

Appendix DD:

2021 Regional ITS

Architecture Update

Final
December 2021

Report

Regional ITS Architecture Update Project – Technical Memorandum – Executive Summary



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1 Introduction

1.1 What is the Regional ITS Architecture?

The Regional ITS Architecture (“Architecture”) serves as a technical blueprint for local deployers, operators and other stakeholders of Intelligent Transportation Systems (ITS), providing the guidance necessary for agencies to plan, develop, and design ITS that utilizes existing services, and supports communications between ITS elements that cross jurisdictional boundaries. A regularly updated Regional ITS Architecture is one of the tools necessary for local stakeholders in the consistent and effective development of ITS. In addition, an updated Architecture meets Federal requirements that all ITS projects funded from the Highway Trust Fund be in alignment with the National ITS Architecture and associated standards. The update of San Diego’s

Regional ITS Architecture is the necessary step to ensure that local agencies are deploying services in alignment with the National ITS Architecture, or the Architecture Reference for Cooperative and Intelligent Transportation (ARC-IT).

In addressing the needs of a growing population and ambitious statewide goals for the reduction of greenhouse gasses, SANDAG has envisioned a new vision for transportation planning in

San Diego; organized and framed by 5 Big Moves. The 5 Big Moves are: Transit Leap, Flexible Fleets, Complete Corridors, Mobility Hubs and Next Operating System (Next OS). The 5 Big Moves will transform the approach to transportation planning and reimagine the ways in which people and goods move through the region. The introduction of 5 Big Moves necessitated a complete review of the region’s ITS Architecture, to ensure that SANDAG, all partner agencies, and other stakeholders in the region were able to benefit from the Architecture as a critical support for near and long term transportation planning. The major components of a Regional ITS Architecture, and the relationships between those components are illustrated in Figure 1.

The Regional ITS Architecture is a large and complex database that can be organized, displayed, and accessed in various ways; it can be thought of as a house with several entry points, illustrated in Figure 2. While all the Architecture content has been exported and is available using the Web Tool at <https://its-arch.sandag.org>, the question arises; ‘What is the best place to start?’ Figure 2 suggests three potential ways to effectively start using the Architecture:

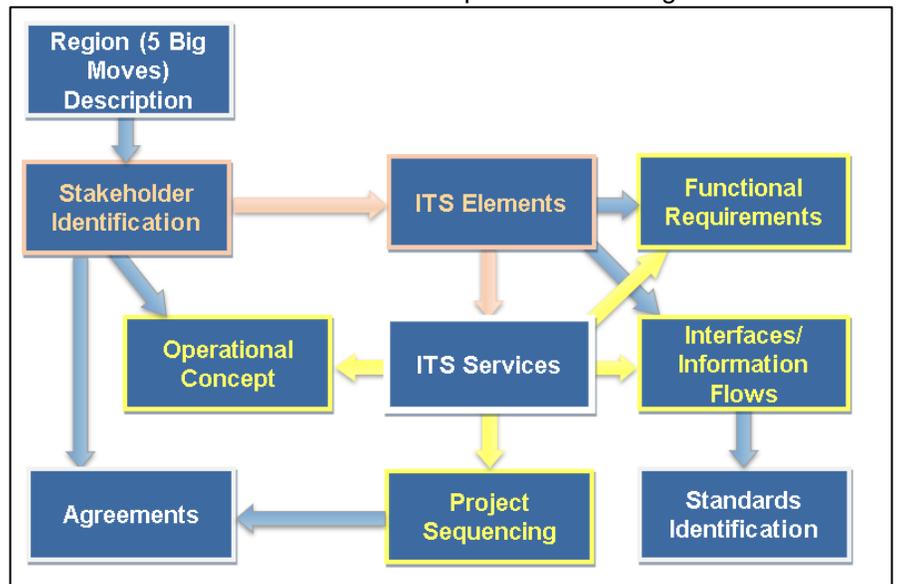


Figure 1 - ITS Architecture Components

- 5 Big Moves – For agencies working with a project or set of projects that fall neatly into one of the 5 Big Moves, this is the most useful heading to start with. An example of a project that would best start at 5 Big Moves is one that seeks to plan a transit passenger counting platform. In this case, an agency would start at 5 Big Moves, and then go on to select “Transit Leap.”
- Services – Many projects, such as Mobility Hubs, Smart Intersections, and Traveler Information are best defined by the services they provide to travelers. In those cases, users of the Architecture Web Tool should begin with the “Services” heading.
- Needs – If a deploying agency is looking to define, plan and implement projects that speak to specific needs, that agency may first review the list of needs identified in the San Diego region, and associated with specific Service Packages to consider.

The current version of the San Diego Region ITS Architecture has over 200 Service Packages organized into twelve categories: Commercial Vehicle Operations (CVO), Data Management (DM), Maintenance and Construction (MC), Parking Management (PM), Public Transit (PT), Public Safety (PS), Support (SU), Sustainable Travel (ST), Traffic Management (TM), Traveler Information (TI), Vehicle Safety (VS), and Weather (WX). In order to map the 5 Big Moves into the ARC-IT framework, each of the Service Packages was correlated with one or more of the 5 Big Moves. As part of the Regional ITS Architecture update, the individual Service Packages were expanded and modified to better represent the new concepts identified in the 5 Big Moves.

For example, there is no single Service Package in ARC-IT to properly encompass the concepts defined by the Curb Access Management concept being developed by SANDAG under the 5 Big Moves. To provide local stakeholders with the Architecture information needed to plan and implement Curb Access Management solutions, three instances of Service Packages were updated, and collectively represent the capabilities under the SANDAG Curb Access Management concept. Similar revisions had to be made to accommodate some of the Flex Fleets, Mobility Hubs, Complete Corridor, and Next OS concepts.

Most Service Packages that exist in the San Diego Regional ITS Architecture fall generally within one or more of the 5 Big Moves, which helps to support the planning process within a regional context. The mapping and correlation between the Service Packages and the 5 Big Moves allows users of the Regional ITS Architecture to access the regional architecture data by considering either the appropriate Big Move or the related Service Package.

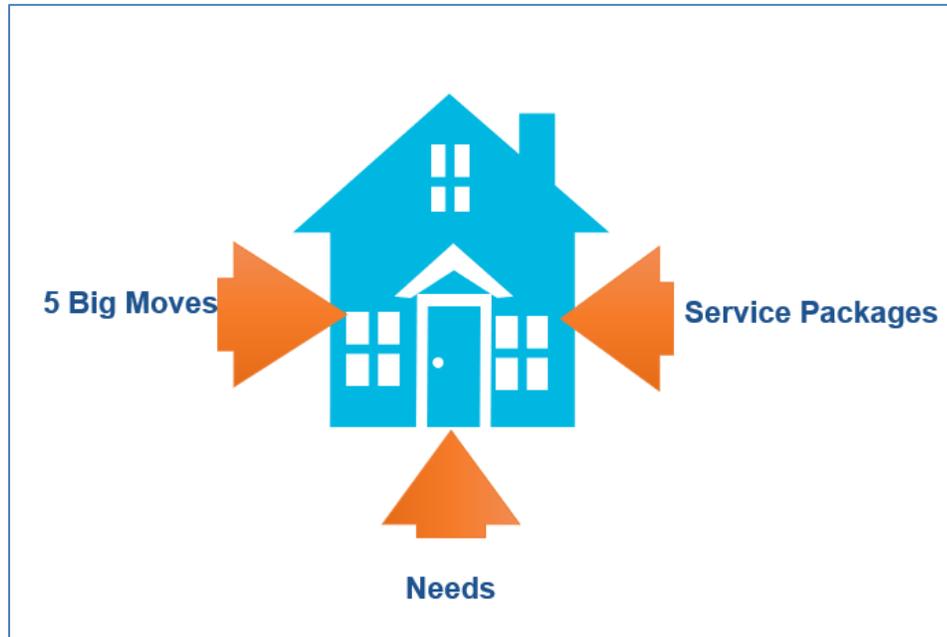


Figure 2 - ITS Architecture Access Points

1.2 Why Update the ITS Architecture Now?

The impetus for a full-scale update of San Diego's ITS Architecture is the introduction of the 5 Big Moves, SANDAG's transformative strategies to reimagine how the transportation network will keep pace with the growing population of San Diego over the next decade. In proactively meeting the needs of a changing transportation system, keeping pace with modern trends in urbanization and an estimated steady growth in population, SANDAG is developing solutions and strategies to deploy the 5 Big Moves. In support of the 2021 Regional Plan and alignment with the 5 Big Moves; SANDAG commenced a full-scale update of the Regional ITS Architecture.

The 5 Big Moves is the framework of SANDAG's approach to meeting greenhouse gas (GHG) reduction goals, providing viable alternatives to residents and travelers, and making the most efficient use of the current and proposed near-term planned transportation network investments. SANDAG developed this new vision for transportation, in support of the 2021 Regional Plan, to enable significant and impactful changes to the transportation system to create a more efficient, accessible, and connected network.

1.3 5 Big Moves

The 5 Big Moves include: Complete Corridors, Transit Leap, Mobility Hubs, Flexible Fleets, and the Next OS. Together, these concepts provide a new structure for transportation services and infrastructure, tied together by a comprehensive central digital platform that will use data from disparate sources to integrate the services necessary to realize this vision and align with the goals and objectives documented in the 2021 Regional Plan. This structure offers a balanced approach to bringing the concepts of Transportation Systems Management and Operation, (TSMO) to all modes of transportation, with associated necessary investments made in the region's infrastructure to support execution of those strategies. The balance inherent in the 5 Big Moves approach links directly back to the practices of TSMO, bringing equal focus to the aspects of institutional, organizational, and technical areas.

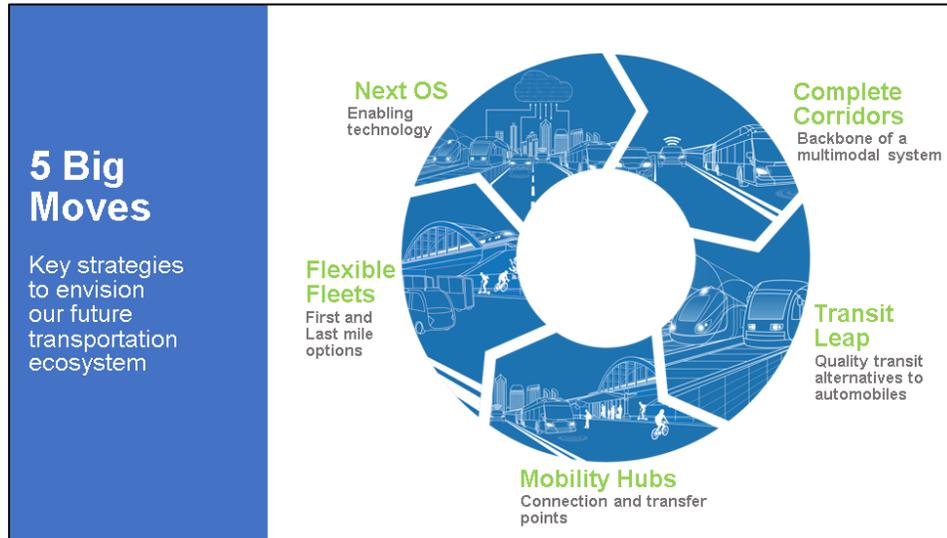


Figure 3 - 5 Big Moves (Source: SANDAG)

A brief description of each of the 5 Big Moves, represented in Figure 3 are:

- **Complete Corridors** – Serving travelers of all types; local travelers, regional travelers, commercial traffic and active transportation users, Complete Corridors is the backbone of a multimodal system, and provides an integrated, comprehensive vision to provide a variety of travel choices and technologies to manage the use of highways, arterials and other assets in real time. Complete Corridors will deliver a balanced transportation system, delivering mobility choices to travelers of all types in and through the San Diego region.
- **Transit Leap** – To affect the changes necessary to deal with increasing highway congestion and address climate goals, transit must be a viable option for travelers of all types. To be a viable option, a transit trip cannot take twice as long as the same trip in a private vehicle. The provision of a complete network of efficient, modern, high-speed and high-capacity transit services is a foundational element in encouraging mode shift out of personal vehicles. An improved and enhanced transit network will connect highly populated residential areas with employment and commerce centers and attractions throughout the San Diego region.
- **Mobility Hubs** – A network of connection and transfer points, offering on-demand travel options to communities with high concentrations of people, jobs, destination, and travel choices. These locations will focus on a healthy mix of land uses; residential, commercial, and recreational, and will support the continued deployment of a safe and efficient transportation infrastructure. Mobility Hubs focuses on development of physical elements and supporting services that provide greater mobility options and promote choices beyond the single occupancy automobile.
- **Flexible Fleets** – Flexible Fleets concentrate on shared, on-demand transportation services providing first and last mile travel options designed to be convenient and personalized. Flexible Fleets benefit from the uptake and growing popularity of micro mobility services such as rideshare, bike share and e-scooters, delivery and local shuttles also fall into the category of Flexible Fleets.
- **Next Operating System** –The Next OS is the enabling technology, and a digital platform that serves as the center or ‘brain’ of the entire regional transportation system, compiling

information from a variety of sources such as cars, trucks and transit vehicles, and the vehicles that support micro mobility such as scooters and e-bikes. Analysis of this robust data set will support the conversion of data to information, and serve to improve how transportation is planned, operated, and experienced. Next OS also provides a set of regionally available data and information services and functions that can be used by mobility stakeholders in the region to enable 5 Big Moves efforts.

The efforts representing the 5 Big Moves are conceptualized and planned for as part of a series of corridor and regional planning update efforts. A significant component of each move, as well as the overarching concept of the Next OS, is the application of data, technologies, and systems to enable new mobility functions, support equity, and provide seamless and new options for cleaner, safer, and more sustainable mobility. The 5 Big Moves represent a long-term and phased vision for the region that will need to support integration over time by a wide range of mobility systems and data solutions. These concepts will include regional solutions that support functions that may be used by corridors and mobility users throughout the region, as well as specific corridor and field-based solutions and equipment that may differ across the region but will need to enable shared data and functionality.

1.4 Transportation System Management and Operations (TSMO)

What is the role of TSMO in transportation planning in the San Diego region, and the resulting need to consult the updated Regional ITS Architecture? Where the Regional ITS Architecture serves as a technical blueprint for transportation projects at all phases of project development, TSMO offers a framework to evaluate transportation projects from a philosophical standpoint. TSMO provides strategies for stakeholders to collaborate in the prioritization of needs and in the design of transportation projects. The Regional ITS Architecture provides the details necessary to ensure consistent and effective ITS deployment.

As a critical part of the 2021 Regional Plan, TSMO is also an underlying concept supporting the 5 Big Moves. TSMO focuses on optimizing all aspects of the transportation system, using technology and greater interjurisdictional communication to improve operations and set the stage for intelligent expansion. The institutional agreements and policies developed within the framework of TSMO concepts are together a core piece of delivering the benefit of Next OS to the travelers in and through San Diego, on all modes of transportation.

1.5 Relationship of Next OS to the Regional ITS Architecture

The Next OS is the crucial operations, systems, and data integration element of the 5 Big Moves. In the Next OS Concept White Paper it is described as the “brain of the entire transportation system.” Incorporating the Next OS into the San Diego Region ITS Architecture update presented a unique opportunity to advance an overarching concept, an approach to realizing regional mobility goals, and a set of regionally available services that would need to be implemented as a series of ITS projects.

From a systems architecture perspective it is best to think of the Next OS as a series of regionally available capabilities as shown in Figure 4. The most effective way to reference capabilities in the Regional ITS Architecture is through the associated Service Packages. For the Next OS, relevant Service Packages can appear at two levels: (1) at the level of the Next OS as part of the overarching “brain” of the mobility system; and (2) within each individual Big Move as represented in the architecture database. These two levels are not mutually exclusive, as each directs users of the architecture to the same information in terms of system functions,

connections, potential stakeholders, and information flows. Users can use this to filter through the data to information that accurately reflects their project needs.



Figure 4 Next OS Summary of Capabilities (Next OS Concept White Paper, SANDAG August 2020)

- **Mobility Catalog** - This capability is representative of the collection, fusion, and integration of data through a data management approach. From a regional architecture perspective, these capabilities are most represented in the Data Management and Support Service Packages of the Architecture.
- **Forecasting, Analytics, & A.I.** - This capability is largely represented by the Data Management and Support Service Packages, but could also support dynamic traffic and transit operations efforts over time.
- **Service Management** - This capability is at the heart of the Next OS and is probably most crucial to enabling the 5 Big Moves vision across the region as implemented by regional and local ITS projects and systems. From an architecture perspective this capability is most often represented in the Public Transportation, Public Safety, and Traffic Management Service Packages. As envisioned, the Next OS will support an increasing array of regionally available services that enable the other Big Moves to be realized. For example, a regional service supporting flexible mobility on demand fleets or curb management functionality could be implemented and made regionally available.
- **Pricing, Billing, & Payments** - This capability represents tolling, unified mobility accounts, new methods of mobility on demand and transit fare payment, congestion pricing concepts, and even potential pricing incentives. These areas together support the concept of Mobility-as-a-Service (MaaS). The architecture groups these capabilities under the Public Transportation, Parking Management, and Traffic Management Service Packages. While Service Packages were modified to represent congestion pricing and unified payment approaches, incentives are not yet available through the national or regional ITS architectures.
- **User Engagement** - This capability within Next OS is intended to provide insights and services to users for purposes of near-term and long-term management. From an end user perspective, the Regional ITS Architecture represents this within the Traveler Information and Data Management Service Packages. It should be noted that within many Service Packages, the end user (e.g. driver, operator, planner, etc.) is individually represented and can be located within the Service Package descriptions.
- **Communications & Integration** - This capability represents regional communications sharing and management for mobility and related purposes. From an ITS architecture perspective, it is most represented in the Support Service Packages. It also exists at the physical and

communications layers of the overall architecture that is included in each Service Package as part of implementing and supporting any ITS effort.

Next OS is anticipated to grow in capability both geographically and functionally over time. Efforts that start as demonstrations or pilots may become regionally available services. These services are represented in Service Packages and can be specifically defined as individual projects under the Regional ITS Architecture as they are implemented. As regionally available services are deployed, they need to be updated and reflected as such within the architecture. For example, a pilot project may be deployed for a Mobility Information Kiosk functionality under a traveler information service package. If successful, this could be enhanced into a regionally available service that can be leveraged by Mobility Hub implementations across the region. It is a primary goal of the Regional ITS Architecture to help stakeholders identify potential connections, available and planned regional ITS services, and to understand needs and stakeholder roles beyond their own individual agency or project needs. This allows conscious decisions to be made about project scoping, phasing, and objectives for integration with peer agency and/or regional solutions.

Finally, it is important to understand that the Next OS concept is reflected in the Regional ITS Architecture as an individual Big Move, as well as within each of the associated Big Moves. This overlap is reflected in the Service Packages and their overlapping associations within the 5 Big Moves. In many ways, the Next OS can be viewed as the overarching regionally available service capabilities, and the individual Big Moves (e.g., Complete Corridors, Flex Fleets, etc.) represent the more localized and service specific implementation of those services across modes.

2 ITS Regional Architecture Update

2.1 Results, Key Highlights

SANDAG finds itself at a critical juncture in the planning of an integrated, accessible, equitable, and multi-modal transportation network. The 5 Big Moves initiative was developed to maximize the efficiency of all modes of transportation in the region, and provide viable, efficient options to travelers and goods movement. Current and planned efforts in the region strive to ensure the reduction of highway and arterial congestion and adhere to state and federal targets in the reduction of greenhouse gas emissions. The themes and highlights that arose out of many detailed discussions, as well as a review of local project and policy documentation confirm a shared understanding of and commitment to these goals.

The information gleaned to support a full update of the Regional ITS Architecture update can be summarized by the following key highlights:

2.1.1 Equity and Accessibility

The need to consider equity and accessibility to transportation options and the technology used to access information, across all modes, was stressed in several stakeholder conversations, from several different perspectives. A growing understanding of the impact of inequality on travelers is driving changes in mobility planning and the deployment of new solutions, at SANDAG as well as at agencies throughout the nation. A clear understanding that transportation planning in the past has harmed communities, and a focus on equity in the deployment of

technology solutions is a key driver to much of the planning being undertaken by SANDAG. In fact, considerations to increase the equitable access to transportation solutions is a foundational component of the 2021 Regional Plan.

A component of SANDAG's commitment to equity, equality and accessibility in its planning is a recognition of and focus on the digital divide. The wide disparity between socioeconomic groups in access to the Internet has affected and continues to affect residents in areas ranging from accessing goods and services, to educational opportunities, to the health and safety information. To help address these issues, SANDAG has created a regional Digital Divide Taskforce, for which a draft charter is currently being circulated. This effort, in parallel with development of a workplan for the Regional Digital Equity Strategy, cemented this issue as a foundational one to focus on, in terms of the ITS Architecture update.

2.1.2 Climate and Greenhouse Gas Emissions Reduction Targets

State and federal targets for reducing greenhouse gases and emissions, as well as the reduction of Vehicles Miles Traveled (VMT) mandate careful consideration in the planning and implementation of all transportation projects going forward. Several stakeholders and SANDAG staff referred to the desire to elevate transit, shared micro mobility solutions and other approaches to lessen carbon emission in the region. MTS is transitioning to fuel cell vehicles, and a full zero emission vehicle fleet is expected to be deployed by 2040. In partnership with the California Air Resources Board, SANDAG's climate planning and clean technology teams are working on several efforts to address climate planning goals.

Infrastructure to support electric vehicle charging; for passenger vehicles, commercial vehicles and transit is seen as a critical pathway to meeting climate goals. SANDAG is currently planning to install 11,000 new EV chargers to the region, and those chargers need to be 'intelligent' and plugged into the information network. Management of that EV infrastructure, from the number of and physical locations of electric charging units to the methods of supplying power to those units was expressed among a list of items to consider. In parallel with infrastructure deployment is the need to consider dissemination of information on items such as locations of charging and hydrogen fuel locations and the capacity of those locations. The infrastructure installed to support an overall move to clean transportation must be supported by methods to get this information to potential users. Several Service Packages, inventory items and interconnections between architecture elements were made to address new goals in terms of electric vehicle infrastructure, and new technology to support those goals.

2.1.3 Participation of TNCs

The rapidly expanding and highly volatile universe of private micro-mobility companies operating, e-scooters, e-bikes, mopeds, and potentially automated delivery vehicles was identified in conversations and relevant documents. These private companies want to use the public right-of-way, and the deployment of fleets of vehicles has various operational impacts to SANDAG and all participating cities and jurisdictions.

Several participants discussed the challenge of ensuring adequate participation from private mobility companies, in support of working towards regional mobility goals. Active, engaged participation on the part of Transportation Network Companies (TNCs) and other private ride and vehicle sharing companies was shared as a critical effort to help advance partnering opportunities. Encouraging engagement with mobility players is a high priority for staff involved in various aspects of deployment of the 5 Big Moves.

The planning and design of a Mobility Data Clearinghouse, and its use of the Mobility Data Specification was identified as a relevant issue during conversations with stakeholders. The necessity for private fleets to participate in MDS may be a driver to ensure collaborative participation.

2.2 Current Concept of Operations

The Regional ITS Architecture is tool for deployers of ITS, effective at various stages of transportation planning. Use of the Architecture can best be described within the framework of near-term strategies and plans identified to support the 5 Big Moves concepts. In support of the 2021 Regional Plan update, SANDAG developed several concepts of operations reports regarding high profile efforts such as Curb Management and Smart Intersections. A summary of those efforts, their relevance to a full and comprehensive update of the Architecture and illustrations of the methods by which the Architecture can support the concepts identified are provided in this section.

2.2.1 Smart Intersections

SANDAG has identified Smart Intersections as a critical priority to delivering on the concepts of the 5 Big Moves. A ConOps has been completed. While operation of smart signals has benefited the stakeholders or jurisdictions in which the signals are deployed, a technologically advanced, consistent application of smart signals concepts is at the heart of the planning for Smart Intersections. This regional application will create consistency with the collection of traffic data, reporting, operations, and safety.

The Smart Intersections ConOps provides a core list of services that will be provided in the deployment of a region-wide approach, which in turn supports the identification of appropriate service packages. In listing such equipment and strategies as coordinated and advanced signal systems, communication networks, advanced detectors, and other field devices, traffic management software and transit signal priority treatments, the first step in working with the Regional ITS Architecture is clear.

Figure 5 illustrates the major components of a traffic signal control system, operated by the City of San Diego. Within the service package illustrated, the inventory items and the directions by which data flows between those elements is evident, and accessible in the Regional Architecture.

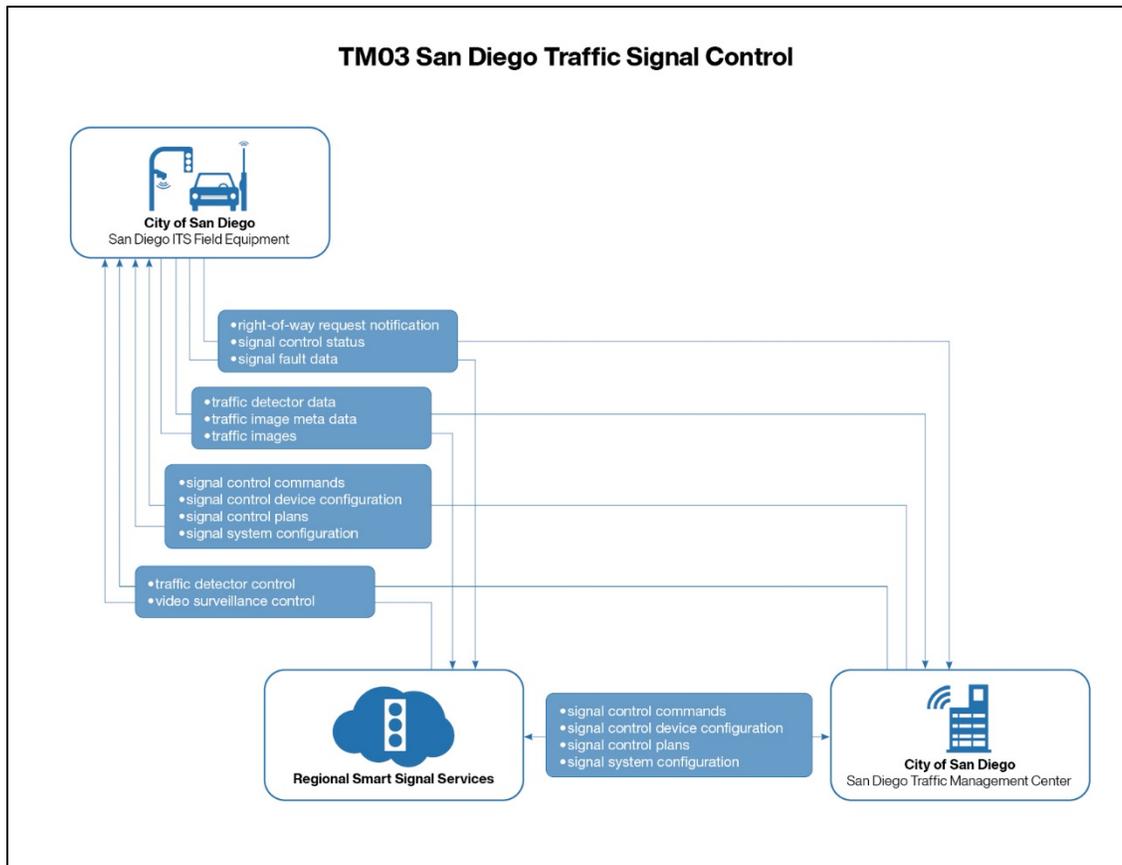


Figure 5 - San Diego Traffic Signal Control Architecture Diagram

2.2.2 Curb Access Management

The purpose and use of urban curb space is changing rapidly. With an influx of micro mobility vehicles, a sharp increase in curbside pickup from storefronts as well as deliveries to business and residential locations, the value of city curb space has increased dramatically over the past several years. In turn, the need to define and deploy enhanced strategies to manage curb space has become critical. SANDAG commissioned a ConOps to study the operational environment and challenges, and develop goals, objectives, and strategies to deliver curb access management service to the region.

The planning, design, and deployment of strategies and/or projects necessary to deliver curb access management will be supported by reference to and use of the Regional ITS Architecture. Figure 6 illustrates, at a high level, the system architecture, and components of an environment where curb access management is active, as well as the component's relationship to Next OS.

The illustration provides a high-level map to use of the Architecture to support local planning. The diagram can be used to identify the services included in the provision of curb access management, understand the types of data and communications necessary to provide those services, and name the appropriate stakeholders responsible for the services or owners of the inventory items.

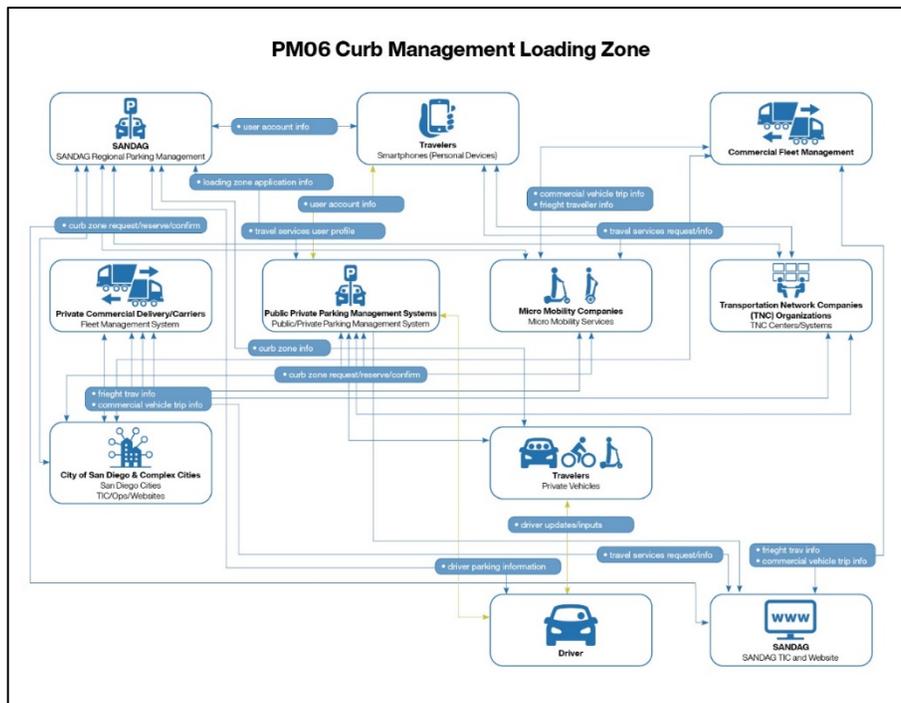


Figure 6 - Curb Management Architecture Diagram

2.3 Regional ITS Architecture Web Tool

The Regional ITS Architecture is an extremely large and complex database, with thousands of data points supporting the components needed to plan and deploy ITS. Regional services, both existing and planned, stakeholders who own and/or operate systems or system components, physical and functional objects necessary to develop and deploy services, regional objectives and existing agreements are all housed in the Regional Architecture.

The Architecture is meant to be used by stakeholders in the planning and development of ITS, with different components of the Architecture relevant at different stages of the project lifecycle. To ensure easy and efficient access of the material, the Architecture as a whole has been exported to the internet, on a website designed with the stakeholder in mind. For the San Diego region, the Architecture is currently hosted by SANDAG, and publically available at the following location: <https://its-arch.sandag.org>. All categories of data currently housed in the Regional Architecture, including the diagrams that illustrate interconnected inventory and data flows between them, can be accessed at this link.

As per Figure 7, the landing page provides a menu of all items available, each of those items hyperlinked to additional information. The web tool allows stakeholders to step through the information contained in the Regional Architecture, in support of any project being developed.



Figure 7 - <https://its-arch.sandag.org>

This website provides the contents of the Regional ITS Architecture in the following categories:

[5 Big Moves](#) - The '5 Big Moves' heading is the first of three suggested entry points for local deployers of ITS. This link navigates users to the 5 strategies developed to support San Diego's 2021 Regional Transportation Plan. Clicking on the '5 Big Moves' link will take the user to a table of all 5 Big Moves, along with descriptions, with each title a live hyperlink to additional information on that move.

[Services](#) - Services is the second of three suggested entry points for local deployers of ITS. The 'Services' heading navigates the user of the Web Tool to a page featuring the complete list of Service Packages, and Service Package instances, included in San Diego's Regional ITS Architecture. This page then provides the full list of Service Packages available in the regional architecture. Each of those Service Packages are hyperlinked, allowing the user to continue drilling down into relevant information.

[Needs](#) - The 'Needs' hyperlink is the third suggested entry point for local stakeholders looking to start using the Regional ITS Architecture via the Web Tool. Clicking on the link takes the user to the list of 'Needs' identified during the Architecture update process. The 'Needs' included in the Architecture are presented in relation to, and therefore linked to, Need Areas, the numbers assigned to those Needs, and a description of each.

[Scope](#) - The 'Scope' link navigates the user to a detailed description of the Regional ITS Architecture's scope, timeframe, geographic scope, as well as a list of related architectures.

[Planning](#) - This page identifies the planning objectives and strategies that are supported by the Regional ITS Architecture.

[Stakeholders](#) - The stakeholders page provides the full list of public and private stakeholders included in the Regional ITS Architecture

[Inventory](#) - The inventory page includes an extensive list of existing and planned ITS elements in the region. The inventory list also includes some non-ITS elements that are also part of the regional transportation system.

[Inventory by Physical Object](#) - The link provides the list of existing and planned ITS elements in the region, sorted by “Physical Objects”; the systems or devices that provide ITS service and functionality.

[Inventory by Stakeholder](#) - The link provides the list of existing and planned ITS elements in the region, sorted by the Stakeholders responsible for owning or operating the inventory.

[Roles and Responsibilities](#) - The roles and responsibilities page provides a list of ITS areas and a description of the role each area plays in a transportation system. Clicking through an area will lead to a list of stakeholders associated with that area.

[Functions](#) - The ‘Functions’ page provides a list of subsystems associated with the Regional ITS Architecture and the functional areas that is part of a subsystem.

[Interfaces](#) - The interfaces page includes a list of ITS elements and other elements that interfaces with the listed ITS element.

2.4 Regional ITS Architecture and ITS Project Priority Phasing

The Regional ITS Architecture supports local and regional transportation planning; in fact, it is essential that the Architecture be integrated into the transportation planning process at several junctures, to ensure consistency in implementation. As a result of integrating the ITS Architecture into the planning processes, the architecture links objectives and needs of the region; documented in the 2021 Regional Plan, to planned ITS deployments in the field. Figure 8 below illustrates the relationship of planning and development to the Architecture over time, and the iterative components of the planning process for ITS. This diagram illustrates how the Regional ITS Architecture, represented by the blue “wave” addresses how the need and relevance of the Architecture changes over time.

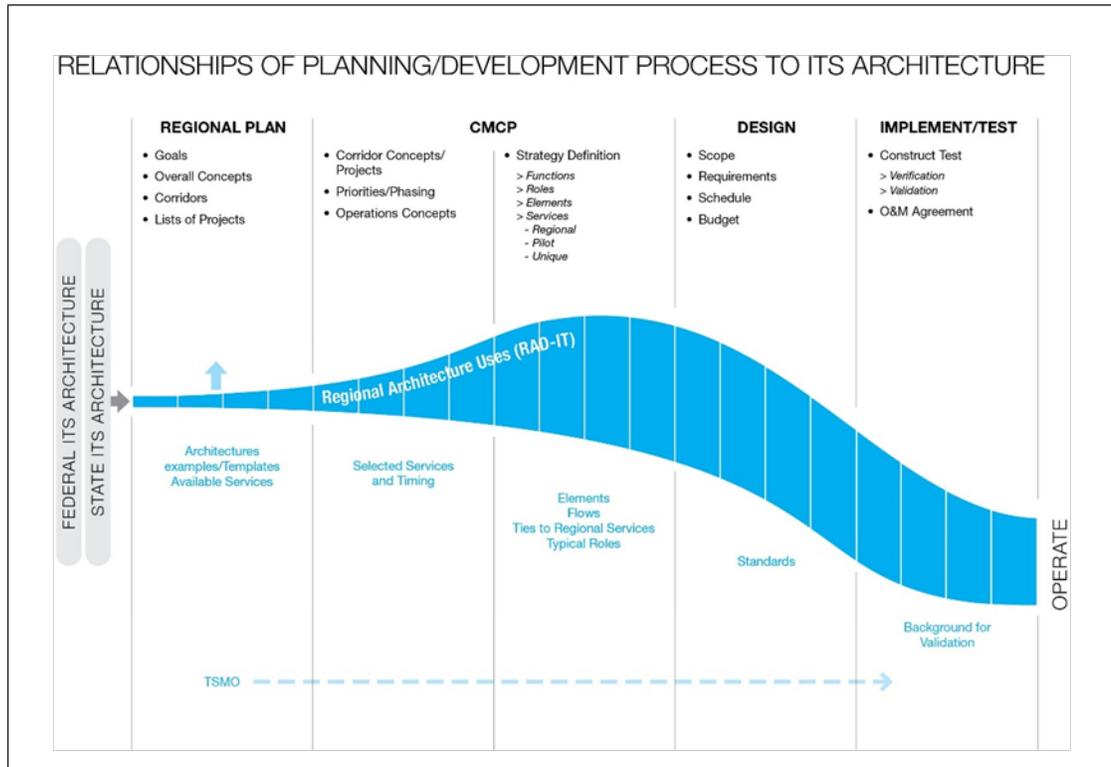


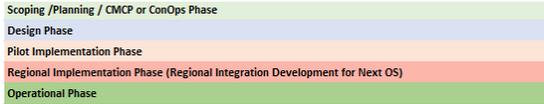
Figure 8 Relationships of Planning / Development Process to Regional ITS Architecture

2.5 ITS Architecture Strategic Implementation Project Roadmap

The Regional ITS Architecture itself is meant to serve as a technical roadmap, providing consistency and information on the availability of services in the region. The vast amounts of information regarding existing and planned regional services, and the inventory necessary to deliver those services, are accessible to stakeholders by using the Architecture.

The 2021 Regional Plan includes a long list of potential projects, with details on the phasing of those projects. In alignment with that list of possible efforts and projects, the Project Roadmap below provides a sample list of projects/programs, in several areas identified by SANDAG as high priority, and an estimated timeline for the project/program lifecycle, and initial identification of key ITS Architecture service packages for each project/program.

Regional ITS Architecture Strategic Implementation Project Roadmap



	Existing / Planned Project/Program	Proposed/Initial ITS Architecture Service Packages	Expected Activity and Timeframe				
			2021-2022		2023 - 2024	2025 - beyond	
			ConOps	Requirements Definition	Develop Procurement / Pilot Implementation	Pilot System Deployment and /Integration (Next OS)	Operations
Smart Infrastructure / Smart Corridors	Smart Intersections	PT09: Connected Eco Driving PS03: Emergency Vehicle Pre-emption TM01: Traffic-based Traffic Surveillance TM03: Traffic Signal Control TM04: Connected Vehicle Traffic Signal System	ConOps	Requirements Definition	Develop Procurement / Pilot Implementation	Pilot System Deployment and /Integration (Next OS)	Operations
	Active Transportation Demand Management (ATDM); I-5, I-805, SR 54, SR-905, SR 78, SR 52, SR 67	CV009: Freight – Specific Dynamic Parking CV012: Regional HAZMAT Management DM02: Performance Monitoring PS02: Regional Emergency Response PS03: Emergency Vehicle Pre-emption PS13: Regional Evacuation and Reentry Management PT09: Transit Signal Priority PT10: Next Generation Transit Lanes ST01: Regional Emissions Monitoring ST05: Public-Private Electric Charging Stations TI01: Broadcast Traveler Information TI02: Personalized Traveler Information TI03: Regional Real-time Dynamic Route Guidance TM04: Regional Connected Vehicle Traffic Signal System TM11: Congestion Pricing TM22: Dynamic Lane Management/Curb Management	CMCP			Corridor/Project Concept of Operations	Corridor/Project Requirement Definitions
	Curb Management	PM01: Parking Space Management PM05: Parking Reservations PM06: Loading Zone Management PT03: Regional TNC Operations TM22: Regional Dynamic Lane Management	ConOps	Requirements Definition	Develop Procurement / Pilot Implementation	Pilot System Deployment and /Integration (Next OS)	Operations
	Near-term Rapid Projects	PT01: Transit Vehicle Tracking PT08: Transit Traveler Information PT14: Multimodal Coordination PT02: Transit Fixed-Route Operations PT04: Transit Fare Collection Management PT06: Transit Fleet Management PT07: Transit Passenger Counting PT09: Transit Signal Priority PT15: Transit Stop Request	CMCP			Corridor/Project Concept of Operations	Corridor/Project Requirement Definitions

Regional ITS Architecture Strategic Implementation Project Roadmap

	Existing / Planned Project/Program	Proposed/Initial ITS Architecture Service Packages	Expected Activity and Timeframe				
			2021-2022		2023 - 2024	2025 - beyond	
Smart Mobility / Mobility Hubs	San Ysidro Mobility Hub	ST05: Electric Charging Stations Management PM01: Parking Space Management TI01: Broadcast Traveler Information TI05: Mobility Hubs - Travel Services Information and Reservations PM06: Loading Zone Management	Project/ Planning Study		Concept of Operations (ConnOps)	Requirements Definition	Develop Procurement / Implementation
	Central Mobility Hub	TI06: Dynamic Ridesharing and Shared Use Trans-TNC/Bike/Uber/Lyft TM02: Personalized Traveler Information PT03: Regional TNC and Micro Mobility Ops DM01: Data Warehouse	CMCP	ConOps		Requirements Definition	Incorporate ConOps/System Reqs to help advance Central Mobility Hubs Project Technical Studies and /EIR
	Western Chula Vista Mobility Hub	PM01: Parking Space Management TI01: Broadcast Traveler Information TI03: Regional Real-Time Dynamic Guidance/Way Finding TI05: Travel Information and Reservations PM06: Curb and Loading Zone Management TI06: Dynamic Ridesharing and Shared Use Trans-TNC/Bike/Uber/Lyft TM02: Personalized Traveler Information VS12: Micro Transit Pedestrian and Cyclist Safety	ConOps	Requirements Definition	Develop Procurement / Pilot Implementation	Pilot System Deployment and /Integration (Next OS)	Operations
	Operations for Flexible Fleet Services	TI06: Dynamic Ridesharing and Shared Use Trans-TNC/Bike/Uber/Lyft TM02: Personalized Traveler Information PT03: Regional TNC and Micro Mobility Ops	Coordination with Partners / Concept Development		Pilot Implementation		System Integration (Next OS)
	Data Hub - Mobility Data Clearinghouse (MDC)	DM01: Data Warehouse DM02: Performance Monitoring	ConOps	Requirements Definition	Develop Procurement - Iteration 1 Deployment	Pilot System Deployment and /Integration (Next OS)	

	Existing / Planned Project/Program	Proposed/Initial ITS Architecture Service Packages	Expected Activity and Timeframe		
			2021-2022	2023 - 2024	2025 - beyond
Harbor Drive 2.0	Connected Vehicles	TM04: Connected Vehicle Traffic Signal System PM01: Parking Space Management PS05: Regional Connected V2V Auto Emergency Info SU05: Regional ITS Location and Time VS03: San Diego Connected Vehicle Situational Awareness	ConOps	Requirements Definition	Incorporate ConOps/System Reqs to help advance Vesta Bridge Technical Studies and /EIR
	Freight Signal Priority	CVO06: Freight Signal Priority	ConOps	Requirements Definition	Incorporate ConOps/System Reqs to help advance Vesta Bridge Technical Studies and /EIR
	Truck Reservation System	TI02: Personalized Traveler Information - SD 511 TI05: Mobility Hubs - Travel Services Information and Reservations	ConOps	Requirements Definition	Incorporate ConOps/System Reqs to help advance Vesta Bridge Technical Studies and /EIR

Regional ITS Architecture Strategic Implementation Project Roadmap

	Existing / Planned Project/Program	Proposed/Initial ITS Architecture Service Packages	Expected Activity and Timeframe			
			2021-2022	2023 - 2024	2025 - beyond	
Regional Border Management System (RBMS)	Designated Freight Routes and Signal Priority Treatments	CVO04: CV Administrative Processes TI05: Mobility Hubs - Travel Services Information and Reservations TM01: Traffic Surveillance TM03: Traffic Signal Control TM04: Regional Connected Vehicle Traffic Signal System	Refine ConOps	Refine Requirement Definitions	Regional System Deployment and /Integration (Next OS)	Operations
	Enhanced Bi-national Inspection / Pre-clearance / Traffic Management	CVO21: International Border Electronic Clearance CVO22: International Border Coordination DM02: Performance Monitoring TM11: Congestion Pricing TM22: Dynamic Lane Management/Curb Management	Refine ConOps	Refine Requirement Definitions	Regional System Deployment and /Integration (Next OS)	Operations
	Multimodal Border Coordination	PT14: Multimodal Coordination PT08: Transit Traveler Information TI01: Border Broadcast Traveler Information TM01: Traffic Surveillance TM03: Traffic Signal Control TM23 San Diego Border Management Systems	Refine ConOps	Refine Requirement Definitions	Regional System Deployment and /Integration (Next OS)	Operations
	Advanced Traveler information and Revenue Collection	CVO05: Commercial Vehicle Parking TM03: Traffic Signal Control PT08: Transit Traveler Information TM04: Regional Connected Vehicle Traffic Signal System TI02: Personalized Traveler Information	Refine ConOps	Refine Requirement Definitions	Regional System Deployment and /Integration (Next OS)	Operations

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Report

Regional ITS Architecture Update Project – Technical Memorandum – Final



Prepared for SANDAG
by IBI Group
August 20, 2021

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1 Introduction

1.1 Document Purpose

This report provides the output of San Diego's Regional Intelligent Transportation Systems (ITS) Architecture. This document includes all updates completed to align the Regional Architecture with the concepts of the 5 Big Moves, developed as a framework to guide future transportation planning by the San Diego Association of Governments (SANDAG). As efforts and plans for regional transportation solutions move from concept to design stage, local stakeholders can consult the Regional ITS Architecture to gain an understanding of the resources and services available in the region, as well as those planned for the near, mid, and long term. This document provides not only the output of that information, but guidance on how stakeholders can use and benefit from the Architecture.

The Regional ITS Architecture serves as a technical blueprint for local deployers, operators and other stakeholders of ITS services and products. The Architecture provides the guidance necessary for local agencies to plan, develop, and design ITS that utilizes existing services, and supports communications between ITS elements that cross jurisdictional boundaries. A regularly updated Regional ITS Architecture is one of the tools necessary for local stakeholders in the consistent and effective development of ITS. In addition, an updated Architecture meets Federal requirements that all ITS projects funded from the Highway Trust Fund be in alignment with the National ITS Architecture and associated standards. The update of San Diego's Regional ITS Architecture is the necessary step to ensure that local agencies are deploying services in alignment with the National ITS Architecture, and can appropriately position projects for applicable federal funding.

1.2 What Is ITS?

Intelligent Transportation Systems include processes, methods, and the application of advanced technology to improve mobility, safety, and accessibility to multi-modal transportation networks. ITS includes advanced field equipment, communications, and operational protocols integrated with the built transportation infrastructure, and deployed to improve overall transportation system operations and safety. In San Diego as in most regions, cities, and states, ITS deployment is guided by a Regional Transportation Plan (RTP) that defines a vision for the effective use of technology to support operations and management goals, and identifies key strategies to achieve those goals. The San Diego region is similarly supported by the development of the 2021 Regional Plan.

SANDAG is a national leader in the deployment of ITS, and this foundation of previous system deployment is part of what guides a bold new approach to transportation planning. Some examples of ITS in place in the San Diego region include:

- Integrated Corridor Management – The management of transportation with an emphasis on maximizing travel across modes in one corridor is exemplified by the I-15 Integrated Corridor Management system (ICMS). In the deployment of this approach, SANDAG was one of the first agencies in the US to break down the institutional and operational siloes that provided management of traffic, transit, active transportation and rail systems, and create a system able to more efficiently distribute usage across modes.
- Intelligent Traffic Signals – SANDAG recently made significant investment in state-of-the-art signal systems technology, which has provided widespread modernization of the traffic signal system in San Diego. The intelligent synchronization of a city-wide traffic

signal network is one of the strategies used to shorten commute time, increase public safety, reduce greenhouse gasses, and increase mobility among all modes of travel.

- 511 Traveler Information System – San Diego was an early adopter of 511, the dialling short code allocated by the FCC in 1999 for the use of traveler information. SANDAG’s 511 interactive voice response (IVR) phone system, website and mobile application have come to be a critical resource in the dissemination of accurate, actionable, trustworthy information supporting multimodal travel in the region.
- Managed Lanes – All manner of managed lanes, on highways and arterials, are constructed and operated using ITS. Roadside toll equipment on the highway such as radar, sensors and licence plate readers, and back office software for processing data all fall within the category of ITS. Express Lanes constructed on I-15 as part of the ICMS is a regional example of the use of ITS to improve mobility and safety, and reduce congestion and therefore greenhouse gasses.

1.3 What Is an ITS Architecture?

When applied to computerized systems and technology, the term “architecture” is a model or framework used to describe inherently complex systems. An ITS Architecture identifies all relevant components of a transportation network, and defines the data flows between those components. A Regional ITS Architecture is such a database, developed to address the needs of the region described. All Regional ITS Architectures, including the one developed for the San Diego Region, are based on the framework and principles of the National ITS Architecture, or the ‘Architecture Reference for Cooperative and Intelligent Transportation’ (ARC-IT), maintained by the Federal Highway Administration (FHWA).

ARC-IT at the national level serves as a foundation and blueprint for the development of all regional architectures. Developed and maintained as a reference architecture, ARC-IT provides a common basis for a variety of planners, engineers and other stakeholders involved in the development of ITS solutions. ARC-IT provides a common language that can be used across ITS disciplines and roles. While no specific elements, equipment, vendors or brands are mandated by ARC-IT, the national database provides the tools necessary for regions of all sorts to take the foundation and framework of ARC-IT to create a Regional Architecture.

Effective transportation planning, and the funding needed to realize SANDAG’s goals, is predicated on the use of the system engineering process for ITS deployment. The most common system engineering process is illustrated in the “Vee” diagram in Figure 1. As per the diagram, the process begins with the development and maintenance of a Regional Architecture, and it is this primary action that drives the need for the update described in this document. A complex, wide-reaching new vision for transportation planning in San Diego necessitated a complete review of the region’s ITS Architecture, to ensure that SANDAG, all partner agencies, and other stakeholders in the region were able to benefit from the updated contents of the Architecture.

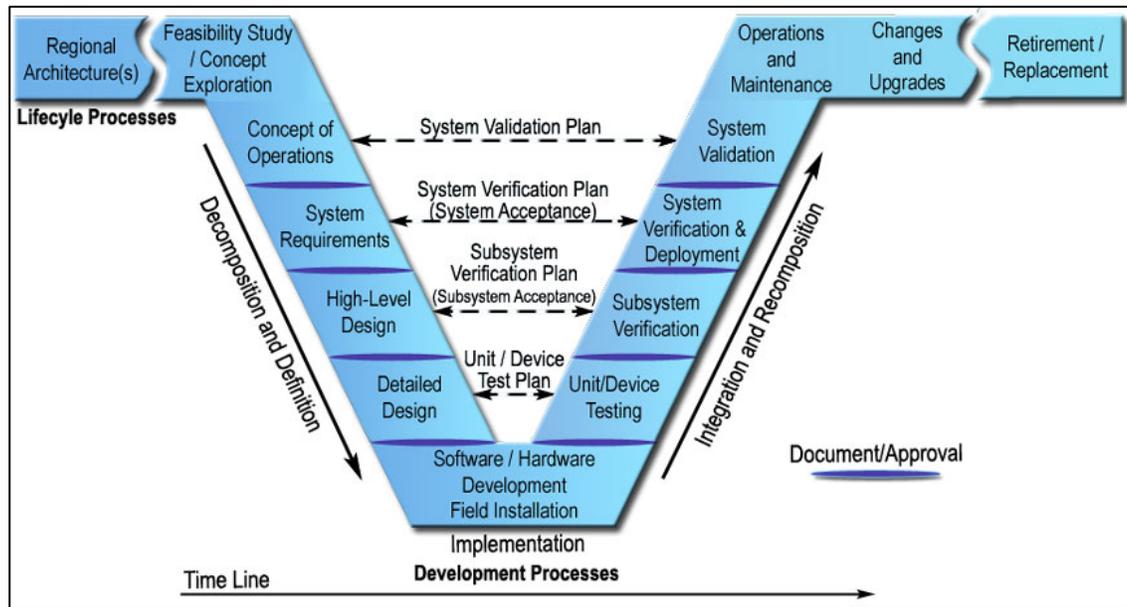


Figure 1 - System Engineering Process “Vee” Diagram (Source: USDOT)

Following the system engineering process, the Regional ITS Architecture update, described and documented in this Technical Memorandum, will apply the National ITS Architecture framework, using its tools including ARC-IT and RAD-IT. The update will ensure that all stakeholders have access to the guidance provided by the Architecture, and therefore all transportation users are considered in future planning in the San Diego region.

1.4 ITS Architecture Views

An ITS Architecture is a complex set of components, and there are several ways to categorize the material overall. The USDOT defines 4 views of the Architecture, to adhere to standards for ITS systems engineering:

- **Enterprise:** Describes the roles, responsibilities and relationships between stakeholders and/or the organizations who own, use or have a stake in the operation of ITS. The Enterprise view illustrates: Who is responsible for deploying and operating ITS in this region?
- **Functional:** The functional elements of the Architecture, as well as the ways in which data flows between those elements is described in the Functional view. The Functional view illustrates: What services will ITS provide or do; how will travelers and stakeholders use it?
- **Physical:** The network of devices, equipment, centers, and other physical objects supporting ITS in a region are illustrated in the Physical view. This view answers the question: What objects / equipment / devices are needed to implement the functionality?
- **Communications:** Connections, integration and communications protocols that support data and information flow, and the transfer of information between elements is illustrated in the Communications view. This view answers the question: How does data travel between interfaces and endpoints?

An illustration of the Architecture views is provided in Figure 2.

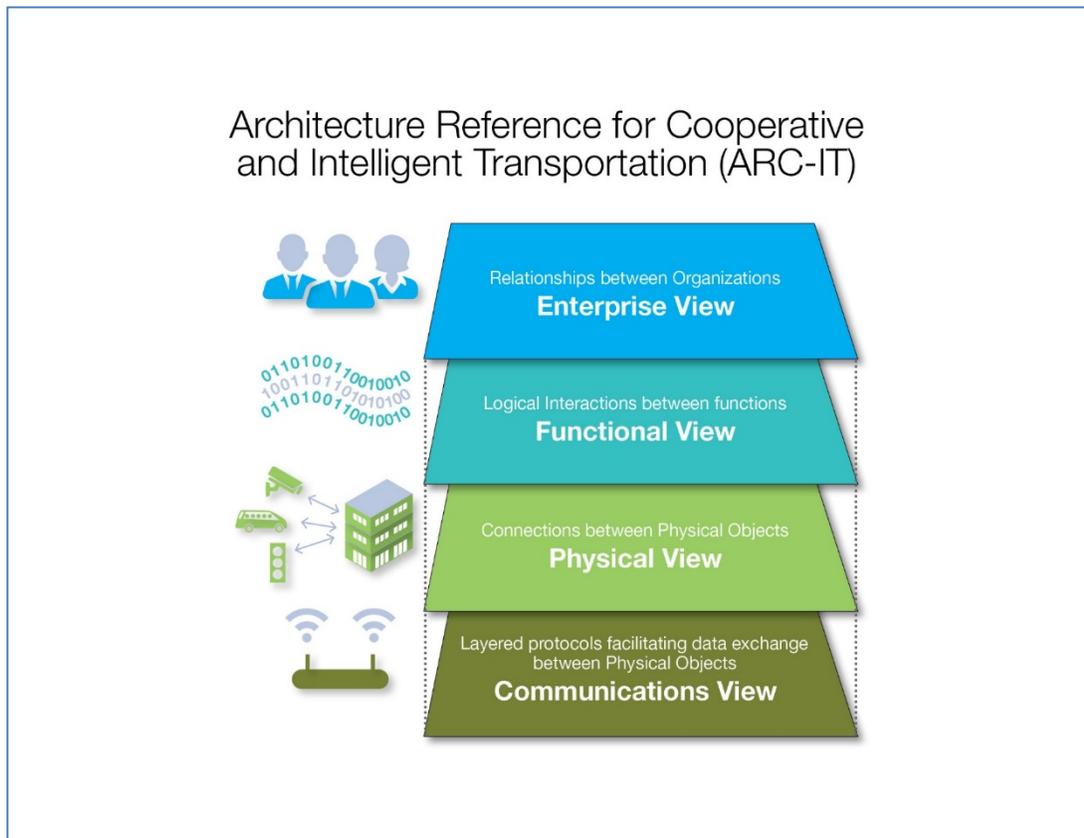


Figure 2 - ARC-IT Views

1.5 FHWA Rule 940 on ITS Architecture Compliance

Additional justification for Regional Architectures is found at the federal level, through FHWA Rule 940. When ITS was first broadly funded by FHWA in the 1990s, ITS systems and deployments were implemented one-by-one across states, jurisdictions and regions. There was little effort put into creating consistency through data standards, and enabling the sharing of data both within the region as well as with adjacent regions. Early ITS systems were designed to pull in data, but not necessarily export it easily to other systems, or even as reports. When agencies wanted to use the data collected by ITS devices for other purposes such as operational planning or performance monitoring, they were not able to do so without significant investment in modifications or new systems entirely. In fact, some applications of the data collected and ways in which shared data might be useful outside of the originating systems was not even yet known.

FHWA responded to this issue by recommending that systems engineering processes, developed for advanced computerized systems, be applied to plan for potential future integration and data connections. As the systems engineering process includes system architectures, FHWA developed guidance to deployers regarding the development and regular update of Regional ITS Architectures.

Further, the USDOT instituted the National ITS Architecture conformity rule (23 CFR Part 940), as well as the FTA National ITS Architecture Policy on Transit Projects) which required that ITS Architectures be completed for certain "regionally significant" ITS projects if those projects are to be eligible for Federal transportation funding. In adhering to what is now a best practice, most states and regions have developed and maintain a Regional ITS Architecture.

2 Project Background

2.1 Legacy Regional ITS Architectures

A Regional ITS Architecture is a necessary component for the consistent deployment of ITS in a region, as well as eligibility of federal funding to support that deployment. The initial effort to document a Regional Architecture in the San Diego region was undertaken in 2003, when the first formal iteration of the database was developed. That Architecture was developed in part as an input to SANDAG's Mobility 2030 Regional Transportation Plan. It was based on what was at the time a nascent federal framework for an ITS Architecture, using Market Packages to describe the overall services to be provided by deployers of ITS.

The 2003 Architecture was used to support the development of San Diego's Intermodal Corridor Management System (ICMS), one of the few in the nation, developed between 2009 – 2011. The Architecture provided consistency to stakeholders across jurisdictions, including the framework for a shared understanding of the available services and elements in the region. In addressing the enterprise requirements of the Architecture, the agreements struck between stakeholders for the ICMS were archived in the updated Architecture.

In 2018, SANDAG embarked on the effort to execute a full update of the Regional ITS Architecture. This project included the processes necessary to support an update, such as meeting with all the regional stakeholders, assessing ITS inventory, and creating a new baseline ITS architecture. In 2019, during the early stages of the Architecture update, SANDAG developed the 5 Big Moves, a new holistic approach to planning and management of the transportation system, to be included as part of the 2021 Regional Plan. Described in more detail in Section 2.2, the initiative necessitated a pause in development of the Architecture. When the process was restarted in 2020, the focus of the update was in aligning the content of the database with the concepts of the 5 Big Moves. This document provides the output of that update.

2.2 Alignment with 5 Big Moves

The ***Regional ITS Architecture Update; Technical Memorandum*** presents the output of the draft update to San Diego's Regional ITS Architecture. This draft serves as a summary and a portal to the work completed in aligning the Architecture with the concepts and elements of SANDAG's 5 Big Moves initiative. The 5 Big Moves sets the framework for a new transportation vision in the San Diego region, and a foundational component of success will be the availability of an accurate, consistent, updated ITS Architecture. Therefore, the update is focused primarily on the goal of ensuring that the 5 Big Moves have been accurately reflected in the Architecture, and in turn the Architecture is available to all deployers and operators of ITS in the region.

The output of the Regional ITS Architecture update is a critical input and will therefore inform development efforts of the 2021 Regional Plan.

Through stakeholder engagement, a review of relevant project documentation and knowledge of existing efforts in the region, new and modified objectives have been identified and documented in the Architecture update. In parallel, the identification of new or updated objectives has led to the determination of the content that lies in the gap; i.e. new strategies, service packages, functional requirements, inventory items, stakeholders, and additional interconnects that serve to support these new objectives. This document serves as a roadmap to those updates.

This document provides an accounting of changes made to the Architecture. Reviews of all pertinent information, and associated changes and updates made to the Architecture included the application of the Regional Architecture Development for Intelligent Transportation (RAD-IT) tool, which serves as an interface and portal to the Architecture. The RAD-IT database is the

official and complete reference of the Architecture. The body of this document presents summary tables and commentary on the scope and impact of the changes made. A full accounting of all changes made, as well as all input that was reviewed and assessed to not necessitate changes is provided.

SANDAG is proactively meeting the needs of a changing transportation system, keeping pace with modern trends in urbanization and an estimated steady growth in population. In meeting those needs, in 2019 SANDAG developed a wide-ranging and robust new vision for the transportation network, branded as “5 Big Moves.” The 5 Big Moves is the framework of SANDAG’s approach to meeting greenhouse gas (GHG) reduction goals, providing viable alternatives to residents and through travelers, and making the most efficient use of the current and near-term planned transportation network. SANDAG is developing this new vision for transportation, in support of the 2021 Regional Plan, to enable significant and impactful changes to the transportation system to create a more efficient, accessible, and connected network.

The 5 Big Moves are: Complete Corridors, Transit Leap, Mobility Hubs, Flexible Fleets, and Next OS. Next OS serves as both a core and an overlay of the 5 Big Moves, providing a digital platform to facilitate information sharing from the components and assets covered under the other Moves. (Click here for a link to the [Next OS Concept White Paper](#)). A digital platform is the system component necessary to bring together the deployers and operators of ITS, other public stakeholders and members of the private sector and create opportunities to gather and share data with the goal of improving the efficiency of transportation operations.

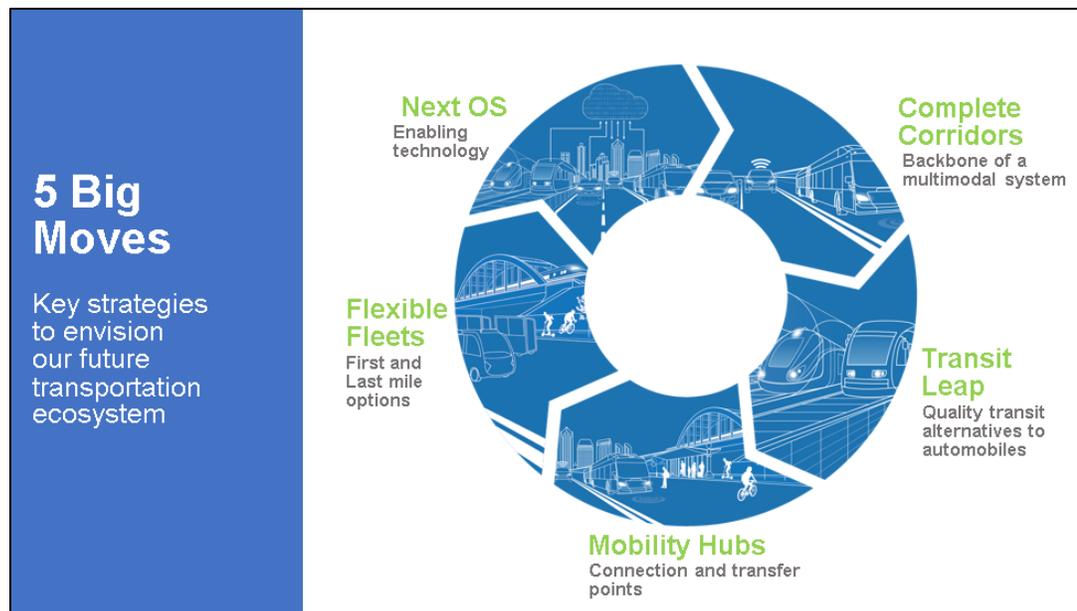


Figure 3 - Five Big Moves (Source: SANDAG)

A brief description of each of the 5 Big Moves, represented in Figure 3 are:

- Complete Corridors – Serving travelers of all types; local travelers, regional travelers, commercial traffic and active transportation users, Complete Corridors is the backbone of a multimodal system, and provides an integrated, comprehensive vision to provide a variety of travel choices and technologies to manage the use of highways, arterials and other assets in real time. Complete Corridors will deliver a balanced transportation system, delivering mobility choices to travelers of all types in and through the San Diego region.
- Transit Leap – To affect the changes necessary to deal with increasing highway congestion and address climate goals, transit must be a viable option for travelers of all types. To be a viable option, a transit trip cannot take twice as long as the same trip in a private vehicle.

The provision of a complete network of efficient, modern, high-speed and high-capacity transit services is a foundational element in encouraging mode shift out of personal vehicles. An improved and enhanced transit network will connect highly populated residential areas with employment and commerce centers and attractions throughout the San Diego region.

- **Mobility Hubs** – A network of connection and transfer points, offering on-demand travel options to communities with high concentrations of people, jobs, destinations, and travel choices. These locations will focus on a healthy mix of land uses; residential, commercial, and recreational, and will support the continued deployment of a safe and efficient transportation infrastructure. Mobility Hubs focuses on development of physical elements and supporting services that provide greater mobility options and promote choices beyond the single occupancy automobile.
- **Flexible Fleets** – Flexible Fleets concentrate on shared, on-demand transportation services providing first and last mile travel options designed to be convenient and personalized. Flexible Fleets benefit from the uptake and growing popularity of micro mobility services such as rideshare, bikeshare and e-scooters. Delivery and local shuttles also fall into the category of Flexible Fleets.
- **Next Operating System (OS)** –The Next OS is the enabling technology, and a digital platform that serves as the center or ‘brain’ of the entire regional transportation system, ingesting and processing all data from a variety of sources. The Next OS will drive and support all objectives developed to improve the transportation network by ingesting data from sources such as passenger vehicles, buses, ridesharing vehicles, delivery trucks, micro mobility assets, and other sources into a centralized data hub. Analysis will convert data to information, and serve to improve how transportation is planned, operated, and experienced. Next OS also provides a set of regionally available data and information services and functions that can be used by mobility stakeholders in the region to enable 5 Big Moves efforts.

The efforts representing the 5 Big Moves are conceptualized and planned for as part of a series of corridor and regional planning update efforts. A significant component of each move, as well as the overarching concept of the Next OS, is the application of data, technologies, and systems to enable new mobility functions, support equity, and provide seamless and new options for cleaner, safer, and more sustainable mobility. The 5 Big Moves represent a long-term and phased vision for the region that will need to support integration over time by a wide range of mobility systems and data solutions. These concepts will include regional solutions that support functions that may be used by corridors and mobility users throughout the region, as well as specific corridor and field-based solutions and equipment that may differ across the region but will need to enable shared data and functionality.

As a state and national leader in applying ITS to mobility challenges, along with development and on-going evolution of the 5 Big Moves serving as a foundational input to the 2021 Regional Plan update, the San Diego region is again setting an example for other regions to consider as they look towards their futures and try to address the challenges of reducing congestion, handling a shifting mobility and socio-economic landscape, and meeting state and federal greenhouse gas emissions goals. As the mobility and related policy concepts developed for the 5 Big Moves, the San Diego Region ITS Architecture required updating to reflect these new concepts and map them for consistency purposes to the National and State ITS Architectures.

Strategies associated with each of the above described moves will involve data collection, exchange and/or information dissemination to users – including public sector planners and engineers, private sector service providers, and the public (travelers, commuters, commercial vehicle operators, transit and other mobility service operators, etc.) To accomplish this, Next OS will provide the venue for coordination and cooperation among the systems and entities responsible for the elements of each Move and the resulting data exchanges.

Next OS is unique among the 5 Big Moves in that it provides a portal for the technology and information systems associated with each move, to be shared among the region’s transportation stakeholders (people, agencies, and systems). As a first step, a Next OS Concept White Paper was developed to guide the vision for and frame the responsibilities and capabilities of Next OS. The capabilities referenced in the Next OS Concept White Paper are being applied throughout the Architecture, and updates made as appropriate in the areas of data management, data analytics, communications, and the channels through which users engage with myriad functions and use cases. The association of the Next OS concepts was initiated with a mapping to all relevant Service Packages, and then proceeded with the rest of the subject areas. Mapping the proposed functions associated with each of the Moves into the Service Packages of the ITS Architecture is an important step in organizing the next step in the development of Next OS to reliably and consistently serve the need for orchestration and operation of these strategies in the region. Next OS is being reflected in the Regional Architecture to provide the required consistency with the State and National ITS Architecture.

The benefits of a Regional Architecture include:

- Consistency and efficient deployments over time, both in initial design and enhancements;
- Breaking down of institutional silos between deployers and technical siloes between systems;
- Support for chances to reduce design costs by realizing economies of scale over time;
- Reduced technical, schedule and cost risk;
- Adherence to federal standards and guidelines.

The purpose of the Regional ITS Architecture Technical Memorandum is to provide SANDAG, regional stakeholders and the public with a comprehensive description of the current state of the Architecture, as well as a guide to using the tools to benefit local and regional transportation planning efforts. The information in this document is aligned with current planning processes being conducted by SANDAG, including several Concepts of Operation and Comprehensive Multimodal Corridor Plans (CMCP). This document is provided in support of and as an input to the 2021 Regional Plan.

2.3 Transportation System Management and Operations (TSMO)

SANDAG’s approach to innovation and proactive management of a changing transportation landscape includes the application of Transportation System Management and Operations (TSMO) strategies. Championed at the national level by USDOT, TSMO references a list of tools and strategies that focus on improving the efficiency of transportation networks without having to construct extra capacity. It is well understood in all urban areas and elsewhere that continuing to build highways and other infrastructure dedicated to single occupancy vehicles, with the goal of reducing congestion is not a sustainable solution. SANDAG, along with many other transportation and planning agencies, is putting a focus on sustainable growth and management through effective and lower-cost TSMO strategies.

SANDAG’s 2021 Regional TSMO Plan documents the agency’s TSMO vision, guiding principals and integration with the 5 Big Moves concepts. Together, the 5 Big Moves offers a balanced approach to bringing TSMO concepts and methods to fruition, on all modes of transportation, with associated necessary investments made in the region’s infrastructure to support execution of those strategies. The balance inherent in the 5 Big Moves approach links directly back to the practices of TSMO, bringing equal focus to the aspects of institutional, organizational, and technical areas.

2.4 ITS Strategic Plan

In parallel with the development of this Regional ITS Architecture Technical Memorandum SANDAG has created a ITS Architecture Strategic Implementation Project Roadmap Where the purpose of this Technical Memorandum is to provide a summary of the Regional ITS Architecture as a whole, the ITS Architecture Strategic Implementation Project Roadmap brings Architecture users to the next step, providing the full multi-step process to develop and maintain a regional ITS Architecture. Together, these documents provide stakeholders with the tools necessary to identify appropriate existing and planned ITS services, map those services to the inventory necessary to deploy, identify the correct stakeholders, and learn how data and information flows between endpoints.

3 Architecture Overview

The Regional ITS Architecture, as any system architecture, can be thought of as a blueprint within which the regional deployment of intelligent transportation system and services can occur. ARC-IT is managed at the federal level by FHWA and is used as a basis for all regional architectures across the country. The Architecture created in support of the San Diego region is customized for and relevant to the particular needs and characteristics of our region. It does not supersede nor replace the statewide and national Architectures, which are updated on their own schedules independent of the update affected in this project.

3.1 Geographic Area

The relevant geographic area of the SANDAG Regional ITS Architecture is the County of San Diego, illustrated in Figure 4. The region includes 19 local governments.

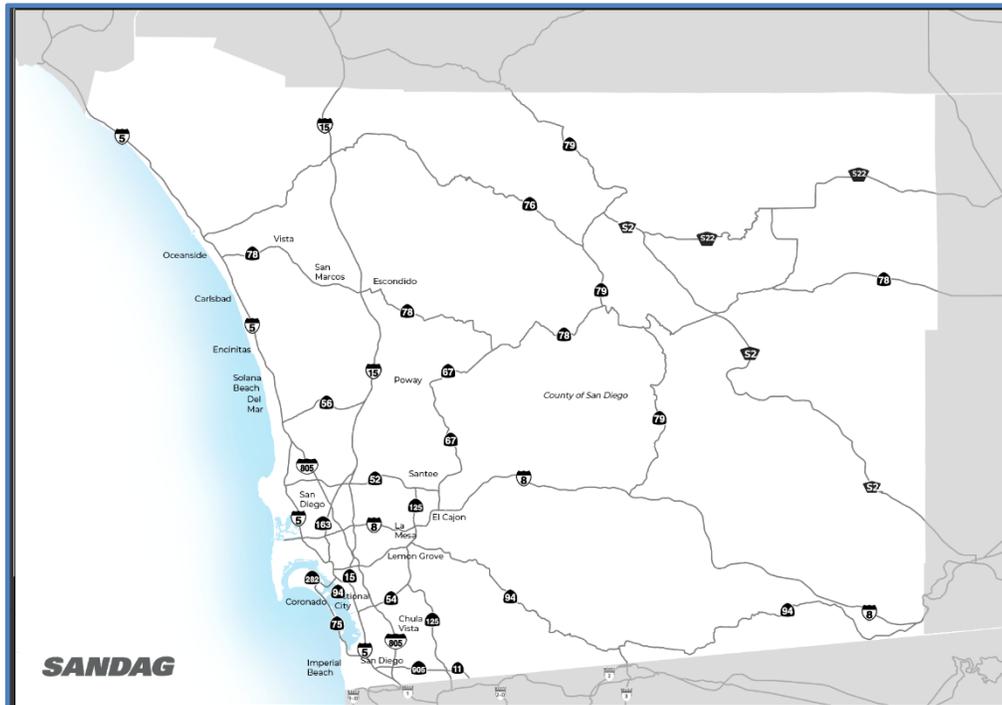


Figure 4 SANDAG Coverage Area (Source: County of San Diego)

Most states and regions maintain their own ITS Architectures; based on the framework and guided by ARC-IT, but customized specifically for the region covered by the material. The San Diego Regional ITS Architecture applies to the County of San Diego, and covered by SANDAG. San Diego's Regional Architecture is a stand-alone document relevant to the needs and plans of the San Diego region, but includes references as necessary to related regional and adjacent state architectures such as the Inland Empire ITS Architecture, Orange County ITS Architecture, and the California Statewide ITS Architecture.

With a population of over 3 million, San Diego County is California's second most populous county, and the fifth most populous county in the US. The diverse population includes a significant number of military personnel, operating military installations such as Naval Base San Diego, Camp Pendleton, Air Station Miramar, and the Coast Guard Air Station. The area includes the largest number of Native American tribal reservations of any county in the US.

The County covers 4300 square miles and a long list of transportation assets such as an extensive interstate highway and state route system, an international and several regional airports, a seaport, several heavy rail, light rail, and local transit agencies, and three border crossings with Mexico.

3.2 Time Horizon

As San Diego's Regional ITS Architecture is updated every 4 years, the time horizon that guides the content in the database is set at 4 years. This timeline is referenced in the Architecture, in several descriptions of Service Packages, Inventory items and Functions.

4 Regional ITS Architecture Update

4.1 Who Uses the Regional ITS Architecture?

Before a review of the Architecture is presented, the audience for that update must be identified. The Regional ITS Architecture exists to support stakeholders in their work to identify, conceptualize, plan, deploy, and operate the various projects that provide ITS services to the traveling public. SANDAG is the owner and manager of the Architecture itself, and as planners for the region overall, is one of the major stakeholders. SANDAG, Caltrans, local cities big and small, transit agencies and heavy rail operators, and even the private sector deployers of micro mobility services can all make use of this Architecture, and are invited to use the content by visiting <https://its-arch.sandag.org>, as explained in the subsequent section.

A full list of Stakeholders is included in this document as Appendix A.

4.2 Web-based Tool

The Regional ITS Architecture is comprised of a large, complex database, including long lists of service packages, stakeholders, physical inventory objects, functional objects, user needs, roles and responsibilities, planning information, functions, and interfaces. Interconnects that include various permutations of inventory items and stakeholders are available, and the various data flows that connect the elements can be examined individually. The database is a difficult entity to document and share.

San Diego's Regional ITS Architecture is available online at <https://its-arch.sandag.org>. At this link, users can access and view the entirety of the information and content comprising the database. As illustrated in Figure 5, the web tool provides hyperlinks to all categories of data housed in the Regional ITS Architecture.

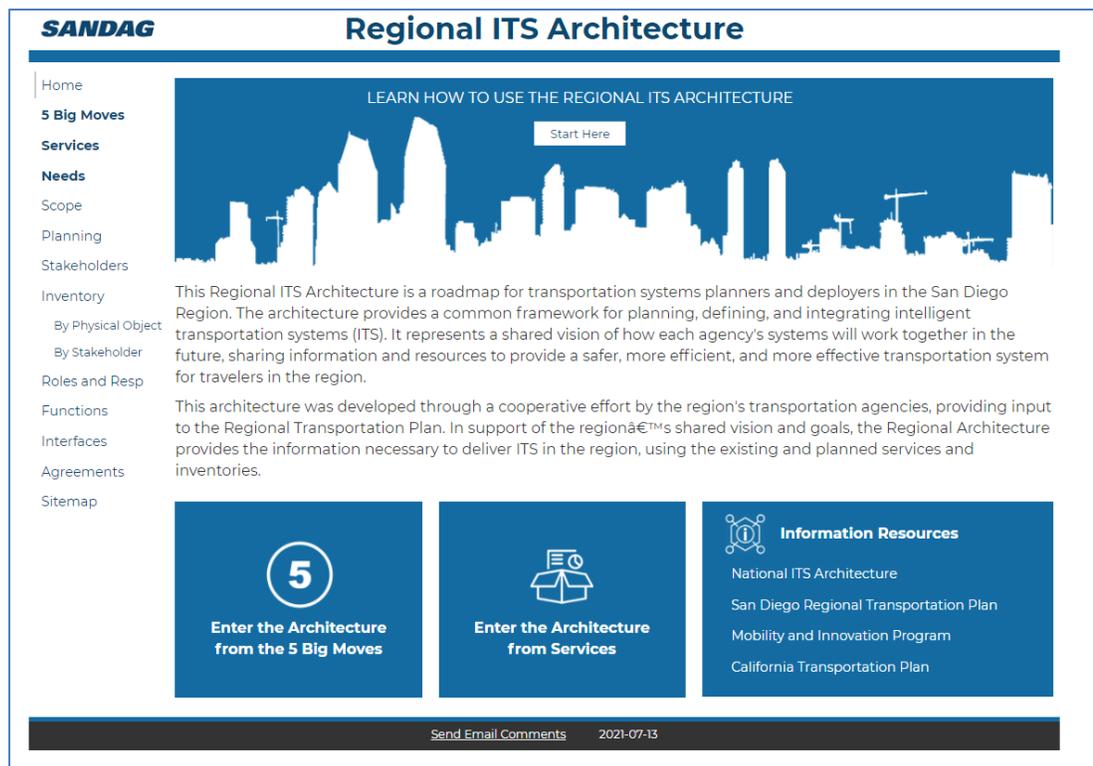


Figure 5 - ITS Architecture Web Tool

This website provides the contents of the Regional ITS Architecture in the following categories:

[5 Big Moves](#) - The '5 Big Moves' heading is the first of three suggested entry points for local deployers of ITS. This link navigates users to the 5 strategies developed to support San Diego's 2021 Regional Plan. Clicking on the '5 Big Moves' link will take the user to a table of all 5 Big Moves, along with descriptions, with each title a live hyperlink to additional information on that move.

[Services](#) - Services is the second of three suggested entry points for local deployers of ITS. The 'Services' heading navigates the user of the Web Tool to a page featuring the complete list of Service Packages, and Service Package instances, included in San Diego's Regional ITS Architecture. This page then provides the full list of Service Packages available in the regional architecture. Each of those Service Packages are hyperlinked, allowing the user to continue drilling down into relevant information.

[Needs](#) - The 'Needs' hyperlink is the third suggested entry point for local stakeholders looking to start using the Regional ITS Architecture via the Web Tool. Clicking on the link takes the user to the list of 'Needs' identified during the Architecture update process. The 'Needs' included in the Architecture are presented in relation to, and therefore linked to, Need Areas, the numbers assigned to those Needs, and a description of each.

