp meters, HOV onramp lanes, traffic monitoring stations, closed circuit television cameras, changeable message signs, highway advisory radio, weather monitoring systems, loop detectors, etc. § Placerville Signal System Technology Advances § Placerville Signal Replacement on Highway 50 § Elk Grove signals - Connection between Laguna/Bond Master location and Corporation Yard (Corp Yard wiring) § Elk Grove signals - Upgrade City's existing onstreet system. Replace controllers/cabinets as needed and add system detectors on all segments § Initiate Traffic Management Center (TMC) in new Corporation Yard to manage signals and other devices (i.e. CCTV, DMS, etc.) § Dynamic Alternate Route signing system - implement dynamic variable message signs (VMS) specifically sited, and primarily devoted, to detouring traffic onto alternate routes during incidents, including accidents 	

and weather related road closures.

§ Various upgrades to Roseville's ITS Program including the communications network, traffic signal controllers, CCTV cameras, DMS, and EVP.

§ Various upgrades to Citrus Heights ITS Program including the communications network, traffic signal controllers, CCTV cameras, DMS, and EVP.

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Objectives Being Met

§ Improve traffic flow by reducing congestion (e.g. on heavily traveled arterials), by reducing and/or enforcing speeds for safety (e.g. in residential neighborhoods), and by improving facilities for alternative transportation modes such as walking or bicycling

§ Market ITS to encourage the use of multi-modal transportation system

§ Reduce time residents spend in congestion

§ Improve traffic management

§ Introduce new Bus Rapid Transit (BRT) transit trunk lines to enhance the local and regional transit service

§ Optimize operations (reduce congestion, improve the traveler experience)

§ Reduce conflicts between motorized and non-motorized modes and vehicles

§ Improve traffic signal timing, coordination, and management across jurisdictional boundaries

§ Provide more predictable travel times

§ Implement transit signal priority

§ Reduce vehicle emissions by reducing congestion and thus possibly reducing stop-and-go conditions

§ Improve travel time along corridors

§ Improve overall congestion

§ When optimizing signal operations, emphasize bicycle and pedestrian safety while reducing conflicts with vehicles

§ Provide priority for transit vehicles using transit priority, queue jumper lanes, and signal coordination

§ Improve accessibility by integrating operations across jurisdictional boundaries via their TOCs. Interconnected TOCs can then optimize operations through actions such as accident response, real-time signal optimization, and provision of alternate routes when needed.

§ Improve access into and out of economic centers

§ Improve transit level of service in existing and new transit corridors through greater frequency, timeliness, and easier transfers

§ Improve mobility for alternate modes such as pedestrian and bicycle

§ Decrease emergency response times and capabilities using cameras and emergency vehicle signal preemption

Performance Measures

§ Traffic flow. Measured at intersections with signal systems.

§ Travel time along a corridor (that contains coordinated signals)

§ Traffic signal system failure rates

Freeway Control (ATMS04)	High Priority
<p>This market package provides the communications and roadside equipment to support ramp control, lane controls, and interchange control for freeways. This package is consistent with typical urban traffic freeway control systems. This package incorporates the instrumentation included in the Network Surveillance Market Package to support freeway monitoring and adaptive strategies as an option. This market package also includes the capability to utilize surveillance information for detection of incidents.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § Ramp meters § Queue detectors § Fiber optics, copper and wireless interconnect § Dynamic Message Signs/Trailblazers § CCTV Cameras 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Cities in Sacramento § County of Sacramento § Caltrans
<p>Planned Projects</p>	
<ul style="list-style-type: none"> § STARNET Various traffic and transit operation centers in the region; hardware and software upgrades enabling a wide-area network to share transportation data and operations. Fiber optic and wireless infrastructure is included in the project. § Install signals on U.S. 50 ramps at Ponderosa Road, South Shingle Springs, and North Shingle Road § Signal installation at U.S. 50 eastbound ramps § Ramp metering at all interchanges from Foresthill Road to the Sacramento County Line. § Install ramp meters, HOV Bypasses, additional on ramps, traffic monitoring stations and Closed Circuit TV installation on I-5 from Pocket Rd. to I-80. § Install ramp metering, traffic monitoring stations, Closed Circuit TV installation, message signs, and upgrade count stations to Traffic Management System on I-80 from Yolo Co. line to Route 244 (Longview Dr.). § Construct Traffic Operation System (Jct. 50 to I-5) § Yolo County portion of U.S. 50 traffic operations system and ramp metering at various locations. § U.S. 50 From I-80 to Sacramento County line—install traffic operations system (message signs, ramp metering, CCTV) § Yolo County portion of I-5 traffic operations system and ramp metering. § U.S. 50 Install ramp meters and modify ramp design at South River Rd. interchange. § U.S. 50 Jefferson Blvd. interchange—expand the ramps and signals from 1 to 2 lanes, add ramp metering and turn lanes, and related street closures. § Implement ITS, Phase I, joint project of Yolo County Transportation District, Unitrans, and Davis Community Transit. § Caltrans District 3 TOS projects. Includes ramp meters, HOV onramp lanes, traffic monitoring stations, closed circuit television cameras, changeable message signs, highway advisory radio, weather monitoring systems, loop detectors, etc. § Eleven Ramp meters planned between Sacramento/El Dorado County line and Placerville § Six Ramp meters on SR65 between Lincoln and I-80 § Traffic monitoring stations near the Sacramento/Placer County line in Roseville § Upgrade Caltrans District 3 Regional TMC to manage US-50, I-80 and other ITS deployments (includes coordination with Nevada and Tahoe Basin to ensure consistency) § Portable Traffic Management Devices (customized for portability including DMS, HAR, CCTV/web cameras, temporary signals, incident command center, and communications to RTMC) § US 50 Surveillance (including 4 CCTV or web cameras and 6 traffic monitoring stations) § Curve Warning Systems -curve warning system will consist of a static warning sign located well in advance of the curve, which reads “CURVE AHEAD”. A speed detection system will be installed to determine vehicle speed. If a vehicle’s speed indicates that safe curve negotiation is not likely, an LED display, attached to the static sign and reading “REDUCE SPEED” would be illuminated. § CMS at Key Decision Points -expand the number of changeable message signs (CMS) located at key routing decision points within the San Joaquin Valley, such as in advance of interstate-to-interstate 	

interchanges and interchanges between interstate routes and major state routes.

- § Smart Call Box Systems
- § Portable CMS Pool - pool of portable changeable message signs that would be made available to various public agencies for use in construction work zones, special event traffic control and other appropriate incident management applications.
- § Dynamic Alternate Route signing system - implement dynamic variable message signs (VMS) specifically sited, and primarily devoted, to detouring traffic onto alternate routes during incidents, including accidents and weather related road closures.
- § Traffic Monitoring Phase I - Deploy traffic monitoring devices (e.g. flow detectors, CCTV cameras) along segments of US 50 in South Shore area, and along Highways 28, 89 and 267 in the North Shore

Objectives Being Met

- § Market ITS to encourage the use of multi-modal transportation system
- § Reduce time residents spend in congestion
- § Optimize operations (reduce congestion, improve the traveler experience)
- § Reduce conflicts between motorized and non-motorized modes and vehicles
- § Provide more predictable travel times
- § Consider addition of HOV/HOT lanes across region
- § Improve access into and out of economic centers

Performance Measures

- § Traffic flow. Measured at on ramps and on highway.