[Scope](#) - The 'Scope' link navigates the user to a detailed description of the Regional ITS Architecture's scope, timeframe, geographic scope, as well as a list of related architectures.

[Planning](#) - This page identifies the planning objectives and strategies that are supported by the Regional ITS Architecture.

[Stakeholders](#) - The stakeholders page provides the full list of public and private stakeholders included in the Regional ITS Architecture

[Inventory](#) - The inventory page includes an extensive list of existing and planned ITS elements in the region. The inventory list also includes some non-ITS elements that are also part of the regional transportation system.

[Inventory by Physical Object](#) - The link provides the list of existing and planned ITS elements in the region, sorted by "Physical Objects"; the systems or devices that provide ITS service and functionality.

Inventory by [Stakeholder](#) - The link provides the list of existing and planned ITS elements in the region, sorted by the Stakeholders responsible for owning or operating the inventory.

[Roles and Responsibilities](#) - The roles and responsibilities page provides a list of ITS areas and a description of the role each area plays in a transportation system. Clicking through an area will lead to a list of stakeholders associated with that area.

[Functions](#) - The 'Functions' page provides a list of subsystems associated with the Regional ITS Architecture and the functional areas that is part of a subsystem.

[Interfaces](#) - The interfaces page includes a list of ITS elements and other elements that interfaces with the listed ITS element.

The Web Tool is critical to ensuring that stakeholders in the ITS and related areas can access the Architecture easily and effectively, and benefit from the vast amounts of information available. Take, for example, a local city commencing an initiative to implement a transit connection protection system in San Diego, in a manner aligned with the concepts of the 5 Big Moves and with the goal of increasing the efficiency of the transit experience for riders. This city also has a mandate to align its plans with the concepts of TSMO, ensuring that collaboration and the sharing of transportation data is efficient with adjacent cities as well as SANDAG's data hub.

Transportation planners in this city know the Regional ITS Architecture has been recently updated, to align with the 5 Big Moves, SANDAG’s new region-wide approach to mobility, safety, and the optimization of the transportation network. And they know that all the updated content is available online at <https://its-arch.sandag.org>. If city planners were to begin with a Concept of Operations, they might first associate the effort within one or more of the 5 Big Moves; in this case, Transit Leap. Consulting the web tool, the “Transit Leap” link takes the user to a list of stakeholders, Service Packages and Inventory items associated with that Move. A sample screen is provided in Figure 6.

SANDAG		Regional ITS Architecture	
Home	5 Big Moves		
5 Big Moves	The Regional ITS Architecture provides a starting point for 5 Big Move definition. It provides an overall framework that shows how anticipated projects will integrate with each other and with existing systems. This page lists the 5 Big Moves that have been mapped to the regional ITS architecture.		
Services			
Needs			
Scope			
Planning			
Stakeholders			
Inventory			
By Physical Object			
By Stakeholder			
Roles and Resp			
Functions			
Interfaces			
Agreements			
Sitemap			
	5 Big Moves #1: Complete Corridors	Description	An integrated, comprehensive vision to provide a variety of travel choices and technology to manage the use of highways, arterials and other assets in real time. Complete Corridors provides a balance of dedicated, safe space for all travelers in the region, including local commuters, through travelers, freight and delivery vehicles and active transportation users who walk, bike, use transit, and utilize Flexible Fleets. Key features of Complete Corridors include: managed lanes, active transportation and demand management (ATDM), smart infrastructure and connected vehicles, priority for transit, active transportation and shared mobility services, curb management and electric vehicle infrastructure. Projects that fall within Complete Corridors will be evaluated against SANDAG 2021 Regional Transportation Plan goals and objectives.
	5 Big Moves #2: Transit Leap	Description	Transit Leap could create a complete network of fast, high-capacity, high-frequency transit services that connect major residential areas with employment centers and attractions throughout the San Diego region. Transit Leap services could connect to supporting Flexible Fleets in Mobility Hubs. New high-speed services — covering longer distances with limited stops— may be separated from vehicle traffic with bridges, tunnels, or dedicated lanes. Improvements to existing transit services—such as the Trolley, COASTER, SPRINTER, and Rapid—may include additional rail tracks, more frequent service, dedicated transit lanes, and traffic signal priority to keep transit moving quickly. Transit Leap will provide practical transit choices that are viable alternatives to driving for most trips along Complete Corridor highways. Projects that fall within Transit Leap will be evaluated against SANDAG 2021 Regional Transportation Plan goals and objectives.

Figure 6 - Web Tool / 5 Big Moves

A Concept of Operations will begin with the identification of the idea; the services the agency wants to provide. Once the user has landed on the long list of stakeholders, Service Packages and Inventory items associated with Transit Leap, the planner will scan the Service Packages, and then link from the most relevant choices to associated interconnect and data flow diagrams. That planner will likely choose the Service Package PT17 Transit Connection Protection. The choice of that Service Package will bring the user to a complex interconnect and data flow diagram. For the purposes of this document, the diagram has been simplified for illustration.

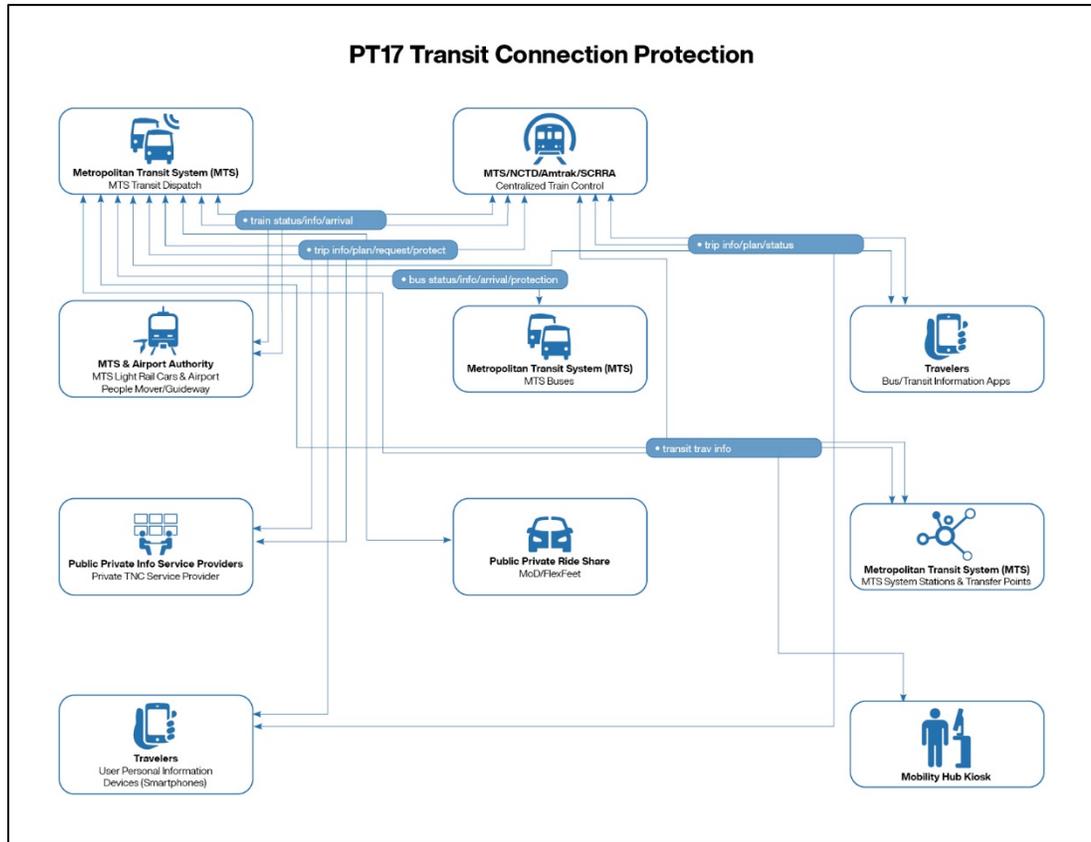


Figure 7 - Simplified Data Flow Diagram: PT17 Transit Connection Protection

4.3 Table of Updates

San Diego’s ITS Architecture had been updated in a project that spanned 2018 – 2019. The purpose of updating SANDAG’s Regional ITS Architecture was to start with the 2019 database as a foundation, and bring the content in line with the concepts of the 5 Big Moves. Stakeholders were interviewed, current and near-term programmed projects were vetted, and planning and strategy documents were reviewed in order to gain an understanding of the architecture components that needed to be added, deleted, edited or adjusted to create consistency with SANDAG’s new approach to transportation planning.

Table 1 provides a list of all changes, updates, additions, and deletions made to the Regional ITS Architecture under the current effort.

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Table 1 - Full List of Regional ITS Architecture Updates

ID#	Big Move	Topic Area	Description of Stakeholder Input / Update / Request for Inclusion	Impact / Update to Regional Architecture	Item Affected Update in Architecture	Architecture Element Updated	Item Addressed in Prior Versions	Architecture Element Existing
1	All	Equity	Equity in general is a critical concept in the execution of all 5 Big Moves. Digital divide must be identified and documented as an issue.	Statement regarding equity as evaluation criteria for all new projects added to all 5 Big Moves project descriptions.	X	5 Big Moves Project Descriptions		
2	All	Document Update	5 Big Moves.	As a result of this document, the architecture was modified to include new projects: 5 Big Moves.	X	Project Architecture		
3	Complete Corridors	Parking management	CVO-related, there are several efforts in the region to improve information regarding truck parking capacity.	This input was reviewed and found to be fully addressed in the current Regional ITS Architecture. Truck parking and capacity is covered under CV09: Freight-specific Dynamic Travel Planning.			X	CV09: Freight-specific Dynamic Travel Planning
4	Complete Corridors	Tolling for expanded managed lanes	Regional managed lanes concept also include managed lane concepts.	This input was reviewed and found to be fully addressed in the current Regional ITS Architecture.			X	TM10: Electronic Toll Collection
5	Complete Corridors	HOV Applications	Mix arterial HOV, HOV enforcement, and transit/flex fleet lanes.	This input was reviewed and found to be fully addressed in the current Regional ITS Architecture.			X	ST06: HOV/HOT Lane Management
6	Complete Corridors	CVO13: roadside HAZMAT security Detection and Mitigation	Detect and classify security sensitive HAZMAT on commercial vehicles using roadside sensing and imaging tech.	CHANGED SP to planned for CV parking. Traveler Information needs to provide real-time information about required permits, locations and availability of truck rest areas or parking to drivers and dispatchers to improve				

ID#	Big Move	Topic Area	Description of Stakeholder Input / Update / Request for Inclusion	Impact / Update to Regional Architecture	Item Affected Update in Architecture	Architecture Element Updated	Item Addressed in Prior Versions	Architecture Element Existing
				routing, vehicle and driver safety, and compliance with hours of service rules.				
7	Complete Corridors	Connected Vehicles	Caltrans is part of a statewide committee; includes DMV, CPUC, CHP, CalSDA.	Developed three new stakeholders: Cal SDA, CPUC, and Connected Vehicles Partnership of all agencies involved in the Connected Vehicle Committee.	X	New stakeholders	X	SU01: Connected Vehicle System Monitoring and Management
8	Complete Corridors	Connected Vehicles	New project to deploy virtual CMS by Taylor St.	This input was reviewed and found to be fully addressed in the current Regional ITS Architecture.			X	SU01: Connected Vehicle System Monitoring and Management
9	Complete Corridors	Connected Vehicles	Current pilot project with 19 RSUs on I-15.	This input was reviewed and found to be fully addressed in the current Regional ITS Architecture.			X	SU01: Connected Vehicle System Monitoring and Management
10	Complete Corridors	Connected Vehicles	Caltrans submitted an extension for bus and shoulder running DSRC pilot.	This input was reviewed and found to be fully addressed in the current Regional ITS Architecture.			X	PT10: PT10: Intermittent Bus Lanes - Regional TOL bus lanes I-805

ID#	Big Move	Topic Area	Description of Stakeholder Input / Update / Request for Inclusion	Impact / Update to Regional Architecture	Item Affected Update in Architecture	Architecture Element Updated	Item Addressed in Prior Versions	Architecture Element Existing
11	Complete Corridors	CalITP	From document: The California Integrated Travel Project (Cal-ITP) is an initiative dedicated to making travel simpler for passengers and cost-effective for transit operators through three main program areas: Improving and standardizing reliable, real-time travel information such as vehicle locations, arrival times, and prices; Simplifying fare payment systems using global payment standards suitable to public transportation; and Streamlining the verification process for people who are eligible for discounts such as students, older adults, veterans, and low-income travelers. https://dot.ca.gov/cal-itp	Added an instance entitled: Cal ITP Commuter Trip Planning and Route Guidance to TI04. Added stakeholders in this service package.	X	TI04: Infrastructure-Provided Trip Planning and Route Guidance		
12	Complete Corridors	Document Update	Sidewalk and Kerb (ISO standard project) / Collaborative Sponsorship Agreement: Description and Application.	Note that we added curb through lane control, parking, and in road lighting for transit lane control.				
13	Complete Corridors	Document Update	5BM Project Summary - Complete Corridors.	As a result of this document, the architecture was modified to include new projects: 5 Big Moves.	X	Project Architecture		
14	Complete Corridors	Document Update	Caltrans / Planning for Operations Strategic Work Plan. (P4Ops).	Additional updates are expected if review of STIP and TIP is included in project.				
15	Complete Corridors	Document Update	City of San Diego Traffic Signal Communications Master Plan.	This document is 2014. it was taken into consideration in Phase I.				

ID#	Big Move	Topic Area	Description of Stakeholder Input / Update / Request for Inclusion	Impact / Update to Regional Architecture	Item Affected Update in Architecture	Architecture Element Updated	Item Addressed in Prior Versions	Architecture Element Existing
16	Complete Corridors	Document Update	Harbor Drive 2.0 Report.	Updates made but may need to revisit Freight Signal Priority, Gate Operating System, Truck Reservation System, Geofencing, etc.			X	TM04: Connected Vehicle Traffic Signal System CV05: Regional Commercial Vehicle Parking
17	Complete Corridors	Document Update	2021 Regional Plan / Programs and Policies: Electric Vehicles.	Added an instance for ST05.	X	ST05: Public - Private Electric Charging Stations		
18	Data Management	Micro mobility Data Hub	Micro mobility data is expected to be included in data warehouse; participation from TMCs is an issue.	This input was reviewed and found to be fully addressed in the current Regional ITS Architecture.			X	DM01: ITS Data Warehouse DM02: Performance Measures
19	Data Management	Integrated data hubs	ICMS is a good example of a system taking in data from multiple single purpose solutions, and also sending data to other places Collection of associated and integrated data hubs: - Micromobility data hub - Update of ICMS data hub - MoHub data hubs - Performance metrics – regional datahub - Historic/trends mobility data hub (data warehouse) - RBMS/Regional Border datahub	This input was reviewed and found to be fully addressed in the current Regional ITS Architecture.			X	DM01: ITS Data Warehouse TM09: Integrated Decision Support and Demand Management

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20	Data Management	Regional performance metrics	SANDAG uses a wide variety of geography to do analytics, looking to use units of geography - such as a census block - to do forecasting. This may involve a transition from surveying, to data as authority for model calibration.	This input is addressed in the Regional ITS Architecture; no further changes were deemed necessary.			X	DM02: Performance Measures
21	Flexible Fleets	Hydrogen fuel	Make room in architecture for possibility of increased availability of hydrogen fuel, including dissemination of fuel availability by location. MTS is working on transitioning to new fuel cell vehicles. In addition, a significant shift to hydrogen for goods movement is being discussed. Currently one station, more are coming. MTS is transitioning.	Reference to this item was added to the Description of ST05.	X	ST05: Electric Charging Stations Management		
22	Flexible Fleets	Commercial fleets	Parcel delivery – link with dynamic lane management and curbside management.	Update to TM22 made to include a reference to parcel delivery.	X	TM22: Dynamic Lane Management		
23	Flexible Fleets	TSP	SANDAG confirms that commercial fleets are considered in the area of Flexible Fleets. Fleets for multiple trip types and purposes. FF includes both private fleets and commercial fleets, and may move more into the private sector with the growth of micro mobility companies. Private fleets will include Mobility on Demand.	Description of Flexible Fleets project updated to clarify inclusion of commercial fleets.	X	Project: Big Move #4 Flexible Fleets		

ID#	Big Move	Topic Area	Description of Stakeholder Input / Update / Request for Inclusion	Impact / Update to Regional Architecture	Item Affected Update in Architecture	Architecture Element Updated	Item Addressed in Prior Versions	Architecture Element Existing
24	Flexible Fleets	HOV	Use of HOV may be changing; with the advent of more EVs, more vehicles will be eligible for HOV lane; eventually the capacity will be reduced. Also, review transit lane enforcement.	ST06 - HOV / HOT Lane Management; added transit to HOV and added enforcement.	X	ST06: Regional HOT/HOV Lanes		
25	Flexible Fleets	HOV+4	A transit lane shouldn't just be for bus; should be flexible / depending on time of day / could ultimately be vehicles with more than a few people. Uber pool, etc.	This input was reviewed and found to be fully addressed in the current Regional ITS Architecture.			X	TM22: Dynamic Lane Management
26	Flexible Fleets	SDGE	Add San Diego Gas and electric as a stakeholder in architecture. SANDAG is in conversations with them on various issues.	SDG&E added as a stakeholder in the Flexible Fleets project.	X	Project: Big Move #4 Flexible Fleets		
27	Flexible Fleets	Private providers	There needs to be a place for private providers in Flex Fleets, and mobility on demand.	ADDED Public and Private Shuttle Services to TI06.	X	TI06: Dynamic Ridesharing and Shared Use Transportation		
28	Flexible Fleets	Transit priority treatments	Include in architecture information about next level of transit priority treatments.	Refined description of PT09 to include customize flows between the Transit Vehicle OB and the Transit Management Center.	X	PT09: Transit Signal Priority		
29	Flexible Fleets	Document Update	5BM Project Summary - Flexible Fleets.	As a result of this document, the architecture was modified to include new projects: 5 Big Moves.	X	Project Architecture		
30	Flexible Fleets (Clean Transportation)	Electric charging for trucks	Greater communication and information dissemination is planned. Mobile apps will be helpful in sharing information about fuel availability. The charging station information is also included in the TIC service packages.	This input was reviewed and found to be fully addressed in the current Regional ITS Architecture.			X	ST05: Electric Charging Stations Management TI01: Broadcast Traveler Information TI02:

ID#	Big Move	Topic Area	Description of Stakeholder Input / Update / Request for Inclusion	Impact / Update to Regional Architecture	Item Affected Update in Architecture	Architecture Element Updated	Item Addressed in Prior Versions	Architecture Element Existing
								Personalized Traveler Information
31	Flexible Fleets (Clean Transportation)	Truck Parking	Caltrans working on a pilot in the region for truck parking availability information.	Added a new instance to CVO05; "Regional Commercial Vehicle Parking" Included CVO03, CVO04, CVO05, CVO09, and CVO12 in the regional ITS Architecture in order to include truck parking and border crossing.	X	CVO05: Commercial Vehicle Parking	X	CVO03: Electronic Clearance CVO04: Administrative Processes CVO05: Commercial Vehicle Parking CVO09: Freight-Specific Dynamic Travel Planning CVO12: HAZMAT Management
32	Mobility Hubs	Available capacity for bikes and other micro mobility on transit	SANDAG planning for added ability and capacity for transit riders to dock bicycles on trains and buses.	This input was reviewed and found to be fully addressed in the current Regional ITS Architecture. PT03 and TI06 addresses this item.			X	PT03: Dynamic Transit Operations TI06: Dynamic Ridesharing and Shared Use Transportation
33	Mobility Hubs	Airport access	People mover from Central Mobility Hub to airport; consider this as a potential feature of mobility hubs in the future.	In PT14: Multimodal Coordination, added elements for terminal and alternate mode service - car rental for mobility hubs in airport.	X	PT14: Multi-modal Coordination		

ID#	Big Move	Topic Area	Description of Stakeholder Input / Update / Request for Inclusion	Impact / Update to Regional Architecture	Item Affected Update in Architecture	Architecture Element Updated	Item Addressed in Prior Versions	Architecture Element Existing
34	Mobility Hubs	Interactive travel kiosks	MoHubs to include kiosks with flight information, transit information. Goal will be making the user experience in the mobility hub seamless. Interactive travel kiosks (includes real-time traveler information, making the user experience about getting around the hub, seamless [NextOS is working behind the scenes])	Added new inventory element called Traveler Support Equipment in the field called "Mobility Hub Kiosks". Added them to TI02: personalized traveler info SD511.	X	TI02: Personalized Traveler Information		
35	Mobility Hubs	Interactive travel kiosks: Airline info	This will be part of the travel kiosks discussion, but much emphasis was placed on airline information / schedule info as a discrete part of this.	ADDED NEW SP TI05: Mobility Hubs - Travel Services Info and Reservations to accommodate the features identified in this description.	X	TI05:Travel Services Information and Reservation		
36	Mobility Hubs	App-based traveler info	Several components of MoHubs will include app-based information dissemination.	ADDED NEW SP TI05: Mobility Hubs - Travel Services Info and Reservations to accommodate the features identified in this description.	X	TI05:Travel Services Information and Reservation		
37	Mobility Hubs	Safety on transit only lanes	Consider safety aspects of transit-only lanes. Assume that autonomous transit vehicles will run exclusively in transit managed lanes.	VS16 will likely be the service package - it deals with autonomous vehicles. NO CHANGE YET.			X	VS16: Automated Vehicle Operations
38	Mobility Hubs	Wi-Fi / power	Mobility hub locations must include Wi-Fi and device charging.	No changes were deemed necessary to the Regional ITS Architecture based on this input. Per SU13 - The maintenance of smart phones, tablets, laptops, and other general purpose devices that are used by travelers is coordinated between the travelers and the providers of the devices and			X	SU13: Personnel Device Maintenance

ID#	Big Move	Topic Area	Description of Stakeholder Input / Update / Request for Inclusion	Impact / Update to Regional Architecture	Item Affected Update in Architecture	Architecture Element Updated	Item Addressed in Prior Versions	Architecture Element Existing
				communications services, is beyond the scope of the architecture.				
39	Mobility Hubs	Curb management	Curbs and Curb Management 1. Curb – literal curb structure and channel next to the raised curb 2. Furniture zone; area dedicated to lighting, Dockless vehicles, meters 3. Cycle track; considered a virtual curb. Pop-up installations /retail can be located in this zone. Bike-led carts selling items.	Added a Service Package instance called "Curb Parking to PM06: Loading Zone Management and essentially management. ALSO added PM05 for transit parking. TM22 is still under consideration.	X	PM05: Parking Reservations PM06: Loading Zone Management	X	TM22: Dynamic Lane Management and Shoulder Use
40	Mobility Hubs	MoHubs feature-set	Mobility hubs will vary in the features provided. Some will be fully functional, large, in urban areas. More suburban, exurban, or outliers will be less featured; i.e. suburban, coastal, may have fewer amenities.	Added new inventory element called Traveler Support Equipment in the field called "Mobility Hub Kiosks". Added to TI02: personalized traveler information Note that the new element can receive all or part of the information - how many amenities each of these elements have does not impact the fact that they exist.	X	TI02: Personalized Traveler Information		
41	Mobility Hubs	TNCs	SANDAG is looking for participation from TNCs. They are not obligated, but they should be on the list of potential stakeholders Consider ties from TNCs and other shared mobility providers.	This input is addressed in the Regional ITS Architecture; no further changes were deemed necessary. TNCs are listed as stakeholders in DM01.			X	DM01: ITS Data Warehouse

ID#	Big Move	Topic Area	Description of Stakeholder Input / Update / Request for Inclusion	Impact / Update to Regional Architecture	Item Affected Update in Architecture	Architecture Element Updated	Item Addressed in Prior Versions	Architecture Element Existing
42	Mobility Hubs	OTP	Architecture to include open multimodal trip planning tools.	ADDED. This is accommodated through TI05 for Mobility Hubs where multimodal planning and reservations can occur. The hubs would be owned and operated by SANDAG where the information would be merged and available. Also added TI04: Commuter Trip Planning and Route Guidance.		TI04: Cal ITP Commuter Trip Planning and Route Guidance		TI02: Personalized Traveler Information TI05: Travel Services Information and Reservation
43	Mobility Hubs	Mohubs stakeholders	SANDAG will have a challenge in getting all players to play in the 'same sandbox'.	Added a private NC data element DM01 for gathering data - source for gathering from Uber, Lyft, all privatized mobility companies. Selected as well in DM02.	X	DM01: ITS Data Warehouse DM02: Performance Monitoring		
44	Mobility Hubs	Charging	All Aspects of Charging (overhead reverse pantograph, in-road, roadside).	Added New ST05 for MTS to include alternative energy choices such as hydrogen or electric by the year 2040. Created a new "GROUP" stakeholder called "Electronic Charging Station Owners/ Operators" and included cities, Blink, public and private owners and operators of electronic charging stations.	X	ST05: Electric Charging Stations Management		
45	Mobility Hubs	Parking for active transportation	Preferential pricing for active modes of transportation.	This input was reviewed and found to be fully addressed in the current Regional ITS Architecture.			X	PM01: Parking Space Management PM04: Regional Parking Management

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46	Mobility Hubs	Secure infrastructure	Secure storage (personally owned and shared fleets) / Storage and charge - not just bike lockers, but your micro mobility device / equipment.	ST05 modified to be public - private electronic charging stations.	X	ST05: Electric Charging Stations Management		
47	Mobility Hubs	Transit center dynamic platform management	Mobility Hubs may include dynamic platform management for vehicles.	This input was reviewed and found to be fully addressed in the current Regional ITS Architecture.			X	PT05: Transit Security PT12: Transit Vehicle at Station/Stop Warnings
48	Mobility Hubs	Document Update	5BM Project Summary - Mobility Hubs.	As a result of this document, the architecture was modified to include new projects: 5 Big Moves.	X	Project Architecture		
49	Mobility Hubs	Document Update	Mobility Hub Features Catalog Sidewalk and kerb Operations for automated vehicles: arriving, stopping, parking, waiting, and loading.	Added instances for PM06 for Curb Parking, PM05 for transit parking, and TM22 for Dynamic Lane Mgmt curb and Shoulder use.	X	PM05: Parking Reservations PM06: Loading Zone Management TM22: Dynamic Lane Management and Shoulder Use		
50	Mobility Hubs	Document Update	Privacy Impact Assessment for Micro mobility Data / Micro mobility Data Clearinghouse PIA.	Added micro mobility stakeholders to DM01.	X	DM01: ITS Data Warehouse		

ID#	Big Move	Topic Area	Description of Stakeholder Input / Update / Request for Inclusion	Impact / Update to Regional Architecture	Item Affected Update in Architecture	Architecture Element Updated	Item Addressed in Prior Versions	Architecture Element Existing
51	Next OS	Data Types / Uses	Next OS will include environmental data, socioeconomic, possibly commodity data (foot traffic and out of business). There are varying levels of geography to analyze these data; travel patterns, origin and destination data, border crossing, from neighborhood to block sized. Value may be added to what they are currently doing, trend analyze, geographic distribution.	This input was reviewed and found to be fully addressed in the current Regional ITS Architecture. DM01: ITS Data Warehouse has SANDAG gathering data and passing it on. The next step in data management is DM02 where the information is merged and distributed. Both exist in the region already.			X	DM01: ITS Data Warehouse DM02: Performance Monitoring
52	Next OS	Ownership	SANDAG clarifies they are not the 'owners' of Next OS; SANDAG has the responsibility of operating the solution; this does not mean they are responsible for each single purpose solution.	This input was reviewed and found to be fully addressed in the current Regional ITS Architecture.			X	DM01: ITS Data Warehouse DM02: Performance Monitoring
53	Next OS	Mobility Data Clearinghouse	This item will be a distinct component of Next OS. Data warehouse is the conduit through which traffic monitoring, ramp metering data flows. This includes some ICM functions. Include MaaS database to this, or Mobility Data Clearinghouse. SANDAG will look to merge historic data with real time data, and work to improve predictive data. SANDAG has vast amounts of unprocessed data, with no single data architecture. Datasets include environmental data, socioeconomic data.	This input was reviewed and found to be fully addressed in the current Regional ITS Architecture.			X	DM01: ITS Data Warehouse DM02: Performance Monitoring

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54	Next OS	Mobility Data Clearinghouse	This item will be a distinct component of Next OS. SANDAG will use MDS. Real time data will be provided for cities to regulate, and historical for planning. Some data may go to TNCs.	While this information does not change the architecture, it may change the functional requirements in the future.			X	DM01: ITS Data Warehouse DM02: Performance Monitoring
55	Next OS	Connected Vehicles / V2I V2X	This item will be a distinct component of Next OS. <i>Note that connected vehicles and autonomous vehicles is almost always related to SAFETY service packages.</i>	ADDED VS16 - Automated Transit Vehicle Operations. Also removed and added some elements to the existing VS16 Automated Vehicle Operations.	X	VS16: Automated Transit Vehicle Operations		
56	Next OS	Mobility Performance Metrics	This item will be a distinct component of Next OS.	Made minor changes to the stakeholder elements: DM02.	X	DM02: Performance Monitoring		
57	Next OS	Tolling for expanded managed lanes	This item will be a distinct component of Next OS. Regional managed lanes concept (complete corridors), also integrating a pricing, similar to I-15, combo of application of general purposes lanes as well as managed lanes. For I-5 there is a regional border management system that will also include managed lane concepts.	This input was reviewed and found to be fully addressed in the current Regional ITS Architecture.			X	TM10: Electronic Toll Collection
58	Next OS	Tolling DAR access points	Likely adding tolling DAR access points to other roads in the region; expanding past SR 125.	Added verbiage in TM10 SP Description.	X	TM10: Electric Toll Collection		
59	Next OS	Changes in tolling	Likely SR 125 will evolve over time in terms of how it will be tolled, how payment will be collected	This input was reviewed and found to be fully addressed in the current Regional ITS Architecture.			X	TM10: Electronic Toll Collection

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60	Next OS	Enforcement	Enforcement of tolls for managed lanes is a key functionality. There may be legislation for an excess weight fee at the Otay Mesa port of entry. SANDAG will be managing the program and the collection of the permit fees. Excess weight trucks come in, get weighed, and if they are over a limit they will likely get an electronic charge.	ADDED tolling enforcement center for SANDAG and on TM10.	X	TM10: Electric Toll Collection		
61	Next OS	Incentives for transit	Next OS may include ways to incentivize travelers for mode shift to transit.	While incentives are beyond the scope of architecture, the project description for Next OS has been updated to reflect this input.	X	Project: Big Move #5: Next OS		
62	Next OS	RBMS	Regional border management system / possible extension outside San Diego county. This has not been planned, but should not be ruled out.	This input was reviewed and found to be fully addressed in the current Regional ITS Architecture.			X	TM23: Border Management Systems
63	Next OS	Mobile retail on the curb	Various options to host retail in appropriate curb area. If what happens in the parking curb is important, it becomes a TIC issue? I'm not sure it matters what happens in these parking spaces, is it?	This input was reviewed and found to be fully addressed in the current Regional ITS Architecture.			X	DM01: ITS Data Warehouse
64	Next OS	Data Analytics	Data quality will need to be assessed as it comes in through Next OS, SANDAG will ultimately not need to collect the data, and turn into the authoritative group for ensuring data quality and calibrating and validating data models.	This input was reviewed and found to be fully addressed in the current Regional ITS Architecture.			X	DM01: ITS Data Warehouse

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65	Next OS	On-demand micro transit	Potential replacement of lower-utilized fixed route transit with on-demand micro transit / also related is real time service adjustments based on demand.	This input is addressed in the Regional ITS Architecture; no further changes were deemed necessary.			X	PT02: Transit Fixed-Route Operations PT03: Dynamic Transit Operations
66	Next OS	Mobile Source Strategy	Draft 2020 Mobile Source Strategy. Align with the goals of the California Integrated Travel Project and integrate State incentives and rebates where feasible. The California Integrated Travel Project (Cal ITP) is a contactless integrated fare payment system that allows for seamless fare payment and collection across transit agencies and mobility service providers.	Deleted a SP in ST05 and created a new one with Hydrogen Fuel.	X	ST05: Electric Charging Stations Management		
67	Next OS	Document Update	5BM Project Summary -Next OS.	As a result of this document, the architecture was modified to include new projects: 5 Big Moves.	X	Project Architecture		
68	Next OS	Document Update	Privacy Policy for Collection, Management, and Storage of Personal Information.	Already part of data archive and collection DM01 and, data for performance measurement in DM02.			X	DM01: ITS Data Warehouse
69	Transit Leap	In-vehicle charging	SANDAG is looking at in-vehicle charging for smartphones / other devices, allowing riders to charge their devices onboard.	This input was reviewed and found to be fully addressed in the current Regional ITS Architecture. Per SU13 - The maintenance of smart phones, tablets, laptops, and other general purpose devices that are used by travelers is coordinated between the travelers and the			X	SU13: Personnel Device Maintenance

ID#	Big Move	Topic Area	Description of Stakeholder Input / Update / Request for Inclusion	Impact / Update to Regional Architecture	Item Affected Update in Architecture	Architecture Element Updated	Item Addressed in Prior Versions	Architecture Element Existing
				providers of the devices and communications services, is beyond the scope of the architecture.				
70	Transit Leap	Automated passenger counts	Passengers want to know how crowded the buses are, in real-time. COVID makes this more critical. This impact will be relevant in terms of real-time dissemination of information to the public.	This input was reviewed and found to be fully addressed in the current Regional ITS Architecture. Passenger counting is addressed in PT07: Transit Passenger Counting.			X	PT07: Transit Passenger Counter
71	Transit Leap	Transit signal priority	Transit signal priority will have roles in several of the 5 Big Moves.	TSP as a general service is accounted for in the MTS instance of PT09. Added Caltrans D11 and Cities connected vehicle equipment, field equipment and intermodal TMC, to PT09: MTS BRT. 7 connections added in all.	X	PT09: Transit Signal Priority		
72	Transit Leap	Integrated scheduling platform	Account for the need for public transit users to book an entire trip from end to end, in a seamless fashion. This should be part of existing service packages; there is a need to show typical fare system, Smart Card as today, and mobile fare payment service packages.	This input was reviewed and found to be fully addressed in the current Regional ITS Architecture. This service is accounted for in the instance PT08: Metrolink Commuter Traveler Info; NCTD Commuter Traveler Info, and RTMC. Also accounted for in PT03.			X	PT08: Transit Traveler Information PT03: Dynamic Transit Operations

ID#	Big Move	Topic Area	Description of Stakeholder Input / Update / Request for Inclusion	Impact / Update to Regional Architecture	Item Affected Update in Architecture	Architecture Element Updated	Item Addressed in Prior Versions	Architecture Element Existing
73	Transit Leap	Parking management	Note that parking management lives in Mobility Hubs, Transit Leap and Complete Corridors. New service should account for the number of available spaces. This should also be part of Complete Corridors ATDM.	An instance of PM01 was added: PM01:Transit Curb Management. Additional elements were added to PM01; for curbside travel lane parking and transit curb management. PM06: Update of Service Package description.	X	PM01: Parking Space Management PM04: Regional Parking Management		
74	Transit Leap	Real-time information to encourage mode shift to transit	This concept is reflected in current service packages such as PT03 – but need to link to new goal of encouraging mode shift and update description.	ADDED a strategy to the Planning section of the RAD-IT file 2.2 entitled: "Encourage mode shift to transit". NOTE: Marketing elements of service packages is beyond the scope of ITS Architecture. However, 511 SD System and 511 IVR is included in several service packages.	X	Planning Section 2.2		
75	Transit Leap	Dynamic lane management	Note that dynamically managed lanes lives in both Transit leap and NextOS.	Added an instance to PT10: Curb Management Transit Lanes and removed previous description. Kept the Intermittent bus lanes for I-805.	X	PT10: Intermittent Bus Lanes		

ID#	Big Move	Topic Area	Description of Stakeholder Input / Update / Request for Inclusion	Impact / Update to Regional Architecture	Item Affected Update in Architecture	Architecture Element Updated	Item Addressed in Prior Versions	Architecture Element Existing
76	Transit Leap	Information re: available capacity for bikes and other micro mobility on transit	SANDAG planning for added ability and capacity for transit riders to dock bicycles on trains and buses. This should be part of MoHubs as well – Micro mobility Data Warehouse needs to be new point for this – added specific references to MDS data standard ODF/OMF. PT03 is one option to include bikes. Another is TI06 which includes micro mobility and ridesharing, bike sharing, etc.	Added an instance; Cyclist and Ped Safety for Micro Transit to VS12.	X	VS12: Pedestrian and Cyclist Safety		PT03: Dynamic Transit Operations TI06: Dynamic Ridesharing and Shared Use Transportation
77	Transit Leap	On-demand micro transit	Potential replacement of lower-utilized fixed route transit with on-demand micro transit / also related is real time service adjustments based on demand. Note that there are both public and private instances of this concept.	Added an instance to PT17: Transit Connection Protection; Mobility Hubs. Added instances to PT03 - one for TNC Micro and one for TNC separated. Added VS12: Pedestrian and Cyclist Safety. Selected appropriate interconnects for each new SP.	X	PT17: Transit Connection Protection PT03: Dynamic Transit Operations VS12: Pedestrian and Cyclist Safety		
78	Transit Leap	Subway	Passenger-rail subway components; underground stations to serve light rail. This input included a request show SCADA systems; however, the Architecture is technology neutral.	This input is addressed in the Regional ITS Architecture; no further changes were deemed necessary. Architecture is technology neutral. Transit is covered under all the PT Service Packages.			X	PT Service Packages

ID#	Big Move	Topic Area	Description of Stakeholder Input / Update / Request for Inclusion	Impact / Update to Regional Architecture	Item Affected Update in Architecture	Architecture Element Updated	Item Addressed in Prior Versions	Architecture Element Existing
79	Transit Leap	Heavy rail	Heavy rail should be considered part of Transit Leap.	Added TM24 - TUNNEL MANAGEMENT. Included TM24 and repurposed for transit tunnel related. Identified a new ITS element for MS Heavy Rail Tunnel Mgmt with MTS, Busses, and connected roadside equipment from CT, City of San Diego, and MTS.	X	TM24: Tunnel Management		
80	Transit Leap	Signage	Transit signage lives in both Transit Leap and Complete Corridors.	Added instances to TM 12 and TM22, for Dynamic lane lighting for transit use and Dynamic Lane lighting for Transit Use. Added appropriate interconnections. Added dynamically designated lanes on color arrows on roads. TM12 in pavement lighting to clarify lane for busses during congestion. Added buses to the SP.	X	TM12:Dynamic Roadway Warning TM22: Dynamic Lane Management and Shoulder Use		
81	Transit Leap	Pavement signage	SANDAG considering installing lit, instrumented pavement for transit.	Added instances to TM12 and TM22, for dynamic lane lighting for transit use and Dynamic Lane lighting for Transit Use. Added appropriate interconnections.	X	TM12: Dynamic Roadway Warning TM22: Dynamic Lane Management and Shoulder Use		

ID#	Big Move	Topic Area	Description of Stakeholder Input / Update / Request for Inclusion	Impact / Update to Regional Architecture	Item Affected Update in Architecture	Architecture Element Updated	Item Addressed in Prior Versions	Architecture Element Existing
82	Transit Leap	Unbanked population for fare collection	In terms of fare collection, considerations need to be made for ensuring access to the unbanked population. Potential partnerships with non-profits to ensure that the unbanked can participate in all aspects of mobility.	No interconnects were changed to address this concept. The description of Service Package PT04: Transit Fare Collection Management has been updated.	X	PT04: Transit Fare Collection Management		
83	Transit Leap	Transit Driver Safety	General mention regarding need to consider this is a part of Transit Leap.	This input was reviewed and found to be fully addressed in the current Regional ITS Architecture. Included in PT05: Metrolink Rail Security; MTS Transit Security; and NCTD Transit Security.			X	PT05: Transit Security
84	Transit Leap	Aerial transportation	Aerial - SANDAG has mostly given up on the idea of aerial gondolas serving downtown and airport.	References to 'gondolas' has been removed from instances of PT01 and PT02.	X	PT01: Transit Vehicle Tracking PT02: Transit Fixed-route Operations		
85	Transit Leap	Document Update	5BM Project Summary -Transit Leap.	As a result of this document, the architecture was modified to include new projects: 5 Big Moves.	X	Project Architecture		
86	Transit Leap	Document Update	San Diego Forward - Clean Transportation FAQs.	Added electric busses and hydrogen zero emissions by 2040.	X	ST05: Public - Private Electric Charging Stations		

ID#	Big Move	Topic Area	Description of Stakeholder Input / Update / Request for Inclusion	Impact / Update to Regional Architecture	Item Affected Update in Architecture	Architecture Element Updated	Item Addressed in Prior Versions	Architecture Element Existing
87	Transit Leap, Flexible Fleets	Mobility on Demand	RFP going out in Feb for a micro transit software provider/platform. Will then run some truly on-demand micro transit zones in October 2021 (provided there is sufficient ridership recovery). They are buying vehicles to support that effort now. NCTD to provide vehicles. Will use contracted operator MV to provide ops and maintenance. SaaS will self-perform the dispatching of these vehicles and planning new zones. This new service will be called Flex On Demand .	PT03 AND TI06 - renamed PT03 NCTD Flex Dynamic Transit Service.	X	PT03: Dynamic Transit Operations TI06: Dynamic Ridesharing and Shared Use Transportation		
88	Complete Corridors; Transit Leap; Mobility Hubs; Flexible Fleets; Next OS	Document Update	Charter for Digital Divide Taskforce.	Impact Across Various Services.	X	Support advancement across various services packages		

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4.4 Updates by Regional Project

The Regional ITS Architecture team opted to start the update with the creation of 5 new Regional Projects, associated to each of the 5 Big Moves. Visible on the “Start” tab at the highest level of the RAD-IT tool, 5 new projects were added to the Regional Architecture. Those named projects along with their respective descriptions are provided in Table 2.

Table 2 - 5 Big Moves Project Descriptions

Big Move	Big Move Description
<p>5 Big Moves #1: Complete Corridors</p>	<p>An integrated, comprehensive vision to provide a variety of travel choices and technology to manage the use of highways, arterials and other assets in real time. Complete Corridors provides a balance of dedicated, safe space for all travelers in the region, including local commuters, through travelers, freight and delivery vehicles and active transportation users who walk, bike, use transit, and utilize Flexible Fleets.</p> <p>Key features of Complete Corridors include: Managed Lanes, Active Transportation and Demand Management, Smart Infrastructure and Connected Vehicles, Priority for transit, active transportation and shared mobility services, Curb Management and Electric Vehicle infrastructure.</p> <p>Projects that fall within Complete Corridors will be evaluated against SANDAG 2021 Regional Plan goals and objectives.</p>
<p>5 Big Moves #2: Transit Leap</p>	<p>Transit Leap could create a complete network of fast, high-capacity, high-frequency transit services that connect major residential areas with employment centers and attractions throughout the San Diego region. Transit Leap services could connect to supporting Flexible Fleets in Mobility Hubs. New high-speed services — covering longer distances with limited stops— may be separated from vehicle traffic with bridges, tunnels, or dedicated lanes. Improvements to existing transit services— such as the Trolley, COASTER, SPRINTER, and Rapid—may include additional rail tracks, more frequent service, dedicated transit lanes, and traffic signal priority to keep transit moving quickly.</p> <p>Transit Leap will provide practical transit choices that are viable alternatives to driving for most trips along Complete Corridor highways.</p> <p>Projects that fall within Transit Leap will be evaluated against SANDAG 2021 Regional Plan goals and objectives.</p>

Big Move	Big Move Description
<p>5 Big Moves #3: Mobility Hubs</p>	<p>Mobility Hubs are places of connectivity where different travel options – walking, biking, transit, and shared mobility – come together. They provide an integrated suite of mobility services, amenities, and supporting technologies to better connect high-frequency transit to an individual's origin of destination. A mobility hub can span one, two, or few miles to provide on-demand travel choice for short trips around a community.</p> <p>The 2021 Regional Plan could include a network of “right-sized” Mobility Hubs near major residential, job, and activity centers. The proposed network includes our region’s urban core and 30 Mobility Hubs that were identified based on land use and employment characteristics, travel patterns, and demographics. Each Mobility Hub would make it easy to connect to and from Transit Leap services by offering on-demand Flexible Fleet choices.</p> <p>Mobility Hubs also integrate with Complete Corridors to ensure walking and biking are safe experiences while prioritizing pooled ride options over single-occupant vehicles. By 2050, it is anticipated that the Mobility Hub network could serve approximately half of the region’s population and more than two-thirds of the region’s jobs. Additionally, approximately 60% of low-income households, half of all seniors, and more than half of all minority residents would have access to Mobility Hub services and amenities.</p> <p>Projects that fall within Mobility Hubs will be evaluated against SANDAG 2021 Regional Plan goals and objectives.</p>
<p>5 Big Moves #4: Flexible Fleets</p>	<p>The Flexible Fleets strategy builds on the popularity of shared mobility services such as on-demand rideshare, bikeshare, and scooter share. These fleets provide different mobility options and vehicles for all types of trips, reducing the need for car ownership. These services provide travelers with a range of mobility options to connect to high-speed transit and other important destinations by providing a last-mile connection or fulfilling a complete trip.</p> <p>Projects that fall within Flexible Fleets will be evaluated against SANDAG 2021 Regional Plan goals and objectives.</p>
<p>5 Big Moves #5: Next OS</p>	<p>The Next Operating System (OS) represents the "back office" or the “brain” of the entire transportation system. It is a digital platform that uses technology and data to serve as a bridge to connect the management policies and procedures that permit the management of different modes of transportation (i.e. passenger vehicles, buses, ride-sharing vehicles, delivery trucks, autonomous vehicles, bikes, scooters, and more) to improve overall efficiency and accessibility for people and goods to move throughout the region.</p>

Big Move	Big Move Description
	<p>Next OS includes ICM on I-15, tolling services back office activities for SBX and SR11, regional 511 - Trip Planner, and the Regional Border Management System (RBMS). These systems utilize outside "terminators" or vendors that provide the ability to manage these systems (i.e., financial institutions, financial apps, parking management vendors, etc.). Next OS modernizes the existing transportation system by using technology to better manage supply and demand. The result will be roadways and transit services that operate more smoothly and serve people with improved access to services.</p> <p>Projects that fall within NextOS will be evaluated against SANDAG 2021 Regional Plan goals and objectives.</p>

4.5 Stakeholders

4.5.1 SANDAG Committee Stakeholders

The identification of stakeholders in support of the Regional Architecture addresses the need to identify the agencies and organizations involved in designing and deploying ITS. Stakeholders are the owners of one or more ITS inventory items or elements, and they have the responsibility of ensuring the Architecture supports the needs of their agencies and the public, who ultimately benefit from deploying of projects and programs. Architecture stakeholders include SANDAG and all the cities and jurisdictions within the MPO boundaries, Caltrans, emergency management agencies, and some private providers of traveler information, micro mobility services and vehicles and other privately funded components.

SANDAG, as the Metropolitan Planning Organization (MPO) for the greater San Diego region, works collaboratively with many local, regional, statewide, and federal stakeholders. These stakeholders together form the foundation of an institutional structure to support planning ITS, deploying infrastructure and services, maintaining those deployments and planning for future projects.

The main stakeholders relevant to the Regional ITS Architecture update are outlined below.

SANDAG Board

The Board of Directors provides the highest level of decision-making on matters regarding ITS. Each of the region's 19 local governments as well as local transit agencies, Caltrans, the Port, Southern California Tribal Chairmen's Association and many other stakeholders are represented on the Board. The Board reviews and approves the funding of ITS projects in the region, and is ultimately responsible for the successful deployment of all regional efforts.

Executive Committee

The members of SANDAG's Executive Committee are responsible for much of the highest-level administration of issues and activities undertaken by the agency. The Executive Committee is comprised of elected officials from East County, North County, Coastal, North County Inland, South County, the City of San Diego and the San Diego County Board of Supervisors. This committee is responsible for setting the monthly Board of Directors agenda, reviewing legislative and legal items relevant to the region, and for preparing the Overall Work Program and Budget.

Transportation Committee

The Transportation Committee assists in the preparation of the Regional Transportation Plan, for which the Regional ITS Architecture is an input. The Transportation Committee, comprised of representatives from the City of Coronado, City of San Diego, City of Lemon Grove, City of Solana Beach, City of Escondido, Metropolitan Transit System, North County Transit District, San Diego County Regional Airport Authority, and the Port of San Diego, advises the SANDAG Board of Directors on all matters of significance related to transportation planning, deployment and operations in the region. The TransNet Program of Projects falls under the purview of the Transportation Committee.

Cities/County Transportation Advisory Committee (CTAC)

Reporting to the Transportation Committee, CTAC provides support and funding recommendations for projects that affect the road system. The members of CTAC focus on local projects located or affecting streets, highways, transit, and rail, as well as programs that involve bicycle and pedestrian operations. As part of its responsibilities, CTAC oversees activities of the San Diego Traffic Engineer’s Council (SANTEC).

Regional Planning Committee

One of the major drivers of the update to the Regional ITS Architecture is the 5 Big Moves, represented in the implementation of San Diego Forward: The 2021 Regional Plan. This Committee provides oversight for the work necessary to realize and implement the 2021 Regional Plan, which will involve extensive reference to the ITS Architecture. While the 2021 Regional Plan includes transportation elements, it also provides oversight for the preparation and implementation of projects and efforts related to housing, land use, air and water quality, and regional infrastructure needs. The Regional Planning Committee is comprised of representatives from the City of Chula Vista, City of Santee, City of Del Mar, City of San Marcos, County of San Diego, and the City of San Diego.

Borders Committee

Planning that impacts any of the regions and jurisdictions that border the San Diego region, as well as the international border with Mexico and tribal nations fall under the purview of the Border Committee. Significant reference to the Regional ITS Architecture is necessary to plan and deploy several efforts at the Mexican border, including an overall ITS design, the improvement of the border wait time system, and plans for a completely new border crossing.

4.5.2 Regional Architecture Stakeholders

The full list of stakeholders that exist in the Regional ITS Architecture, dispositioned to one or more of the 5 Big Moves, is provided in Appendix A.

All Stakeholders, along with hyperlinked references to each of the 5 Big Moves, Scope, Planning, Services, Inventory, Roles and Responsibilities, Needs, Functions, Interfaces, Communications and Agreements is available online at: <https://its-arch.sandag.org>.

4.6 Service Packages

Service Packages (referred to as “Market Packages” in previous iterations of the National and Regional Architectures) provide a top-level framework for all functions and services and serve as the most efficient ‘entry point’ for users to access the Regional ITS Architecture. All available or planned services, functions, devices, and their functional information flows are housed within one of twelve areas, illustrated below in Table 3:

Table 3 - National ITS Architecture Service Level Categories

Service Package Categories	
Commercial Vehicle Operations (CVO)	Support (SU)
Data Management (DM)	Sustainable Travel (ST)
Maintenance and Construction (MCO)	Traffic Management (TM)
Parking Management (PM)	Traveler Information (TI)
Public Safety (PS)	Vehicle Safety (VS)
Public Transportation (PT)	Weather (WX)

All existing services available in the San Diego region can be categorized under one or more Service Packages.

It is imperative to understand the role of Service Packages at the category level vs. the local instance level. The National ITS Architecture currently includes, within the 12 Service Package categories, 150 Service Packages. However, a local architecture, such as the San Diego Regional ITS Architecture, includes the appropriate local instances of that Service Package. What exists as a single, generic Service Package may be identified locally in several instances. For example, the general Service Package PM02 refers to Smart Park and Ride System. The description of PM02 in ARC-It is:

“This service package provides real-time information on Park and Ride capacity and supports traveler’s decision-making on where best to park and make use of transit alternatives. Transit operators are provided arrival information to support efficient pickup and drop offs and drivers switching to transit are offered current transit information. Relevant Regions: Australia, Canada, European Union, and United States.”¹F1

An abbreviated, representative portion of the architecture diagram that expresses the interconnects and data flow of a parking management system is illustrated in Figure 8.

¹ Source: USDOT

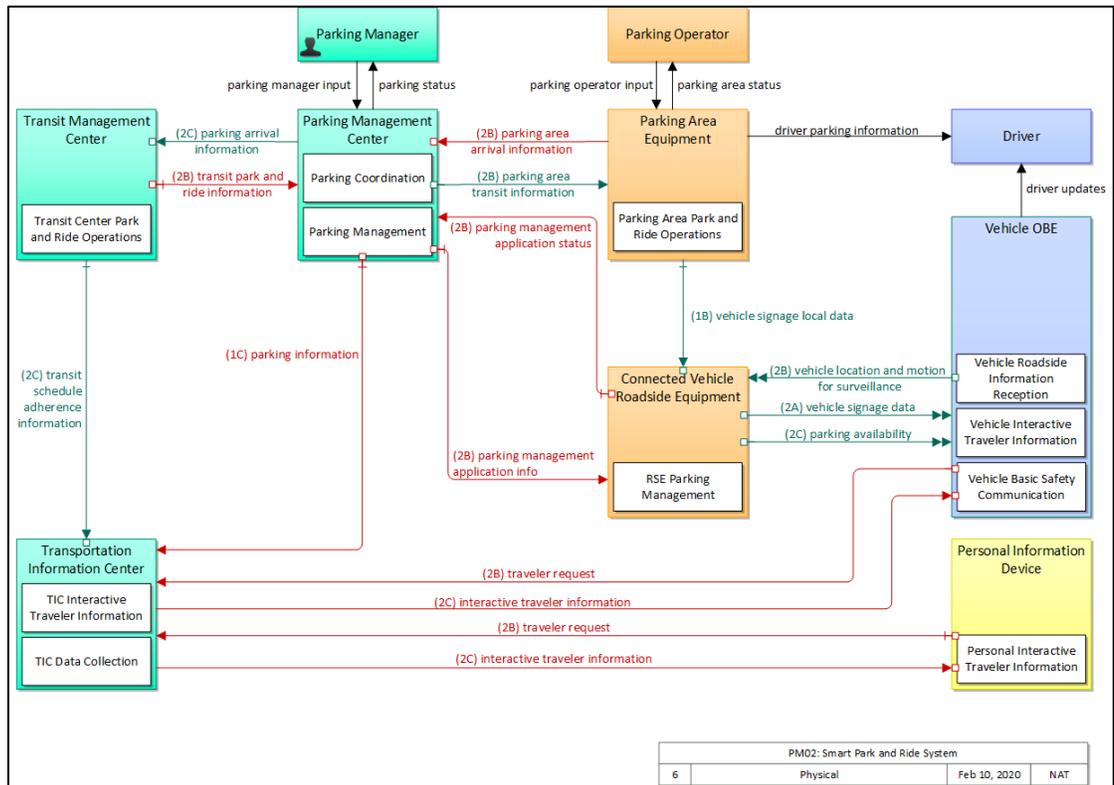


Figure 8 PM02 Smart Park and Ride System (Source: USDOT)

However, PM02 is referenced in the Regional ITS Architecture as two instances, one each for the responsible stakeholders:

- PM02: NCTD Smart Park and Ride System; and,
- PM02: MTS Smart Park and Ride System.

The architecture diagram illustrating the MTS instance of PM02 is provided in Figure 9.

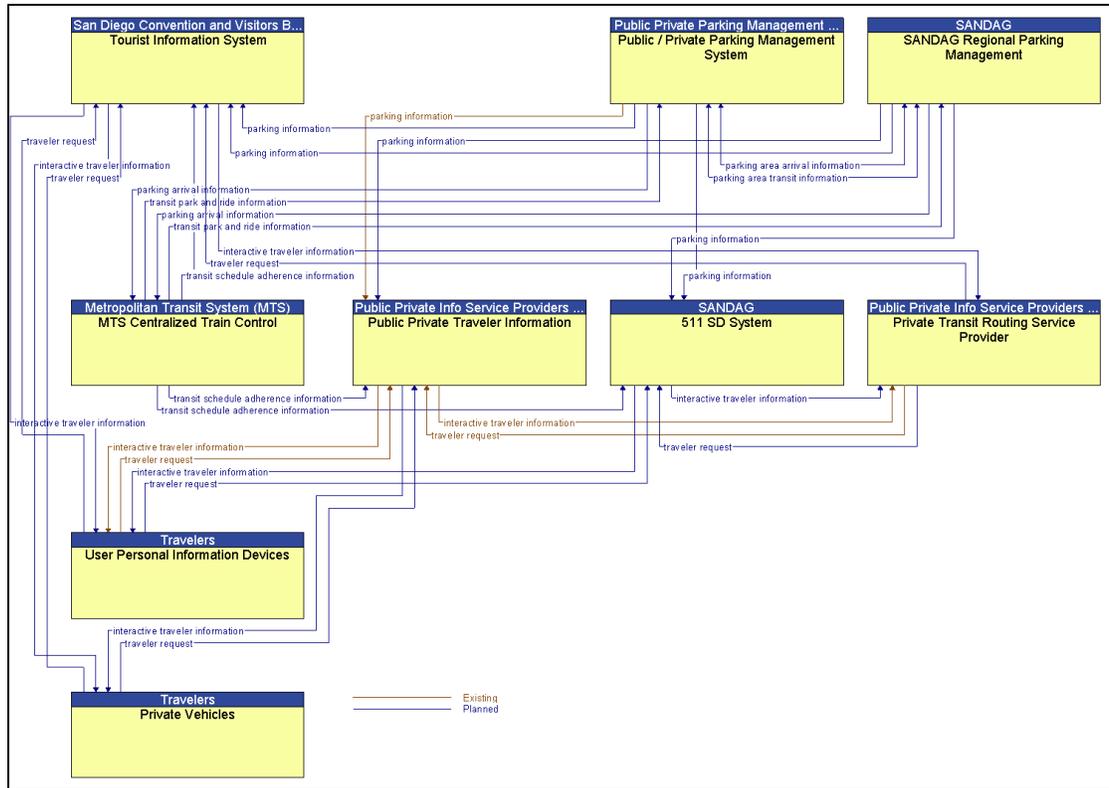


Figure 9 PM01 MTS Instance

A significant percentage of the changes and updates made to the Regional ITS Architecture to align it with 5 Big Moves were made at the Service Package level. Several Service Package instances were added, expanding the reach of the Service Packages overall.

As of the submission of this document, the current National ITS Architecture includes a total of 150 Service Packages, in the categories presented in Table 3. However, not all Service Packages are relevant to all regions or deployers. One of the initial tasks in support of the Architecture update was a two-pronged effort. The first portion included a review of all Service Packages identified during Phase 1 of the Architecture update in 2019 and 2020. The follow-on subtask was the disposition of those Service Packages into one more of the 5 Big Moves.

While there is some overlap in the objectives and elements that comprise the 5 Big Moves, the Service Packages are made more relevant to SANDAG and Stakeholders by categorization within one or more of the 5 Big Moves.

The Service Packages that exist in the Regional ITS Architecture, mapped to one or more of the 5 Big Moves, is provided in Appendix B.

All Service Packages, along with hyperlinked references to each of the 5 Big Moves, Scope, Planning, Stakeholders, Inventory, Roles and Responsibilities, Needs, Functions, Interfaces, Communications and Agreements is available online at: <https://its-arch.sandag.org>.

4.7 Inventory Items / ITS Elements

Each stakeholder agency, company, or group owns, operates, maintains or plans ITS systems in the region. The Regional ITS Architecture inventory is a list of "elements" that represent all existing and planned ITS systems in a region as well as non-ITS systems that provide information to or get information from the ITS systems.

The Inventory Items that exist in the Regional ITS Architecture, mapped to one or more of the 5 Big Moves, is provided in Appendix C.

The Architecture update includes several additions of System Inventory items. All ITS-related elements; discrete systems and subsystems, field equipment and communications, physical objects, vehicles, assets, locations and other categories of inventory are housed in the “Inventory” section of the Architecture database. A complete list of Inventory items, exported from the ITS Regional Architecture, would take over 10,000 pages of text. However, all Inventory items, categorized by Physical Object as well as by Stakeholder, along with hyperlinked references to each of the 5 Big Moves, Scope, Planning, Stakeholders, Roles and Responsibilities, Needs, Functions, Interfaces, Communications and Agreements is available online at: <https://its-arch.sandag.org>.

A sample list of Inventory items owned and/or operated by SANDAG is provided in the table below.

Owner / Operator	Own/Operate	Inventory Item
SANDAG	Owns	511 – FSP Dispatch
	Owns	511 FSP Vehicles
	Owns	511 IVR
	Owns	511 SD Operator
	Owns	511 SD System
	Owns	FasTrak Transponder
	Owns	Mobility Hub Kiosk
	Operates	San Diego Regional Archived Data System
	Owns	San Diego Regional Archived Data System
	Owns	San Diego Regional Data Distribution System
	Owns	SANDAG Back–Office Archived Data
	Owns	SANDAG Connected Vehicle Field Equipment
	Owns	SANDAG Electronic Tolling Administration
	Owns	SANDAG ITS Credential Management System
	Owns	SANDAG Payment Administration Center
	Owns	SANDAG RBMS Data Hub
	Owns	SANDAG Regional Parking Management
	Owns	SANDAG Service Monitoring Equipment
	Owns	SANDAG Support Maintenance Equipment
	Owns	SANDAG TIC and Website
	Owns	SANDAG Virtual TMCs
	Owns	SANDAG Warehouse Map
	Owns	Southern California Electronic Toll Collection
	Owns	Tolling Enforcement Center
Owns	Tolling Traveler Support	

5 Implementation Plan

5.1 Implementation Background: ITS Project Priority Phasing

The Regional ITS Architecture supports local and regional transportation planning; in fact it is essential that the Architecture be integrated into the transportation planning process at several junctures, to ensure consistency in implementation. As a result of integrating the ITS Architecture into the planning processes, the architecture links objectives and needs of the region; documented in the 2021 Regional Plan, to planned ITS deployments in the field. Figure 10 below illustrates the relationship of planning and development to the Architecture over time, and the iterative components of the planning process for ITS. This diagram illustrates how the Regional ITS Architecture, represented by the blue “wave” addresses how the need and relevance of the Architecture changes over time.

A brief description of the components of this diagram is provided below:

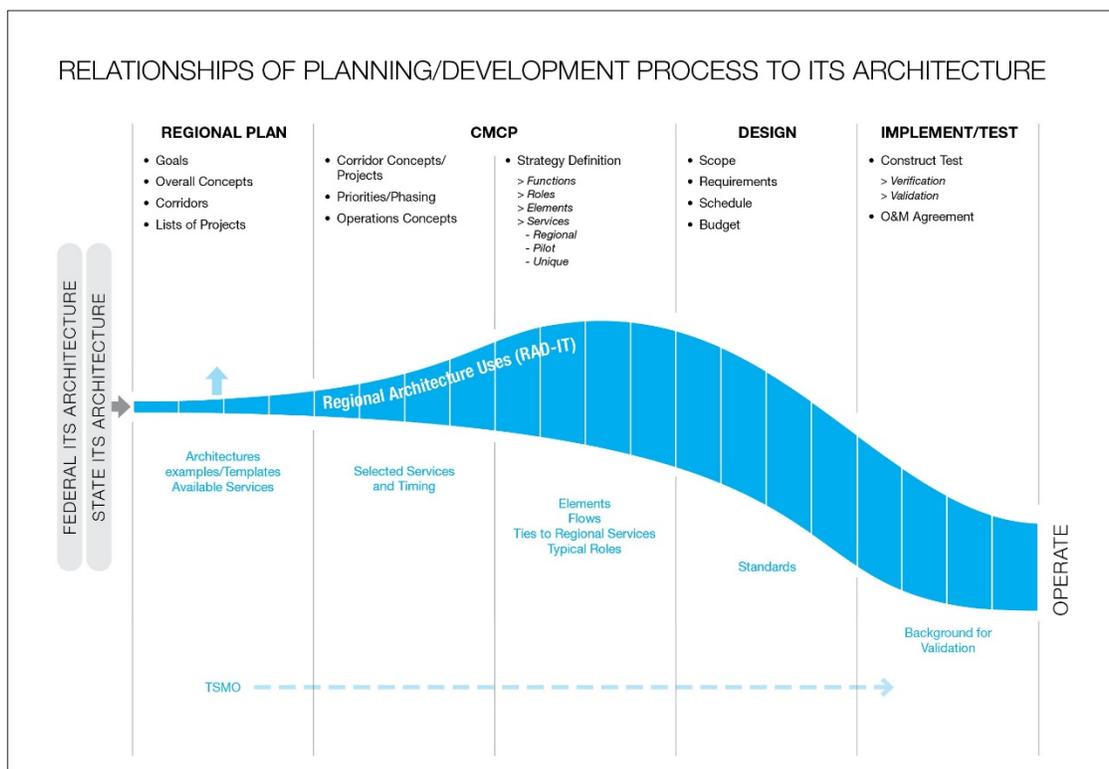


Figure 10 Relationships of Planning / Development Process to Regional ITS Architecture

5.2 2021 Regional Plan

The 2021 Regional Plan is available to the public online at: <https://sdforward.com/mobility-planning/2021-regional-plan>.

Development of this plan was conducted in tandem with the early process to update the Regional ITS Architecture. At this early point in the relationship between transportation planning and the Architecture, the arrow points from the RTP elements to the Architecture, to represent the flow of structure and information. The RTP provides the goals, concepts, and targeted

projects including the geographic coverage of the projects. Development or update of the Architecture at this point relies on this information to set the basic structure. Those high-level, overriding elements are expressed in the Architecture primarily in the “Planning” category.

5.3 Comprehensive Multimodal Corridor Plan (CMCP)

At the next step in the transportation planning process, ITS deployers take information from the Architecture to support development of Concepts of Operation (ConOps) and/or Comprehensive Multimodal Corridor Plans (CMCP). Strategies defined during the planning process are supported by a full understanding of the services and inventory; both those that exist in the region, and those planned for the future. As projects become clearer and more detailed, ITS planners and deployers use the Architecture to categorize projects into one or more of the 5 Big Moves, and identify or confirm the responsibilities of appropriate stakeholders. The Architecture serves as a roadmap to determine proper phasing of service delivery, whether the most efficient rollout is a pilot, a larger regional service, or in partnership with statewide efforts.

5.4 Design

Once the Architecture has been used to determine the availability of services and the inventory and stakeholders involved in delivering those services, project planning proceeds to the Design phase. This phase includes more detailed components such as Requirements identification, definition of scope, schedule and budget.

ITS Standards are critical once project planning progresses to the design phase. ITS deployers, in developing the foundational components of a project, will refer to the Regional ITS Architecture, moving from the RAD-IT tool and/or the exported Architecture online, to the Systems Engineering Tool for Intelligent Transportation (SET-IT) tool. Where RAD-IT is the appropriate tool for early project planning, SET-IT supports the more detailed design and implementation process, by providing the structure to create project architectures for pilots, test beds and regional implementation. The National, and all Regional ITS Architectures serve to ensure consistency in the use of ITS, and the Standards component serves the same purpose later in the project development process. The Regional ITS Architecture does not specify vendors or software; instead the Standards are used to facilitate interoperability of ITS devices, equipment and other elements.

5.5 Implement / Test

Whether a project is implemented as a small pilot, a large regional deployment, or anything in between, the implementation and testing phase is supported by the Regional ITS Architecture to ensure consistency in verification and validation. The benchmarks and performance metrics included in System Acceptance Testing (SAT) can be culled from both RAD-IT and SET-IT.

5.6 ITS Architecture Strategic Implementation Project Roadmap

The Regional ITS Architecture itself is meant to serve as a technical roadmap, providing consistency and information on the availability of services in the region. The vast amounts of information regarding existing and planned regional services, and the inventory necessary to deliver those services, are accessible to stakeholders by using the Architecture.

The 2021 Regional Plan includes a long list of potential projects, with details on the phasing of those projects. In alignment with that list of possible efforts and projects, the Project Roadmap below provides a sample list of projects/programs, in several areas identified by SANDAG as high priority, and an estimated timeline for the project/program lifecycle, and initial identification of key ITS Architecture service packages for each project/program.

Regional ITS Architecture Strategic Implementation Project Roadmap

Scoping /Planning / CMCP or ConOps Phase
Design Phase
Pilot Implementation Phase
Regional Implementation Phase (Regional Integration Development for Next OS)
Operational Phase

	Existing / Planned Project/Program	Proposed/Initial ITS Architecture Service Packages	Expected Activity and Timeframe				
			2021-2022		2023 - 2024		2025 - beyond
			ConOps	Requirements Definition	Develop Procurement / Pilot Implementation	Pilot System Deployment and /Integration (Next OS)	Operations
Smart Infrastructure / Smart Corridors	Smart Intersections	PT09: Connected Eco Driving PS03: Emergency Vehicle Pre-emption TM01: Traffic-based Traffic Surveillance TM03: Traffic Signal Control TM04: Connected Vehicle Traffic Signal System	ConOps	Requirements Definition	Develop Procurement / Pilot Implementation	Pilot System Deployment and /Integration (Next OS)	Operations
	Active Transportation Demand Management (ATDM); I-5, I-805, SR 54, SR-905, SR 78, SR 52, SR 67	CV009: Freight – Specific Dynamic Parking CV012: Regional HAZMAT Management DM02: Performance Monitoring PS02: Regional Emergency Response PS03: Emergency Vehicle Pre-emption PS13: Regional Evacuation and Reentry Management PT09: Transit Signal Priority PT10: Next Generation Transit Lanes ST01: Regional Emissions Monitoring ST05: Public-Private Electric Charging Stations TI01: Broadcast Traveler Information TI02: Personalized Traveler Information TI03: Regional Real-time Dynamic Route Guidance TM04: Regional Connected Vehicle Traffic Signal System TM11: Congestion Pricing TM22: Dynamic Lane Management/Curb Management	CMCP		Corridor/Project Concept of Operations		Corridor/Project Requirement Definitions
	Curb Management	PM01: Parking Space Management PM05: Parking Reservations PM06: Loading Zone Management PT03: Regional TNC Operations TM22: Regional Dynamic Lane Management	ConOps	Requirements Definition	Develop Procurement / Pilot Implementation	Pilot System Deployment and /Integration (Next OS)	Operations
	Near-term Rapid Projects	PT01: Transit Vehicle Tracking PT08: Transit Traveler Information PT14: Multimodal Coordination PT02: Transit Fixed-Route Operations PT04: Transit Fare Collection Management PT06: Transit Fleet Management PT07: Transit Passenger Counting PT09: Transit Signal Priority PT15: Transit Stop Request	CMCP		Corridor/Project Concept of Operations		Corridor/Project Requirement Definitions

Regional ITS Architecture Strategic Implementation Project Roadmap

	Existing / Planned Project/Program	Proposed/Initial ITS Architecture Service Packages	Expected Activity and Timeframe				
			2021-2022		2023 - 2024	2025 - beyond	
Smart Mobility / Mobility Hubs	San Ysidro Mobility Hub	ST05: Electric Charging Stations Management PM01: Parking Space Management TI01: Broadcast Traveler Information TI05: Mobility Hubs - Travel Services Information and Reservations PM06: Loading Zone Management	Project/ Planning Study		Concept of Operations (ConnOps)	Requirements Definition	Develop Procurement / Implementation
	Central Mobility Hub	TI06: Dynamic Ridesharing and Shared Use Trans-TNC/Bike/Uber/Lyft TM02: Personalized Traveler Information PT03: Regional TNC and Micro Mobility Ops DM01: Data Warehouse	CMCP	ConOps		Requirements Definition	Incorporate ConOps/System Reqs to help advance Central Mobility Hubs Project Technical Studies and /EIR
	Western Chula Vista Mobility Hub	PM01: Parking Space Management TI01: Broadcast Traveler Information TI03: Regional Real-Time Dynamic Guidance/Way Finding TI05: Travel Information and Reservations PM06: Curb and Loading Zone Management TI06: Dynamic Ridesharing and Shared Use Trans-TNC/Bike/Uber/Lyft TM02: Personalized Traveler Information VS12: Micro Transit Pedestrian and Cyclist Safety	ConOps	Requirements Definition	Develop Procurement / Pilot Implementation	Pilot System Deployment and /Integration (Next OS)	Operations
	Operations for Flexible Fleet Services	TI06: Dynamic Ridesharing and Shared Use Trans-TNC/Bike/Uber/Lyft TM02: Personalized Traveler Information PT03: Regional TNC and Micro Mobility Ops	Coordination with Partners / Concept Development		Pilot Implementation		System Integration (Next OS)
	Data Hub - Mobility Data Clearinghouse (MDC)	DM01: Data Warehouse DM02: Performance Monitoring	ConOps	Requirements Definition	Develop Procurement - Iteration 1 Deployment	Pilot System Deployment and /Integration (Next OS)	

	Existing / Planned Project/Program	Proposed/Initial ITS Architecture Service Packages	Expected Activity and Timeframe		
			2021-2022	2023 - 2024	2025 - beyond
Harbor Drive 2.0	Connected Vehicles	TM04: Connected Vehicle Traffic Signal System PM01: Parking Space Management PS05: Regional Connected V2V Auto Emergency Info SU05: Regional ITS Location and Time VS03: San Diego Connected Vehicle Situational Awareness	ConOps	Requirements Definition	Incorporate ConOps/System Reqs to help advance Vesta Bridge Technical Studies and /EIR
	Freight Signal Priority	CVO06: Freight Signal Priority	ConOps	Requirements Definition	Incorporate ConOps/System Reqs to help advance Vesta Bridge Technical Studies and /EIR
	Truck Reservation System	TI02: Personalized Traveler Information - SD 511 TI05: Mobility Hubs - Travel Services Information and Reservations	ConOps	Requirements Definition	Incorporate ConOps/System Reqs to help advance Vesta Bridge Technical Studies and /EIR

Regional ITS Architecture Strategic Implementation Project Roadmap

	Existing / Planned Project/Program	Proposed/Initial ITS Architecture Service Packages	Expected Activity and Timeframe			
			2021-2022		2023 - 2024	2025 - beyond
Regional Border Management System (RBMS)	Designated Freight Routes and Signal Priority Treatments	CVO04: CV Administrative Processes TI05: Mobility Hubs - Travel Services Information and Reservations TM01: Traffic Surveillance TM03: Traffic Signal Control TM04: Regional Connected Vehicle Traffic Signal System	Refine ConOps	Refine Requirement Definitions	Regional System Deployment and /Integration (Next OS)	Operations
	Enhanced Bi-national Inspection / Pre-clearance / Traffic Management	CVO21: International Border Electronic Clearance CVO22: International Border Coordination DM02: Performance Monitoring TM11: Congestion Pricing TM22: Dynamic Lane Management/Curb Management	Refine ConOps	Refine Requirement Definitions	Regional System Deployment and /Integration (Next OS)	Operations
	Multimodal Border Coordination	PT14: Multimodal Coordination PT08: Transit Traveler Information TI01: Border Broadcast Traveler Information TM01: Traffic Surveillance TM03: Traffic Signal Control TM23 San Diego Border Management Systems	Refine ConOps	Refine Requirement Definitions	Regional System Deployment and /Integration (Next OS)	Operations
	Advanced Traveler information and Revenue Collection	CVO05: Commercial Vehicle Parking TM03: Traffic Signal Control PT08: Transit Traveler Information TM04: Regional Connected Vehicle Traffic Signal System TI02: Personalized Traveler Information	Refine ConOps	Refine Requirement Definitions	Regional System Deployment and /Integration (Next OS)	Operations

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Appendix A – Stakeholders Mapped to 5 Big Moves

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Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
Amtrak	National passenger railroad service providing medium and long-distance intercity service in the United States and Canada	5 Big Moves #2: Transit Leap
Amtrak	National passenger railroad service providing medium and long-distance intercity service in the United States and Canada	5 Big Moves #3: Mobility Hubs
Archive Data Users	This stakeholder represents individual and organizations that use archive data products from any archive management system. This may include computer applications, or modeling systems utilizing the archived data.	5 Big Moves #5: Next OS
Archive Data Users	This stakeholder represents individual and organizations that use archive data products from any archive management system. This may include computer applications, or modeling systems utilizing the archived data.	Global Stakeholder
Blink Electronic Vehicle Charging Network	Blink is the owner, operator and provider of EV charging Stations all over the United States. They have many throughout the San Diego region.	5 Big Moves #1: Complete Corridors
Blink Electronic Vehicle Charging Network	Blink is the owner, operator and provider of EV charging Stations all over the United States. They have many throughout the San Diego region.	5 Big Moves #3: Mobility Hubs
Blink Electronic Vehicle Charging Network	Blink is the owner, operator and provider of EV charging Stations all over the United States. They have many throughout the San Diego region.	5 Big Moves #5: Next OS
Blink Electronic Vehicle Charging Network	Blink is the owner, operator and provider of EV charging Stations all over the United States. They have many throughout the San Diego region.	Global Stakeholder
Cal OES - Governor's Office of Emergency Services	California Offices of Emergency Services has numerous branches focused on effective use of technology and improved communications to support statewide interoperability. They are responsible for overall state agency response to disasters. Assuring the state's readiness to respond to, recover from all hazards and assisting local governments in their emergency preparedness, response, recovery and mitigation.	5 Big Moves #5: Next OS
Cal OES - Governor's Office of Emergency Services	California Offices of Emergency Services has numerous branches focused on effective use of technology and improved communications to support statewide interoperability. They are responsible for overall state agency response to disasters. Assuring the state's readiness to respond to, recover from all hazards and assisting local governments in their emergency preparedness, response, recovery and mitigation.	Global Stakeholder

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
Cal SDA	The California San Diego University is involved in the statewide committee for connected vehicles, planning for deployment in the future.	Global Stakeholder
California DMV	State of California, Department of Motor Vehicles provides services for residents of the state pertaining to driver's license, registration, and other services. They also provide license information to law enforcement agencies throughout the state to verify license, etc.	5 Big Moves #4: Flexible Fleets
California DMV	State of California, Department of Motor Vehicles provides services for residents of the state pertaining to driver's license, registration, and other services. They also provide license information to law enforcement agencies throughout the state to verify license, etc.	5 Big Moves #5: Next OS
California DMV	State of California, Department of Motor Vehicles provides services for residents of the state pertaining to driver's license, registration, and other services. They also provide license information to law enforcement agencies throughout the state to verify license, etc.	Global Stakeholder
California Public Utilities Commission (CPUC)	The CPUC regulates services and utilities, protects consumers, safeguards the environment, and assures Californians' access to safe and reliable utility infrastructure and services. The essential services regulated include electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies. On this website you'll find information about the many initiatives underway at the CPUC.	Global Stakeholder
California Toll Operators Committee (CTOC - FasTrak)	<p>CTOC is the statewide oversight and standards committee for tolling interoperability. FasTrak is the tolling brand by trademark. FasTrak can be used anywhere the state of California and the logo is displayed in the State of California. In the Bay Area, FasTrak toll tags can be used on all toll bridges, express lanes, and at parking facilities at the San Francisco International Airport. In Southern California, FasTrak can be used on toll roads and express lanes.</p> <p>SANDAG coordinates payment when vehicles are not registered with SANDAG but are passing through the SD region.</p>	5 Big Moves #1: Complete Corridors

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
California Toll Operators Committee (CTOC - FasTrak)	<p>CTOC is the statewide oversight and standards committee for tolling interoperability. FasTrak is the tolling brand by trademark. FasTrak can be used anywhere the state of California and the logo is displayed in the State of California. In the Bay Area, FasTrak toll tags can be used on all toll bridges, express lanes, and at parking facilities at the San Francisco International Airport. In Southern California, FasTrak can be used on toll roads and express lanes.</p> <p>SANDAG coordinates payment when vehicles are not registered with SANDAG but are passing through the SD region.</p>	5 Big Moves #5: Next OS
California Toll Operators Committee (CTOC - FasTrak)	<p>CTOC is the statewide oversight and standards committee for tolling interoperability. FasTrak is the tolling brand by trademark. FasTrak can be used anywhere the state of California and the logo is displayed in the State of California. In the Bay Area, FasTrak toll tags can be used on all toll bridges, express lanes, and at parking facilities at the San Francisco International Airport. In Southern California, FasTrak can be used on toll roads and express lanes.</p> <p>SANDAG coordinates payment when vehicles are not registered with SANDAG but are passing through the SD region.</p>	Global Stakeholder
Caltrans	<p>The California Department of Transportation, Caltrans District 11, is responsible for managing, operating, and/or maintaining state-owned transportation infrastructure (roads, airports, transit, railways), within District 11 that borders Mexico. Caltrans has many ITS elements including signals, DMS, lane control, Traffic Management Center (TMC), cameras, HOVs, lane closure system, security cameras, work zone equipment, and other supporting ITS. Services include a broad spectrum of integrated corridor management strategies, advanced traffic management, traffic incident management, traveler information, and much more.</p>	5 Big Moves #1: Complete Corridors
Caltrans	<p>The California Department of Transportation, Caltrans District 11, is responsible for managing, operating, and/or maintaining state-owned transportation infrastructure (roads, airports, transit, railways), within District 11 that borders Mexico. Caltrans has many ITS elements including signals, DMS, lane control, Traffic Management Center (TMC), cameras, HOVs, lane closure system, security cameras, work zone equipment, and other supporting ITS. Services include a broad spectrum of</p>	5 Big Moves #5: Next OS

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
	integrated corridor management strategies, advanced traffic management, traffic incident management, traveler information, and much more.	
Caltrans	The California Department of Transportation, Caltrans District 11, is responsible for managing, operating, and/or maintaining state-owned transportation infrastructure (roads, airports, transit, railways), within District 11 that borders Mexico. Caltrans has many ITS elements including signals, DMS, lane control, Traffic Management Center (TMC), cameras, HOVs, lane closure system, security cameras, work zone equipment, and other supporting ITS. Services include a broad spectrum of integrated corridor management strategies, advanced traffic management, traffic incident management, traveler information, and much more.	Global Stakeholder
Caltrans HQ	California Department of Transportation Headquarters (Caltrans HQ) is the owner of the statewide ITS Architecture. They also own ITS field equipment which provides data to PeMS.	5 Big Moves #1: Complete Corridors
Caltrans HQ	California Department of Transportation Headquarters (Caltrans HQ) is the owner of the statewide ITS Architecture. They also own ITS field equipment which provides data to PeMS.	5 Big Moves #5: Next OS
Caltrans HQ	California Department of Transportation Headquarters (Caltrans HQ) is the owner of the statewide ITS Architecture. They also own ITS field equipment which provides data to PeMS.	Global Stakeholder
CHP - CA Dept of Public Safety	State Department of Public Services typically has a State Police or Highway Patrol.	5 Big Moves #1: Complete Corridors
CHP - CA Dept of Public Safety	State Department of Public Services typically has a State Police or Highway Patrol.	5 Big Moves #4: Flexible Fleets
CHP - CA Dept of Public Safety	State Department of Public Services typically has a State Police or Highway Patrol.	Global Stakeholder
CHP - Commercial Vehicle Section	State agencies administering commercial vehicle registration, licensing, and enforcement.	5 Big Moves #1: Complete Corridors

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
CHP - Commercial Vehicle Section	State agencies administering commercial vehicle registration, licensing, and enforcement.	5 Big Moves #5: Next OS
CHP - Commercial Vehicle Section	State agencies administering commercial vehicle registration, licensing, and enforcement.	Global Stakeholder
City of San Diego	The City of San Diego has over 1500 traffic signals with three phases of additional signals planned throughout the coming 10 years. With 1.4 Million residents, San Diego is a city on the Pacific coast of California known for its beaches, parks and warm climate which draw a lot of vistors each year. It is also home to a large port with transportation activities involving coast to coast shipping, an active naval fleet and all the activities that surround a large city.	5 Big Moves #1: Complete Corridors
City of San Diego	The City of San Diego has over 1500 traffic signals with three phases of additional signals planned throughout the coming 10 years. With 1.4 Million residents, San Diego is a city on the Pacific coast of California known for its beaches, parks and warm climate which draw a lot of vistors each year. It is also home to a large port with transportation activities involving coast to coast shipping, an active naval fleet and all the activities that surround a large city.	5 Big Moves #2: Transit Leap
City of San Diego	The City of San Diego has over 1500 traffic signals with three phases of additional signals planned throughout the coming 10 years. With 1.4 Million residents, San Diego is a city on the Pacific coast of California known for its beaches, parks and warm climate which draw a lot of vistors each year. It is also home to a large port with transportation activities involving coast to coast shipping, an active naval fleet and all the activities that surround a large city.	5 Big Moves #3: Mobility Hubs
City of San Diego	The City of San Diego has over 1500 traffic signals with three phases of additional signals planned throughout the coming 10 years. With 1.4 Million residents, San Diego is a city on the Pacific coast of California known for its beaches, parks and warm climate which draw a lot of vistors each year. It is also home to a large port with transportation activities involving coast to coast shipping, an active naval fleet and all the activities that surround a large city.	5 Big Moves #4: Flexible Fleets

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
City of San Diego	The City of San Diego has over 1500 traffic signals with three phases of additional signals planned throughout the coming 10 years. With 1.4 Million residents, San Diego is a city on the Pacific coast of California known for its beaches, parks and warm climate which draw a lot of visitors each year. It is also home to a large port with transportation activities involving coast to coast shipping, an active naval fleet and all the activities that surround a large city.	5 Big Moves #5: Next OS
City of San Diego	The City of San Diego has over 1500 traffic signals with three phases of additional signals planned throughout the coming 10 years. With 1.4 Million residents, San Diego is a city on the Pacific coast of California known for its beaches, parks and warm climate which draw a lot of visitors each year. It is also home to a large port with transportation activities involving coast to coast shipping, an active naval fleet and all the activities that surround a large city.	Global Stakeholder
Level 2 Cities in San Diego	<p>Level 2 Cities in San Diego include the cities of Chula Vista, Oceanside, and Carlsbad. These cities are considered Level 2 Cities in San Diego County because they either have existing or plan to deploy advanced ITS technologies. They have also included in their city budgets, planned ITS elements.</p> <p>At the time the architecture is developed, this stakeholder includes Chula Vista, Oceanside, and Carlsbad.</p>	5 Big Moves #1: Complete Corridors
Level 2 Cities in San Diego	<p>Level 2 Cities in San Diego include the cities of Chula Vista, Oceanside, and Carlsbad. These cities are considered Level 2 Cities in San Diego County because they either have existing or plan to deploy advanced ITS technologies. They have also included in their city budgets, planned ITS elements.</p> <p>At the time the architecture is developed, this stakeholder includes Chula Vista, Oceanside, and Carlsbad.</p>	5 Big Moves #2: Transit Leap
Level 2 Cities in San Diego	Level 2 Cities in San Diego include the cities of Chula Vista, Oceanside, and Carlsbad. These cities are considered Level 2 Cities in San Diego County because they either have existing or plan to deploy advanced ITS technologies. They have also included in their city budgets, planned ITS elements.	5 Big Moves #3: Mobility Hubs

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
	At the time the architecture is developed, this stakeholder includes Chula Vista, Oceanside, and Carlsbad.	
Level 2 Cities in San Diego	<p>Level 2 Cities in San Diego include the cities of Chula Vista, Oceanside, and Carlsbad. These cities are considered Level 2 Cities in San Diego County because they either have existing or plan to deploy advanced ITS technologies. They have also included in their city budgets, planned ITS elements.</p> <p>At the time the architecture is developed, this stakeholder includes Chula Vista, Oceanside, and Carlsbad.</p>	5 Big Moves #4: Flexible Fleets
Level 2 Cities in San Diego	<p>Level 2 Cities in San Diego include the cities of Chula Vista, Oceanside, and Carlsbad. These cities are considered Level 2 Cities in San Diego County because they either have existing or plan to deploy advanced ITS technologies. They have also included in their city budgets, planned ITS elements.</p> <p>At the time the architecture is developed, this stakeholder includes Chula Vista, Oceanside, and Carlsbad.</p>	5 Big Moves #5: Next OS
Level 2 Cities in San Diego	<p>Level 2 Cities in San Diego include the cities of Chula Vista, Oceanside, and Carlsbad. These cities are considered Level 2 Cities in San Diego County because they either have existing or plan to deploy advanced ITS technologies. They have also included in their city budgets, planned ITS elements.</p> <p>At the time the architecture is developed, this stakeholder includes Chula Vista, Oceanside, and Carlsbad.</p>	Global Stakeholder
Connected Vehicle Partnership	This stakeholder represents a statewide Committee committed to deploying connected vehicles in California in the future. The partnership includes the California Department of Motor Vehicles (DMV), Caltrans, the California Highway Patrol (CHP), California University at San Diego, (CalSDA), and the California Public Utilities Commission (CPUC)	Global Stakeholder

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
Convention and Visitors Bureau	Providing information for visitors, meeting planners and travel agents including events calendar, restaurant listings and other news.	5 Big Moves #5: Next OS
Convention and Visitors Bureau	Providing information for visitors, meeting planners and travel agents including events calendar, restaurant listings and other news.	Global Stakeholder
Level 1 Cities in San Diego	<p>Level 1 Cities stakeholder represents Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista. These are the remaining 14 cities in San Diego County that represent future vision and use of ITS technologies. As Level 1 Cities begin to grow and include ITS in their capital expenditure budgets they will be removed from emerging and be identified separately as "Level 2 Cities" or, called out individually in the regional ITS Architecture. Activities planned for these cities may include, but are not limited to, traffic operations, fire, law enforcement, maintenance, websites, and archived databases.</p> <p>Individual cities in the San Diego County that have planned projects or already operate signal systems, or other ITS elements, may be called out individually to provide a better base for developing project architectures required by funding sources.</p>	5 Big Moves #1: Complete Corridors
Level 1 Cities in San Diego	<p>Level 1 Cities stakeholder represents Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista. These are the remaining 14 cities in San Diego County that represent future vision and use of ITS technologies. As Level 1 Cities begin to grow and include ITS in their capital expenditure budgets they will be removed from emerging and be identified separately as "Level 2 Cities" or, called out individually in the regional ITS Architecture. Activities planned for these cities may include, but are not limited to, traffic operations, fire, law enforcement, maintenance, websites, and archived databases.</p> <p>Individual cities in the San Diego County that have planned projects or already operate signal systems, or other ITS elements, may be called out individually to provide a better base for developing project architectures required by funding sources.</p>	5 Big Moves #2: Transit Leap

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
Level 1 Cities in San Diego	<p>Level 1 Cities stakeholder represents Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista. These are the remaining 14 cities in San Diego County that represent future vision and use of ITS technologies. As Level 1 Cities begin to grow and include ITS in their capital expenditure budgets they will be removed from emerging and be identified separately as "Level 2 Cities" or, called out individually in the regional ITS Architecture. Activities planned for these cities may include, but are not limited to, traffic operations, fire, law enforcement, maintenance, websites, and archived databases.</p> <p>Individual cities in the San Diego County that have planned projects or already operate signal systems, or other ITS elements, may be called out individually to provide a better base for developing project architectures required by funding sources.</p>	5 Big Moves #3: Mobility Hubs
Level 1 Cities in San Diego	<p>Level 1 Cities stakeholder represents Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista. These are the remaining 14 cities in San Diego County that represent future vision and use of ITS technologies. As Level 1 Cities begin to grow and include ITS in their capital expenditure budgets they will be removed from emerging and be identified separately as "Level 2 Cities" or, called out individually in the regional ITS Architecture. Activities planned for these cities may include, but are not limited to, traffic operations, fire, law enforcement, maintenance, websites, and archived databases.</p> <p>Individual cities in the San Diego County that have planned projects or already operate signal systems, or other ITS elements, may be called out individually to provide a better base for developing project architectures required by funding sources.</p>	5 Big Moves #4: Flexible Fleets

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
Level 1 Cities in San Diego	<p>Level 1 Cities stakeholder represents Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista. These are the remaining 14 cities in San Diego County that represent future vision and use of ITS technologies. As Level 1 Cities begin to grow and include ITS in their capital expenditure budgets they will be removed from emerging and be identified separately as "Level 2 Cities" or, called out individually in the regional ITS Architecture. Activities planned for these cities may include, but are not limited to, traffic operations, fire, law enforcement, maintenance, websites, and archived databases.</p> <p>Individual cities in the San Diego County that have planned projects or already operate signal systems, or other ITS elements, may be called out individually to provide a better base for developing project architectures required by funding sources.</p>	5 Big Moves #5: Next OS
Level 1 Cities in San Diego	<p>Level 1 Cities stakeholder represents Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista. These are the remaining 14 cities in San Diego County that represent future vision and use of ITS technologies. As Level 1 Cities begin to grow and include ITS in their capital expenditure budgets they will be removed from emerging and be identified separately as "Level 2 Cities" or, called out individually in the regional ITS Architecture. Activities planned for these cities may include, but are not limited to, traffic operations, fire, law enforcement, maintenance, websites, and archived databases.</p> <p>Individual cities in the San Diego County that have planned projects or already operate signal systems, or other ITS elements, may be called out individually to provide a better base for developing project architectures required by funding sources.</p>	Global Stakeholder
FHWA	The United States Department of Transportation - Federal Highway Administration (FHWA) serves in a advisory capacity, providing funding for numerous. They are a stakeholder in the region with ITS, autonomous, and connected vehicle applications.	5 Big Moves #5: Next OS

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
	FHWA also owns the Vehicle Travel Information System (VTRIS) software which provides an archive of traffic monitoring data.	
FHWA	The United States Department of Transportation - Federal Highway Administration (FHWA) serves in a advisory capacity, providing funding for numerous. They are a stakeholder in the region with ITS, autonomous, and connected vehicle applications. FHWA also owns the Vehicle Travel Information System (VTRIS) software which provides an archive of traffic monitoring data.	Global Stakeholder
Financial Institutions - Crypto-currency	Stakeholder representing financial institutions that participate in market based projects other than tolling or parking.	5 Big Moves #5: Next OS
Financial Institutions - Crypto-currency	Stakeholder representing financial institutions that participate in market based projects other than tolling or parking.	Global Stakeholder
Financial Institutions - Tolling-Parking	Financial companies involved in electronic payment transactions for tolling and Parking.	5 Big Moves #3: Mobility Hubs
Financial Institutions - Tolling-Parking	Financial companies involved in electronic payment transactions for tolling and Parking.	5 Big Moves #5: Next OS
Financial Institutions - Tolling-Parking	Financial companies involved in electronic payment transactions for tolling and Parking.	Global Stakeholder
FMCSA	Federal Motor Carrier Safety Agency (FMCSA), a component of the US Department of Transportation. Their primary mission is to reduce crashes, injuries and fatalities involving large trucks and buses. FMCSA develops and enforces data-driven regulations that balance motor carrier (truck and bus companies) safety with industry efficiency; identifies higher risk carriers in enforcing the safety regulations, educates carriers, commercial drivers, and the public; and partners with stakeholders including Federal, State, and local enforcement agencies, the motor carrier industry, safety groups, and organized labor on efforts to reduce bus and truck-related crashes.	5 Big Moves #5: Next OS

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
FMCSA	Federal Motor Carrier Safety Agency (FMCSA), a component of the US Department of Transportation. Their primary mission is to reduce crashes, injuries and fatalities involving large trucks and buses. FMCSA develops and enforces data-driven regulations that balance motor carrier (truck and bus companies) safety with industry efficiency; identifies higher risk carriers in enforcing the safety regulations, educates carriers, commercial drivers, and the public; and partners with stakeholders including Federal, State, and local enforcement agencies, the motor carrier industry, safety groups, and organized labor on efforts to reduce bus and truck-related crashes.	Global Stakeholder
Freight Distribution Center Owners	This stakeholder represents freight distribution and logistics centers that provide support for the distribution of freight across transport systems and modes.	5 Big Moves #4: Flexible Fleets
Freight Distribution Center Owners	This stakeholder represents freight distribution and logistics centers that provide support for the distribution of freight across transport systems and modes.	5 Big Moves #5: Next OS
Freight Shippers	Agents who coordinate the logistics of transportation. These organizations engage in the shipment of freight by multiple means, including road-going trucks as well as using other modes such as heavy rail, air, sea, etc.	5 Big Moves #4: Flexible Fleets
Freight Shippers	Agents who coordinate the logistics of transportation. These organizations engage in the shipment of freight by multiple means, including road-going trucks as well as using other modes such as heavy rail, air, sea, etc.	5 Big Moves #5: Next OS
Freight Shippers	Agents who coordinate the logistics of transportation. These organizations engage in the shipment of freight by multiple means, including road-going trucks as well as using other modes such as heavy rail, air, sea, etc.	Global Stakeholder
Local Media	This stakeholder represents owners/operators of communications media including television, radio, newspapers, and internet news sources.	5 Big Moves #5: Next OS
Local Media	This stakeholder represents owners/operators of communications media including television, radio, newspapers, and internet news sources.	Global Stakeholder
Metropolitan Transit System (MTS)	The San Diego Metropolitan Transit System (MTS) is the public transit service provider for Central, South, Northeast and Southeast San Diego County. MTS also licenses and regulates taxicabs, jitneys, and other private for-hire passenger transportation services provided by contract for the cities of San Diego, El Cajon, Imperial Beach, La Mesa, Lemon Grove, Poway and Santee. There are 53+ light rail	5 Big Moves #2: Transit Leap

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
	stations, 93+ bus routes and average daily ridership among all public transit services provided by MTS is over 250,000 per quarter.	
Metropolitan Transit System (MTS)	The San Diego Metropolitan Transit System (MTS) is the public transit service provider for Central, South, Northeast and Southeast San Diego County. MTS also licenses and regulates taxicabs, jitneys, and other private for-hire passenger transportation services provided by contract for the cities of San Diego, El Cajon, Imperial Beach, La Mesa, Lemon Grove, Poway and Santee. There are 53+ light rail stations, 93+ bus routes and average daily ridership among all public transit services provided by MTS is over 250,000 per quarter.	5 Big Moves #3: Mobility Hubs
Metropolitan Transit System (MTS)	The San Diego Metropolitan Transit System (MTS) is the public transit service provider for Central, South, Northeast and Southeast San Diego County. MTS also licenses and regulates taxicabs, jitneys, and other private for-hire passenger transportation services provided by contract for the cities of San Diego, El Cajon, Imperial Beach, La Mesa, Lemon Grove, Poway and Santee. There are 53+ light rail stations, 93+ bus routes and average daily ridership among all public transit services provided by MTS is over 250,000 per quarter.	Global Stakeholder
Mexican Baja Coordinación Estatal de Protección Civil	Includes law enforcement and first responders for public safety in Mexico; including Police Departments, Fire, Rescue, and Ambulance services, and other first responders at the local, regional, state, and federal levels across Mexico.	5 Big Moves #5: Next OS
Mexican Baja Coordinación Estatal de Protección Civil	Includes law enforcement and first responders for public safety in Mexico; including Police Departments, Fire, Rescue, and Ambulance services, and other first responders at the local, regional, state, and federal levels across Mexico.	Global Stakeholder
Mexican Baja SIDUE	The Mexican State agency that is responsible for managing, operating, and/or maintaining state-owned transportation infrastructure (roads, airports, transit, railways). Services provided include advanced traffic management, traveler information, and other ITS services.	5 Big Moves #5: Next OS

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
Mexican Baja SIDUE	The Mexican State agency that is responsible for managing, operating, and/or maintaining state-owned transportation infrastructure (roads, airports, transit, railways). Services provided include advanced traffic management, traveler information, and other ITS services.	Global Stakeholder
Micro Mobility Companies	Bike-Scooter Share companies are growing in the San Diego region. This stakeholder represents the many companies, but are not limited to: Limebike, Mobike, etc. Scooter companies include but is not limited to: Bird, Limescooter, Razor, etc.	5 Big Moves #3: Mobility Hubs
Micro Mobility Companies	Bike-Scooter Share companies are growing in the San Diego region. This stakeholder represents the many companies, but are not limited to: Limebike, Mobike, etc. Scooter companies include but is not limited to: Bird, Limescooter, Razor, etc.	5 Big Moves #4: Flexible Fleets
Micro Mobility Companies	Bike-Scooter Share companies are growing in the San Diego region. This stakeholder represents the many companies, but are not limited to: Limebike, Mobike, etc. Scooter companies include but is not limited to: Bird, Limescooter, Razor, etc.	Global Stakeholder
Municipio de Tijuana	Municipal government agencies within Mexico for Tijuana. Includes public works, police departments, fire departments, etc.	5 Big Moves #5: Next OS
Municipio de Tijuana	Municipal government agencies within Mexico for Tijuana. Includes public works, police departments, fire departments, etc.	Global Stakeholder
North County Transit District (NCTD)	<p>North County Transit District (NCTD) offers services that are an important part of San Diego’s regional transportation network. Their mission is to build an integrated transit system that enables the public to travel easily throughout the growing region. NCTD moves approximately 11 million passengers annually by providing public transportation for North San Diego County. The family of transit services include: COASTER commuter rail service, SPRINTER, BREEZE bus system, FLEX rural and on-demand service and LIFT paratransit.</p> <p>NCTD contracts their transit security services or law enforcement services with the City of Oceanside PD, City of Escondido, PD, and San Diego Sheriff's Office. The buses have "Mayday" alerts that ring to dispatch, and dispatch alerts law enforcement.</p>	5 Big Moves #2: Transit Leap

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
North County Transit District (NCTD)	<p>North County Transit District (NCTD) offers services that are an important part of San Diego’s regional transportation network. Their mission is to build an integrated transit system that enables the public to travel easily throughout the growing region. NCTD moves approximately 11 million passengers annually by providing public transportation for North San Diego County. The family of transit services include: COASTER commuter rail service, SPRINTER, BREEZE bus system, FLEX rural and on-demand service and LIFT paratransit.</p> <p>NCTD contracts their transit security services or law enforcement services with the City of Oceanside PD, City of Escondido, PD, and San Diego Sheriff's Office. The buses have "Mayday" alerts that ring to dispatch, and dispatch alerts law enforcement.</p>	5 Big Moves #3: Mobility Hubs
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Operation Respond Institute	The Operation Respond® Institute (ORI) is a not-for-profit, public/private partnership serving the emergency response community with time and lifesaving technology tools to combat safety and security incidents occurring on North American railroads and highways.	5 Big Moves #5: Next OS
Operation Respond Institute	The Operation Respond® Institute (ORI) is a not-for-profit, public/private partnership serving the emergency response community with time and lifesaving technology tools to combat safety and security incidents occurring on North American railroads and highways.	Global Stakeholder

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
Port of San Diego	The Port of San Diego has five member cities, Chula Vista, Coronado, Imperial Beach, National City and San Diego. The port promotes commerce, navigation, recreation and fisheries in San Diego Bay.	5 Big Moves #3: Mobility Hubs
Port of San Diego	The Port of San Diego has five member cities, Chula Vista, Coronado, Imperial Beach, National City and San Diego. The port promotes commerce, navigation, recreation and fisheries in San Diego Bay.	Global Stakeholder
Private Commercial Carriers	Private commercial vehicle operators, dispatching fleets of commercial vehicles.	5 Big Moves #4: Flexible Fleets
Private Commercial Carriers	Private commercial vehicle operators, dispatching fleets of commercial vehicles.	5 Big Moves #5: Next OS
Private Commercial Carriers	Private commercial vehicle operators, dispatching fleets of commercial vehicles.	Global Stakeholder
Private Sector Probe Information Providers	Stakeholders who have vehicle probe information that can be shared with other agencies in the region. This would include stakeholders that generate probe information from commercial vehicle fleets, cell phones, or from general traveler information system	5 Big Moves #5: Next OS
Private Sector Probe Information Providers	Stakeholders who have vehicle probe information that can be shared with other agencies in the region. This would include stakeholders that generate probe information from commercial vehicle fleets, cell phones, or from general traveler information system	Global Stakeholder
Public and Private Weather Providers	The most commonly used weather information for San Diego is the Weather Bug. This vendor provides weather for the ICMS weather data collection. Additional agencies such as the US National Weather Service or the National Oceanic and Atmospheric Association (NOAA), provide additional up to the minute climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas.	5 Big Moves #5: Next OS
Public and Private Weather Providers	The most commonly used weather information for San Diego is the Weather Bug. This vendor provides weather for the ICMS weather data collection. Additional agencies such as the US National Weather Service or the National Oceanic and Atmospheric Association (NOAA), provide additional up to the minute climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas.	Global Stakeholder
Public Private Car Share	Public Private carshare agencies such as Zipcar, Car2go (no longer in SD)	5 Big Moves #3: Mobility Hubs

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
Public Private Car Share	Public Private carshare agencies such as Zipcar, Car2go (no longer in SD)	5 Big Moves #4: Flexible Fleets
Public Private Car Share	Public Private carshare agencies such as Zipcar, Car2go (no longer in SD)	Global Stakeholder
Public Private Info Service Providers (ISP)	<p>Subscription based services operated by private providers that provide an option for real-time traveler information dissemination examples of services that include Waze, Facebook, Google, and Twitter.</p> <p>This element represents those organizations that provide traveler information to end users including telematics service providers such as ATX, OnStar, AAA, and Cross Country, Microsoft (http://autos.msn.com), Tribune Interactive, Cox Interactive, Iteris, TANN, and other traveler information web sites too numerous to list. See also the "Private ISP" element that covers those organizations that collect and distribute traveler information to ASPs.</p>	5 Big Moves #5: Next OS
Public Private Info Service Providers (ISP)	<p>Subscription based services operated by private providers that provide an option for real-time traveler information dissemination examples of services that include Waze, Facebook, Google, and Twitter.</p> <p>This element represents those organizations that provide traveler information to end users including telematics service providers such as ATX, OnStar, AAA, and Cross Country, Microsoft (http://autos.msn.com), Tribune Interactive, Cox Interactive, Iteris, TANN, and other traveler information web sites too numerous to list. See also the "Private ISP" element that covers those organizations that collect and distribute traveler information to ASPs.</p>	Global Stakeholder
Public Private Map Company	Public and Private providers of map databases used to support ITS services.	5 Big Moves #5: Next OS
Public Private Map Company	Public and Private providers of map databases used to support ITS services.	Global Stakeholder
Public Private Parking Management Systems	Any parking management system that is provided in San Diego region. Parking agencies register their spaces with an agency and people can pay via the public parking management systems.	5 Big Moves #3: Mobility Hubs
Public Private Parking Management Systems	Any parking management system that is provided in San Diego region. Parking agencies register their spaces with an agency and people can pay via the public parking management systems.	5 Big Moves #5: Next OS

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
Public Private Parking Management Systems	Any parking management system that is provided in San Diego region. Parking agencies register their spaces with an agency and people can pay via the public parking management systems.	Global Stakeholder
Rail Agencies	Private or Public entities that provide freight and passenger rail services.	5 Big Moves #2: Transit Leap
Rail Agencies	Private or Public entities that provide freight and passenger rail services.	5 Big Moves #3: Mobility Hubs
Rail Agencies	Private or Public entities that provide freight and passenger rail services.	Global Stakeholder
San Diego County	The County of San Diego encompasses 4,526 square miles with a population of 3.3 million. The County has many cities and innovative government agencies located within its boundaries. The county itself provides services to the roads and areas outside of the cities with fairly rural ITS needs and equipment. Signals are not integrated and the fire authority is provided through Fire Districts. The Sheriff's Office provides law enforcement and, also provides law enforcement for NCTD under contract to the transit agency.	5 Big Moves #1: Complete Corridors
San Diego County	The County of San Diego encompasses 4,526 square miles with a population of 3.3 million. The County has many cities and innovative government agencies located within its boundaries. The county itself provides services to the roads and areas outside of the cities with fairly rural ITS needs and equipment. Signals are not integrated and the fire authority is provided through Fire Districts. The Sheriff's Office provides law enforcement and, also provides law enforcement for NCTD under contract to the transit agency.	5 Big Moves #2: Transit Leap
San Diego County	The County of San Diego encompasses 4,526 square miles with a population of 3.3 million. The County has many cities and innovative government agencies located within its boundaries. The county itself provides services to the roads and areas outside of the cities with fairly rural ITS needs and equipment. Signals are not integrated and the fire authority is provided through Fire Districts. The Sheriff's Office provides law enforcement and, also provides law enforcement for NCTD under contract to the transit agency.	5 Big Moves #3: Mobility Hubs

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
San Diego County	The County of San Diego encompasses 4,526 square miles with a population of 3.3 million. The County has many cities and innovative government agencies located within its boundaries. The county itself provides services to the roads and areas outside of the cities with fairly rural ITS needs and equipment. Signals are not integrated and the fire authority is provided through Fire Districts. The Sheriff's Office provides law enforcement and, also provides law enforcement for NCTD under contract to the transit agency.	5 Big Moves #4: Flexible Fleets
San Diego County	The County of San Diego encompasses 4,526 square miles with a population of 3.3 million. The County has many cities and innovative government agencies located within its boundaries. The county itself provides services to the roads and areas outside of the cities with fairly rural ITS needs and equipment. Signals are not integrated and the fire authority is provided through Fire Districts. The Sheriff's Office provides law enforcement and, also provides law enforcement for NCTD under contract to the transit agency.	5 Big Moves #5: Next OS
San Diego County	The County of San Diego encompasses 4,526 square miles with a population of 3.3 million. The County has many cities and innovative government agencies located within its boundaries. The county itself provides services to the roads and areas outside of the cities with fairly rural ITS needs and equipment. Signals are not integrated and the fire authority is provided through Fire Districts. The Sheriff's Office provides law enforcement and, also provides law enforcement for NCTD under contract to the transit agency.	Global Stakeholder
San Diego Gas and Electric	San Diego Gas and Electric are a source for providing electric vehicle resources and, they have maps with Lat and Long locations of all residences in the region because they provide services. They may be a future option for a regional mapping effort.	Global Stakeholder

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
<p>SANDAG</p>	<p>San Diego Association of Governments is the regional Council of Governments and, the Metropolitan Planning Organization (MPO). It is made up of the County of San Diego and 18 other City/Municipal government agencies that operate and maintain their own transportation systems. This stakeholder group includes all cities in San Diego County including:</p> <ul style="list-style-type: none"> * Carlsbad * Chula Vista * Coronado * Del Mar * El Cajon * Encinitas * Escondido * Imperial Beach * La Mesa * Lemon Grove * National City * Oceanside * Poway * San Diego * San Ysidro * Poway * San Diego * San Marcos * Santee * Solana Beach * Vista 	<p>5 Big Moves #1: Complete Corridors</p>

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
<p>SANDAG</p>	<p>San Diego Association of Governments is the regional Council of Governments and, the Metropolitan Planning Organization (MPO). It is made up of the County of San Diego and 18 other City/Municipal government agencies that operate and maintain their own transportation systems. This stakeholder group includes all cities in San Diego County including:</p> <ul style="list-style-type: none"> * Carlsbad * Chula Vista * Coronado * Del Mar * El Cajon * Encinitas * Escondido * Imperial Beach * La Mesa * Lemon Grove * National City * Oceanside * Poway * San Diego * San Ysidro * Poway * San Diego * San Marcos * Santee * Solana Beach * Vista 	<p>5 Big Moves #2: Transit Leap</p>

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
<p>SANDAG</p>	<p>San Diego Association of Governments is the regional Council of Governments and, the Metropolitan Planning Organization (MPO). It is made up of the County of San Diego and 18 other City/Municipal government agencies that operate and maintain their own transportation systems. This stakeholder group includes all cities in San Diego County including:</p> <ul style="list-style-type: none"> * Carlsbad * Chula Vista * Coronado * Del Mar * El Cajon * Encinitas * Escondido * Imperial Beach * La Mesa * Lemon Grove * National City * Oceanside * Poway * San Diego * San Ysidro * Poway * San Diego * San Marcos * Santee * Solana Beach * Vista 	<p>5 Big Moves #3: Mobility Hubs</p>

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
<p>SANDAG</p>	<p>San Diego Association of Governments is the regional Council of Governments and, the Metropolitan Planning Organization (MPO). It is made up of the County of San Diego and 18 other City/Municipal government agencies that operate and maintain their own transportation systems. This stakeholder group includes all cities in San Diego County including:</p> <ul style="list-style-type: none"> * Carlsbad * Chula Vista * Coronado * Del Mar * El Cajon * Encinitas * Escondido * Imperial Beach * La Mesa * Lemon Grove * National City * Oceanside * Poway * San Diego * San Ysidro * Poway * San Diego * San Marcos * Santee * Solana Beach * Vista 	<p>5 Big Moves #4: Flexible Fleets</p>

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
<p>SANDAG</p>	<p>San Diego Association of Governments is the regional Council of Governments and, the Metropolitan Planning Organization (MPO). It is made up of the County of San Diego and 18 other City/Municipal government agencies that operate and maintain their own transportation systems. This stakeholder group includes all cities in San Diego County including:</p> <ul style="list-style-type: none"> * Carlsbad * Chula Vista * Coronado * Del Mar * El Cajon * Encinitas * Escondido * Imperial Beach * La Mesa * Lemon Grove * National City * Oceanside * Poway * San Diego * San Ysidro * Poway * San Diego * San Marcos * Santee * Solana Beach * Vista 	<p>5 Big Moves #5: Next OS</p>

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
SANDAG	<p>San Diego Association of Governments is the regional Council of Governments and, the Metropolitan Planning Organization (MPO). It is made up of the County of San Diego and 18 other City/Municipal government agencies that operate and maintain their own transportation systems. This stakeholder group includes all cities in San Diego County including:</p> <ul style="list-style-type: none"> * Carlsbad * Chula Vista * Coronado * Del Mar * El Cajon * Encinitas * Escondido * Imperial Beach * La Mesa * Lemon Grove * National City * Oceanside * Poway * San Diego * San Ysidro * Poway * San Diego * San Marcos * Santee * Solana Beach * Vista 	Global Stakeholder
SANDAG-CHP-Caltrans FSP Partnership	The regional FSP is paid for through SANDAG/Caltrans and managed by CHP. This partnership	5 Big Moves #4: Flexible Fleets
SANDAG-CHP-Caltrans FSP Partnership	The regional FSP is paid for through SANDAG/Caltrans and managed by CHP. This partnership	5 Big Moves #5: Next OS

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
Servicio de Administracion Tributaria (SAT)-Mexico Aduanas	Servicio de Administracion Tributaria (SAT) - Mexico Aduanas is responsible for border services including customs. The work of the Mexico Aduanas includes: -- processing commercial goods, travelers, and conveyances, and identifying and interdicting high-risk individuals and goods -- conducting secondary inspections of food and agricultural products imported by travelers at airports -- conducting intelligence, such as screening visitors and immigrants and working with law enforcement agencies to maintain border integrity and ensure national security -- engaging in enforcement activities, including investigations, detentions, hearings, and removals	5 Big Moves #5: Next OS
Servicio de Administracion Tributaria (SAT)-Mexico Aduanas	Servicio de Administracion Tributaria (SAT) - Mexico Aduanas is responsible for border services including customs. The work of the Mexico Aduanas includes: -- processing commercial goods, travelers, and conveyances, and identifying and interdicting high-risk individuals and goods -- conducting secondary inspections of food and agricultural products imported by travelers at airports -- conducting intelligence, such as screening visitors and immigrants and working with law enforcement agencies to maintain border integrity and ensure national security -- engaging in enforcement activities, including investigations, detentions, hearings, and removals	Global Stakeholder
Shipment Logistics Providers	Third-party logistics providers support a wide range of shipping functions on behalf of their customers, such as freight forwarding, logistics and transportation management, warehousing, transportation network design and operation and facility management.	5 Big Moves #4: Flexible Fleets
Shipment Logistics Providers	Third-party logistics providers support a wide range of shipping functions on behalf of their customers, such as freight forwarding, logistics and transportation management, warehousing, transportation network design and operation and facility management.	5 Big Moves #5: Next OS
Shipment Logistics Providers	Third-party logistics providers support a wide range of shipping functions on behalf of their customers, such as freight forwarding, logistics and transportation management, warehousing, transportation network design and operation and facility management.	Global Stakeholder

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
Southern California Regional Rail Authority (SCRAA)	SCRAA is a joint powers of authority made up of an 11 member board representing the transportation commissions of Los Angeles, Orange, Riverside, San Bernardino and Ventura counties. Metrolink trains operate on seven routes across a six-county, 538 route-mile network, which includes a portion of northern San Diego County.	5 Big Moves #2: Transit Leap
Southern California Regional Rail Authority (SCRAA)	SCRAA is a joint powers of authority made up of an 11 member board representing the transportation commissions of Los Angeles, Orange, Riverside, San Bernardino and Ventura counties. Metrolink trains operate on seven routes across a six-county, 538 route-mile network, which includes a portion of northern San Diego County.	5 Big Moves #3: Mobility Hubs
Southern California Regional Rail Authority (SCRAA)	SCRAA is a joint powers of authority made up of an 11 member board representing the transportation commissions of Los Angeles, Orange, Riverside, San Bernardino and Ventura counties. Metrolink trains operate on seven routes across a six-county, 538 route-mile network, which includes a portion of northern San Diego County.	Global Stakeholder
Telecom System Operators	Verizon, AT&T (including FirstNet), T-Mobile	5 Big Moves #5: Next OS
Time and Data Sources	This stakeholder represents any service that provides time, location tracking, and real time services such as Google Map. Note that the Vehicle GPS and Time Data is often included in the Vehicle OBE and won't always require this element.	5 Big Moves #5: Next OS
Time and Data Sources	This stakeholder represents any service that provides time, location tracking, and real time services such as Google Map. Note that the Vehicle GPS and Time Data is often included in the Vehicle OBE and won't always require this element.	Global Stakeholder
Toll Authorities	Government agencies (could include public-private arrangements) responsible for the administration, operation and upkeep of bridges, tunnels, turnpikes, and other fee-based roadways. Includes setting tolls, managing their collection using manual and automatic methods, and managing the roadway. Also operate a clearinghouse of information to share tolling data between Toll Authorities.	5 Big Moves #1: Complete Corridors
Toll Authorities	Government agencies (could include public-private arrangements) responsible for the administration, operation and upkeep of bridges, tunnels, turnpikes, and other fee-based roadways. Includes setting tolls, managing their collection using manual and automatic methods, and managing the roadway. Also operate a clearinghouse of information to share tolling data between Toll Authorities.	5 Big Moves #5: Next OS

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
Toll Authorities	Government agencies (could include public-private arrangements) responsible for the administration, operation and upkeep of bridges, tunnels, turnpikes, and other fee-based roadways. Includes setting tolls, managing their collection using manual and automatic methods, and managing the roadway. Also operate a clearinghouse of information to share tolling data between Toll Authorities.	Global Stakeholder
Transportation Network Cooperative (TNC) Organizations	These stakeholders all provide bike share rentals, electronic scooters, on demand rentals, and rides, etc. for the region. Vehicles have everything necessary for commuters to rent them on-site and return them to another site. Also includes private mobility service providers (MSP). This stakeholder includes, but is not limited to, Uber, Lyft, Via, etc.	5 Big Moves #3: Mobility Hubs
Transportation Network Cooperative (TNC) Organizations	These stakeholders all provide bike share rentals, electronic scooters, on demand rentals, and rides, etc. for the region. Vehicles have everything necessary for commuters to rent them on-site and return them to another site. Also includes private mobility service providers (MSP). This stakeholder includes, but is not limited to, Uber, Lyft, Via, etc.	5 Big Moves #4: Flexible Fleets
Transportation Network Cooperative (TNC) Organizations	These stakeholders all provide bike share rentals, electronic scooters, on demand rentals, and rides, etc. for the region. Vehicles have everything necessary for commuters to rent them on-site and return them to another site. Also includes private mobility service providers (MSP). This stakeholder includes, but is not limited to, Uber, Lyft, Via, etc.	5 Big Moves #5: Next OS
Transportation Network Cooperative (TNC) Organizations	These stakeholders all provide bike share rentals, electronic scooters, on demand rentals, and rides, etc. for the region. Vehicles have everything necessary for commuters to rent them on-site and return them to another site. Also includes private mobility service providers (MSP). This stakeholder includes, but is not limited to, Uber, Lyft, Via, etc.	Global Stakeholder
Travelers	Motorists using private vehicles for traveling throughout the region and across the border between Mexico and the US.	5 Big Moves #1: Complete Corridors
Travelers	Motorists using private vehicles for traveling throughout the region and across the border between Mexico and the US.	5 Big Moves #2: Transit Leap
Travelers	Motorists using private vehicles for traveling throughout the region and across the border between Mexico and the US.	5 Big Moves #3: Mobility Hubs

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
Travelers	Motorists using private vehicles for traveling throughout the region and across the border between Mexico and the US.	5 Big Moves #4: Flexible Fleets
Travelers	Motorists using private vehicles for traveling throughout the region and across the border between Mexico and the US.	5 Big Moves #5: Next OS
Travelers	Motorists using private vehicles for traveling throughout the region and across the border between Mexico and the US.	Global Stakeholder
Tribal Governments	<p>Agencies providing transportation services in tribal lands or territories in the US. These services primarily focus around emergency response but, may also include elements of traffic management, surveillance, signal control/coordination, incident management, and traveler information dissemination.</p> <p>Tribal Nations in the San Diego California region include Cahuilla, Cupeno, Luiseno, and Kumeyaay.</p>	5 Big Moves #1: Complete Corridors
Tribal Governments	<p>Agencies providing transportation services in tribal lands or territories in the US. These services primarily focus around emergency response but, may also include elements of traffic management, surveillance, signal control/coordination, incident management, and traveler information dissemination.</p> <p>Tribal Nations in the San Diego California region include Cahuilla, Cupeno, Luiseno, and Kumeyaay.</p>	5 Big Moves #5: Next OS
Tribal Governments	<p>Agencies providing transportation services in tribal lands or territories in the US. These services primarily focus around emergency response but, may also include elements of traffic management, surveillance, signal control/coordination, incident management, and traveler information dissemination.</p> <p>Tribal Nations in the San Diego California region include Cahuilla, Cupeno, Luiseno, and Kumeyaay.</p>	Global Stakeholder
US Border Patrol	The U.S. Border Patrol, a component of the U.S. CBP) aims to apprehend persons who illegally enter the United States between official ports of entry. The Patrol operates permanent and tactical (temporary) interior traffic checkpoints on major and secondary U.S. roads	5 Big Moves #5: Next OS

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
US Border Patrol	The U.S. Border Patrol, a component of the U.S. CBP) aims to apprehend persons who illegally enter the United States between official ports of entry. The Patrol operates permanent and tactical (temporary) interior traffic checkpoints on major and secondary U.S. roads	Global Stakeholder
US Bureau of Transportation Statistics	Agency of US government charged with data gathering, analysis and distribution of transportation data.	5 Big Moves #5: Next OS
US Bureau of Transportation Statistics	Agency of US government charged with data gathering, analysis and distribution of transportation data.	Global Stakeholder
US Customs and Border Protection	US Customs and Border Protection (CBP) is a part of the Department of Homeland Security (DHS) and is responsible for managing the nation's borders and ports-of-entry, preventing the passage of individuals or goods from entering the United States unlawfully.	5 Big Moves #5: Next OS
US Customs and Border Protection	US Customs and Border Protection (CBP) is a part of the Department of Homeland Security (DHS) and is responsible for managing the nation's borders and ports-of-entry, preventing the passage of individuals or goods from entering the United States unlawfully.	Global Stakeholder
US Emergency Management Agencies (OME)	County or US State agencies that coordinate overall response to large-scale incidents or major disasters. Set up emergency operations centers to respond to and recover from natural, manmade, and war-caused emergencies, and for assisting local governments in their emergency preparedness, response and recovery efforts.	5 Big Moves #5: Next OS
US Emergency Management Agencies (OME)	County or US State agencies that coordinate overall response to large-scale incidents or major disasters. Set up emergency operations centers to respond to and recover from natural, manmade, and war-caused emergencies, and for assisting local governments in their emergency preparedness, response and recovery efforts.	Global Stakeholder
US Federal Lands	US government agency - operating as a component of the Federal Highway Administration (FHWA). Federal Lands Highways plans, deploys, operates, and maintains transportation systems on federally owned lands, some of which may be near border areas.	5 Big Moves #5: Next OS
US Federal Lands	US government agency - operating as a component of the Federal Highway Administration (FHWA). Federal Lands Highways plans, deploys, operates, and maintains transportation systems on federally owned lands, some of which may be near border areas.	Global Stakeholder

Regional ITS Architecture Stakeholders Mapped to 5 Big Moves

Stakeholder Name	Stakeholder Description	Big Move
US General Services Administration	The US General Services Administration (GSA) secures the buildings, products, services, technology, and other workplace essentials federal agencies need. This includes planning and constructing, and perhaps operating, infrastructure at border crossings.	5 Big Moves #5: Next OS
US General Services Administration	The US General Services Administration (GSA) secures the buildings, products, services, technology, and other workplace essentials federal agencies need. This includes planning and constructing, and perhaps operating, infrastructure at border crossings.	Global Stakeholder
US Public Health Agencies	US government agencies responsible for Public Health Systems. Includes Health and Human Services and Department of Agriculture.	5 Big Moves #5: Next OS
US Public Health Agencies	US government agencies responsible for Public Health Systems. Includes Health and Human Services and Department of Agriculture.	Global Stakeholder
Wide Area Information Broadcasting systems	This stakeholder represents Sirius FM and other wide area information broadcasting systems that send information to the public through cellular data or through vehicles.	5 Big Moves #5: Next OS

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Appendix B – Service Packages Mapped to 5 Big Moves

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Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
Commercial Vehicle Operations (CVO)				
CVO01	Carrier Operations and Fleet Management	This service package manages a fleet of commercial vehicles. The Fleet and Freight Management Center monitors the vehicle fleet and can provide routes using either an in-house capability or an external provider. Routes generated by either approach are constrained by hazardous materials and other restrictions (such as height or weight). A route is electronically sent to the Commercial Vehicle with any appropriate dispatch instructions. The location of the Commercial Vehicle can be monitored by the Fleet and Freight Management Center and routing changes can be made depending on current road network conditions. This service package also supports maintenance of fleet vehicles with on-board monitoring equipment. Records of vehicle mileage, preventative maintenance and repairs are maintained.	5 Big Moves #4: Flexible Fleets	Planned
CVO02	San Diego Port Freight Administration	This service package tracks the movement of cargo and monitors the cargo condition. Interconnections are provided to intermodal freight shippers and intermodal freight depots for tracking of cargo from origin to destination. In addition to exceptions that are reported, on-going indications of the state of the various freight equipment are reported to the Fleet and Freight Management Center.	5 Big Moves #4: Flexible Fleets	Planned
CVO02	San Diego Port Freight Administration	This service package tracks the movement of cargo and monitors the cargo condition. Interconnections are provided to intermodal freight shippers and intermodal freight depots for tracking of cargo from origin to destination. In addition to exceptions that are reported, on-going indications of the state of the various freight equipment are reported to the Fleet and Freight Management Center.	5 Big Moves #5: Next OS	Planned
CVO03	CVO03-Electronic Clearance - US State - Centers	This service package focused on the State Center-based interfaces involved in automated clearance at roadside check facilities. The roadside check facility communicates with the Commercial Vehicle Administration subsystem to retrieve infrastructure snapshots of critical carrier, vehicle, and driver data to be used to sort passing vehicles. This allows a good driver/vehicle/carrier to pass roadside facilities at highway	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		speeds using transponders and dedicated short range communications to the roadside. Results of roadside clearance activities will be passed on to the Commercial Vehicle Administration. The roadside check facility may be equipped with Automated Vehicle Identification (AVI), weighing sensors, transponder read/write devices and computer workstations.		
CVO03	CVO03-Electronic Clearance - US State - Roadside	This service package focused on the State Field Elements involved in automated clearance at roadside check facilities. The roadside check facility communicates with the Commercial Vehicle Administration subsystem to retrieve infrastructure snapshots of critical carrier, vehicle, and driver data to be used to sort passing vehicles. This allows a good driver/vehicle/carrier to pass roadside facilities at highway speeds using transponders and dedicated short range communications to the roadside. Results of roadside clearance activities will be passed on to the Commercial Vehicle Administration. The roadside check facility may be equipped with Automated Vehicle Identification (AVI), weighing sensors, transponder read/write devices and computer workstations.	5 Big Moves #1: Complete Corridors	Planned
CVO03	CVO06-Electronic Clearance - Inland Check	This service package provides Inland Check Facilities with high speed weigh-in-motion with or without Automated Vehicle Identification (AVI) capabilities. This service package provides the roadside equipment that could be used as a stand-alone system or to augment the Electronic Clearance (CVO03) service package.	5 Big Moves #1: Complete Corridors	Planned
CVO03	CVO03-Electronic Clearance - US State - Centers	This service package focused on the State Center-based interfaces involved in automated clearance at roadside check facilities. The roadside check facility communicates with the Commercial Vehicle Administration subsystem to retrieve infrastructure snapshots of critical carrier, vehicle, and driver data to be used to sort passing vehicles. This allows a good driver/vehicle/carrier to pass roadside facilities at highway speeds using transponders and dedicated short range communications to the roadside. Results of roadside clearance activities will be passed on to the Commercial Vehicle Administration. The roadside check facility may be equipped with Automated Vehicle Identification (AVI), weighing sensors, transponder read/write devices and computer workstations.	5 Big Moves #4: Flexible Fleets	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
CVO03	CVO03-Electronic Clearance - US State - Roadside	<p>This service package focused on the State Field Elements involved in automated clearance at roadside check facilities. The roadside check facility communicates with the Commercial Vehicle Administration subsystem to retrieve infrastructure snapshots of critical carrier, vehicle, and driver data to be used to sort passing vehicles. This allows a good driver/vehicle/carrier to pass roadside facilities at highway speeds using transponders and dedicated short range communications to the roadside. Results of roadside clearance activities will be passed on to the Commercial Vehicle Administration. The roadside check facility may be equipped with Automated Vehicle Identification (AVI), weighing sensors, transponder read/write devices and computer workstations.</p>	5 Big Moves #4: Flexible Fleets	Planned
CVO03	CVO06-Electronic Clearance - Inland Check	<p>This service package provides Inland Check Facilities with high speed weigh-in-motion with or without Automated Vehicle Identification (AVI) capabilities. This service package provides the roadside equipment that could be used as a stand-alone system or to augment the Electronic Clearance (CVO03) service package.</p>	5 Big Moves #4: Flexible Fleets	Planned
CVO04	CVO04-CV Administrative Processes - State Govt to Carrier	<p>This service package instance represents the Government to Carrier portion of the Administrative Processes for a State Commercial Vehicle Operation. It provides for electronic application, processing, fee collection, issuance, and distribution of CVO credential and tax filing. Through this process, carriers, drivers, and vehicles may be enrolled in the electronic clearance program provided by a separate service package which allows commercial vehicles to be screened at mainline speeds at roadside check facilities. Through this enrollment process, current profile databases are maintained in the Commercial Vehicle Administration subsystem and snapshots of this database are made available to the roadside check facilities at the roadside to support the electronic clearance process.</p> <p>Commercial Vehicle Administration subsystems can share credential information with other Commercial Vehicle Administration subsystems, so that it is possible for any Commercial Vehicle Administration</p>	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		<p>subsystem to have access to all credentials, credential fees, credentials status and safety status information. In addition, it is possible for one Commercial Vehicle Administration subsystem to collect HAZMAT route restrictions information from other Commercial Vehicle Administration subsystems and then act as a clearinghouse for this route restrictions information for Information Service Providers, Map Update Providers, and Fleet and Freight Management subsystems.</p>		
CVO04	CVO04-CV Administrative Processes - State Govt to Govt	<p>This service package instance represents the Government to Government portion of the Administrative Processes for a State Commercial Vehicle Operation. It provides for electronic application, processing, fee collection, issuance, and distribution of CVO credential and tax filing. Through this process, carriers, drivers, and vehicles may be enrolled in the electronic clearance program provided by a separate service package which allows commercial vehicles to be screened at mainline speeds at roadside check facilities. Through this enrollment process, current profile databases are maintained in the Commercial Vehicle Administration subsystem and snapshots of this database are made available to the roadside check facilities at the roadside to support the electronic clearance process.</p> <p>Commercial Vehicle Administration subsystems can share credential information with other Commercial Vehicle Administration subsystems, so that it is possible for any Commercial Vehicle Administration</p>	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		<p>subsystem to have access to all credentials, credential fees, credentials status and safety status information. In addition, it is possible for one Commercial Vehicle Administration subsystem to collect HAZMAT route restrictions information from other Commercial Vehicle Administration subsystems and then act as a clearinghouse for this route restrictions information for Information Service Providers, Map Update Providers, and Fleet and Freight Management subsystems.</p>		
CVO05	Regional Commercial Vehicle Parking	<p>Caltrans is currently undertaking a project to provide safe truck parking in the region. This service package provides parking information to commercial vehicle operators both pre-trip and en route. The parking information will be based on information collected from each truck parking area using individual sensors in each space, or in/out sensors for the area. The raw data is processed by state DOT or third party providers and supplied to fleet managers, to mobile devices used by commercial vehicle operators, to DMS on the roadway or directly to in vehicle systems as commercial vehicles approach roadway exits with key facilities such as parking. This service package also provides the ability for the commercial vehicle driver, or fleet manager to request a parking reservation.</p>	5 Big Moves #4: Flexible Fleets	Planned
CVO06	Freight Signal Priority	<p>The Freight Signal Priority service package (FSP) provides traffic signal priority for freight and commercial vehicles traveling in a signalized network. The goal of the freight signal priority service package is to</p>	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		reduce stops and delays to increase travel time reliability for freight traffic, and to enhance safety at intersections.		
CVO06	Freight Signal Priority	The Freight Signal Priority service package (FSP) provides traffic signal priority for freight and commercial vehicles traveling in a signalized network. The goal of the freight signal priority service package is to reduce stops and delays to increase travel time reliability for freight traffic, and to enhance safety at intersections.	5 Big Moves #4: Flexible Fleets	Planned
CVO07	CVO07-Roadside CVO Safety - US Centers	This service package instance focuses on US-based Centers and provides for automated roadside safety monitoring and reporting. It automates commercial vehicle safety inspections at the roadside check facilities. The capabilities for performing the safety inspection are shared between this service package and the On-board CVO and Freight Safety & Security (CVO08) Service Package which enables a variety of implementation options. The basic option, directly supported by this service package, facilitates safety inspection of vehicles that have been pulled in, perhaps as a result of the automated screening process provided by the Electronic Clearance (CVO03) Service Package. In this scenario, only basic identification data and status information is read from the electronic tag on the commercial vehicle. The identification data from the tag enables access to additional safety data maintained in the infrastructure which is used to support the safety inspection, and may also inform the pull-in decision if system timing requirements can be met. More advanced implementations, supported by the On-board CVO and Freight Safety & Security (CVO08) service package, utilize additional on-board vehicle safety monitoring and reporting capabilities in the commercial vehicle to augment the roadside safety check.	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
CVO07	CVO07-Roadside CVO Safety - US Centers	<p>This service package instance focuses on US-based Centers and provides for automated roadside safety monitoring and reporting. It automates commercial vehicle safety inspections at the roadside check facilities. The capabilities for performing the safety inspection are shared between this service package and the On-board CVO and Freight Safety & Security (CVO08) Service Package which enables a variety of implementation options. The basic option, directly supported by this service package, facilitates safety inspection of vehicles that have been pulled in, perhaps as a result of the automated screening process provided by the Electronic Clearance (CVO03) Service Package. In this scenario, only basic identification data and status information is read from the electronic tag on the commercial vehicle. The identification data from the tag enables access to additional safety data maintained in the infrastructure which is used to support the safety inspection, and may also inform the pull-in decision if system timing requirements can be met. More advanced implementations, supported by the On-board CVO and Freight Safety & Security (CVO08) service package, utilize additional on-board vehicle safety monitoring and reporting capabilities in the commercial vehicle to augment the roadside safety check.</p>	5 Big Moves #4: Flexible Fleets	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
CVO08	Smart Roadside and Virtual WIM	<p>This service package includes the delivery of capabilities related to wireless roadside inspections and electronic screening/virtual weigh stations. Wireless roadside inspection is defined by a safety screening capability that employs communications technologies to obtain information from a commercial vehicle that will allow safety screening of the vehicle and its driver. This capability provides for the interrogation at mainline speeds of a commercial vehicle when it has entered a control segment or geofenced area. Vehicle identification and driver information are provided to the roadside unit. The information communicated can be used to verify compliance with safety requirements, allowing a decision to be made regarding whether the vehicle should pull in to a roadside check station. A more advanced version of this service package would download safety information measured on the vehicle including driver related information such as the driver log allowing real time evaluation that the vehicle and driver are meeting safety requirements. The electronic screening/virtual weigh stations capability employs communications technologies to obtain information from a commercial vehicle that will allow verification of permits or credentials for the vehicle. The information communicated is used to verify compliance with safety requirements, allowing a decision to be made regarding whether the vehicle should pull in to a roadside check station. This service package can also be used to verify that the commercial vehicle meets vehicle weight (via weigh in motion capability) or dimension requirements.</p>	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
CVO08	Smart Roadside and Virtual WIM	<p>This service package includes the delivery of capabilities related to wireless roadside inspections and electronic screening/virtual weigh stations. Wireless roadside inspection is defined by a safety screening capability that employs communications technologies to obtain information from a commercial vehicle that will allow safety screening of the vehicle and its driver. This capability provides for the interrogation at mainline speeds of a commercial vehicle when it has entered a control segment or geofenced area. Vehicle identification and driver information are provided to the roadside unit. The information communicated can be used to verify compliance with safety requirements, allowing a decision to be made regarding whether the vehicle should pull in to a roadside check station. A more advanced version of this service package would download safety information measured on the vehicle including driver related information such as the driver log allowing real time evaluation that the vehicle and driver are meeting safety requirements. The electronic screening/virtual weigh stations capability employs communications technologies to obtain information from a commercial vehicle that will allow verification of permits or credentials for the vehicle. The information communicated is used to verify compliance with safety requirements, allowing a decision to be made regarding whether the vehicle should pull in to a roadside check station. This service package can also be used to verify that the commercial vehicle meets vehicle weight (via weigh in motion capability) or dimension requirements.</p>	5 Big Moves #4: Flexible Fleets	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
CVO08	Smart Roadside and Virtual WIM	<p>This service package includes the delivery of capabilities related to wireless roadside inspections and electronic screening/virtual weigh stations. Wireless roadside inspection is defined by a safety screening capability that employs communications technologies to obtain information from a commercial vehicle that will allow safety screening of the vehicle and its driver. This capability provides for the interrogation at mainline speeds of a commercial vehicle when it has entered a control segment or geofenced area. Vehicle identification and driver information are provided to the roadside unit. The information communicated can be used to verify compliance with safety requirements, allowing a decision to be made regarding whether the vehicle should pull in to a roadside check station. A more advanced version of this service package would download safety information measured on the vehicle including driver related information such as the driver log allowing real time evaluation that the vehicle and driver are meeting safety requirements. The electronic screening/virtual weigh stations capability employs communications technologies to obtain information from a commercial vehicle that will allow verification of permits or credentials for the vehicle. The information communicated is used to verify compliance with safety requirements, allowing a decision to be made regarding whether the vehicle should pull in to a roadside check station. This service package can also be used to verify that the commercial vehicle meets vehicle weight (via weigh in motion capability) or dimension requirements.</p>	5 Big Moves #5: Next OS	Planned
CVO09	SD Freight-Specific Dynamic Travel Planning	<p>This service package provides both pretrip and en route travel planning, routing, and commercial vehicle related traveler information, which includes information such as truck parking locations and current status. The information will be based on data collected from the commercial fleet as well as general traffic data collection capabilities. The information, both real time and static can be provided directly to fleet managers, to mobile devices used by commercial vehicle operators, or directly to in vehicle systems as commercial vehicles approach roadway</p>	5 Big Moves #4: Flexible Fleets	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		<p>exits with key facilities such as parking. The service package can also provide oversize/ overweight permit information to commercial managers.</p>		
CVO10	Road Weather Information for Freight Carriers	<p>The service package is a special case of the Road Weather Advisories and Warnings for Motorists service package that focuses on Freight Carrier users. It provides the capability to collect road weather data from connected vehicles and using that data to develop short term warnings or advisories that can be provided to individual commercial vehicles or to commercial vehicle dispatchers. The information may come from either vehicles operated by the general public and commercial entities (including passenger cars and trucks) or specialty vehicles and public fleet vehicles (such as snowplows, maintenance trucks, and other agency pool vehicles). The raw data will be processed in a controlling center to generate road segment-based data outputs. The processing will also include a road weather commercial vehicle alerts algorithm to generate short time horizon alerts that will be pushed to user systems and available to commercial vehicle dispatchers. In addition the information collected can be combined with observations and forecasts from other sources to provide medium (next 2-12 hours) or long term (more than 12 hours) advisories through a variety of interfaces including web based and connected vehicle based interfaces.</p>	5 Big Moves #4: Flexible Fleets	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
CVO10	Road Weather Information for Freight Carriers	<p>The service package is a special case of the Road Weather Advisories and Warnings for Motorists service package that focuses on Freight Carrier users. It provides the capability to collect road weather data from connected vehicles and using that data to develop short term warnings or advisories that can be provided to individual commercial vehicles or to commercial vehicle dispatchers. The information may come from either vehicles operated by the general public and commercial entities (including passenger cars and trucks) or specialty vehicles and public fleet vehicles (such as snowplows, maintenance trucks, and other agency pool vehicles). The raw data will be processed in a controlling center to generate road segment-based data outputs. The processing will also include a road weather commercial vehicle alerts algorithm to generate short time horizon alerts that will be pushed to user systems and available to commercial vehicle dispatchers. In addition the information collected can be combined with observations and forecasts from other sources to provide medium (next 2-12 hours) or long term (more than 12 hours) advisories through a variety of interfaces including web based and connected vehicle based interfaces.</p>	5 Big Moves #5: Next OS	Planned
CVO11	Freight Drayage Optimization	<p>This service package covers the information exchanges between all intermodal parties to provide current drayage truck load matching and container availability and appointment scheduling at railroad and steamship line terminals. It includes a link from drivers and freight management systems dispatchers to an intermodal terminal reservation system and integrates an appointment function with Terminal Queue Status and Load Matching. The service package provides information to the dispatcher and driver concerning the availability status for pickup of a container at an intermodal terminal. It also provides drivers and dispatchers with both intermodal terminal queue length, and estimated time from the back of the queue to the gate.</p>	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
CVO12	Regional HAZMAT Management	This service package for US Hazmat teams integrates incident management capabilities with commercial vehicle tracking to assure effective treatment of HAZMAT material 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 by the Fleet and Freight Management Subsystem. The latter information can be provided prior to the beginning of the trip or gathered following the incident depending on the selected policy and implementation.	5 Big Moves #4: Flexible Fleets	Planned
CVO13	Roadside HAZMAT - San Diego Field to Center	This service package for US Field systems provides the capability to detect and classify security sensitive HAZMAT on commercial vehicles using roadside sensing and imaging technology. Credentials information can be accessed to verify if the commercial driver, vehicle and carrier are permitted to transport the identified HAZMAT. If the credentials analysis and sensed HAZMAT information do not agree, the vehicle can be signaled to pull in, and if required, an alarm can be sent to Emergency Management to request they monitor, traffic stop or disable the vehicle.	5 Big Moves #1: Complete Corridors	Planned
CVO13	Roadside HAZMAT - San Diego Field to Center	This service package for US Field systems provides the capability to detect and classify security sensitive HAZMAT on commercial vehicles using roadside sensing and imaging technology. Credentials information can be accessed to verify if the commercial driver, vehicle and carrier are permitted to transport the identified HAZMAT. If the credentials analysis and sensed HAZMAT information do not agree, the vehicle can be signaled to pull in, and if required, an alarm can be sent to Emergency Management to request they monitor, traffic stop or disable the vehicle.	5 Big Moves #4: Flexible Fleets	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
CVO13	Roadside HAZMAT - San Diego Field to Center	This service package for US Field systems provides the capability to detect and classify security sensitive HAZMAT on commercial vehicles using roadside sensing and imaging technology. Credentials information can be accessed to verify if the commercial driver, vehicle and carrier are permitted to transport the identified HAZMAT. If the credentials analysis and sensed HAZMAT information do not agree, the vehicle can be signaled to pull in, and if required, an alarm can be sent to Emergency Management to request they monitor, traffic stop or disable the vehicle.	5 Big Moves #5: Next OS	Planned
CVO14	CV Driver Security Authentication	This service package provides the ability for Fleet and Freight Management to detect when an unauthorized commercial vehicle driver attempts to drive their vehicle based on stored driver identity information. If an unauthorized driver has been detected, Fleet and Freight Management can activate commands to safely disable the commercial vehicle. Alarms can also be sent to emergency management to inform them of a potential commercial vehicle hijacking or theft and potential hazardous situation. In addition, Emergency Management can request Fleet and Freight Management to disable a specific vehicle in their fleet.	5 Big Moves #4: Flexible Fleets	Planned
CVO14	CV Driver Security Authentication	This service package provides the ability for Fleet and Freight Management to detect when an unauthorized commercial vehicle driver attempts to drive their vehicle based on stored driver identity information. If an unauthorized driver has been detected, Fleet and Freight Management can activate commands to safely disable the commercial vehicle. Alarms can also be sent to emergency management to inform them of a potential commercial vehicle hijacking or theft and potential hazardous situation. In addition, Emergency Management can request Fleet and Freight Management to disable a specific vehicle in their fleet.	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
CVO15	Fleet and Freight Security	<p>This service package provides enhanced security for commercial vehicle fleets and freight. Internal and external alerts and advisories are monitored to identify potential threats to the safety and security of the fleet and freight. It provides for the planning and tracking of three aspects of commercial vehicle shipments. For each shipment, the commercial vehicle, the freight equipment, and the commercial vehicle driver are monitored for consistency with the planned assignment. Any unauthorized changes are determined by the Fleet and Freight Management Center and then the appropriate people and Centers are notified. As the freight is shipped and tracked, security and public safety agencies may also interrogate the freight container to determine if it has been breached and to identify container contents. Once a route has been assigned, changes must be coordinated. Commercial Vehicle Drivers are alerted to any changes in route from the planned route and given an opportunity to justify a rerouting. Any unauthorized or unexpected route changes by the Commercial Vehicle will register a route deviation alert with the Fleet and Freight Management Center, which can notify local public safety agencies of the route deviation when appropriate (e.g., if there is safety sensitive HAZMAT being carried). Freight managers may decide to take further action on the alerts and/or provide responses that explain that the alerts are false alarms. If no explanation is received, the Fleet and Freight Management Center may notify the Emergency Management Center.</p>	5 Big Moves #4: Flexible Fleets	Planned
CVO21	International Border Electronic Clearance	<p>This service package provides for automated clearance at international border crossings. It augments the Electronic Clearance service package by allowing interface with border administration and border inspection related functions. This service package processes the entry documentation for vehicle, cargo, and driver, checks compliance with import/export and immigration regulations, handles duty fee processing, and reports the results of the crossing event to manage release of commercial vehicle, cargo, and driver across an international border. It interfaces with administrative systems used by customs and border</p>	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		protection, immigration, carriers, and service providers (e.g., brokers) and inspection systems at international border crossings to generate, process, and store entry documentation.		
Data Management (DM)				
DM01	U.S. - Mexican ITS Data Warehouse	This service package includes collection of archived data by US or Mexican state or regional organizations from multiple agencies and data sources spanning modal and jurisdictional boundaries. It performs the additional transformations and provides the additional meta data management features that are necessary so that all this data can be managed in a single repository with consistent formats. The potential for large volumes of varied data suggests additional on-line analysis and data mining features that are also included in this service package in addition to the basic query and reporting user access features.	5 Big Moves #5: Next OS	Planned
DM01	U.S. - ITS Planning Data Warehouse	This service package for US Data Warehouses provides for the exchange of ITS Planning archive data between different archives.	5 Big Moves #5: Next OS	Planned
DM01	Regional ITS Data Warehouse	This service package provides access to transportation data to support transportation planning, condition and performance monitoring, safety analysis, and research. This Service Package focuses on regional repositories that house data collected and owned by all agencies, districts, private sector providers, or research institution to broad repositories that contain multimodal, multidimensional data from varied data sources covering a broader region. Both central repositories and physical distributed ITS data repositories are supported. Requests for data that are satisfied by access to a single repository in the ITS Data Warehouse service package may be parsed by the local repository and dynamically translated to requests to other repositories that relay the data necessary to satisfy the request. Some of this service package is existing and some of it is planned at the time of the Architecture development.	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
DM01	TNC ITS Data Warehouse	<p>TNC ITS Data Warehouse service package provides access to transportation data to support transportation planning, condition and performance monitoring, safety analysis, and research. Configurations range from focused repositories that house data collected and owned by a single agency, district, private sector provider, or research institution to broad repositories that contain multimodal, multidimensional data from varied data sources covering a broader region. Both central repositories and physical distributed ITS data repositories are supported. Requests for data that are satisfied by access to a single repository in the ITS Data Warehouse service package may be parsed by the local repository and dynamically translated to requests to other repositories that relay the data necessary to satisfy the request. The repositories could include a data registry capability that allows registration of data identifiers or data definitions for interoperable use throughout a region.</p>	5 Big Moves #5: Next OS	Planned
DM01	Caltrans D-11 Data Warehouse	<p>Caltrans District 11 transportation data warehouse to support transportation planning, condition and performance monitoring, safety analysis, and research. This data is a focused repository, housing data collected and owned by Caltrans District 11. The database contains multimodal, multidimensional data from varied data sources covering the District's area.</p> <p>Requests for data for the regional ICMS is sent from this warehouse and translated to requests in order to satisfy the requests.</p>	5 Big Moves #5: Next OS	Existing
DM01	MTS Data Archives	<p>MTS Transit Data Archive provides access to transit data to support planning, condition and performance monitoring, safety analysis, and research. This archive houses data collected and owned by MTS.</p> <p>Central repositories and physical distributed ITS data repositories are supported in this service package. Data is collected and archived for MTS, but it is also sent to the regional ICMS repository to meet regional ITS Data Requests.</p>	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
DM01	NCTD Data Archives	<p>NCTD Transit Data Archive provides access to transit data to support planning, condition and performance monitoring, safety analysis, and research. This archive houses data collected and owned by NCTD.</p> <p>Central repositories and physical distributed ITS data repositories are supported in this service package. Data is collected and archived for NCTD, but it is also sent to the regional ICMS repository to meet regional ITS Data Requests.</p>	5 Big Moves #5: Next OS	Existing
DM01	Cities ITS Data Warehouse	<p>Cities ITS Data Warehouse service package provides access to transportation data to support transportation planning, condition and performance monitoring, safety analysis, and research for cities located in San Diego.</p> <p>Configurations range from focused repositories that house data collected and owned by a single agency, district, private sector provider, or research institution to broad repositories that contain multimodal, multidimensional data from varied data sources covering a broader region. Both central repositories and physical distributed ITS data repositories are supported. Requests for data that are satisfied by access to a single repository in the ITS Data Warehouse service package may be parsed by the local repository and dynamically translated to requests to other repositories that relay the data necessary to satisfy the request.</p>	5 Big Moves #5: Next OS	Existing
DM01	City of San Diego Data Archives	<p>City of San Diego Data Archives service package provides access to transportation data to support transportation planning, condition and performance monitoring, safety analysis, and research. Configurations range from focused repositories that house data collected and owned by a single agency, district, private sector provider, or research institution to broad repositories that contain multimodal, multidimensional data from varied data sources covering a broader region. Both central repositories and physical distributed ITS data repositories are supported. Requests for data that are satisfied by access to a single repository in the ITS Data Warehouse service package may be parsed by the local</p>	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		repository and dynamically translated to requests to other repositories that relay the data necessary to satisfy the request.		
DM01	SANDAG ITS Data Warehouse	SANDAG Data Warehouse service package provides access to transportation data to support transportation planning, condition and performance monitoring, safety analysis, and research. Configurations range from focused repositories that house data collected and owned by a single agency, district, private sector provider, or research institution to broad repositories that contain multimodal, multidimensional data from varied data sources covering a broader region. Both central repositories and physical distributed ITS data repositories are supported. Requests for data that are satisfied by access to a single repository in the ITS Data Warehouse service package may be parsed by the local repository and dynamically translated to requests to other repositories that relay the data necessary to satisfy the request.	5 Big Moves #5: Next OS	Existing
DM01	San Diego County ITS Data Warehouse	San Diego County ITS Data Warehouse service package provides access to transportation data to support transportation planning, condition and performance monitoring, safety analysis, and research. Configurations range from focused repositories that house data collected and owned by a single agency, district, private sector provider, or research institution to broad repositories that contain multimodal, multidimensional data from varied data sources covering a broader region. Both central repositories and physical distributed ITS data repositories are supported. Requests for data that are satisfied by access to a single repository in the ITS Data Warehouse service package may be parsed by the local repository and dynamically translated to requests to other repositories that relay the data necessary to satisfy the request.	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
DM01	Tribal Data Archives	Tribal Data Archive service package provides access to transportation data to support transportation planning, condition and performance monitoring, safety analysis, and research. Configurations range from focused repositories that house data collected and owned by a single agency, district, private sector provider, or research institution to broad repositories that contain multimodal, multidimensional data from varied data sources covering a broader region. Both central repositories and physical distributed ITS data repositories are supported. Requests for data that are satisfied by access to a single repository in the ITS Data Warehouse service package may be parsed by the local repository and dynamically translated to requests to other repositories that relay the data necessary to satisfy the request.	5 Big Moves #5: Next OS	Existing
DM01	CHP Data Archives	CHP Data Archives service package provides access to transportation data to support transportation planning, condition and performance monitoring, safety analysis, and research. Configurations range from focused repositories that house data collected and owned by a single agency, district, private sector provider, or research institution to broad repositories that contain multimodal, multidimensional data from varied data sources covering a broader region.	5 Big Moves #5: Next OS	Existing
DM02	SANDAG Performance Monitoring	SANDAG provides a performance monitoring service package through its integrated corridor management system (ICMS). The ICMS uses information collected from detectors and sensors, connected vehicles, and operational data feeds from centers to support performance monitoring and other uses of historical data including transportation planning, condition monitoring, safety analyses, and research. The information may be probe data information obtained from vehicles in the network to determine network performance measures such as speed and travel times, or it may be information collected from the vehicles and processed by the infrastructure, e.g. environmental data and infrastructure conditions monitoring data. Additional data are collected including accident data, road condition data, road closures and other	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		operational decisions to provide context for measured transportation performance and additional safety and mobility-related measures. More complex performance measures may be derived from the collected data.		
DM02	Caltrans D-11 Performance Monitoring	The Caltrans D-11 Performance Monitoring service package uses information collected from detectors and sensors, connected vehicles, and operational data feeds from centers to support performance monitoring and other uses of historical data including transportation planning, condition monitoring, safety analyses, and research. The information may be probe data information obtained from vehicles in the network to determine network performance measures such as speed and travel times, or it may be information collected from the vehicles and processed by the infrastructure, e.g. environmental data and infrastructure conditions monitoring data. Additional data are collected including accident data, road condition data, road closures and other operational decisions to provide context for measured transportation performance and additional safety and mobility-related measures. More complex performance measures may be derived from the collected data.	5 Big Moves #5: Next OS	Existing
Maintenance and Construction (MC)				
MC01	Caltrans MCO Vehicle and Equipment Tracking	This service package tracks the location of maintenance and construction vehicles and other equipment belonging to Caltrans, to ascertain the progress of their activities. Checks can include ensuring the correct roads are being plowed and work activity is being performed at the correct locations.	5 Big Moves #4: Flexible Fleets	Existing
MC01	Cities MCO Vehicle and Equipment Tracking	Cities in San Diego region have maintenance and construction operations vehicle tracking. This service package tracks the location of maintenance and construction vehicles and other equipment to ascertain the progress of their activities. Checks can include ensuring the correct roads are being maintained and work activity is being performed at the correct locations.	5 Big Moves #4: Flexible Fleets	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
MC01	San Diego MCO Vehicle and Equipment Tracking	This service package tracks the location of maintenance and construction vehicles and other equipment to ascertain the progress of their activities. Checks can include ensuring the correct roads are being plowed and work activity is being performed at the correct locations.	5 Big Moves #4: Flexible Fleets	Existing
MC01	County Vehicle and Equip Tracking	This service package tracks the location of maintenance and construction vehicles and other equipment for San Diego County, to ascertain the progress of their activities. Checks can include ensuring the correct roads are being plowed and work activity is being performed at the correct locations.	5 Big Moves #4: Flexible Fleets	Existing
MC01	Level 1 Cities Vehicle and Equipment Tracking	This service package tracks the location of maintenance and construction vehicles and other equipment to ascertain the progress of their activities. Checks can include ensuring the correct roads are being plowed and work activity is being performed at the correct locations.	5 Big Moves #4: Flexible Fleets	Existing
MC02	Caltrans MCO Vehicle Maintenance	<p>This service package performs vehicle maintenance scheduling and manages both routine and corrective maintenance activities on Caltrans vehicles and other maintenance and construction equipment.</p> <p>It includes on-board sensors capable of automatically performing diagnostics for maintenance and construction vehicles, and the systems that collect this diagnostic information and use it to schedule and manage vehicle and equipment maintenance.</p>	5 Big Moves #4: Flexible Fleets	Existing
MC02	Cities / PW MCO Vehicle Maintenance	This service package performs vehicle maintenance scheduling and manages both routine and corrective maintenance activities on vehicles and other maintenance and construction equipment. It includes on-board sensors capable of automatically performing diagnostics for maintenance and construction vehicles, and the systems that collect this diagnostic information and use it to schedule and manage vehicle and equipment maintenance.	5 Big Moves #4: Flexible Fleets	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
MC02	San Diego MCO Vehicle Maintenance	San Diego City vehicle maintenance scheduling, managing both routine and corrective maintenance activities on vehicles and other maintenance and construction equipment. MCO Vehicle maintenance includes on-board sensors capable of automatically performing diagnostics for maintenance and construction vehicles, and the systems that collect this diagnostic information and use it to schedule and manage vehicle and equipment maintenance.	5 Big Moves #4: Flexible Fleets	Existing
MC02	County MCO Vehicle Maintenance	This service package performs vehicle maintenance scheduling and manages both routine and corrective maintenance activities on vehicles and other maintenance and construction equipment for the County of San Diego. It includes on-board sensors capable of automatically performing diagnostics for maintenance and construction vehicles, and the systems that collect this diagnostic information and use it to schedule and manage vehicle and equipment maintenance.	5 Big Moves #4: Flexible Fleets	Existing
MC02	Level 1 Cities MCO Vehicle Maintenance	This service package performs vehicle maintenance scheduling and manages both routine and corrective maintenance activities on vehicles and other maintenance and construction equipment. It includes on-board sensors capable of automatically performing diagnostics for maintenance and construction vehicles, and the systems that collect this diagnostic information and use it to schedule and manage vehicle and equipment maintenance.	5 Big Moves #4: Flexible Fleets	Existing
MC05	Caltrans Roadway MCO	This service package supports Caltrans numerous services for scheduled and unscheduled maintenance and construction on a roadway system or right-of-way. Maintenance services 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.	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
MC05	Cities Roadway MCO	This service package supports the Cities numerous services for scheduled and unscheduled maintenance and construction on a roadway system or right-of-way. Maintenance services 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.	5 Big Moves #1: Complete Corridors	Existing
MC05	San Diego Roadway MCO	This service package supports the City of San Diego's numerous services for scheduled and unscheduled maintenance and construction on a roadway system or right-of-way. Maintenance services 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.	5 Big Moves #1: Complete Corridors	Existing
MC05	County Roadway MCO	This service package supports San Diego County's numerous services for scheduled and unscheduled maintenance and construction on a roadway system or right-of-way. Maintenance services 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.	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
MC05	Level 1 Cities Roadway Maintenance Operations	This service package supports numerous services for scheduled and unscheduled maintenance and construction on a roadway system or right-of-way. Maintenance services 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.	5 Big Moves #1: Complete Corridors	Existing
MC05	Caltrans Roadway MCO	This service package supports Caltrans numerous services for scheduled and unscheduled maintenance and construction on a roadway system or right-of-way. Maintenance services 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.	5 Big Moves #4: Flexible Fleets	Existing
MC05	Cities Roadway MCO	This service package supports the Cities numerous services for scheduled and unscheduled maintenance and construction on a roadway system or right-of-way. Maintenance services 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.	5 Big Moves #4: Flexible Fleets	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
MC05	San Diego Roadway MCO	This service package supports the City of San Diego's numerous services for scheduled and unscheduled maintenance and construction on a roadway system or right-of-way. Maintenance services 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.	5 Big Moves #4: Flexible Fleets	Existing
MC05	County Roadway MCO	This service package supports San Diego County's numerous services for scheduled and unscheduled maintenance and construction on a roadway system or right-of-way. Maintenance services 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.	5 Big Moves #4: Flexible Fleets	Existing
MC05	Level 1 Cities Roadway Maintenance Operations	This service package supports numerous services for scheduled and unscheduled maintenance and construction on a roadway system or right-of-way. Maintenance services 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.	5 Big Moves #4: Flexible Fleets	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
MC06	Caltrans Work Zone Management	This service package manages Caltrans work zones, controlling traffic in areas of the roadway where maintenance, construction, and utility work activities are underway. Traffic conditions are monitored using CCTV cameras and controlled using dynamic message signs (DMS), Highway Advisory Radio (HAR), gates and barriers. Work zone information is coordinated with other groups (e.g., ISP, traffic management, other maintenance and construction centers). Work zone speeds and delays are provided to the motorist prior to the work zones. This service package provides control of field equipment in all maintenance and construction areas, including fixed, portable, and truck-mounted devices supporting both stationary and mobile work zones.	5 Big Moves #1: Complete Corridors	Existing
MC06	Cities Work Zone Management	This service package manages cities work zones, controlling traffic in areas of the roadway where maintenance, construction, and utility work activities are underway. Traffic conditions are monitored using CCTV cameras and controlled using dynamic message signs (DMS), Highway Advisory Radio (HAR), gates and barriers. Work zone information is coordinated with other groups (e.g., TIC, traffic management, other maintenance and construction centers). Work zone speeds and delays are provided to the motorist prior to the work zones. This service package provides control of field equipment in all maintenance and construction areas, including fixed, portable, and truck-mounted devices supporting both stationary and mobile work zones.	5 Big Moves #1: Complete Corridors	Existing
MC06	San Diego City Work Zone Management	This service package manages work zones for the City of San Diego, controlling traffic in areas of the roadway where maintenance, construction, and utility work activities are underway. Traffic conditions are monitored using CCTV cameras and controlled using dynamic message signs (DMS), Highway Advisory Radio (HAR), gates and barriers. Work zone information is coordinated with other groups (e.g., TIC, traffic management, other maintenance and construction centers). Work zone speeds and delays are provided to the motorist prior to the work zones. This service package provides control of field equipment in all maintenance and construction areas, including fixed, portable, and	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		truck-mounted devices supporting both stationary and mobile work zones.		
MC06	County Work Zone Management	This service package manages work zones for the County of SD, controlling traffic in areas of the roadway where maintenance, construction, and utility work activities are underway. Traffic conditions are monitored using CCTV cameras and controlled using dynamic message signs (DMS), Highway Advisory Radio (HAR), gates and barriers. Work zone information is coordinated with other groups (e.g., TIC, traffic management, other maintenance and construction centers). Work zone speeds and delays are provided to the motorist prior to the work zones. This service package provides control of field equipment in all maintenance and construction areas, including fixed, portable, and truck-mounted devices supporting both stationary and mobile work zones.	5 Big Moves #1: Complete Corridors	Existing
MC06	Level 1 Cities Work Zone Management	This service package manages work zones, controlling traffic in areas of the roadway where maintenance, construction, and utility work activities are underway. Traffic conditions are monitored using CCTV cameras and controlled using dynamic message signs (DMS), Highway Advisory Radio (HAR), gates and barriers. Work zone information is coordinated with other groups (e.g., TIC, traffic management, other maintenance and construction centers). Work zone speeds and delays are provided to the motorist prior to the work zones. This service package provides control of field equipment in all maintenance and construction areas, including fixed, portable, and truck-mounted devices supporting both stationary and mobile work zones.	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
MC06	Caltrans Work Zone Management	This service package manages Caltrans work zones, controlling traffic in areas of the roadway where maintenance, construction, and utility work activities are underway. Traffic conditions are monitored using CCTV cameras and controlled using dynamic message signs (DMS), Highway Advisory Radio (HAR), gates and barriers. Work zone information is coordinated with other groups (e.g., ISP, traffic management, other maintenance and construction centers). Work zone speeds and delays are provided to the motorist prior to the work zones. This service package provides control of field equipment in all maintenance and construction areas, including fixed, portable, and truck-mounted devices supporting both stationary and mobile work zones.	5 Big Moves #5: Next OS	Existing
MC06	Cities Work Zone Management	This service package manages cities work zones, controlling traffic in areas of the roadway where maintenance, construction, and utility work activities are underway. Traffic conditions are monitored using CCTV cameras and controlled using dynamic message signs (DMS), Highway Advisory Radio (HAR), gates and barriers. Work zone information is coordinated with other groups (e.g., TIC, traffic management, other maintenance and construction centers). Work zone speeds and delays are provided to the motorist prior to the work zones. This service package provides control of field equipment in all maintenance and construction areas, including fixed, portable, and truck-mounted devices supporting both stationary and mobile work zones.	5 Big Moves #5: Next OS	Existing
MC06	San Diego City Work Zone Management	This service package manages work zones for the City of San Diego, controlling traffic in areas of the roadway where maintenance, construction, and utility work activities are underway. Traffic conditions are monitored using CCTV cameras and controlled using dynamic message signs (DMS), Highway Advisory Radio (HAR), gates and barriers. Work zone information is coordinated with other groups (e.g., TIC, traffic management, other maintenance and construction centers). Work zone speeds and delays are provided to the motorist prior to the work zones. This service package provides control of field equipment in all maintenance and construction areas, including fixed, portable, and	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		truck-mounted devices supporting both stationary and mobile work zones.		
MC06	County Work Zone Management	This service package manages work zones for the County of SD, controlling traffic in areas of the roadway where maintenance, construction, and utility work activities are underway. Traffic conditions are monitored using CCTV cameras and controlled using dynamic message signs (DMS), Highway Advisory Radio (HAR), gates and barriers. Work zone information is coordinated with other groups (e.g., TIC, traffic management, other maintenance and construction centers). Work zone speeds and delays are provided to the motorist prior to the work zones.	5 Big Moves #5: Next OS	Existing
MC06	Level 1 Cities Work Zone Management	This service package manages work zones, controlling traffic in areas of the roadway where maintenance, construction, and utility work activities are underway. Traffic conditions are monitored using CCTV cameras and controlled using dynamic message signs (DMS), Highway Advisory Radio (HAR), gates and barriers. Work zone information is coordinated with other groups (e.g., TIC, traffic management, other maintenance and construction centers). Work zone speeds and delays are provided to the motorist prior to the work zones. This service package provides control of field equipment in all maintenance and construction areas, including fixed, portable, and truck-mounted devices supporting both stationary and mobile work zones.	5 Big Moves #5: Next OS	Existing
MC07	Work Zone Safety Monitoring	This service package provides warnings to maintenance personnel within a work zone about potential hazards within the work zone. It enables vehicles or the infrastructure to provide warnings to workers in a work zone when a vehicle is moving in a manner that appears to create an unsafe condition (e.g., moving at high speed or entering the work zone).	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
MC07	Work Zone Safety Monitoring	This service package provides warnings to maintenance personnel within a work zone about potential hazards within the work zone. It enables vehicles or the infrastructure to provide warnings to workers in a work zone when a vehicle is moving in a manner that appears to create an unsafe condition (e.g., moving at high speed or entering the work zone).	5 Big Moves #4: Flexible Fleets	Planned
MC09	Infrastructure Monitoring	This service package monitors the condition of pavement, bridges, tunnels, associated hardware, and other transportation-related infrastructure (e.g., culverts) using both fixed and vehicle-based infrastructure monitoring sensors. Fixed sensors monitor vibration, stress, temperature, continuity, and other parameters and mobile sensors and data logging devices collect information on current infrastructure condition. This service package also monitors vehicle probes for vertical acceleration data and other probe data that may be used to determine current pavement condition.	5 Big Moves #1: Complete Corridors	Planned
Parking Management (PM)				
PM01	Transit Curb Management	NCTD plans on having a service that will use the Compass cards to verify parking capacity of the park and ride vicinity and notify commuters when parking is available. The coordinator will include coordination with MTS, buses and light rail, and traffic management centers. Signs will be posted on the freeway when lots are full. This service package monitors and manages parking spaces in lots, garages, and other parking areas and facilities. It assists in the management of parking operations by monitoring parking lot ingress and egress, parking space occupancy and availability. Infrastructure-based detectors and/or connected vehicles may be used to monitor parking occupancy. The service package shares collected parking information with local drivers and information providers for broader distribution.	5 Big Moves #2: Transit Leap	Planned
PM01	Curbside Travel Lane Parking	This service package monitors and manages parking spaces in lots, garages, and other parking areas and facilities. It assists in the management of parking operations by monitoring parking lot ingress and egress, parking space occupancy and availability. Infrastructure-based	5 Big Moves #3: Mobility Hubs	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		detectors and/or connected vehicles may be used to monitor parking occupancy. The service package shares collected parking information with local drivers and information providers for broader distribution.		
PM02	MTS Smart Park and Ride System	This service package provides real-time information on Park and Ride capacity and supports traveler's decision-making on where best to park and make use of transit alternatives. Transit operators are provided arrival information to support efficient pickup and drop offs and drivers switching to transit are offered current transit information.	5 Big Moves #3: Mobility Hubs	Planned
PM02	NCTD Smart Park and Ride System	This service package provides real-time information on Park and Ride capacity and supports traveler's decision-making on where best to park and make use of transit alternatives. Transit operators are provided arrival information to support efficient pickup and drop offs and drivers switching to transit are offered current transit information.	5 Big Moves #3: Mobility Hubs	Existing
PM03	San Diego Parking and Enforcement	This service package supports electronic collection of parking fees through various means, phone apps, etc. Fees are collected for parking from in-vehicle equipment, contact or proximity cards, or any smart payment device. User accounts are established to enhance services offered to frequent customers from several sources.	5 Big Moves #3: Mobility Hubs	Existing
PM04	San Diego Regional Parking Management	<p>The ICMS Regional Parking Management service package supports communication and coordination between equipped parking facilities and also supports regional coordination between parking facilities and traffic and transit management systems. This service package also shares information with transit management systems and information service providers to support multimodal travel planning, including parking reservation capabilities. Information including current parking availability, system status, and operating strategies are shared to enable local parking facility management that supports regional transportation strategies.</p> <p>Parking information is pushed from Parking Carma, the parking</p>	5 Big Moves #3: Mobility Hubs	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		management system to the Caltrans TMC and then to the ICMS data hub.		
PM04	San Diego Regional Parking Management	<p>The ICMS Regional Parking Management service package supports communication and coordination between equipped parking facilities and also supports regional coordination between parking facilities and traffic and transit management systems. This service package also shares information with transit management systems and information service providers to support multimodal travel planning, including parking reservation capabilities. Information including current parking availability, system status, and operating strategies are shared to enable local parking facility management that supports regional transportation strategies.</p> <p>Parking information is pushed from Parking Carma, the parking management system to the Caltrans TMC and then to the ICMS data hub.</p>	5 Big Moves #5: Next OS	Planned
PM05	Parking Reservations	This service package manages parking reservations, allowing a traveler to reserve parking as part of the trip planning process. Parking reservations may be part of a trip plan provided by a Transportation Information Center (TIC) based on parking information provided by one or more parking facilities. This parking plan is provided to the traveler/driver, which includes the option to make a reservation if available. If the parking reservation is selected by the traveler/driver,	5 Big Moves #3: Mobility Hubs	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		then the TIC will negotiate the parking reservation with the parking facility and provide a confirmation to the traveler/driver.		
PM06	Loading Zone Management	This service package manages the occupancy of spaces in a loading/unloading zone. It monitors the current status of each loading/unloading zone space under its control and makes this information available to arriving vehicles. The service package also operates a reservation system for loading zones, providing the capability for loading zone users, including commercial vehicle drivers or fleet operators, to reserve and pay for future use of a loading/unloading space. Interfaces to the general Vehicle OBE are included since loading zones may be used by any vehicle, though commercial vehicles are the most frequent users.	5 Big Moves #1: Complete Corridors	Planned
PM06	Curb Management Loading Zone	<p>This service package manages the occupancy of spaces in a loading/unloading zone - or curb management. It monitors the current status of each space under its control and makes this information available to arriving vehicles. The service package also operates a reservation system for curb spaces for loading and unloading, providing the capability for loading zone users, including commercial vehicle drivers or fleet operators, to reserve and pay for future use of a loading/unloading space. Interfaces to the general Vehicle OBE are included since loading zones may be used by any vehicle, though commercial vehicles are the most frequent users.</p> <p>Consider adding flows for MOBILE RETAIL on the curb – food truck, pop-up retail, mopeds and bikes for commerce, drone landing . All are in the public right of way</p> <ul style="list-style-type: none"> • Mobility Hubs = Infrastructure 	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		<ul style="list-style-type: none"> • Flexible Fleets = Devices • Next OS = Overarching technology 		
PM06	Loading Zone Management	<p>This service package manages the occupancy of spaces in a loading/unloading zone. It monitors the current status of each loading/unloading zone space under its control and makes this information available to arriving vehicles. The service package also operates a reservation system for loading zones, providing the capability for loading zone users, including commercial vehicle drivers or fleet operators, to reserve and pay for future use of a loading/unloading space. Interfaces to the general Vehicle OBE are included since loading zones may be used by any vehicle, though commercial vehicles are the most frequent users.</p>	5 Big Moves #3: Mobility Hubs	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PM06	Curb Management Loading Zone	<p>This service package manages the occupancy of spaces in a loading/unloading zone - or curb management. It monitors the current status of each space under its control and makes this information available to arriving vehicles. The service package also operates a reservation system for curb spaces for loading and unloading, providing the capability for loading zone users, including commercial vehicle drivers or fleet operators, to reserve and pay for future use of a loading/unloading space. Interfaces to the general Vehicle OBE are included since loading zones may be used by any vehicle, though commercial vehicles are the most frequent users.</p> <p>Consider adding flows for MOBILE RETAIL on the curb – food truck, pop-up retail, mopeds and bikes for commerce, drone landing . All are in the public right of way</p> <ul style="list-style-type: none"> • Mobility Hubs = Infrastructure • Flexible Fleets = Devices • Next OS = Overarching technology 	5 Big Moves #3: Mobility Hubs	Planned
PM06	Loading Zone Management	<p>This service package manages the occupancy of spaces in a loading/unloading zone. It monitors the current status of each loading/unloading zone space under its control and makes this information available to arriving vehicles. The service package also operates a reservation system for loading zones, providing the capability for loading zone users, including commercial vehicle drivers or fleet operators, to reserve and pay for future use of a loading/unloading space. Interfaces to the general Vehicle OBE are included since loading zones may be used by any vehicle, though commercial vehicles are the most frequent users.</p>	5 Big Moves #4: Flexible Fleets	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PM06	Curb Management Loading Zone	<p>This service package manages the occupancy of spaces in a loading/unloading zone - or curb management. It monitors the current status of each space under its control and makes this information available to arriving vehicles. The service package also operates a reservation system for curb spaces for loading and unloading, providing the capability for loading zone users, including commercial vehicle drivers or fleet operators, to reserve and pay for future use of a loading/unloading space. Interfaces to the general Vehicle OBE are included since loading zones may be used by any vehicle, though commercial vehicles are the most frequent users.</p> <p>Consider adding flows for MOBILE RETAIL on the curb – food truck, pop-up retail, mopeds and bikes for commerce, drone landing . All are in the public right of way</p> <ul style="list-style-type: none"> • Mobility Hubs = Infrastructure • Flexible Fleets = Devices • Next OS = Overarching technology 	5 Big Moves #5: Next OS	Planned
Public Safety (PS)				
PS01	Regional Emergency Call-Taking and Dispatch	<p>This service package provides basic public safety call-taking and dispatch services. It 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 between agencies. Wide area wireless communications between the Emergency Management Subsystem and an Emergency Vehicle supports dispatch and provision of information to responding personnel.</p>	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PS02	Regional Emergency Response	<p>This service package manages both unexpected incidents and planned events so that the impact to the transportation network and traveler safety is minimized. The service 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 rail operations and event promoters. Information from these diverse sources is collected and correlated by this service package to detect and verify incidents and implement an appropriate response. This service package supports traffic operations personnel in developing an appropriate response in coordination with emergency management, maintenance and construction management, and other incident response personnel to confirmed incidents. The response may include traffic control strategy modifications or resource coordination between centers. Incident response also includes presentation of information to affected travelers using the Traffic Information Dissemination service package and dissemination of incident information to travelers through the Broadcast Traveler Information or Interactive Traveler Information service packages. The roadside equipment used to detect and verify incidents also allows the operator to monitor incident status as the response unfolds. 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>	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PS02	Caltrans Highway Emergency Response	<p>This service package allows Caltrans to manage both unexpected incidents and planned events so that the impact to the transportation network and traveler safety is minimized. The service 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 rail operations and event promoters. Information from these diverse sources is collected and correlated by this service package to detect and verify incidents and implement an appropriate response. This service package supports traffic operations personnel in developing an appropriate response in coordination with emergency management, maintenance and construction management, and other incident response personnel to confirmed incidents. The response may include traffic control strategy modifications or resource coordination between centers. Incident response also includes presentation of information to affected travelers using the Traffic Information Dissemination service package and dissemination of incident information to travelers through the Broadcast Traveler Information or Interactive Traveler Information service packages. The roadside equipment used to detect and verify incidents also allows the operator to monitor incident status as the response unfolds. 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>	5 Big Moves #5: Next OS	Existing
PS03	San Diego Emergency Vehicle Preemption	<p>This service package provides signal preemption for public safety first responder vehicles in the City of San Diego. Both traditional signal preemption systems and new systems based on connected vehicle technology are covered. In more advanced systems, movement of public safety vehicles through the intersection can be facilitated by clearing queues and holding conflicting phases. This SP also covers the</p>	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		transition back to normal traffic signal operations after providing emergency vehicle preemption.		
PS03	Cities Emergency Vehicle Preemption	<p>This service package provides signal preemption for public safety first responder vehicles by the cities located in San Diego County. Not all cities have this feature but, this service package will cover those existing and those planned.</p> <p>Both traditional signal preemption systems and new systems based on connected vehicle technology are covered. In more advanced systems, movement of public safety vehicles through the intersection can be facilitated by clearing queues and holding conflicting phases. In addition, this SP also covers the transition back to normal traffic signal operations after providing emergency vehicle preemption.</p>	5 Big Moves #1: Complete Corridors	Existing
PS03	County Emergency Vehicle Preemption	<p>This service package provides signal preemption for public safety first responder vehicles using San Diego County roadside and TMC. Both traditional signal preemption systems and new systems based on connected vehicle technology are covered. In more advanced systems, movement of public safety vehicles through the intersection can be facilitated by clearing queues and holding conflicting phases. In addition, this SP also covers the transition back to normal traffic signal operations after providing emergency vehicle preemption.</p>	5 Big Moves #1: Complete Corridors	Existing
PS03	San Diego Emergency Vehicle Preemption	<p>This service package provides signal preemption for public safety first responder vehicles in the City of San Diego. Both traditional signal preemption systems and new systems based on connected vehicle technology are covered. In more advanced systems, movement of public safety vehicles through the intersection can be facilitated by clearing queues and holding conflicting phases. This SP also covers the</p>	5 Big Moves #4: Flexible Fleets	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		transition back to normal traffic signal operations after providing emergency vehicle preemption.		
PS03	Cities Emergency Vehicle Preemption	<p>This service package provides signal preemption for public safety first responder vehicles by the cities located in San Diego County. Not all cities have this feature but, this service package will cover those existing and those planned.</p> <p>Both traditional signal preemption systems and new systems based on connected vehicle technology are covered. In more advanced systems, movement of public safety vehicles through the intersection can be facilitated by clearing queues and holding conflicting phases. In addition, this SP also covers the transition back to normal traffic signal operations after providing emergency vehicle preemption.</p>	5 Big Moves #4: Flexible Fleets	Existing
PS03	County Emergency Vehicle Preemption	<p>This service package provides signal preemption for public safety first responder vehicles using San Diego County roadside and TMC. Both traditional signal preemption systems and new systems based on connected vehicle technology are covered. In more advanced systems, movement of public safety vehicles through the intersection can be facilitated by clearing queues and holding conflicting phases. In addition, this SP also covers the transition back to normal traffic signal operations after providing emergency vehicle preemption.</p>	5 Big Moves #4: Flexible Fleets	Existing
PS04	Transit Mayday Notification	<p>This service package provides the capability for a vehicle to automatically transmit an emergency message when the vehicle has been involved in a crash or other distress situation. An automatic crash notification feature transmits key data on the crash recorded by sensors mounted in the vehicle (e.g. deployment of airbags) without the need for involvement of the driver. The emergency message is sent to emergency response services, which determines and carries out the</p>	5 Big Moves #2: Transit Leap	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		<p>appropriate response. This service package allows passing vehicles to receive and forward mayday requests in areas where no communications infrastructure exists. Emergency notifications from personal devices are also supported.</p>		
PS04	Regional Auto Mayday Notification	<p>This service package provides the capability for a vehicle to automatically transmit an emergency message when the vehicle has been involved in a crash or other distress situation. It includes onboard alert. An automatic crash notification feature transmits key data on the crash recorded by sensors mounted in the vehicle (e.g. deployment of airbags) without the need for involvement of the driver. The emergency message is sent to emergency response services, which determines and carries out the appropriate response. This service package allows passing vehicles to receive and forward mayday requests in areas where no communications infrastructure exists. Emergency notifications from personal devices are also supported.</p>	5 Big Moves #4: Flexible Fleets	Planned
PS04	City-County Fleet Vehicle Mayday Notification	<p>This service package provides the capability for a vehicle to automatically transmit an emergency message when the vehicle has been involved in a crash or other distress situation. An automatic crash notification feature transmits key data on the crash recorded by sensors mounted in the vehicle (e.g. deployment of airbags) without the need for involvement of the driver. The emergency message is sent to emergency response services, which determines and carries out the appropriate response. This service package allows passing vehicles to receive and forward mayday requests in areas where no communications infrastructure exists. Emergency notifications from personal devices are also supported.</p>	5 Big Moves #4: Flexible Fleets	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PS04	Regional Auto Mayday Notification	This service package provides the capability for a vehicle to automatically transmit an emergency message when the vehicle has been involved in a crash or other distress situation. It includes onboard alert. An automatic crash notification feature transmits key data on the crash recorded by sensors mounted in the vehicle (e.g. deployment of airbags) without the need for involvement of the driver. The emergency message is sent to emergency response services, which determines and carries out the appropriate response. This service package allows passing vehicles to receive and forward mayday requests in areas where no communications infrastructure exists. Emergency notifications from personal devices are also supported.	5 Big Moves #5: Next OS	Planned
PS04	Transit Mayday Notification	This service package provides the capability for a vehicle to automatically transmit an emergency message when the vehicle has been involved in a crash or other distress situation. An automatic crash notification feature transmits key data on the crash recorded by sensors mounted in the vehicle (e.g. deployment of airbags) without the need for involvement of the driver. The emergency message is sent to emergency response services, which determines and carries out the appropriate response. This service package allows passing vehicles to receive and forward mayday requests in areas where no communications infrastructure exists. Emergency notifications from personal devices are also supported.	5 Big Moves #5: Next OS	Planned
PS04	City-County Fleet Vehicle Mayday Notification	This service package provides the capability for a vehicle to automatically transmit an emergency message when the vehicle has been involved in a crash or other distress situation. An automatic crash notification feature transmits key data on the crash recorded by sensors mounted in the vehicle (e.g. deployment of airbags) without the need for involvement of the driver. The emergency message is sent to emergency response services, which determines and carries out the appropriate response. This service package allows passing vehicles to receive and forward mayday requests in areas where no	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		communications infrastructure exists. Emergency notifications from personal devices are also supported.		
PS05	Regional Connected V2V Auto Emergency Info	The Vehicle Emergency Response service package provides arriving public safety vehicles with automated information from connected vehicles involved in a crash - Vehicle to Vehicle. Emergency responders need information about the vehicles involved in a crash to respond safely and effectively to the vehicle crash. Information such as HAZMAT data can assist the responders. Information about air bag activations and other measures indicating the severity of the crash can provide useful input to ambulance staff. In addition information about the power system of the vehicle (e.g. hybrid, electric, or internal combustion engine) can affect the response.	5 Big Moves #4: Flexible Fleets	Planned
PS06	Incident Scene Pre-Arrival Staging Guidance for Emergency Responders	This service package will provide situational awareness to and coordination among emergency responders - upon dispatch, while en route to establish incident scene work zones, upon initial arrival and staging of assets, and afterward if circumstances require additional dispatch and staging. It collects a variety of data from emergency, traffic, and maintenance centers. It includes a vehicle and equipment staging function that supplies the en route responders with additional information about the scene of an incident that they can use to determine where to stage personnel and equipment prior to their arrival on-scene. The service package also includes a dynamic routing function which provides emergency responders with real-time navigation instructions to travel from their base to the incident scene, accounting for traffic conditions, road closures, and snowplow reports if needed. In addition it includes an emergency responder status reporting function which continuously monitors the location of the en route responder	5 Big Moves #4: Flexible Fleets	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		<p>vehicles as well as the vehicles already on-scene. The function develops and maintains the current position of the responder’s vehicles and provides updates for estimated time of arrival (ETA).</p>		
PS06	Incident Scene Pre-Arrival Staging Guidance for Emergency Responders	<p>This service package will provide situational awareness to and coordination among emergency responders - upon dispatch, while en route to establish incident scene work zones, upon initial arrival and staging of assets, and afterward if circumstances require additional dispatch and staging. It collects a variety of data from emergency, traffic, and maintenance centers. It includes a vehicle and equipment staging function that supplies the en route responders with additional information about the scene of an incident that they can use to determine where to stage personnel and equipment prior to their arrival on-scene. The service package also includes a dynamic routing function which provides emergency responders with real-time navigation instructions to travel from their base to the incident scene, accounting for traffic conditions, road closures, and snowplow reports if needed. In addition it includes an emergency responder status reporting function which continuously monitors the location of the en route responder vehicles as well as the vehicles already on-scene. The function develops and maintains the current position of the responder’s vehicles and provides updates for estimated time of arrival (ETA).</p>	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PS07	Incident Scene Safety Monitoring	This service package employs communications technologies to provide warnings and alerts relating to incident zone operations. One aspect of the service is an in-vehicle messaging system that provides drivers with merging and speed guidance around an incident. Another aspect is providing in-vehicle incident scene alerts to drivers, both for the protection of the drivers as well as incident zone personnel. A third aspect is a warning system for on-scene workers when a vehicle approaching or in the incident zone is being operated outside of safe parameters for the conditions.	5 Big Moves #4: Flexible Fleets	Planned
PS07	Incident Scene Safety Monitoring	This service package employs communications technologies to provide warnings and alerts relating to incident zone operations. One aspect of the service is an in-vehicle messaging system that provides drivers with merging and speed guidance around an incident. Another aspect is providing in-vehicle incident scene alerts to drivers, both for the protection of the drivers as well as incident zone personnel. A third aspect is a warning system for on-scene workers when a vehicle approaching or in the incident zone is being operated outside of safe parameters for the conditions.	5 Big Moves #5: Next OS	Planned
PS08	San Diego Freeway Service Patrols	This service package supports roadway service patrol vehicles that monitor roads and 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 service 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.	5 Big Moves #4: Flexible Fleets	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PS08	San Diego Freeway Service Patrols	<p>This service package supports roadway service patrol vehicles that monitor roads and 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 service 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>	5 Big Moves #5: Next OS	Existing
PS09	Transportation Infrastructure Protection	<p>This service 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 control access, preclude an incident, and mitigate the impact of an incident if it occurs. 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 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</p>	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		and other automated and remotely controlled systems that mitigate impact of an incident.		
PS09	Transportation Infrastructure Protection	This service 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 control access, preclude an incident, and mitigate the impact of an incident if it occurs. 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 to deter an	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		<p>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>		
PS10	Regional Traveler Wide-Area Alert	<p>This service 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.</p> <p>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</p>	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		radios, in-vehicle displays, transit displays, 511 traveler information systems, and traveler information web sites.		
PS10	Regional Traveler Wide-Area Alert	<p>This service 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.</p> <p>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>	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PS11	San Diego Regional Early Warning System	<p>This service 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).</p> <p>The service 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>	5 Big Moves #1: Complete Corridors	Planned
PS11	San Diego Regional Early Warning System	<p>This service 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).</p> <p>The service 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>	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PS12	Regional Disaster Response and Recovery	<p>This service package enhances the ability of the surface transportation system to respond to and recover from disasters. Since San Diego is a "border city", depending on the emergency, response may include Mexico because emergencies do not respect boundaries. As such, a separate service package addresses disaster response and recovery for Mexico.</p> <p>This service 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 service 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 service 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 service package tracks and coordinates the transportation resources - the transportation professionals, equipment, and materials - that constitute a portion of the disaster response.</p> <p>The service package identifies the key points of integration between transportation systems and the public safety, emergency management, public health, and other allied organizations that form the overall disaster response. In this service package, the Emergency Management</p>	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		<p>Center 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 Center and the other centers 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 service 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>This service package builds on the basic traffic incident response service that is provided by TM08, the Traffic Incident Management service package. This service package addresses the additional complexities and coordination requirements that are associated with the most severe incidents that warrant an extraordinary response from outside the local jurisdictions and require special measures such as the activation of one or more emergency operations centers. Many users of ARC-IT will want to consider both TM08 and this service package since every region is concerned with both day-to-day management of traffic-related incidents and occasional management of disasters that require extraordinary response.</p> <p>Disaster Response and Recovery is also supported by PS14, the "Disaster Traveler Information" service package that keeps the public informed</p>		