Traffic Information Dissemination (ATMS06)	High Priority
<p>This market package allows traffic information and road/bridge closures due to construction, maintenance, and weather, to be disseminated to drivers and vehicles using roadway equipment such as dynamic message signs or highway advisory radio. This package also covers the equipment and interfaces that provide traffic information from a traffic management center to the media (for instance via a direct tie-in between a traffic management center and radio or television station computer systems), Transit Management, Emergency Management, and Information Service Providers.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § Dynamic Message Signs/Trailblazers § 511 § CCTV Cameras § Closed Loop Signal Systems § Central Signal Systems 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Cities in Sacramento § County of Sacramento § Caltrans § Sacramento RT § Yolo County Transportation District § Davis Community Transit
<p>Planned Projects</p> <ul style="list-style-type: none"> § Watt Corridor - Phase 2 and 3. Traffic signal coordination, transit priority, monitoring equipment and traveler information on a major arterial corridor, plus supporting communications. § Caltrans District 3 TOS projects. Includes ramp meters, HOV onramp lanes, traffic monitoring stations, closed circuit television cameras, changeable message signs, highway advisory radio, weather monitoring systems, loop detectors, etc. § Traveler Information Management (includes 511 system, DMS, kiosks, web pages, HAR, media, NOAA Weather radio) § Sacramento 511 § Portable Traffic Management Devices (customized for portability including DMS, HAR, CCTV/web cameras, temporary signals, incident command center, and communications to RTMC) § Expand DMS system by deploying approximately six additional signs, appropriate locations to be determined § Provide advanced traveler information (ATIS) system and disseminate concise, useful road and traffic condition reports to drivers. § Regional Traveler Information System § Data Exchange Network (DEN)/Communications Interties § CVO Traveler Information System § Integrated Smart Corridors in selected urban areas § Truck Stop Information Demo § Portable CMS Pool - pool of portable changeable message signs that would be made available to various public agencies for use in construction work zones, special event traffic control and other appropriate incident management applications. 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Improve traveler experience and reduce congestion by providing traveler information § Market ITS to encourage the use of multi-modal transportation system § Provide current traveler information via 511 § Provide real-time transit vehicle arrival information system § Disseminate accurate, multimodal traveler information via STARNET § Provide more predictable travel times § Promote increased use of alternate modes (walking, bicycle, transit, carpool, vanpool) § Improve overall congestion § Improve access into and out of economic centers § Provide traveler information in accessible formats (i.e., large print, Braille, 711, audio, multi-lingual) and varying media (i.e., web, TV, in-vehicle, 511, kiosks) 	

§ Provide real-time traveler information for ride-sharing and trip planning

Performance Measures

§ Number (or frequency) of advisory messages per DMS.

Regional Traffic Control (ATMS07)	High Priority
<p>This market package provides for the sharing of traffic information and control among traffic management centers to support a regional control strategy. This package relies on roadside instrumentation supported by the Surface Street Control and Freeway Control Market Packages and adds hardware, software, and communications capabilities to implement traffic management strategies that are coordinated between allied traffic management centers. The extent of information and control sharing is determined through working arrangements between jurisdictions.</p>	
<p>Existing Infrastructure</p> <p>§ None identified</p>	<p>Responsible Agency</p> <p>§ Cities in Sacramento § County of Sacramento § Caltrans § Sacramento RT § Yolo County Transportation District § Davis Community Transit</p>
<p>Planned Projects</p> <p>§ STARNET Various traffic and transit operation centers in the region; hardware and software upgrades enabling a wide-area network to share transportation data and operations. Fiber optic and wireless infrastructure is included in the project.</p> <p>§ Install signals on U.S. 50 ramps at Ponderosa Road, South Shingle Springs, and North Shingle Road</p> <p>§ Signal installation at U.S. 50 eastbound ramps</p> <p>§ Ramp metering at all interchanges from Foresthill Road to the Sacramento County Line.</p> <p>§ Install ramp meters, HOV Bypasses, additional on ramps, traffic monitoring stations and Closed Circuit TV installation on I-5 from Pocket Rd. to I-80.</p> <p>§ Install ramp metering, traffic monitoring stations, Closed Circuit TV installation, message signs, and upgrade count stations to Traffic Management System on I-80 from Yolo Co. line to Route 244 (Longview Dr.).</p> <p>§ Construct Traffic Operation System (Jct. 50 to I-5)</p> <p>§ Smart Corridor on Arden Way from Del Paso to Watt Ave.</p> <p>§ Watt Corridor - Phase 2 and 3. Traffic signal coordination, transit priority, monitoring equipment and traveler information on a major arterial corridor, plus supporting communications.</p> <p>§ Yolo County portion of U.S. 50 traffic operations system and ramp metering at various locations.</p> <p>§ U.S. 50 From I-80 to Sacramento County line—install traffic operations system (message signs, ramp metering, CCTV)</p> <p>§ Yolo County portion of I-5 traffic operations system and ramp metering.</p> <p>§ U.S. 50 Install ramp meters and modify ramp design at South River Rd. interchange.</p> <p>§ U.S. 50 Jefferson Blvd. interchange—expand the ramps and signals from 1 to 2 lanes, add ramp metering and turn lanes, and related street closures.</p> <p>§ Implement ITS, Phase I, joint project of Yolo County Transportation District, Unitrans, and Davis Community Transit.</p> <p>§ Caltrans District 3 TOS projects. Includes ramp meters, HOV onramp lanes, traffic monitoring stations, closed circuit television cameras, changeable message signs, highway advisory radio, weather monitoring systems, loop detectors, etc.</p> <p>§ Regional Street Network System Design</p> <p>§ Eleven Ramp meters planned between Sacramento/El Dorado County line and Placerville</p> <p>§ Six Ramp meters on SR65 between Lincoln and I-80</p> <p>§ Upgrade Caltrans District 3 Regional TMC to manage US-50, I-80 and other ITS deployments (includes coordination with Nevada and Tahoe Basin to ensure consistency)</p> <p>§ Portable Traffic Management Devices (customized for portability including DMS, HAR, CCTV/web cameras, temporary signals, incident command center, and communications to RTMC)</p> <p>§ Elk Grove signals - Coordinate border signal responsibilities with the County of Sacramento and Caltrans where applicable.</p> <p>§ Initiate Traffic Management Center (TMC) in new Corporation Yard to manage signals and other devices</p>	

(i.e. CCTV, DMS, etc.)

- § Two Regional TMCs for Caltrans District 6 and Caltrans District 10
- § CMS at Key Decision Points -expand the number of changeable message signs (CMS) located at key routing decision points within the San Joaquin Valley, such as in advance of interstate-to-interstate interchanges and interchanges between interstate routes and major state routes.
- § Data Exchange Network (DEN)/Communications Interties
- § Integrated Smart Corridors in selected urban areas

Objectives Being Met

- § Improve traffic flow by reducing congestion (e.g. on heavily traveled arterials), by reducing and/or enforcing speeds for safety (e.g. in residential neighborhoods), and by improving facilities for alternative transportation modes such as walking or bicycling
- § Market ITS to encourage the use of multi-modal transportation system
- § Reduce time residents spend in congestion
- § Provide current traveler information via 511
- § Improve traffic management
- § Optimize operations (reduce congestion, improve the traveler experience)
- § Reduce conflicts between motorized and non-motorized modes and vehicles
- § Improve traffic signal timing, coordination, and management across jurisdictional boundaries
- § Provide more predictable travel times
- § Improve coordination among traffic, public safety and transit agencies
- § Reduce vehicle emissions by reducing congestion and thus possibly reducing stop-and-go conditions
- § Improve travel time along corridors
- § Improve overall congestion
- § When optimizing signal operations, emphasize bicycle and pedestrian safety while reducing conflicts with vehicles
- § Provide priority for transit vehicles using transit priority, queue jumper lanes, and signal coordination
- § Integrate Sacramento region initiatives with adjacent regions
- § Improve access into and out of economic centers
- § Improve transit level of service in existing and new transit corridors through greater frequency, timeliness, and easier transfers
- § Improve mobility for alternate modes such as pedestrian and bicycle
- § Develop programs that have a regional focus

Performance Measures

- § Traffic flow. Measured at intersections with interconnected signals across jurisdictions.