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		during a disaster response. See that service package for more information.		

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PS12	Regional Disaster Response and Recovery	<p>This service package enhances the ability of the surface transportation system to respond to and recover from disasters. Since San Diego is a "border city", depending on the emergency, response may include Mexico because emergencies do not respect boundaries. As such, a separate service package addresses disaster response and recovery for Mexico.</p> <p>This service 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 service 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 service 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 service package tracks and coordinates the transportation resources - the transportation professionals, equipment, and materials - that constitute a portion of the disaster response.</p> <p>The service package identifies the key points of integration between transportation systems and the public safety, emergency management, public health, and other allied organizations that form the overall disaster response. In this service package, the Emergency Management</p>	5 Big Moves #2: Transit Leap	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		<p>Center 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 Center and the other centers 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 service 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>This service package builds on the basic traffic incident response service that is provided by TM08, the Traffic Incident Management service package. This service package addresses the additional complexities and coordination requirements that are associated with the most severe incidents that warrant an extraordinary response from outside the local jurisdictions and require special measures such as the activation of one or more emergency operations centers. Many users of ARC-IT will want to consider both TM08 and this service package since every region is concerned with both day-to-day management of traffic-related incidents and occasional management of disasters that require extraordinary response.</p> <p>Disaster Response and Recovery is also supported by PS14, the "Disaster Traveler Information" service package that keeps the public informed</p>		

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		during a disaster response. See that service package for more information.		

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PS12	Regional Disaster Response and Recovery	<p>This service package enhances the ability of the surface transportation system to respond to and recover from disasters. Since San Diego is a "border city", depending on the emergency, response may include Mexico because emergencies do not respect boundaries. As such, a separate service package addresses disaster response and recovery for Mexico.</p> <p>This service 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 service 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 service 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 service package tracks and coordinates the transportation resources - the transportation professionals, equipment, and materials - that constitute a portion of the disaster response.</p> <p>The service package identifies the key points of integration between transportation systems and the public safety, emergency management, public health, and other allied organizations that form the overall disaster response. In this service package, the Emergency Management</p>	5 Big Moves #3: Mobility Hubs	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		<p>Center 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 Center and the other centers 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 service 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>This service package builds on the basic traffic incident response service that is provided by TM08, the Traffic Incident Management service package. This service package addresses the additional complexities and coordination requirements that are associated with the most severe incidents that warrant an extraordinary response from outside the local jurisdictions and require special measures such as the activation of one or more emergency operations centers. Many users of ARC-IT will want to consider both TM08 and this service package since every region is concerned with both day-to-day management of traffic-related incidents and occasional management of disasters that require extraordinary response.</p> <p>Disaster Response and Recovery is also supported by PS14, the "Disaster Traveler Information" service package that keeps the public informed</p>		

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		during a disaster response. See that service package for more information.		

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PS12	Regional Disaster Response and Recovery	<p>This service package enhances the ability of the surface transportation system to respond to and recover from disasters. Since San Diego is a "border city", depending on the emergency, response may include Mexico because emergencies do not respect boundaries. As such, a separate service package addresses disaster response and recovery for Mexico.</p> <p>This service 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 service 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 service 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 service package tracks and coordinates the transportation resources - the transportation professionals, equipment, and materials - that constitute a portion of the disaster response.</p> <p>The service package identifies the key points of integration between transportation systems and the public safety, emergency management, public health, and other allied organizations that form the overall disaster response. In this service package, the Emergency Management</p>	5 Big Moves #4: Flexible Fleets	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		<p>Center 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 Center and the other centers 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 service 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>This service package builds on the basic traffic incident response service that is provided by TM08, the Traffic Incident Management service package. This service package addresses the additional complexities and coordination requirements that are associated with the most severe incidents that warrant an extraordinary response from outside the local jurisdictions and require special measures such as the activation of one or more emergency operations centers. Many users of ARC-IT will want to consider both TM08 and this service package since every region is concerned with both day-to-day management of traffic-related incidents and occasional management of disasters that require extraordinary response.</p> <p>Disaster Response and Recovery is also supported by PS14, the "Disaster Traveler Information" service package that keeps the public informed</p>		

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		during a disaster response. See that service package for more information.		

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PS12	Regional Disaster Response and Recovery	<p>This service package enhances the ability of the surface transportation system to respond to and recover from disasters. Since San Diego is a "border city", depending on the emergency, response may include Mexico because emergencies do not respect boundaries. As such, a separate service package addresses disaster response and recovery for Mexico.</p> <p>This service 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 service 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 service 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 service package tracks and coordinates the transportation resources - the transportation professionals, equipment, and materials - that constitute a portion of the disaster response.</p> <p>The service package identifies the key points of integration between transportation systems and the public safety, emergency management, public health, and other allied organizations that form the overall disaster response. In this service package, the Emergency Management</p>	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		<p>Center 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 Center and the other centers 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 service 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>This service package builds on the basic traffic incident response service that is provided by TM08, the Traffic Incident Management service package. This service package addresses the additional complexities and coordination requirements that are associated with the most severe incidents that warrant an extraordinary response from outside the local jurisdictions and require special measures such as the activation of one or more emergency operations centers. Many users of ARC-IT will want to consider both TM08 and this service package since every region is concerned with both day-to-day management of traffic-related incidents and occasional management of disasters that require extraordinary response.</p> <p>Disaster Response and Recovery is also supported by PS14, the "Disaster Traveler Information" service package that keeps the public informed</p>		

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		during a disaster response. See that service package for more information.		

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PS13	Evacuation and Reentry Management - US	<p>This service package for US Agencies supports evacuation of the general public from a disaster area and manages subsequent reentry to the disaster area. The service 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>This service package supports coordination of evacuation plans among the federal, state, and local transportation, emergency, and law enforcement agencies that may be involved in a large-scale evacuation. All affected jurisdictions (e.g., states and counties) at the evacuation origin, evacuation destination, and along the evacuation route are informed of the plan. Information is shared with traffic management agencies to implement special traffic control strategies and to control evacuation traffic, including traffic on local streets and arterials as well as the major evacuation routes. Reversible lanes, shoulder use, closures, special signal control strategies, and other special strategies may be implemented to maximize capacity along the evacuation routes. Transit resources play an important role in an evacuation, removing many people from an evacuated area while making efficient use of limited capacity. Additional shared transit resources may be added and managed in evacuation scenarios. Resource requirements are forecast based on the evacuation plans, and the necessary resources are located, shared between agencies if necessary, and deployed at the right locations at the appropriate times.</p> <p>Evacuations are also supported by PS14, the "Disaster Traveler Information" service package, which keeps the public informed during evacuations. See that service package for more information.</p>	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PS13	Evacuation and Reentry Management - US	<p>This service package for US Agencies supports evacuation of the general public from a disaster area and manages subsequent reentry to the disaster area. The service 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>This service package supports coordination of evacuation plans among the federal, state, and local transportation, emergency, and law enforcement agencies that may be involved in a large-scale evacuation. All affected jurisdictions (e.g., states and counties) at the evacuation origin, evacuation destination, and along the evacuation route are informed of the plan. Information is shared with traffic management agencies to implement special traffic control strategies and to control evacuation traffic, including traffic on local streets and arterials as well as the major evacuation routes. Reversible lanes, shoulder use, closures, special signal control strategies, and other special strategies may be implemented to maximize capacity along the evacuation routes. Transit resources play an important role in an evacuation, removing many people from an evacuated area while making efficient use of limited capacity. Additional shared transit resources may be added and managed in evacuation scenarios. Resource requirements are forecast based on the evacuation plans, and the necessary resources are located, shared between agencies if necessary, and deployed at the right locations at the appropriate times.</p> <p>Evacuations are also supported by PS14, the "Disaster Traveler Information" service package, which keeps the public informed during evacuations. See that service package for more information.</p>	5 Big Moves #2: Transit Leap	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PS13	Evacuation and Reentry Management - US	<p>This service package for US Agencies supports evacuation of the general public from a disaster area and manages subsequent reentry to the disaster area. The service 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>This service package supports coordination of evacuation plans among the federal, state, and local transportation, emergency, and law enforcement agencies that may be involved in a large-scale evacuation. All affected jurisdictions (e.g., states and counties) at the evacuation origin, evacuation destination, and along the evacuation route are informed of the plan. Information is shared with traffic management agencies to implement special traffic control strategies and to control evacuation traffic, including traffic on local streets and arterials as well as the major evacuation routes. Reversible lanes, shoulder use, closures, special signal control strategies, and other special strategies may be implemented to maximize capacity along the evacuation routes. Transit resources play an important role in an evacuation, removing many people from an evacuated area while making efficient use of limited capacity. Additional shared transit resources may be added and managed in evacuation scenarios. Resource requirements are forecast based on the evacuation plans, and the necessary resources are located, shared between agencies if necessary, and deployed at the right locations at the appropriate times.</p> <p>Evacuations are also supported by PS14, the "Disaster Traveler Information" service package, which keeps the public informed during evacuations. See that service package for more information.</p>	5 Big Moves #3: Mobility Hubs	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PS13	Evacuation and Reentry Management - US	<p>This service package for US Agencies supports evacuation of the general public from a disaster area and manages subsequent reentry to the disaster area. The service 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>This service package supports coordination of evacuation plans among the federal, state, and local transportation, emergency, and law enforcement agencies that may be involved in a large-scale evacuation. All affected jurisdictions (e.g., states and counties) at the evacuation origin, evacuation destination, and along the evacuation route are informed of the plan. Information is shared with traffic management agencies to implement special traffic control strategies and to control evacuation traffic, including traffic on local streets and arterials as well as the major evacuation routes. Reversible lanes, shoulder use, closures, special signal control strategies, and other special strategies may be implemented to maximize capacity along the evacuation routes. Transit resources play an important role in an evacuation, removing many people from an evacuated area while making efficient use of limited capacity. Additional shared transit resources may be added and managed in evacuation scenarios. Resource requirements are forecast based on the evacuation plans, and the necessary resources are located, shared between agencies if necessary, and deployed at the right locations at the appropriate times.</p> <p>Evacuations are also supported by PS14, the "Disaster Traveler Information" service package, which keeps the public informed during evacuations. See that service package for more information.</p>	5 Big Moves #4: Flexible Fleets	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PS13	Evacuation and Reentry Management - US	<p>This service package for US Agencies supports evacuation of the general public from a disaster area and manages subsequent reentry to the disaster area. The service 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>This service package supports coordination of evacuation plans among the federal, state, and local transportation, emergency, and law enforcement agencies that may be involved in a large-scale evacuation. All affected jurisdictions (e.g., states and counties) at the evacuation origin, evacuation destination, and along the evacuation route are informed of the plan. Information is shared with traffic management agencies to implement special traffic control strategies and to control evacuation traffic, including traffic on local streets and arterials as well as the major evacuation routes. Reversible lanes, shoulder use, closures, special signal control strategies, and other special strategies may be implemented to maximize capacity along the evacuation routes. Transit resources play an important role in an evacuation, removing many people from an evacuated area while making efficient use of limited capacity. Additional shared transit resources may be added and managed in evacuation scenarios. Resource requirements are forecast based on the evacuation plans, and the necessary resources are located, shared between agencies if necessary, and deployed at the right locations at the appropriate times.</p> <p>Evacuations are also supported by PS14, the "Disaster Traveler Information" service package, which keeps the public informed during evacuations. See that service package for more information.</p>	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PS14	Regional Disaster Traveler Information	<p>This service 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 service 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 service 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 service 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</p>	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		<p>service 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>This service package augments the Traveler Information (TI) service packages that provide traveler information on a day-to-day basis for the surface transportation system. This service package provides focus on the special requirements for traveler information dissemination in disaster situations.</p>		

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PS14	Regional Disaster Traveler Information	<p>This service 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 service 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 service 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 service 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</p>	5 Big Moves #3: Mobility Hubs	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		<p>service 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>This service package augments the Traveler Information (TI) service packages that provide traveler information on a day-to-day basis for the surface transportation system. This service package provides focus on the special requirements for traveler information dissemination in disaster situations.</p>		

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

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PS14	Regional Disaster Traveler Information	<p>This service 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 service 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 service 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 service 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</p>	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		<p>service 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>This service package augments the Traveler Information (TI) service packages that provide traveler information on a day-to-day basis for the surface transportation system. This service package provides focus on the special requirements for traveler information dissemination in disaster situations.</p>		
Public Transportation (PT)				
PT01	MTS Transit Vehicle Tracking	This service package monitors current transit vehicle location using an Automated Vehicle Location System (OrbCad). The communications are delivered across the regional system. The location data may be used to determine real time schedule adherence and update the transit system’s schedule in real-time. MTS Supervisor vehicles are also part of this service package.	5 Big Moves #2: Transit Leap	Existing
PT01	NCTD Paratransit and FLEX Tracking	This service package monitors current Paratransit and FLEX 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. NCTD Supervisor vehicles are also part of this SP	5 Big Moves #2: Transit Leap	Existing
PT01	Metrolink Train Tracking	This service package monitors current vehicle location using an Automated train Location System. The location data may be used to determine real time schedule adherence and update the system’s schedule in real-time.	5 Big Moves #2: Transit Leap	Existing
PT01	MTS Light Rail Tracking	This service package monitors current MTS Light Rail location (light rail, and fixed rail) using an Automated Vehicle Location System. The location data may be used to determine real time schedule adherence	5 Big Moves #2: Transit Leap	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		and update the transit system’s schedule in real-time. MTS Supervisor vehicles are also part of this service package.		
PT01	MTS Paratransit Vehicle Tracking	This service package monitors current MTS Paratransit, 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. MTS Supervisor vehicles are also part of this service package.	5 Big Moves #2: Transit Leap	Existing
PT01	NCTD Commuter Rail Vehicle Tracking	This service package monitors current NCTD Light Rail Vehicle Tracking of vehicle location (light rail, and fixed rail) 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. NCTD Supervisor vehicles are also part of this SP.	5 Big Moves #2: Transit Leap	Existing
PT01	NCTD Transit Vehicle Tracking	This service package monitors current fixed route transit vehicle location for NCTD buses using an Automated Vehicle Location System (OrbCad). The communications are delivered across the regional system.. The location data may be used to determine real time schedule adherence and update the transit system’s schedule in real-time. NCTD Supervisor vehicles are also part of this SP.	5 Big Moves #2: Transit Leap	Existing
PT02	MTS Transit Fixed-Route Operations	This service package performs automated dispatch and system monitoring for fixed-route and flexible-route transit services. This service performs scheduling activities including the creation of schedules, blocks and runs, as well as operator assignment. This service monitors the transit vehicle trip performance against the schedule and provides information displays at the Transit Management Center.	5 Big Moves #2: Transit Leap	Existing
PT02	NCTD Transit Fixed-Route Operations	This service package performs automated dispatch and system monitoring for fixed-route and flexible-route transit services. This service performs scheduling activities including the creation of schedules, blocks and runs, as well as operator assignment. This service monitors the transit vehicle trip performance against the schedule and provides information displays at the Transit Management Center.	5 Big Moves #2: Transit Leap	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PT02	MTS Rail Fixed-Route Operations	This service package performs automated dispatch and system monitoring for fixed-route and flexible-route rail (light rail, fixed rail, and aerial gondola) services. This service package performs scheduling activities including the creation of schedules, blocks and runs, as well as operator assignment. This service monitors the transit vehicle trip performance against the schedule and provides information displays at the Transit Management Center.	5 Big Moves #2: Transit Leap	Existing
PT02	NCTD Rail Fixed-Route Operations	This service package performs automated dispatch and system monitoring for fixed-route and flexible-route rail (light rail, fixed rail, and aerial gondola) services. This service performs scheduling activities including the creation of schedules, blocks and runs, as well as operator assignment. This service monitors the transit vehicle trip performance against the schedule and provides information displays at the Transit Management Center.	5 Big Moves #2: Transit Leap	Existing
PT02	MTS Transit Fixed-Route Operations	This service package performs automated dispatch and system monitoring for fixed-route and flexible-route transit services. This service performs scheduling activities including the creation of schedules, blocks and runs, as well as operator assignment. This service monitors the transit vehicle trip performance against the schedule and provides information displays at the Transit Management Center.	5 Big Moves #3: Mobility Hubs	Existing
PT02	NCTD Transit Fixed-Route Operations	This service package performs automated dispatch and system monitoring for fixed-route and flexible-route transit services. This service performs scheduling activities including the creation of schedules, blocks and runs, as well as operator assignment. This service monitors the transit vehicle trip performance against the schedule and provides information displays at the Transit Management Center.	5 Big Moves #3: Mobility Hubs	Existing
PT02	MTS Rail Fixed-Route Operations	This service package performs automated dispatch and system monitoring for fixed-route and flexible-route rail (light rail, fixed rail, and aerial gondola) services. This service package performs scheduling activities including the creation of schedules, blocks and runs, as well as operator assignment. This service monitors the transit vehicle trip	5 Big Moves #3: Mobility Hubs	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		performance against the schedule and provides information displays at the Transit Management Center.		
PT02	NCTD Rail Fixed-Route Operations	This service package performs automated dispatch and system monitoring for fixed-route and flexible-route rail (light rail, fixed rail, and aerial gondola) services. This service performs scheduling activities including the creation of schedules, blocks and runs, as well as operator assignment. This service monitors the transit vehicle trip performance against the schedule and provides information displays at the Transit Management Center.	5 Big Moves #3: Mobility Hubs	Existing
PT03	MTS Dynamic Transit Operations	The Dynamic Rideshare and Transit Operations service package allows MTS travelers to request trips and obtain itineraries using a personal device such as a smartphone, tablet, or personal computer. The trips and itineraries cover multiple transportation services (public transportation modes, private transportation services, shared-ride, walking and biking). This service package builds on existing technology systems such as computer-aided dispatch/ automated vehicle location (CAD/AVL) systems and automated scheduling software, providing a coordination function within and between transit providers that would dynamically schedule and dispatch or modify the route of an in-service vehicle by matching compatible trips together. T106 covers other shared use transportation options.	5 Big Moves #2: Transit Leap	Existing
PT03	NCTD Flex Dynamic Transit Operations	The Dynamic Transit Operations service package allows NCTD travelers to request trips and obtain itineraries using a personal device such as a smartphone, tablet, or personal computer. The trips and itineraries cover multiple transportation services (public transportation modes, private transportation services, shared-ride, walking and biking). This service package builds on existing technology systems such as computer-aided dispatch/ automated vehicle location (CAD/AVL) systems and automated scheduling software, providing a coordination function	5 Big Moves #2: Transit Leap	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		within and between transit providers that would dynamically schedule and dispatch or modify the route of an in-service vehicle by matching compatible trips together. T106 covers other shared use transportation options.		
PT03	Dynamic Micro Mobility Operations	The Dynamic Transit Operations service package allows travelers to request trips and obtain itineraries using a personal device such as a smartphone, tablet, or personal computer. The trips and itineraries cover multiple transportation services (public transportation modes, private transportation services, shared-ride, walking and biking). This service package builds on existing technology systems such as computer-aided dispatch/ automated vehicle location (CAD/AVL) systems and automated scheduling software, providing a coordination function within and between transit providers that would dynamically schedule and dispatch or modify the route of an in-service vehicle by matching compatible trips together. T106 covers other shared use transportation options.	5 Big Moves #4: Flexible Fleets	Planned
PT03	MTS Dynamic Transit Operations	The Dynamic Rideshare and Transit Operations service package allows MTS travelers to request trips and obtain itineraries using a personal device such as a smartphone, tablet, or personal computer. The trips and itineraries cover multiple transportation services (public transportation modes, private transportation services, shared-ride, walking and biking). This service package builds on existing technology systems such as computer-aided dispatch/ automated vehicle location (CAD/AVL) systems and automated scheduling software, providing a coordination function within and between transit providers that would dynamically schedule and dispatch or modify the route of an in-service vehicle by matching compatible trips together. T106 covers other shared use transportation options.	5 Big Moves #4: Flexible Fleets	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PT03	NCTD Flex Dynamic Transit Operations	The Dynamic Transit Operations service package allows NCTD travelers to request trips and obtain itineraries using a personal device such as a smartphone, tablet, or personal computer. The trips and itineraries cover multiple transportation services (public transportation modes, private transportation services, shared-ride, walking and biking). This service package builds on existing technology systems such as computer-aided dispatch/ automated vehicle location (CAD/AVL) systems and automated scheduling software, providing a coordination function within and between transit providers that would dynamically schedule and dispatch or modify the route of an in-service vehicle by matching compatible trips together. T106 covers other shared use transportation options.	5 Big Moves #4: Flexible Fleets	Existing
PT03	Regional TNC Operations	The Dynamic TNC Operations service package allows travelers to request trips and obtain itineraries using a personal device such as a smartphone, tablet, or personal computer. The trips and itineraries cover multiple transportation services (Bike Share, Scooter Share, Uber/Lyft, Car Share, etc. shared-ride, walking and biking). This service package builds on existing technology systems such as computer-aided dispatch/ automated vehicle location (CAD/AVL) systems and automated scheduling software, providing a coordination function within and between transit providers that would dynamically schedule and dispatch or modify the route of an in-service vehicle by matching compatible trips together. T106 covers other shared use transportation options.	5 Big Moves #4: Flexible Fleets	Existing
PT04	MTS Transit Fare Collection Service	This service package manages transit fare collection on-board transit vehicles and at transit stops using electronic means. It allows transit users to use a traveler card or other electronic payment device such as a smartphone. Readers located either in the infrastructure or on-board the transit vehicles enable electronic fare payment. Data is processed, stored, and displayed on the transit vehicle and communicated as needed to the Transit Management Center.	5 Big Moves #2: Transit Leap	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PT04	NCTD Transit Fare Collection Service	<p>This service package manages transit fare collection on-board transit vehicles and at transit stops using electronic means. It allows transit users to use a traveler card or other electronic payment device such as a smartphone. Readers located either in the infrastructure or on-board the transit vehicles enable electronic fare payment. Data is processed, stored, and displayed on the transit vehicle and communicated as needed to the Transit Management Center.</p>	5 Big Moves #2: Transit Leap	Existing
PT05	MTS Transit Security	<p>This service package provides for the physical security of transit passengers and transit vehicle operators. On-board equipment performs surveillance and sensor monitoring in order to identify potentially hazardous situations. The surveillance equipment includes video (e.g., CCTV cameras), audio systems and/or event recorder systems. The sensor equipment includes threat sensors (e.g., chemical agent, toxic industrial chemical, biological, explosives, and radiological sensors) and object detection sensors (e.g., metal detectors). Transit user or transit vehicle operator activated alarms are provided on-board. Public areas (e.g., transit stops, park and ride lots, stations) are also monitored with similar surveillance and sensor equipment and provided with transit user activated alarms. In addition this service package provides surveillance and sensor monitoring of non-public areas of transit facilities (e.g., transit yards) and transit infrastructure such as bridges, tunnels, and transit railways or bus rapid transit (BRT) guideways. The surveillance equipment includes video and/or audio systems. The sensor equipment includes threat sensors and object detection sensors as described above as well as, intrusion or motion detection sensors and infrastructure integrity monitoring (e.g., rail track continuity checking or bridge structural integrity monitoring).</p> <p>Most of the surveillance and sensor data that is collected by this service package may be monitored by either the Emergency Management Center or the Transit Management Center, providing two possible approaches to implementing this service package. This service package</p>	5 Big Moves #2: Transit Leap	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		also supports remote transit vehicle disabling and transit vehicle operator authentication by the Transit Management Center.		

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PT05	NCTD Transit Security	<p>This service package provides for the physical security of transit passengers and transit vehicle operators. On-board equipment performs surveillance and sensor monitoring in order to identify potentially hazardous situations. The surveillance equipment includes video (e.g., CCTV cameras), audio systems and/or event recorder systems. The sensor equipment includes threat sensors (e.g., chemical agent, toxic industrial chemical, biological, explosives, and radiological sensors) and object detection sensors (e.g., metal detectors). Transit user or transit vehicle operator activated alarms are provided on-board. Public areas (e.g., transit stops, park and ride lots, stations) are also monitored with similar surveillance and sensor equipment and provided with transit user activated alarms. In addition this service package provides surveillance and sensor monitoring of non-public areas of transit facilities (e.g., transit yards) and transit infrastructure such as bridges, tunnels, and transit railways or bus rapid transit (BRT) guideways. The surveillance equipment includes video and/or audio systems. The sensor equipment includes threat sensors and object detection sensors as described above as well as, intrusion or motion detection sensors and infrastructure integrity monitoring (e.g., rail track continuity checking or bridge structural integrity monitoring).</p> <p>NCTD contracts their transit security services or law enforcement services with the City of Oceanside PD, City of Escondido, PD, and San Diego Sheriff's Office. The buses have "Mayday" alerts that ring to dispatch, and dispatch alerts law enforcement.</p> <p>Most of the surveillance and sensor data that is collected by this service package may be monitored by either the Emergency Management Center or the Transit Management Center, providing two possible approaches to implementing this service package. This service package also supports remote transit vehicle disabling and transit vehicle operator authentication by the Transit Management Center.</p>	5 Big Moves #2: Transit Leap	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PT05	Metrolink Rail Security	<p>Metrolink uses track that is owned and has security monitoring by NCTD. When in the San Diego region, Metrolink emergencies would notify County law enforcement through NCTD systems. This service package provides for the physical security of transit passengers and transit vehicle operators. On-board equipment performs surveillance and sensor monitoring in order to identify potentially hazardous situations. The surveillance equipment includes video (e.g., CCTV cameras), audio systems and/or event recorder systems. The sensor equipment includes threat sensors (e.g., chemical agent, toxic industrial chemical, biological, explosives, and radiological sensors) and object detection sensors (e.g., metal detectors). Transit user or transit vehicle operator activated alarms are provided on-board. Public areas (e.g., transit stops, park and ride lots, stations) are also monitored with similar surveillance and sensor equipment and provided with transit user activated alarms. In addition this service package provides surveillance and sensor monitoring of non-public areas of transit facilities (e.g., transit yards) and transit infrastructure such as bridges, tunnels, and transit railways or bus rapid transit (BRT) guideways. The surveillance equipment includes video and/or audio systems. The sensor equipment includes threat sensors and object detection sensors as described above as well as, intrusion or motion detection sensors and infrastructure integrity monitoring (e.g., rail track continuity checking or bridge structural integrity monitoring).</p> <p>Most of the surveillance and sensor data that is collected by this service package may be monitored by either the Emergency Management Center or the Transit Management Center, providing two possible approaches to implementing this service package. This service package also supports remote transit vehicle disabling and transit vehicle operator authentication by the Transit Management Center.</p>	5 Big Moves #2: Transit Leap	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PT05	MTS Transit Security	<p>This service package provides for the physical security of transit passengers and transit vehicle operators. On-board equipment performs surveillance and sensor monitoring in order to identify potentially hazardous situations. The surveillance equipment includes video (e.g., CCTV cameras), audio systems and/or event recorder systems. The sensor equipment includes threat sensors (e.g., chemical agent, toxic industrial chemical, biological, explosives, and radiological sensors) and object detection sensors (e.g., metal detectors). Transit user or transit vehicle operator activated alarms are provided on-board. Public areas (e.g., transit stops, park and ride lots, stations) are also monitored with similar surveillance and sensor equipment and provided with transit user activated alarms. In addition this service package provides surveillance and sensor monitoring of non-public areas of transit facilities (e.g., transit yards) and transit infrastructure such as bridges, tunnels, and transit railways or bus rapid transit (BRT) guideways. The surveillance equipment includes video and/or audio systems. The sensor equipment includes threat sensors and object detection sensors as described above as well as, intrusion or motion detection sensors and infrastructure integrity monitoring (e.g., rail track continuity checking or bridge structural integrity monitoring).</p> <p>Most of the surveillance and sensor data that is collected by this service package may be monitored by either the Emergency Management Center or the Transit Management Center, providing two possible approaches to implementing this service package. This service package also supports remote transit vehicle disabling and transit vehicle operator authentication by the Transit Management Center.</p>	5 Big Moves #3: Mobility Hubs	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PT05	NCTD Transit Security	<p>This service package provides for the physical security of transit passengers and transit vehicle operators. On-board equipment performs surveillance and sensor monitoring in order to identify potentially hazardous situations. The surveillance equipment includes video (e.g., CCTV cameras), audio systems and/or event recorder systems. The sensor equipment includes threat sensors (e.g., chemical agent, toxic industrial chemical, biological, explosives, and radiological sensors) and object detection sensors (e.g., metal detectors). Transit user or transit vehicle operator activated alarms are provided on-board. Public areas (e.g., transit stops, park and ride lots, stations) are also monitored with similar surveillance and sensor equipment and provided with transit user activated alarms. In addition this service package provides surveillance and sensor monitoring of non-public areas of transit facilities (e.g., transit yards) and transit infrastructure such as bridges, tunnels, and transit railways or bus rapid transit (BRT) guideways. The surveillance equipment includes video and/or audio systems. The sensor equipment includes threat sensors and object detection sensors as described above as well as, intrusion or motion detection sensors and infrastructure integrity monitoring (e.g., rail track continuity checking or bridge structural integrity monitoring).</p> <p>NCTD contracts their transit security services or law enforcement services with the City of Oceanside PD, City of Escondido, PD, and San Diego Sheriff's Office. The buses have "Mayday" alerts that ring to dispatch, and dispatch alerts law enforcement.</p> <p>Most of the surveillance and sensor data that is collected by this service package may be monitored by either the Emergency Management Center or the Transit Management Center, providing two possible approaches to implementing this service package. This service package also supports remote transit vehicle disabling and transit vehicle operator authentication by the Transit Management Center.</p>	5 Big Moves #3: Mobility Hubs	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PT05	Metrolink Rail Security	<p>Metrolink uses track that is owned and has security monitoring by NCTD. When in the San Diego region, Metrolink emergencies would notify County law enforcement through NCTD systems. This service package provides for the physical security of transit passengers and transit vehicle operators. On-board equipment performs surveillance and sensor monitoring in order to identify potentially hazardous situations. The surveillance equipment includes video (e.g., CCTV cameras), audio systems and/or event recorder systems. The sensor equipment includes threat sensors (e.g., chemical agent, toxic industrial chemical, biological, explosives, and radiological sensors) and object detection sensors (e.g., metal detectors). Transit user or transit vehicle operator activated alarms are provided on-board. Public areas (e.g., transit stops, park and ride lots, stations) are also monitored with similar surveillance and sensor equipment and provided with transit user activated alarms. In addition this service package provides surveillance and sensor monitoring of non-public areas of transit facilities (e.g., transit yards) and transit infrastructure such as bridges, tunnels, and transit railways or bus rapid transit (BRT) guideways. The surveillance equipment includes video and/or audio systems. The sensor equipment includes threat sensors and object detection sensors as described above as well as, intrusion or motion detection sensors and infrastructure integrity monitoring (e.g., rail track continuity checking or bridge structural integrity monitoring).</p> <p>Most of the surveillance and sensor data that is collected by this service package may be monitored by either the Emergency Management Center or the Transit Management Center, providing two possible approaches to implementing this service package. This service package also supports remote transit vehicle disabling and transit vehicle operator authentication by the Transit Management Center.</p>	5 Big Moves #3: Mobility Hubs	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PT06	MTS Transit Fleet Management	<p>This service package supports automatic transit maintenance scheduling and monitoring. On-board condition sensors monitor system status and transmit critical status information to the Transit Management Center. The Transit Management Center processes this data and schedules preventative and corrective maintenance. The service package also supports the day to day management of the transit fleet inventory, including the assignment of specific transit vehicles to blocks and the assignment of transit vehicle operators to runs.</p>	5 Big Moves #2: Transit Leap	Existing
PT06	NCTD Transit Fleet Management	<p>This service package supports automatic transit maintenance scheduling and monitoring. On-board condition sensors monitor system status and transmit critical status information to the Transit Management Center. The Transit Management Center processes this data and schedules preventative and corrective maintenance. The service package also supports the day to day management of the transit fleet inventory, including the assignment of specific transit vehicles to blocks and the assignment of transit vehicle operators to runs.</p>	5 Big Moves #2: Transit Leap	Existing
PT06	Metrolink Transit Fleet Management	<p>This service package supports automatic train maintenance scheduling and monitoring. On-board condition sensors monitor system status and transmit critical status information to the Metrolink Train Management Center. The Train Management Center processes this data and schedules preventative and corrective maintenance. The service package also supports the day to day management of the transit fleet inventory, including the assignment of specific transit vehicles to blocks and the assignment of transit vehicle operators to runs.</p> <p>Metrolink dispatch center is connected to NCTD transit to coordinate information about trains.</p>	5 Big Moves #2: Transit Leap	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PT06	MTS Transit Fleet Management	<p>This service package supports automatic transit maintenance scheduling and monitoring. On-board condition sensors monitor system status and transmit critical status information to the Transit Management Center. The Transit Management Center processes this data and schedules preventative and corrective maintenance. The service package also supports the day to day management of the transit fleet inventory, including the assignment of specific transit vehicles to blocks and the assignment of transit vehicle operators to runs.</p>	5 Big Moves #4: Flexible Fleets	Existing
PT06	NCTD Transit Fleet Management	<p>This service package supports automatic transit maintenance scheduling and monitoring. On-board condition sensors monitor system status and transmit critical status information to the Transit Management Center. The Transit Management Center processes this data and schedules preventative and corrective maintenance. The service package also supports the day to day management of the transit fleet inventory, including the assignment of specific transit vehicles to blocks and the assignment of transit vehicle operators to runs.</p>	5 Big Moves #4: Flexible Fleets	Existing
PT06	Metrolink Transit Fleet Management	<p>This service package supports automatic train maintenance scheduling and monitoring. On-board condition sensors monitor system status and transmit critical status information to the Metrolink Train Management Center. The Train Management Center processes this data and schedules preventative and corrective maintenance. The service package also supports the day to day management of the transit fleet inventory, including the assignment of specific transit vehicles to blocks and the assignment of transit vehicle operators to runs.</p> <p>Metrolink dispatch center is connected to NCTD transit to coordinate information about trains.</p>	5 Big Moves #4: Flexible Fleets	Existing
PT07	MTS Transit Passenger Counting	<p>This service package counts the number of passengers entering and exiting a transit vehicle using sensors mounted on the vehicle and communicates the collected passenger data back to the management center. The collected data can be used to calculate reliable ridership figures and measure passenger load information at particular stops.</p>	5 Big Moves #2: Transit Leap	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PT07	NCTD Transit Passenger Counting	This service package counts the number of passengers entering and exiting a transit vehicle using sensors mounted on the vehicle and communicates the collected passenger data back to the management center. The collected data can be used to calculate reliable ridership figures and measure passenger load information at particular stops.	5 Big Moves #2: Transit Leap	Existing
PT07	Connecting Regional Rail Passenger Counting	This service package represents the Metrolink services and Amtrak services that border or pass through the San Diego regional and counts the number of passengers entering and exiting a transit vehicle using sensors mounted on the vehicle and communicates the collected passenger data back to the management center. The collected data can be used to calculate reliable ridership figures and measure passenger load information at particular stops.	5 Big Moves #2: Transit Leap	Existing
PT07	Connecting Regional Rail Passenger Counting	This service package represents the Metrolink services and Amtrak services that border or pass through the San Diego regional and counts the number of passengers entering and exiting a transit vehicle using sensors mounted on the vehicle and communicates the collected passenger data back to the management center. The collected data can be used to calculate reliable ridership figures and measure passenger load information at particular stops.	5 Big Moves #3: Mobility Hubs	Existing
PT08	RTMC	This service package provides transit users at transit stops and on-board transit vehicles with ready access to transit information. It also includes the regional 211 access. The information services include transit stop annunciation, imminent arrival signs, 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 service package.	5 Big Moves #2: Transit Leap	Existing
PT08	Metrolink Commuter Traveler Information	This service package provides Metrolink rail users at stops and on-board trains with ready access to train arrival and departure information. The information services include stop annunciation, imminent arrival signs, and real-time schedule displays that are of general interest to users. Systems that provide custom trip itineraries and other tailored information services are also represented by this service package.	5 Big Moves #2: Transit Leap	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PT08	NCTD Commuter Traveler Information	This service package represents NCTD's information provided for transit users at transit stops and on-board transit vehicles with ready access to transit information. The information services include transit stop announcement, imminent arrival signs, 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 service package.	5 Big Moves #2: Transit Leap	Existing
PT08	RTMC	This service package provides transit users at transit stops and on-board transit vehicles with ready access to transit information. It also includes the regional 211 access. The information services include transit stop announcement, imminent arrival signs, 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 service package.	5 Big Moves #3: Mobility Hubs	Existing
PT08	Metrolink Commuter Traveler Information	This service package provides Metrolink rail users at stops and on-board trains with ready access to train arrival and departure information. The information services include stop announcement, imminent arrival signs, and real-time schedule displays that are of general interest to users. Systems that provide custom trip itineraries and other tailored information services are also represented by this service package.	5 Big Moves #3: Mobility Hubs	Existing
PT08	NCTD Commuter Traveler Information	This service package represents NCTD's information provided for transit users at transit stops and on-board transit vehicles with ready access to transit information. The information services include transit stop announcement, imminent arrival signs, 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 service package.	5 Big Moves #3: Mobility Hubs	Existing
PT08	Metrolink Commuter Traveler Information	This service package provides Metrolink rail users at stops and on-board trains with ready access to train arrival and departure information. The information services include stop announcement, imminent arrival signs, and real-time schedule displays that are of general interest to users.	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		Systems that provide custom trip itineraries and other tailored information services are also represented by this service package.		
PT08	NCTD Commuter Traveler Information	This service package represents NCTD's information provided for transit users at transit stops and on-board transit vehicles with ready access to transit information. The information services include transit stop announcement, imminent arrival signs, 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 service package.	5 Big Moves #5: Next OS	Existing
PT09	NCTD BRT Transit Signal Priority	The BRT Transit Signal Priority service package uses transit vehicle to infrastructure communications to allow a transit vehicle to request priority at one or a series of intersections. The service package provides feedback to the transit driver indicating whether the signal priority has been granted or not. This service package can contribute to improved operating performance of the transit vehicles by reducing the time spent stopped at a red light.	5 Big Moves #1: Complete Corridors	Existing
PT09	MTS Transit Signal Priority	The Transit Signal Priority service package uses transit vehicle to infrastructure communications to allow a transit vehicle to request priority at one or a series of intersections. The service package provides feedback to the transit driver indicating whether the signal priority has been granted or not. This service package can contribute to improved operating performance of the transit vehicles by reducing the time spent stopped at a red light.	5 Big Moves #1: Complete Corridors	Existing
PT09	NCTD BRT Transit Signal Priority	The BRT Transit Signal Priority service package uses transit vehicle to infrastructure communications to allow a transit vehicle to request priority at one or a series of intersections. The service package provides feedback to the transit driver indicating whether the signal priority has been granted or not. This service package can contribute to improved	5 Big Moves #2: Transit Leap	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		operating performance of the transit vehicles by reducing the time spent stopped at a red light.		
PT09	MTS Transit Signal Priority	The Transit Signal Priority service package uses transit vehicle to infrastructure communications to allow a transit vehicle to request priority at one or a series of intersections. The service package provides feedback to the transit driver indicating whether the signal priority has been granted or not. This service package can contribute to improved operating performance of the transit vehicles by reducing the time spent stopped at a red light.	5 Big Moves #2: Transit Leap	Existing
PT10	Regional TOL Bus Lanes I-805	<p>This project provides transit only lane (TOL) on a specific area of the I-805 where MTS can use the shoulder as dedicated bus lanes during peak demand times to enhance transit operations mobility. ARC-IT identifies this as an intermittent bus lane; a lane that can change its status from a regular lane to a dedicated bus lane, for the time strictly necessary for a bus or set of buses to pass. In the case of this project, there is no regular lane so the shoulder is being used as a lane during peak congestion.</p> <p>The status of the TOL is communicated to drivers using roadside message signs and through signage, the on-ramps remain red while the bus passes the entrance to the on-ramp so as not to cause a collision. This is automated based on the location of the bus on the shoulder. The ramp monitoring and red lighting is automated and does not require communication from transit management center to traffic management center.</p> <p>The status of the TOL is communicated to drivers using roadside message signs and through signage, the on-ramps remain red while the bus passes the entrance to the on-ramp so as not to cause a collision. This is automated based on the location of the bus on the shoulder. The</p>	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		ramp monitoring and red lighting is automated and does not require communication from transit management center to traffic management center.		
PT10	Curb Management Transit Lanes	This service package uses the parking spaces allocated for lanes and curb management and provides dedicated bus lanes during peak demand times to enhance transit operations mobility. An intermittent bus lane is a lane that can change its status from regular lane (accessible for all vehicles) to bus lane, for the time strictly necessary for a bus or set of buses to pass. The status of the IBL is communicated to drivers using roadside message signs and through in-vehicle signage. The creation and removal of dedicated bus lanes is managed through coordination between traffic and transit centers.	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PT10	Regional TOL Bus Lanes I-805	<p>This project provides transit only lane (TOL) on a specific area of the I-805 where MTS can use the shoulder as dedicated bus lanes during peak demand times to enhance transit operations mobility. ARC-IT identifies this as an intermittent bus lane; a lane that can change its status from a regular lane to a dedicated bus lane, for the time strictly necessary for a bus or set of buses to pass. In the case of this project, there is no regular lane so the shoulder is being used as a lane during peak congestion.</p> <p>The status of the TOL is communicated to drivers using roadside message signs and through signage, the on-ramps remain red while the bus passes the entrance to the on-ramp so as not to cause a collision. This is automated based on the location of the bus on the shoulder. The ramp monitoring and red lighting is automated and does not require communication from transit management center to traffic management center.</p> <p>The status of the TOL is communicated to drivers using roadside message signs and through signage, the on-ramps remain red while the bus passes the entrance to the on-ramp so as not to cause a collision. This is automated based on the location of the bus on the shoulder. The ramp monitoring and red lighting is automated and does not require communication from transit management center to traffic management center.</p>	5 Big Moves #2: Transit Leap	Planned
PT10	Curb Management Transit Lanes	<p>This service package uses the parking spaces allocated for lanes and curb management and provides dedicated bus lanes during peak demand times to enhance transit operations mobility. An intermittent bus lane is a lane that can change its status from regular lane (accessible for all vehicles) to bus lane, for the time strictly necessary for a bus or set of buses to pass. The status of the IBL is communicated to drivers using roadside message signs and through in-vehicle signage. The creation and removal of dedicated bus lanes is managed through coordination between traffic and transit centers.</p>	5 Big Moves #2: Transit Leap	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PT11	NCTD Transit Pedestrian Indication	The Transit Pedestrian Indication service package provides vehicle to device communications to inform pedestrians at a station or stop about the presence of a transit vehicle. In addition, this service package would inform the transit vehicle operator about the presence of pedestrians nearby and those waiting for the bus. It would help prevent collisions between transit vehicles and pedestrians.	5 Big Moves #2: Transit Leap	Planned
PT11	MTS Transit Pedestrian Indication	MTS Transit Pedestrian Indication service package provides vehicle to device communications to inform pedestrians at a station or stop about the presence of a transit vehicle. In addition, this service package would inform the transit vehicle operator about the presence of pedestrians nearby and those waiting for the bus. It would help prevent collisions between transit vehicles and pedestrians.	5 Big Moves #2: Transit Leap	Existing
PT11	NCTD Transit Pedestrian Indication	The Transit Pedestrian Indication service package provides vehicle to device communications to inform pedestrians at a station or stop about the presence of a transit vehicle. In addition, this service package would inform the transit vehicle operator about the presence of pedestrians nearby and those waiting for the bus. It would help prevent collisions between transit vehicles and pedestrians.	5 Big Moves #3: Mobility Hubs	Planned
PT11	MTS Transit Pedestrian Indication	MTS Transit Pedestrian Indication service package provides vehicle to device communications to inform pedestrians at a station or stop about the presence of a transit vehicle. In addition, this service package would inform the transit vehicle operator about the presence of pedestrians nearby and those waiting for the bus. It would help prevent collisions between transit vehicles and pedestrians.	5 Big Moves #3: Mobility Hubs	Existing
PT12	MTS Transit Vehicle at Station/Stop Warnings	MTS Transit Vehicle at Station/Stop Warnings service package inform nearby vehicles of the presence of a transit vehicle at a station or stop. The service package also indicates the intention of the transit vehicle in terms of pulling into or out of a station/stop.	5 Big Moves #2: Transit Leap	Existing
PT12	NCTD Transit Vehicle at Station/Stop Warnings	The Transit Vehicle at Station/Stop Warnings service package inform nearby vehicles of the presence of a transit vehicle at a station or stop. The service package also indicates the intention of the transit vehicle in terms of pulling into or out of a station/stop.	5 Big Moves #2: Transit Leap	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PT12	MTS Transit Vehicle at Station/Stop Warnings	MTS Transit Vehicle at Station/Stop Warnings service package inform nearby vehicles of the presence of a transit vehicle at a station or stop. The service package also indicates the intention of the transit vehicle in terms of pulling into or out of a station/stop.	5 Big Moves #3: Mobility Hubs	Existing
PT12	NCTD Transit Vehicle at Station/Stop Warnings	The Transit Vehicle at Station/Stop Warnings service package inform nearby vehicles of the presence of a transit vehicle at a station or stop. The service package also indicates the intention of the transit vehicle in terms of pulling into or out of a station/stop.	5 Big Moves #3: Mobility Hubs	Existing
PT13	Vehicle Turning Right in Front of a Transit Vehicle	The Vehicle Turning Right in Front of a Transit Vehicle (VTRFTV) service package determines the movement of vehicles near to a transit vehicle stopped at a transit stop and provides an indication to the transit vehicle operator that a nearby vehicle is pulling in front of the transit vehicle to make a right turn. This service package will help the transit vehicle determine if the area in front of it will not be occupied as it begins to pull away from a transit stop.	5 Big Moves #2: Transit Leap	Planned
PT14	Multimodal Rail - Airport Services	This service 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 including airport terminals and rail where transfers can be made conveniently) and also improve operating efficiency.	5 Big Moves #2: Transit Leap	Planned
PT14	Regional Transit Management System	This service 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.	5 Big Moves #2: Transit Leap	Existing
PT14	Regional Transit Management System	This service 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,	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		stations, or terminals where transfers can be made conveniently) and also improve operating efficiency.		
PT15	NCTD Transit Stop Request	This service package allows a transit passenger to send a stop request to an approaching transit vehicle. The transit vehicle receives the request and notifies the vehicle operator of the stop request. NCTD has this service for FLEX vehicles and they are allowed to go within 1 mile of their scheduled route to pick up rides.	5 Big Moves #2: Transit Leap	Existing
PT15	MTS Transit Stop Request	This service package allows a transit passenger to send a stop request to an approaching transit vehicle. The transit vehicle receives the request and notifies the vehicle operator of the stop request.	5 Big Moves #2: Transit Leap	Existing
PT16	Route ID for the Visually Impaired	This service package assists visually impaired travelers to identify the appropriate bus and route to their intended destination. It provides information from bus stop infrastructure to visually impaired travelers portable devices that can be converted to audible information regarding the appropriate bus and route. It also allows the visually impaired traveler to query the portable device to identify route options.	5 Big Moves #2: Transit Leap	Planned
PT17	Transit Connection Protection	This service package allows travelers to initiate a request for connection protection anytime during the trip using a personal device or on-board equipment and receive a confirmation indicating whether the request is accepted. Connection protection uses real time data to examine the arrival status of a transit vehicle and to transmit a hold message to a vehicle or other mode of transportation (e.g. rail) in order for the traveler to make a successful transfer from one vehicle to another. Connection protection can be performed within a single agency, across multiple agencies, and across multiple modes. In an intermodal, multimodal or interagency environment, a transfer request brokerage system, represented by the Transit Management System, can be used to determine the feasibility of a connection protection request and support schedule coordination between agencies.	5 Big Moves #2: Transit Leap	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PT17	MTC Transit Connection Protection	<p>This service package allows travelers to initiate a request for connection protection anytime during the trip using a personal device or on-board equipment and receive a confirmation indicating whether the request is accepted. Connection protection uses real time data to examine the arrival status of a transit vehicle and to transmit a hold message to a vehicle or other mode of transportation (e.g. rail) in order for the traveler to make a successful transfer from one vehicle to another. Connection protection can be performed within a single agency, across multiple agencies, and across multiple modes. In an intermodal, multimodal or interagency environment, a transfer request brokerage system, represented by the Transit Management System, can be used to determine the feasibility of a connection protection request and support schedule coordination between agencies.</p>	5 Big Moves #2: Transit Leap	Planned
PT17	NCTD Transit Connection Protection	<p>This service package allows travelers to initiate a request for connection protection anytime during the trip using a personal device or on-board equipment and receive a confirmation indicating whether the request is accepted. Connection protection uses real time data to examine the arrival status of a transit vehicle and to transmit a hold message to a vehicle or other mode of transportation (e.g. rail) in order for the traveler to make a successful transfer from one vehicle to another. Connection protection can be performed within a single agency, across multiple agencies, and across multiple modes. In an intermodal, multimodal or interagency environment, a transfer request brokerage system, represented by the Transit Management System, can be used to determine the feasibility of a connection protection request and support schedule coordination between agencies.</p>	5 Big Moves #2: Transit Leap	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PT17	Transit Connection Protection	<p>This service package allows travelers to initiate a request for connection protection anytime during the trip using a personal device or on-board equipment and receive a confirmation indicating whether the request is accepted. Connection protection uses real time data to examine the arrival status of a transit vehicle and to transmit a hold message to a vehicle or other mode of transportation (e.g. rail) in order for the traveler to make a successful transfer from one vehicle to another. Connection protection can be performed within a single agency, across multiple agencies, and across multiple modes. In an intermodal, multimodal or interagency environment, a transfer request brokerage system, represented by the Transit Management System, can be used to determine the feasibility of a connection protection request and support schedule coordination between agencies.</p>	5 Big Moves #3: Mobility Hubs	Planned
PT17	Lane Management on Arterials - Transit Connection Protection	<p>This service package allows travelers to initiate a request for connection protection anytime during the trip using a personal device or on-board equipment and receive a confirmation indicating whether the request is accepted. Connection protection uses real time data to examine the arrival status of a transit vehicle and to transmit a hold message to a vehicle or other mode of transportation (e.g. rail) in order for the traveler to make a successful transfer from one vehicle to another. Connection protection can be performed within a single agency, across multiple agencies, and across multiple modes. In an intermodal, multimodal or interagency environment, a transfer request brokerage system, represented by the Transit Management System, can be used to determine the feasibility of a connection protection request and support schedule coordination between agencies.</p>	5 Big Moves #3: Mobility Hubs	Planned
PT18	Regional Multi-Modal Compass Cloud Fare Payment	<p>The Integrated Multi-Modal Electronic Payment service package provides electronic payment capability through SANDAG for transit fares, tolls, road use, parking, and other areas requiring electronic payments.</p>	5 Big Moves #2: Transit Leap	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
PT18	Regional Multi-Modal Compass Cloud Fare Payment	The Integrated Multi-Modal Electronic Payment service package provides electronic payment capability through SANDAG for transit fares, tolls, road use, parking, and other areas requiring electronic payments.	5 Big Moves #5: Next OS	Existing
PT18	FasTrak (toll fares)	The Integrated Multi-Modal Electronic Payment service package provides electronic payment capability for transit fares, tolls, road use, parking, and other areas requiring electronic payments.	5 Big Moves #5: Next OS	Existing
PT18	Demand Management Multi-Modal Electronic Payment	Demand Management Multi-Modal Electronic Payment. The Integrated Multi-Modal Electronic Payment service package provides electronic payment capability for Transportation Network Cooperatives such as Uber/Lift, Bike share, electronic scooter, and other areas requiring electronic payments.	5 Big Moves #5: Next OS	Existing
Sustainable Travel (ST)				
ST01	Regional Emissions Monitoring	This service package monitors individual vehicle emissions and provides general air quality monitoring through ARB using distributed sensors to collect the data. The collected information is transmitted to the Emissions Management Center for processing. Both area wide air quality monitoring and point emissions monitoring are supported by this service package. For area wide monitoring, this service 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 service package collects data from on-board diagnostic systems and measures tail pipe emissions to identify vehicles that exceed emissions standards and/or clean vehicles that could be released from standard emissions tests, depending on policy and regulations. Summary emissions information or warnings can also be displayed to drivers. The gathered information can be used to implement environmentally sensitive travel demand management (TDM) programs, policies, and regulations.	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
ST02	Eco-Traffic Signal Timing	<p>The Eco-Traffic Signal Timing service package is similar to current adaptive traffic signal control systems; however, the service package’s objective is explicitly to optimize traffic signals for the environment rather than the current adaptive systems’ objective, which is to enhance the intersection level of service or throughput, which might improve the intersection’s environmental performance. The Eco-Traffic Signal Timing service package processes real-time and historical connected vehicle data at signalized intersections to reduce fuel consumption and overall emissions at the intersection, along a corridor, or for a region. It evaluates traffic and environmental parameters at each intersection in real time and adapts so that the traffic network is optimized using available green time to serve the actual traffic demands while minimizing the environmental impact.</p>	5 Big Moves #1: Complete Corridors	Planned
ST02	Eco-Traffic Signal Timing	<p>The Eco-Traffic Signal Timing service package is similar to current adaptive traffic signal control systems; however, the service package’s objective is explicitly to optimize traffic signals for the environment rather than the current adaptive systems’ objective, which is to enhance the intersection level of service or throughput, which might improve the intersection’s environmental performance. The Eco-Traffic Signal Timing service package processes real-time and historical connected vehicle data at signalized intersections to reduce fuel consumption and overall emissions at the intersection, along a corridor, or for a region. It evaluates traffic and environmental parameters at each intersection in real time and adapts so that the traffic network is optimized using available green time to serve the actual traffic demands while minimizing the environmental impact.</p>	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
ST03	Eco-Traffic Metering	The Eco-Traffic Metering service package determines the most environmentally efficient operation of traffic signals at freeway on-ramps to manage the rate of entering automobiles. This service package collects traffic and environmental data from roadside sensors and connected vehicles to allow on-ramp merge operations that minimize overall emissions, including traffic and environmental conditions on the ramp and on the freeway upstream and downstream of the ramp. Using this information, the service package determines a timing plan for the ramp meter based on current and predicted traffic and environmental conditions.	5 Big Moves #1: Complete Corridors	Planned
ST03	Eco-Traffic Metering	The Eco-Traffic Metering service package determines the most environmentally efficient operation of traffic signals at freeway on-ramps to manage the rate of entering automobiles. This service package collects traffic and environmental data from roadside sensors and connected vehicles to allow on-ramp merge operations that minimize overall emissions, including traffic and environmental conditions on the ramp and on the freeway upstream and downstream of the ramp. Using this information, the service package determines a timing plan for the ramp meter based on current and predicted traffic and environmental conditions.	5 Big Moves #5: Next OS	Planned
ST04	Roadside Lighting	The Roadside Lighting service package is a connected vehicle version of the automated roadside lighting systems that uses the presence of vehicles based on V2I communications as an input to control of roadside lighting systems. The service package can use the presence of vehicles to alter roadside lighting levels, and can use environmental data obtained from the vehicles as an input to support adjustment of the lighting based on adverse weather conditions such as fog, rain, or snow.	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
ST05	Public - Private Electric Charging Stations	<p>There are public and private charging stations and services throughout the San Diego region at major centers, cities, county, private companies, etc. Electric vehicles (EV) are able to be charged with access to EV charging stations located in various cities throughout the San Diego region, to charge their EVs where they live, work, and play. One of the larger options for EV charging throughout San Diego is known as the Blink Network.</p> <p>The Electric Charging Station Management service package provides an exchange of information between the EV and charging station to manage the charging operation. The agency or company operating the charging station can use vehicle information such as the capability of the vehicle (e.g. operational status of the electrical system, how many amps can the vehicle handle, and % charge complete) to determine that the charge is being properly applied and determine an estimated time to complete charging.</p> <p>The Electric Charging Station Management service package provides an exchange of information between the electric vehicle and charging station to manage the charging operation. The agency or company operating the charging station can use vehicle information such as the capability of the vehicle (e.g. operational status of the electrical system, how many amps can the vehicle handle, and % charge complete) to determine that the charge is being properly applied and determine an estimated time to complete charging.</p>	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
ST05	MTS and NCTD Transit Electric Charging Stations	<p>The Transit Electric Charging Station Management service package provides an exchange of information between the electric vehicle and charging station to manage the charging operation for transit. MTS and NCTD plan on having 100% zero emission transit vehicles by 2040 in accordance to California state regulations, which include hydrogen and electric. This approach for service allows for electronic or hydrogen servicing outside of the agency. The agency or company operating the charging station can use vehicle information such as the capability of the vehicle (e.g. operational status of the electrical system, how many amps can the vehicle handle, and % charge complete) to determine that the charge is being properly applied and determine an estimated time to complete charging.</p>	5 Big Moves #2: Transit Leap	Planned
ST05	Public - Private Electric Charging Stations	<p>There are public and private charging stations and services throughout the San Diego region at major centers, cities, county, private companies, etc. Electric vehicles (EV) are able to be charged with access to EV charging stations located in various cities throughout the San Diego region, to charge their EVs where they live, work, and play. One of the larger options for EV charging throughout San Diego is known as the Blink Network.</p> <p>The Electric Charging Station Management service package provides an exchange of information between the EV and charging station to manage the charging operation. The agency or company operating the charging station can use vehicle information such as the capability of the vehicle (e.g. operational status of the electrical system, how many amps can the vehicle handle, and % charge complete) to determine that the charge is being properly applied and determine an estimated time to complete charging.</p> <p>The Electric Charging Station Management service package provides an exchange of information between the electric vehicle and charging station to manage the charging operation. The agency or company</p>	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		operating the charging station can use vehicle information such as the capability of the vehicle (e.g. operational status of the electrical system, how many amps can the vehicle handle, and % charge complete) to determine that the charge is being properly applied and determine an estimated time to complete charging.		
ST06	Regional HOV/HOT Lane Management	This service package manages high-occupancy vehicle (HOV) and high-occupancy toll (HOT) 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 can be detected to verify HOV compliance and to notify enforcement agencies of violations. For HOT lane configurations, tolls are collected for vehicles that do not meet the high-occupancy criteria for the lane.	5 Big Moves #1: Complete Corridors	Existing
ST06	Regional HOV/HOT Lane Management	This service package manages high-occupancy vehicle (HOV) and high-occupancy toll (HOT) 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 can be detected to verify HOV compliance and to notify enforcement agencies	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		of violations. For HOT lane configurations, tolls are collected for vehicles that do not meet the high-occupancy criteria for the lane.		
ST07	Eco-Lanes Management	<p>The Eco-Lanes Management service package supports the operations of eco-lanes – dedicated lanes similar to high-occupancy vehicle (HOV) or high-occupancy toll (HOT) lanes, but optimized for the environment. The service package employs communication technology to gather traffic and environmental information from multiple sources including infrastructure, vehicles, and other systems. The service package then processes these data and determines whether an eco-lane should be created or decommissioned along a roadway. These decisions would be in response to real-time traffic and environmental conditions. While the eco-lanes would have the capability to be flexible and more dynamic, it is envisioned that these parameters would change only as needed to ensure that travelers do not become confused by a system that is too dynamic in nature. Travelers would need to assume some level of consistency with their trip and should not be surprised by constant changing of the eco-lane’s parameters. The Eco-Lanes Management service package establishes parameters and defines or geo-fences the eco-lanes boundaries. Eco-lanes parameters may include the types of vehicles allowed in the eco-lanes, emissions parameters for entering the eco-lanes, the number of lanes, and the start and end of the eco-lanes. The service package also conveys this information about eco-lanes to traveler information centers so those centers can provide the information to travelers.</p>	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
ST07	Eco-Lanes Management	<p>The Eco-Lanes Management service package supports the operations of eco-lanes – dedicated lanes similar to high-occupancy vehicle (HOV) or high-occupancy toll (HOT) lanes, but optimized for the environment. The service package employs communication technology to gather traffic and environmental information from multiple sources including infrastructure, vehicles, and other systems. The service package then processes these data and determines whether an eco-lane should be created or decommissioned along a roadway. These decisions would be in response to real-time traffic and environmental conditions. While the eco-lanes would have the capability to be flexible and more dynamic, it is envisioned that these parameters would change only as needed to ensure that travelers do not become confused by a system that is too dynamic in nature. Travelers would need to assume some level of consistency with their trip and should not be surprised by constant changing of the eco-lane’s parameters. The Eco-Lanes Management service package establishes parameters and defines or geo-fences the eco-lanes boundaries. Eco-lanes parameters may include the types of vehicles allowed in the eco-lanes, emissions parameters for entering the eco-lanes, the number of lanes, and the start and end of the eco-lanes. The service package also conveys this information about eco-lanes to traveler information centers so those centers can provide the information to travelers.</p>	5 Big Moves #5: Next OS	Planned
ST08	Eco-Approach and Departure at Signalized Intersections	<p>The Eco-Approach and Departure at Signalized Intersections service package uses wireless data communications sent from a connected vehicle roadside equipment (RSE) unit to connected vehicles to encourage 'green' approaches to and departures from signalized intersections. The vehicle collects intersection geometry information and signal phase movement information using V2I communications and data from nearby vehicles using V2V communications. Upon receiving this information, the service package performs calculations to provide speed advice to the driver, allowing the driver to adapt the vehicle’s speed to pass the next traffic signal on green or to decelerate to a stop in the</p>	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		<p>most eco-friendly manner. The service package also considers a vehicle’s acceleration as it departs from a signalized intersection.</p>		
ST08	Eco-Approach and Departure at Signalized Intersections	<p>The Eco-Approach and Departure at Signalized Intersections service package uses wireless data communications sent from a connected vehicle roadside equipment (RSE) unit to connected vehicles to encourage 'green' approaches to and departures from signalized intersections. The vehicle collects intersection geometry information and signal phase movement information using V2I communications and data from nearby vehicles using V2V communications. Upon receiving this information, the service package performs calculations to provide speed advice to the driver, allowing the driver to adapt the vehicle’s speed to pass the next traffic signal on green or to decelerate to a stop in the most eco-friendly manner. The service package also considers a vehicle’s acceleration as it departs from a signalized intersection.</p>	5 Big Moves #5: Next OS	Planned
ST09	Connected Eco-Driving	<p>The Connected Eco-Driving service package provides customized real-time driving advice to drivers so that they can adjust their driving behavior to save fuel and reduce emissions. Eco-driving advice includes recommended driving speeds, optimal acceleration, and optimal deceleration profiles based on prevailing traffic conditions, interactions with nearby vehicles, and upcoming road grades. The service package also provides feedback to drivers on their driving behavior to encourage drivers to drive in a more environmentally efficient manner. Finally, the service package may include vehicle-assisted strategies where the vehicle automatically implements the eco-driving strategy (e.g., changes gears, switches power sources, or reduces its speed in an eco-friendly manner).</p>	5 Big Moves #4: Flexible Fleets	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
ST09	Connected Eco-Driving	<p>The Connected Eco-Driving service package provides customized real-time driving advice to drivers so that they can adjust their driving behavior to save fuel and reduce emissions. Eco-driving advice includes recommended driving speeds, optimal acceleration, and optimal deceleration profiles based on prevailing traffic conditions, interactions with nearby vehicles, and upcoming road grades. The service package also provides feedback to drivers on their driving behavior to encourage drivers to drive in a more environmentally efficient manner. Finally, the service package may include vehicle-assisted strategies where the vehicle automatically implements the eco-driving strategy (e.g., changes gears, switches power sources, or reduces its speed in an eco-friendly manner).</p>	5 Big Moves #5: Next OS	Planned
ST10	Low Emissions Zone Management	<p>The Low Emissions Zone Management service package supports the operation of a low emissions zone that is responsive to real-time traffic and environmental conditions. Low emissions zones are geographic areas that seek to restrict or deter access by specific categories of high-polluting vehicles into the area to improve the air quality within the geographic area. The service package uses data collected from vehicles using connected vehicle technologies and from roadside equipment as input to the system. The Low Emissions Zone Management service package supports the geo-fencing of a cordon that may be scalable and moveable (e.g., created for a day, removable, flexible in its boundaries) and would be less dependent on conventional ITS infrastructure. The service package would establish parameters including the types of vehicles permitted to enter the zone, exemptions for transit vehicles, emissions criteria for entering the zone, fees or incentives for vehicles based on emissions data collected from the vehicle, and geographic boundaries for the low emissions zone. The service package would also include electronic toll collection functions that support payments of fees or collection of incentives for registered vehicles using connected vehicle technologies. Finally, this service package provides information about the low emissions zone to traveler information centers, including</p>	5 Big Moves #4: Flexible Fleets	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		<p>information about criteria for entering the zone, expected fees and incentives, current and predicted traffic conditions, and geographic boundaries of the zone.</p>		
ST10	Low Emissions Zone Management	<p>The Low Emissions Zone Management service package supports the operation of a low emissions zone that is responsive to real-time traffic and environmental conditions. Low emissions zones are geographic areas that seek to restrict or deter access by specific categories of high-polluting vehicles into the area to improve the air quality within the geographic area. The service package uses data collected from vehicles using connected vehicle technologies and from roadside equipment as input to the system. The Low Emissions Zone Management service package supports the geo-fencing of a cordon that may be scalable and moveable (e.g., created for a day, removable, flexible in its boundaries) and would be less dependent on conventional ITS infrastructure. The service package would establish parameters including the types of vehicles permitted to enter the zone, exemptions for transit vehicles, emissions criteria for entering the zone, fees or incentives for vehicles based on emissions data collected from the vehicle, and geographic boundaries for the low emissions zone. The service package would also include electronic toll collection functions that support payments of fees</p>	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		<p>or collection of incentives for registered vehicles using connected vehicle technologies. Finally, this service package provides information about the low emissions zone to traveler information centers, including information about criteria for entering the zone, expected fees and incentives, current and predicted traffic conditions, and geographic boundaries of the zone.</p>		
Support (SU)				
SU01	Regional Connected Vehicle System Monitoring and Management	<p>This service package provides monitoring, management and control services necessary to other applications and/or devices operating within the Connected Vehicle Environment. This service package maintains and monitors the performance and configuration of the connected vehicle system. This includes tracking and management of the infrastructure configuration as well as detection, isolation, and correction of infrastructure service problems. It also includes monitoring of performance of the infrastructure and mobile equipment, which includes RSEs, OBEs, the back office applications, as well as the communication links that connect the system.</p>	5 Big Moves #1: Complete Corridors	Planned
SU01	BWT Connected Vehicle System Monitoring and Management (SD County)	<p>--Instance of SU01-- This service package provides monitoring, management and control services necessary to other applications and/or devices operating within the Connected Vehicle Environment. This service package maintains and monitors the performance and configuration of the connected vehicle system. This includes tracking and management of the infrastructure configuration as well as detection, isolation, and correction of infrastructure service problems. It also includes monitoring of performance of the infrastructure and mobile equipment, which includes RSEs, OBEs, the back office applications, as well as the communication links that connect the system.</p>	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
SU01	Regional Connected Vehicle System Monitoring and Management	This service package provides monitoring, management and control services necessary to other applications and/or devices operating within the Connected Vehicle Environment. This service package maintains and monitors the performance and configuration of the connected vehicle system. This includes tracking and management of the infrastructure configuration as well as detection, isolation, and correction of infrastructure service problems. It also includes monitoring of performance of the infrastructure and mobile equipment, which includes RSEs, OBEs, the back office applications, as well as the communication links that connect the system.	5 Big Moves #4: Flexible Fleets	Planned
SU01	BWT Connected Vehicle System Monitoring and Management (SD County)	--Instance of SU01-- This service package provides monitoring, management and control services necessary to other applications and/or devices operating within the Connected Vehicle Environment. This service package maintains and monitors the performance and configuration of the connected vehicle system. This includes tracking and management of the infrastructure configuration as well as detection, isolation, and correction of infrastructure service problems. It also includes monitoring of performance of the infrastructure and mobile equipment, which includes RSEs, OBEs, the back office applications, as well as the communication links that connect the system.	5 Big Moves #4: Flexible Fleets	Planned
SU01	Regional Connected Vehicle System Monitoring and Management	This service package provides monitoring, management and control services necessary to other applications and/or devices operating within the Connected Vehicle Environment. This service package maintains and monitors the performance and configuration of the connected vehicle system. This includes tracking and management of the infrastructure configuration as well as detection, isolation, and correction of infrastructure service problems. It also includes monitoring of performance of the infrastructure and mobile equipment, which includes RSEs, OBEs, the back office applications, as well as the communication links that connect the system.	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
SU01	BWT Connected Vehicle System Monitoring and Management (SD County)	--Instance of SU01-- This service package provides monitoring, management and control services necessary to other applications and/or devices operating within the Connected Vehicle Environment. This service package maintains and monitors the performance and configuration of the connected vehicle system. This includes tracking and management of the infrastructure configuration as well as detection, isolation, and correction of infrastructure service problems. It also includes monitoring of performance of the infrastructure and mobile equipment, which includes RSEs, OBEs, the back office applications, as well as the communication links that connect the system.	5 Big Moves #5: Next OS	Planned
SU02	Connected Vehicle Core Authorization	This service package manages the authorization mechanisms to define roles, responsibilities and permissions for connected vehicle applications . This allows system administrators to establish operational environments where different connected vehicle system users may have different capabilities. For instance, some Mobile elements may be authorized to request signal priority, or some Centers may be permitted to use the geographic broadcast service, while those without those permissions would not.	5 Big Moves #1: Complete Corridors	Planned
SU02	Connected Vehicle Core Authorization	This service package manages the authorization mechanisms to define roles, responsibilities and permissions for connected vehicle applications . This allows system administrators to establish operational environments where different connected vehicle system users may have different capabilities. For instance, some Mobile elements may be authorized to request signal priority, or some Centers may be permitted to use the geographic broadcast service, while those without those permissions would not.	5 Big Moves #4: Flexible Fleets	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
SU02	Connected Vehicle Core Authorization	This service package manages the authorization mechanisms to define roles, responsibilities and permissions for connected vehicle applications . This allows system administrators to establish operational environments where different connected vehicle system users may have different capabilities. For instance, some Mobile elements may be authorized to request signal priority, or some Centers may be permitted to use the geographic broadcast service, while those without those permissions would not.	5 Big Moves #5: Next OS	Planned
SU03	Regional Data Distribution (future)	Future plans for ICMS Regional Data Distribution includes first responders (i.e., law enforcement, fire, emergency response, etc.). This service package manages the distribution of data from data providers to data consumers and protects those data from unauthorized access. It informs data providers of how to provide data, manages data subscriptions, and provides data forwarding capabilities. The service package also maintains a directory of System Users that want data and supports multiple distribution mechanisms including publish-subscribe and directly from data provider to data consumer. It allows data consumers to specify (and change the specification of) data they wish to receive.	5 Big Moves #5: Next OS	Planned
SU03	Regional Emergency Response Data Distribution	This service package manages the distribution of data from data providers to data consumers and protects those data from unauthorized access. It informs data providers of how to provide data, manages data subscriptions, and provides data forwarding capabilities. The service package also maintains a directory of System Users that want data and supports multiple distribution mechanisms including publish-subscribe and directly from data provider to data consumer. It allows data consumers to specify (and change the specification of) data they wish to receive.	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
SU03	Regional Data Hub (existing)	The ICMS Data Warehouse is a data hub of activity. This service package manages the distribution of data from data providers to data consumers and protects those data from unauthorized access. It informs data providers of how to provide data, manages data subscriptions, and provides data forwarding capabilities. The service package also maintains a directory of System Users that want data and supports multiple distribution mechanisms including publish-subscribe and directly from data provider to data consumer. It allows data consumers to specify (and change the specification of) data they wish to receive.	5 Big Moves #5: Next OS	Existing
SU04	Regional Transit Map Management	This service package defines interfaces that can be used download or update all types of map data used to support intelligent transportation systems. This map data will be accessed by centers, field, and vehicle physical objects. The service package can also be used to harness the Connected Vehicle Environment to provide rich source data that can be used to verify, refine, and enhance geographic map data.	5 Big Moves #2: Transit Leap	Existing
SU04	Regional Map Management	This service package defines interfaces that can be used download or update all types of map data used to support intelligent transportation systems. This map data will be accessed by centers, field, and vehicle physical objects. The service package can also be used to harness the Connected Vehicle Environment to provide rich source data that can be used to verify, refine, and enhance geographic map data.	5 Big Moves #5: Next OS	Planned
SU04	Regional Transit Map Management	This service package defines interfaces that can be used download or update all types of map data used to support intelligent transportation systems. This map data will be accessed by centers, field, and vehicle physical objects. The service package can also be used to harness the Connected Vehicle Environment to provide rich source data that can be used to verify, refine, and enhance geographic map data.	5 Big Moves #5: Next OS	Existing
SU05	Regional ITS Location and Time	This service package identifies the external systems and interfaces that provide accurate location and time to intelligent transportation system devices and systems.	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
SU06	Object Registration and Discovery	<p>This service package provides registration and lookup services necessary to allow objects to locate other objects operating within the Connected Vehicle Environment.</p> <p>An object registry is like a phone book for all the connected centers, systems, and equipment in the transportation system (the “objects”). In this service package, each object registers itself with the ORDS and tells the registry where it lives in the communication network (e.g., host, port, node name) and information about the services it provides - information that other objects can use to determine the type of service, the geographic scope of the service, and other information that helps users of the registry to make informed decisions about which object(s) support a needed service or information stream. This is the “Discovery” part of the service. Connected objects can use the registry to find (discover) objects that can be used to get needed information or services.</p>	5 Big Moves #4: Flexible Fleets	Planned
SU06	Object Registration and Discovery	<p>This service package provides registration and lookup services necessary to allow objects to locate other objects operating within the Connected Vehicle Environment.</p> <p>An object registry is like a phone book for all the connected centers, systems, and equipment in the transportation system (the “objects”). In this service package, each object registers itself with the ORDS and tells the registry where it lives in the communication network (e.g., host, port, node name) and information about the services it provides - information that other objects can use to determine the type of service, the geographic scope of the service, and other information that helps users of the registry to make informed decisions about which object(s) support a needed service or information stream. This is the “Discovery” part of the service. Connected objects can use the registry to find (discover) objects that can be used to get needed information or services.</p>	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
SU08	Connected Vehicle Security and Credentials Management	This service package is used to ensure trusted communications between mobile devices and other mobile devices or roadside devices and protect data they handle from unauthorized access. The service package grants trust credentials to qualified mobile devices and infrastructure devices in the Connected Vehicle Environment so that those devices may be considered trusted by other devices that receive trust credentials from the SCM service package. The service package allows credentials to be requested and revoked and secures the exchange of trust credentials between parties, so that no other party can intercept and use those credentials illegitimately. The service package provides security to the transmissions between connected devices, ensuring authenticity and integrity of the transmissions. Additional security features include privacy protection, authorization and privilege class definition, as well as non-repudiation of origin.	5 Big Moves #1: Complete Corridors	Planned
SU08	Connected Vehicle Security and Credentials Management	This service package is used to ensure trusted communications between mobile devices and other mobile devices or roadside devices and protect data they handle from unauthorized access. The service package grants trust credentials to qualified mobile devices and infrastructure devices in the Connected Vehicle Environment so that those devices may be considered trusted by other devices that receive trust credentials from the SCM service package. The service package allows credentials to be requested and revoked and secures the exchange of trust credentials between parties, so that no other party can intercept and use those credentials illegitimately. The service package provides security to the transmissions between connected devices, ensuring authenticity and integrity of the transmissions. Additional security features include privacy protection, authorization and privilege class definition, as well as non-repudiation of origin.	5 Big Moves #5: Next OS	Planned
SU09	Caltrans Device Certification and Enrollment	This service package is used to illustrate the certification of devices, typically but not exclusively those intended for the connected vehicle environment by Caltrans. This assumes some independent certification body that can verify the performance and behavior of devices and	5 Big Moves #4: Flexible Fleets	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		applications, and provide that information to credentials-granting entities.		
SU09	Caltrans Device Certification and Enrollment	This service package is used to illustrate the certification of devices, typically but not exclusively those intended for the connected vehicle environment by Caltrans. This assumes some independent certification body that can verify the performance and behavior of devices and applications, and provide that information to credentials-granting entities.	5 Big Moves #5: Next OS	Planned
SU10	SANDAG Regional Device Certification and Enrollment	This service package supports maintenance of SANDAG's computers, networks, video walls, and other information technology assets that are installed in a center to support center operations. Like other support service packages, this SP is drawn at a high level of abstraction so the basic interfaces and functionality associated with maintaining center IT assets can be applied to any center.	5 Big Moves #5: Next OS	Planned
SU11	BWT Field Equipment Maintenance (SD County)	--Instance of SU11-- This service package supports maintenance of ITS devices that are installed in the field. Like other support service packages, this SP is drawn at a high level of abstraction so the basic interfaces and functionality associated with maintaining field ITS assets can be applied to any field equipment. In particular, this service package supports maintenance of field subsystems like ITS Payment Equipment, Parking Management Systems, Traveler Support Equipment, and Commercial Vehicle Check Equipment where maintenance is not covered by a more specific Service Package. Two Field subsystems have more specific service packages associated with their maintenance: See MC05 for maintenance of ITS Roadway Equipment and SU01 for more specific interfaces associated with maintaining Connected Vehicle Roadside Equipment.	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
SU11	BWT Field Equipment Maintenance (SD County)	<p>--Instance of SU11-- This service package supports maintenance of ITS devices that are installed in the field. Like other support service packages, this SP is drawn at a high level of abstraction so the basic interfaces and functionality associated with maintaining field ITS assets can be applied to any field equipment. In particular, this service package supports maintenance of field subsystems like ITS Payment Equipment, Parking Management Systems, Traveler Support Equipment, and Commercial Vehicle Check Equipment where maintenance is not covered by a more specific Service Package. Two Field subsystems have more specific service packages associated with their maintenance: See MC05 for maintenance of ITS Roadway Equipment and SU01 for more specific interfaces associated with maintaining Connected Vehicle Roadside Equipment.</p>	5 Big Moves #5: Next OS	Planned
SU13	Personnel Device Maintenance	<p>This service package supports maintenance of ITS personnel devices. Like other device maintenance service packages, this SP is drawn at a high level of abstraction to cover the basic interfaces and functionality associated with maintaining personnel devices. The focus here is on devices that are used by transportation professionals.</p>	5 Big Moves #4: Flexible Fleets	Planned
<p>Traveler Information (TI)</p>				