Traffic Incident Management System (ATMS08)	High Priority
<p>This market package manages both unexpected incidents and planned events so that the impact to the transportation network and traveler safety is minimized. The market package includes incident detection capabilities through roadside surveillance devices (e.g. CCTV) and through regional coordination with other traffic management, maintenance and construction management, and emergency management centers as well as weather service entities and event promoters. Information from these diverse sources is collected and correlated by this market package to detect and verify incidents and implement an appropriate response. The response may include traffic control strategy modifications or resource coordination between center subsystems. The coordination with emergency management might be through a CAD system or through other communication with emergency field personnel. The coordination can also extend to tow trucks and other allied response agencies and field service personnel.</p> <p>Incident response also includes presentation of information to affected travelers using the Traffic Information Dissemination, Broadcast Traveler Information, or Interactive Traveler Information market packages.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § Dynamic Message Signs/Trailblazers § 511 § CCTV Cameras § Closed Loop Signal Systems § Central Signal Systems § Traffic Signal Controllers 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Cities in Sacramento § County of Sacramento § Caltrans § Sacramento RT § Yolo County Transportation District § Davis Community Transit
<p>Planned Projects</p> <ul style="list-style-type: none"> § Caltrans District 3 TOS projects. Includes ramp meters, HOV onramp lanes, traffic monitoring stations, closed circuit television cameras, changeable message signs, highway advisory radio, weather monitoring systems, loop detectors, etc. § Portable Traffic Management Devices (customized for portability including DMS, HAR, CCTV/web cameras, temporary signals, incident command center, and communications to RTMC) § Computer Aided Dispatch Integration: integrate the computer-aided dispatch systems of various emergency response and transportation agencies that jointly participate in traffic incident management, including local police, state patrol, HAZMAT response, Caltrans, and fire departments. 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Market ITS to encourage the use of multi-modal transportation system § Reduce time residents spend in congestion § Improve traffic management § Improve safety for all modes (i.e., surveillance on transit vehicles, traffic calming) § Optimize operations (reduce congestion, improve the traveler experience) § Improve traffic signal timing, coordination, and management across jurisdictional boundaries § Provide more predictable travel times § Improve accessibility by integrating operations across jurisdictional boundaries via their TOCs. Interconnected TOCs can then optimize operations through actions such as accident response, real-time signal optimization, and provision of alternate routes when needed. § Improve access into and out of economic centers 	
<p>Performance Measures</p> <ul style="list-style-type: none"> § Accident rates § Number of incidents detected or verified § Incident response times § Incident clearance times 	

Emergency Call-Taking and Dispatch (EM01)	High Priority
<p>This market package includes emergency vehicle equipment, equipment used to receive and route emergency calls, and wireless communications that enable safe and rapid deployment of appropriate resources to an emergency. Coordination between Emergency Management Subsystems supports emergency notification and coordinated response between agencies.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § Emergency Response Telecommunications Center § Police Department Mobile Data Terminals § Computer Aided Dispatch 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Police and Fire Departments in Sacramento Area § Caltrans
<p>Planned Projects</p> <ul style="list-style-type: none"> § Computer Aided Dispatch Integration: integrate the computer-aided dispatch systems of various emergency response and transportation agencies that jointly participate in traffic incident management, including local police, state patrol, HAZMAT response, Caltrans, and fire departments. 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Improve coordination among traffic, public safety and transit agencies § Decrease emergency response times and capabilities using cameras and emergency vehicle signal preemption § Improve emergency response time and coordination by integrating emergency response and traffic management activities 	
<p>Performance Measures</p> <ul style="list-style-type: none"> § Call answering delay. Measured as time callers to 9-1-1 are on hold. § Average time to respond to emergency. Measured as the average time from receipt of call to arrival of emergency services at call site. 	

Disaster Response and Recovery (EM08)	High Priority
<p>This market package enhances the ability of the surface transportation system to respond to and recover from disasters. It addresses the most severe incidents that require an extraordinary response from outside the local community. All types of disasters are addressed including natural disasters (hurricanes, earthquakes, floods, winter storms, tsunamis, etc.) and technological and man-made disasters (hazardous materials incidents, nuclear power plant accidents, and national security emergencies such as nuclear, chemical, biological, and radiological weapons attacks).</p> <p>The market package supports coordination of emergency response plans, including general plans developed before a disaster as well as specific tactical plans with short time horizon that are developed as part of a disaster response. The market package provides enhanced access to the scene for response personnel and resources, provides better information about the transportation system in the vicinity of the disaster, and maintains situation awareness regarding the disaster itself. In addition, this market package tracks and coordinates the transportation resources - the transportation professionals, equipment, and materials - that constitute a portion of the disaster response.</p> <p>The market package identifies the key points of integration between transportation systems and the public safety, emergency management, and other allied organizations that form the overall disaster response. In this market package, the Emergency Management subsystem represents the federal, regional, state, and local Emergency Operations Centers and the Incident Commands that are established to respond to the disaster. The interface between the Emergency Management Subsystem and the other center subsystems provides situation awareness and resource coordination among transportation and other allied response agencies. In its role, traffic management implements special traffic control strategies and detours and restrictions to effectively manage traffic in and around the disaster. Maintenance and construction provides damage assessment of road network facilities and manages service restoration. Transit management provides a similar assessment of status for transit facilities and modifies transit operations to meet the special demands of the disaster. As immediate public safety concerns are addressed and disaster response transitions into recovery, this market package supports transition back to normal transportation system operation, recovering resources, managing on-going transportation facility repair, supporting data collection and revised plan coordination, and other recovery activities.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § Emergency Response Telecommunications Center § Police Department Mobile Data Terminals § Computer Aided Dispatch § CCTV cameras § Dynamic Message Signs/Trailblazers 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Police and Fire Departments in Sacramento Area § Caltrans § TMCs in cities in Sacramento § County of Sacramento TMC § Transit agencies
<p>Planned Projects</p> <ul style="list-style-type: none"> § Computer Aided Dispatch Integration: integrate the computer-aided dispatch systems of various emergency response and transportation agencies that jointly participate in traffic incident management, including local police, state patrol, HAZMAT response, Caltrans, and fire departments. 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Improve coordination among traffic, public safety and transit agencies § Decrease emergency response times and capabilities using cameras and emergency vehicle signal preemption § Improve emergency response time and coordination by integrating emergency response and traffic management activities 	
<p>Performance Measures</p> <ul style="list-style-type: none"> § Average time to respond to emergency. Measured as the average time from receipt of call to arrival of emergency services at call site. 	

Disaster Traveler Information (EM10)	High Priority
<p>This market package uses ITS to provide disaster-related traveler information to the general public, including evacuation and reentry information and other information concerning the operation of the transportation system during a disaster. This market package collects information from multiple sources including traffic, transit, public safety, emergency management, shelter provider, and travel service provider organizations. The collected information is processed and the public is provided with real-time disaster and evacuation information using ITS traveler information systems.</p> <p>A disaster will stress the surface transportation system since it may damage transportation facilities at the same time that it places unique demands on these facilities to support public evacuation and provide access for emergency responders. Similarly, a disaster may interrupt or degrade the operation of many traveler information systems at the same time that safety-critical information must be provided to the traveling public. This market package keeps the public informed in these scenarios, using all available means to provide information about the disaster area including damage to the transportation system, detours and closures in effect, special traffic restrictions and allowances, special transit schedules, and real-time information on traffic conditions and transit system performance in and around the disaster.</p> <p>This market package also provides emergency information to assist the public with evacuations when necessary. Information on mandatory and voluntary evacuation zones, evacuation times, and instructions are provided. Available evacuation routes and destinations and current and anticipated travel conditions along those routes are provided so evacuees are prepared and know their destination and preferred evacuation route. Information on available transit services and traveler services (shelters, medical services, hotels, restaurants, gas stations, etc.) is also provided. In addition to general evacuation information, this market package provides specific evacuation trip planning information that is tailored for the evacuee based on origin, selected destination, and evacuee-specified evacuation requirements and route parameters.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § Emergency Response Telecommunications Center § Police Department Mobile Data Terminals § Computer Aided Dispatch § 511 § Dynamic Message Signs 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Police and Fire Departments in Sacramento Area § Caltrans § TMCs in the cities in Sacramento § County of Sacramento TMC § Transit agencies
<p>Planned Projects</p> <ul style="list-style-type: none"> § Traveler Information Management (includes 511 system, DMS, kiosks, web pages, HAR, media, NOAA Weather radio) § Sacramento 511 § Regional Traveler Information System 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Improve traveler experience and reduce congestion by providing traveler information § Provide current traveler information via 511 § Provide traveler information in accessible formats (i.e., large print, Braille, 711, audio, multi-lingual) and varying media (i.e., web, TV, in-vehicle, 511, kiosks) § Improve emergency response time and coordination by integrating emergency response and traffic management activities 	
<p>Performance Measures</p> <ul style="list-style-type: none"> § Usage of disaster traveler information system. Measured as number of times per time period that disaster information is propagated. 	