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
T101	Border Broadcast Traveler Information	<p>This service package represents a general border traveller information system collects border crossing information, traffic conditions, advisories, toll information, incident information, roadway maintenance and construction information, air quality and weather information, and broadly disseminates this information through existing infrastructures. The information may be provided directly to travelers or provided to merchants and other traveler service providers so that they can better inform their customers of travel conditions.</p>	5 Big Moves #1: Complete Corridors	Planned
T101	Transit Equity - Broadcast Traveler Info	<p>This service package provides a digital broadcast service that disseminates traveler information to all equipped travelers within range. It collects traffic conditions, advisories, general public transportation, toll and parking information, incident information, roadway maintenance and construction information, air quality and weather information, and broadcasts the information to travelers using technologies such as FM subcarrier, satellite radio, cellular data broadcasts, and Internet streaming technologies.</p> <p>This service package also provides location-specific or situation-relevant information to travelers in vehicles using Dedicated Short Range Communications (DSRC) infrastructure supporting mobility service packages for connected vehicles. DSRC is used to deliver real-time traveler information including travel times, incident information, road conditions, and emergency traveler information to vehicles as they pass connected vehicle roadside equipment along their route. This service package provides public information that is available to all equipped vehicles in the vicinity of the roadside equipment.</p>	5 Big Moves #2: Transit Leap	Planned
T101	Border Broadcast Traveler Information	<p>This service package represents a general border traveler information system collects border crossing information, traffic conditions, advisories, toll information, incident information, roadway maintenance and construction information, air quality and weather information, and broadly disseminates this information through existing infrastructures.</p>	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		<p>The information may be provided directly to travelers or provided to merchants and other traveler service providers so that they can better inform their customers of travel conditions.</p>		
T101	Transit Equity - Broadcast Traveler Info	<p>This service package provides a digital broadcast service that disseminates traveler information to all equipped travelers within range. It collects traffic conditions, advisories, general public transportation, toll and parking information, incident information, roadway maintenance and construction information, air quality and weather information, and broadcasts the information to travelers using technologies such as FM subcarrier, satellite radio, cellular data broadcasts, and Internet streaming technologies.</p> <p>This service package also provides location-specific or situation-relevant information to travelers in vehicles using Dedicated Short Range Communications (DSRC) infrastructure supporting mobility service packages for connected vehicles. DSRC is used to deliver real-time traveler information including travel times, incident information, road conditions, and emergency traveler information to vehicles as they pass connected vehicle roadside equipment along their route. This service package provides public information that is available to all equipped vehicles in the vicinity of the roadside equipment.</p>	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
TI01	Regional Broadcast Traveler Information - SD 511	<p>The ICMS provides information to SD 511 to populate regional broadcast traveler information. This service package provides the entire San Diego region with a digital broadcast service that disseminates traveler information to all equipped travelers within range. It collects traffic conditions, advisories, general public transportation, toll and parking information, incident information, roadway maintenance and construction information, air quality and weather information, and broadcasts the information to travelers using technologies such as FM subcarrier, satellite radio, cellular data broadcasts, and Internet streaming technologies.</p> <p>This service package also provides location-specific or situation-relevant information to travelers in vehicles using Dedicated Short Range Communications (DSRC) infrastructure supporting mobility service packages for connected vehicles. DSRC is used to deliver real-time traveler information including travel times, incident information, road conditions, and emergency traveler information to vehicles as they pass connected vehicle roadside equipment along their route. This service package provides public information that is available to all equipped vehicles in the vicinity of the roadside equipment</p>	5 Big Moves #5: Next OS	Existing
TI01	WAID Alerting Broadcast Traveler Information	<p>This service package represents Sirius FM and other services that provide Wide Area Alerting through a digital broadcast service that disseminates traveler information to all equipped travelers within range. It collects traffic conditions, advisories, general public transportation, toll and parking information, incident information, roadway maintenance and construction information, air quality and weather information, and broadcasts the information to travelers using technologies such as FM subcarrier, satellite radio, cellular data broadcasts, and Internet streaming technologies.</p> <p>This service package also provides location-specific or situation-relevant information to travelers in vehicles using Dedicated Short Range</p>	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		<p>Communications (DSRC) infrastructure supporting mobility service packages for connected vehicles. DSRC is used to deliver real-time traveler information including travel times, incident information, road conditions, and emergency traveler information to vehicles as they pass connected vehicle roadside equipment along their route. This service package provides public information that is available to all equipped vehicles in the vicinity of the roadside equipment.</p>		
T102	Personalized Traveler Information - SD 511	<p>This service package is both partially existing and partially planned. It 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. Although the Internet is the predominate network used for traveler information dissemination, 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 with the traveler. 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 and web pages via smartphone, tablet, personal computer, and a variety of in-vehicle devices.</p>	5 Big Moves #4: Flexible Fleets	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
T102	Personalized Traveler Information - SD 511	<p>This service package is both partially existing and partially planned. It 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. Although the Internet is the predominate network used for traveler information dissemination, 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 with the traveler. 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 and web pages via smartphone, tablet, personal computer, and a variety of in-vehicle devices.</p>	5 Big Moves #5: Next OS	Existing
T103	Regional Real-time Dynamic Route Guidance	<p>This service package offers advanced route planning and guidance that is responsive to current conditions. The package augments a user's navigation system equipment with a digital receiver capable of receiving real-time traffic, transit, and road condition information, which is used by the user equipment to provide real-time route guidance that factors in current conditions. The focus here is to encourage mode shift to transit by including real time trip data.</p>	5 Big Moves #4: Flexible Fleets	Planned
T103	BWT Dynamic Route Guidance (SD County)	<p>--Instance of T103-- This service package offers advanced route planning and guidance that is responsive to current conditions. The package augments a user's navigation system equipment with a digital receiver capable of receiving real-time traffic, transit, and road condition information, which is used by the user equipment to provide real-time route guidance that factors in current conditions.</p>	5 Big Moves #4: Flexible Fleets	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
T103	Regional Real-time Dynamic Route Guidance	This service package offers advanced route planning and guidance that is responsive to current conditions. The package augments a user's navigation system equipment with a digital receiver capable of receiving real-time traffic, transit, and road condition information, which is used by the user equipment to provide real-time route guidance that factors in current conditions. The focus here is to encourage mode shift to transit by including real time trip data.	5 Big Moves #5: Next OS	Planned
T103	BWT Dynamic Route Guidance (SD County)	--Instance of T103-- This service package offers advanced route planning and guidance that is responsive to current conditions. The package augments a user's navigation system equipment with a digital receiver capable of receiving real-time traffic, transit, and road condition information, which is used by the user equipment to provide real-time route guidance that factors in current conditions.	5 Big Moves #5: Next OS	Planned
T104	Infrastructure-Provided Trip Planning and Route Guidance	This service package offers the user trip planning and en route guidance services. It generates a trip plan, including a multimodal route and associated service information (e.g., parking information), based on traveler preferences and constraints. Routes may be based on static information or reflect real time network conditions. Unlike T103, where the user equipment determines the route, the route determination functions are performed by the center in this service package. The trip plan may be confirmed by the traveler and advanced payment and reservations for transit and alternate mode (e.g., airline, rail, and ferry) trip segments, and ancillary services are accepted and processed. The confirmed trip plan may include specific routing information that can be supplied to the traveler as general directions or as turn-by-turn route guidance depending on the level of user equipment.	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
T104	Cal ITP Commuter Trip Planning and Route Guidance	<p>This service package offers trip planning and en route guidance services to travelers. It generates a trip plan, including a multimodal route and associated service information (e.g., parking information), based on traveler preferences and constraints. Routes may be based on static information or reflect real time network conditions. Unlike T103, where the user equipment determines the route, the route determination functions are performed by the center in this service package. The trip plan may be confirmed by the traveler and advanced payment and reservations for transit and alternate mode (e.g., airline, rail, and ferry) trip segments, and ancillary services are accepted and processed. The confirmed trip plan may include specific routing information that can be supplied to the traveler as general directions or as turn-by-turn route guidance depending on the level of user equipment.</p>	5 Big Moves #2: Transit Leap	Planned
T104	Cal ITP Commuter Trip Planning and Route Guidance	<p>This service package offers trip planning and en route guidance services to travelers. It generates a trip plan, including a multimodal route and associated service information (e.g., parking information), based on traveler preferences and constraints. Routes may be based on static information or reflect real time network conditions. Unlike T103, where the user equipment determines the route, the route determination functions are performed by the center in this service package. The trip plan may be confirmed by the traveler and advanced payment and reservations for transit and alternate mode (e.g., airline, rail, and ferry) trip segments, and ancillary services are accepted and processed. The confirmed trip plan may include specific routing information that can be supplied to the traveler as general directions or as turn-by-turn route guidance depending on the level of user equipment.</p>	5 Big Moves #3: Mobility Hubs	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
T104	Infrastructure-Provided Trip Planning and Route Guidance	This service package offers the user trip planning and en route guidance services. It generates a trip plan, including a multimodal route and associated service information (e.g., parking information), based on traveler preferences and constraints. Routes may be based on static information or reflect real time network conditions. Unlike T103, where the user equipment determines the route, the route determination functions are performed by the center in this service package. The trip plan may be confirmed by the traveler and advanced payment and reservations for transit and alternate mode (e.g., airline, rail, and ferry) trip segments, and ancillary services are accepted and processed. The confirmed trip plan may include specific routing information that can be supplied to the traveler as general directions or as turn-by-turn route guidance depending on the level of user equipment.	5 Big Moves #5: Next OS	Planned
T105	Mobility Hubs - Travel Services Information and Reservations	Mobility Hubs are envisioned throughout the SD region to provide travel service information and reservation services to the traveler pre-trip and while en route. This includes information for tourist attractions, lodging, dining, service stations, parking, emergency services, micromobility options, airport arrival and departure information and other services and businesses of interest to the traveler.	5 Big Moves #3: Mobility Hubs	Planned
T105	Travel Services Information and Reservation	This service package provides travel service information and reservation services to the traveler pre-trip and while en route. This includes information for tourist attractions, lodging, dining, service stations, parking, emergency services, and other services and businesses of interest to the traveler.	5 Big Moves #4: Flexible Fleets	Planned
T105	Travel Services Information and Reservation	This service package provides travel service information and reservation services to the traveler pre-trip and while en route. This includes information for tourist attractions, lodging, dining, service stations, parking, emergency services, and other services and businesses of interest to the traveler.	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
T106	Dynamic Ridesharing- Micro Transit- TNC/Bike/Uber/Lyft	<p>This service package addresses dynamic ridesharing/ride matching services to travelers and other forms of shared use transportation such as those offered through transportation network cooperatives (bikeshare, scootershare, vehicle share such as real time rentals, on demand rideshare, Uber, Lyft, etc.)</p> <p>Dynamic ridesharing allows travelers to arrange commuter travel trips through a personal device with a wireless connection to a system meeting the needs of the commuter (e.g., a web-based application). It uses inputs from both passengers and drivers pre-trip, during the trip, and post-trip . These inputs are then translated into “optimal” pairings between passengers and drivers to provide both with a convenient route between their two origin and destination locations. After the trip, information is provided back to the service package to improve the user’s experience for future trips.</p> <p>The shared use aspect of the service package addresses three types of shared use that may be arranged using an internet connected personal device. In the first type, a traveler arranges for the temporary use of a vehicle. In the second type of shared use, a traveler arranges for a vehicle to pick them up at a specific location and take them to another location. The second type of shared use may be implemented as a ride matching or ridesharing service, including those provided by Uber and Lyft. The third type of shared use is a bikeshare capability.</p> <p>Dynamic ridesharing allows travelers to arrange commuter travel trips through a personal device with a wireless connection to a system meeting the needs of the commuter (e.g., a web-based application). It uses inputs from both passengers and drivers pre-trip, during the trip, and post-trip . These inputs are then translated into “optimal” pairings between passengers and drivers to provide both with a convenient route between their two origin and destination locations. After the trip,</p>	5 Big Moves #3: Mobility Hubs	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		<p>information is provided back to the service package to improve the user's experience for future trips.</p> <p>The shared use aspect of the service package addresses three types of shared use that may be arranged using an internet connected personal device. In the first type, a traveler arranges for the temporary use of a vehicle. In the second type of shared use, a traveler arranges for a vehicle to pick them up at a specific location and take them to another location. The second type of shared use may be implemented as a ride matching or ridesharing service, including those provided by Uber and Lyft. The third type of shared use is a bikeshare capability.</p>		

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
T106	Dynamic Ridesharing- Micro Transit- TNC/Bike/Uber/Lyft	<p>This service package addresses dynamic ridesharing/ride matching services to travelers and other forms of shared use transportation such as those offered through transportation network cooperatives (bikeshare, scootershare, vehicle share such as real time rentals, on demand rideshare, Uber, Lyft, etc.)</p> <p>Dynamic ridesharing allows travelers to arrange commuter travel trips through a personal device with a wireless connection to a system meeting the needs of the commuter (e.g., a web-based application). It uses inputs from both passengers and drivers pre-trip, during the trip, and post-trip . These inputs are then translated into “optimal” pairings between passengers and drivers to provide both with a convenient route between their two origin and destination locations. After the trip, information is provided back to the service package to improve the user’s experience for future trips.</p> <p>The shared use aspect of the service package addresses three types of shared use that may be arranged using an internet connected personal device. In the first type, a traveler arranges for the temporary use of a vehicle. In the second type of shared use, a traveler arranges for a vehicle to pick them up at a specific location and take them to another location. The second type of shared use may be implemented as a ride matching or ridesharing service, including those provided by Uber and Lyft. The third type of shared use is a bikeshare capability.</p> <p>Dynamic ridesharing allows travelers to arrange commuter travel trips through a personal device with a wireless connection to a system meeting the needs of the commuter (e.g., a web-based application). It uses inputs from both passengers and drivers pre-trip, during the trip, and post-trip . These inputs are then translated into “optimal” pairings between passengers and drivers to provide both with a convenient route between their two origin and destination locations. After the trip,</p>	5 Big Moves #4: Flexible Fleets	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		<p>information is provided back to the service package to improve the user's experience for future trips.</p> <p>The shared use aspect of the service package addresses three types of shared use that may be arranged using an internet connected personal device. In the first type, a traveler arranges for the temporary use of a vehicle. In the second type of shared use, a traveler arranges for a vehicle to pick them up at a specific location and take them to another location. The second type of shared use may be implemented as a ride matching or ridesharing service, including those provided by Uber and Lyft. The third type of shared use is a bikeshare capability.</p>		

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
T107	Connected Vehicle In-Vehicle Signage	This service package augments regulatory, warning, and informational signs and signals by providing information directly to drivers through in-vehicle devices; connected vehicles. The information provided would include static sign information (e.g., stop, curve warning, guide signs, service signs, and directional signs) and dynamic information (e.g., current signal states including highway intersection and highway-rail intersection status and local conditions warnings identified by local environmental sensors).	5 Big Moves #4: Flexible Fleets	Planned
Traffic Management (TM)				
TM01	Cities Infrastructure-Based Traffic Surveillance	<p>This service package provides a digital broadcast service that disseminates traveler information to all equipped travelers within range. It collects traffic conditions, advisories, general public transportation, toll and parking information, incident information, roadway maintenance and construction information, air quality and weather information, and broadcasts the information to travelers using technologies such as FM subcarrier, satellite radio, cellular data broadcasts, and Internet streaming technologies.</p> <p>This service package also provides location-specific or situation-relevant information to travelers in vehicles using Dedicated Short Range Communications (DSRC) infrastructure supporting mobility service packages for connected vehicles. DSRC is used to deliver real-time traveler information including travel times, incident information, road conditions, and emergency traveler information to vehicles as they pass connected vehicle roadside equipment along their route. This service package provides public information that is available to all equipped vehicles in the vicinity of the roadside equipment</p>	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
TM01	Level 1 Cities Infrastructure-Based Traffic Surveillance	This service package for US Municipalities includes traffic detectors, other surveillance equipment, the supporting field equipment, and fixed-point to fixed-point communications to transmit the collected data back to the Traffic Management Subsystem. The derived data can be used locally such as when traffic detectors are connected directly to a signal control system or remotely (e.g., when a CCTV system sends data back to the Traffic Management Subsystem). The data generated by this service package enables traffic managers to monitor traffic and road conditions, identify and verify incidents, detect faults in indicator operations, 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.	5 Big Moves #1: Complete Corridors	Existing
TM01	City of San Diego Infrastructure-Based Traffic Surveillance	This service package includes traffic detectors, other surveillance equipment, the supporting field equipment, and Center to Field communications to transmit the collected data back to the Traffic Management Center. The derived data can be used locally such as when traffic detectors are connected directly to a signal control system or remotely (e.g., when a CCTV system sends data back to the Traffic Management Center). The data generated by this service package enables traffic managers to monitor traffic and road conditions, identify and verify incidents, detect faults in indicator operations, 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 Traveler Information Center physical object.	5 Big Moves #1: Complete Corridors	Existing
TM01	San Diego County Infrastructure-Based Traffic Surveillance	This service package includes traffic detectors, other surveillance equipment, the supporting field equipment, and Center to Field communications to transmit the collected data back to the Traffic Management Center. The derived data can be used locally such as when traffic detectors are connected directly to a signal control system or remotely (e.g., when a CCTV system sends data back to the Traffic Management Center). The data generated by this service package enables traffic managers to monitor traffic and road conditions, identify	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		and verify incidents, detect faults in indicator operations, 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 Traveler Information Center physical object.		
TM02	Caltrans and Regional Probe Surveillance	This service package provides an alternative approach for surveillance of the roadway network for State DOTs. This service package provides dedicated short range communications between the vehicle and roadside is used to provide equivalent information directly to the Traffic Management Subsystem. This approach utilizes vehicle equipment that supports toll collection, in-vehicle signing, and other short range communications applications identified within the architecture. The service package enables traffic managers to monitor road conditions, identify incidents, analyze and reduce the collected data, and make it available to users and private information providers. It requires one of the communications options identified above, roadside beacons and fixed-point to fixed-point communications for the short range communications option, data reduction software, and utilizes fixed-point to fixed-point links between the Traffic Management Subsystem and Information Service Provider Subsystem to share the collected information. Both "Opt out" and "Opt in" strategies are available to ensure the user has the ability to turn off the probe functions to ensure individual privacy. Due to the large volume of data collected by probes, data reduction techniques are required, such as the ability to identify and filter out-of-bounds or extreme data reports.	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
TM02	Vehicle Traffic Surveillance	<p>This service package provides an alternative approach for surveillance of the roadway network for Regional Traffic Management. This service package provides dedicated short range communications between the vehicle and roadside, used to provide equivalent information directly to the Traffic Management Subsystem. This approach utilizes vehicle equipment that supports toll collection, in-vehicle signing, and other short range communications applications identified within the architecture.</p> <p>The service package enables traffic managers to monitor road conditions, identify incidents, analyze and reduce the collected data, and make it available to users and private information providers. It requires one of the communications options identified above, roadside beacons and fixed-point to fixed-point communications for the short range communications option, data reduction software, and utilizes fixed-point to fixed-point links between the Traffic Management Subsystem and Information Service Provider Subsystem to share the collected information. Both "Opt out" and "Opt in" strategies are available to ensure the user has the ability to turn off the probe functions to ensure individual privacy. Due to the large volume of data collected by probes, data reduction techniques are required, such as the ability to identify and filter out-of-bounds or extreme data reports.</p>	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
TM02	Caltrans and Regional Probe Surveillance	<p>This service package provides an alternative approach for surveillance of the roadway network for State DOTs. This service package provides dedicated short range communications between the vehicle and roadside is used to provide equivalent information directly to the Traffic Management Subsystem. This approach utilizes vehicle equipment that supports toll collection, in-vehicle signing, and other short range communications applications identified within the architecture. The service package enables traffic managers to monitor road conditions, identify incidents, analyze and reduce the collected data, and make it available to users and private information providers. It requires one of the communications options identified above, roadside beacons and fixed-point to fixed-point communications for the short range communications option, data reduction software, and utilizes fixed-point to fixed-point links between the Traffic Management Subsystem and Information Service Provider Subsystem to share the collected information. Both "Opt out" and "Opt in" strategies are available to ensure the user has the ability to turn off the probe functions to ensure individual privacy. Due to the large volume of data collected by probes, data reduction techniques are required, such as the ability to identify and filter out-of-bounds or extreme data reports.</p>	5 Big Moves #5: Next OS	Planned
TM03	Cities Traffic Signal Control	<p>This service package for surface street control 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 service package ranging from fixed-schedule control systems to fully traffic responsive systems that dynamically adjust control plans and strategies based on current traffic conditions and priority requests. This service package is generally an intra-jurisdictional package that does not rely on real-time communications between separate control systems to achieve area-wide traffic signal coordination. Systems that achieve coordination across jurisdictions by using a common time base or other strategies that do not require real</p>	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		time coordination would be represented by this package. This service package is consistent with typical urban traffic signal control systems.		
TM03	San Diego Traffic Signal Control	This service package provides the central control and monitoring equipment, communication links, and the signal control equipment that support traffic control at signalized intersections. A range of traffic signal control systems are represented by this service package ranging from fixed-schedule control systems to fully traffic responsive systems that dynamically adjust control plans and strategies based on current traffic conditions and priority requests. This service package is generally an intra-jurisdictional package. Systems that achieve coordination across jurisdictions by using a common time base or other strategies that do not require real time coordination would also be represented by this package. Coordination of traffic signal systems using real-time communications is covered in the TM07-Regional Traffic Management service package. This service package is consistent with typical traffic signal control systems.	5 Big Moves #1: Complete Corridors	Existing
TM03	County Traffic Signal Control	San Diego County's central control and monitoring equipment, communication links, and the signal control equipment that support traffic control at signalized intersections. A range of traffic signal control systems are represented by this service package ranging from fixed-schedule control systems to fully traffic responsive systems that dynamically adjust control plans and strategies based on current traffic conditions and priority requests. This service package is generally an intra-jurisdictional package. Systems that achieve coordination across jurisdictions by using a common time base or other strategies that do	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		<p>not require real time coordination would also be represented by this package. Coordination of traffic signal systems using real-time communications is covered in the TM07-Regional Traffic Management service package. This service package is consistent with typical traffic signal control systems.</p>		
TM03	Tribal Traffic Signal Control	<p>This service package provides the central control and monitoring equipment, communication links, and the signal control equipment that support traffic control at signalized intersections. A range of traffic signal control systems are represented by this service package ranging from fixed-schedule control systems to fully traffic responsive systems that dynamically adjust control plans and strategies based on current traffic conditions and priority requests. This service package is generally an intra-jurisdictional package. Systems that achieve coordination across jurisdictions by using a common time base or other strategies that do not require real time coordination would also be represented by this package. Coordination of traffic signal systems using real-time communications is covered in the TM07-Regional Traffic Management service package. This service package is consistent with typical traffic signal control systems.</p>	5 Big Moves #1: Complete Corridors	Existing
TM03	Level 1 Cities Traffic Signal Control	<p>This service package provides the central control and monitoring equipment, communication links, and the signal control equipment that support traffic control at signalized intersections. A range of traffic signal control systems are represented by this service package ranging from fixed-schedule control systems to fully traffic responsive systems that dynamically adjust control plans and strategies based on current traffic conditions and priority requests. This service package is generally an intra-jurisdictional package. Systems that achieve coordination across jurisdictions by using a common time base or other strategies that do</p>	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		not require real time coordination would also be represented by this package. Coordination of traffic signal systems using real-time communications is covered in the TM07-Regional Traffic Management service package. This service package is consistent with typical traffic signal control systems.		
TM04	Regional Connected Vehicle Traffic Signal System	This service package uses both vehicle location and movement information from connected vehicles as well as infrastructure measurement of non-equipped vehicles to improve the operations of traffic signal control systems. The service package utilizes the vehicle information to adjust signal timing for an intersection or group of intersections in order to improve traffic flow, including allowing platoon flow through the intersection. Other service package provide related mobility services such as Transit Signal Priority, Freight Signal Priority, Emergency Vehicle Preemption, and Pedestrian Mobility to maximize overall arterial network performance.	5 Big Moves #1: Complete Corridors	Planned
TM04	Regional Connected Vehicle Traffic Signal System	This service package uses both vehicle location and movement information from connected vehicles as well as infrastructure measurement of non-equipped vehicles to improve the operations of traffic signal control systems. The service package utilizes the vehicle information to adjust signal timing for an intersection or group of intersections in order to improve traffic flow, including allowing platoon flow through the intersection. Other service package provide related mobility services such as Transit Signal Priority, Freight Signal Priority, Emergency Vehicle Preemption, and Pedestrian Mobility to maximize overall arterial network performance.	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
TM05	Regional Traffic Metering Systems - Lane Control	This service package provides Caltrans central monitoring and control, communications, and field equipment that support metering of traffic. It supports the complete range of metering strategies including ramp, interchange, and mainline metering. This package incorporates the instrumentation included in the TM01 service package (traffic sensors are used to measure traffic flow and queues) to support traffic monitoring so responsive and adaptive metering strategies can be implemented. Also included is configurable field equipment to provide information to drivers approaching a meter, such as advance warning of the meter, its operational status (whether it is currently on or not, how many cars per green are allowed, etc.), lane usage at the meter (including a bypass lane for HOVs) and existing queue at the meter.	5 Big Moves #1: Complete Corridors	Existing
TM05	Caltrans ATMS Ramp Metering System	This Caltrans service package provides central monitoring and control, communications, and field equipment that support metering of traffic for on-ramps. It supports the complete range of metering strategies including ramp, interchange, and mainline metering. This package incorporates the instrumentation included in the TM01 service package (traffic sensors are used to measure traffic flow and queues) to support traffic monitoring so responsive and adaptive metering strategies can be implemented. Also included is configurable field equipment to provide information to drivers approaching a meter, such as advance warning of the meter, its operational status (whether it is currently on or not, how many cars per green are allowed, etc.), lane usage at the meter (including a bypass lane for HOVs) and existing queue at the meter.	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
TM06	Regional Traffic Information Dissemination	<p>This service package for regional transportation organizations provides driver information using roadway equipment such as dynamic message signs or highway advisory radio. A wide range of information can be disseminated including traffic and road conditions, closure and detour information, travel restrictions, incident information, and emergency alerts and driver advisories. This package provides information to drivers at specific equipped locations on the road network. Careful placement of the roadway equipment provides the information at points in the network where the drivers have recourse and can tailor their routes to account for the new information. 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 Transportation Information Centers. A link to the Maintenance and Construction Management Center allows real time information on road/bridge closures and restrictions due to maintenance and construction activities to be disseminated</p>	5 Big Moves #1: Complete Corridors	Existing
TM06	Caltrans Traffic Information Dissemination	<p>This service package for Caltrans provides driver information using roadway equipment such as dynamic message signs or highway advisory radio. A wide range of information can be disseminated including traffic and road conditions, closure and detour information, incident information, and emergency alerts and driver advisories. This package provides information to drivers at specific equipped locations on the road network. Careful placement of the roadway equipment provides the information at points in the network where the drivers have recourse and can tailor their routes to account for the new information. 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. A link to</p>	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		<p>the Maintenance and Construction Management subsystem allows real time information on road/bridge closures due to maintenance and construction activities to be disseminated.</p>		
TM06	Regional Traffic Information Dissemination	<p>This service package for regional transportation organizations provides driver information using roadway equipment such as dynamic message signs or highway advisory radio. A wide range of information can be disseminated including traffic and road conditions, closure and detour information, travel restrictions, incident information, and emergency alerts and driver advisories. This package provides information to drivers at specific equipped locations on the road network. Careful placement of the roadway equipment provides the information at points in the network where the drivers have recourse and can tailor their routes to account for the new information. 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 Transportation Information Centers. A link to the Maintenance and Construction Management Center allows real time information on road/bridge closures and restrictions due to maintenance and construction activities to be disseminated</p>	5 Big Moves #3: Mobility Hubs	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
TM06	Regional Traffic Information Dissemination	<p>This service package for regional transportation organizations provides driver information using roadway equipment such as dynamic message signs or highway advisory radio. A wide range of information can be disseminated including traffic and road conditions, closure and detour information, travel restrictions, incident information, and emergency alerts and driver advisories. This package provides information to drivers at specific equipped locations on the road network. Careful placement of the roadway equipment provides the information at points in the network where the drivers have recourse and can tailor their routes to account for the new information. 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 Transportation Information Centers. A link to the Maintenance and Construction Management Center allows real time information on road/bridge closures and restrictions due to maintenance and construction activities to be disseminated</p>	5 Big Moves #5: Next OS	Existing
TM06	Caltrans Traffic Information Dissemination	<p>This service package for Caltrans provides driver information using roadway equipment such as dynamic message signs or highway advisory radio. A wide range of information can be disseminated including traffic and road conditions, closure and detour information, incident information, and emergency alerts and driver advisories. This package provides information to drivers at specific equipped locations on the road network. Careful placement of the roadway equipment provides the information at points in the network where the drivers have recourse and can tailor their routes to account for the new information. 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. A link to</p>	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		<p>the Maintenance and Construction Management subsystem allows real time information on road/bridge closures due to maintenance and construction activities to be disseminated.</p>		
TM07	San Diego Regional Traffic Control	<p>This service package provides the ICMS with capabilities for sharing traffic information and control among traffic management centers (e.g. cities, county, SANDAG) to support a regional control strategy. This service package advances the Surface Street Control and Freeway Control Service Packages by adding the communications links and integrated control strategies that enable integrated interjurisdictional traffic control. The nature of optimization and extent of information and control sharing is determined through working arrangements between jurisdictions. This package relies principally on roadside instrumentation supported by the Surface Street Control and Freeway Control Service Packages and adds hardware, software, and fixed-point to fixed-point communications capabilities to implement traffic management strategies that are coordinated between allied traffic management centers. Several levels of coordination are supported from sharing of information through sharing of control between traffic management centers.</p>	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
TM08	Regional Traffic Incident Management System	<p>This service package manages both unexpected incidents and planned events so that the impact to the transportation network and traveler safety is minimized. The service 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 rail operations and event promoters. Information from these diverse sources is collected and correlated by this service package to detect and verify incidents and implement an appropriate response. This service package supports traffic operations personnel in developing an appropriate response in coordination with emergency management, maintenance and construction management, and other incident response personnel to confirmed incidents. The response may include traffic control strategy modifications or resource coordination between centers. Incident response also includes presentation of information to affected travelers using the Traffic Information Dissemination service package and dissemination of incident information to travelers through the Broadcast Traveler Information or Interactive Traveler Information service packages. The roadside equipment used to detect and verify incidents also allows the operator to monitor incident status as the response unfolds. 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>	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
TM08	Caltrans Highway Traffic Incident Management System	<p>This service package allows Caltrans to manage both unexpected incidents and planned events so that the impact to the transportation network and traveler safety is minimized. The service 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 rail operations and event promoters. Information from these diverse sources is collected and correlated by this service package to detect and verify incidents and implement an appropriate response. This service package supports traffic operations personnel in developing an appropriate response in coordination with emergency management, maintenance and construction management, and other incident response personnel to confirmed incidents. The response may include traffic control strategy modifications or resource coordination between centers. Incident response also includes presentation of information to affected travelers using the Traffic Information Dissemination service package and dissemination of incident information to travelers through the Broadcast Traveler Information or Interactive Traveler Information service packages. The roadside equipment used to detect and verify incidents also allows the operator to monitor incident status as the response unfolds. 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>	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
TM08	Regional Traffic Incident Management System	<p>This service package manages both unexpected incidents and planned events so that the impact to the transportation network and traveler safety is minimized. The service 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 rail operations and event promoters. Information from these diverse sources is collected and correlated by this service package to detect and verify incidents and implement an appropriate response. This service package supports traffic operations personnel in developing an appropriate response in coordination with emergency management, maintenance and construction management, and other incident response personnel to confirmed incidents. The response may include traffic control strategy modifications or resource coordination between centers. Incident response also includes presentation of information to affected travelers using the Traffic Information Dissemination service package and dissemination of incident information to travelers through the Broadcast Traveler Information or Interactive Traveler Information service packages. The roadside equipment used to detect and verify incidents also allows the operator to monitor incident status as the response unfolds. 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>	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
TM08	Caltrans Highway Traffic Incident Management System	<p>This service package allows Caltrans to manage both unexpected incidents and planned events so that the impact to the transportation network and traveler safety is minimized. The service 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 rail operations and event promoters. Information from these diverse sources is collected and correlated by this service package to detect and verify incidents and implement an appropriate response. This service package supports traffic operations personnel in developing an appropriate response in coordination with emergency management, maintenance and construction management, and other incident response personnel to confirmed incidents. The response may include traffic control strategy modifications or resource coordination between centers. Incident response also includes presentation of information to affected travelers using the Traffic Information Dissemination service package and dissemination of incident information to travelers through the Broadcast Traveler Information or Interactive Traveler Information service packages. The roadside equipment used to detect and verify incidents also allows the operator to monitor incident status as the response unfolds. 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>	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
TM09	SANDAG Integrated Demand Management System	<p>The San Diego integrated corridor management system uses a number of existing and planned external systems in the region to provide static and dynamic data on the condition of the region's transportation networks. I-15 ICMS functions provide extensibility and adaptability to all major corridors in the San Diego region.</p> <p>This service package recommends courses of action to transportation operators in a corridor. Recommendations are based on an assessment of current and forecast transportation network performance and environmental conditions. Multi-modal transportation operational strategies are created that consider all modes and all roads in the travel area to correct network imbalances and effectively manage available capacity.</p> <p>As part of the operational strategies, this service package may also recommend lane restrictions, transit, parking, and toll strategies to influence traveler route and mode choices to support active demand management programs and policies managing both traffic and the environment. Operational strategies, including demand management recommendations, are coordinated to support operational decisions consistent with the recommended strategy. All recommended operational strategies are based on historical evaluation, real-time assessment, and forecast of the roadway network performance based on predicted travel demand patterns.</p> <p>This service package also collects air quality, parking availability, transit usage, and vehicle occupancy data to support operational strategies that manage and balance capacity and demand.</p>	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
TM09	SANDAG Integrated Demand Management System	<p>The San Diego integrated corridor management system uses a number of existing and planned external systems in the region to provide static and dynamic data on the condition of the region's transportation networks. I-15 ICMS functions provide extensibility and adaptability to all major corridors in the San Diego region.</p> <p>This service package recommends courses of action to transportation operators in a corridor. Recommendations are based on an assessment of current and forecast transportation network performance and environmental conditions. Multi-modal transportation operational strategies are created that consider all modes and all roads in the travel area to correct network imbalances and effectively manage available capacity.</p> <p>As part of the operational strategies, this service package may also recommend lane restrictions, transit, parking, and toll strategies to influence traveler route and mode choices to support active demand management programs and policies managing both traffic and the environment. Operational strategies, including demand management recommendations, are coordinated to support operational decisions consistent with the recommended strategy. All recommended operational strategies are based on historical evaluation, real-time assessment, and forecast of the roadway network performance based on predicted travel demand patterns.</p> <p>This service package also collects air quality, parking availability, transit usage, and vehicle occupancy data to support operational strategies that manage and balance capacity and demand.</p>	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
TM10	SANDAG Electronic Toll Collection	<p>The SANDAG Electronic Toll Collection service package provides SANDAG with the ability to collect tolls electronically, and to detect and process violations. The fees collected may be adjusted to implement traffic demand management strategies. Field-to-Vehicle communication between the roadway equipment and the vehicle (including travel lanes and direct access ramps (DAR)) is required as well as Fixed Point-to-Fixed Point interfaces between the toll collection equipment and transportation authorities, and the financial infrastructure that supports fee collection. Toll violations are identified and electronically posted to vehicle owners. Standards, inter-agency coordination, and financial clearinghouse capabilities enable broad interoperability for these services.</p>	5 Big Moves #1: Complete Corridors	Existing
TM10	South Bay Expressway (FasTrak)	<p>The Electronic Toll Collection service package provides FasTrak for the South Bay Expressway toll operators with the ability to collect tolls electronically, and to detect and process violations. The fees collected may be adjusted to implement demand management strategies. Field-to-Vehicle Communication between the roadway equipment and the vehicle is required as well as Fixed Point-to-Fixed Point interfaces between the toll collection equipment and transportation authorities, and the financial infrastructure that supports fee collection. Toll violations are identified and electronically posted to vehicle owners. Standards, inter-agency coordination, and financial clearinghouse capabilities enable broad interoperability for these services.</p>	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
TM11	San Diego Congestion Pricing	<p>The Road Use Charging service package supports the capability to charge fees to roadway vehicle owners for using specific roadways with potentially differential payment rates based on time-of-day, which specific roadway is used, and class of vehicle (a local policy decision by each roadway owner). These payment schemes could be forms of Vehicle Miles Traveled (VMT) or other schemes that are yet to be defined. Vehicle owners need only register with a single payment entity of their choice (a participating state, municipal, or regional DOT, an authority, or a private entity), and payments are reconciled by the entity receiving payment (and travel history) with all roadway owners that participate in the road use payment scheme, which may also include the Federal government. Vehicle owners would pay nothing for distances traveled where there are no payments required (e.g. in jurisdictions that have not implemented a distance based payment or for roadway operators that collect payment using traditional tolls), although a Federal payment rate might cover some or all roadway operations (a Federal policy decision). Basic operation depends on the vehicle tracking its own location, and periodically reporting its travel history to the registered entity receiving payment using connected vehicle communications.</p>	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
TM12	San Diego Dynamic Lane Warning	<p>This service package includes systems that dynamically warn drivers approaching hazards on a roadway. Such hazards include roadway weather conditions, road surface conditions, traffic conditions including queues, obstacles or animals in the roadway and any other transient event that can be sensed. These dynamic roadway warning systems can alert approaching drivers via warning signs, flashing lights, in-vehicle messages, etc. Such systems can increase the safety of a roadway by reducing the occurrence of incidents. The system can be centrally monitored and controlled by a traffic management center or it can be autonomous.</p> <p>Speed warnings that consider the limitations of a given vehicle for the geometry of the roadway (e.g., rollover risk for tall vehicles) are not included in this service package but are covered by the TM17 – Speed Warning and Enforcement service package.</p> <p>Roadway warning systems, especially queue warning systems are an Active Traffic Management (ATM) strategy and are typically used in conjunction with other ATM strategies (such as TM20-Variable Speed Limits and TM22-Dynamic Lane Management and Shoulder Use).</p>	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
TM12	San Diego Dynamic Lane Warning	<p>This service package includes systems that dynamically warn drivers approaching hazards on a roadway. Such hazards include roadway weather conditions, road surface conditions, traffic conditions including queues, obstacles or animals in the roadway and any other transient event that can be sensed. These dynamic roadway warning systems can alert approaching drivers via warning signs, flashing lights, in-vehicle messages, etc. Such systems can increase the safety of a roadway by reducing the occurrence of incidents. The system can be centrally monitored and controlled by a traffic management center or it can be autonomous.</p> <p>Speed warnings that consider the limitations of a given vehicle for the geometry of the roadway (e.g., rollover risk for tall vehicles) are not included in this service package but are covered by the TM17 – Speed Warning and Enforcement service package.</p> <p>Roadway warning systems, especially queue warning systems are an Active Traffic Management (ATM) strategy and are typically used in conjunction with other ATM strategies (such as TM20-Variable Speed Limits and TM22-Dynamic Lane Management and Shoulder Use).</p>	5 Big Moves #5: Next OS	Planned
TM13	San Diego Rail Crossing Notifications	<p>This service package manages highway traffic at rail intersections where operational requirements do not dictate more advanced features (e.g., where rail operational speeds are less than 80 miles per hour). Includes bike and pedestrian crossing permissions. Both passive (e.g., the crossbuck sign) and active warning systems (e.g., flashing lights and gates) are supported. (Note that passive systems exercise only the single interface between the ITS Roadway Equipment and the Driver in the physical view.) These traditional warning systems may also be augmented with other standard traffic management devices. The warning systems are activated on notification of an approaching train by interfaced wayside equipment. The equipment may also be interconnected with adjacent signalized intersections so that local</p>	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		control can be adapted. Health monitoring of the equipment and interfaces is performed; detected abnormalities are reported to both roadway and railroad officials through wayside interfaces and interfaces to the Traffic Management Center.		
TM13	San Diego Rail Crossing Notifications	This service package manages highway traffic at rail intersections where operational requirements do not dictate more advanced features (e.g., where rail operational speeds are less than 80 miles per hour). Includes bike and pedestrian crossing permissions. Both passive (e.g., the crossbuck sign) and active warning systems (e.g., flashing lights and gates) are supported. (Note that passive systems exercise only the single interface between the ITS Roadway Equipment and the Driver in the physical view.) These traditional warning systems may also be augmented with other standard traffic management devices. The warning systems are activated on notification of an approaching train by interfaced wayside equipment. The equipment may also be interconnected with adjacent signalized intersections so that local control can be adapted. Health monitoring of the equipment and interfaces is performed; detected abnormalities are reported to both roadway and railroad officials through wayside interfaces and interfaces to the Traffic Management Center.	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
TM14	Advanced Railroad Grade Crossing	<p>This service package manages highway traffic at highway-rail intersections (HRIs) where operational requirements demand advanced features (e.g., where rail operational speeds are greater than 80 miles per hour). This service package includes all capabilities from the Standard Railroad Grade Crossing service package and augments these with additional safety features to mitigate the risks associated with higher rail speeds and leverage Connected Vehicle technologies. The active warning systems supported by this service package include positive barrier systems that preclude entrance into the intersection when the barriers are activated. Like the Standard package, the HRI equipment is activated on notification by wayside interface equipment which detects, or communicates with the approaching train. In this service package, the wayside equipment provides additional information about the arriving train so that the train's direction of travel, estimated time of arrival, and estimated duration of closure may be derived. This service package will alert and/or warn drivers who are approaching an at-grade railroad crossing if they are on a crash-imminent trajectory to collide with a crossing or approaching train. This enhanced information may be conveyed to the driver prior to, or in context with, warning system activation. This service package also includes additional detection capabilities that enable it to detect an entrapped or otherwise immobilized vehicle within the HRI and provide an immediate notification to highway and railroad officials.</p>	5 Big Moves #1: Complete Corridors	Planned
TM15	Railroad Operations Coordination	<p>This service package provides an additional level of strategic coordination between freight rail operations and other transportation centers. Rail operations provides train schedules, maintenance schedules, and any other forecast events that will result in highway-rail intersection (HRI) closures. This information is used to develop forecast HRI closure times and durations that may be used in advanced traffic control strategies or to enhance the quality of traveler information.</p>	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
TM15	Railroad Operations Coordination	<p>This service package provides an additional level of strategic coordination between freight rail operations and other transportation centers. Rail operations provides train schedules, maintenance schedules, and any other forecast events that will result in highway-rail intersection (HRI) closures. This information is used to develop forecast HRI closure times and durations that may be used in advanced traffic control strategies or to enhance the quality of traveler information.</p>	5 Big Moves #3: Mobility Hubs	Planned
TM16	Regional Reversible Lane Management	<p>This service package provides for the management of reversible lane facilities. In addition to standard surveillance capabilities, this service package includes sensory functions that detect wrong-way vehicles and other special surveillance capabilities that mitigate safety hazards associated with reversible lanes. The package includes the field equipment, physical lane access controls, and associated control electronics that manage and control these special lanes. This service package also includes the equipment used to electronically reconfigure intersections and manage right-of-way to address dynamic demand changes and special events.</p>	5 Big Moves #1: Complete Corridors	Planned
TM17	Speed Warning and Enforcement	<p>This service package monitors vehicle speeds and supports warning drivers when their speed is excessive. Also the service includes notifications to an enforcement agency to enforce the speed limit of the roadway. Speed monitoring can be made via spot speed or average speed measurements. Roadside equipment can display the speed of passing vehicles and/or suggest a safe driving speed. Environmental conditions and vehicle characteristics may be monitored and factored into the safe speed advisories that are provided to the motorist. For example, warnings can be generated recognizing the limitations of a given vehicle for the geometry of the roadway such as rollover risk for tall vehicles.</p> <p>This service focuses on monitoring of vehicle speeds and enforcement of the speed limit while the variable speed limits service (covered in TM20-Variable Speed Limits service package) focuses on varying the posted</p>	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		<p>speed limits to create more uniform speeds along a roadway, to promote safer driving during adverse conditions (such as fog) and/or to reduce air pollution.</p>		
TM17	Vehicle Speed Warning and Enforcement	<p>This service package monitors vehicle speeds and supports warning drivers when their speed is excessive. Also the service includes notifications to an enforcement agency to enforce the speed limit of the roadway. Speed monitoring can be made via spot speed or average speed measurements. Roadside equipment can display the speed of passing vehicles and/or suggest a safe driving speed. Environmental conditions and vehicle characteristics may be monitored and factored into the safe speed advisories that are provided to the motorist. For example, warnings can be generated recognizing the limitations of a given vehicle for the geometry of the roadway such as rollover risk for tall vehicles.</p> <p>This service focuses on monitoring of vehicle speeds and enforcement of the speed limit while the variable speed limits service (covered in TM20-Variable Speed Limits service package) focuses on varying the posted speed limits to create more uniform speeds along a roadway, to promote safer driving during adverse conditions (such as fog) and/or to reduce air pollution.</p>	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
TM19	Caltrans - CHP Roadway Closure Management	<p>Caltrans - CHP roadway closure management closes roadways to vehicular traffic when driving conditions are unsafe, maintenance must be performed, and other scenarios where access to the roadway must be prohibited. The service package includes automatic or remotely controlled gates or barriers that control access to roadway segments including ramps and traffic lanes. Remote control systems allow the gates to be controlled from a central location or from a vehicle at the gate/barrier location, improving system efficiency and reducing personnel exposure to unsafe conditions during severe weather and other situations where roads must be closed. Surveillance systems allow operating personnel to visually verify the safe activation of the closure system and driver information systems (e.g., DMS) provide closure information to motorists in the vicinity of the closure. The equipment managed by this service package includes the control and monitoring systems, the field devices (e.g., gates, warning lights, DMS, CCTV cameras) at the closure location(s), and the information systems that notify other systems of a closure. This service package covers general road closure applications; specific closure systems that are used at railroad grade crossings, drawbridges, reversible lanes, etc. are covered by other ATMS service packages.</p>	5 Big Moves #1: Complete Corridors	Existing
TM19	Caltrans - CHP Roadway Closure Management	<p>Caltrans - CHP roadway closure management closes roadways to vehicular traffic when driving conditions are unsafe, maintenance must be performed, and other scenarios where access to the roadway must be prohibited. The service package includes automatic or remotely controlled gates or barriers that control access to roadway segments including ramps and traffic lanes. Remote control systems allow the gates to be controlled from a central location or from a vehicle at the gate/barrier location, improving system efficiency and reducing personnel exposure to unsafe conditions during severe weather and other situations where roads must be closed. Surveillance systems allow operating personnel to visually verify the safe activation of the closure system and driver information systems (e.g., DMS) provide closure</p>	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		<p>information to motorists in the vicinity of the closure. The equipment managed by this service package includes the control and monitoring systems, the field devices (e.g., gates, warning lights, DMS, CCTV cameras) at the closure location(s), and the information systems that notify other systems of a closure. This service package covers general road closure applications; specific closure systems that are used at railroad grade crossings, drawbridges, reversible lanes, etc. are covered by other ATMS service packages.</p>		
TM20	Variable Speed Limits	<p>This service package sets variable speed limits along a roadway to create more uniform speeds, to promote safer driving during adverse conditions (such as fog), and/or to reduce air pollution. Also known as speed harmonization, this service monitors traffic and environmental conditions along the roadway. Based on the measured data, the system calculates and sets suitable speed limits, usually by lane. Equipment over and along the roadway displays the speed limits and additional information such as basic safety rules and current traffic information. The system can be centrally monitored and controlled by a traffic management center or it can be autonomous.</p> <p>This service establishes variable speed limits and communicates the speed limits to drivers. Speed warnings and enforcement of speeds limits, including variable speed limits, is covered in the TM17-Speed Warning and Enforcement service package.</p> <p>Variable speed limits are an Active Traffic Management (ATM) strategy and are typically used in conjunction with other ATM strategies (such as TM22-Dynamic Lane Management and Shoulder Use and TM23-Dynamic Roadway Warning).</p>	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
TM20	Variable Speeds and Lane Control	<p>Congestion Pricing - Variable Speeds with lane Control. This service package sets variable speed limits along a roadway to create more uniform speeds, to promote safer driving during adverse conditions (such as fog), and/or to reduce air pollution. Also known as speed harmonization, this service monitors traffic and environmental conditions along the roadway. Based on the measured data, the system calculates and sets suitable speed limits, usually by lane. Equipment over and along the roadway displays the speed limits and additional information such as basic safety rules and current traffic information. The system can be centrally monitored and controlled by a traffic management center or it can be autonomous.</p> <p>This service establishes variable speed limits and communicates the speed limits to drivers. Speed warnings and enforcement of speeds limits, including variable speed limits, is covered in the TM17-Speed Warning and Enforcement service package.</p> <p>Variable speed limits are an Active Traffic Management (ATM) strategy and are typically used in conjunction with other ATM strategies (such as TM22-Dynamic Lane Management and Shoulder Use and TM23-Dynamic Roadway Warning).</p>	5 Big Moves #2: Transit Leap	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
TM20	Variable Speeds and Lane Control	<p>Congestion Pricing - Variable Speeds with lane Control. This service package sets variable speed limits along a roadway to create more uniform speeds, to promote safer driving during adverse conditions (such as fog), and/or to reduce air pollution. Also known as speed harmonization, this service monitors traffic and environmental conditions along the roadway. Based on the measured data, the system calculates and sets suitable speed limits, usually by lane. Equipment over and along the roadway displays the speed limits and additional information such as basic safety rules and current traffic information. The system can be centrally monitored and controlled by a traffic management center or it can be autonomous.</p> <p>This service establishes variable speed limits and communicates the speed limits to drivers. Speed warnings and enforcement of speeds limits, including variable speed limits, is covered in the TM17-Speed Warning and Enforcement service package.</p> <p>Variable speed limits are an Active Traffic Management (ATM) strategy and are typically used in conjunction with other ATM strategies (such as TM22-Dynamic Lane Management and Shoulder Use and TM23-Dynamic Roadway Warning).</p>	5 Big Moves #3: Mobility Hubs	Planned
TM21	Speed Harmonization	<p>This service package determines speed recommendations based on traffic conditions and weather information and uses connected vehicle technologies to assist in harmonizing speeds to these recommendations. The speed recommendations can be regulatory (e.g. variable speed limits) or advisory. The purpose of speed harmonization is to change traffic speed on links that approach areas of traffic congestion, bottlenecks, incidents, special events, and other conditions that affect flow. Speed harmonization assists in maintaining flow, reducing unnecessary stops and starts, and maintaining consistent speeds. The service package utilizes connected vehicle V2I communication to detect the precipitating roadway or congestion conditions that might</p>	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		<p>necessitate speed harmonization, to generate the appropriate response plans and speed recommendation strategies for upstream traffic, and to broadcast such recommendations to the affected vehicles. The speed recommendations can be provided in-vehicle for connected vehicles, or through roadside signage for non-connected vehicles.</p>		
TM21	Speed Harmonization	<p>This service package determines speed recommendations based on traffic conditions and weather information and uses connected vehicle technologies to assist in harmonizing speeds to these recommendations. The speed recommendations can be regulatory (e.g. variable speed limits) or advisory. The purpose of speed harmonization is to change traffic speed on links that approach areas of traffic congestion, bottlenecks, incidents, special events, and other conditions that affect flow. Speed harmonization assists in maintaining flow, reducing unnecessary stops and starts, and maintaining consistent speeds. The service package utilizes connected vehicle V2I communication to detect the precipitating roadway or congestion conditions that might necessitate speed harmonization, to generate the appropriate response plans and speed recommendation strategies for upstream traffic, and to broadcast such recommendations to the affected vehicles. The speed recommendations can be provided in-vehicle for connected vehicles, or through roadside signage for non-connected vehicles.</p>	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
TM22	Regional Dynamic Lane Management for Curb and Shoulder Use	<p>The ICMS dynamic lane management, curb and shoulder use service package provides for active management of travel lanes along a roadway. The package includes the field equipment, physical overhead lane signs and associated control electronics that are used to manage and control specific lanes and/or the shoulders. This equipment can be used to change the lane configuration on the roadway according to traffic demand and lane destination along a typical roadway section or on approach to or access from a border crossing, multimodal crossing or intermodal freight depot. This package can be used to allow temporary or interim use of shoulders as travel lanes. The equipment can be used to electronically reconfigure intersections and interchanges and manage right-of-way dynamically including merges. Also, lanes can be designated for use by special vehicles only, such as buses, high occupancy vehicles (HOVs), vehicles attending a special event, etc. Prohibitions or restrictions of types of vehicles from using particular lanes can be implemented.</p> <p>The lane management system can be centrally monitored and controlled by a traffic management center or it can be autonomous. This service also can include automated enforcement equipment that notifies the enforcement agency of violators of the lane controls. Dynamic lane management and shoulder use is an Active Traffic Management (ATM) strategy and is typically used in conjunction with other ATM strategies (such as TM20-Variable Speed Limits and TM12-Dynamic Roadway Warning).</p>	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
TM22	Dynamic Lane Management and Shoulder Use for TOL Project	<p>Transit Only Lane (TOL) project uses this service package to provide for active management of travel lanes along a roadway. The package includes the field equipment, physical overhead lane signs and associated control electronics that are used to manage and control specific lanes and/or the shoulders. This equipment can be used to change the lane configuration on the roadway according to traffic demand and lane destination along a typical roadway section or on approach to or access from a border crossing, multimodal crossing or intermodal freight depot. This package can be used to allow temporary or interim use of shoulders as travel lanes. The equipment can be used to electronically reconfigure intersections and interchanges and manage right-of-way dynamically including merges. Also, lanes can be designated for use by special vehicles only, such as buses, high occupancy vehicles (HOVs), vehicles attending a special event, etc. Prohibitions or restrictions of types of vehicles from using particular lanes can be implemented.</p> <p>The lane management system can be centrally monitored and controlled by a traffic management center or it can be autonomous. This service also can include automated enforcement equipment that notifies the enforcement agency of violators of the lane controls.</p> <p>Dynamic lane management and shoulder use is an Active Traffic Management (ATM) strategy and is typically used in conjunction with other ATM strategies (such as TM20-Variable Speed Limits and TM12-Dynamic Roadway Warning).</p>	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
TM22	Dynamic Lane Lighting for Transit use	<p>Dynamic lane using in pavement lighting to identify bus lanes during congestion. This service package provides for active management of travel lanes along a roadway. The package includes the field equipment, physical overhead lane signs and associated control electronics that are used to manage and control specific lanes and/or the shoulders. This equipment can be used to change the lane configuration on the roadway according to traffic demand and lane destination along a typical roadway section or on approach to or access from a border crossing, multimodal crossing or intermodal freight depot. This package can be used to allow temporary or interim use of shoulders as travel lanes. The equipment can be used to electronically reconfigure intersections and interchanges and manage right-of-way dynamically including merges. Also, lanes can be designated for use by special vehicles only, such as buses, high occupancy vehicles (HOVs), vehicles attending a special event, etc. Prohibitions or restrictions of types of vehicles from using particular lanes can be implemented.</p> <p>The lane management system can be centrally monitored and controlled by a traffic management center or it can be autonomous. This service also can include automated enforcement equipment that notifies the enforcement agency of violators of the lane controls.</p> <p>Dynamic lane management and shoulder use is an Active Traffic Management (ATM) strategy and is typically used in conjunction with other ATM strategies (such as TM20-Variable Speed Limits and TM12-Dynamic Roadway Warning).</p>	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
TM22	Dynamic Lane Lighting for Transit use	<p>Dynamic lane using in pavement lighting to identify bus lanes during congestion. This service package provides for active management of travel lanes along a roadway. The package includes the field equipment, physical overhead lane signs and associated control electronics that are used to manage and control specific lanes and/or the shoulders. This equipment can be used to change the lane configuration on the roadway according to traffic demand and lane destination along a typical roadway section or on approach to or access from a border crossing, multimodal crossing or intermodal freight depot. This package can be used to allow temporary or interim use of shoulders as travel lanes. The equipment can be used to electronically reconfigure intersections and interchanges and manage right-of-way dynamically including merges. Also, lanes can be designated for use by special vehicles only, such as buses, high occupancy vehicles (HOVs), vehicles attending a special event, etc. Prohibitions or restrictions of types of vehicles from using particular lanes can be implemented.</p> <p>The lane management system can be centrally monitored and controlled by a traffic management center or it can be autonomous. This service also can include automated enforcement equipment that notifies the enforcement agency of violators of the lane controls.</p> <p>Dynamic lane management and shoulder use is an Active Traffic Management (ATM) strategy and is typically used in conjunction with other ATM strategies (such as TM20-Variable Speed Limits and TM12-Dynamic Roadway Warning).</p>	5 Big Moves #2: Transit Leap	Planned
TM23	San Diego Border Management Systems	<p>This service package provides international border crossing management for passenger vehicles and other non-commercial travelers crossing the border. This service package manages traffic at the border crossing, provides technology to support expedited processing of trusted travelers, and collects and disseminates border wait times.</p>	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
TM23	Southbound Automated Border Wait Time System (SD County)	--Instance of TM23-- This service package provides international border crossing management for passenger vehicles and other non-commercial travelers crossing the border southbound, at San Ysidro, Otay Mesa West, Otay Mesa East (future) and Tecate. This service package manages traffic at the border crossing, provides technology to support expedited processing of trusted travelers, and collects and disseminates border wait times.	5 Big Moves #1: Complete Corridors	Planned
TM23	San Diego Border Management Systems	This service package provides international border crossing management for passenger vehicles and other non-commercial travelers crossing the border. This service package manages traffic at the border crossing, provides technology to support expedited processing of trusted travelers, and collects and disseminates border wait times.	5 Big Moves #5: Next OS	Planned
TM23	Southbound Automated Border Wait Time System (SD County)	--Instance of TM23-- This service package provides international border crossing management for passenger vehicles and other non-commercial travelers crossing the border southbound, at San Ysidro, Otay Mesa West, Otay Mesa East (future) and Tecate. This service package manages traffic at the border crossing, provides technology to support expedited processing of trusted travelers, and collects and disseminates border wait times.	5 Big Moves #5: Next OS	Planned
TM24	MTS Heavy Rail Tunnel Management	This service package provides central monitoring and control, communications, and field equipment that supports traffic management in tunnels. It specifically includes additional features that support operational safety in tunnels including air quality sensors, infrastructure integrity sensors, and security and surveillance equipment that monitor tunnel operations and signals, dynamic message signs, lighting, and tunnel-specific field equipment like exhaust fans to support safe tunnel traffic operations.	5 Big Moves #2: Transit Leap	Planned
Vehicle Safety (VS)				