Work Zone Management (MC08)	High Priority
<p>This market package directs activity in work zones, controlling traffic through portable DMS and informing other groups of activity (e.g., ISP, TM, other maintenance and construction centers) for better coordination management. Work zone speeds and delays are provided to the motorist prior to the work zones.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § Transportation Management Centers § CCTV Cameras § 511 § Dynamic Message Signs 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Caltrans § Cities in Sacramento § County of Sacramento
<p>Planned Projects</p> <ul style="list-style-type: none"> § None at this time 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Improve travel time along corridors § Improve overall congestion 	
<p>Performance Measures</p> <ul style="list-style-type: none"> § Number of accidents (or incidents) at work zones that have ITS elements. Measurement could include comparison of similar criteria for work zones without ITS elements. § Traffic flow in area of workzones. Again measurement could be compared with a similar measure calculated for workzones without ITS elements. 	

Maintenance and Construction Activity Coordination (MC10)	High Priority
<p>This market package supports the dissemination of maintenance and construction activity information to centers which can utilize it as part of their operations, or to the Information Service Providers who can provide the information to travelers.</p>	
<p>Existing Infrastructure</p> <p>§ TMCs § Websites</p>	<p>Responsible Agency</p> <p>§ Caltrans § Cities in Sacramento § County of Sacramento</p>
<p>Planned Projects</p> <p>§ None at this time</p>	
<p>Objectives Being Met</p>	
<p>Performance Measures</p> <p>§ Frequency of activity updates § Number of agencies receiving updates.</p>	

Medium Priority Market Packages for the Sacramento Area

ITS Data Mart (AD01)	Medium Priority
<p>This market package provides a focused archive that houses data collected and owned by a single agency, district, private sector provider, research institution, or other organization. This focused archive typically includes data covering a single transportation mode and one jurisdiction that is collected from an operational data store and archived for future use. It provides general query and report access to archive data users.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § Accident Database § GIS Mapping System § Transit Ridership Database 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Cities in Sacramento § County of Sacramento § Caltrans § Sacramento RT § Yolo County Transportation District § Davis Community Transit
<p>Planned Projects</p> <ul style="list-style-type: none"> § Regional Traveler Information System § 511 System § Completion of Valleywide GIS Mapping 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Provide more predictable travel times § Develop programs that have a regional focus 	
<p>Performance Measures</p> <ul style="list-style-type: none"> § Cost to collect data § Data accuracy 	

ITS Data Warehouse (AD02)	Medium Priority
<p>This market package includes all of the data collection and management capabilities provided by the ITS Data Mart, and adds the functionality and interface definitions that allow the collection of data from multiple agencies and data sources spanning across modal and jurisdictional boundaries. It performs the additional transformations and provides the additional data management features that are necessary so that all the data can be managed in a single repository. The potential for large volumes of carried data suggests additional on-line analysis and data mining features that are also included in this market package in addition to the basic query and reporting user access features offered by the ITS Data Mart.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § Accident Database § GIS Mapping System § Transit Ridership Database 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Cities in Sacramento § County of Sacramento § Caltrans § Sacramento RT § Yolo County Transportation District § Davis Community Transit
<p>Planned Projects</p> <ul style="list-style-type: none"> § Regional Traveler Information System § 511 System § Completion of Valleywide GIS Mapping 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Provide more predictable travel times § Develop programs that have a regional focus 	
<p>Performance Measures</p> <ul style="list-style-type: none"> § Cost to collect data § Data accuracy 	

ITS Virtual Data Warehouse (AD03)	Medium Priority
<p>This market package provides the same broad access to multimodal, multidimensional data from varied data sources as in the ITS Data Warehouse Market Package, but provides this access using enhanced interoperability between physically distributed ITS archives that are each locally managed. Requests for data that are satisfied by access to a single repository in the ITS Data Warehouse Market Package are parsed by the local archive and dynamically translated to requests to remote archives which relay the data necessary to satisfy the request.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § Accident Database § GIS Mapping System § Transit Ridership Database 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Cities in Sacramento § County of Sacramento § Caltrans § Sacramento RT § Yolo County Transportation District § Davis Community Transit § Roseville Transit
<p>Planned Projects</p> <ul style="list-style-type: none"> § Alternate Route Plans Database/Website - access to the plans via the Internet. § Regional Traveler Information System § 511 System § Completion of Valleywide GIS Mapping 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Provide more predictable travel times § Develop programs that have a regional focus 	
<p>Performance Measures</p> <ul style="list-style-type: none"> § Cost to collect data § Data accuracy 	

Demand Response Transit Operations (APTS03)	Medium Priority
<p>This market package performs vehicle routing and scheduling as well as automatic driver assignment and monitoring for demand responsive transit services. This package monitors the current status of the transit fleet and supports allocation of these fleet resources to service incoming requests for transit service while also considering traffic conditions. The Transit Management Subsystem provides the necessary data processing and information display to assist the transit operator in making optimal use of the transit fleet. This service includes the capability for a traveler request for personalized transit services to be made through the Information Service Provider (ISP) Subsystem.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § LRT § BRT § Paratransit 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Sacramento RT § Yolo County Transportation District § Davis Community Transit § Roseville Transit
<p>Planned Projects</p> <ul style="list-style-type: none"> § Expansion of bus and van service regionwide, including a large increase in service for elderly and disabled persons. § Implement ITS, Phase I, joint project of Yolo County Transportation District, Unitrans, and Davis Community Transit. § Roseville Transit - Fixed Route and Paratransit 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Enhance and integrate transit services where practical and desirable § Improve traffic flow by reducing congestion (e.g. on heavily traveled arterials), by reducing and/or enforcing speeds for safety (e.g. in residential neighborhoods), and by improving facilities for alternative transportation modes such as walking or bicycling § Market ITS to encourage the use of multi-modal transportation system § Improve access and mobility by introducing local paratransit services with door-to-door service § Optimize operations (reduce congestion, improve the traveler experience) § Provide for enhanced multi-modal transit transfers § Increase ridership on transit vehicles by improving reliability § Improve convenience of transit by introducing door-to-door paratransit service § Provide priority for transit vehicles using transit priority, queue jumper lanes, and signal coordination § Provide advantageous transit service over the use of automobiles § Improve transit level of service in existing and new transit corridors through greater frequency, timeliness, and easier transfers § Provide safer transit service § Design transit oriented development (TODs) along BRT corridors thus limiting sprawl and reducing the conversion of agricultural and open space § Design transit oriented development (TODs) along BRT corridors to be conducive to walking and bicycling in addition to transit, thus reducing motorized vehicle use and resultant emissions § Provide real-time traveler information for ride-sharing and trip planning 	
<p>Performance Measures</p> <ul style="list-style-type: none"> § Passenger trips per day per vehicle. Having an automated dispatch system should improve the efficiency of pickups per vehicle. 	

Transit Maintenance (APTS06)	Medium Priority
<p>This market package supports automatic transit maintenance scheduling and monitoring. On-board condition sensors monitor system status and transmit critical status information to the Transit Management Subsystem. Hardware and software in the Transit Management Subsystem processes this data and schedules preventative and corrective maintenance.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § LRT § BRT § Paratransit 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Sacramento RT § Yolo County Transportation District § Davis Community Transit § Roseville Transit
<p>Planned Projects</p> <ul style="list-style-type: none"> § None at this time 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Increase ridership on transit vehicles by improving reliability § Provide advantageous transit service over the use of automobiles § 	
<p>Performance Measures</p> <ul style="list-style-type: none"> § Maintenance actions per vehicle. 	

Interactive Traveler Information (ATIS02)	Medium Priority
<p>This market package provides tailored information in response to a traveler request. Both real-time interactive request/response systems and information systems that "push" a tailored stream of information to the traveler based on a submitted profile are supported. The traveler can obtain current information regarding traffic conditions, roadway maintenance and construction, transit services, ride share/ride match, parking management, detours and pricing information. A range of two-way wide-area wireless and fixed-point to fixed-point communications systems may be used to support the required data communications between the traveler and Information Service Provider. A variety of interactive devices may be used by the traveler to access information prior to a trip or en route including phone via a 511-like portal, kiosk, Personal Digital Assistant, personal computer, and a variety of in-vehicle devices. This market package also allows value-added resellers to collect transportation information that can be aggregated and be available to their personal devices or remote traveler systems to better inform their customers of transportation conditions. Successful deployment of this market package relies on availability of real-time transportation data from roadway instrumentation, transit, probe vehicles or other means. A traveler may also input personal preferences and identification information via a "traveler card" that can convey information to the system about the traveler as well as receive updates from the system so the card can be updated over time.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § Dynamic Message Signs/Trailblazers § 511 § CCTV Cameras § Closed Loop Signal Systems § Central Signal Systems 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Cities in Sacramento § County of Sacramento § Caltrans § Sacramento RT § Yolo County Transportation District § Davis Community Transit § Roseville Transit
<p>Planned Projects</p> <ul style="list-style-type: none"> § Watt Corridor - Phase 2 and 3. Traffic signal coordination, transit priority, monitoring equipment and traveler information on a major arterial corridor, plus supporting communications. § Traveler Information Management (includes 511 system, DMS, kiosks, web pages, HAR, media, NOAA Weather radio) § Sacramento 511 § Provide advanced traveler information (ATIS) system and disseminate concise, useful road and traffic condition reports to drivers. § Regional Traveler Information System § Remote ATIS workstations § Truck Stop Information Demo 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Improve traveler experience and reduce congestion by providing traveler information § Market ITS to encourage the use of multi-modal transportation system § Reduce time residents spend in congestion § Provide current traveler information via 511 § Provide real-time transit vehicle arrival information system § Disseminate accurate, multimodal traveler information via STARNET § Provide more predictable travel times § Improve travel time along corridors § Promote increased use of alternate modes (walking, bicycle, transit, carpool, vanpool) § Improve overall congestion § Improve access into and out of economic centers § Develop programs that have a regional focus § Improve access to and reliability of alternate modes § Provide traveler information in accessible formats (i.e., large print, Braille, 711, audio, multi-lingual) and 	

varying media (i.e., web, TV, in-vehicle, 511, kiosks)

Performance Measures

§ Use of 511 information by travelers. Measured as number of page views on website or calls to 511 system.

Dynamic Route Guidance (ATIS04)	Medium Priority
<p>This market package offers advanced route planning and guidance that is responsive to current conditions. The package combines the autonomous route guidance user equipment with a digital receiver capable of receiving real-time traffic, transit, and road condition information, which is considered by the user equipment in provision of route guidance.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § Dynamic Message Signs/Trailblazers § 511 § CCTV Cameras § Closed Loop Signal Systems § Central Signal Systems 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Cities in Sacramento § County of Sacramento § Caltrans § Sacramento RT § Yolo County Transportation District § Davis Community Transit § Roseville Transit
<p>Planned Projects</p> <ul style="list-style-type: none"> § Traveler Information Management (includes 511 system, DMS, kiosks, web pages, HAR, media, NOAA Weather radio) § Sacramento 511 § Alternate Route Plans Database/Website - access to the plans via the Internet. § Regional Traveler Information System § Dynamic Alternate Route signing system - implement dynamic variable message signs (VMS) specifically sited, and primarily devoted, to detouring traffic onto alternate routes during incidents, including accidents and weather related road closures. 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Market ITS to encourage the use of multi-modal transportation system § Reduce time residents spend in congestion § Improve travel time along corridors § Improve overall congestion § Improve accessibility by integrating operations across jurisdictional boundaries via their TOCs. Interconnected TOCs can then optimize operations through actions such as accident response, real-time signal optimization, and provision of alternate routes when needed. § Improve access into and out of economic centers § Provide traveler information in accessible formats (i.e., large print, Braille, 711, audio, multi-lingual) and varying media (i.e., web, TV, in-vehicle, 511, kiosks) 	
<p>Performance Measures</p> <ul style="list-style-type: none"> • Use of information by travelers. Viewed as number of page views on website. 	

Integrated Transportation Management/Route Guidance (ATIS06)	Medium Priority
<p>This market package provides advanced route planning and guidance which is responsive to current conditions, and supports collection of near-real time information on intended routes for a proportion of the vehicles in the network. This comprehensive road network probe information can be used by the Traffic Management Subsystem to optimize the traffic control strategy based on anticipated vehicle routes. The Traffic Management Subsystem would utilize the individual and ISP route planning information to optimize signal timing while at the same time providing updated signal timing information to allow optimized route plans. The predictive link times used by this market package are provided by the market package ATMS9--Traffic Forecast and Demand Management--at the traffic management center.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § Dynamic Message Signs/Trailblazers § 511 § CCTV Cameras § Closed Loop Signal Systems § Central Signal Systems 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Cities in Sacramento § County of Sacramento § Caltrans § Sacramento RT § Yolo County Transportation District § Davis Community Transit § Roseville Transit
<p>Planned Projects</p> <ul style="list-style-type: none"> § STARNET Various traffic and transit operation centers in the region; hardware and software upgrades enabling a wide-area network to share transportation data and operations. Fiber optic and wireless infrastructure is included in the project. § Watt Corridor - Phase 2 and 3. Traffic signal coordination, transit priority, monitoring equipment and traveler information on a major arterial corridor, plus supporting communications. § Traveler Information Management (includes 511 system, DMS, kiosks, web pages, HAR, media, NOAA Weather radio) § Sacramento 511 § Portable Traffic Management Devices (customized for portability including DMS, HAR, CCTV/web cameras, temporary signals, incident command center, and communications to RTMC) § Regional Traveler Information System 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Improve traveler experience and reduce congestion by providing traveler information § Market ITS to encourage the use of multi-modal transportation system § Reduce time residents spend in congestion § Improve traffic management § Optimize operations (reduce congestion, improve the traveler experience) § Reduce conflicts between motorized and non-motorized modes and vehicles § Disseminate accurate, multimodal traveler information via STARNET § Improve travel time along corridors § Integrate transit services across different modes where practical and desirable § Integrate transit services across different jurisdictions where practical and desirable § Improve accessibility by integrating operations across jurisdictional boundaries via their TOCs. Interconnected TOCs can then optimize operations through actions such as accident response, real-time signal optimization, and provision of alternate routes when needed. § Improve access into and out of economic centers § Provide traveler information in accessible formats (i.e., large print, Braille, 711, audio, multi-lingual) and varying media (i.e., web, TV, in-vehicle, 511, kiosks) 	
<p>Performance Measures</p>	

- Use of information by travelers. Viewed as number of page views on website.

HOV Lane Management (ATMS05)	Medium Priority
<p>This market package manages HOV lanes by coordinating freeway ramp meters and connector signals with HOV lane usage signals. Preferential treatment is given to HOV lanes using special bypasses, reserved lanes, and exclusive rights-of-way that may vary by time of day. Vehicle occupancy detectors may be installed to verify HOV compliance and to notify enforcement agencies of violations.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § Dynamic Message Signs/Trailblazers § 511 § CCTV Cameras § Closed Loop Signal Systems § Central Signal Systems 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Cities in Sacramento § County of Sacramento § Caltrans
<p>Planned Projects</p> <ul style="list-style-type: none"> § Ramp metering at all interchanges from Foresthill Road to the Sacramento County Line. § Install ramp meters, HOV Bypasses, additional on ramps, traffic monitoring stations and Closed Circuit TV installation on I-5 from Pocket Rd. to I-80. § Install ramp metering, traffic monitoring stations, Closed Circuit TV installation, message signs, and upgrade count stations to Traffic Management System on I-80 from Yolo Co. line to Route 244 (Longview Dr.). § Construct Traffic Operation System (Jct. 50 to I-5) § Yolo County portion of U.S. 50 traffic operations system and ramp metering at various locations. § U.S. 50 From I-80 to Sacramento County line—install traffic operations system (message signs, ramp metering, CCTV) § Yolo County portion of I-5 traffic operations system and ramp metering. § U.S. 50 Install ramp meters and modify ramp design at South River Rd. interchange. § U.S. 50 Jefferson Blvd. interchange—expand the ramps and signals from 1 to 2 lanes, add ramp metering and turn lanes, and related street closures. § Caltrans District 3 TOS projects. Includes ramp meters, HOV onramp lanes, traffic monitoring stations, closed circuit television cameras, changeable message signs, highway advisory radio, weather monitoring systems, loop detectors, etc. § Caltrans Ramp Meter/Surveillance § Eleven Ramp meters planned between Sacramento/El Dorado County line and Placerville § Six Ramp meters on SR65 between Lincoln and I-80 § Upgrade Caltrans District 3 Regional TMC to manage US-50, I-80 and other ITS deployments (includes coordination with Nevada and Tahoe Basin to ensure consistency) § Portable Traffic Management Devices (customized for portability including DMS, HAR, CCTV/web cameras, temporary signals, incident command center, and communications to RTMC) 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Improve traffic flow by reducing congestion (e.g. on heavily traveled arterials), by reducing and/or enforcing speeds for safety (e.g. in residential neighborhoods), and by improving facilities for alternative transportation modes such as walking or bicycling § Market ITS to encourage the use of multi-modal transportation system § Reduce time residents spend in congestion § Provide electronic payment and/or regional fare collection system for transit (possibly multi-modal) § Provide electronic payment and/or regional fare collection system for transit (possibly multi-modal) § Improve travel time along corridors § Improve traffic management § Consider addition of HOV/HOT lanes across region 	
<p>Performance Measures</p>	

- Reduced travel time. Measured by travel time along the corridor.