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
VS01	San Diego Autonomous Vehicle Safety Systems	This service package improves vehicle safety using on-board sensors that monitor the driving environment surrounding the vehicle. All levels of driving automation are supported ranging from basic warning systems that warn the driver through full automation where the vehicle controls the steering and acceleration/deceleration in all scenarios and environments, without driver intervention. Unlike other Vehicle Safety service packages, this service package includes autonomous capabilities that rely only on on-board systems without communication with other vehicles or the infrastructure.	5 Big Moves #4: Flexible Fleets	Planned
VS02	San Diego V2V Basic Safety	This service package exchanges basic safety messages with surrounding Connected Vehicles to support and augment the safety warning and control automation features identified in VS01. These exchanges support Connected Vehicle safety applications defined in SAE J2945/1: Emergency Electronic Brake Lights, Forward Crash Warning, Blind Spot Warning/Lane Change Warning, Intersection Movement Assist, Left Turn Assist, and Control Loss Warning. It also supports Do Not Pass Warning, Motorcycle Approaching indication, Tailgating Advisory, Stationary Vehicle, and Pre-Crash Actions applications from CVRIA.	5 Big Moves #4: Flexible Fleets	Planned
VS03	San Diego Connected Vehicle Situational Awareness	The San Diego situational awareness service package shares information about potentially hazardous road conditions, wrong way rivers, or road hazards with other vehicles to support enhanced driver warnings and control automation. Vehicles broadcast relevant road condition information that is collected by the vehicle, such as fog or icy roads. This service package supports the capability for connected vehicles to share situational awareness information even in areas where no roadside communications infrastructure exists. It can be useful to vehicles that are not fully equipped with sensors, or vehicles entering an area with hazardous conditions. Roadside communications infrastructure, if available, can extend the situational awareness range to cover wrong way vehicles where closing rates can require notification beyond DSRC communications range.	5 Big Moves #4: Flexible Fleets	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
VS03	San Diego Connected Vehicle Situational Awareness	The San Diego situational awareness service package shares information about potentially hazardous road conditions, wrong way rivers, or road hazards with other vehicles to support enhanced driver warnings and control automation. Vehicles broadcast relevant road condition information that is collected by the vehicle, such as fog or icy roads. This service package supports the capability for connected vehicles to share situational awareness information even in areas where no roadside communications infrastructure exists. It can be useful to vehicles that are not fully equipped with sensors, or vehicles entering an area with hazardous conditions. Roadside communications infrastructure, if available, can extend the situational awareness range to cover wrong way vehicles where closing rates can require notification beyond DSRC communications range.	5 Big Moves #5: Next OS	Planned
VS04	V2V Special Vehicle Alert	This service package alerts the driver about the location of and the movement of public safety vehicles responding to an incident, slow moving vehicles, oversized vehicles, and other special vehicles that may require special attention from the driver. These public safety, commercial, and maintenance vehicles share their current status and location with surrounding vehicles so that other drivers in the vicinity can avoid interfering with their actions and avoid collisions.	5 Big Moves #4: Flexible Fleets	Planned
VS05	Curve Speed Warning	This service package allows connected vehicles to receive information that it is approaching a curve along with the recommended speed for the curve. This capability allows the vehicle to provide a warning to the driver regarding the curve and its recommended speed. In addition, the vehicle can perform additional warning actions if the actual speed through the curve exceeds the recommended speed.	5 Big Moves #1: Complete Corridors	Planned
VS05	Curve Speed Warning	This service package allows connected vehicles to receive information that it is approaching a curve along with the recommended speed for the curve. This capability allows the vehicle to provide a warning to the driver regarding the curve and its recommended speed. In addition, the vehicle can perform additional warning actions if the actual speed through the curve exceeds the recommended speed.	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
VS06	Stop Sign Gap Assist	This service package is intended to improve safety at non-signalized intersections where only the minor road has posted stop signs. It includes both onboard (for connected vehicles) and roadside signage warning systems (for non-equipped vehicles). The service package helps drivers on a minor road stopped at an intersection understand the state of activities associated with that intersection by providing a warning of unsafe gaps on the major road. The SSGA service package collects all available sensor information (major road, minor road, and median sensors) data and computes the dynamic state of the intersection in order to issue appropriate warnings and alerts.	5 Big Moves #1: Complete Corridors	Planned
VS06	Stop Sign Gap Assist	This service package is intended to improve safety at non-signalized intersections where only the minor road has posted stop signs. It includes both onboard (for connected vehicles) and roadside signage warning systems (for non-equipped vehicles). The service package helps drivers on a minor road stopped at an intersection understand the state of activities associated with that intersection by providing a warning of unsafe gaps on the major road. The SSGA service package collects all available sensor information (major road, minor road, and median sensors) data and computes the dynamic state of the intersection in order to issue appropriate warnings and alerts.	5 Big Moves #4: Flexible Fleets	Planned
VS07	Road Weather Motorist Alert and Warning	This service package collects road weather data from connected vehicles and uses that data to develop short term warnings or advisories that can be provided to individual motorists. The information may come from either vehicles operated by the general public and commercial entities (including passenger cars and trucks) or specialty vehicles and public fleet vehicles (such as snowplows, maintenance trucks, and other agency pool vehicles). The raw data will be processed in a controlling center to generate road segment-based data outputs. The processing will also include a road weather motorist alerts algorithm to generate short time horizon alerts that will be pushed to user systems and available to commercial service providers. In addition the information collected can be combined with observations and forecasts from other sources to	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		provide medium (next 2-12 hours) or long term (more than 12 hours) advisories through a variety of interfaces including web based and connected vehicle based interfaces.		
VS07	Road Weather Motorist Alert and Warning	This service package collects road weather data from connected vehicles and uses that data to develop short term warnings or advisories that can be provided to individual motorists. The information may come from either vehicles operated by the general public and commercial entities (including passenger cars and trucks) or specialty vehicles and public fleet vehicles (such as snowplows, maintenance trucks, and other agency pool vehicles). The raw data will be processed in a controlling center to generate road segment-based data outputs. The processing will also include a road weather motorist alerts algorithm to generate short time horizon alerts that will be pushed to user systems and available to commercial service providers. In addition the information collected can be combined with observations and forecasts from other sources to provide medium (next 2-12 hours) or long term (more than 12 hours) advisories through a variety of interfaces including web based and connected vehicle based interfaces.	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
VS08	San Diego V2V Queue Warning Project (Instance 1)	--Instance of VS08-- This service package utilizes connected vehicle technologies, including vehicle-to-infrastructure (V2I) and vehicle-to-vehicle (V2V) communications, to enable vehicles within the queue event to automatically broadcast their queued status information (e.g., rapid deceleration, disabled status, lane location) to nearby upstream vehicles and to centers (such as the TMC). The infrastructure will broadcast queue warnings to vehicles in order to minimize or prevent rear-end or other secondary collisions. This service package is not intended to operate as a crash avoidance system. In contrast to such systems, this service package will engage well in advance of any potential crash situation, providing messages and information to the driver in order to minimize the likelihood of his needing to take crash avoidance or mitigation actions later. It performs two essential tasks: queue determination (detection and/or prediction) and queue information dissemination using vehicle-based, infrastructure-based, or hybrid solutions.	5 Big Moves #4: Flexible Fleets	Planned
VS08	San Diego V2V Queue Warning Project	This service package utilizes connected vehicle technologies, including vehicle-to-infrastructure (V2I) and vehicle-to-vehicle (V2V) communications, to enable vehicles within the queue event to automatically broadcast their queued status information (e.g., rapid deceleration, disabled status, lane location) to nearby upstream vehicles and to centers (such as the TMC). The infrastructure will broadcast queue warnings to vehicles in order to minimize or prevent rear-end or other secondary collisions. This service package is not intended to operate as a crash avoidance system. In contrast to such systems, this service package will engage well in advance of any potential crash situation, providing messages and information to the driver in order to minimize the likelihood of his needing to take crash avoidance or mitigation actions later. It performs two essential tasks: queue determination (detection and/or prediction) and queue information dissemination using vehicle-based, infrastructure-based, or hybrid solutions.	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
VS09	Reduced Speed Zone Warning / Lane Closure	<p>This service package provides connected vehicles that are approaching a reduced speed zone with information on the zone’s posted speed limit and/or if the configuration of the roadway is altered (e.g., lane closures, lane shifts). Reduced speed zones include (but are not be limited to) construction/work zones, school zones, pedestrian crossing areas, and incorporated zones (e.g., rural towns). The connected vehicle uses the revised speed limit along with any applicable changed roadside configuration information to determine whether to provide an alert or warning to the driver. Additionally, to provide warnings to non-equipped vehicles, infrastructure equipment measures the speed of the approaching vehicles and if greater than the reduced speed zone posted speed limit will provide warning signage. It will provide an alert to drivers in advance when aggressive braking is required to reduce to the posted speed limit.</p>	5 Big Moves #1: Complete Corridors	Planned
VS10	SD Connected Vehicle Restricted Lane Warnings	<p>This service package provides the connected vehicle with restriction information about the travel lanes, such as if the lane is restricted to high occupancy vehicles (HOV), transit, or public safety vehicles only or has defined eco-lane criteria. A connected vehicle can use this information to determine if the vehicle is in a lane that has lane restrictions.</p>	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
VS11	Oversize Vehicle Warning	<p>This service package uses external measurements taken by the roadside infrastructure, and transmitted to the vehicle, to support in-vehicle determination of whether an alert/warning is necessary. Specifically, the infrastructure data equipment detects and measures the approaching vehicle's height and width. The infrastructure component of the service package transmits the vehicle measurements, along with bridge, overpass, or tunnel geometry, to the oversize vehicle. The vehicle application utilizes this data to determine whether the vehicle can clear the bridge or tunnel. If deemed necessary, the driver is alerted to the impending low height and/or narrow horizontal clearance bridge or tunnel prior to a decision point, enabling the vehicle to reroute and avoid a collision. If the driver ignores the alert and continues along the route, the vehicle will generate a warning indicating an impending collision at a point near the bridge or tunnel approach. To support unequipped vehicles the infrastructure will display warning or reroute information when the measurements indicate that a vehicle does not have adequate height or width clearance. This service package can be expanded to consider weight as well as height and width.</p>	5 Big Moves #1: Complete Corridors	Planned
VS12	Pedestrian and Cyclist Safety	<p>This service package supports the sensing and warning systems used to interact with pedestrians, cyclists, and other non-motorized users that operate on the main vehicle roadways, or on pathways that intersect the main vehicle roadways. These systems allow automated warning or active protection for this class of users. It integrates traffic, pedestrian, and cyclist information from roadside or intersection detectors and new forms of data from wirelessly connected, non-motorized traveler-carried mobile devices to request right-of-way or to inform non-motorized travelers when to cross and how to remain aligned with the crosswalk or pathway based on real-time Signal Phase and Timing (SPaT) and MAP information. In some cases, priority will be given to non-motorized travelers, such as persons with disabilities who need additional crossing time, or in special conditions (e.g., weather) where non-motorized travelers may warrant priority or additional crossing time. This service</p>	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
		<p>package will enable a service call to be routed to the traffic controller from a mobile device of a registered person with disabilities after confirming the direction and orientation of the roadway that the individual is intending to cross. It also provides warnings to the non-motorized user of possible infringement of the crossing or pathway by approaching vehicles.</p>		
VS12	Pedestrian and Cyclist Safety	<p>This service package supports the sensing and warning systems used to interact with pedestrians, cyclists, and other non-motorized users that operate on the main vehicle roadways, or on pathways that intersect the main vehicle roadways. These systems allow automated warning or active protection for this class of users. It integrates traffic, pedestrian, and cyclist information from roadside or intersection detectors and new forms of data from wirelessly connected, non-motorized traveler-carried mobile devices to request right-of-way or to inform non-motorized travelers when to cross and how to remain aligned with the crosswalk or pathway based on real-time Signal Phase and Timing (SPaT) and MAP information. In some cases, priority will be given to non-motorized travelers, such as persons with disabilities who need additional crossing time, or in special conditions (e.g., weather) where non-motorized travelers may warrant priority or additional crossing time. This service package will enable a service call to be routed to the traffic controller from a mobile device of a registered person with disabilities after confirming the direction and orientation of the roadway that the individual is intending to cross. It also provides warnings to the non-motorized user of possible infringement of the crossing or pathway by approaching vehicles.</p>	5 Big Moves #3: Mobility Hubs	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
VS12	Micro Transit Pedestrian and Cyclist Safety	<p>This service package supports the sensing and warning systems used to interact with pedestrians, cyclists, and other non-motorized and micro transit users that operate on the main vehicle roadways, or on pathways that intersect the main vehicle roadways. These systems allow automated warning or active protection for this class of users. It integrates traffic, pedestrian, and cyclist information from roadside or intersection detectors and new forms of data from wirelessly connected, non-motorized traveler-carried mobile devices to request right-of-way or to inform non-motorized travelers when to cross and how to remain aligned with the crosswalk or pathway based on real-time Signal Phase and Timing (SPaT) and MAP information. In some cases, priority will be given to non-motorized travelers, such as persons with disabilities who need additional crossing time, or in special conditions (e.g., weather) where non-motorized travelers may warrant priority or additional crossing time. This service package will enable a service call to be routed to the traffic controller from a mobile device of a registered person with disabilities after confirming the direction and orientation of the roadway that the individual is intending to cross. It also provides warnings to the non-motorized user of possible infringement of the crossing or pathway by approaching vehicles.</p>	5 Big Moves #3: Mobility Hubs	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
VS12	Micro Transit Pedestrian and Cyclist Safety	<p>This service package supports the sensing and warning systems used to interact with pedestrians, cyclists, and other non-motorized and micro transit users that operate on the main vehicle roadways, or on pathways that intersect the main vehicle roadways. These systems allow automated warning or active protection for this class of users. It integrates traffic, pedestrian, and cyclist information from roadside or intersection detectors and new forms of data from wirelessly connected, non-motorized traveler-carried mobile devices to request right-of-way or to inform non-motorized travelers when to cross and how to remain aligned with the crosswalk or pathway based on real-time Signal Phase and Timing (SPaT) and MAP information. In some cases, priority will be given to non-motorized travelers, such as persons with disabilities who need additional crossing time, or in special conditions (e.g., weather) where non-motorized travelers may warrant priority or additional crossing time. This service package will enable a service call to be routed to the traffic controller from a mobile device of a registered person with disabilities after confirming the direction and orientation of the roadway that the individual is intending to cross. It also provides warnings to the non-motorized user of possible infringement of the crossing or pathway by approaching vehicles.</p>	5 Big Moves #4: Flexible Fleets	Planned
VS13	Intersection Safety Warning and Collision Avoidance	<p>This service package enables a connected vehicle approaching an instrumented signalized intersection to receive information from the infrastructure regarding the signal timing and the geometry of the intersection. The vehicle uses its speed and acceleration profile, along with the signal timing and geometry information to determine if it appears likely that the vehicle will be able to pass safely through the intersection without violating the signal or colliding with other vehicles. If the vehicle determines that proceeding through the intersection is unsafe, a warning is provided to the driver and/or collision avoidance actions are taken, depending on the automation level of the vehicle.</p>	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
VS14	Cooperative Adaptive Cruise Control	<p>This service package adds vehicle to vehicle (V2V) communications to adaptive cruise control (ACC) systems, which provides enhanced information so that groups or 'strings' of CACC-equipped vehicles can follow a lead vehicle with better accuracy, quicker response, and shorter time gaps, enhancing traffic flow stability. In ACC systems, sensors (e.g., radar or lidar) and longitudinal control automation are used to measure and maintain a safe distance from the lead vehicle. V2V communications enables direct communication between the vehicles so that acceleration and deceleration can be more directly coordinated between vehicles in the string.</p>	5 Big Moves #4: Flexible Fleets	Planned
VS15	Infrastructure Enhanced Cooperative Adaptive Cruise Control	<p>This service package adds Infrastructure to Vehicle (I2V) communications to Cooperative Adaptive Cruise Control systems so that strings of compatible CACC-equipped vehicles can be more efficiently formed and cooperating vehicles gain access to speed recommendations and traffic control status from the infrastructure, further enhancing traffic flow stability and improving highway capacity and throughput. Speed recommendations provided by the infrastructure can be used to stabilize traffic flow, reducing speed differentials and enhancing throughput along a route that includes a bottleneck. Access to traffic control information such as signal phase and timing enables synchronized starts by adjacent CACC-equipped strings of vehicles, increasing intersection throughput. The infrastructure can also assist with broader coordination between CACC-equipped vehicles, enabling strings of vehicles to be more efficiently formed that share performance parameters and destinations.</p>	5 Big Moves #4: Flexible Fleets	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
VS15	Infrastructure Enhanced Cooperative Adaptive Cruise Control	<p>This service package adds Infrastructure to Vehicle (I2V) communications to Cooperative Adaptive Cruise Control systems so that strings of compatible CACC-equipped vehicles can be more efficiently formed and cooperating vehicles gain access to speed recommendations and traffic control status from the infrastructure, further enhancing traffic flow stability and improving highway capacity and throughput. Speed recommendations provided by the infrastructure can be used to stabilize traffic flow, reducing speed differentials and enhancing throughput along a route that includes a bottleneck. Access to traffic control information such as signal phase and timing enables synchronized starts by adjacent CACC-equipped strings of vehicles, increasing intersection throughput. The infrastructure can also assist with broader coordination between CACC-equipped vehicles, enabling strings of vehicles to be more efficiently formed that share performance parameters and destinations.</p>	5 Big Moves #5: Next OS	Planned
VS16	Automated Transit Vehicle Operations	<p>The Automated Transit Vehicle Operations service package provides full vehicle automation, controlling both the steering and acceleration/deceleration on areas of the highway system that support full automation. Communications between vehicles and between the vehicles and supporting infrastructure equipment supports cooperative check-in to the automated portion of the system and transition to automated mode, coordination of maneuvers between vehicles in automated mode, and checkout from the automated system. This service package is distinguished from the most advanced CACC systems in that full longitudinal and lateral control automation are supported, enabling closely spaced, tightly coupled platoons of vehicles to operate with short fixed gaps, providing greatly enhanced highway capacity and throughput with enhanced efficiency since aerodynamic drag is reduced.</p>	5 Big Moves #2: Transit Leap	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
VS16	San Diego Automated Vehicle Operations	<p>The San Diego Automated Vehicle Operations service package looks ahead at the rapidly developing automated vehicle technologies and provides full vehicle automation functionalities, controlling both the steering and acceleration/deceleration on areas of the highway system that support full automation. Communications between vehicles and between the vehicles and supporting infrastructure equipment supports cooperative check-in to the automated portion of the system and transition to automated mode, coordination of maneuvers between vehicles in automated mode, and checkout from the automated system.</p> <p>This service package is distinguished from the most advanced CACC systems in that full longitudinal and lateral control automation are supported, enabling closely spaced, tightly coupled platoons of vehicles to operate with short fixed gaps, providing greatly enhanced highway capacity and throughput with enhanced efficiency since aerodynamic drag is reduced.</p> <p>This service package is distinguished from the most advanced CACC systems in that full longitudinal and lateral control automation are supported, enabling closely spaced, tightly coupled platoons of vehicles to operate with short fixed gaps, providing greatly enhanced highway capacity and throughput with enhanced efficiency since aerodynamic drag is reduced.</p>	5 Big Moves #4: Flexible Fleets	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
VS16	San Diego Automated Vehicle Operations	<p>The San Diego Automated Vehicle Operations service package looks ahead at the rapidly developing automated vehicle technologies and provides full vehicle automation functionalities, controlling both the steering and acceleration/deceleration on areas of the highway system that support full automation. Communications between vehicles and between the vehicles and supporting infrastructure equipment supports cooperative check-in to the automated portion of the system and transition to automated mode, coordination of maneuvers between vehicles in automated mode, and checkout from the automated system.</p> <p>This service package is distinguished from the most advanced CACC systems in that full longitudinal and lateral control automation are supported, enabling closely spaced, tightly coupled platoons of vehicles to operate with short fixed gaps, providing greatly enhanced highway capacity and throughput with enhanced efficiency since aerodynamic drag is reduced.</p> <p>This service package is distinguished from the most advanced CACC systems in that full longitudinal and lateral control automation are supported, enabling closely spaced, tightly coupled platoons of vehicles to operate with short fixed gaps, providing greatly enhanced highway capacity and throughput with enhanced efficiency since aerodynamic drag is reduced.</p>	5 Big Moves #5: Next OS	Planned
VS17	Traffic Code Dissemination	<p>This service package disseminates current local statutes, regulations, ordinances, and rules that have been adopted by local, state, and federal authorities that govern the safe, orderly operation of motor vehicles, bicycles, and pedestrians on public roads. The focus of this service package is electronic distribution to automated vehicles and their drivers so that automated vehicles can safely operate in compliance with the traffic or motor vehicle code for the current state and locality, though this information would also be useful to human drivers.</p>	5 Big Moves #4: Flexible Fleets	Planned

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
VS17	Traffic Code Dissemination	This service package disseminates current local statutes, regulations, ordinances, and rules that have been adopted by local, state, and federal authorities that govern the safe, orderly operation of motor vehicles, bicycles, and pedestrians on public roads. The focus of this service package is electronic distribution to automated vehicles and their drivers so that automated vehicles can safely operate in compliance with the traffic or motor vehicle code for the current state and locality, though this information would also be useful to human drivers.	5 Big Moves #5: Next OS	Planned
Weather (WX)				
WX01	ICMS Weather Data Collection	This service package collects current road and weather conditions using data collected from environmental sensors deployed on and about the roadway. It also collects data from vehicles in the road network that can be used to directly measure or infer current environmental conditions. It leverages vehicle on-board systems that measure temperature, sense current weather conditions (rain and sun sensors) and also can monitor aspects of the vehicle operational status (e.g., use of headlights, wipers, and traction control system) to gather information about local environmental conditions. In addition, environmental sensor systems located on Maintenance and Construction Vehicles are also potential data sources. The collected environmental data is used by the Weather Information Processing and Distribution service package to process the information and make decisions on operations. The collected environmental data may be aggregated, combined with data attributes and sent to meteorological systems for data qualification and further data consolidation. The service package may also request and receive qualified data sets from meteorological systems.	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Service Packages Mapped to 5 Big Moves

ID	Service Package Name	Service Package Description	Big Move	Status
WX02	San Diego Weather Information Processing and Distribution	<p>This service package processes and distributes the environmental information collected from the Weather Data Collection service package. This service package uses the environmental data to detect environmental hazards such as icy road conditions, high winds, dense fog, etc. so operational centers and decision support systems can make decision on corrective actions to take. The continuing updates of road condition information and current temperatures can be used to more effectively deploy road maintenance resources, issue general traveler advisories, issue location specific warnings to drivers using the Traffic Information Dissemination service package, and aid operators in scheduling work activity.</p>	5 Big Moves #5: Next OS	Existing

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Appendix C – Inventory Items Mapped to 5 Big Moves

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Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
511 - FSP Dispatch	<p>511 San Diego Region FSP - Motorist Aid program is a free service that improves safety for stranded motorists and reduces traffic congestion during peak hours. A roving fleet of tow trucks and pick up trucks travel on select local freeways to provide roadside assistance to commuters. They assist approximately 83,000 motorists per year. http://511sd.com/motoristaid/motoristaidhome</p> <p>511 is led by SANDAG and managed by a partnership of public agencies: the California Highway Patrol (CHP), California Department of Transportation (Caltrans).</p>	5 Big Moves #1: Complete Corridors	Existing
511 - FSP Dispatch	<p>511 San Diego Region FSP - Motorist Aid program is a free service that improves safety for stranded motorists and reduces traffic congestion during peak hours. A roving fleet of tow trucks and pick up trucks travel on select local freeways to provide roadside assistance to commuters. They assist approximately 83,000 motorists per year. http://511sd.com/motoristaid/motoristaidhome</p> <p>511 is led by SANDAG and managed by a partnership of public agencies: the California Highway Patrol (CHP), California Department of Transportation (Caltrans).</p>	5 Big Moves #4: Flexible Fleets	Existing
511 - FSP Dispatch	<p>511 San Diego Region FSP - Motorist Aid program is a free service that improves safety for stranded motorists and reduces traffic congestion during peak hours. A roving fleet of tow trucks and pick up trucks travel on select local freeways to provide roadside assistance to commuters. They assist approximately 83,000 motorists per year. http://511sd.com/motoristaid/motoristaidhome</p> <p>511 is led by SANDAG and managed by a partnership of public agencies: the California Highway Patrol (CHP), California Department of Transportation (Caltrans).</p>	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
511 - FSP Dispatch	<p>511 San Diego Region FSP - Motorist Aid program is a free service that improves safety for stranded motorists and reduces traffic congestion during peak hours. A roving fleet of tow trucks and pick up trucks travel on select local freeways to provide roadside assistance to commuters. They assist approximately 83,000 motorists per year. http://511sd.com/motoristaid/motoristaidhome</p> <p>511 is led by SANDAG and managed by a partnership of public agencies: the California Highway Patrol (CHP), California Department of Transportation (Caltrans).</p>	Global Element	Existing
511 FSP Vehicles	<p>FSP Vehicles are contracted by SANDAG. They are especially equipped roving vehicles that respond to incidents and motorists on the highways throughout the most congested areas of San Diego, providing on site command and control under the management of CHP at the scene. They are owned by towing companies and managed by CHP, funded through Caltrans and SANDAG to provide motorist assist services identified in service package PS08.</p>	5 Big Moves #1: Complete Corridors	Existing
511 FSP Vehicles	<p>FSP Vehicles are contracted by SANDAG. They are especially equipped roving vehicles that respond to incidents and motorists on the highways throughout the most congested areas of San Diego, providing on site command and control under the management of CHP at the scene. They are owned by towing companies and managed by CHP, funded through Caltrans and SANDAG to provide motorist assist services identified in service package PS08.</p>	5 Big Moves #5: Next OS	Existing
511 FSP Vehicles	<p>FSP Vehicles are contracted by SANDAG. They are especially equipped roving vehicles that respond to incidents and motorists on the highways throughout the most congested areas of San Diego, providing on site command and control under the management of CHP at the scene. They are owned by towing companies and managed by CHP, funded through Caltrans and SANDAG to provide motorist assist services identified in service package PS08.</p>	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
511 IVR	<p>511 is a free phone and web service that consolidates San Diego’s regional transportation information into a one-stop resource. 511 provides up-to-the minute information on traffic conditions; incidents and driving times; schedule, route and fare information for public transportation; carpool and vanpool referrals (iCommute); bicycling information; and more. The automated 511 service is available 24 hours a day, 7 days a week, and can be reached by calling 511 in San Diego County, or by dialing 1-855-GO-SD-511. Visit the 511 by Phone web page to find operator hours for public transportation and other services. The interactive voice response (IVR) telephone system providing statewide traveler information for the San Diego area. The 511 IVR system may include travel time information, construction information, roadway incidents, and special events.</p>	5 Big Moves #1: Complete Corridors	Existing
511 IVR	<p>511 is a free phone and web service that consolidates San Diego’s regional transportation information into a one-stop resource. 511 provides up-to-the minute information on traffic conditions; incidents and driving times; schedule, route and fare information for public transportation; carpool and vanpool referrals (iCommute); bicycling information; and more. The automated 511 service is available 24 hours a day, 7 days a week, and can be reached by calling 511 in San Diego County, or by dialing 1-855-GO-SD-511. Visit the 511 by Phone web page to find operator hours for public transportation and other services.</p> <p>The interactive voice response (IVR) telephone system providing statewide traveler information for the San Diego area. The 511 IVR system may include travel time information, construction information, roadway incidents, and special events.</p>	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
511 IVR	<p>511 is a free phone and web service that consolidates San Diego’s regional transportation information into a one-stop resource. 511 provides up-to-the minute information on traffic conditions; incidents and driving times; schedule, route and fare information for public transportation; carpool and vanpool referrals (iCommute); bicycling information; and more. The automated 511 service is available 24 hours a day, 7 days a week, and can be reached by calling 511 in San Diego County, or by dialing 1-855-GO-SD-511. Visit the 511 by Phone web page to find operator hours for public transportation and other services.</p> <p>The interactive voice response (IVR) telephone system providing statewide traveler information for the San Diego area. The 511 IVR system may include travel time information, construction information, roadway incidents, and special events.</p>	Global Element	Existing
511 SD Operator	511 SD Operator responsible for managing and editing traveler information dissemination	5 Big Moves #1: Complete Corridors	Existing
511 SD Operator	511 SD Operator responsible for managing and editing traveler information dissemination	5 Big Moves #2: Transit Leap	Existing
511 SD Operator	511 SD Operator responsible for managing and editing traveler information dissemination	5 Big Moves #3: Mobility Hubs	Existing
511 SD Operator	511 SD Operator responsible for managing and editing traveler information dissemination	5 Big Moves #4: Flexible Fleets	Existing
511 SD Operator	511 SD Operator responsible for managing and editing traveler information dissemination	5 Big Moves #5: Next OS	Existing
511 SD Operator	511 SD Operator responsible for managing and editing traveler information dissemination	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
511 SD System	<p>Web-based traveler information system in San Diego. Information is gathered from all agencies through the ICMS software and deposited into the 511 SD System. 511 is a free web service that consolidates San Diego’s regional transportation information into a one-stop resource. 511 provides up-to-the minute information on traffic conditions; incidents and driving times; schedule, route and fare information for public transportation; carpool and vanpool referrals (iCommute); bicycling information; and more. The automated 511 service is available 24 hours a day, 7 days a week, and can be reached by calling 511 in San Diego County, or by dialing 1-855-GO-SD-511. Visit the 511 by Phone webpage to find operator hours for public transportation and other services.</p> <p>The system also provides voice-activated inputs to travelers from data collected along each of the San Diego metropolitan area corridors.</p>	5 Big Moves #1: Complete Corridors	Existing
511 SD System	<p>Web-based traveler information system in San Diego. Information is gathered from all agencies through the ICMS software and deposited into the 511 SD System. 511 is a free web service that consolidates San Diego’s regional transportation information into a one-stop resource. 511 provides up-to-the minute information on traffic conditions; incidents and driving times; schedule, route and fare information for public transportation; carpool and vanpool referrals (iCommute); bicycling information; and more. The automated 511 service is available 24 hours a day, 7 days a week, and can be reached by calling 511 in San Diego County, or by dialing 1-855-GO-SD-511. Visit the 511 by Phone webpage to find operator hours for public transportation and other services. The system also provides voice-activated inputs to travelers from data collected along each of the San Diego metropolitan area corridors.</p>	5 Big Moves #2: Transit Leap	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
511 SD System	<p>Web-based traveler information system in San Diego. Information is gathered from all agencies through the ICMS software and deposited into the 511 SD System. 511 is a free web service that consolidates San Diego’s regional transportation information into a one-stop resource. 511 provides up-to-the minute information on traffic conditions; incidents and driving times; schedule, route and fare information for public transportation; carpool and vanpool referrals (iCommute); bicycling information; and more. The automated 511 service is available 24 hours a day, 7 days a week, and can be reached by calling 511 in San Diego County, or by dialing 1-855-GO-SD-511. Visit the 511 by Phone webpage to find operator hours for public transportation and other services.</p> <p>The system also provides voice-activated inputs to travelers from data collected along each of the San Diego metropolitan area corridors.</p>	5 Big Moves #3: Mobility Hubs	Existing
511 SD System	<p>Web-based traveler information system in San Diego. Information is gathered from all agencies through the ICMS software and deposited into the 511 SD System. 511 is a free web service that consolidates San Diego’s regional transportation information into a one-stop resource. 511 provides up-to-the minute information on traffic conditions; incidents and driving times; schedule, route and fare information for public transportation; carpool and vanpool referrals (iCommute); bicycling information; and more. The automated 511 service is available 24 hours a day, 7 days a week, and can be reached by calling 511 in San Diego County, or by dialing 1-855-GO-SD-511. Visit the 511 by Phone webpage to find operator hours for public transportation and other services.</p> <p>The system also provides voice-activated inputs to travelers from data collected along each of the San Diego metropolitan area corridors.</p>	5 Big Moves #4: Flexible Fleets	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
511 SD System	<p>Web-based traveler information system in San Diego. Information is gathered from all agencies through the ICMS software and deposited into the 511 SD System. 511 is a free web service that consolidates San Diego’s regional transportation information into a one-stop resource. 511 provides up-to-the minute information on traffic conditions; incidents and driving times; schedule, route and fare information for public transportation; carpool and vanpool referrals (iCommute); bicycling information; and more. The automated 511 service is available 24 hours a day, 7 days a week, and can be reached by calling 511 in San Diego County, or by dialing 1-855-GO-SD-511. Visit the 511 by Phone webpage to find operator hours for public transportation and other services.</p> <p>The system also provides voice-activated inputs to travelers from data collected along each of the San Diego metropolitan area corridors.</p>	5 Big Moves #5: Next OS	Existing
511 SD System	<p>Web-based traveler information system in San Diego. Information is gathered from all agencies through the ICMS software and deposited into the 511 SD System. 511 is a free web service that consolidates San Diego’s regional transportation information into a one-stop resource. 511 provides up-to-the minute information on traffic conditions; incidents and driving times; schedule, route and fare information for public transportation; carpool and vanpool referrals (iCommute); bicycling information; and more. The automated 511 service is available 24 hours a day, 7 days a week, and can be reached by calling 511 in San Diego County, or by dialing 1-855-GO-SD-511. Visit the 511 by Phone webpage to find operator hours for public transportation and other services. The system also provides voice-activated inputs to travelers from data collected along each of the San Diego metropolitan area corridors.</p>	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
911 Calls in San Diego	<p>911 calls are routed to a PSAP, based on the location of the event. San Diego city and Chula Vista city 911s are routed to their respective Police Departments. Poway, National City and Imperial Beach calls are routed to their law enforcement agency, the Sheriff's Department. This element represents the connection to state, County (Sheriff and Fire Rescue), and Local (municipal police and fire departments) law enforcement, fire, and EMS call taker and dispatch centers that are not specifically called out in this Architecture.</p> <p>It also includes Emergency Operations Centers, Warning Points, and other centers established for major incidents. This element is used in the architecture to show a consistent interface for the exchange of data between Public Safety systems that supports incident notification, hand-offs, resource coordination, and incident response coordination. Communication between these centers uses a mesh topology - any emergency management center can communicate directly with any other emergency management center. Note that this element also represents interfaces to emergency management centers in jurisdictions adjacent to the region that also coordinate during major incidents.</p>	5 Big Moves #5: Next OS	Existing
911 Calls in San Diego	<p>911 calls are routed to a PSAP, based on the location of the event. San Diego city and Chula Vista city 911s are routed to their respective Police Departments. Poway, National City and Imperial Beach calls are routed to their law enforcement agency, the Sheriff's Department. This element represents the connection to state, County (Sheriff and Fire Rescue), and Local (municipal police and fire departments) law enforcement, fire, and EMS call taker and dispatch centers that are not specifically called out in this Architecture.</p> <p>It also includes Emergency Operations Centers, Warning Points, and other centers established for major incidents. This element is used in the architecture to show a consistent interface for the exchange of data between Public Safety systems that supports incident notification, hand-offs, resource</p>	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	<p>coordination, and incident response coordination. Communication between these centers uses a mesh topology - any emergency management center can communicate directly with any other emergency management center. Note that this element also represents interfaces to emergency management centers in jurisdictions adjacent to the region that also coordinate during major incidents.</p>		
Aduanas Field Equipment	<p>Represents field equipment used by Aduanas to support inspection at border crossings. the equipment includes AVI, license plate readers, CCTV, and radiation detectors,</p>	5 Big Moves #1: Complete Corridors	Planned
Aduanas Field Equipment	<p>Represents field equipment used by Aduanas to support inspection at border crossings. the equipment includes AVI, license plate readers, CCTV, and radiation detectors,</p>	5 Big Moves #5: Next OS	Planned
Aduanas Field Equipment	<p>Represents field equipment used by Aduanas to support inspection at border crossings. the equipment includes AVI, license plate readers, CCTV, and radiation detectors,</p>	Global Element	Planned
Aduanas Website	<p>Website containing border crossing specific information.</p>	5 Big Moves #5: Next OS	Planned
Aduanas Website	<p>Website containing border crossing specific information.</p>	Global Element	Planned
Amtrak Pacific Surfliner	<p>Amtrak trains connecting San Luis Obispo and San Diego through Los Angeles and Santa Barbara, the Pacific Surfliner route offers a unique vantage on the Southern California seascape.</p>	5 Big Moves #2: Transit Leap	Existing
Amtrak Pacific Surfliner	<p>Amtrak trains connecting San Luis Obispo and San Diego through Los Angeles and Santa Barbara, the Pacific Surfliner route offers a unique vantage on the Southern California seascape.</p>	5 Big Moves #3: Mobility Hubs	Existing
Amtrak Pacific Surfliner	<p>Amtrak trains connecting San Luis Obispo and San Diego through Los Angeles and Santa Barbara, the Pacific Surfliner route offers a unique vantage on the Southern California seascape.</p>	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Archive Data User Systems	Any user of archive data products from any archive management system. This may include individual users, computer applications, or modeling systems utilizing the archived data. Also includes agency systems that use data put into data warehouses or archives by other ITS stakeholders. The agencies that might make use of the data are private motor operators, DOTs, Cities, Counties, Aduanas, SANDAG, and planning agencies. Some of the systems that might access the data are: Border Wizard (a planning tool), and CanSim (another planning tool). Other possible uses are for the Compendium (a list of projects), Facility Planning, and feedback to Operations (TMCs, CBP/Aduanas) for lane assignments and staffing.	5 Big Moves #5: Next OS	Existing
Archive Data User Systems	Any user of archive data products from any archive management system. This may include individual users, computer applications, or modeling systems utilizing the archived data. Also includes agency systems that use data put into data warehouses or archives by other ITS stakeholders. The agencies that might make use of the data are private motor operators, DOTs, Cities, Counties, Aduanas, SANDAG, and planning agencies. Some of the systems that might access the data are: Border Wizard (a planning tool), and CanSim (another planning tool). Other possible uses are for the Compendium (a list of projects), Facility Planning, and feedback to Operations (TMCs, CBP/Aduanas) for lane assignments and staffing.	Global Element	Existing
Baja SIDUE Field Equipment	Represents field equipment such as sensors, CCTV, and Dynamic Message Signs, traffic signal controllers, etc., operated and managed by Baja traffic agencies.	Global Element	Planned
Border Crossing Travelers	Travelers crossing the California-Baja border in either personal or commercial vehicles	5 Big Moves #1: Complete Corridors	Existing
Border Crossing Travelers	Travelers crossing the California-Baja border in either personal or commercial vehicles	5 Big Moves #2: Transit Leap	Existing
Border Crossing Travelers	Travelers crossing the California-Baja border in either personal or commercial vehicles	5 Big Moves #3: Mobility Hubs	Existing
Border Crossing Travelers	Travelers crossing the California-Baja border in either personal or commercial vehicles	5 Big Moves #4: Flexible Fleets	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Border Crossing Travelers	Travelers crossing the California-Baja border in either personal or commercial vehicles	5 Big Moves #5: Next OS	Existing
Border Crossing Travelers	Travelers crossing the California-Baja border in either personal or commercial vehicles	Global Element	Existing
Bus Information Apps	NCTD and MTS have transit apps available to travelers that can pull bus information from the GTSF real time feed and provide real time traveler information to riders. This elements represents the apps available to travelers.	5 Big Moves #2: Transit Leap	Existing
Bus Information Apps	NCTD and MTS have transit apps available to travelers that can pull bus information from the GTSF real time feed and provide real time traveler information to riders. This elements represents the apps available to travelers.	5 Big Moves #5: Next OS	Existing
Bus Information Apps	NCTD and MTS have transit apps available to travelers that can pull bus information from the GTSF real time feed and provide real time traveler information to riders. This elements represents the apps available to travelers.	Global Element	Existing
CA Department of Motor Vehicle	<p>California DMV is hosted at the CA. Gov site. The services provided through the DMV include vehicle registration and, personal services such as red light enforcement, driver's license, security ID, and license points, fines enforcement and driver ID information. California Vehicle Code (CVC) Section 38750 requires the DMV to adopt regulations governing both the testing and public use of autonomous vehicles on California roadways.</p> <p>Through adoption of regulations effective on April 2, 2018, the DMV has the authority to issue permits for driver less testing or deployment of autonomous vehicles. When an application is received, it will be thoroughly reviewed. The Department will not approve any permits until it is clear that the applicant has met all of the safe operation requirements set forth in the regulations.</p>	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
CA Department of Motor Vehicle	<p>California DMV is hosted at the CA. Gov site. The services provided through the DMV include vehicle registration and, personal services such as red light enforcement, driver's license, security ID, and license points, fines enforcement and driver ID information. California Vehicle Code (CVC) Section 38750 requires the DMV to adopt regulations governing both the testing and public use of autonomous vehicles on California roadways.</p> <p>Through adoption of regulations effective on April 2, 2018, the DMV has the authority to issue permits for driver less testing or deployment of autonomous vehicles. When an application is received, it will be thoroughly reviewed. The Department will not approve any permits until it is clear that the applicant has met all of the safe operation requirements set forth in the regulations.</p>	Global Element	Existing
CA DMV Enforcement Vehicles	Represents DMV enforcement vehicles.	5 Big Moves #5: Next OS	Existing
CA DMV Enforcement Vehicles	Represents DMV enforcement vehicles.	Global Element	Existing
Cal OES Data Distribution Communications System	California's Communications Systems across all boundaries for emergencies.	5 Big Moves #5: Next OS	Existing
Cal OES Data Distribution Communications System	California's Communications Systems across all boundaries for emergencies.	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Cal OES Public Safety	<p>The state of California activates a statewide emergency operations center in the event of an emergency. The Emergency Operations Center (emergency management center) is used to provide direction and control of state resources during declared emergencies. They would be activated during a large scale, multi day event. This element represents State of California Emergency Preparedness and Response as well as Public Safety Communications. They also coordinate fire & rescue, including responding to Hazmat and managing the FIRESCOPE program and coordinating statewide mutual aid resources.</p> <p>The California Governor’s Office of Emergency Services (Cal OES)—in association with the California Department of Forestry and Fire Protection (CAL FIRE) and through a strategic partnership with the Department of Homeland Security’s Science & Technology Directorate (DHS S&T)—acquired the Next-Generation Incident Command System (NICS) software for use by California’s emergency services professionals. The California deployment of the NICS software is called Situation Awareness and Collaboration Tool (SCOUT). SCOUT provides an information sharing environment to facilitate operational and tactical collaboration among California emergency responders and interagency situational awareness for local, tribal, state, and federal partners for small to extreme scale homeland security incidents, such natural disasters, technological hazards, intentional attacks, and human-caused emergencies.</p>	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Cal OES Public Safety	<p>The state of California activates a statewide emergency operations center in the event of an emergency. The Emergency Operations Center (emergency management center) is used to provide direction and control of state resources during declared emergencies. They would be activated during a large scale, multi day event. This element represents State of California Emergency Preparedness and Response as well as Public Safety Communications. They also coordinate fire & rescue, including responding to Hazmat and managing the FIREScope program and coordinating statewide mutual aid resources.</p> <p>The California Governor’s Office of Emergency Services (Cal OES)—in association with the California Department of Forestry and Fire Protection (CAL FIRE) and through a strategic partnership with the Department of Homeland Security’s Science & Technology Directorate (DHS S&T)—acquired the Next-Generation Incident Command System (NICS) software for use by California’s emergency services professionals. The California deployment of the NICS software is called Situation Awareness and Collaboration Tool (SCOUT). SCOUT provides an information sharing environment to facilitate operational and tactical collaboration among California emergency responders and interagency situational awareness for local, tribal, state, and federal partners for small to extreme scale homeland security incidents, such natural disasters, technological hazards, intentional attacks, and human-caused emergencies.</p>	Global Element	Existing
Cal OES Spill Data Archive	California has a hazardous material (Hazmat) incident database that is used by the state and local agencies to track clean up and recovery of all hazardous material incidents on state highways and other locations. The database is used for planning and evaluation of hazmat incidents and operations. The database isn't real time but is updated regularly by each agency responding to Hazmat spills.	5 Big Moves #5: Next OS	Existing
Cal OES Spill Data Archive	California has a hazardous material (Hazmat) incident database that is used by the state and local agencies to track clean up and recovery of all hazardous material incidents on state highways and other locations. The database is	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	used for planning and evaluation of hazmat incidents and operations. The database isn't real time but is updated regularly by each agency responding to Hazmat spills.		
California Commercial Vehicle Enforcement	Systems to support the enforcement of traffic and commercial vehicle violations - may be separate from the ITS systems that collect the information and provide it to a separate enforcement function.	5 Big Moves #1: Complete Corridors	Planned
California Commercial Vehicle Enforcement	Systems to support the enforcement of traffic and commercial vehicle violations - may be separate from the ITS systems that collect the information and provide it to a separate enforcement function.	5 Big Moves #5: Next OS	Planned
California Commercial Vehicle Enforcement	Systems to support the enforcement of traffic and commercial vehicle violations - may be separate from the ITS systems that collect the information and provide it to a separate enforcement function.	Global Element	Planned
California CVIEW System	Commercial Vehicle Information Exchange Window. Collects snapshots for interstate and intrastate carriers, vehicles, and drivers. Interfaces with SAFER for interstate snapshot exchange. Also distributed snapshots to other states.	5 Big Moves #1: Complete Corridors	Planned
California CVIEW System	Commercial Vehicle Information Exchange Window. Collects snapshots for interstate and intrastate carriers, vehicles, and drivers. Interfaces with SAFER for interstate snapshot exchange. Also distributed snapshots to other states.	5 Big Moves #5: Next OS	Planned
California CVIEW System	Commercial Vehicle Information Exchange Window. Collects snapshots for interstate and intrastate carriers, vehicles, and drivers. Interfaces with SAFER for interstate snapshot exchange. Also distributed snapshots to other states.	Global Element	Planned
California CVO Credentials/Permitting Interface	The electronic interface (usually a web based client) that provides electronic purchasing and credentials processing, electronic purchasing and permit processing (including permit renewal) and automated mileage and fuel reporting, and auditing functions.	5 Big Moves #1: Complete Corridors	Planned
California CVO Credentials/Permitting Interface	The electronic interface (usually a web based client) that provides electronic purchasing and credentials processing, electronic purchasing and permit processing (including permit renewal) and automated mileage and fuel reporting, and auditing functions.	5 Big Moves #5: Next OS	Planned
California CVO Credentials/Permitting Interface	The electronic interface (usually a web based client) that provides electronic purchasing and credentials processing, electronic purchasing and permit	Global Element	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	processing (including permit renewal) and automated mileage and fuel reporting, and auditing functions.		
California Transportation Planning System	Caltrans data collection and warehousing system to collect transportation related information throughout the state of California. Archived data used to support planning activities.	5 Big Moves #1: Complete Corridors	Planned
California Transportation Planning System	Caltrans data collection and warehousing system to collect transportation related information throughout the state of California. Archived data used to support planning activities.	Global Element	Planned
Caltrans D11 Asset Management Systems	Caltrans District 11 - asset management systems represent the systems that support decision-making for financial management of funds to support maintenance, upgrade, and operation of physical transportation assets. Operations and management of assets for use in maintaining the district is done within the local District 11. Asset management integrates and includes the pavement management systems, bridge management systems, and other systems that inventory and manage the highway infrastructure and other transportation-related assets. The types of assets that are inventoried and managed will vary, and may include the maintenance and construction vehicles and equipment as well as 'soft' assets such as human resources and software. Asset management systems monitor the condition, performance, and availability of the infrastructure and evaluate and prioritize alternative reconstruction, rehabilitation, and maintenance strategies.	5 Big Moves #1: Complete Corridors	Existing
Caltrans D11 Asset Management Systems	Caltrans District 11 - asset management systems represent the systems that support decision-making for financial management of funds to support maintenance, upgrade, and operation of physical transportation assets. Operations and management of assets for use in maintaining the district is done within the local District 11. Asset management integrates and includes the pavement management systems, bridge management systems, and other systems that inventory and manage the highway infrastructure and other transportation-related assets. The types of assets that are inventoried and managed will vary, and may include the maintenance and construction vehicles and equipment as well as 'soft' assets such as human resources and software. Asset management systems monitor the condition, performance,	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	and availability of the infrastructure and evaluate and prioritize alternative reconstruction, rehabilitation, and maintenance strategies.		
Caltrans D11 Connected Vehicle Equipment	'Connected Vehicle Roadside Equipment' (CV RSE) represents the Connected Vehicle roadside devices that are used to send messages to, and receive messages from, nearby vehicles using Dedicated Short Range Communications (DSRC) or other alternative wireless communications technologies. Communications with adjacent field equipment and back office centers that monitor and control the RSE are also supported. This device operates from a fixed position and may be permanently deployed or a portable device that is located temporarily in the vicinity of a traffic incident, road construction, or a special event. It includes a processor, data storage, and communications capabilities that support secure communications with passing vehicles, other field equipment, and centers.	5 Big Moves #1: Complete Corridors	Planned
Caltrans D11 Connected Vehicle Equipment	'Connected Vehicle Roadside Equipment' (CV RSE) represents the Connected Vehicle roadside devices that are used to send messages to, and receive messages from, nearby vehicles using Dedicated Short Range Communications (DSRC) or other alternative wireless communications technologies. Communications with adjacent field equipment and back office centers that monitor and control the RSE are also supported. This device operates from a fixed position and may be permanently deployed or a portable device that is located temporarily in the vicinity of a traffic incident, road construction, or a special event. It includes a processor, data storage, and communications capabilities that support secure communications with passing vehicles, other field equipment, and centers.	Global Element	Planned
Caltrans D11 Fiber Optic Network	Routers, switches and physical fiber network which connects back field devices from I-5 / I-805 / SR-905 to the D11 TMC	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Caltrans D11 Fiber Optic Network	Routers, switches and physical fiber network which connects back field devices from I-5 / I-805 / SR-905 to the D11 TMC	Global Element	Planned
Caltrans D11 Field Equipment	Represents field equipment such as sensors, CCTV, ramp data, Dynamic Message Signs (DMS), and traffic signal controllers, etc., operated and managed by California Department of Transportation, Caltrans. This information goes into the ICMS and is merged with other traffic data to create the ICMS traveler information and other services.	5 Big Moves #1: Complete Corridors	Existing
Caltrans D11 Field Equipment	Represents field equipment such as sensors, CCTV, ramp data, Dynamic Message Signs (DMS), and traffic signal controllers, etc., operated and managed by California Department of Transportation, Caltrans. This information goes into the ICMS and is merged with other traffic data to create the ICMS traveler information and other services.	Global Element	Existing
Caltrans D11 Intermodal TMC	Caltrans District 11 Intermodal TMC is identified in the Statewide ITS Architecture. The statewide ITS Architecture interfaces with the regional SANDAG Architecture's: Ramp Meters, Inductive Loops, CCTV, CMS, HAR and signals. The Jurisdictional TOC is the physical location for this center. The TMC is responsible for traffic management of the state highways in District 11, including those that reach to the border crossing. traffic management center that monitors traffic conditions throughout the State of Arizona. This element connects to other states surrounding California as an "Other Emergency Management" and "Other Traffic Management" element. The TMC also controls other ITS field equipment, such as CCTV cameras, ramp meters, dynamic message signs (DMS) and all other field equipment owned and operated by Caltrans.	5 Big Moves #1: Complete Corridors	Planned
Caltrans D11 Intermodal TMC	Caltrans District 11 Intermodal TMC is identified in the Statewide ITS Architecture. The statewide ITS Architecture interfaces with the regional SANDAG Architecture's: Ramp Meters, Inductive Loops, CCTV, CMS, HAR and signals. The Jurisdictional TOC is the physical location for this center. The TMC is responsible for traffic management of the state highways in District 11, including those that reach to the border crossing. traffic management center that monitors traffic conditions throughout the State of Arizona. This element connects to other states surrounding California as an "Other	Global Element	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	Emergency Management" and "Other Traffic Management" element. The TMC also controls other ITS field equipment, such as CCTV cameras, ramp meters, dynamic message signs (DMS) and all other field equipment owned and operated by Caltrans.		
Caltrans D11 Security Monitoring	Caltrans field equipment used for security monitoring of transportation infrastructure (e.g. CCTV used for security, not for assessment of traffic conditions)	5 Big Moves #1: Complete Corridors	Planned
Caltrans D11 Security Monitoring	Caltrans field equipment used for security monitoring of transportation infrastructure (e.g. CCTV used for security, not for assessment of traffic conditions)	5 Big Moves #5: Next OS	Planned
Caltrans D11 Security Monitoring	Caltrans field equipment used for security monitoring of transportation infrastructure (e.g. CCTV used for security, not for assessment of traffic conditions)	Global Element	Planned
Caltrans Data User System	Caltrans TMC data user system is the system that users employ to access archived data. The general interface provided allows a broad range of users (e.g. planners, researchers, analysts, operators) and their systems (e.g. databases, models, analytical tools, user interface devices) to acquire data and analyses results from the archive.	5 Big Moves #1: Complete Corridors	Existing
Caltrans Data User System	Caltrans TMC data user system is the system that users employ to access archived data. The general interface provided allows a broad range of users (e.g. planners, researchers, analysts, operators) and their systems (e.g. databases, models, analytical tools, user interface devices) to acquire data and analyses results from the archive.	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Caltrans Edge ITS Field Equipment	<p>Caltrans Edge ITS Field equipment represents real time data processed near the data source or at the edge of the network. 'Other ITS Roadway Equipment' supports 'field device' to 'field device' communication and coordination, and provides a source and destination for information that may be exchanged between ITS Roadway Equipment.</p> <p>The interface enables direct coordination between field equipment. Examples include the direct interface between sensors and other roadway devices (e.g., Dynamic Message Signs) and the direct interface between roadway devices (e.g., between a Signal System Master and Signal System Local equipment) or a connection between an arterial signal system master and a ramp meter controller.</p>	5 Big Moves #1: Complete Corridors	Existing
Caltrans Edge ITS Field Equipment	<p>Caltrans Edge ITS Field equipment represents real time data processed near the data source or at the edge of the network. 'Other ITS Roadway Equipment' supports 'field device' to 'field device' communication and coordination, and provides a source and destination for information that may be exchanged between ITS Roadway Equipment.</p> <p>The interface enables direct coordination between field equipment. Examples include the direct interface between sensors and other roadway devices (e.g., Dynamic Message Signs) and the direct interface between roadway devices (e.g., between a Signal System Master and Signal System Local equipment) or a connection between an arterial signal system master and a ramp meter controller.</p>	Global Element	Existing
Caltrans Electronic Bypass Stations	Caltrans electronic bypass statements represents the pre-pass system for electronic bypass of commercial vehicles. This element also includes the domestic port of entry stations that are equipped with Pre-pass.	5 Big Moves #1: Complete Corridors	Existing
Caltrans Electronic Bypass Stations	Caltrans electronic bypass statements represents the pre-pass system for electronic bypass of commercial vehicles. This element also includes the domestic port of entry stations that are equipped with Pre-pass.	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Caltrans HQ Asset Management System	<p>Certain aspects of Caltrans Asset Management Systems are owned and operated by Caltrans Headquarters. Asset management systems represent the systems that support decision-making for financial management of funds to support maintenance, upgrade, and operation of physical transportation assets. Asset management integrates and includes the pavement management systems, bridge management systems, and other systems that inventory and manage the highway infrastructure and other transportation-related assets. The types of assets that are inventoried and managed will vary, and may include the maintenance and construction vehicles and equipment as well as 'soft' assets such as human resources and software. Asset management systems monitor the condition, performance, and availability of the infrastructure and evaluate and prioritize alternative reconstruction, rehabilitation, and maintenance strategies.</p>	5 Big Moves #1: Complete Corridors	Existing
Caltrans HQ Asset Management System	<p>Certain aspects of Caltrans Asset Management Systems are owned and operated by Caltrans Headquarters. Asset management systems represent the systems that support decision-making for financial management of funds to support maintenance, upgrade, and operation of physical transportation assets. Asset management integrates and includes the pavement management systems, bridge management systems, and other systems that inventory and manage the highway infrastructure and other transportation-related assets. The types of assets that are inventoried and managed will vary, and may include the maintenance and construction vehicles and equipment as well as 'soft' assets such as human resources and software. Asset management systems monitor the condition, performance, and availability of the infrastructure and evaluate and prioritize alternative reconstruction, rehabilitation, and maintenance strategies.</p>	Global Element	Existing
Caltrans HQ Maintenance Administration	<p>This element represents statewide maintenance and construction center Lane Control Systems (LCS) from Caltrans HQ. HQ keeps the schedule for maintenance performed throughout the state and sends that information to the local maintenance and construction element. This information is then passed on to the TIC statewide map and to the local ICMS system.</p>	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Caltrans HQ Maintenance Administration	This element represents statewide maintenance and construction center Lane Control Systems (LCS) from Caltrans HQ. HQ keeps the schedule for maintenance performed throughout the state and sends that information to the local maintenance and construction element. This information is then passed on to the TIC statewide map and to the local ICMS system.	Global Element	Existing
Caltrans Maintenance Operations	This element represents construction and maintenance operations for assets, planning, and deployment of resources for construction, maintenance and work zone administration of projects on the interstate highways, state highways and projects associated with the regional freeway system and regional transportation planning for the San Diego - District 11 area. Caltrans Maintenance and Construction (MCO) Vehicles are deployed through the district office to perform activities related to clearance of obstacles, traffic incident management clean-up, sign repairs on the highway, and general maintenance of the roadway assets.	5 Big Moves #1: Complete Corridors	Existing
Caltrans Maintenance Operations	This element represents construction and maintenance operations for assets, planning, and deployment of resources for construction, maintenance and work zone administration of projects on the interstate highways, state highways and projects associated with the regional freeway system and regional transportation planning for the San Diego - District 11 area. Caltrans Maintenance and Construction (MCO) Vehicles are deployed through the district office to perform activities related to clearance of obstacles, traffic incident management clean-up, sign repairs on the highway, and general maintenance of the roadway assets.	Global Element	Existing
Caltrans Maintenance WZ Field Equipment	Work zone monitoring, and alerting equipment owned by Caltrans.	5 Big Moves #1: Complete Corridors	Existing
Caltrans Maintenance WZ Field Equipment	Work zone monitoring, and alerting equipment owned by Caltrans.	Global Element	Existing
Caltrans MCO Equipment Repair	'Equipment Repair Facility' represents the facilities that configure, service, and repair vehicles and other support equipment used in roadway infrastructure construction and maintenance. The equipment repair facility receives preventative and corrective maintenance schedules and vehicle configuration requirements, performs the necessary configuration and	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	maintenance work on the vehicles and equipment, and provides vehicle and equipment status back to the architecture.		
Caltrans MCO Equipment Repair	'Equipment Repair Facility' represents the facilities that configure, service, and repair vehicles and other support equipment used in roadway infrastructure construction and maintenance. The equipment repair facility receives preventative and corrective maintenance schedules and vehicle configuration requirements, performs the necessary configuration and maintenance work on the vehicles and equipment, and provides vehicle and equipment status back to the architecture.	Global Element	Existing
Caltrans MCO Vehicles	Maintenance and construction vehicles (MCO) owned by Caltrans Headquarters and operated in District 11 to perform District 11 maintenance. Vehicles are used for performing maintenance on signals, roads, and all equipment throughout the San Diego region.	5 Big Moves #1: Complete Corridors	Planned
Caltrans MCO Vehicles	Maintenance and construction vehicles (MCO) owned by Caltrans Headquarters and operated in District 11 to perform District 11 maintenance. Vehicles are used for performing maintenance on signals, roads, and all equipment throughout the San Diego region.	Global Element	Planned
Caltrans Performance Measurement System	<p>California's Performance Measurement System (PeMS) is an Internet-based tool that can be used to monitor conditions on urban freeways. PeMS will allow users to produce congestion monitoring reports using automatically collected data from sensors statewide.</p> <p>An archive data system, PeMS is both a source and a user of real-time data from nearly 40,000 individual detectors spanning the freeway system across all major metropolitan areas in California. This regional element is provided for users of PeMS outputs. This element exchanges data with the ICMS data hub.</p>	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Caltrans Performance Measurement System	<p>California's Performance Measurement System (PeMS) is an Internet-based tool that can be used to monitor conditions on urban freeways. PeMS will allow users to produce congestion monitoring reports using automatically collected data from sensors statewide.</p> <p>An archive data system, PeMS is both a source and a user of real-time data from nearly 40,000 individual detectors spanning the freeway system across all major metropolitan areas in California. This regional element is provided for users of PeMS outputs. This element exchanges data with the ICMS data hub.</p>	Global Element	Existing
Caltrans RWIS	<p>Road Weather Information Systems are owned by the state with sensors throughout the State of California that measure temperature, humidity and wind speed. Some RWIS stations have pavement sensors, either active or passive. Each District has access to the RWIS server. The system gathers the information and users must log into the system to view the pictures or weather surface information. This element is both existing and planned for expansion.</p>	5 Big Moves #1: Complete Corridors	Existing
Caltrans RWIS	<p>Road Weather Information Systems are owned by the state with sensors throughout the State of California that measure temperature, humidity and wind speed. Some RWIS stations have pavement sensors, either active or passive. Each District has access to the RWIS server. The system gathers the information and users must log into the system to view the pictures or weather surface information. This element is both existing and planned for expansion.</p>	Global Element	Existing
Caltrans RWIS Field Equipment	<p>Caltrans Edge ITS Field equipment represents real time data processed near the data source or at the edge of the network. 'Other ITS Roadway Equipment' supports 'field device' to 'field device' communication and coordination, and provides a source and destination for information that may be exchanged between ITS Roadway Equipment.</p> <p>The interface enables direct coordination between field equipment. Examples</p>	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	include the direct interface between sensors and other roadway devices (e.g., Dynamic Message Signs) and the direct interface between roadway		
Caltrans RWIS Field Equipment	<p>Caltrans Edge ITS Field equipment represents real time data processed near the data source or at the edge of the network. 'Other ITS Roadway Equipment' supports 'field device' to 'field device' communication and coordination, and provides a source and destination for information that may be exchanged between ITS Roadway Equipment.</p> <p>The interface enables direct coordination between field equipment. Examples include the direct interface between sensors and other roadway devices (e.g., Dynamic Message Signs) and the direct interface between roadway</p>	Global Element	Existing
Caltrans SD County Southbound Border Wait Time Field Sites	Includes San Ysidro, Otay Mesa (West), Otay Mesa East (Future) and Tecate Southbound Border Wait Time Field Sites	5 Big Moves #1: Complete Corridors	Existing
Caltrans SD County Southbound Border Wait Time Field Sites	Includes San Ysidro, Otay Mesa (West), Otay Mesa East (Future) and Tecate Southbound Border Wait Time Field Sites	Global Element	Existing
Caltrans Security Monitoring Equipment	Caltrans field equipment used for security monitoring of transportation infrastructure (e.g. CCTV used for security, not for assessment of traffic conditions)	5 Big Moves #1: Complete Corridors	Planned
Caltrans Security Monitoring Equipment	Caltrans field equipment used for security monitoring of transportation infrastructure (e.g. CCTV used for security, not for assessment of traffic conditions)	Global Element	Planned
Caltrans Service Monitoring System for CV	Represents Caltrans center based system that provides monitoring, management and control services necessary to other applications and or devices operating within the Connected Vehicle Environment. These support services enable other applications to provide transportation services.	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Caltrans Service Monitoring System for CV	Represents Caltrans center based system that provides monitoring, management and control services necessary to other applications and or devices operating within the Connected Vehicle Environment. These support services enable other applications to provide transportation services.	Global Element	Planned
Caltrans Website	<p>Caltrans District 11 has a website that provides real time traveler information systems for the region, including traffic information relating to the border crossing. The system includes freeway video images, travel time information, and roadway incidents.</p> <p>Public access to the information is provided via internet at the website location: http://www.dot.ca.gov/dist11/d11tmc/sdmap/showmap.php</p>	5 Big Moves #1: Complete Corridors	Existing
Caltrans Website	<p>Caltrans District 11 has a website that provides real time traveler information systems for the region, including traffic information relating to the border crossing. The system includes freeway video images, travel time information, and roadway incidents.</p> <p>Public access to the information is provided via internet at the website location: http://www.dot.ca.gov/dist11/d11tmc/sdmap/showmap.php</p>	Global Element	Existing
Caltrans WIM Stations	Weigh in Motion (WIM) devices are designated to capture and record axle weights and gross vehicles weights as vehicles drive over a measurement site. WIM systems are capable of measuring vehicles traveling at a reduced or normal traffic speed and do not require the vehicle to come to a stop. Caltrans administrates the Commercial Vehicle Operations (CVO) WIM for California. This includes pre-pass stations at the national ports-of-entry and weigh stations at international ports-of-entry; WIM is also used for traffic monitoring and pavement preservation.	5 Big Moves #1: Complete Corridors	Existing
Caltrans WIM Stations	Weigh in Motion (WIM) devices are designated to capture and record axle weights and gross vehicles weights as vehicles drive over a measurement site. WIM systems are capable of measuring vehicles traveling at a reduced or normal traffic speed and do not require the vehicle to come to a stop. Caltrans administrates the Commercial Vehicle Operations (CVO) WIM for California. This includes pre-pass stations at the national ports-of-entry and	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	weigh stations at international ports-of-entry; WIM is also used for traffic monitoring and pavement preservation.		
Car Rental Multimodal	Car rental facility located in airports and multimodal facilities.	Global Element	Planned
CBP Border Patrol	San Diego is on the border of Mexico. Customs and Border Protection agents are managed and dispatched from the border crossing to staff the entry points and inspection stations and respond to incidents.	5 Big Moves #3: Mobility Hubs	Planned
CBP Border Patrol	San Diego is on the border of Mexico. Customs and Border Protection agents are managed and dispatched from the border crossing to staff the entry points and inspection stations and respond to incidents.	5 Big Moves #5: Next OS	Planned
CBP Border Patrol	San Diego is on the border of Mexico. Customs and Border Protection agents are managed and dispatched from the border crossing to staff the entry points and inspection stations and respond to incidents.	Global Element	Planned
Center - Coordinación Estatal de Protección Civil	The Mexican State Emergency center provides the role of preparing for large scale disasters that may overwhelm a local jurisdiction. The centre will establish communications within the operational area with all local governments likely to be affected by the disaster, and with those local governments not affected but who are able to provide assistance.	5 Big Moves #5: Next OS	Future
Center - Coordinación Estatal de Protección Civil	The Mexican State Emergency center provides the role of preparing for large scale disasters that may overwhelm a local jurisdiction. The centre will establish communications within the operational area with all local governments likely to be affected by the disaster, and with those local governments not affected but who are able to provide assistance.	Global Element	Future
Centro de Gestion del Trafico de Sonora (TMC)	Represents Traffic Management Centers operating managing areas of the state beyond the area around the border. This element could also represent the traffic management function in adjoining Mexican states.	Global Element	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
<p>CHP - Statewide Integrated Reporting System (SWITRS)</p>	<p>Data archived by CHP during crashes, enforcement and emergencies.</p> <p>The Statewide Integrated Reporting System (SWITRS) consists of two components working in conjunction to record and manage accident/crash reporting data. The server component resides on a central database server, which hosts numerous other applications/databases. CHP's Support Services Section (SSS) gathers and processes the data, produces statistical reports, and provides custom statistical reports to public and private sector clients. The client component (data collection) is central to entering and maintaining the accident/crash data. Data collection tools and methods are developed within the framework of the California Vehicle Code (CVC) and the Traffic Collision Report (CHP 555) is the standard reporting tool. In the future, the client component may be a web client that interconnects to the server component via XML and other Internet related protocols and standards. Pertinent data will be exported or queried by other systems such as xCVIEW.</p>	<p>5 Big Moves #1: Complete Corridors</p>	<p>Existing</p>
<p>CHP - Statewide Integrated Reporting System (SWITRS)</p>	<p>Data archived by CHP during crashes, enforcement and emergencies.</p> <p>The Statewide Integrated Reporting System (SWITRS) consists of two components working in conjunction to record and manage accident/crash reporting data. The server component resides on a central database server, which hosts numerous other applications/databases. CHP's Support Services Section (SSS) gathers and processes the data, produces statistical reports, and provides custom statistical reports to public and private sector clients. The client component (data collection) is central to entering and maintaining the accident/crash data. Data collection tools and methods are developed within the framework of the California Vehicle Code (CVC) and the Traffic Collision Report (CHP 555) is the standard reporting tool. In the future, the client component may be a web client that interconnects to the server component via XML and other Internet related protocols and standards. Pertinent data will be exported or queried by other systems such as xCVIEW.</p>	<p>Global Element</p>	<p>Existing</p>

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
CHP Commercial Vehicle Administration	<p>The mission of the California Highway Patrol (CHP) is to provide the highest level of Safety, Service, and Security to the people of California. An indispensable component of that mission is an effective and proactive commercial vehicle safety and enforcement program. The large presence of commercial vehicles in this state results in approximately 30 million miles of travel every day. For that reason, the CHP has established a goal of preventing the loss of life, injuries, and property damage through an innovative commercial vehicle safety program. This program encompasses enforcement, education, and partnerships to minimize the disastrous results from collisions involving commercial vehicles. The CHP's Commercial Vehicle Section provides assistance regarding the safe operation and enforcement of commercial vehicles.</p>	5 Big Moves #1: Complete Corridors	Existing
CHP Commercial Vehicle Administration	<p>The mission of the California Highway Patrol (CHP) is to provide the highest level of Safety, Service, and Security to the people of California. An indispensable component of that mission is an effective and proactive commercial vehicle safety and enforcement program. The large presence of commercial vehicles in this state results in approximately 30 million miles of travel every day. For that reason, the CHP has established a goal of preventing the loss of life, injuries, and property damage through an innovative commercial vehicle safety program. This program encompasses enforcement, education, and partnerships to minimize the disastrous results from collisions involving commercial vehicles. The CHP's Commercial Vehicle Section provides assistance regarding the safe operation and enforcement of commercial vehicles.</p>	5 Big Moves #3: Mobility Hubs	Existing
CHP Commercial Vehicle Administration	<p>The mission of the California Highway Patrol (CHP) is to provide the highest level of Safety, Service, and Security to the people of California. An indispensable component of that mission is an effective and proactive commercial vehicle safety and enforcement program. The large presence of commercial vehicles in this state results in approximately 30 million miles of travel every day. For that reason, the CHP has established a goal of preventing the loss of life, injuries, and property damage through an innovative commercial vehicle safety program. This program encompasses</p>	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	enforcement, education, and partnerships to minimize the disastrous results from collisions involving commercial vehicles. The CHP's Commercial Vehicle Section provides assistance regarding the safe operation and enforcement of commercial vehicles.		
CHP Commercial Vehicle Administration	The mission of the California Highway Patrol (CHP) is to provide the highest level of Safety, Service, and Security to the people of California. An indispensable component of that mission is an effective and proactive commercial vehicle safety and enforcement program. The large presence of commercial vehicles in this state results in approximately 30 million miles of travel every day. For that reason, the CHP has established a goal of preventing the loss of life, injuries, and property damage through an innovative commercial vehicle safety program. This program encompasses enforcement, education, and partnerships to minimize the disastrous results from collisions involving commercial vehicles. The CHP's Commercial Vehicle Section provides assistance regarding the safe operation and enforcement of commercial vehicles.	Global Element	Existing
CHP Dispatch	Represents California Highway Patrol (CHP). CHP is a division under the Department of Public Safety (DPS) in the state of California. They are involved in emergency management, vehicle enforcement and all aspects of policing California's vast highway system.	5 Big Moves #1: Complete Corridors	Existing
CHP Dispatch	Represents California Highway Patrol (CHP). CHP is a division under the Department of Public Safety (DPS) in the state of California. They are involved in emergency management, vehicle enforcement and all aspects of policing California's vast highway system.	Global Element	Existing
CHP Vehicles	CHP vehicles used for enforcement.	5 Big Moves #1: Complete Corridors	Existing
CHP Vehicles	CHP vehicles used for enforcement.	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Cities Asset Management Center	The 'Cities Asset Management Center' provides the capability for all city fleets to be maintained by one facility within the city. This object represents the systems that support decision-making for maintenance, upgrade, and operation of physical transportation, emergency management, transit management, law enforcement, fire vehicles, and maintenance vehicle assets.	5 Big Moves #3: Mobility Hubs	Existing
Cities Asset Management Center	The 'Cities Asset Management Center' provides the capability for all city fleets to be maintained by one facility within the city. This object represents the systems that support decision-making for maintenance, upgrade, and operation of physical transportation, emergency management, transit management, law enforcement, fire vehicles, and maintenance vehicle assets.	5 Big Moves #4: Flexible Fleets	Existing
Cities Asset Management Center	The 'Cities Asset Management Center' provides the capability for all city fleets to be maintained by one facility within the city. This object represents the systems that support decision-making for maintenance, upgrade, and operation of physical transportation, emergency management, transit management, law enforcement, fire vehicles, and maintenance vehicle assets.	Global Element	Existing
Cities Connected Vehicle Equipment	Curb Management - Parking. (CV RSE) represents the Connected Vehicle roadside devices that are used to send messages to, and receive messages from, nearby vehicles using Dedicated Short Range Communications (DSRC) or other alternative wireless communications technologies. Communications with adjacent field equipment and back office centers that monitor and control the RSE are also supported. This device operates from a fixed position and may be permanently deployed or a portable device that is located temporarily in the vicinity of a traffic incident, road construction, or a special event. It includes a processor, data storage, and communications capabilities that support secure communications with passing vehicles, other field equipment, and centers.	Global Element	Planned
Cities Curb Parking Management Center	The 'Parking Management Center' manages one or more parking curbs for curbside and travel lane parking while it is serving as retail or parking by providing configuration and control of field infrastructure, user account	5 Big Moves #3: Mobility Hubs	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	management and interfaces with financial systems to manage payment. This p-object takes the back office portion of the Parking Management System's functionality as it was defined in ARC-IT 8.3 and prior.		
Cities Curb Parking Management Center	The 'Parking Management Center' manages one or more parking curbs for curbside and travel lane parking while it is serving as retail or parking by providing configuration and control of field infrastructure, user account management and interfaces with financial systems to manage payment. This p-object takes the back office portion of the Parking Management System's functionality as it was defined in ARC-IT 8.3 and prior.	Global Element	Planned
Cities Curbside Parking Area Equipment	The Parking Management System provides electronic monitoring and management of parking facilities. It supports an I2V link to the Vehicle that allows electronic collection of parking fees and monitors and controls parking meters that support conventional parking fee collection. It also includes the instrumentation, signs, and other infrastructure that monitors parking lot usage and provides local information about parking availability and other general parking information. This portion of the functionality must be located in the parking facility where it can monitor, classify, and share information with customers and their vehicles. It also interfaces with the financial infrastructure and broadly disseminates parking information to other operational centers in the region. Note that the latter functionality may be located in a back office, remote from the parking facility.	5 Big Moves #3: Mobility Hubs	Planned
Cities Curbside Parking Area Equipment	The Parking Management System provides electronic monitoring and management of parking facilities. It supports an I2V link to the Vehicle that allows electronic collection of parking fees and monitors and controls parking meters that support conventional parking fee collection. It also includes the instrumentation, signs, and other infrastructure that monitors parking lot usage and provides local information about parking availability and other general parking information. This portion of the functionality must be located in the parking facility where it can monitor, classify, and share information with customers and their vehicles. It also interfaces with the financial infrastructure and broadly disseminates parking information to other	Global Element	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	operational centers in the region. Note that the latter functionality may be located in a back office, remote from the parking facility.		
Cities Data Archive	The Cities Data Archive is often referred to as the traffic database in cities. It is used primarily to store performance data, road closures, speed, construction activities, and planned events. This database is used to archive all types of traffic data.	5 Big Moves #5: Next OS	Planned
Cities Data Archive	The Cities Data Archive is often referred to as the traffic database in cities. It is used primarily to store performance data, road closures, speed, construction activities, and planned events. This database is used to archive all types of traffic data.	Global Element	Planned
Cities Data User Systems	Cities 'Data User Systems' represents the systems users employ to access archived data from all cities in San Diego. The general interface provided allows a broad range of users (e.g. planners, researchers, analysts, operators) and their systems (e.g. databases, models, analytical tools, user interface devices) to acquire data and analysis results from the archive.	5 Big Moves #5: Next OS	Existing
Cities Data User Systems	Cities 'Data User Systems' represents the systems users employ to access archived data from all cities in San Diego. The general interface provided allows a broad range of users (e.g. planners, researchers, analysts, operators) and their systems (e.g. databases, models, analytical tools, user interface devices) to acquire data and analysis results from the archive.	Global Element	Existing
Cities Edge ITS Field Equipment	Cities Edge ITS Field equipment represents real time data computed at the edge of the system rather than coming back to the main center, it is processed near the data source or at the edge of the network. 'Other ITS Roadway Equipment' supports 'field device' to 'field device' communication and coordination, and provides a source and destination for information that may be exchanged between ITS Roadway Equipment.	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	<p>The interface enables direct coordination between field equipment. Examples include the direct interface between sensors and other roadway devices (e.g., Dynamic Message Signs) and the direct interface between roadway devices (e.g., between a Signal System Master and Signal System Local equipment) or a connection between an arterial signal system master and a ramp meter controller.</p>		
<p>Cities Edge ITS Field Equipment</p>	<p>Cities Edge ITS Field equipment represents real time data computed at the edge of the system rather than coming back to the main center, it is processed near the data source or at the edge of the network. 'Other ITS Roadway Equipment' supports 'field device' to 'field device' communication and coordination, and provides a source and destination for information that may be exchanged between ITS Roadway Equipment.</p> <p>The interface enables direct coordination between field equipment. Examples include the direct interface between sensors and other roadway devices (e.g., Dynamic Message Signs) and the direct interface between roadway devices (e.g., between a Signal System Master and Signal System Local equipment) or a connection between an arterial signal system master and a ramp meter controller.</p>	<p>Global Element</p>	<p>Planned</p>
<p>Cities Electronic Charging Stations</p>	<p>The Cities 'Electric Charging Stations' in San Diego provides access to electric vehicle supply equipment that is used to charge all-electric vehicles. This includes public charging stations that support consumers, workplace charging stations, and fleet charging stations.</p> <p>NOTE: Blink was the original electronic charging station contractor. They went out of business and the cities that had charging stations have taken them over.</p>	<p>5 Big Moves #1: Complete Corridors</p>	<p>Planned</p>

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Cities Electronic Charging Stations	<p>The Cities 'Electric Charging Stations' in San Diego provides access to electric vehicle supply equipment that is used to charge all-electric vehicles. This includes public charging stations that support consumers, workplace charging stations, and fleet charging stations.</p> <p>NOTE: Blink was the original electronic charging station contractor. They went out of business and the cities that had charging stations have taken them over.</p>	5 Big Moves #3: Mobility Hubs	Planned
Cities Electronic Charging Stations	<p>The Cities 'Electric Charging Stations' in San Diego provides access to electric vehicle supply equipment that is used to charge all-electric vehicles. This includes public charging stations that support consumers, workplace charging stations, and fleet charging stations.</p> <p>NOTE: Blink was the original electronic charging station contractor. They went out of business and the cities that had charging stations have taken them over.</p>	5 Big Moves #4: Flexible Fleets	Planned
Cities Electronic Charging Stations	<p>The Cities 'Electric Charging Stations' in San Diego provides access to electric vehicle supply equipment that is used to charge all-electric vehicles. This includes public charging stations that support consumers, workplace charging stations, and fleet charging stations.</p> <p>NOTE: Blink was the original electronic charging station contractor. They went out of business and the cities that had charging stations have taken them over.</p>	5 Big Moves #5: Next OS	Planned
Cities Electronic Charging Stations	<p>The Cities 'Electric Charging Stations' in San Diego provides access to electric vehicle supply equipment that is used to charge all-electric vehicles. This includes public charging stations that support consumers, workplace charging stations, and fleet charging stations.</p> <p>NOTE: Blink was the original electronic charging station contractor. They went out of business and the cities that had charging stations have taken them over.</p>	Global Element	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
<p>Cities EOCs-EMC</p>	<p>Cities Emergency Operations Centers (EOC) and Emergency Management Centers (EMC) throughout San Diego County. The 'Emergency Management Center' represents systems that support incident management, disaster response and evacuation, security monitoring, and other security and public safety-oriented ITS applications. It includes the functions associated with fixed and mobile public safety communications centers including public safety call taker and dispatch centers operated by police (including transit police), fire, and emergency medical services. It includes the functions associated with Emergency Operations Centers that are activated at local, regional, state, and federal levels for emergencies and the portable and transportable systems that support Incident Command System operations at an incident.</p> <p>This Center also represents systems associated with towing and recovery, freeway service patrols, HAZMAT response teams, and mayday service providers. It manages sensor and surveillance equipment used to enhance transportation security of the roadway infrastructure (including bridges, tunnels, interchanges, and other key roadway segments) and the public transportation system (including transit vehicles, public areas such as transit stops and stations, facilities such as transit yards, and transit infrastructure such as rail, bridges, tunnels, or bus guideways). It provides security/surveillance services to improve traveler security in public areas not a part of the public transportation system.</p>	<p>5 Big Moves #1: Complete Corridors</p>	<p>Existing</p>

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
<p>Cities EOCs-EMC</p>	<p>Cities Emergency Operations Centers (EOC) and Emergency Management Centers (EMC) throughout San Diego County. The 'Emergency Management Center' represents systems that support incident management, disaster response and evacuation, security monitoring, and other security and public safety-oriented ITS applications. It includes the functions associated with fixed and mobile public safety communications centers including public safety call taker and dispatch centers operated by police (including transit police), fire, and emergency medical services. It includes the functions associated with Emergency Operations Centers that are activated at local, regional, state, and federal levels for emergencies and the portable and transportable systems that support Incident Command System operations at an incident.</p> <p>This Center also represents systems associated with towing and recovery, freeway service patrols, HAZMAT response teams, and mayday service providers. It manages sensor and surveillance equipment used to enhance transportation security of the roadway infrastructure (including bridges, tunnels, interchanges, and other key roadway segments) and the public transportation system (including transit vehicles, public areas such as transit stops and stations, facilities such as transit yards, and transit infrastructure such as rail, bridges, tunnels, or bus guideways). It provides security/surveillance services to improve traveler security in public areas not a part of the public transportation system.</p>	<p>5 Big Moves #3: Mobility Hubs</p>	<p>Existing</p>

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
<p>Cities EOCs-EMC</p>	<p>Cities Emergency Operations Centers (EOC) and Emergency Management Centers (EMC) throughout San Diego County. The 'Emergency Management Center' represents systems that support incident management, disaster response and evacuation, security monitoring, and other security and public safety-oriented ITS applications. It includes the functions associated with fixed and mobile public safety communications centers including public safety call taker and dispatch centers operated by police (including transit police), fire, and emergency medical services. It includes the functions associated with Emergency Operations Centers that are activated at local, regional, state, and federal levels for emergencies and the portable and transportable systems that support Incident Command System operations at an incident.</p> <p>This Center also represents systems associated with towing and recovery, freeway service patrols, HAZMAT response teams, and mayday service providers. It manages sensor and surveillance equipment used to enhance transportation security of the roadway infrastructure (including bridges, tunnels, interchanges, and other key roadway segments) and the public transportation system (including transit vehicles, public areas such as transit stops and stations, facilities such as transit yards, and transit infrastructure such as rail, bridges, tunnels, or bus guideways). It provides security/surveillance services to improve traveler security in public areas not a part of the public transportation system.</p>	<p>5 Big Moves #5: Next OS</p>	<p>Existing</p>

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
<p>Cities EOCs-EMC</p>	<p>Cities Emergency Operations Centers (EOC) and Emergency Management Centers (EMC) throughout San Diego County. The 'Emergency Management Center' represents systems that support incident management, disaster response and evacuation, security monitoring, and other security and public safety-oriented ITS applications. It includes the functions associated with fixed and mobile public safety communications centers including public safety call taker and dispatch centers operated by police (including transit police), fire, and emergency medical services. It includes the functions associated with Emergency Operations Centers that are activated at local, regional, state, and federal levels for emergencies and the portable and transportable systems that support Incident Command System operations at an incident.</p> <p>This Center also represents systems associated with towing and recovery, freeway service patrols, HAZMAT response teams, and mayday service providers. It manages sensor and surveillance equipment used to enhance transportation security of the roadway infrastructure (including bridges, tunnels, interchanges, and other key roadway segments) and the public transportation system (including transit vehicles, public areas such as transit stops and stations, facilities such as transit yards, and transit infrastructure such as rail, bridges, tunnels, or bus guideways). It provides security/surveillance services to improve traveler security in public areas not a part of the public transportation system.</p>	<p>Global Element</p>	<p>Existing</p>
<p>Cities Equipment Repair Facility</p>	<p>Cities 'Equipment Repair Facility' represents the facilities that configure, service, and repair vehicles and other support equipment used in roadway infrastructure construction and maintenance. The equipment repair facility receives preventative and corrective maintenance schedules and vehicle configuration requirements, performs the necessary configuration and maintenance work on the vehicles and equipment, and provides vehicle and equipment status back to the architecture.</p>	<p>5 Big Moves #1: Complete Corridors</p>	<p>Existing</p>

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Cities Equipment Repair Facility	Cities 'Equipment Repair Facility' represents the facilities that configure, service, and repair vehicles and other support equipment used in roadway infrastructure construction and maintenance. The equipment repair facility receives preventative and corrective maintenance schedules and vehicle configuration requirements, performs the necessary configuration and maintenance work on the vehicles and equipment, and provides vehicle and equipment status back to the architecture.	Global Element	Existing
Cities Fire and Rescue Dispatch	Cities fire and rescue department dispatch for Chula Vista, Oceanside, and Carlsbad. These cities have included existing or planned ITS in their city budgets and are considered Level 2 Cities in San Diego County.	5 Big Moves #1: Complete Corridors	Planned
Cities Fire and Rescue Dispatch	Cities fire and rescue department dispatch for Chula Vista, Oceanside, and Carlsbad. These cities have included existing or planned ITS in their city budgets and are considered Level 2 Cities in San Diego County.	5 Big Moves #2: Transit Leap	Planned
Cities Fire and Rescue Dispatch	Cities fire and rescue department dispatch for Chula Vista, Oceanside, and Carlsbad. These cities have included existing or planned ITS in their city budgets and are considered Level 2 Cities in San Diego County.	5 Big Moves #3: Mobility Hubs	Planned
Cities Fire and Rescue Dispatch	Cities fire and rescue department dispatch for Chula Vista, Oceanside, and Carlsbad. These cities have included existing or planned ITS in their city budgets and are considered Level 2 Cities in San Diego County.	5 Big Moves #5: Next OS	Planned
Cities Fire and Rescue Dispatch	Cities fire and rescue department dispatch for Chula Vista, Oceanside, and Carlsbad. These cities have included existing or planned ITS in their city budgets and are considered Level 2 Cities in San Diego County.	Global Element	Planned
Cities Fire and Rescue Vehicles	Fire and Rescue Department vehicles for Chula Vista, Oceanside, and Carlsbad have included existing or planned ITS in their city budgets. These cities are considered Level 2 Cities in San Diego County.	5 Big Moves #1: Complete Corridors	Existing
Cities Fire and Rescue Vehicles	Fire and Rescue Department vehicles for Chula Vista, Oceanside, and Carlsbad have included existing or planned ITS in their city budgets. These cities are considered Level 2 Cities in San Diego County.	5 Big Moves #3: Mobility Hubs	Existing
Cities Fire and Rescue Vehicles	Fire and Rescue Department vehicles for Chula Vista, Oceanside, and Carlsbad have included existing or planned ITS in their city budgets. These cities are considered Level 2 Cities in San Diego County.	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Cities Fire and Rescue Vehicles	Fire and Rescue Department vehicles for Chula Vista, Oceanside, and Carlsbad have included existing or planned ITS in their city budgets. These cities are considered Level 2 Cities in San Diego County.	Global Element	Existing
Cities Fleet Management	<p>The City uses a private company to manage the fleet systems. Some of the cities use a fleet management firm to manage the maintenance aspect of the city's systems, ITS field equipment, etc. This department handles the scheduling and support for managing the maintenance of all of the City's systems.</p> <p>Construction is handled under the Engineering Department.</p>	5 Big Moves #4: Flexible Fleets	Planned
Cities Fleet Management	<p>The City uses a private company to manage the fleet systems. Some of the cities use a fleet management firm to manage the maintenance aspect of the city's systems, ITS field equipment, etc. This department handles the scheduling and support for managing the maintenance of all of the City's systems.</p> <p>Construction is handled under the Engineering Department.</p>	Global Element	Planned
Cities Fleet Vehicles	Cities Fleet Vehicle-All includes all vehicles for the purpose of maintenance and asset management. Fire department vehicles, law enforcement, street sweepers, maintenance and construction vehicles, city fleet vehicles for servicing field equipment, and all other vehicles owned, operated, serviced, and maintained by the city. The goal of this user defined object is to allow for maintenance of ALL city vehicle in one location within the cities, a common practice for Smart Cities.	5 Big Moves #4: Flexible Fleets	Existing
Cities Fleet Vehicles	Cities Fleet Vehicle-All includes all vehicles for the purpose of maintenance and asset management. Fire department vehicles, law enforcement, street sweepers, maintenance and construction vehicles, city fleet vehicles for servicing field equipment, and all other vehicles owned, operated, serviced, and maintained by the city. The goal of this user defined object is to allow for maintenance of ALL city vehicle in one location within the cities, a common practice for Smart Cities.	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Cities ITS Field Equipment	<p>Cities 'ITS Roadway Equipment' represents the ITS equipment that is distributed on and along the roadway that monitors and controls traffic monitors, managing the roadway within the City's jurisdiction itself. Cities may have all or part of the following 'ITS Roadway Equipment': traffic detectors, environmental sensors, traffic signals, highway advisory radios, dynamic message signs, CCTV cameras, video image processing systems, grade crossing warning systems, and ramp metering systems. Lane management systems that control access to transportation infrastructure are also included. This object also provides environmental monitoring including sensors that measure road conditions, surface weather, and vehicle emissions. Work zone systems including work zone surveillance, traffic control, driver warning, and work crew safety systems are also included.</p>	5 Big Moves #1: Complete Corridors	Existing
Cities ITS Field Equipment	<p>Cities 'ITS Roadway Equipment' represents the ITS equipment that is distributed on and along the roadway that monitors and controls traffic monitors, managing the roadway within the City's jurisdiction itself. Cities may have all or part of the following 'ITS Roadway Equipment': traffic detectors, environmental sensors, traffic signals, highway advisory radios, dynamic message signs, CCTV cameras, video image processing systems, grade crossing warning systems, and ramp metering systems. Lane management systems that control access to transportation infrastructure are also included. This object also provides environmental monitoring including sensors that measure road conditions, surface weather, and vehicle emissions. Work zone systems including work zone surveillance, traffic control, driver warning, and work crew safety systems are also included.</p>	5 Big Moves #4: Flexible Fleets	Existing
Cities ITS Field Equipment	<p>Cities 'ITS Roadway Equipment' represents the ITS equipment that is distributed on and along the roadway that monitors and controls traffic monitors, managing the roadway within the City's jurisdiction itself. Cities may have all or part of the following 'ITS Roadway Equipment': traffic detectors, environmental sensors, traffic signals, highway advisory radios, dynamic message signs, CCTV cameras, video image processing systems, grade crossing warning systems, and ramp metering systems. Lane management systems that control access to transportation infrastructure are</p>	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	also included. This object also provides environmental monitoring including sensors that measure road conditions, surface weather, and vehicle emissions. Work zone systems including work zone surveillance, traffic control, driver warning, and work crew safety systems are also included.		
Cities ITS Field Equipment	Cities 'ITS Roadway Equipment' represents the ITS equipment that is distributed on and along the roadway that monitors and controls traffic monitors, managing the roadway within the City's jurisdiction itself. Cities may have all or part of the following 'ITS Roadway Equipment': traffic detectors, environmental sensors, traffic signals, highway advisory radios, dynamic message signs, CCTV cameras, video image processing systems, grade crossing warning systems, and ramp metering systems. Lane management systems that control access to transportation infrastructure are also included. This object also provides environmental monitoring including sensors that measure road conditions, surface weather, and vehicle emissions. Work zone systems including work zone surveillance, traffic control, driver warning, and work crew safety systems are also included.	Global Element	Existing
Cities MCO Dispatch	Cities municipal public works divisions that provide maintenance and construction for roadways throughout the City on City roads. This includes scheduling and tracking activities for MCO.	5 Big Moves #1: Complete Corridors	Existing
Cities MCO Dispatch	Cities municipal public works divisions that provide maintenance and construction for roadways throughout the City on City roads. This includes scheduling and tracking activities for MCO.	5 Big Moves #5: Next OS	Existing
Cities MCO Dispatch	Cities municipal public works divisions that provide maintenance and construction for roadways throughout the City on City roads. This includes scheduling and tracking activities for MCO.	Global Element	Existing
Cities MCO Vehicles	Cities and Towns maintenance, construction and signal repair vehicles.	5 Big Moves #1: Complete Corridors	Existing
Cities MCO Vehicles	Cities and Towns maintenance, construction and signal repair vehicles.	5 Big Moves #5: Next OS	Existing
Cities MCO Vehicles	Cities and Towns maintenance, construction and signal repair vehicles.	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Cities Payment Admin Center	<p>The 'Payment Administration Center' provides general payment administration capabilities and supports the electronic transfer of funds from the customer to the transportation system operator or other service provider. Charges can be recorded for tolls, vehicle-mileage charging, congestion charging, or other goods and services. It supports traveler enrollment and collection of both pre-payment and post-payment transportation fees in coordination with the financial infrastructure supporting electronic payment transactions. The system may establish and administer escrow accounts depending on the clearinghouse scheme and the type of payments involved. It may post a transaction to the customer account, generate a bill (for post-payment accounts), debit an escrow account, or interface to a financial infrastructure to debit a customer designated account. It supports communications with the ITS Roadway Payment Equipment to support fee collection operations. As an alternative, a wide-area wireless interface can be used to communicate directly with vehicle equipment. It also sets and administers the pricing structures and may implement road pricing policies in coordination with the Traffic Management Center.</p>	5 Big Moves #1: Complete Corridors	Planned
Cities Payment Admin Center	<p>The 'Payment Administration Center' provides general payment administration capabilities and supports the electronic transfer of funds from the customer to the transportation system operator or other service provider. Charges can be recorded for tolls, vehicle-mileage charging, congestion charging, or other goods and services. It supports traveler enrollment and collection of both pre-payment and post-payment transportation fees in coordination with the financial infrastructure supporting electronic payment transactions. The system may establish and administer escrow accounts depending on the clearinghouse scheme and the type of payments involved. It may post a transaction to the customer account, generate a bill (for post-payment accounts), debit an escrow account, or interface to a financial infrastructure to debit a customer designated account. It supports communications with the ITS Roadway Payment Equipment to support fee collection operations. As an alternative, a</p>	5 Big Moves #2: Transit Leap	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	<p>wide-area wireless interface can be used to communicate directly with vehicle equipment. It also sets and administers the pricing structures and may implement road pricing policies in coordination with the Traffic Management Center.</p>		
<p>Cities Payment Admin Center</p>	<p>The 'Payment Administration Center' provides general payment administration capabilities and supports the electronic transfer of funds from the customer to the transportation system operator or other service provider. Charges can be recorded for tolls, vehicle-mileage charging, congestion charging, or other goods and services. It supports traveler enrollment and collection of both pre-payment and post-payment transportation fees in coordination with the financial infrastructure supporting electronic payment transactions. The system may establish and administer escrow accounts depending on the clearinghouse scheme and the type of payments involved. It may post a transaction to the customer account, generate a bill (for post-payment accounts), debit an escrow account, or interface to a financial infrastructure to debit a customer designated account. It supports communications with the ITS Roadway Payment Equipment to support fee collection operations. As an alternative, a wide-area wireless interface can be used to communicate directly with vehicle equipment. It also sets and administers the pricing structures and may implement road pricing policies in coordination with the Traffic Management Center.</p>	<p>5 Big Moves #3: Mobility Hubs</p>	<p>Planned</p>

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Cities Payment Admin Center	<p>The 'Payment Administration Center' provides general payment administration capabilities and supports the electronic transfer of funds from the customer to the transportation system operator or other service provider. Charges can be recorded for tolls, vehicle-mileage charging, congestion charging, or other goods and services. It supports traveler enrollment and collection of both pre-payment and post-payment transportation fees in coordination with the financial infrastructure supporting electronic payment transactions. The system may establish and administer escrow accounts depending on the clearinghouse scheme and the type of payments involved. It may post a transaction to the customer account, generate a bill (for post-payment accounts), debit an escrow account, or interface to a financial infrastructure to debit a customer designated account. It supports communications with the ITS Roadway Payment Equipment to support fee collection operations. As an alternative, a wide-area wireless interface can be used to communicate directly with vehicle equipment. It also sets and administers the pricing structures and may implement road pricing policies in coordination with the Traffic Management Center.</p>	5 Big Moves #5: Next OS	Planned
Cities Payment Admin Center	<p>The 'Payment Administration Center' provides general payment administration capabilities and supports the electronic transfer of funds from the customer to the transportation system operator or other service provider. Charges can be recorded for tolls, vehicle-mileage charging, congestion charging, or other goods and services. It supports traveler enrollment and collection of both pre-payment and post-payment transportation fees in coordination with the financial infrastructure supporting electronic payment transactions. The system may establish and administer escrow accounts depending on the clearinghouse scheme and the type of payments involved. It may post a transaction to the customer account, generate a bill (for post-payment accounts), debit an escrow account, or interface to a financial infrastructure to debit a customer designated account. It supports communications with the ITS Roadway Payment Equipment to support fee collection operations. As an alternative, a</p>	Global Element	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	wide-area wireless interface can be used to communicate directly with vehicle equipment. It also sets and administers the pricing structures and may implement road pricing policies in coordination with the Traffic Management Center.		
Cities Permitting Center	The 'City Permitting Center' collects, processes, stores and disseminates transportation construction permitting information to their own City. This information is also distributed to system operators for surrounding cities and the state DOT; to other maintenance and construction centers, transportation management centers, transit centers, etc. to alert them about construction on specific corridors so that they can be proactive in signal coordination and re-routing options, transit management centers also receive permitting information so that they can consider re-routing transit for construction.	5 Big Moves #5: Next OS	Existing
Cities Permitting Center	The 'City Permitting Center' collects, processes, stores and disseminates transportation construction permitting information to their own City. This information is also distributed to system operators for surrounding cities and the state DOT; to other maintenance and construction centers, transportation management centers, transit centers, etc. to alert them about construction on specific corridors so that they can be proactive in signal coordination and re-routing options, transit management centers also receive permitting information so that they can consider re-routing transit for construction.	Global Element	Existing
Cities Police Department Dispatch	Cities police department dispatch for Chula Vista, Oceanside, and Carlsbad. These cities have included existing or planned ITS in their city budgets and are considered Level 2 Cities in San Diego County.	5 Big Moves #5: Next OS	Existing
Cities Police Department Dispatch	Cities police department dispatch for Chula Vista, Oceanside, and Carlsbad. These cities have included existing or planned ITS in their city budgets and are considered Level 2 Cities in San Diego County.	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Cities Police Department Vehicles	Police Department for Chula Vista, Oceanside, and Carlsbad have included existing or planned ITS in their city budgets. These cities are considered Level 2 Cities in San Diego County.	Global Element	Planned
Cities TIC and Websites	<p>The Cities TIC and Website represents existing and planned. Websites can serve as a transportation information center subsystem and can contain event information, traffic information, maintenance and construction information, and weather information. At the broadest services, this element would serve as a Transportation Information Center' (TIC): collects, processes, stores, and disseminates transportation information to system operators and the traveling public for the cities located in San Diego County.</p> <p>The TIC can play several different roles in an integrated ITS. In one role, the TIC provides a data collection, fusing, and repackaging function, collecting information from transportation system operators and redistributing this information to other system operators in the region and other TICs. In this information redistribution role, the TIC provides a bridge between the various transportation systems that produce the information and the other TICs and their subscribers that use the information. The second role of a TIC is focused on delivery of traveler information to subscribers and the public at large. Information provided includes basic advisories, traffic and road conditions, transit schedule information, yellow pages information, ride matching information, and parking information. The TIC is commonly implemented as a website or a web-based application service, but it represents any traveler information distribution service.</p>	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Cities TIC and Websites	<p>The Cities TIC and Website represents existing and planned. Websites can serve as a transportation information center subsystem and can contain event information, traffic information, maintenance and construction information, and weather information. At the broadest services, this element would serve as a Transportation Information Center' (TIC): collects, processes, stores, and disseminates transportation information to system operators and the traveling public for the cities located in San Diego County.</p> <p>The TIC can play several different roles in an integrated ITS. In one role, the TIC provides a data collection, fusing, and repackaging function, collecting information from transportation system operators and redistributing this information to other system operators in the region and other TICs. In this information redistribution role, the TIC provides a bridge between the various transportation systems that produce the information and the other TICs and their subscribers that use the information. The second role of a TIC is focused on delivery of traveler information to subscribers and the public at large. Information provided includes basic advisories, traffic and road conditions, transit schedule information, yellow pages information, ride matching information, and parking information. The TIC is commonly implemented as a website or a web-based application service, but it represents any traveler information distribution service.</p>	Global Element	Existing
Cities Traffic Ops Center	<p>Cities Traffic Operations Center (TOC) / Traffic Management Centers (TMC)s manage traffic signal operations and may perform other traffic management activities, operated by cities. The information from their roadways is fed into the regional ICMS system for cities. This ITS element represents the existing and planned cities TMC/TOCs. Some cities plan to connect with other local traffic ops centers, including but not limited to, the regional ICMS, local police, local fire, emergency operations centers and transit services.</p>	5 Big Moves #5: Next OS	Existing
Cities Traffic Ops Center	<p>Cities Traffic Operations Center (TOC) / Traffic Management Centers (TMC)s manage traffic signal operations and may perform other traffic management activities, operated by cities. The information from their roadways is fed into the regional ICMS system for cities. This ITS element represents the existing</p>	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	and planned cities TMC/TOCs. Some cities plan to connect with other local traffic ops centers, including but not limited to, the regional ICMS, local police, local fire, emergency operations centers and transit services.		
Commercial Drivers License Information System (CDLIS)	The nationwide driver's license system that the Federal Highway Administration (FHWA) has developed and issued standards for testing and licensing commercial vehicle drivers.	5 Big Moves #5: Next OS	Planned
Commercial Drivers License Information System (CDLIS)	The nationwide driver's license system that the Federal Highway Administration (FHWA) has developed and issued standards for testing and licensing commercial vehicle drivers.	Global Element	Planned
Commercial Fleet Management	<p>This element represents the dispatch and administration functions of commercial carriers. Dispatch function provides for real-time communication with commercial vehicles for vehicle locating, dispatching, and tracking to reduce delays from congestion and incidents. Administration function provides electronic creation and submittal of credentials or tax information.</p> <p>This is a parent element from the statewide ITS Architecture.</p>	5 Big Moves #4: Flexible Fleets	Existing
Commercial Fleet Management	<p>This element represents the dispatch and administration functions of commercial carriers. Dispatch function provides for real-time communication with commercial vehicles for vehicle locating, dispatching, and tracking to reduce delays from congestion and incidents. Administration function provides electronic creation and submittal of credentials or tax information.</p> <p>This is a parent element from the statewide ITS Architecture.</p>	5 Big Moves #5: Next OS	Existing
Commercial Fleet Management	<p>This element represents the dispatch and administration functions of commercial carriers. Dispatch function provides for real-time communication with commercial vehicles for vehicle locating, dispatching, and tracking to reduce delays from congestion and incidents. Administration function provides electronic creation and submittal of credentials or tax information.</p> <p>This is a parent element from the statewide ITS Architecture.</p>	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Commercial Vehicles	This represents ITS equipment in privately owned commercial vehicles. This classification applies to all such vehicles ranging from small panel vans used in local pick-up and delivery services to large, multi-axle tractor trailer rigs operating on long haul routes. Equipment includes transponders, sensors, driver information systems.	5 Big Moves #1: Complete Corridors	Planned
Commercial Vehicles	This represents ITS equipment in privately owned commercial vehicles. This classification applies to all such vehicles ranging from small panel vans used in local pick-up and delivery services to large, multi-axle tractor trailer rigs operating on long haul routes. Equipment includes transponders, sensors, driver information systems.	5 Big Moves #4: Flexible Fleets	Planned
Commercial Vehicles	This represents ITS equipment in privately owned commercial vehicles. This classification applies to all such vehicles ranging from small panel vans used in local pick-up and delivery services to large, multi-axle tractor trailer rigs operating on long haul routes. Equipment includes transponders, sensors, driver information systems.	5 Big Moves #5: Next OS	Planned
Commercial Vehicles	This represents ITS equipment in privately owned commercial vehicles. This classification applies to all such vehicles ranging from small panel vans used in local pick-up and delivery services to large, multi-axle tractor trailer rigs operating on long haul routes. Equipment includes transponders, sensors, driver information systems.	Global Element	Planned
Compass Card	The Compass Card is ubiquitous transit 'Payment Device' which enables the electronic transfer of funds from the user of a service (i.e. a traveler) to the provider of the service. Potential implementations include smart cards that support payment for products and services, including transportation services and general purpose devices like smart phones that support a broad array of services, including electronic payment. In addition to user account information, the payment device may also hold and update associated user information such as personal profiles, preferences, and trip histories.	5 Big Moves #2: Transit Leap	Existing
Compass Card	The Compass Card is ubiquitous transit 'Payment Device' which enables the electronic transfer of funds from the user of a service (i.e. a traveler) to the provider of the service. Potential implementations include smart cards that support payment for products and services, including transportation services	5 Big Moves #3: Mobility Hubs	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	and general purpose devices like smart phones that support a broad array of services, including electronic payment. In addition to user account information, the payment device may also hold and update associated user information such as personal profiles, preferences, and trip histories.		
Compass Card	The Compass Card is ubiquitous transit 'Payment Device' which enables the electronic transfer of funds from the user of a service (i.e. a traveler) to the provider of the service. Potential implementations include smart cards that support payment for products and services, including transportation services and general purpose devices like smart phones that support a broad array of services, including electronic payment. In addition to user account information, the payment device may also hold and update associated user information such as personal profiles, preferences, and trip histories.	5 Big Moves #5: Next OS	Existing
Compass Card	The Compass Card is ubiquitous transit 'Payment Device' which enables the electronic transfer of funds from the user of a service (i.e. a traveler) to the provider of the service. Potential implementations include smart cards that support payment for products and services, including transportation services and general purpose devices like smart phones that support a broad array of services, including electronic payment. In addition to user account information, the payment device may also hold and update associated user information such as personal profiles, preferences, and trip histories.	Global Element	Existing
Connected Vehicle On-Board Local Route Guidance	In-vehicle On-Board Equipment to display Border Wait Times and other traveler information in real-time overlaid on the navigation map	5 Big Moves #1: Complete Corridors	Planned
Connected Vehicle On-Board Local Route Guidance	In-vehicle On-Board Equipment to display Border Wait Times and other traveler information in real-time overlaid on the navigation map	5 Big Moves #5: Next OS	Planned
Connected Vehicle On-Board Local Route Guidance	In-vehicle On-Board Equipment to display Border Wait Times and other traveler information in real-time overlaid on the navigation map	Global Element	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Connected Vehicle Roadside Equip - Mobility	<p>Connected Vehicle Roadside equipment includes Road Side Units (RSU) that are short range to medium range wireless communication radios (one or two way) specifically designed for communications from the infrastructure to the vehicle for notification of signals, construction zones, fire pre-emption and provides a way for vehicles to communicate directly with roadside equipment. DSRC is equipped with a camera for mapping. This element includes the roadside equipment that performs vehicle infrastructure integration, data collection and dissemination. 'Connected Vehicle Roadside Equipment' (CV RSE) represents the Connected Vehicle roadside devices that are used to send messages to, and receive messages from, nearby vehicles using Dedicated Short-Range Communications (DSRC) or other alternative wireless communications technologies. Communications with adjacent field equipment and back office centers that monitor and control the RSE are also supported. This device operates from a fixed position and may be permanently deployed or a portable device that is located temporarily near a traffic incident, road construction, or a special event. It includes a processor, data storage, and communications capabilities that support secure communications with passing vehicles, other field equipment, and centers.</p>	5 Big Moves #1: Complete Corridors	Planned
Connected Vehicle Roadside Equip - Mobility	<p>Connected Vehicle Roadside equipment includes Road Side Units (RSU) that are short range to medium range wireless communication radios (one or two way) specifically designed for communications from the infrastructure to the vehicle for notification of signals, construction zones, fire pre-emption and provides a way for vehicles to communicate directly with roadside equipment. DSRC is equipped with a camera for mapping. This element includes the roadside equipment that performs vehicle infrastructure integration, data collection and dissemination. 'Connected Vehicle Roadside Equipment' (CV RSE) represents the Connected Vehicle roadside devices that are used to send messages to, and receive messages from, nearby vehicles using Dedicated Short-Range Communications (DSRC) or other alternative wireless communications technologies. Communications with adjacent field equipment and back office centers that monitor and control the RSE are also supported. This device operates from a fixed position and may be</p>	Global Element	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	<p>permanently deployed or a portable device that is located temporarily near a traffic incident, road construction, or a special event. It includes a processor, data storage, and communications capabilities that support secure communications with passing vehicles, other field equipment, and centers.</p>		
<p>Connected Vehicle Roadside Equip - Security</p>	<p>Connected Vehicle Roadside equipment includes Road Side Units (RSU) that are short range to medium range wireless communication radios (one or two way) specifically designed for communications from the infrastructure to the vehicle for notification of signals, construction zones, fire pre-emption and provides a way for vehicles to communicate directly with roadside equipment. DSRC is equipped with a camera for mapping. This element includes the roadside equipment that performs vehicle infrastructure integration, data collection and dissemination. 'Connected Vehicle Roadside Equipment' (CV RSE) represents the Connected Vehicle roadside devices that are used to send messages to, and receive messages from, nearby vehicles using Dedicated Short-Range Communications (DSRC) or other alternative wireless communications technologies. Communications with adjacent field equipment and back office centers that monitor and control the RSE are also supported. This device operates from a fixed position and may be permanently deployed or a portable device that is located temporarily near a traffic incident, road construction, or a special event. It includes a processor, data storage, and communications capabilities that support secure communications with passing vehicles, other field equipment, and centers.</p>	<p>5 Big Moves #1: Complete Corridors</p>	<p>Planned</p>

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Connected Vehicle Roadside Equip - Security	<p>Connected Vehicle Roadside equipment includes Road Side Units (RSU) that are short range to medium range wireless communication radios (one or two way) specifically designed for communications from the infrastructure to the vehicle for notification of signals, construction zones, fire pre-emption and provides a way for vehicles to communicate directly with roadside equipment. DSRC is equipped with a camera for mapping. This element includes the roadside equipment that performs vehicle infrastructure integration, data collection and dissemination. 'Connected Vehicle Roadside Equipment' (CV RSE) represents the Connected Vehicle roadside devices that are used to send messages to, and receive messages from, nearby vehicles using Dedicated Short-Range Communications (DSRC) or other alternative wireless communications technologies. Communications with adjacent field equipment and back office centers that monitor and control the RSE are also supported. This device operates from a fixed position and may be permanently deployed or a portable device that is located temporarily near a traffic incident, road construction, or a special event. It includes a processor, data storage, and communications capabilities that support secure communications with passing vehicles, other field equipment, and centers.</p>	Global Element	Planned
County 800 Comm System	<p>San Diego County has a Radio Communications System (RCS). It is used for sending out county radio systems to county vehicles. MTS also uses this radio network for their vehicle to center communications.</p>	5 Big Moves #2: Transit Leap	Existing
County 800 Comm System	<p>San Diego County has a Radio Communications System (RCS). It is used for sending out county radio systems to county vehicles. MTS also uses this radio network for their vehicle to center communications.</p>	5 Big Moves #5: Next OS	Existing
County 800 Comm System	<p>San Diego County has a Radio Communications System (RCS). It is used for sending out county radio systems to county vehicles. MTS also uses this radio network for their vehicle to center communications.</p>	Global Element	Existing
County Asset Management Center	<p>The 'SD County Asset Management Center' provides the capability for all city fleets to be maintained by one facility within the city. This object represents the systems that support decision-making for maintenance, upgrade, and operation of physical transportation, emergency management, transit</p>	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	management, law enforcement, fire vehicles, and maintenance vehicle assets.		
County Asset Management Center	The 'SD County Asset Management Center' provides the capability for all city fleets to be maintained by one facility within the city. This object represents the systems that support decision-making for maintenance, upgrade, and operation of physical transportation, emergency management, transit management, law enforcement, fire vehicles, and maintenance vehicle assets.	5 Big Moves #5: Next OS	Existing
County Asset Management Center	The 'SD County Asset Management Center' provides the capability for all city fleets to be maintained by one facility within the city. This object represents the systems that support decision-making for maintenance, upgrade, and operation of physical transportation, emergency management, transit management, law enforcement, fire vehicles, and maintenance vehicle assets.	Global Element	Existing
County Data Archive	Data Archive is often referred to as the traffic database in cities. It is used primarily to store performance data, road closures, speed, construction activities, and planned events. This database is used to archive all types of traffic data. In San Diego County all of this data is segmented into separate databases currently.	5 Big Moves #5: Next OS	Planned
County Data Archive	Data Archive is often referred to as the traffic database in cities. It is used primarily to store performance data, road closures, speed, construction activities, and planned events. This database is used to archive all types of traffic data. In San Diego County all of this data is segmented into separate databases currently.	Global Element	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
County DPW Dispatch	<p>The County Department of Public Works (DPW) performs all maintenance and construction management activities that are managed by the County. Many construction projects are bid for work and managed by the winning contractor. DPW monitors and manages roadway infrastructure construction and maintenance activities. The physical object receives a wide range of status information from DPW vehicles and performs vehicle dispatch, routing, and resource management for the vehicle fleets and associated equipment. The physical object participates in incident response by deploying maintenance and construction resources to an incident scene, in coordination with other center physical objects. The physical object manages equipment at the roadside, including environmental sensors and automated systems that monitor and mitigate adverse road and surface weather conditions. It manages the repair and maintenance of both non-ITS and ITS equipment including the traffic controllers, detectors, dynamic message signs, signals, and other equipment associated with the roadway infrastructure. Weather information is collected and fused with other data sources and used to support advanced decision support systems.</p> <p>The physical object remotely monitors and manages ITS capabilities in work zones, gathering, storing, and disseminating work zone information to other systems. It manages traffic in the vicinity of the work zone and advises drivers of work zone status.</p>	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
County DPW Dispatch	<p>The County Department of Public Works (DPW) performs all maintenance and construction management activities that are managed by the County. Many construction projects are bid for work and managed by the winning contractor. DPW monitors and manages roadway infrastructure construction and maintenance activities. The physical object receives a wide range of status information from DPW vehicles and performs vehicle dispatch, routing, and resource management for the vehicle fleets and associated equipment. The physical object participates in incident response by deploying maintenance and construction resources to an incident scene, in coordination with other center physical objects. The physical object manages equipment at the roadside, including environmental sensors and automated systems that monitor and mitigate adverse road and surface weather conditions. It manages the repair and maintenance of both non-ITS and ITS equipment including the traffic controllers, detectors, dynamic message signs, signals, and other equipment associated with the roadway infrastructure. Weather information is collected and fused with other data sources and used to support advanced decision support systems.</p> <p>The physical object remotely monitors and manages ITS capabilities in work zones, gathering, storing, and disseminating work zone information to other systems. It manages traffic in the vicinity of the work zone and advises drivers of work zone status.</p>	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
County DPW Dispatch	<p>The County Department of Public Works (DPW) performs all maintenance and construction management activities that are managed by the County. Many construction projects are bid for work and managed by the winning contractor. DPW monitors and manages roadway infrastructure construction and maintenance activities. The physical object receives a wide range of status information from DPW vehicles and performs vehicle dispatch, routing, and resource management for the vehicle fleets and associated equipment. The physical object participates in incident response by deploying maintenance and construction resources to an incident scene, in coordination with other center physical objects. The physical object manages equipment at the roadside, including environmental sensors and automated systems that monitor and mitigate adverse road and surface weather conditions. It manages the repair and maintenance of both non-ITS and ITS equipment including the traffic controllers, detectors, dynamic message signs, signals, and other equipment associated with the roadway infrastructure. Weather information is collected and fused with other data sources and used to support advanced decision support systems.</p> <p>The physical object remotely monitors and manages ITS capabilities in work zones, gathering, storing, and disseminating work zone information to other systems. It manages traffic in the vicinity of the work zone and advises drivers of work zone status.</p>	Global Element	Existing
County DPW Flood Control	San Diego County Department of Public Works (DPW) dispatches and manages the Flood Control section which plays a huge role during flood episodes. Flood Control is responsible for maintenance of stormwater drainage facilities, developing and reviewing hydraulic and hydraulic studies associated with mapping, and ensuring compliance with sound floodplain management criteria aimed at reducing flood risk.	5 Big Moves #5: Next OS	Existing
County DPW Flood Control	San Diego County Department of Public Works (DPW) dispatches and manages the Flood Control section which plays a huge role during flood episodes. Flood Control is responsible for maintenance of stormwater drainage facilities, developing and reviewing hydraulic and hydraulic studies	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	associated with mapping, and ensuring compliance with sound floodplain management criteria aimed at reducing flood risk.		
County DPW Vehicles	San Diego County Department of Public Works (DPW) vehicles perform the same activities as maintenance and construction vehicles. They are used for work zone activities, maintenance of ITS field equipment and clean up for crashes that occur in San Diego County right-a-way.	5 Big Moves #1: Complete Corridors	Existing
County DPW Vehicles	San Diego County Department of Public Works (DPW) vehicles perform the same activities as maintenance and construction vehicles. They are used for work zone activities, maintenance of ITS field equipment and clean up for crashes that occur in San Diego County right-a-way.	5 Big Moves #5: Next OS	Existing
County DPW Vehicles	San Diego County Department of Public Works (DPW) vehicles perform the same activities as maintenance and construction vehicles. They are used for work zone activities, maintenance of ITS field equipment and clean up for crashes that occur in San Diego County right-a-way.	Global Element	Existing
County Edge ITS Field Equipment	<p>SD County Edge ITS Field equipment represents real time data computed at the edge of the system rather than coming back to the main center, it is processed near the data source or at the edge of the network. 'Other ITS Roadway Equipment' supports 'field device' to 'field device' communication and coordination, and provides a source and destination for information that may be exchanged between ITS Roadway Equipment.</p> <p>The interface enables direct coordination between field equipment. Examples include the direct interface between sensors and other roadway devices (e.g., Dynamic Message Signs) and the direct interface between roadway devices (e.g., between a Signal System Master and Signal System Local equipment) or a connection between an arterial signal system master and a ramp meter controller.</p>	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
County Edge ITS Field Equipment	<p>SD County Edge ITS Field equipment represents real time data computed at the edge of the system rather than coming back to the main center, it is processed near the data source or at the edge of the network. 'Other ITS Roadway Equipment' supports 'field device' to 'field device' communication and coordination, and provides a source and destination for information that may be exchanged between ITS Roadway Equipment.</p> <p>The interface enables direct coordination between field equipment. Examples include the direct interface between sensors and other roadway devices (e.g., Dynamic Message Signs) and the direct interface between roadway devices (e.g., between a Signal System Master and Signal System Local equipment) or a connection between an arterial signal system master and a ramp meter controller.</p>	5 Big Moves #5: Next OS	Existing
County Edge ITS Field Equipment	<p>SD County Edge ITS Field equipment represents real time data computed at the edge of the system rather than coming back to the main center, it is processed near the data source or at the edge of the network. 'Other ITS Roadway Equipment' supports 'field device' to 'field device' communication and coordination, and provides a source and destination for information that may be exchanged between ITS Roadway Equipment.</p> <p>The interface enables direct coordination between field equipment. Examples include the direct interface between sensors and other roadway devices (e.g., Dynamic Message Signs) and the direct interface between roadway devices (e.g., between a Signal System Master and Signal System Local equipment) or a connection between an arterial signal system master and a ramp meter controller.</p>	Global Element	Existing
County Fire Authority	San Diego County Fire Authority is divided into several Districts that support and deliver high quality emergency medical and fire services to a 1.5 million-acre area of unincorporated San Diego County.	5 Big Moves #5: Next OS	Existing
County Fire Authority	San Diego County Fire Authority is divided into several Districts that support and deliver high quality emergency medical and fire services to a 1.5 million-acre area of unincorporated San Diego County.	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
County Fire Vehicles	San Diego County Fire Vehicles	5 Big Moves #5: Next OS	Existing
County Fire Vehicles	San Diego County Fire Vehicles	Global Element	Existing
County Fleet Management and Repair	SD County 'Equipment Repair Facility' represents the facilities that configure, service, and repair vehicles and other support equipment used in roadway infrastructure construction and maintenance. The equipment repair facility receives preventative and corrective maintenance schedules and vehicle configuration requirements, performs the necessary configuration and maintenance work on the vehicles and equipment, and provides vehicle and equipment status back to the architecture.	5 Big Moves #5: Next OS	Existing
County Fleet Management and Repair	SD County 'Equipment Repair Facility' represents the facilities that configure, service, and repair vehicles and other support equipment used in roadway infrastructure construction and maintenance. The equipment repair facility receives preventative and corrective maintenance schedules and vehicle configuration requirements, performs the necessary configuration and maintenance work on the vehicles and equipment, and provides vehicle and equipment status back to the architecture.	Global Element	Existing
County Fleet Vehicles	County Fleet Vehicle-All includes all vehicles for the purpose of maintenance and asset management. Fire department vehicles, law enforcement, street sweepers, maintenance and construction vehicles, city fleet vehicles for servicing field equipment, and all other vehicles owned, operated, serviced, and maintained by the city. The goal of this user defined object is to allow for maintenance of ALL city vehicle in one location within the cities, a common practice for Smart Cities.	5 Big Moves #5: Next OS	Planned
County Fleet Vehicles	County Fleet Vehicle-All includes all vehicles for the purpose of maintenance and asset management. Fire department vehicles, law enforcement, street sweepers, maintenance and construction vehicles, city fleet vehicles for servicing field equipment, and all other vehicles owned, operated, serviced, and maintained by the city. The goal of this user defined object is to allow for maintenance of ALL city vehicle in one location within the cities, a common practice for Smart Cities.	Global Element	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
County ITS Field Equipment	<p>Traffic signals and other ITS field equipment located along the roadway in San Diego County. The County has about 50% of it's ITS field equipment connected with much of it that needs to be managed in the field. They have a lot of environmental field equipment such as flood sensors, etc. The ITS equipment that is distributed at or along the roadway that monitors and controls traffic monitors, managing the roadway within the County's jurisdiction itself.</p> <p>ITS field equipment includes all planned and existing traffic detectors, all environmental sensors, disparate traffic signals, highway advisory radios, portable dynamic message signs, CCTV cameras, video image processing systems, grade crossing warning systems. This object also provides environmental monitoring including sensors that measure road conditions, surface weather, and vehicle emissions. Work zone systems including work zone surveillance, traffic control, driver warning, and work crew safety systems are also included.</p>	5 Big Moves #1: Complete Corridors	Existing
County ITS Field Equipment	<p>Traffic signals and other ITS field equipment located along the roadway in San Diego County. The County has about 50% of it's ITS field equipment connected with much of it that needs to be managed in the field. They have a lot of environmental field equipment such as flood sensors, etc. The ITS equipment that is distributed at or along the roadway that monitors and controls traffic monitors, managing the roadway within the County's jurisdiction itself.</p> <p>ITS field equipment includes all planned and existing traffic detectors, all environmental sensors, disparate traffic signals, highway advisory radios, portable dynamic message signs, CCTV cameras, video image processing systems, grade crossing warning systems. This object also provides environmental monitoring including sensors that measure road conditions, surface weather, and vehicle emissions. Work zone systems including work zone surveillance, traffic control, driver warning, and work crew safety systems are also included.</p>	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
<p>County ITS Field Equipment</p>	<p>Traffic signals and other ITS field equipment located along the roadway in San Diego County. The County has about 50% of it's ITS field equipment connected with much of it that needs to be managed in the field. They have a lot of environmental field equipment such as flood sensors, etc. The ITS equipment that is distributed at or along the roadway that monitors and controls traffic monitors, managing the roadway within the County's jurisdiction itself.</p> <p>ITS field equipment includes all planned and existing traffic detectors, all environmental sensors, disparate traffic signals, highway advisory radios, portable dynamic message signs, CCTV cameras, video image processing systems, grade crossing warning systems. This object also provides environmental monitoring including sensors that measure road conditions, surface weather, and vehicle emissions. Work zone systems including work zone surveillance, traffic control, driver warning, and work crew safety systems are also included.</p>	<p>Global Element</p>	<p>Existing</p>
<p>County OES Services</p>	<p>The County of San Diego Office of Emergency Services (OES) serves as staff to the Unified Disaster Council (UDC). In this capacity, OES is a liaison between the incorporated cities, the Governor's Office of Emergency Services and FEMA, as well as non-governmental agencies such as the American Red Cross.</p> <p>The OES coordinates the overall county response to disasters and is responsible for alerting and notifying appropriate agencies when disaster strikes; coordinating all agencies that respond; ensuring resources are available and mobilized in times of disaster; developing plans and procedures for response to and recovery from disasters; and developing and providing preparedness materials for the public.</p> <p>OES staffs the Operational Area Emergency Operations Center (a central facility which provides regional coordinated emergency response), and also acts as staff to the Unified Disaster Council (UDC), a joint powers agreement between all 18 incorporated cities and the County of San Diego. The UDC</p>	<p>5 Big Moves #5: Next OS</p>	<p>Existing</p>

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	<p>provides for coordination of plans and programs countywide to ensure protection of life and property.</p>		
<p>County OES Services</p>	<p>The County of San Diego Office of Emergency Services (OES) serves as staff to the Unified Disaster Council (UDC). In this capacity, OES is a liaison between the incorporated cities, the Governor's Office of Emergency Services and FEMA, as well as non-governmental agencies such as the American Red Cross.</p> <p>The OES coordinates the overall county response to disasters and is responsible for alerting and notifying appropriate agencies when disaster strikes; coordinating all agencies that respond; ensuring resources are available and mobilized in times of disaster; developing plans and procedures for response to and recovery from disasters; and developing and providing preparedness materials for the public.</p> <p>OES staffs the Operational Area Emergency Operations Center (a central facility which provides regional coordinated emergency response), and also acts as staff to the Unified Disaster Council (UDC), a joint powers agreement between all 18 incorporated cities and the County of San Diego. The UDC provides for coordination of plans and programs countywide to ensure protection of life and property.</p>	<p>Global Element</p>	<p>Existing</p>

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
County Permitting Center	The 'County Permitting Center' collects, processes, stores and disseminates transportation construction permitting information to the County departments. This information is also distributed to system operators for surrounding cities and the state DOT; to other maintenance and construction centers, transportation management centers, transit centers, etc. to alert them about construction on specific corridors so that they can be proactive in signal coordination and re-routing options, transit management centers also receive permitting information so that they can consider re-routing transit for construction.	5 Big Moves #1: Complete Corridors	Existing
County Permitting Center	The 'County Permitting Center' collects, processes, stores and disseminates transportation construction permitting information to the County departments. This information is also distributed to system operators for surrounding cities and the state DOT; to other maintenance and construction centers, transportation management centers, transit centers, etc. to alert them about construction on specific corridors so that they can be proactive in signal coordination and re-routing options, transit management centers also receive permitting information so that they can consider re-routing transit for construction.	5 Big Moves #5: Next OS	Existing
County Permitting Center	The 'County Permitting Center' collects, processes, stores and disseminates transportation construction permitting information to the County departments. This information is also distributed to system operators for surrounding cities and the state DOT; to other maintenance and construction centers, transportation management centers, transit centers, etc. to alert them about construction on specific corridors so that they can be proactive in signal coordination and re-routing options, transit management centers also receive permitting information so that they can consider re-routing transit for construction.	Global Element	Existing
County Sheriff Dispatch	San Diego Sheriff Dispatch for emergencies, law enforcement, etc.	5 Big Moves #5: Next OS	Existing
County Sheriff Dispatch	San Diego Sheriff Dispatch for emergencies, law enforcement, etc.	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
County Sheriff Vehicles	San Diego County Sheriff Vehicles	5 Big Moves #5: Next OS	Existing
County Sheriff Vehicles	San Diego County Sheriff Vehicles	Global Element	Existing
County TMC	The traffic management center in San Diego County	5 Big Moves #1: Complete Corridors	Existing
County TMC	The traffic management center in San Diego County	5 Big Moves #5: Next OS	Existing
County TMC	The traffic management center in San Diego County	Global Element	Existing
Cyclist	'Cyclist' participates in ITS services that support safe, shared use of the transportation network by motorized and non-motorized transportation modes. Representing those using non-motorized travel modes, and in particular bicyclists that sometimes share motor vehicle lanes, cyclists provide input (e.g. a call signal requesting right of way at an intersection) and may be detected by ITS services to improve safety.	5 Big Moves #1: Complete Corridors	Existing
Cyclist	'Cyclist' participates in ITS services that support safe, shared use of the transportation network by motorized and non-motorized transportation modes. Representing those using non-motorized travel modes, and in particular bicyclists that sometimes share motor vehicle lanes, cyclists provide input (e.g. a call signal requesting right of way at an intersection) and may be detected by ITS services to improve safety.	5 Big Moves #2: Transit Leap	Existing
Cyclist	'Cyclist' participates in ITS services that support safe, shared use of the transportation network by motorized and non-motorized transportation modes. Representing those using non-motorized travel modes, and in particular bicyclists that sometimes share motor vehicle lanes, cyclists provide input (e.g. a call signal requesting right of way at an intersection) and may be detected by ITS services to improve safety.	5 Big Moves #3: Mobility Hubs	Existing
Cyclist	'Cyclist' participates in ITS services that support safe, shared use of the transportation network by motorized and non-motorized transportation modes. Representing those using non-motorized travel modes, and in particular bicyclists that sometimes share motor vehicle lanes, cyclists provide input (e.g. a call signal requesting right of way at an intersection) and may be detected by ITS services to improve safety.	5 Big Moves #4: Flexible Fleets	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Cyclist	'Cyclist' participates in ITS services that support safe, shared use of the transportation network by motorized and non-motorized transportation modes. Representing those using non-motorized travel modes, and in particular bicyclists that sometimes share motor vehicle lanes, cyclists provide input (e.g. a call signal requesting right of way at an intersection) and may be detected by ITS services to improve safety.	5 Big Moves #5: Next OS	Existing
Cyclist	'Cyclist' participates in ITS services that support safe, shared use of the transportation network by motorized and non-motorized transportation modes. Representing those using non-motorized travel modes, and in particular bicyclists that sometimes share motor vehicle lanes, cyclists provide input (e.g. a call signal requesting right of way at an intersection) and may be detected by ITS services to improve safety.	Global Element	Existing
Dispatch - Coordinación Estatal de Protección Civil	The dispatch center for local emergencies including Rescue, Fire Department, and Police. It is also a Public Safety Answering Point (PSAP) for local 066 calls from parts of the region.	5 Big Moves #5: Next OS	Planned
Dispatch - Coordinación Estatal de Protección Civil	The dispatch center for local emergencies including Rescue, Fire Department, and Police. It is also a Public Safety Answering Point (PSAP) for local 066 calls from parts of the region.	Global Element	Planned
Driver	The 'Driver' represents the person that operates a vehicle on the roadway. Included are operators of private, transit, commercial, and emergency vehicles where the interactions are not particular to the type of vehicle (e.g., interactions supporting vehicle safety applications). The Driver originates driver requests and receives driver information that reflects the interactions which might be useful to all drivers, regardless of vehicle classification. Information and interactions which are unique to drivers of a specific vehicle type (e.g., fleet interactions with transit, commercial, or emergency vehicle drivers) are covered by separate objects.	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Driver	<p>The 'Driver' represents the person that operates a vehicle on the roadway. Included are operators of private, transit, commercial, and emergency vehicles where the interactions are not particular to the type of vehicle (e.g., interactions supporting vehicle safety applications). The Driver originates driver requests and receives driver information that reflects the interactions which might be useful to all drivers, regardless of vehicle classification. Information and interactions which are unique to drivers of a specific vehicle type (e.g., fleet interactions with transit, commercial, or emergency vehicle drivers) are covered by separate objects.</p>	5 Big Moves #2: Transit Leap	Existing
Driver	<p>The 'Driver' represents the person that operates a vehicle on the roadway. Included are operators of private, transit, commercial, and emergency vehicles where the interactions are not particular to the type of vehicle (e.g., interactions supporting vehicle safety applications). The Driver originates driver requests and receives driver information that reflects the interactions which might be useful to all drivers, regardless of vehicle classification. Information and interactions which are unique to drivers of a specific vehicle type (e.g., fleet interactions with transit, commercial, or emergency vehicle drivers) are covered by separate objects.</p>	5 Big Moves #3: Mobility Hubs	Existing
Driver	<p>The 'Driver' represents the person that operates a vehicle on the roadway. Included are operators of private, transit, commercial, and emergency vehicles where the interactions are not particular to the type of vehicle (e.g., interactions supporting vehicle safety applications). The Driver originates driver requests and receives driver information that reflects the interactions which might be useful to all drivers, regardless of vehicle classification. Information and interactions which are unique to drivers of a specific vehicle type (e.g., fleet interactions with transit, commercial, or emergency vehicle drivers) are covered by separate objects.</p>	5 Big Moves #4: Flexible Fleets	Existing
Driver	<p>The 'Driver' represents the person that operates a vehicle on the roadway. Included are operators of private, transit, commercial, and emergency vehicles where the interactions are not particular to the type of vehicle (e.g., interactions supporting vehicle safety applications). The Driver originates driver requests and receives driver information that reflects the interactions</p>	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	<p>which might be useful to all drivers, regardless of vehicle classification. Information and interactions which are unique to drivers of a specific vehicle type (e.g., fleet interactions with transit, commercial, or emergency vehicle drivers) are covered by separate objects.</p>		
Driver	<p>The 'Driver' represents the person that operates a vehicle on the roadway. Included are operators of private, transit, commercial, and emergency vehicles where the interactions are not particular to the type of vehicle (e.g., interactions supporting vehicle safety applications). The Driver originates driver requests and receives driver information that reflects the interactions which might be useful to all drivers, regardless of vehicle classification. Information and interactions which are unique to drivers of a specific vehicle type (e.g., fleet interactions with transit, commercial, or emergency vehicle drivers) are covered by separate objects.</p>	Global Element	Existing
Driver Identification Card	<p>Driver Identification cards represent the card or device that enables the transfer of electronic identification information for a driver. this may include license information, biometrics, and other data to identify the driver. Typically the card will be issued by a government agency (motor vehicle agency).</p>	5 Big Moves #4: Flexible Fleets	Planned
Driver Identification Card	<p>Driver Identification cards represent the card or device that enables the transfer of electronic identification information for a driver. this may include license information, biometrics, and other data to identify the driver. Typically the card will be issued by a government agency (motor vehicle agency).</p>	5 Big Moves #5: Next OS	Planned
Driver Identification Card	<p>Driver Identification cards represent the card or device that enables the transfer of electronic identification information for a driver. this may include license information, biometrics, and other data to identify the driver. Typically the card will be issued by a government agency (motor vehicle agency).</p>	Global Element	Planned
Electronic Charging Station Management	<p>Blink is the owner, operator and provider of EV charging Stations all over the United States. They have many throughout the San Diego region.</p>	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Electronic Charging Station Management	Blink is the owner, operator and provider of EV charging Stations all over the United States. They have many throughout the San Diego region.	5 Big Moves #5: Next OS	Existing
Electronic Charging Station Management	Blink is the owner, operator and provider of EV charging Stations all over the United States. They have many throughout the San Diego region.	Global Element	Existing
Level 1 Cities Asset Management Center	The 'Level 1 Cities Asset Management Center' provides the capability for all city fleets to be maintained by one facility within the city. This object represents the systems that support decision-making for maintenance, upgrade, and operation of physical transportation, emergency management, transit management, law enforcement, fire vehicles, and maintenance vehicle assets.	5 Big Moves #5: Next OS	Existing
Level 1 Cities Asset Management Center	The 'Level 1 Cities Asset Management Center' provides the capability for all city fleets to be maintained by one facility within the city. This object represents the systems that support decision-making for maintenance, upgrade, and operation of physical transportation, emergency management, transit management, law enforcement, fire vehicles, and maintenance vehicle assets.	Global Element	Existing
Level 1 Cities Data Archive	The Cities Data Archive is often referred to as the traffic database in cities. It is used primarily to store performance data, road closures, speed, construction activities, and planned events. This database is used to archive all types of traffic data in the cities of Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista.	5 Big Moves #1: Complete Corridors	Existing
Level 1 Cities Data Archive	The Cities Data Archive is often referred to as the traffic database in cities. It is used primarily to store performance data, road closures, speed, construction activities, and planned events. This database is used to archive all types of traffic data in the cities of Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista.	5 Big Moves #5: Next OS	Existing
Level 1 Cities Data Archive	The Cities Data Archive is often referred to as the traffic database in cities. It is used primarily to store performance data, road closures, speed, construction activities, and planned events. This database is used to archive all types of traffic data in the cities of Coronado, Del Mar, El Cajon, Encinitas,	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista.		
Level 1 Cities Data User Systems	Cities 'Data User Systems' represents the systems users employ to access archived data from the Cities of Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista. The general interface provided allows a broad range of users (e.g. planners, researchers, analysts, operators) and their systems (e.g. databases, models, analytical tools, user interface devices) to acquire data and analysis results from the archive	5 Big Moves #5: Next OS	Planned
Level 1 Cities Data User Systems	Cities 'Data User Systems' represents the systems users employ to access archived data from the Cities of Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista. The general interface provided allows a broad range of users (e.g. planners, researchers, analysts, operators) and their systems (e.g. databases, models, analytical tools, user interface devices) to acquire data and analysis results from the archive	Global Element	Planned
Level 1 Cities Edge ITS Field Equipment	<p>Level 1 Cities Edge ITS Field equipment represents real time data computed at the edge of the system rather than coming back to the main center, it is processed near the data source or at the edge of the network. 'Other ITS Roadway Equipment' supports 'field device' to 'field device' communication and coordination, and provides a source and destination for information that may be exchanged between ITS Roadway Equipment in the cities of Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista.</p> <p>The interface enables direct coordination between field equipment. Examples include the direct interface between sensors and other roadway devices (e.g., Dynamic Message Signs) and the direct interface between roadway devices (e.g., between a Signal System Master and Signal System Local equipment) or</p>	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	<p>a connection between an arterial signal system master and a ramp meter controller.</p>		
<p>Level 1 Cities Edge ITS Field Equipment</p>	<p>Level 1 Cities Edge ITS Field equipment represents real time data computed at the edge of the system rather than coming back to the main center, it is processed near the data source or at the edge of the network. 'Other ITS Roadway Equipment' supports 'field device' to 'field device' communication and coordination, and provides a source and destination for information that may be exchanged between ITS Roadway Equipment in the cities of Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista.</p> <p>The interface enables direct coordination between field equipment. Examples include the direct interface between sensors and other roadway devices (e.g., Dynamic Message Signs) and the direct interface between roadway devices (e.g., between a Signal System Master and Signal System Local equipment) or a connection between an arterial signal system master and a ramp meter controller.</p>	<p>5 Big Moves #5: Next OS</p>	<p>Existing</p>

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
<p>Level 1 Cities Edge ITS Field Equipment</p>	<p>Level 1 Cities Edge ITS Field equipment represents real time data computed at the edge of the system rather than coming back to the main center, it is processed near the data source or at the edge of the network. 'Other ITS Roadway Equipment' supports 'field device' to 'field device' communication and coordination, and provides a source and destination for information that may be exchanged between ITS Roadway Equipment in the cities of Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista.</p> <p>The interface enables direct coordination between field equipment. Examples include the direct interface between sensors and other roadway devices (e.g., Dynamic Message Signs) and the direct interface between roadway devices (e.g., between a Signal System Master and Signal System Local equipment) or a connection between an arterial signal system master and a ramp meter controller.</p>	<p>Global Element</p>	<p>Existing</p>
<p>Level 1 Cities Electronic Charging Stations</p>	<p>The Level 1 Cities 'Electric Charging Stations' in San Diego provides access to electric vehicle supply equipment that is used to charge all-electric vehicles in the cities of Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista. This includes public charging stations that support consumers, workplace charging stations, and fleet charging stations.</p> <p>NOTE: Blink was the original electronic charging station contractor. They went out of business and the cities that had charging stations have taken them over.</p>	<p>5 Big Moves #1: Complete Corridors</p>	<p>Existing</p>
<p>Level 1 Cities Electronic Charging Stations</p>	<p>The Level 1 Cities 'Electric Charging Stations' in San Diego provides access to electric vehicle supply equipment that is used to charge all-electric vehicles in the cities of Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista. This includes public charging stations that support</p>	<p>5 Big Moves #5: Next OS</p>	<p>Existing</p>

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	<p>consumers, workplace charging stations, and fleet charging stations.</p> <p>NOTE: Blink was the original electronic charging station contractor. They went out of business and the cities that had charging stations have taken them over.</p>		
<p>Level 1 Cities Electronic Charging Stations</p>	<p>The Level 1 Cities 'Electric Charging Stations' in San Diego provides access to electric vehicle supply equipment that is used to charge all-electric vehicles in the cities of Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista. This includes public charging stations that support consumers, workplace charging stations, and fleet charging stations.</p> <p>NOTE: Blink was the original electronic charging station contractor. They went out of business and the cities that had charging stations have taken them over.</p>	<p>Global Element</p>	<p>Existing</p>
<p>Level 1 Cities EOCs-EMC</p>	<p>Cities Emergency Operations Centers (EOC) and Emergency Management Centers (EMC) in the cities of Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista. The 'Emergency Management Center' represents systems that support incident management, disaster response and evacuation, security monitoring, and other security and public safety-oriented ITS applications.</p>	<p>5 Big Moves #5: Next OS</p>	<p>Existing</p>
<p>Level 1 Cities EOCs-EMC</p>	<p>Cities Emergency Operations Centers (EOC) and Emergency Management Centers (EMC) in the cities of Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista. The 'Emergency Management Center' represents systems that support incident management, disaster response and evacuation, security monitoring, and other security and public safety-oriented ITS applications.</p>	<p>Global Element</p>	<p>Existing</p>

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Level 1 Cities Equipment Repair	Level 1 Cities Equipment Repair Facility' represents the facilities that configure, service, and repair vehicles and other support equipment used in roadway infrastructure construction and maintenance in the cities of Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista. The equipment repair facility receives preventative and corrective maintenance schedules and vehicle configuration requirements, performs the necessary configuration and maintenance work on the vehicles and equipment, and provides vehicle and equipment status back to the architecture.	5 Big Moves #5: Next OS	Existing
Level 1 Cities Equipment Repair	Level 1 Cities Equipment Repair Facility' represents the facilities that configure, service, and repair vehicles and other support equipment used in roadway infrastructure construction and maintenance in the cities of Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista. The equipment repair facility receives preventative and corrective maintenance schedules and vehicle configuration requirements, performs the necessary configuration and maintenance work on the vehicles and equipment, and provides vehicle and equipment status back to the architecture.	Global Element	Existing
Level 1 Cities Fire Dispatch	Cities fire and rescue dispatch represents the dispatching function in the cities of Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista, existing and planned.	5 Big Moves #5: Next OS	Existing
Level 1 Cities Fire Dispatch	Cities fire and rescue dispatch represents the dispatching function in the cities of Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista, existing and planned.	Global Element	Existing
Level 1 Cities Fire Vehicles	Cities Fire and Rescue Vehicles in the cities of Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista.	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Level 1 Cities Fire Vehicles	Cities Fire and Rescue Vehicles in the cities of Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista.	Global Element	Existing
Level 1 Cities Fleet Vehicles	Cities Fleet Vehicle-All includes all vehicles for the purpose of maintenance and asset management. Fire department vehicles, law enforcement, street sweepers, maintenance and construction vehicles, city fleet vehicles for servicing field equipment, and all other vehicles owned, operated, serviced, and maintained by the city. The goal of this user defined object is to allow for maintenance of ALL city vehicle in one location within the cities, a common practice for Smart Cities.	5 Big Moves #5: Next OS	Planned
Level 1 Cities Fleet Vehicles	Cities Fleet Vehicle-All includes all vehicles for the purpose of maintenance and asset management. Fire department vehicles, law enforcement, street sweepers, maintenance and construction vehicles, city fleet vehicles for servicing field equipment, and all other vehicles owned, operated, serviced, and maintained by the city. The goal of this user defined object is to allow for maintenance of ALL city vehicle in one location within the cities, a common practice for Smart Cities.	Global Element	Planned
Level 1 Cities Permitting Center	The 'Level 1 Cities Permitting Center' collects, processes, stores and disseminates transportation construction permitting information for their own City. This information may also be distributed to system operators for surrounding cities and the state DOT; to other maintenance and construction centers, transportation management centers, transit centers, etc. to alert them about construction on specific corridors so that they can be proactive in signal coordination and re-routing options, transit management centers also receive permitting information so that they can consider re-routing transit for construction.	5 Big Moves #5: Next OS	Existing
Level 1 Cities Permitting Center	The 'Level 1 Cities Permitting Center' collects, processes, stores and disseminates transportation construction permitting information for their own City. This information may also be distributed to system operators for surrounding cities and the state DOT; to other maintenance and construction centers, transportation management centers, transit centers, etc. to alert them about construction on specific corridors so that they can be proactive in	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	signal coordination and re-routing options, transit management centers also receive permitting information so that they can consider re-routing transit for construction.		
Level 1 Cities Police Dispatch	Cities police department dispatch represents the dispatching function in the cities of Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista, existing and planned.	5 Big Moves #5: Next OS	Existing
Level 1 Cities Police Dispatch	Cities police department dispatch represents the dispatching function in the cities of Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista, existing and planned.	Global Element	Existing
Level 1 Cities Police Vehicles	Cities Police Vehicles in the cities of Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista.	5 Big Moves #5: Next OS	Existing
Level 1 Cities Police Vehicles	Cities Police Vehicles in the cities of Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista.	Global Element	Existing
Level 1 Cities Public Works TMC	<p>Cities public works divisions in the cities of Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista. This ITS element represents maintenance and operations for signals, serving as the traffic operations center for city roads. Public works also provides maintenance and construction for streets and construction projects.</p> <p>The public works department provides road construction and closure information to others for planning, notifying TICs that construction will occur on various city roads.</p>	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Level 1 Cities Public Works TMC	<p>Cities public works divisions in the cities of Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista. This ITS element represents maintenance and operations for signals, serving as the traffic operations center for city roads. Public works also provides maintenance and construction for streets and construction projects.</p> <p>The public works department provides road construction and closure information to others for planning, notifying TICs that construction will occur on various city roads.</p>	5 Big Moves #5: Next OS	Planned
Level 1 Cities Public Works TMC	<p>Cities public works divisions in the cities of Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista. This ITS element represents maintenance and operations for signals, serving as the traffic operations center for city roads. Public works also provides maintenance and construction for streets and construction projects.</p> <p>The public works department provides road construction and closure information to others for planning, notifying TICs that construction will occur on various city roads.</p>	Global Element	Planned
Level 1 Cities Public Works Vehicles	<p>Cities maintenance and construction vehicles dispatched from public works in the cities of Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista.</p>	5 Big Moves #5: Next OS	Planned
Level 1 Cities Public Works Vehicles	<p>Cities maintenance and construction vehicles dispatched from public works in the cities of Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Marcos, Santee, Solana Beach and Vista.</p>	Global Element	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Level 1 Cities Signals ITS Field Equipment	<p>Cities 'ITS Roadway Equipment' represents the ITS equipment that is distributed on and along the roadway that monitors and controls traffic, managing the roadway within the City's jurisdiction itself.</p> <p>As individual cities grow this physical object may also include traffic detectors, environmental sensors, traffic signals, highway advisory radios, dynamic message signs, CCTV cameras and video image processing systems, grade crossing warning systems, and ramp metering systems and lane management systems. This object also provides environmental monitoring including sensors that measure road conditions, surface weather, and vehicle emissions. Work zone systems including work zone surveillance, traffic control, driver warning, and work crew safety systems are also included.</p>	5 Big Moves #1: Complete Corridors	Planned
Level 1 Cities Signals ITS Field Equipment	<p>Cities 'ITS Roadway Equipment' represents the ITS equipment that is distributed on and along the roadway that monitors and controls traffic, managing the roadway within the City's jurisdiction itself.</p> <p>As individual cities grow this physical object may also include traffic detectors, environmental sensors, traffic signals, highway advisory radios, dynamic message signs, CCTV cameras and video image processing systems, grade crossing warning systems, and ramp metering systems and lane management systems. This object also provides environmental monitoring including sensors that measure road conditions, surface weather, and vehicle emissions. Work zone systems including work zone surveillance, traffic control, driver warning, and work crew safety systems are also included.</p>	Global Element	Planned
Excise Summary Terminal Activity Reporting System (ExSTARS)	A fuel tracking system developed with the cooperation of the IRS, DOT, States and Motor Fuel Industry which details the movement of any liquid product into or out of an IRS approved terminal.	5 Big Moves #1: Complete Corridors	Planned
Excise Summary Terminal Activity Reporting System (ExSTARS)	A fuel tracking system developed with the cooperation of the IRS, DOT, States and Motor Fuel Industry which details the movement of any liquid product into or out of an IRS approved terminal.	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Excise Summary Terminal Activity Reporting System (ExSTARS)	A fuel tracking system developed with the cooperation of the IRS, DOT, States and Motor Fuel Industry which details the movement of any liquid product into or out of an IRS approved terminal.	Global Element	Planned
FasTrak Transponder	FasTrak is the device used throughout the state of California for toll tags, and congestion pricing.	5 Big Moves #1: Complete Corridors	Planned
FasTrak Transponder	FasTrak is the device used throughout the state of California for toll tags, and congestion pricing.	5 Big Moves #2: Transit Leap	Planned
FasTrak Transponder	FasTrak is the device used throughout the state of California for toll tags, and congestion pricing.	5 Big Moves #3: Mobility Hubs	Planned
FasTrak Transponder	FasTrak is the device used throughout the state of California for toll tags, and congestion pricing.	5 Big Moves #4: Flexible Fleets	Planned
FasTrak Transponder	FasTrak is the device used throughout the state of California for toll tags, and congestion pricing.	5 Big Moves #5: Next OS	Planned
FasTrak Transponder	FasTrak is the device used throughout the state of California for toll tags, and congestion pricing.	Global Element	Planned
Financial Institutions	All financial institutions such as banks or other, that are used to purchase, pay or support travelers.	5 Big Moves #5: Next OS	Existing
Financial Institutions	All financial institutions such as banks or other, that are used to purchase, pay or support travelers.	Global Element	Existing
Financial Institutions - Tolling	Financial Institutions that are involved in Electronic Toll Collection and other services to support travelers.	5 Big Moves #3: Mobility Hubs	Existing
Financial Institutions - Tolling	Financial Institutions that are involved in Electronic Toll Collection and other services to support travelers.	5 Big Moves #5: Next OS	Existing
Financial Institutions - Tolling	Financial Institutions that are involved in Electronic Toll Collection and other services to support travelers.	Global Element	Existing
Fleet Management Systems	Dispatch function of Commercial Vehicle Fleets.	5 Big Moves #4: Flexible Fleets	Existing
Fleet Management Systems	Dispatch function of Commercial Vehicle Fleets.	5 Big Moves #5: Next OS	Existing
Fleet Management Systems	Dispatch function of Commercial Vehicle Fleets.	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Freight Containers	Sensors and systems incorporated into an intermodal container. Containers are strengthened and stackable boxes that carry freight and allow horizontal and vertical transfers between modes (truck transport, rail, or marine vessel).	5 Big Moves #4: Flexible Fleets	Planned
Freight Containers	Sensors and systems incorporated into an intermodal container. Containers are strengthened and stackable boxes that carry freight and allow horizontal and vertical transfers between modes (truck transport, rail, or marine vessel).	5 Big Moves #5: Next OS	Planned
Freight Containers	Sensors and systems incorporated into an intermodal container. Containers are strengthened and stackable boxes that carry freight and allow horizontal and vertical transfers between modes (truck transport, rail, or marine vessel).	Global Element	Planned
Freight Distribution Center	The 'Freight Distribution and Logistics Center' provides intermodal logistics support and support for the efficient distribution of freight across transport systems and modes. This can include consolidation arrangements, warehousing, and consignor-to-consignee intermodal shipping arrangements. These capabilities may be provided as part of intermodal fleet management activities or can be provided by an independent logistics specialist.	5 Big Moves #5: Next OS	Planned
Freight Distribution Center	The 'Freight Distribution and Logistics Center' provides intermodal logistics support and support for the efficient distribution of freight across transport systems and modes. This can include consolidation arrangements, warehousing, and consignor-to-consignee intermodal shipping arrangements. These capabilities may be provided as part of intermodal fleet management activities or can be provided by an independent logistics specialist.	Global Element	Planned
Freight Shipping System	System tracking and scheduling the movement of freight from its destination - data primarily provided by the supplier or owner of commodities shipped. Includes status of bookings made and the status of the freight's movement.	5 Big Moves #5: Next OS	Planned
Freight Shipping System	System tracking and scheduling the movement of freight from its destination - data primarily provided by the supplier or owner of commodities shipped. Includes status of bookings made and the status of the freight's movement.	Global Element	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Freight Trucks for Port Activities	The Vehicle On-Board Equipment (OBE) provides the vehicle-based sensory, processing, storage, and communications functions that support efficient, safe, and convenient travel. The Vehicle OBE includes general capabilities that apply to passenger cars, trucks, and motorcycles. Many of these capabilities (e.g., see the Vehicle Safety service packages) apply to all vehicle types including personal vehicles, commercial vehicles, emergency vehicles, transit vehicles, and maintenance vehicles. This ITS element is included specifically for trucks to trigger restricted lane information to accommodate the Port of San Diego lane control for trucks carrying goods during congested corridor times to give them priority.	5 Big Moves #4: Flexible Fleets	Existing
Freight Trucks for Port Activities	The Vehicle On-Board Equipment (OBE) provides the vehicle-based sensory, processing, storage, and communications functions that support efficient, safe, and convenient travel. The Vehicle OBE includes general capabilities that apply to passenger cars, trucks, and motorcycles. Many of these capabilities (e.g., see the Vehicle Safety service packages) apply to all vehicle types including personal vehicles, commercial vehicles, emergency vehicles, transit vehicles, and maintenance vehicles. This ITS element is included specifically for trucks to trigger restricted lane information to accommodate the Port of San Diego lane control for trucks carrying goods during congested corridor times to give them priority.	5 Big Moves #5: Next OS	Existing
Freight Trucks for Port Activities	The Vehicle On-Board Equipment (OBE) provides the vehicle-based sensory, processing, storage, and communications functions that support efficient, safe, and convenient travel. The Vehicle OBE includes general capabilities that apply to passenger cars, trucks, and motorcycles. Many of these capabilities (e.g., see the Vehicle Safety service packages) apply to all vehicle types including personal vehicles, commercial vehicles, emergency vehicles, transit vehicles, and maintenance vehicles. This ITS element is included specifically for trucks to trigger restricted lane information to accommodate the Port of San Diego lane control for trucks carrying goods during congested corridor times to give them priority.	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Google Mapping	Google maps provide mapping for use with Google Transit and ISPs that use source and designation for ITS information flows between peer map update providers.	5 Big Moves #5: Next OS	Existing
Google Mapping	Google maps provide mapping for use with Google Transit and ISPs that use source and designation for ITS information flows between peer map update providers.	Global Element	Existing
In Vehicle Elec Toll Tags	Represents electronic toll tags used by the general traveling public in their vehicles.	5 Big Moves #1: Complete Corridors	Existing
In Vehicle Elec Toll Tags	Represents electronic toll tags used by the general traveling public in their vehicles.	5 Big Moves #5: Next OS	Existing
In Vehicle Elec Toll Tags	Represents electronic toll tags used by the general traveling public in their vehicles.	Global Element	Existing
Intermodal Port Facility Systems	Represents intermodal port facilities and the systems they use to track cargo and manage operations. This element came from the California Statewide ITS Architecture.	5 Big Moves #3: Mobility Hubs	Planned
Intermodal Port Facility Systems	Represents intermodal port facilities and the systems they use to track cargo and manage operations. This element came from the California Statewide ITS Architecture.	Global Element	Planned
Map Update System	Google maps from GPS is used and updated and used for regional mapping. The map linkage becomes more important to the connected vehicle process.	5 Big Moves #5: Next OS	Planned
Map Update System	Google maps from GPS is used and updated and used for regional mapping. The map linkage becomes more important to the connected vehicle process.	Global Element	Planned
Metrolink Dispatch	Southern California Metrolink rail is governed by SCRRA, a JPA made up of an 11 member board representing transportation commissions of six counties with trains that operate on seven routes across the six county boundary, 538 route-mile network which includes a portion of northern San Diego County.	5 Big Moves #2: Transit Leap	Planned
Metrolink Dispatch	Southern California Metrolink rail is governed by SCRRA, a JPA made up of an 11 member board representing transportation commissions of six counties with trains that operate on seven routes across the six county boundary, 538 route-mile network which includes a portion of northern San Diego County.	5 Big Moves #3: Mobility Hubs	Planned
Metrolink Dispatch	Southern California Metrolink rail is governed by SCRRA, a JPA made up of an 11 member board representing transportation commissions of six counties	Global Element	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	with trains that operate on seven routes across the six county boundary, 538 route-mile network which includes a portion of northern San Diego County.		
Metrolink Information Displays	Transit displays that provide the next train information and provides opportunities to purchase tickets.	5 Big Moves #2: Transit Leap	Planned
Metrolink Information Displays	Transit displays that provide the next train information and provides opportunities to purchase tickets.	5 Big Moves #3: Mobility Hubs	Planned
Metrolink Information Displays	Transit displays that provide the next train information and provides opportunities to purchase tickets.	Global Element	Planned
Metrolink Trains	Rail trains used by Metrolink	5 Big Moves #2: Transit Leap	Existing
Metrolink Trains	Rail trains used by Metrolink	5 Big Moves #3: Mobility Hubs	Existing
Metrolink Trains	Rail trains used by Metrolink	Global Element	Existing
Mexican Agency Information Displays	Information Displays within Mexican agencies (SIDUE, SCT, Police, Transit, Public Areas), which will display RBMS Border Data on incidents, wait times, tolls, etc.	5 Big Moves #5: Next OS	Planned
Mexican Agency Information Displays	Information Displays within Mexican agencies (SIDUE, SCT, Police, Transit, Public Areas), which will display RBMS Border Data on incidents, wait times, tolls, etc.	Global Element	Planned
Mexican Baja SIDUE Website	Websites that can contain traffic information relating to the border crossing area.	5 Big Moves #5: Next OS	Planned
Mexican Baja SIDUE Website	Websites that can contain traffic information relating to the border crossing area.	Global Element	Planned
Mexican Border Inspection Administration Systems	Back-office systems and databases coordinating activities among the border crossings. Data collected and disseminated to other government systems and users. Includes Systems that support programs such as FAST and Senti.	5 Big Moves #1: Complete Corridors	Existing
Mexican Border Inspection Administration Systems	Back-office systems and databases coordinating activities among the border crossings. Data collected and disseminated to other government systems and users. Includes Systems that support programs such as FAST and Senti.	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Mexican Border Inspection Administration Systems	Back-office systems and databases coordinating activities among the border crossings. Data collected and disseminated to other government systems and users. Includes Systems that support programs such as FAST and Sentri.	Global Element	Existing
Mexican Border Inspection Systems	Represents systems used by Mexican Aduanas at the border.	5 Big Moves #1: Complete Corridors	Planned
Mexican Border Inspection Systems	Represents systems used by Mexican Aduanas at the border.	5 Big Moves #5: Next OS	Planned
Mexican Border Inspection Systems	Represents systems used by Mexican Aduanas at the border.	Global Element	Planned
Mexican Border Inspection Systems (BWT Processing)	Represents systems used by Aduanas at the border crossing that is focused on the processing of data from Border Wait Times (BWT) field surveillance equipment in order to determine current, actual, and predicted border wait times. Actual processing may be performed by a piece of equipment located at the border crossing or in a back-office somewhere. There is a complex mapping used to relate this element to both the Border Inspection Systems terminator for the border interfacing as well as a Traffic Management Subsystem (TMS) subsystem from the National ITS Architecture to capture the processing of traffic data coming from surveillance equipment in order to develop travel time information.	5 Big Moves #1: Complete Corridors	Planned
Mexican Border Inspection Systems (BWT Processing)	Represents systems used by Aduanas at the border crossing that is focused on the processing of data from Border Wait Times (BWT) field surveillance equipment in order to determine current, actual, and predicted border wait times. Actual processing may be performed by a piece of equipment located at the border crossing or in a back-office somewhere. There is a complex mapping used to relate this element to both the Border Inspection Systems terminator for the border interfacing as well as a Traffic Management Subsystem (TMS) subsystem from the National ITS Architecture to capture the processing of traffic data coming from surveillance equipment in order to develop travel time information.	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Mexican Border Inspection Systems (BWT Processing)	Represents systems used by Aduanas at the border crossing that is focused on the processing of data from Border Wait Times (BWT) field surveillance equipment in order to determine current, actual, and predicted border wait times. Actual processing may be performed by a piece of equipment located at the border crossing or in a back-office somewhere. There is a complex mapping used to relate this element to both the Border Inspection Systems terminator for the border interfacing as well as a Traffic Management Subsystem (TMS) subsystem from the National ITS Architecture to capture the processing of traffic data coming from surveillance equipment in order to develop travel time information.	Global Element	Planned
Mexican InfoViaje	Phone and web-based traveler information system in Mexico. Phone-based system typically implemented using voice-activated inputs from travelers; may include partnerships with telecommunications provider.	5 Big Moves #5: Next OS	Future
Mexican InfoViaje	Phone and web-based traveler information system in Mexico. Phone-based system typically implemented using voice-activated inputs from travelers; may include partnerships with telecommunications provider.	Global Element	Future
Mexican State DOT Maintenance Services	State system to dispatch maintenance vehicles - clearance of obstacles, general maintenance of the roadway assets.	5 Big Moves #5: Next OS	Planned
Mexican State DOT Maintenance Services	State system to dispatch maintenance vehicles - clearance of obstacles, general maintenance of the roadway assets.	Global Element	Planned
Micro Mobility Services	This stakeholder represents the vast number of organizations that own public and privately held bike / scooter companies - serving as Transportation Information Centers in the SD region.	5 Big Moves #3: Mobility Hubs	Existing
Micro Mobility Services	This stakeholder represents the vast number of organizations that own public and privately held bike / scooter companies - serving as Transportation Information Centers in the SD region.	5 Big Moves #4: Flexible Fleets	Existing
Micro Mobility Services	This stakeholder represents the vast number of organizations that own public and privately held bike / scooter companies - serving as Transportation Information Centers in the SD region.	Global Element	Existing
Micro Mobility vehicles rented for commutes	This element represents the bikes and scooters, and other commute options rented on an as needed bases for commuter use throughout the region.	5 Big Moves #3: Mobility Hubs	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Micro Mobility vehicles rented for commutes	This element represents the bikes and scooters, and other commute options rented on an as needed bases for commuter use throughout the region.	5 Big Moves #4: Flexible Fleets	Existing
Micro Mobility vehicles rented for commutes	This element represents the bikes and scooters, and other commute options rented on an as needed bases for commuter use throughout the region.	Global Element	Existing
Mobility Hub Kiosk	'Traveler Support Equipment' provides access to traveler information at transit stations, transit stops, other fixed sites along travel routes (e.g., rest stops, merchant locations, airport stations), and major trip generation locations such as special event centers, hotels, office complexes, amusement parks, and theaters. Traveler information access points include kiosks and informational displays supporting varied levels of interaction and information access. At transit stops this might be simple displays providing schedule information and imminent arrival signals. This may be extended to include multi-modal information including traffic conditions and transit schedules to support mode and route selection at major trip generation sites.	5 Big Moves #1: Complete Corridors	Planned
Mobility Hub Kiosk	'Traveler Support Equipment' provides access to traveler information at transit stations, transit stops, other fixed sites along travel routes (e.g., rest stops, merchant locations, airport stations), and major trip generation locations such as special event centers, hotels, office complexes, amusement parks, and theaters. Traveler information access points include kiosks and informational displays supporting varied levels of interaction and information access. At transit stops this might be simple displays providing schedule information and imminent arrival signals. This may be extended to include multi-modal information including traffic conditions and transit schedules to support mode and route selection at major trip generation sites.	5 Big Moves #2: Transit Leap	Planned
Mobility Hub Kiosk	'Traveler Support Equipment' provides access to traveler information at transit stations, transit stops, other fixed sites along travel routes (e.g., rest stops, merchant locations, airport stations), and major trip generation locations such as special event centers, hotels, office complexes, amusement parks, and theaters. Traveler information access points include kiosks and informational displays supporting varied levels of interaction and information	5 Big Moves #3: Mobility Hubs	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	<p>access. At transit stops this might be simple displays providing schedule information and imminent arrival signals. This may be extended to include multi-modal information including traffic conditions and transit schedules to support mode and route selection at major trip generation sites.</p>		
<p>Mobility Hub Kiosk</p>	<p>'Traveler Support Equipment' provides access to traveler information at transit stations, transit stops, other fixed sites along travel routes (e.g., rest stops, merchant locations, airport stations), and major trip generation locations such as special event centers, hotels, office complexes, amusement parks, and theaters. Traveler information access points include kiosks and informational displays supporting varied levels of interaction and information access. At transit stops this might be simple displays providing schedule information and imminent arrival signals. This may be extended to include multi-modal information including traffic conditions and transit schedules to support mode and route selection at major trip generation sites.</p>	<p>5 Big Moves #4: Flexible Fleets</p>	<p>Planned</p>
<p>Mobility Hub Kiosk</p>	<p>'Traveler Support Equipment' provides access to traveler information at transit stations, transit stops, other fixed sites along travel routes (e.g., rest stops, merchant locations, airport stations), and major trip generation locations such as special event centers, hotels, office complexes, amusement parks, and theaters. Traveler information access points include kiosks and informational displays supporting varied levels of interaction and information access. At transit stops this might be simple displays providing schedule information and imminent arrival signals. This may be extended to include multi-modal information including traffic conditions and transit schedules to support mode and route selection at major trip generation sites.</p>	<p>5 Big Moves #5: Next OS</p>	<p>Planned</p>
<p>Mobility Hub Kiosk</p>	<p>'Traveler Support Equipment' provides access to traveler information at transit stations, transit stops, other fixed sites along travel routes (e.g., rest stops, merchant locations, airport stations), and major trip generation locations such as special event centers, hotels, office complexes, amusement parks, and theaters. Traveler information access points include kiosks and informational displays supporting varied levels of interaction and information access. At transit stops this might be simple displays providing schedule</p>	<p>Global Element</p>	<p>Planned</p>