Traffic Forecast and Demand Management (ATMS09)	Medium Priority
<p>This market package includes advanced algorithms, processing, and mass storage capabilities that support historical evaluation, real-time assessment, and forecast of the roadway network performance. This includes the prediction of travel demand patterns to support better link travel time forecasts. The source data would come from the Traffic Management Subsystem itself as well as other traffic management centers and forecasted traffic loads derived from route plans supplied by the Information Service Provider Subsystem. This market package provides data that supports the implementation of TDM programs, and policies managing both traffic and the environment. The package collects information on vehicle pollution levels, parking availability, usage levels, and vehicle occupancy to support these functions. Demand management requests can also be made to Toll Administration, Transit Management, and Parking Management Subsystems.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § Closed Loop Signal Systems § Central Signal Systems 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Cities in Sacramento § County of Sacramento § Caltrans
<p>Planned Projects</p> <ul style="list-style-type: none"> § Connect traffic signals, including ITS technology, that are located outside of the Central City to the City's existing Traffic Operations Center. 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Improve traffic flow by reducing congestion (e.g. on heavily traveled arterials), by reducing and/or enforcing speeds for safety (e.g. in residential neighborhoods), and by improving facilities for alternative transportation modes such as walking or bicycling § Market ITS to encourage the use of multi-modal transportation system § Reduce time residents spend in congestion § Provide electronic payment and/or regional fare collection system for transit (possibly multi-modal) § Provide more predictable travel times § Improve overall congestion § Improve travel time along corridors § Improve traffic management § Improve access into and out of economic centers 	
<p>Performance Measures</p> <ul style="list-style-type: none"> § Traffic flow. Measured at intersections with signal systems. § Travel time along a corridor (that contains coordinated signals) 	

Emissions Monitoring and Management (ATMS11)	Medium Priority
<p>This market package monitors individual vehicle emissions and provides general air quality monitoring using distributed sensors to collect the data. The collected information is transmitted to the emissions management subsystem for processing. Both area wide air quality monitoring and point emissions monitoring are supported by this market package. For area wide monitoring, this market package measures air quality, identifies sectors that are non-compliant with air quality standards, and collects, stores and reports supporting statistical data. For point emissions monitoring, this market package measures tail pipe emissions and identifies vehicles that exceed emissions standards. Summary emissions information or warnings can also be displayed to drivers. The gathered information can be used to implement environmentally sensitive TDM programs, policies, and regulations.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § Closed Loop Signal Systems § Central Signal Systems 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Cities in Sacramento § County of Sacramento § Caltrans
<p>Planned Projects</p> <ul style="list-style-type: none"> § None at this time 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Reduce vehicle emissions § Market ITS to encourage the use of multi-modal transportation system § Reduce vehicle emissions by reducing total VMT § Reduce vehicle emissions by reducing congestion and thus possibly reducing stop-and-go conditions § Use technology to help maintain a balance of environmentally friendly growth and the use of advanced technology 	
<p>Performance Measures</p> <ul style="list-style-type: none"> § Number of vehicles tested. § Rate of compliance with emission standards. 	

Standard Railroad Grade Crossing (ATMS13)	Medium Priority
<p>This Standard Railroad Grade Crossing market package manages highway traffic at highway-rail intersections (HRIs) where rail operational speeds are less than 80 miles per hour. Both passive (e.g., the crossbuck sign) and active warning systems (e.g., flashing lights and gates) are supported.</p> <p>These traditional HRI warning systems may also be augmented with other standard traffic management devices. The warning systems are activated on notification by interfaced wayside equipment of an approaching train. The equipment at the HRI may also be interconnected with adjacent signalized intersections so that local control can be adapted to highway-rail intersection activities. Health monitoring of the HRI equipment and interfaces is performed; detected abnormalities are reported to both highway and railroad officials through wayside interfaces and interfaces to the traffic management subsystem.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § Closed Loop Signal Systems § Central Signal Systems 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Cities in Sacramento § County of Sacramento § Caltrans
<p>Planned Projects</p> <ul style="list-style-type: none"> § None at this time 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Market ITS to encourage the use of multi-modal transportation system § Reduce time residents spend in congestion § Improve traffic management § Improve safety for all modes (i.e., surveillance on transit vehicles, traffic calming) § Reduce conflicts between motorized and non-motorized modes and vehicles § Improve access into and out of economic centers 	
<p>Performance Measures</p> <ul style="list-style-type: none"> § Number of train/ vehicle crashes at HRIs interconnected with Traffic Signal System. 	

Advanced Railroad Grade Crossing (ATMS14)	Medium Priority
<p>The Advanced Railroad Grade Crossing market package manages highway traffic at HRIs where operational requirements demand advanced features (e.g. where operational speeds are greater than 80 miles per hour). This market packages builds upon the services offered by Standard Railroad Grade Crossing with additional safety features to mitigate the risks associated with higher rail speeds.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § Closed Loop Signal Systems § Central Signal Systems 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Cities in Sacramento § County of Sacramento § Caltrans
<p>Planned Projects</p> <ul style="list-style-type: none"> § None at this time 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Market ITS to encourage the use of multi-modal transportation system § Reduce time residents spend in congestion § Improve traffic management § Improve safety for all modes (i.e., surveillance on transit vehicles, traffic calming) § Reduce conflicts between motorized and non-motorized modes and vehicles § Improve access into and out of economic centers 	
<p>Performance Measures</p> <ul style="list-style-type: none"> § Number of train/ vehicle crashes at HRIs with advanced surveillance capabilities § Number of blocked intersection occurrences recognized by system. 	

Speed Monitoring (ATMS19)	Medium Priority
<p>This market package monitors the speeds of vehicles traveling through a roadway system. If the speed is determine to be excessive, roadside equipment can suggest a safe driving speed. Environmental conditions may be monitored and factored into the safe speed advisories that are provided to the motorist. This service can also support notifications to an enforcement agency to enforce the speed limit on a roadway system.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § Closed Loop Signal Systems § Central Signal Systems 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Cities in Sacramento § County of Sacramento § Caltrans
<p>Planned Projects</p> <ul style="list-style-type: none"> § Install Smart Traffic Calming in south Midtown area. § Install ramp meters, HOV Bypasses, additional on ramps, traffic monitoring stations and Closed Circuit TV installation on I-5 from Pocket Rd. to I-80. § Install ramp metering, traffic monitoring stations, Closed Circuit TV installation, message signs, and upgrade count stations to Traffic Management System on I-80 from Yolo Co. line to Route 244 (Longview Dr.) § Construct Traffic Operation System (Jct. 50 to I-5) § Yolo County portion of U.S. 50 traffic operations system and ramp metering at various locations. § U.S. 50 From I-80 to Sacramento County line—install traffic operations system (message signs, ramp metering, CCTV) § Yolo County portion of I-5 traffic operations system and ramp metering. § Caltrans District 3 TOS projects. Includes ramp meters, HOV onramp lanes, traffic monitoring stations, closed circuit television cameras, changeable message signs, highway advisory radio, weather monitoring systems, loop detectors, etc. § Traffic monitoring stations near the Sacramento/Placer County line in Roseville § US 50 Surveillance (including 4 CCTV or web cameras and 6 traffic monitoring stations) § Elk Grove signals - Upgrade City's existing onstreet system. Replace controllers/cabinets as needed and add system detectors on all segments § Dynamic Speed Signing System for weather conditions § Traffic Monitoring Phase I - Deploy traffic monitoring devices (e.g. flow detectors, CCTV cameras) § along segments of US 50 in South Shore area, and along Highways 28, 89 and 267 in the North Shore 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Improve traffic flow by reducing congestion (e.g. on heavily traveled arterials), by reducing and/or enforcing speeds for safety (e.g. in residential neighborhoods), and by improving facilities for alternative transportation modes such as walking or bicycling 	
<p>Performance Measures</p> <ul style="list-style-type: none"> § Traffic flow. Measured at intersections with signal systems. § Travel time along a corridor (that contains coordinated signals) 	

HAZMAT Management (CVO10)	Medium Priority
<p>This market package integrates incident management capabilities with commercial vehicle tracking to assure effective treatment of HAZMAT materials and incidents. HAZMAT tracking is performed by the Fleet and Freight Management Subsystem. The Emergency Management Subsystem is notified by the Commercial Vehicle if an incident occurs and coordinates the response. The response is tailored based on information that is provided as part of the original incident notification or derived from supplemental information provided prior to the beginning of the trip or gathered following the incident depending on the selected policy and implementation.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § CCTV Cameras § Dynamic Message Signs/Trailblazers § 511 § Emergency Response Telecommunications Center 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Cities in Sacramento § County of Sacramento § Caltrans § Police and Fire Departments in Sacramento
<p>Planned Projects</p> <ul style="list-style-type: none"> § None at this time 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Streamline goods movement processes § Improve commercial vehicle operations using technologies such as weigh-in-motion sensors and real-time roadway condition information for trucks and delivery fleets § Improve emergency response time and coordination by integrating emergency response and traffic management activities 	
<p>Performance Measures</p> <ul style="list-style-type: none"> § Occurrences of HAZMAT incidents where assistance requested. 	

Emergency Routing (EM02)	Medium Priority
<p>This market package supports automated vehicle location and dynamic routing of emergency vehicles. The service also supports coordination with the Traffic Management Subsystem, collecting detailed road network conditions and requesting special priority or other specific emergency traffic control strategies on the selected route(s). The service provides for information exchange between care facilities and both the Emergency Management Subsystem and emergency vehicles.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § Emergency Response Telecommunications Center § Police Department Mobile Data Terminals § Computer Aided Dispatch § Emergency Vehicle Preemption Systems 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Police and Fire Departments in Sacramento Area § Caltrans
<p>Planned Projects</p> <ul style="list-style-type: none"> § Emergency Vehicles - AVI/AVL (including tracking equipment in dispatch and TMC) § Emergency Vehicle Pre-emption (EVP) Deployment § Dynamic Alternate Route signing system - implement dynamic variable message signs (VMS) specifically sited, and primarily devoted, to detouring traffic onto alternate routes during incidents, including accidents and weather related road closures. § Computer Aided Dispatch Integration: integrate the computer-aided dispatch systems of various emergency response and transportation agencies that jointly participate in traffic incident management, including local police, state patrol, HAZMAT response, Caltrans, and fire departments. 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Reduce time residents spend in congestion § Improve accessibility by integrating operations across jurisdictional boundaries via their TOCs. Interconnected TOCs can then optimize operations through actions such as accident response, real-time signal optimization, and provision of alternate routes when needed. § Improve coordination among traffic, public safety and transit agencies § Decrease emergency response times and capabilities using cameras and emergency vehicle signal preemption § Improve emergency response time and coordination by integrating emergency response and traffic management activities 	
<p>Performance Measures</p> <ul style="list-style-type: none"> § Average time to respond to emergency. Measured as the average time from receipt of call to arrival of emergency services at call site. 	

Roadway Service Patrols (EM04)	Medium Priority
<p>This market package supports roadway service patrol vehicles that monitor roads that aid motorists, offering rapid response to minor incidents (flat tire, accidents, out of gas) to minimize disruption to the traffic stream. If problems are detected, the roadway service patrol vehicles will provide assistance to the motorist (e.g., push a vehicle to the shoulder or median). The market package monitors service patrol vehicle locations and supports vehicle dispatch to identified incident locations. Incident information collected by the service patrol is shared with traffic, maintenance and construction, and traveler information systems.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § Emergency Response Telecommunications Center § Police Department Mobile Data Terminals § Computer Aided Dispatch 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Police and Fire Departments in Sacramento Area § Caltrans
<p>Planned Projects</p> <ul style="list-style-type: none"> § Emergency Vehicles - AVI/AVL (including tracking equipment in dispatch and TMC) 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Improve emergency response time and coordination by integrating emergency response and traffic management activities 	
<p>Performance Measures</p> <ul style="list-style-type: none"> § Wait time for stranded motorists. Measured as time from receipt of call for assistance to arrival of freeway service patrol or other public safety vehicle. 	

Transportation Infrastructure Protection (EM05)	Medium Priority
<p>This market package includes the monitoring of transportation infrastructure (e.g., bridges, tunnels and management centers) for potential threats using sensors and surveillance equipment and barrier and safeguard systems to preclude an incident, control access during and after an incident or mitigate impact of an incident. Threats can result from acts of nature (e.g., hurricanes, earthquakes), terrorist attacks or other incidents causing damage to the infrastructure (e.g., stray barge hitting a bridge support). Infrastructure may be monitored with acoustic, environmental threat (such as nuclear, biological, chemical, and explosives), infrastructure condition and integrity, motion and object sensors and video and audio surveillance equipment. Data from such sensors and surveillance equipment may be processed in the field or sent to a center for processing. The data enables operators at the center to detect and verify threats. When a threat is detected, agencies are notified. Detected threats or advisories received from other agencies result in an increased level of system preparedness. In response to threats, barrier and safeguard systems may be activated by Traffic Management Subsystems to deter an incident, control access to an area or mitigate the impact of an incident. Barrier systems include gates, barriers and other automated and remotely controlled systems that manage entry to transportation infrastructure. Safeguard systems include blast shields, exhaust systems and other automated and remotely controlled systems that mitigate impact of an incident.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § CCTV Cameras § Dynamic Message Signs/Trailblazers § 511 § Emergency Response Telecommunications Center 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Cities in Sacramento § County of Sacramento § Caltrans § Police and Fire Departments in Sacramento
<p>Planned Projects</p> <ul style="list-style-type: none"> § None at this time 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Improve coordination among traffic, public safety and transit agencies § Develop programs that have a regional focus § Improve emergency response time and coordination by integrating emergency response and traffic management activities 	
<p>Performance Measures</p> <ul style="list-style-type: none"> § Infrastructure coverage. Measured in transportation assets covered by surveillance. § Incidents detected. 	

Wide Area Alert (EM06)	Medium Priority
<p>This market package uses ITS driver and traveler information systems to alert the public in emergency situations such as child abductions, severe weather events, civil emergencies, and other situations that pose a threat to life and property. The alert includes information and instructions for transportation system operators and the traveling public, improving public safety and enlisting the public's help in some scenarios. The ITS technologies will supplement and support other emergency and homeland security alert systems such as the Emergency Alert System (EAS). When an emergency situation is reported and verified and the terms and conditions for system activation are satisfied, a designated agency broadcasts emergency information to traffic agencies, transit agencies, information service providers, toll operators, and others that operate ITS systems. The ITS systems, in turn, provide the alert information to transportation system operators and the traveling public using ITS technologies such as dynamic message signs, highway advisory radios, in-vehicle displays, transit displays, 511 traveler information systems, and traveler information web sites.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § CCTV Cameras § Dynamic Message Signs/Trailblazers § 511 § Emergency Response Telecommunications Center § HARs 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Cities in Sacramento § County of Sacramento § Caltrans § Police and Fire Departments in Sacramento § Transit agencies
<p>Planned Projects</p> <ul style="list-style-type: none"> § Regional Incident/Emergency Management Plan (incorporates proposed AVI/AVL technologies for emergency response vehicles) 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Improve traveler experience and reduce congestion by providing traveler information § Develop programs that have a regional focus § Improve emergency response time and coordination by integrating emergency response and traffic management activities 	
<p>Performance Measures</p> <ul style="list-style-type: none"> § Usage of alert system. Measured as number of alerts per time period. 	

Early Warning System (EM07)	Medium Priority
<p>This market package monitors and detects potential, looming, and actual disasters including natural disasters (hurricanes, earthquakes, floods, winter storms, tsunamis, etc.) and technological and man-made disasters (hazardous materials incidents, nuclear power plant accidents, and acts of terrorism including nuclear, chemical, biological, and radiological weapons attacks). The market package monitors alerting and advisory systems, ITS sensors and surveillance systems, field reports, and emergency call-taking systems to identify emergencies and notifies all responding agencies of detected emergencies.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § CCTV Cameras § Dynamic Message Signs/Trailblazers § 511 § Emergency Response Telecommunications Center § HARs 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Cities in Sacramento § County of Sacramento § Caltrans § Police and Fire Departments in Sacramento
<p>Planned Projects</p> <ul style="list-style-type: none"> § Regional Incident/Emergency Management Plan (incorporates proposed AVI/AVL technologies for emergency response vehicles) 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Improve emergency response time and coordination by integrating emergency response and traffic management activities 	
<p>Performance Measures</p> <ul style="list-style-type: none"> § Usage of warning system. Measured as number of warnings given per time period. 	

Evacuation and Reentry Management (EM09)	Medium Priority
<p>This market package supports evacuation of the general public from a disaster area and manages subsequent reentry to the disaster area. The market package addresses evacuations for all types of disasters, including disasters like hurricanes that are anticipated and occur slowly, allowing a well-planned orderly evacuation, as well as disasters like terrorist acts that occur rapidly, without warning, and allow little or no time for preparation or public warning.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § CCTV Cameras § Dynamic Message Signs/Trailblazers § 511 § Emergency Response Telecommunications Center 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Cities in Sacramento § County of Sacramento § Caltrans § Police and Fire Departments in Sacramento
<p>Planned Projects</p> <ul style="list-style-type: none"> § None at this time 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Improve coordination among traffic, public safety and transit agencies § Improve traffic management § Improve emergency response time and coordination by integrating emergency response and traffic management activities 	
<p>Performance Measures</p> <ul style="list-style-type: none"> § Evacuation performance. Measured as time to evacuate x number of people or y area. 	

Road Weather Data Collection (MC03)	Medium Priority
<p>This market package collects current road and weather conditions using data collected from environmental sensors deployed on and about the roadway (or guideway in the case of transit related rail systems). In addition to fixed sensor stations at the roadside, sensing of the roadway environment can also occur from sensor systems located on Maintenance and Construction Vehicles and on-board sensors provided by auto manufacturers. The collected environmental data is used by the Weather Information Processing and Distribution Market Package to process the information and make decisions on operations.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § CCTV Cameras § Dynamic Message Signs/Trailblazers § 511 § Emergency Response Telecommunications Center 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Cities in Sacramento § County of Sacramento § Caltrans § Police and Fire Departments in Sacramento § Sacramento RT
<p>Planned Projects</p> <ul style="list-style-type: none"> § None at this time 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Improve coordination among traffic, public safety and transit agencies § Improve traffic management § Improve emergency response time and coordination by integrating emergency response and traffic management activities 	
<p>Performance Measures</p> <ul style="list-style-type: none"> § Number of hazardous conditions identified by the devices. § Amount of road treatment materials used § Response time of crews to treat hazardous road conditions. 	

Weather Information Processing and Distribution (MC04)	Medium Priority
<p>This market package processes and distributes the environmental information collected from the Road Weather Data Collection market package. This market package uses the environmental data to detect environmental hazards such as icy road conditions, high winds, and dense fog so that system operators and decision support systems can make decisions on corrective actions to take. The continuing updates of road condition information and current temperatures can be used by system operators to more effectively deploy road maintenance resources, issue general traveler advisories, issue location specific warnings to drivers using the Traffic Information Dissemination market package, and aid operators in scheduling work activity.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § Weather Monitoring Systems § CCTV Cameras § Dynamic Message Signs/Trailblazers § 511 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Cities in Sacramento § County of Sacramento § Caltrans
<p>Planned Projects</p> <ul style="list-style-type: none"> § Caltrans District 3 TOS projects. Includes ramp meters, HOV onramp lanes, traffic monitoring stations, closed circuit television cameras, changeable message signs, highway advisory radio, weather monitoring systems, loop detectors, etc. § Traveler Information Management (includes 511 system, DMS, kiosks, web pages, HAR, media, NOAA Weather radio) § Sacramento 511 § Provide advanced traveler information (ATIS) system and disseminate concise, useful road and traffic condition reports to drivers. § Regional Traveler Information System § Weather/ATMS Integration and Automation § Dynamic Alternate Route signing system - implement dynamic variable message signs (VMS) specifically sited, and primarily devoted, to detouring traffic onto alternate routes during incidents, including accidents and weather related road closures. 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Improve traveler experience and reduce congestion by providing traveler information § Improve safety for all modes (i.e., surveillance on transit vehicles, traffic calming) § Provide traveler information in accessible formats (i.e., large print, Braille, 711, audio, multi-lingual) and varying media (i.e., web, TV, in-vehicle, 511, kiosks) 	
<p>Performance Measures</p> <ul style="list-style-type: none"> § Amount of road treatment materials used § Response time of crews to treat hazardous road conditions. 	

Roadway Maintenance and Construction (MC07)	Medium Priority
<p>This market package supports numerous services for scheduled and unscheduled maintenance and construction on a roadway system or right-of-way. Maintenance services would include landscape maintenance, hazard removal (roadway debris, dead animals), routine maintenance activities (roadway cleaning, grass cutting), and repair and maintenance of both ITS and non-ITS equipment on the roadway (e.g., signs, traffic controllers, traffic detectors, dynamic message signs, traffic signals, CCTV, etc.). Environmental conditions information is also received from various weather sources to aid in scheduling maintenance and construction activities.</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § Weather Monitoring Systems § CCTV Cameras § Dynamic Message Signs/Trailblazers § 511 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Cities in Sacramento § County of Sacramento § Caltrans
<p>Planned Projects</p> <ul style="list-style-type: none"> § Caltrans District 3 TOS projects. Includes ramp meters, HOV onramp lanes, traffic monitoring stations, closed circuit television cameras, changeable message signs, highway advisory radio, weather monitoring systems, loop detectors, etc. § Traveler Information Management (includes 511 system, DMS, kiosks, web pages, HAR, media, NOAA Weather radio) § Sacramento 511 § Provide advanced traveler information (ATIS) system and disseminate concise, useful road and traffic condition reports to drivers. § Regional Traveler Information System § Weather/ATMS Integration and Automation § Dynamic Alternate Route signing system - implement dynamic variable message signs (VMS) specifically sited, and primarily devoted, to detouring traffic onto alternate routes during incidents, including accidents and weather related road closures. 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Improve traveler experience and reduce congestion by providing traveler information § Improve safety for all modes (i.e., surveillance on transit vehicles, traffic calming) § Provide traveler information in accessible formats (i.e., large print, Braille, 711, audio, multi-lingual) and varying media (i.e., web, TV, in-vehicle, 511, kiosks) 	
<p>Performance Measures</p> <ul style="list-style-type: none"> § Average response time of maintenance crews. Measured as time from request for maintenance action to arrival of maintenance vehicle on scene. 	

Work Zone Safety Monitoring (MC09)	Medium Priority
<p>This market package includes systems that improve work crew safety and reduce collisions between the motoring public and maintenance and construction vehicles. This market package detects vehicle intrusions in work zones and warns crew workers and drivers of imminent encroachment or other potential safety hazards. Crew movements are also monitored so that the crew can be warned of movement beyond the designated safe zone. The market package supports both stationary and mobile work zones. The intrusion detection and alarm systems may be collocated or distributed, allowing systems that detect safety issues far upstream from a work zone (e.g., detection of over dimension vehicles before they enter the work zone).</p>	
<p>Existing Infrastructure</p> <ul style="list-style-type: none"> § CCTV Cameras § Dynamic Message Signs/Trailblazers § 511 	<p>Responsible Agency</p> <ul style="list-style-type: none"> § Cities in Sacramento § County of Sacramento § Caltrans
<p>Planned Projects</p> <ul style="list-style-type: none"> § None at this time 	
<p>Objectives Being Met</p> <ul style="list-style-type: none"> § Improve coordination among traffic, public safety and transit agencies § Improve safety for all modes (i.e., surveillance on transit vehicles, traffic calming) 	
<p>Performance Measures</p> <ul style="list-style-type: none"> § Number of times safety monitoring equipment activated § Number of accidents (or incidents) at work zones with safety monitoring equipment. 	