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	<p>information and imminent arrival signals. This may be extended to include multi-modal information including traffic conditions and transit schedules to support mode and route selection at major trip generation sites.</p>		
<p>MTS Archived Data System</p>	<p>The 'Archived Data System' collects, archives, manages, and distributes data generated from ITS sources for use in transportation administration, policy evaluation, safety, planning, performance monitoring, program assessment, operations, and research applications. The data received is formatted and tagged with attributes that define the data source, conditions under which it was collected, data transformations, and other information (i.e. meta data) necessary to interpret the data. The archive can fuse ITS generated data with data from non-ITS sources and other archives to generate information products utilizing data from multiple functional areas, modes, and jurisdictions. The archive prepares data products that can serve as inputs to federal, state, and local data reporting systems. The 'Archived Data System' may reside within an operational center and provide focused access to a particular agency's data archives. Alternatively, it may operate as a distinct center that collects data from multiple agencies and sources and provides a general data warehouse service.</p>	<p>5 Big Moves #2: Transit Leap</p>	<p>Existing</p>
<p>MTS Archived Data System</p>	<p>The 'Archived Data System' collects, archives, manages, and distributes data generated from ITS sources for use in transportation administration, policy evaluation, safety, planning, performance monitoring, program assessment, operations, and research applications. The data received is formatted and tagged with attributes that define the data source, conditions under which it was collected, data transformations, and other information (i.e. meta data) necessary to interpret the data. The archive can fuse ITS generated data with data from non-ITS sources and other archives to generate information products utilizing data from multiple functional areas, modes, and jurisdictions. The archive prepares data products that can serve as inputs to federal, state, and local data reporting systems. The 'Archived Data System' may reside within an operational center and provide focused access to a</p>	<p>5 Big Moves #3: Mobility Hubs</p>	<p>Existing</p>

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	particular agency's data archives. Alternatively, it may operate as a distinct center that collects data from multiple agencies and sources and provides a general data warehouse service.		
MTS Archived Data System	The 'Archived Data System' collects, archives, manages, and distributes data generated from ITS sources for use in transportation administration, policy evaluation, safety, planning, performance monitoring, program assessment, operations, and research applications. The data received is formatted and tagged with attributes that define the data source, conditions under which it was collected, data transformations, and other information (i.e. meta data) necessary to interpret the data. The archive can fuse ITS generated data with data from non-ITS sources and other archives to generate information products utilizing data from multiple functional areas, modes, and jurisdictions. The archive prepares data products that can serve as inputs to federal, state, and local data reporting systems. The 'Archived Data System' may reside within an operational center and provide focused access to a particular agency's data archives. Alternatively, it may operate as a distinct center that collects data from multiple agencies and sources and provides a general data warehouse service.	5 Big Moves #5: Next OS	Existing
MTS Archived Data System	The 'Archived Data System' collects, archives, manages, and distributes data generated from ITS sources for use in transportation administration, policy evaluation, safety, planning, performance monitoring, program assessment, operations, and research applications. The data received is formatted and tagged with attributes that define the data source, conditions under which it was collected, data transformations, and other information (i.e. meta data) necessary to interpret the data. The archive can fuse ITS generated data with data from non-ITS sources and other archives to generate information products utilizing data from multiple functional areas, modes, and	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	jurisdictions. The archive prepares data products that can serve as inputs to federal, state, and local data reporting systems. The 'Archived Data System' may reside within an operational center and provide focused access to a particular agency's data archives. Alternatively, it may operate as a distinct center that collects data from multiple agencies and sources and provides a general data warehouse service.		
MTS Buses	The San Diego Metropolitan Transit System is the public transit service provider for Central, South, Northeast and Southeast San Diego County. This element represents their busses used for fixed route and commuter.	5 Big Moves #2: Transit Leap	Existing
MTS Buses	The San Diego Metropolitan Transit System is the public transit service provider for Central, South, Northeast and Southeast San Diego County. This element represents their busses used for fixed route and commuter.	5 Big Moves #3: Mobility Hubs	Existing
MTS Buses	The San Diego Metropolitan Transit System is the public transit service provider for Central, South, Northeast and Southeast San Diego County. This element represents their busses used for fixed route and commuter.	Global Element	Existing
MTS Centralized Train Control	Metropolitan Centralized Train Control takes care of all light rail and rail train operations including all information sharing and transit coordination between transit systems, operations, and administration for transit that operates throughout the San Diego regional area.	5 Big Moves #2: Transit Leap	Existing
MTS Centralized Train Control	Metropolitan Centralized Train Control takes care of all light rail and rail train operations including all information sharing and transit coordination between transit systems, operations, and administration for transit that operates throughout the San Diego regional area.	5 Big Moves #3: Mobility Hubs	Existing
MTS Centralized Train Control	Metropolitan Centralized Train Control takes care of all light rail and rail train operations including all information sharing and transit coordination between transit systems, operations, and administration for transit that operates throughout the San Diego regional area.	Global Element	Existing
MTS Data User Systems	MTS 'Archived Data User System' represents the systems users employ to access archived data. The general interface provided allows a broad range of users (e.g. planners, researchers, analysts, operators) and their systems (e.g.	5 Big Moves #2: Transit Leap	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	databases, models, analytical tools, user interface devices) to acquire data and analyses results from the archive.		
MTS Data User Systems	MTS Archived Data User System' represents the systems users employ to access archived data. The general interface provided allows a broad range of users (e.g. planners, researchers, analysts, operators) and their systems (e.g. databases, models, analytical tools, user interface devices) to acquire data and analyses results from the archive.	5 Big Moves #3: Mobility Hubs	Existing
MTS Data User Systems	MTS Archived Data User System' represents the systems users employ to access archived data. The general interface provided allows a broad range of users (e.g. planners, researchers, analysts, operators) and their systems (e.g. databases, models, analytical tools, user interface devices) to acquire data and analyses results from the archive.	5 Big Moves #5: Next OS	Existing
MTS Data User Systems	MTS Archived Data User System' represents the systems users employ to access archived data. The general interface provided allows a broad range of users (e.g. planners, researchers, analysts, operators) and their systems (e.g. databases, models, analytical tools, user interface devices) to acquire data and analyses results from the archive.	Global Element	Existing
MTS Light Rail Cars	The San Diego Metropolitan Transit System is the public transit service provider for Central, South, Northeast and Southeast San Diego County. This element represents their light rail services.	5 Big Moves #2: Transit Leap	Existing
MTS Light Rail Cars	The San Diego Metropolitan Transit System is the public transit service provider for Central, South, Northeast and Southeast San Diego County. This element represents their light rail services.	5 Big Moves #3: Mobility Hubs	Existing
MTS Light Rail Cars	The San Diego Metropolitan Transit System is the public transit service provider for Central, South, Northeast and Southeast San Diego County. This element represents their light rail services.	Global Element	Existing
MTS Paratransit Dispatch		5 Big Moves #2: Transit Leap	Existing
MTS Paratransit Dispatch		5 Big Moves #3: Mobility Hubs	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
MTS Paratransit Dispatch		Global Element	Existing
MTS Paratransit Vehicle	The San Diego Metropolitan Transit System is the public transit service provider for Central, South, Northeast and Southeast San Diego County. This element represents MTS Paratransit.	5 Big Moves #2: Transit Leap	Existing
MTS Paratransit Vehicle	The San Diego Metropolitan Transit System is the public transit service provider for Central, South, Northeast and Southeast San Diego County. This element represents MTS Paratransit.	5 Big Moves #3: Mobility Hubs	Existing
MTS Paratransit Vehicle	The San Diego Metropolitan Transit System is the public transit service provider for Central, South, Northeast and Southeast San Diego County. This element represents MTS Paratransit.	Global Element	Existing
MTS Rail Maintenance Garage-Yard	This physical object represents the transit yard or maintenance garage when repairs on field equipment would occur and where maintenance vehicles would be parked to service rail and transit right-a-way, and equipment repair. This facility would be compared to a MCO center for roadway maintenance and construction.	5 Big Moves #2: Transit Leap	Existing
MTS Rail Maintenance Garage-Yard	This physical object represents the transit yard or maintenance garage when repairs on field equipment would occur and where maintenance vehicles would be parked to service rail and transit right-a-way, and equipment repair. This facility would be compared to a MCO center for roadway maintenance and construction.	5 Big Moves #3: Mobility Hubs	Existing
MTS Rail Maintenance Garage-Yard	This physical object represents the transit yard or maintenance garage when repairs on field equipment would occur and where maintenance vehicles would be parked to service rail and transit right-a-way, and equipment repair. This facility would be compared to a MCO center for roadway maintenance and construction.	Global Element	Existing
MTS System Stations and Transfer Points	MTS has information for bus arrival times and other traveler support systems at the transit stations and transfer points. Next bus and train arrival kiosks. Static signs and kiosks.	5 Big Moves #2: Transit Leap	Planned
MTS System Stations and Transfer Points	MTS has information for bus arrival times and other traveler support systems at the transit stations and transfer points. Next bus and train arrival kiosks. Static signs and kiosks.	5 Big Moves #3: Mobility Hubs	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
MTS System Stations and Transfer Points	MTS has information for bus arrival times and other traveler support systems at the transit stations and transfer points. Next bus and train arrival kiosks. Static signs and kiosks.	Global Element	Planned
MTS Transit Dispatch	MTS Transit dispatch for all fixed route transit.	5 Big Moves #2: Transit Leap	Existing
MTS Transit Dispatch	MTS Transit dispatch for all fixed route transit.	5 Big Moves #3: Mobility Hubs	Existing
MTS Transit Dispatch	MTS Transit dispatch for all fixed route transit.	Global Element	Existing
MTS Transit Enforcement	Transit enforcement for MTS. Separate dispatch from transit.	5 Big Moves #2: Transit Leap	Existing
MTS Transit Enforcement	Transit enforcement for MTS. Separate dispatch from transit.	5 Big Moves #3: Mobility Hubs	Existing
MTS Transit Enforcement	Transit enforcement for MTS. Separate dispatch from transit.	Global Element	Existing
MTS Transit Enforcement Vehicle	Transit Security Enforcement Vehicles for MTS	5 Big Moves #2: Transit Leap	Existing
MTS Transit Enforcement Vehicle	Transit Security Enforcement Vehicles for MTS	5 Big Moves #3: Mobility Hubs	Existing
MTS Transit Enforcement Vehicle	Transit Security Enforcement Vehicles for MTS	Global Element	Existing
MTS Transit Heavy Rail for Tunnel	MTS Transit Tunnel Management TMC for Heavy Rail (Traffic Management Center). This represents the possibility of building a future Tunnel.	5 Big Moves #2: Transit Leap	Planned
MTS Transit Heavy Rail for Tunnel	MTS Transit Tunnel Management TMC for Heavy Rail (Traffic Management Center). This represents the possibility of building a future Tunnel.	Global Element	Planned
MTS Transit Maintenance Vehicles	MTS have supervisor vehicles for each of their dispatch centers. These non-revenue vehicles support their operations and maintenance. They are equipped with computers that show dispatching, fixed routes, and many other options. They need to connect to Centralized Train Control, Paratransit Dispatch and Transit Dispatch. They also provide maintenance on the tracks.	5 Big Moves #2: Transit Leap	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
MTS Transit Maintenance Vehicles	MTS have supervisor vehicles for each of their dispatch centers. These non-revenue vehicles support their operations and maintenance. They are equipped with computers that show dispatching, fixed routes, and many other options. They need to connect to Centralized Train Control, Paratransit Dispatch and Transit Dispatch. They also provide maintenance on the tracks.	5 Big Moves #3: Mobility Hubs	Existing
MTS Transit Maintenance Vehicles	MTS have supervisor vehicles for each of their dispatch centers. These non-revenue vehicles support their operations and maintenance. They are equipped with computers that show dispatching, fixed routes, and many other options. They need to connect to Centralized Train Control, Paratransit Dispatch and Transit Dispatch. They also provide maintenance on the tracks.	Global Element	Existing
MTS Transit Security Monitoring Equipment	CCTV cameras and DMS located at transit for security. Security Monitoring Equipment' includes surveillance and sensor equipment used to provide enhanced security and safety for transportation facilities or infrastructure. The equipment is located in non-public areas of transportation facilities (e.g. maintenance and transit yards), on or near non-roadway parts of the transportation infrastructure (e.g. transit railway and guideways), and in public areas (e.g., transit stops, transit stations, intermodal terminals).	5 Big Moves #2: Transit Leap	Existing
MTS Transit Security Monitoring Equipment	CCTV cameras and DMS located at transit for security. Security Monitoring Equipment' includes surveillance and sensor equipment used to provide enhanced security and safety for transportation facilities or infrastructure. The equipment is located in non-public areas of transportation facilities (e.g. maintenance and transit yards), on or near non-roadway parts of the transportation infrastructure (e.g. transit railway and guideways), and in public areas (e.g., transit stops, transit stations, intermodal terminals).	5 Big Moves #3: Mobility Hubs	Existing
MTS Transit Security Monitoring Equipment	CCTV cameras and DMS located at transit for security. Security Monitoring Equipment' includes surveillance and sensor equipment used to provide enhanced security and safety for transportation facilities or infrastructure. The equipment is located in non-public areas of transportation facilities (e.g. maintenance and transit yards), on or near non-roadway parts of the transportation infrastructure (e.g. transit railway and guideways), and in public areas (e.g., transit stops, transit stations, intermodal terminals).	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
MTS Transit-Rail Field Equipment	The MTS Transit Rail Track Field Equipment provides more than wayside activities. ITS field equipment for transit rail connects to the transit center and provides time and location GPS for all trains. When there is a problem with the tracks, right of way, or light rail connections, it communicates a problem back to the facilities for repair. There may be other field equipment such as signs, etc.	5 Big Moves #2: Transit Leap	Existing
MTS Transit-Rail Field Equipment	The MTS Transit Rail Track Field Equipment provides more than wayside activities. ITS field equipment for transit rail connects to the transit center and provides time and location GPS for all trains. When there is a problem with the tracks, right of way, or light rail connections, it communicates a problem back to the facilities for repair. There may be other field equipment such as signs, etc.	5 Big Moves #3: Mobility Hubs	Existing
MTS Transit-Rail Field Equipment	The MTS Transit Rail Track Field Equipment provides more than wayside activities. ITS field equipment for transit rail connects to the transit center and provides time and location GPS for all trains. When there is a problem with the tracks, right of way, or light rail connections, it communicates a problem back to the facilities for repair. There may be other field equipment such as signs, etc.	Global Element	Existing
MTS Wayside Equipment	MTS has rail wayside equipment that sends information to flashing signals roadside to roadside to notify travelers and vehicles of an approaching train.	5 Big Moves #1: Complete Corridors	Existing
MTS Wayside Equipment	MTS has rail wayside equipment that sends information to flashing signals roadside to roadside to notify travelers and vehicles of an approaching train.	5 Big Moves #2: Transit Leap	Existing
MTS Wayside Equipment	MTS has rail wayside equipment that sends information to flashing signals roadside to roadside to notify travelers and vehicles of an approaching train.	5 Big Moves #3: Mobility Hubs	Existing
MTS Wayside Equipment	MTS has rail wayside equipment that sends information to flashing signals roadside to roadside to notify travelers and vehicles of an approaching train.	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
NCTD GTFS- Archived Data	<p>The General Transit Feed Specifications (GTFS) or 'Archived Data System' collects, archives, manages, and distributes data generated from ITS sources for use in transportation administration, policy evaluation, safety, planning, performance monitoring, program assessment, operations, and research applications. The data received is formatted and tagged with attributes that define the data source, conditions under which it was collected, data transformations, and other information (i.e. meta data) necessary to interpret the data. The archive can fuse ITS generated data with data from non-ITS sources and other archives to generate information products utilizing data from multiple functional areas, modes, and jurisdictions. The archive prepares data products that can serve as inputs to federal, state, and local data reporting systems. The 'Archived Data System' may reside within an operational center and provide focused access to a particular agency's data archives. Alternatively, it may operate as a distinct center that collects data from multiple agencies and sources and provides a general data warehouse service.</p>	5 Big Moves #2: Transit Leap	Existing
NCTD GTFS- Archived Data	<p>The General Transit Feed Specifications (GTFS) or 'Archived Data System' collects, archives, manages, and distributes data generated from ITS sources for use in transportation administration, policy evaluation, safety, planning, performance monitoring, program assessment, operations, and research applications. The data received is formatted and tagged with attributes that define the data source, conditions under which it was collected, data transformations, and other information (i.e. meta data) necessary to interpret the data. The archive can fuse ITS generated data with data from non-ITS sources and other archives to generate information products utilizing data from multiple functional areas, modes, and jurisdictions. The archive prepares data products that can serve as inputs to federal, state, and local data reporting systems. The 'Archived Data System' may reside within an operational center and provide focused access to a particular agency's data archives. Alternatively, it may operate as a distinct center that collects data from multiple agencies and sources and provides a general data warehouse service.</p>	5 Big Moves #3: Mobility Hubs	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
NCTD GTFS- Archived Data	<p>The General Transit Feed Specifications (GTFS) or 'Archived Data System' collects, archives, manages, and distributes data generated from ITS sources for use in transportation administration, policy evaluation, safety, planning, performance monitoring, program assessment, operations, and research applications. The data received is formatted and tagged with attributes that define the data source, conditions under which it was collected, data transformations, and other information (i.e. meta data) necessary to interpret the data. The archive can fuse ITS generated data with data from non-ITS sources and other archives to generate information products utilizing data from multiple functional areas, modes, and jurisdictions. The archive prepares data products that can serve as inputs to federal, state, and local data reporting systems. The 'Archived Data System' may reside within an operational center and provide focused access to a particular agency's data archives. Alternatively, it may operate as a distinct center that collects data from multiple agencies and sources and provides a general data warehouse service.</p>	5 Big Moves #5: Next OS	Existing
NCTD GTFS- Archived Data	<p>The General Transit Feed Specifications (GTFS) or 'Archived Data System' collects, archives, manages, and distributes data generated from ITS sources for use in transportation administration, policy evaluation, safety, planning, performance monitoring, program assessment, operations, and research applications. The data received is formatted and tagged with attributes that define the data source, conditions under which it was collected, data transformations, and other information (i.e. meta data) necessary to interpret the data. The archive can fuse ITS generated data with data from non-ITS sources and other archives to generate information products utilizing data from multiple functional areas, modes, and jurisdictions. The archive prepares data products that can serve as inputs to federal, state, and local data reporting systems. The 'Archived Data System' may reside within an operational center and provide focused access to a particular agency's data archives. Alternatively, it may operate as a distinct center that collects data from multiple agencies and sources and provides a general data warehouse service.</p>	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
NCTD - OCC	North County Transit District (NCTD) - Operations Control Center (OCC) offers multiple services for North San Diego County as part of San Diego’s regional transportation network. The NCTD Coaster, Sprinter, and Breeze Dispatch Management Center dispatches transit and rail from this management center.	5 Big Moves #2: Transit Leap	Existing
NCTD - OCC	North County Transit District (NCTD) - Operations Control Center (OCC) offers multiple services for North San Diego County as part of San Diego’s regional transportation network. The NCTD Coaster, Sprinter, and Breeze Dispatch Management Center dispatches transit and rail from this management center.	5 Big Moves #3: Mobility Hubs	Existing
NCTD - OCC	North County Transit District (NCTD) - Operations Control Center (OCC) offers multiple services for North San Diego County as part of San Diego’s regional transportation network. The NCTD Coaster, Sprinter, and Breeze Dispatch Management Center dispatches transit and rail from this management center.	Global Element	Existing
NCTD Coaster, Sprinter, Breeze Vehicles	North County Transit District (NCTD) provides Breeze transit vehicles, Coaster commuter rail and Sprinter Hybrid and Diesel rail. This includes the on-board equipment located inside of the trains and vehicles themselves. GTFS real time is available for trains and buses.	5 Big Moves #2: Transit Leap	Existing
NCTD Coaster, Sprinter, Breeze Vehicles	North County Transit District (NCTD) provides Breeze transit vehicles, Coaster commuter rail and Sprinter Hybrid and Diesel rail. This includes the on-board equipment located inside of the trains and vehicles themselves. GTFS real time is available for trains and buses.	5 Big Moves #3: Mobility Hubs	Existing
NCTD Coaster, Sprinter, Breeze Vehicles	North County Transit District (NCTD) provides Breeze transit vehicles, Coaster commuter rail and Sprinter Hybrid and Diesel rail. This includes the on-board equipment located inside of the trains and vehicles themselves. GTFS real time is available for trains and buses.	Global Element	Existing
NCTD Data User System	Archived Data User System' represents the systems users employ to access archived data. The general interface provided allows a broad range of users (e.g. planners, researchers, analysts, operators) and their systems (e.g. databases, models, analytical tools, user interface devices) to acquire data and analyses results from the archive. At the time this Architecture is	5 Big Moves #2: Transit Leap	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	developed the data is "push only". The future may include more automated data sharing.		
NCTD Data User System	Archived Data User System' represents the systems users employ to access archived data. The general interface provided allows a broad range of users (e.g. planners, researchers, analysts, operators) and their systems (e.g. databases, models, analytical tools, user interface devices) to acquire data and analyses results from the archive. At the time this Architecture is developed the data is "push only". The future may include more automated data sharing.	5 Big Moves #3: Mobility Hubs	Existing
NCTD Data User System	Archived Data User System' represents the systems users employ to access archived data. The general interface provided allows a broad range of users (e.g. planners, researchers, analysts, operators) and their systems (e.g. databases, models, analytical tools, user interface devices) to acquire data and analyses results from the archive. At the time this Architecture is developed the data is "push only". The future may include more automated data sharing.	5 Big Moves #5: Next OS	Existing
NCTD Data User System	Archived Data User System' represents the systems users employ to access archived data. The general interface provided allows a broad range of users (e.g. planners, researchers, analysts, operators) and their systems (e.g. databases, models, analytical tools, user interface devices) to acquire data and analyses results from the archive. At the time this Architecture is developed the data is "push only". The future may include more automated data sharing.	Global Element	Existing
NCTD FLEX and LIFT Dispatch	North County Transit District (NCTD) offers multiple services for North San Diego County as part of San Diego's regional transportation network. This element represents the transit management center for dispatching FLEX, and Lift paratransit vehicles. Flex is on a regular route but can deviate to a certain distance of less than 1 mile to accommodate riders.	5 Big Moves #2: Transit Leap	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
NCTD FLEX and LIFT Dispatch	North County Transit District (NCTD) offers multiple services for North San Diego County as part of San Diego’s regional transportation network. This element represents the transit management center for dispatching FLEX, and Lift paratransit vehicles. Flex is on a regular route but can deviate to a certain distance of less than 1 mile to accommodate riders.	5 Big Moves #3: Mobility Hubs	Existing
NCTD FLEX and LIFT Dispatch	North County Transit District (NCTD) offers multiple services for North San Diego County as part of San Diego’s regional transportation network. This element represents the transit management center for dispatching FLEX, and Lift paratransit vehicles. Flex is on a regular route but can deviate to a certain distance of less than 1 mile to accommodate riders.	Global Element	Existing
NCTD LIFT Para and FLEX Vehicles	North County Transit District (NCTD) provides LIFT Paratransit, and FLEX rural and on-demand Vehicles.	5 Big Moves #2: Transit Leap	Existing
NCTD LIFT Para and FLEX Vehicles	North County Transit District (NCTD) provides LIFT Paratransit, and FLEX rural and on-demand Vehicles.	5 Big Moves #3: Mobility Hubs	Existing
NCTD LIFT Para and FLEX Vehicles	North County Transit District (NCTD) provides LIFT Paratransit, and FLEX rural and on-demand Vehicles.	Global Element	Existing
NCTD Next Train Arrival	NCTD provides next train arrival information at stations. For the time being, train data is static and not real time.	5 Big Moves #2: Transit Leap	Existing
NCTD Next Train Arrival	NCTD provides next train arrival information at stations. For the time being, train data is static and not real time.	5 Big Moves #3: Mobility Hubs	Existing
NCTD Next Train Arrival	NCTD provides next train arrival information at stations. For the time being, train data is static and not real time.	Global Element	Existing
NCTD Rail Maintenance Garage-Yard	This physical object represents the transit yard or maintenance garage when repairs on field equipment would occur and where maintenance vehicles would be parked to service rail and transit right-a-way, and equipment repair. This facility would be compared to a MCO center for roadway maintenance and construction.	5 Big Moves #2: Transit Leap	Existing
NCTD Rail Maintenance Garage-Yard	This physical object represents the transit yard or maintenance garage when repairs on field equipment would occur and where maintenance vehicles would be parked to service rail and transit right-a-way, and equipment repair. This facility would be compared to a MCO center for roadway maintenance and construction.	5 Big Moves #3: Mobility Hubs	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
NCTD Rail Maintenance Garage-Yard	This physical object represents the transit yard or maintenance garage when repairs on field equipment would occur and where maintenance vehicles would be parked to service rail and transit right-a-way, and equipment repair. This facility would be compared to a MCO center for roadway maintenance and construction.	Global Element	Existing
NCTD Ticket Sales Kiosk	Kiosk for purchasing tickets and paying fares	5 Big Moves #2: Transit Leap	Existing
NCTD Ticket Sales Kiosk	Kiosk for purchasing tickets and paying fares	5 Big Moves #3: Mobility Hubs	Existing
NCTD Ticket Sales Kiosk	Kiosk for purchasing tickets and paying fares	Global Element	Existing
NCTD Transit Information Center	<p>The 'Transportation Information Center' collects, processes, stores, and disseminates transit information to system operators and the traveling public.</p> <p>The physical object can play several different roles in an integrated ITS. In one role, the TIC provides a data collection, fusing, and repackaging function, collecting information from transit system operators and redistributing this information to other system operators in the region and other TICs. In this information redistribution role, the TIC provides a bridge between the various transportation systems that produce the information and the other TICs and their subscribers that use the information. The second role of a TIC is focused on delivery of traveler information to subscribers and the public at large. Information provided includes basic advisories, traffic and road conditions, transit schedule information, yellow pages information, ride matching information, and parking information. The TIC is commonly implemented as a website or a web-based application service, but it represents any traveler information distribution service.</p>	5 Big Moves #2: Transit Leap	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
NCTD Transit Information Center	<p>The 'Transportation Information Center' collects, processes, stores, and disseminates transit information to system operators and the traveling public.</p> <p>The physical object can play several different roles in an integrated ITS. In one role, the TIC provides a data collection, fusing, and repackaging function, collecting information from transit system operators and redistributing this information to other system operators in the region and other TICs. In this information redistribution role, the TIC provides a bridge between the various transportation systems that produce the information and the other TICs and their subscribers that use the information. The second role of a TIC is focused on delivery of traveler information to subscribers and the public at large. Information provided includes basic advisories, traffic and road conditions, transit schedule information, yellow pages information, ride matching information, and parking information. The TIC is commonly implemented as a website or a web-based application service, but it represents any traveler information distribution service.</p>	5 Big Moves #3: Mobility Hubs	Existing
NCTD Transit Information Center	<p>The 'Transportation Information Center' collects, processes, stores, and disseminates transit information to system operators and the traveling public.</p> <p>The physical object can play several different roles in an integrated ITS. In one role, the TIC provides a data collection, fusing, and repackaging function, collecting information from transit system operators and redistributing this information to other system operators in the region and other TICs. In this information redistribution role, the TIC provides a bridge between the various transportation systems that produce the information and the other TICs and their subscribers that use the information. The second role of a TIC is focused on delivery of traveler information to subscribers and the public at large. Information provided includes basic advisories, traffic and road conditions, transit schedule information, yellow pages information, ride matching information, and parking information. The TIC is commonly implemented as a website or a web-based application service, but it represents any traveler information distribution service.</p>	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
NCTD Transit Information Center	<p>The 'Transportation Information Center' collects, processes, stores, and disseminates transit information to system operators and the traveling public.</p> <p>The physical object can play several different roles in an integrated ITS. In one role, the TIC provides a data collection, fusing, and repackaging function, collecting information from transit system operators and redistributing this information to other system operators in the region and other TICs. In this information redistribution role, the TIC provides a bridge between the various transportation systems that produce the information and the other TICs and their subscribers that use the information. The second role of a TIC is focused on delivery of traveler information to subscribers and the public at large. Information provided includes basic advisories, traffic and road conditions, transit schedule information, yellow pages information, ride matching information, and parking information. The TIC is commonly implemented as a website or a web-based application service, but it represents any traveler information distribution service.</p>	Global Element	Existing
NCTD Transit Security Monitoring	<p>CCTV cameras and DMS located at transit for security. Security Monitoring Equipment' includes surveillance and sensor equipment used to provide enhanced security and safety for transportation facilities or infrastructure. The equipment is located in non-public areas of transportation facilities (e.g. maintenance and transit yards), on or near non-roadway parts of the transportation infrastructure (e.g. transit railway and guideways), and in public areas (e.g., transit stops, transit stations, intermodal terminals).</p> <p>NCTD contracts their transit security services or law enforcement services with the City of Oceanside PD, City of Escondido, PD, and San Diego Sheriff's Office. The buses have "Mayday" alerts that ring to dispatch, and dispatch alerts law enforcement.</p>	5 Big Moves #2: Transit Leap	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
NCTD Transit Security Monitoring	<p>CCTV cameras and DMS located at transit for security. Security Monitoring Equipment' includes surveillance and sensor equipment used to provide enhanced security and safety for transportation facilities or infrastructure. The equipment is located in non-public areas of transportation facilities (e.g. maintenance and transit yards), on or near non-roadway parts of the transportation infrastructure (e.g. transit railway and guideways), and in public areas (e.g., transit stops, transit stations, intermodal terminals).</p> <p>NCTD contracts their transit security services or law enforcement services with the City of Oceanside PD, City of Escondido, PD, and San Diego Sheriff's Office. The buses have "Mayday" alerts that ring to dispatch, and dispatch alerts law enforcement.</p>	5 Big Moves #3: Mobility Hubs	Planned
NCTD Transit Security Monitoring	<p>CCTV cameras and DMS located at transit for security. Security Monitoring Equipment' includes surveillance and sensor equipment used to provide enhanced security and safety for transportation facilities or infrastructure. The equipment is located in non-public areas of transportation facilities (e.g. maintenance and transit yards), on or near non-roadway parts of the transportation infrastructure (e.g. transit railway and guideways), and in public areas (e.g., transit stops, transit stations, intermodal terminals).</p> <p>NCTD contracts their transit security services or law enforcement services with the City of Oceanside PD, City of Escondido, PD, and San Diego Sheriff's Office. The buses have "Mayday" alerts that ring to dispatch, and dispatch alerts law enforcement.</p>	Global Element	Planned
NCTD Transit-Rail Maintenance Vehicles	<p>NCTD have supervisor vehicles for each of their dispatch centers and, they have transit rail maintenance vehicles that are used by maintenance folks to maintain the tracks and other facilities. These non-revenue vehicles support their operations and maintenance. They are equipped with computers that show dispatching, fixed routes, and many other options. They need to connect to Centralized Train Control, Paratransit Dispatch and Transit Dispatch. They also provide maintenance on the tracks.</p>	5 Big Moves #2: Transit Leap	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
NCTD Transit-Rail Maintenance Vehicles	NCTD have supervisor vehicles for each of their dispatch centers and, they have transit rail maintenance vehicles that are used by maintenance folks to maintain the tracks and other facilities. These non-revenue vehicles support their operations and maintenance. They are equipped with computers that show dispatching, fixed routes, and many other options. They need to connect to Centralized Train Control, Paratransit Dispatch and Transit Dispatch. They also provide maintenance on the tracks.	5 Big Moves #3: Mobility Hubs	Existing
NCTD Transit-Rail Maintenance Vehicles	NCTD have supervisor vehicles for each of their dispatch centers and, they have transit rail maintenance vehicles that are used by maintenance folks to maintain the tracks and other facilities. These non-revenue vehicles support their operations and maintenance. They are equipped with computers that show dispatching, fixed routes, and many other options. They need to connect to Centralized Train Control, Paratransit Dispatch and Transit Dispatch. They also provide maintenance on the tracks.	Global Element	Existing
NCTD Transit-Rail Track Field Equipment	The NCTD Transit Rail Track Field Equipment provides more than wayside activities. ITS field equipment for transit rail connects to the transit center and provides time and location GPS for all trains. When there is a problem with the tracks, right of way, or light rail connections, it communicates a problem back to the facilities for repair.	5 Big Moves #2: Transit Leap	Existing
NCTD Transit-Rail Track Field Equipment	The NCTD Transit Rail Track Field Equipment provides more than wayside activities. ITS field equipment for transit rail connects to the transit center and provides time and location GPS for all trains. When there is a problem with the tracks, right of way, or light rail connections, it communicates a problem back to the facilities for repair.	5 Big Moves #3: Mobility Hubs	Existing
NCTD Transit-Rail Track Field Equipment	The NCTD Transit Rail Track Field Equipment provides more than wayside activities. ITS field equipment for transit rail connects to the transit center and provides time and location GPS for all trains. When there is a problem with the tracks, right of way, or light rail connections, it communicates a problem back to the facilities for repair.	Global Element	Existing
NCTD Wayside Equipment	NCTD has rail wayside equipment that sends information to flashing signals roadside to roadside to notify travelers and vehicles of an approaching train.	5 Big Moves #2: Transit Leap	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
NCTD Wayside Equipment	NCTD has rail wayside equipment that sends information to flashing signals roadside to roadside to notify travelers and vehicles of an approaching train.	5 Big Moves #3: Mobility Hubs	Existing
NCTD Wayside Equipment	NCTD has rail wayside equipment that sends information to flashing signals roadside to roadside to notify travelers and vehicles of an approaching train.	Global Element	Existing
Network Time Source	The 'Network Time Source' represents the external time source the Connected Vehicle Service Monitor System uses as the basis for time. This is likely implemented as a Stratum-2 Network Time Server that is 2 steps removed from a basic time source (e.g., atomic clock).	5 Big Moves #5: Next OS	Planned
Network Time Source	The 'Network Time Source' represents the external time source the Connected Vehicle Service Monitor System uses as the basis for time. This is likely implemented as a Stratum-2 Network Time Server that is 2 steps removed from a basic time source (e.g., atomic clock).	Global Element	Planned
NPMRDS FHWA Performance System	National Performance Measure Research ... (note: need to get this information from FHWA). This system replaces the old Vehicle Travel Information System (VTRIS). The software provides an archive of traffic monitoring data. Highway Performance monitoring data warehouse.	5 Big Moves #5: Next OS	Planned
NPMRDS FHWA Performance System	National Performance Measure Research ... (note: need to get this information from FHWA). This system replaces the old Vehicle Travel Information System (VTRIS). The software provides an archive of traffic monitoring data. Highway Performance monitoring data warehouse.	Global Element	Planned
Operation Respond	<p>Electronic link with 911 and participating carriers, provides real-time access emergency response units to hazardous material information.</p> <p>The Operation Respond® Institute (ORI) is a not-for-profit, public/private partnership serving the emergency response community with time and lifesaving technology tools to combat safety and security incidents occurring on North American railroads and highways.</p>	5 Big Moves #5: Next OS	Existing
Operation Respond	<p>Electronic link with 911 and participating carriers, provides real-time access emergency response units to hazardous material information.</p> <p>The Operation Respond® Institute (ORI) is a not-for-profit, public/private partnership serving the emergency response community with time and</p>	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	lifesaving technology tools to combat safety and security incidents occurring on North American railroads and highways.		
Other District State DOT TMCs	Traffic Management Centers operating managing areas of the state beyond the area around the border. This element could also represent the traffic management function in adjoining states.	5 Big Moves #1: Complete Corridors	Existing
Other District State DOT TMCs	Traffic Management Centers operating managing areas of the state beyond the area around the border. This element could also represent the traffic management function in adjoining states.	Global Element	Existing
Pedestrians	'Pedestrian' participates in ITS services that support safe, shared use of the transportation network by motorized and non-motorized transportation modes. Representing those using non-motorized travel modes, pedestrians provide input (e.g. a call signal requesting right of way at an intersection) and may be detected by ITS services to improve safety.	5 Big Moves #1: Complete Corridors	Existing
Pedestrians	'Pedestrian' participates in ITS services that support safe, shared use of the transportation network by motorized and non-motorized transportation modes. Representing those using non-motorized travel modes, pedestrians provide input (e.g. a call signal requesting right of way at an intersection) and may be detected by ITS services to improve safety.	5 Big Moves #3: Mobility Hubs	Existing
Pedestrians	'Pedestrian' participates in ITS services that support safe, shared use of the transportation network by motorized and non-motorized transportation modes. Representing those using non-motorized travel modes, pedestrians provide input (e.g. a call signal requesting right of way at an intersection) and may be detected by ITS services to improve safety.	5 Big Moves #5: Next OS	Existing
Pedestrians	'Pedestrian' participates in ITS services that support safe, shared use of the transportation network by motorized and non-motorized transportation modes. Representing those using non-motorized travel modes, pedestrians provide input (e.g. a call signal requesting right of way at an intersection) and may be detected by ITS services to improve safety.	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Personal Payment Device	The 'Payment Device' enables the electronic transfer of funds from the user of a service (I.e. a traveler) to the provider of the service in either Mexico or in the United States. Potential implementations include smart cards that support payment for products and services, including transportation services and general purpose devices like smart phones that support a broad array of services, including electronic payment. In addition to user account information, the payment device may also hold and update associated user information such as personal profiles, preferences, and trip histories. (used in toll collection, HOV/HOT Lane Management, Parking payment, Road Use Charging, Transit Fare Collection Management, Travel Service Info and Reservation.	5 Big Moves #1: Complete Corridors	Planned
Personal Payment Device	The 'Payment Device' enables the electronic transfer of funds from the user of a service (I.e. a traveler) to the provider of the service in either Mexico or in the United States. Potential implementations include smart cards that support payment for products and services, including transportation services and general purpose devices like smart phones that support a broad array of services, including electronic payment. In addition to user account information, the payment device may also hold and update associated user information such as personal profiles, preferences, and trip histories. (used in toll collection, HOV/HOT Lane Management, Parking payment, Road Use Charging, Transit Fare Collection Management, Travel Service Info and Reservation.	5 Big Moves #2: Transit Leap	Planned
Personal Payment Device	The 'Payment Device' enables the electronic transfer of funds from the user of a service (I.e. a traveler) to the provider of the service in either Mexico or in the United States. Potential implementations include smart cards that support payment for products and services, including transportation services and general purpose devices like smart phones that support a broad array of services, including electronic payment. In addition to user account information, the payment device may also hold and update associated user information such as personal profiles, preferences, and trip histories. (used in toll collection, HOV/HOT Lane Management, Parking payment, Road Use	5 Big Moves #3: Mobility Hubs	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	Charging, Transit Fare Collection Management, Travel Service Info and Reservation.		
Personal Payment Device	The 'Payment Device' enables the electronic transfer of funds from the user of a service (I.e. a traveler) to the provider of the service in either Mexico or in the United States. Potential implementations include smart cards that support payment for products and services, including transportation services and general purpose devices like smart phones that support a broad array of services, including electronic payment. In addition to user account information, the payment device may also hold and update associated user information such as personal profiles, preferences, and trip histories. (used in toll collection, HOV/HOT Lane Management, Parking payment, Road Use Charging, Transit Fare Collection Management, Travel Service Info and Reservation.	5 Big Moves #4: Flexible Fleets	Planned
Personal Payment Device	The 'Payment Device' enables the electronic transfer of funds from the user of a service (I.e. a traveler) to the provider of the service in either Mexico or in the United States. Potential implementations include smart cards that support payment for products and services, including transportation services and general purpose devices like smart phones that support a broad array of services, including electronic payment. In addition to user account information, the payment device may also hold and update associated user information such as personal profiles, preferences, and trip histories. (used in toll collection, HOV/HOT Lane Management, Parking payment, Road Use Charging, Transit Fare Collection Management, Travel Service Info and Reservation.	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Personal Payment Device	The 'Payment Device' enables the electronic transfer of funds from the user of a service (I.e. a traveler) to the provider of the service in either Mexico or in the United States. Potential implementations include smart cards that support payment for products and services, including transportation services and general purpose devices like smart phones that support a broad array of services, including electronic payment. In addition to user account information, the payment device may also hold and update associated user information such as personal profiles, preferences, and trip histories. (used in toll collection, HOV/HOT Lane Management, Parking payment, Road Use Charging, Transit Fare Collection Management, Travel Service Info and Reservation.	Global Element	Planned
Port Connected Vehicle Roadside Equipment	'Connected Vehicle Roadside Equipment' (CV RSE) for the Port to identify trucks carrying goods. This element represents the Connected Vehicle roadside devices that are used to send messages to, and receive messages from, nearby vehicles using Dedicated Short Range Communications (DSRC) or other alternative wireless communications technologies. Communications with adjacent field equipment and back office centers that monitor and control the RSE are also supported. This device operates from a fixed position and may be permanently deployed or a portable device that is located temporarily in the vicinity of a traffic incident, road construction, or a special event. It includes a processor, data storage, and communications capabilities that support secure communications with passing vehicles, other field equipment, and centers.	5 Big Moves #1: Complete Corridors	Planned
Port Connected Vehicle Roadside Equipment	'Connected Vehicle Roadside Equipment' (CV RSE) for the Port to identify trucks carrying goods. This element represents the Connected Vehicle roadside devices that are used to send messages to, and receive messages from, nearby vehicles using Dedicated Short Range Communications (DSRC) or other alternative wireless communications technologies. Communications with adjacent field equipment and back office centers that monitor and control the RSE are also supported. This device operates from a fixed position and may be permanently deployed or a portable device that is located temporarily in the vicinity of a traffic incident, road construction, or a special	Global Element	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	event. It includes a processor, data storage, and communications capabilities that support secure communications with passing vehicles, other field equipment, and centers.		
PRISM Central Site	The USDOT Performance and Registration Information Systems Management program's central site where they collect data from all participating states and allow access to credential and safety information from other participating states. PRISM involves two processes: the Commercial Vehicle Registration Process, and the Motor Carrier Safety Improvement Process (MCSIP), which work in parallel to identify motor carriers and hold them responsible for the safety of their operation.	5 Big Moves #5: Next OS	Planned
PRISM Central Site	The USDOT Performance and Registration Information Systems Management program's central site where they collect data from all participating states and allow access to credential and safety information from other participating states. PRISM involves two processes: the Commercial Vehicle Registration Process, and the Motor Carrier Safety Improvement Process (MCSIP), which work in parallel to identify motor carriers and hold them responsible for the safety of their operation.	Global Element	Planned
Private Mobility on Demand Shuttle Services	These shuttles are engaged for services to provide micro mobility options for commuting from one point to another, flexible fleets, meeting a larger need, maybe "on call".	5 Big Moves #5: Next OS	Existing
Private Mobility on Demand Shuttle Services	These shuttles are engaged for services to provide micro mobility options for commuting from one point to another, flexible fleets, meeting a larger need, maybe "on call".	Global Element	Existing
Private Sector Probe Information Systems	Systems that provide vehicle probe information. These might be from companies providing support to commercial vehicle fleets, cellular phone companies, or general traveler information companies. System tracking and scheduling the movement of freight from its destination	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	- data primarily provided by the supplier or owner of commodities shipped. Includes status of bookings made and the status of the freight's movement.		
Private Sector Probe Information Systems	Systems that provide vehicle probe information. These might be from companies providing support to commercial vehicle fleets, cellular phone companies, or general traveler information companies. System tracking and scheduling the movement of freight from its destination - data primarily provided by the supplier or owner of commodities shipped. Includes status of bookings made and the status of the freight's movement.	Global Element	Planned
Private Transit Routing Service Provider	Third party routing service, such as Google Transit, that uses transit route and schedule information to provide personalized transit trip planning.	5 Big Moves #2: Transit Leap	Existing
Private Transit Routing Service Provider	Third party routing service, such as Google Transit, that uses transit route and schedule information to provide personalized transit trip planning.	5 Big Moves #5: Next OS	Existing
Private Transit Routing Service Provider	Third party routing service, such as Google Transit, that uses transit route and schedule information to provide personalized transit trip planning.	Global Element	Existing
Private Vehicles	Private vehicles with on board (in vehicle) equipment (OBEs) that carry intelligent systems to collect information.	5 Big Moves #1: Complete Corridors	Existing
Private Vehicles	Private vehicles with on board (in vehicle) equipment (OBEs) that carry intelligent systems to collect information.	5 Big Moves #5: Next OS	Existing
Private Vehicles	Private vehicles with on board (in vehicle) equipment (OBEs) that carry intelligent systems to collect information.	Global Element	Existing
Public / Private Car Share Vehicles	Public Private carshare agencies such as Zipcar, and Car2go type of services (no longer in SD)	5 Big Moves #3: Mobility Hubs	Existing
Public / Private Car Share Vehicles	Public Private carshare agencies such as Zipcar, and Car2go type of services (no longer in SD)	5 Big Moves #4: Flexible Fleets	Existing
Public / Private Car Share Vehicles	Public Private carshare agencies such as Zipcar, and Car2go type of services (no longer in SD)	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Public / Private Parking Management System	<p>Any parking management system that is provided in the San Diego region. Parking agencies register their parking spaces with Parking Karma and people can 1) find their spot, 2) select a specific spot, and 3) reserve the space instantly. There are also events that use this system and, NCTD has spaces listed on various transit routes (i.e., COASTER Carlsbad Poinsettia). Other parking management systems would be represented with this element too.</p> <p>This parking service can expand as more spaces are listed through Parking Karma.</p>	5 Big Moves #3: Mobility Hubs	Existing
Public / Private Parking Management System	<p>Any parking management system that is provided in the San Diego region. Parking agencies register their parking spaces with Parking Karma and people can 1) find their spot, 2) select a specific spot, and 3) reserve the space instantly. There are also events that use this system and, NCTD has spaces listed on various transit routes (i.e., COASTER Carlsbad Poinsettia). Other parking management systems would be represented with this element too.</p> <p>This parking service can expand as more spaces are listed through Parking Karma.</p>	5 Big Moves #5: Next OS	Existing
Public / Private Parking Management System	<p>Any parking management system that is provided in the San Diego region. Parking agencies register their parking spaces with Parking Karma and people can 1) find their spot, 2) select a specific spot, and 3) reserve the space instantly. There are also events that use this system and, NCTD has spaces listed on various transit routes (i.e., COASTER Carlsbad Poinsettia). Other parking management systems would be represented with this element too.</p> <p>This parking service can expand as more spaces are listed through Parking Karma.</p>	Global Element	Existing
Public Private Car Share	Public Private carshare agencies such as Zipcar, and Car2go (no longer in SD) type of services. Part of Transportation Information Centers. TI06 - Dynamic Ridesharing and Shared Use Transportation in ARC-IT.	5 Big Moves #3: Mobility Hubs	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Public Private Car Share	Public Private carshare agencies such as Zipcar, and Car2go (no longer in SD) type of services. Part of Transportation Information Centers. TI06 - Dynamic Ridesharing and Shared Use Transportation in ARC-IT.	5 Big Moves #4: Flexible Fleets	Existing
Public Private Car Share	Public Private carshare agencies such as Zipcar, and Car2go (no longer in SD) type of services. Part of Transportation Information Centers. TI06 - Dynamic Ridesharing and Shared Use Transportation in ARC-IT.	Global Element	Existing
Public Private Traveler Information	Local, regional, and national information service providers (Navigator, SmartRoutes, Metro Traffic) that provide travel information to the traveling public (both subscription service and general broadcast information). Includes internet sites, hand held devices (phones) with access to traffic conditions, service bureaus on both sides of the border.	5 Big Moves #1: Complete Corridors	Existing
Public Private Traveler Information	Local, regional, and national information service providers (Navigator, SmartRoutes, Metro Traffic) that provide travel information to the traveling public (both subscription service and general broadcast information). Includes internet sites, hand held devices (phones) with access to traffic conditions, service bureaus on both sides of the border.	5 Big Moves #5: Next OS	Existing
Public Private Traveler Information	Local, regional, and national information service providers (Navigator, SmartRoutes, Metro Traffic) that provide travel information to the traveling public (both subscription service and general broadcast information). Includes internet sites, hand held devices (phones) with access to traffic conditions, service bureaus on both sides of the border.	Global Element	Existing
Quickmap	Interactive site maintained by Caltrans HQ and augmented by multiple forms of traveler information destined for California Roadway Network users, including Border Wait Times, CMS Status, Winter Warnings, Incidents, etc.	5 Big Moves #1: Complete Corridors	Existing
Quickmap	Interactive site maintained by Caltrans HQ and augmented by multiple forms of traveler information destined for California Roadway Network users, including Border Wait Times, CMS Status, Winter Warnings, Incidents, etc.	Global Element	Existing
Rail Grade Wayside Warning Systems	No track in California is capable of supporting high-speed trains at this time. The owner of all RR tracks is Union or Southern Pacific Railroad (UPRR or SPRR). While both passive and active warning systems are used, active warning systems dominate. some of these systems communicate with local	5 Big Moves #2: Transit Leap	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	and state jurisdictions signals to notify the public that a traffic queue has built up because of at grade crossings ahead.		
Rail Grade Wayside Warning Systems	No track in California is capable of supporting high-speed trains at this time. The owner of all RR tracks is Union or Southern Pacific Railroad (UPRR or SPRR). While both passive and active warning systems are used, active warning systems dominate. some of these systems communicate with local and state jurisdictions signals to notify the public that a traffic queue has built up because of at grade crossings ahead.	5 Big Moves #3: Mobility Hubs	Existing
Rail Grade Wayside Warning Systems	No track in California is capable of supporting high-speed trains at this time. The owner of all RR tracks is Union or Southern Pacific Railroad (UPRR or SPRR). While both passive and active warning systems are used, active warning systems dominate. some of these systems communicate with local and state jurisdictions signals to notify the public that a traffic queue has built up because of at grade crossings ahead.	Global Element	Existing
Rail Operations Center	This includes private rail operators such as BNSF and other rail operators, source of information for train crossing times/durations for coordination to reroute vehicles (passenger, commercial, transit, emergency) around crossings as well as coordination of incidents and maintenance.	5 Big Moves #2: Transit Leap	Existing
Rail Operations Center	This includes private rail operators such as BNSF and other rail operators, source of information for train crossing times/durations for coordination to reroute vehicles (passenger, commercial, transit, emergency) around crossings as well as coordination of incidents and maintenance.	5 Big Moves #3: Mobility Hubs	Existing
Rail Operations Center	This includes private rail operators such as BNSF and other rail operators, source of information for train crossing times/durations for coordination to reroute vehicles (passenger, commercial, transit, emergency) around crossings as well as coordination of incidents and maintenance.	Global Element	Existing
Safety and Fitness Electronic Record (SAFER)	SAFER provides carrier, vehicle, and driver safety and credential information to fixed and mobile roadside inspection stations. This information will allow the roadside inspector to select vehicles and/or drivers for inspection based on the number of prior carrier inspections, as well as carrier, vehicle, and driver safety and credential historical information.	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Safety and Fitness Electronic Record (SAFER)	SAFER provides carrier, vehicle, and driver safety and credential information to fixed and mobile roadside inspection stations. This information will allow the roadside inspector to select vehicles and/or drivers for inspection based on the number of prior carrier inspections, as well as carrier, vehicle, and driver safety and credential historical information.	Global Element	Planned
Safetynet	Distributed system for managing safety data on both interstate and intrastate motor carriers for federal and state offices to electronically exchange data on interstate carriers with MCMIS (Motor Carrier Management Information System).	5 Big Moves #5: Next OS	Planned
Safetynet	Distributed system for managing safety data on both interstate and intrastate motor carriers for federal and state offices to electronically exchange data on interstate carriers with MCMIS (Motor Carrier Management Information System).	Global Element	Planned
San Diego City Curb Parking Management Center	The 'Parking Management Center' manages one or more parking curbs for curbside and travel lane parking while it is serving as retail or parking by providing configuration and control of field infrastructure, user account management and interfaces with financial systems to manage payment. This p-object takes the back office portion of the Parking Management System's functionality as it was defined in ARC-IT 8.3 and prior.	5 Big Moves #1: Complete Corridors	Planned
San Diego City Curb Parking Management Center	The 'Parking Management Center' manages one or more parking curbs for curbside and travel lane parking while it is serving as retail or parking by providing configuration and control of field infrastructure, user account management and interfaces with financial systems to manage payment. This p-object takes the back office portion of the Parking Management System's functionality as it was defined in ARC-IT 8.3 and prior.	5 Big Moves #5: Next OS	Planned
San Diego City Curb Parking Management Center	The 'Parking Management Center' manages one or more parking curbs for curbside and travel lane parking while it is serving as retail or parking by providing configuration and control of field infrastructure, user account management and interfaces with financial systems to manage payment. This p-object takes the back office portion of the Parking Management System's functionality as it was defined in ARC-IT 8.3 and prior.	Global Element	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
San Diego City Curbside Area Equipment	<p>The Curbside Parking Area Equipment provides electronic curbside field equipment for monitoring and management of curbside parking and lane control. It supports an I2V link to the Vehicle that allows electronic collection of parking fees and monitors and controls parking meters that support conventional parking fee collection. It also includes the instrumentation, signs, and other infrastructure that monitors parking lot usage and provides local information about parking availability and other general parking information. The two primary approaches to monitoring parking area usage are sensing vehicles within parking spots or counting vehicles as they come in and as they leave the area. This portion of the functionality must be located in the parking area where it can monitor, classify, and share information with customers and their vehicles. See also the separate 'Parking Management Center' physical object that may be located in a back office, remote from the parking area, which interfaces with the financial infrastructure and broadly disseminates parking information to other operational centers in the region.</p>	5 Big Moves #1: Complete Corridors	Planned
San Diego City Curbside Area Equipment	<p>The Curbside Parking Area Equipment provides electronic curbside field equipment for monitoring and management of curbside parking and lane control. It supports an I2V link to the Vehicle that allows electronic collection of parking fees and monitors and controls parking meters that support conventional parking fee collection. It also includes the instrumentation, signs, and other infrastructure that monitors parking lot usage and provides local information about parking availability and other general parking information. The two primary approaches to monitoring parking area usage are sensing vehicles within parking spots or counting vehicles as they come in and as they leave the area. This portion of the functionality must be located in the parking area where it can monitor, classify, and share information with customers and their vehicles. See also the separate 'Parking Management Center' physical object that may be located in a back office, remote from the parking area, which interfaces with the financial infrastructure and broadly disseminates parking information to other operational centers in the region.</p>	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
San Diego City Curbside Area Equipment	<p>The Curbside Parking Area Equipment provides electronic curbside field equipment for monitoring and management of curbside parking and lane control. It supports an I2V link to the Vehicle that allows electronic collection of parking fees and monitors and controls parking meters that support conventional parking fee collection. It also includes the instrumentation, signs, and other infrastructure that monitors parking lot usage and provides local information about parking availability and other general parking information. The two primary approaches to monitoring parking area usage are sensing vehicles within parking spots or counting vehicles as they come in and as they leave the area. This portion of the functionality must be located in the parking area where it can monitor, classify, and share information with customers and their vehicles. See also the separate 'Parking Management Center' physical object that may be located in a back office, remote from the parking area, which interfaces with the financial infrastructure and broadly disseminates parking information to other operational centers in the region.</p>	Global Element	Planned
San Diego Connected Vehicle Roadside Equipment	<p>San Diego Connected Vehicle Roadside Equipment' (CV RSE) represents the Connected Vehicle roadside devices that are used for RSE Payment Support and RSE Electronic Charging Support. Also to send messages to, and receive messages from, nearby vehicles using Dedicated Short Range Communications (DSRC) or other alternative wireless communications technologies. Communications with adjacent field equipment and back office centers that monitor and control the RSE are also supported. This device operates from a fixed position and may be permanently deployed or a portable device that is located temporarily in the vicinity of a traffic incident, road construction, or a special event. It includes a processor, data storage, and communications capabilities that support secure communications with passing vehicles, other field equipment, and centers.</p>	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
San Diego Connected Vehicle Roadside Equipment	San Diego Connected Vehicle Roadside Equipment' (CV RSE) represents the Connected Vehicle roadside devices that are used for RSE Payment Support and RSE Electronic Charging Support. Also to send messages to, and receive messages from, nearby vehicles using Dedicated Short Range Communications (DSRC) or other alternative wireless communications technologies. Communications with adjacent field equipment and back office centers that monitor and control the RSE are also supported. This device operates from a fixed position and may be permanently deployed or a portable device that is located temporarily in the vicinity of a traffic incident, road construction, or a special event. It includes a processor, data storage, and communications capabilities that support secure communications with passing vehicles, other field equipment, and centers.	5 Big Moves #5: Next OS	Planned
San Diego Connected Vehicle Roadside Equipment	San Diego Connected Vehicle Roadside Equipment' (CV RSE) represents the Connected Vehicle roadside devices that are used for RSE Payment Support and RSE Electronic Charging Support. Also to send messages to, and receive messages from, nearby vehicles using Dedicated Short Range Communications (DSRC) or other alternative wireless communications technologies. Communications with adjacent field equipment and back office centers that monitor and control the RSE are also supported. This device operates from a fixed position and may be permanently deployed or a portable device that is located temporarily in the vicinity of a traffic incident, road construction, or a special event. It includes a processor, data storage, and communications capabilities that support secure communications with passing vehicles, other field equipment, and centers.	Global Element	Planned
San Diego Data Archive	The City of San Diego Archive is referred to as the traffic database. It is used primarily to store performance data, road closures, speed, construction activities, and planned events. This database is used to archive all types of traffic data. QuickNet data reports go to the ICMS. The information is otherwise kept within the City. Accela software handles the right-of-way).	5 Big Moves #5: Next OS	Existing
San Diego Data Archive	The City of San Diego Archive is referred to as the traffic database. It is used primarily to store performance data, road closures, speed, construction activities, and planned events. This database is used to archive all types of	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	<p>traffic data. QuickNet data reports go to the ICMS. The information is otherwise kept within the City. Accela software handles the right-of-way).</p>		
<p>San Diego Data User Systems</p>	<p>San Diego's 'Data User Systems' represents the systems users employ to access archived data from all of the City of San Diego's data. The general interface provided allows a broad range of users (e.g. planners, researchers, analysts, operators) and their systems (e.g. databases, models, analytical tools, user interface devices) to acquire data and analyses results from the archive.</p>	<p>5 Big Moves #5: Next OS</p>	<p>Existing</p>
<p>San Diego Data User Systems</p>	<p>San Diego's 'Data User Systems' represents the systems users employ to access archived data from all of the City of San Diego's data. The general interface provided allows a broad range of users (e.g. planners, researchers, analysts, operators) and their systems (e.g. databases, models, analytical tools, user interface devices) to acquire data and analyses results from the archive.</p>	<p>Global Element</p>	<p>Existing</p>
<p>San Diego DPW Vehicles</p>	<p>Public works and engineering have vehicles used for construction to perform and manage construction throughout the city of San Diego.</p>	<p>5 Big Moves #5: Next OS</p>	<p>Existing</p>
<p>San Diego DPW Vehicles</p>	<p>Public works and engineering have vehicles used for construction to perform and manage construction throughout the city of San Diego.</p>	<p>Global Element</p>	<p>Existing</p>
<p>San Diego DPW-GS-Equipment Repair</p>	<p>The Public Works Department General Services branch supports other City departments to meet their mission. It provides various internal "general services" including vehicle maintenance; facilities maintenance and repair, equipment maintenance and repair; and publishing and printing services to all City departments. General Services is comprised of the following divisions: 1) Facilities Division; 2) Publishing Services Division; and 3) General Services Administration Division.</p> <p>San Diego 'Equipment Repair Facility' is part of public works general services, representing facilities that configure, service, and repair vehicles and other support equipment used in roadway infrastructure construction and maintenance, and all city owned vehicles such as fire, law enforcement, etc.</p>	<p>5 Big Moves #5: Next OS</p>	<p>Existing</p>

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	<p>The Public Works Department - Facilities Division provides the equipment repair facility with preventative and corrective maintenance schedules and vehicle configuration requirements, performs the necessary configuration and maintenance work on the vehicles and equipment, and provides vehicle and equipment status back to the architecture.</p>		
<p>San Diego DPW-GS- Equipment Repair</p>	<p>The Public Works Department General Services branch supports other City departments to meet their mission. It provides various internal "general services" including vehicle maintenance; facilities maintenance and repair, equipment maintenance and repair; and publishing and printing services to all City departments. General Services is comprised of the following divisions: 1) Facilities Division; 2) Publishing Services Division; and 3) General Services Administration Division.</p> <p>San Diego 'Equipment Repair Facility' is part of public works general services, representing facilities that configure, service, and repair vehicles and other support equipment used in roadway infrastructure construction and maintenance, and all city owned vehicles such as fire, law enforcement, etc.</p> <p>The Public Works Department - Facilities Division provides the equipment repair facility with preventative and corrective maintenance schedules and vehicle configuration requirements, performs the necessary configuration and maintenance work on the vehicles and equipment, and provides vehicle and equipment status back to the architecture.</p>	<p>Global Element</p>	<p>Existing</p>

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
San Diego Edge ITS Field Equipment	<p>San Diego Edge ITS Field equipment represents real time data computed at the edge of the system rather than coming back to the main center, it is processed near the data source or at the edge of the network. 'Other ITS Roadway Equipment' supports 'field device' to 'field device' communication and coordination, and provides a source and destination for information that may be exchanged between ITS Roadway Equipment.</p> <p>The interface enables direct coordination between field equipment. Examples include the direct interface between sensors and other roadway devices (e.g., Dynamic Message Signs) and the direct interface between roadway devices (e.g., between a Signal System Master and Signal System Local equipment) or a connection between an arterial signal system master and a ramp meter controller.</p>	5 Big Moves #5: Next OS	Existing
San Diego Edge ITS Field Equipment	<p>San Diego Edge ITS Field equipment represents real time data computed at the edge of the system rather than coming back to the main center, it is processed near the data source or at the edge of the network. 'Other ITS Roadway Equipment' supports 'field device' to 'field device' communication and coordination, and provides a source and destination for information that may be exchanged between ITS Roadway Equipment.</p> <p>The interface enables direct coordination between field equipment. Examples include the direct interface between sensors and other roadway devices (e.g., Dynamic Message Signs) and the direct interface between roadway devices (e.g., between a Signal System Master and Signal System Local equipment) or a connection between an arterial signal system master and a ramp meter controller.</p>	Global Element	Existing
San Diego Electronic Charging Stations	<p>The 'Electric Charging Stations' in San Diego provides access to electric vehicle supply equipment that is used to charge all-electric vehicles owned and operated by the City and or, City employees. All public electronic charging stations are provided through Blink, a private service. The city currently has 64 charging stations with more planned for the future.</p>	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
San Diego Electronic Charging Stations	The 'Electric Charging Stations' in San Diego provides access to electric vehicle supply equipment that is used to charge all-electric vehicles owned and operated by the City and or, City employees. All public electronic charging stations are provided through Blink, a private service. The city currently has 64 charging stations with more planned for the future.	5 Big Moves #3: Mobility Hubs	Existing
San Diego Electronic Charging Stations	The 'Electric Charging Stations' in San Diego provides access to electric vehicle supply equipment that is used to charge all-electric vehicles owned and operated by the City and or, City employees. All public electronic charging stations are provided through Blink, a private service. The city currently has 64 charging stations with more planned for the future.	Global Element	Existing
San Diego Emergency Management Center	The City's 'Emergency Management Center' represents systems that support disaster response and evacuation, security monitoring, and other security and public safety-oriented ITS applications during a major emergency. It includes the functions associated with Emergency Operations Centers that are activated at local, regional, state, and federal levels for emergencies and the portable and transportable systems that support Incident Command System operations at a major incident.	5 Big Moves #5: Next OS	Existing
San Diego Emergency Management Center	The City's 'Emergency Management Center' represents systems that support disaster response and evacuation, security monitoring, and other security and public safety-oriented ITS applications during a major emergency. It includes the functions associated with Emergency Operations Centers that are activated at local, regional, state, and federal levels for emergencies and the portable and transportable systems that support Incident Command System operations at a major incident.	Global Element	Existing
San Diego Engineering - Construction	The City of San Diego's Engineering department oversees the maintenance of roadway transportation, handles construction and oversees private agency construction. Maintenance of the cities ITS elements is handled through the DPW	5 Big Moves #5: Next OS	Existing
San Diego Engineering - Construction	The City of San Diego's Engineering department oversees the maintenance of roadway transportation, handles construction and oversees private agency construction. Maintenance of the cities ITS elements is handled through the DPW	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
San Diego Fire and Rescue Vehicles	<p>San Diego Fire and Rescue Vehicle Emergency Vehicle On-Board Equipment (OBE) resides in the fire trucks and other rescue emergency vehicles. The OBE provides the processing, storage, and communications functions that support public safety-related connected vehicle applications. It represents a range of vehicles including those operated by police, fire, and emergency medical services. In addition, it represents other incident response vehicles including towing and recovery vehicles and freeway service patrols. It includes two-way communications to support coordinated response to emergencies. A separate 'Vehicle OBE' physical object supports the general vehicle safety and driver information capabilities that apply to all vehicles, including emergency vehicles. The Emergency Vehicle OBE supplements these general capabilities with capabilities that are specific to emergency vehicles.</p>	5 Big Moves #1: Complete Corridors	Existing
San Diego Fire and Rescue Vehicles	<p>San Diego Fire and Rescue Vehicle Emergency Vehicle On-Board Equipment (OBE) resides in the fire trucks and other rescue emergency vehicles. The OBE provides the processing, storage, and communications functions that support public safety-related connected vehicle applications. It represents a range of vehicles including those operated by police, fire, and emergency medical services. In addition, it represents other incident response vehicles including towing and recovery vehicles and freeway service patrols. It includes two-way communications to support coordinated response to emergencies. A separate 'Vehicle OBE' physical object supports the general vehicle safety and driver information capabilities that apply to all vehicles, including emergency vehicles. The Emergency Vehicle OBE supplements these general capabilities with capabilities that are specific to emergency vehicles.</p>	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
San Diego Fire-Rescue Dispatch	<p>The San Diego Fire-Rescue Department's Emergency Command & Data Center (ECDC) is located in Kearny Mesa and is staffed 24/7 with dispatchers and administrative personnel. The center is responsible for all medical, fire, and rescue operations in the city of San Diego and is also contracted to dispatch for the cities of Poway, Chula Vista, Imperial Beach and National City.</p> <p>The ECDC handles 130,000+ calls annually and is a "secondary public safety answering point" (PSAP). This means that 911 calls are transferred to the emergency center from a primary PSAP. Examples of primary PSAPS are: California Highway Patrol, San Diego Police Department, San Diego Sheriff Department, and even some universities and colleges such as SDSU and UCSD.</p> <p>The San Diego Fire-Rescue Department oversees the City's Emergency Management Services until a major emergency activates the Emergency Operations Center. In the case of a major incident such as an earthquake, flood or terrorist act, the City's Emergency Management Services kick into action.</p> <p>The division is tasked with 1) Coordination of major emergency (disaster) mitigation, 2) Preparedness, 3) Response, 4) Recovery processes by eliciting cooperative efforts between city business centers, departments and other governmental agencies in the development of integrated plans and exercises to insure readiness. and 5) Coordination of Urban Search and Rescue.</p> <p>Emergency Management Services is dedicated to ensuring that city staff is prepared and trained to respond effectively and efficiently to major natural or manmade emergencies that impact the City of San Diego. It includes the functions associated with Emergency Operations Centers that are activated at local, regional, state, and federal levels for emergencies and the portable and transportable systems that support Incident Command System operations at an incident.</p>	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
San Diego Fire-Rescue Dispatch	<p>The San Diego Fire-Rescue Department's Emergency Command & Data Center (ECDC) is located in Kearny Mesa and is staffed 24/7 with dispatchers and administrative personnel. The center is responsible for all medical, fire, and rescue operations in the city of San Diego and is also contracted to dispatch for the cities of Poway, Chula Vista, Imperial Beach and National City.</p> <p>The ECDC handles 130,000+ calls annually and is a "secondary public safety answering point" (PSAP). This means that 911 calls are transferred to the emergency center from a primary PSAP. Examples of primary PSAPS are: California Highway Patrol, San Diego Police Department, San Diego Sheriff Department, and even some universities and colleges such as SDSU and UCSD.</p> <p>The San Diego Fire-Rescue Department oversees the City's Emergency Management Services until a major emergency activates the Emergency Operations Center. In the case of a major incident such as an earthquake, flood or terrorist act, the City's Emergency Management Services kick into action.</p> <p>The division is tasked with 1) Coordination of major emergency (disaster) mitigation, 2) Preparedness, 3) Response, 4) Recovery processes by eliciting cooperative efforts between city business centers, departments and other governmental agencies in the development of integrated plans and exercises to insure readiness. and 5) Coordination of Urban Search and Rescue.</p> <p>Emergency Management Services is dedicated to ensuring that city staff is prepared and trained to respond effectively and efficiently to major natural or manmade emergencies that impact the City of San Diego. It includes the functions associated with Emergency Operations Centers that are activated at local, regional, state, and federal levels for emergencies and the portable and transportable systems that support Incident Command System operations at an incident.</p>	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
San Diego Fire-Rescue Dispatch	<p>The San Diego Fire-Rescue Department's Emergency Command & Data Center (ECDC) is located in Kearny Mesa and is staffed 24/7 with dispatchers and administrative personnel. The center is responsible for all medical, fire, and rescue operations in the city of San Diego and is also contracted to dispatch for the cities of Poway, Chula Vista, Imperial Beach and National City.</p> <p>The ECDC handles 130,000+ calls annually and is a "secondary public safety answering point" (PSAP). This means that 911 calls are transferred to the emergency center from a primary PSAP. Examples of primary PSAPS are: California Highway Patrol, San Diego Police Department, San Diego Sheriff Department, and even some universities and colleges such as SDSU and UCSD.</p> <p>The San Diego Fire-Rescue Department oversees the City's Emergency Management Services until a major emergency activates the Emergency Operations Center. In the case of a major incident such as an earthquake, flood or terrorist act, the City's Emergency Management Services kick into action.</p> <p>The division is tasked with 1) Coordination of major emergency (disaster) mitigation, 2) Preparedness, 3) Response, 4) Recovery processes by eliciting cooperative efforts between city business centers, departments and other governmental agencies in the development of integrated plans and exercises to insure readiness. and 5) Coordination of Urban Search and Rescue.</p> <p>Emergency Management Services is dedicated to ensuring that city staff is prepared and trained to respond effectively and efficiently to major natural or manmade emergencies that impact the City of San Diego. It includes the functions associated with Emergency Operations Centers that are activated at local, regional, state, and federal levels for emergencies and the portable and transportable systems that support Incident Command System operations at an incident.</p>	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
San Diego Fleet Management	<p>The City uses a private company to manage the fleet systems. Fleet Focus from Asset Works manages the Maintenance aspect of the City's systems. They handle the scheduling and support for managing the maintenance of all of the City's systems. Maintenance and construction are separate in the City.</p> <p>Construction is handled under the Engineering Department.</p>	5 Big Moves #4: Flexible Fleets	Existing
San Diego Fleet Management	<p>The City uses a private company to manage the fleet systems. Fleet Focus from Asset Works manages the Maintenance aspect of the City's systems. They handle the scheduling and support for managing the maintenance of all of the City's systems. Maintenance and construction are separate in the City.</p> <p>Construction is handled under the Engineering Department.</p>	5 Big Moves #5: Next OS	Existing
San Diego Fleet Management	<p>The City uses a private company to manage the fleet systems. Fleet Focus from Asset Works manages the Maintenance aspect of the City's systems. They handle the scheduling and support for managing the maintenance of all of the City's systems. Maintenance and construction are separate in the City.</p> <p>Construction is handled under the Engineering Department.</p>	Global Element	Existing
San Diego Fleet Vehicles	<p>San Diego Fleet Vehicle-All includes all vehicles for the purpose of maintenance and fleet management. Fire department vehicles, law enforcement, street sweepers, maintenance and construction vehicles, city fleet vehicles for servicing field equipment, and all other vehicles owned, operated, serviced, and maintained by the city. The goal of this user defined object is to allow for maintenance of ALL city vehicle in one location within the cities, a common practice for Smart Cities.</p>	5 Big Moves #1: Complete Corridors	Planned
San Diego Fleet Vehicles	<p>San Diego Fleet Vehicle-All includes all vehicles for the purpose of maintenance and fleet management. Fire department vehicles, law enforcement, street sweepers, maintenance and construction vehicles, city fleet vehicles for servicing field equipment, and all other vehicles owned, operated, serviced, and maintained by the city. The goal of this user defined object is to allow for maintenance of ALL city vehicle in one location within the cities, a common practice for Smart Cities.</p>	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
San Diego Fleet Vehicles	San Diego Fleet Vehicle-All includes all vehicles for the purpose of maintenance and fleet management. Fire department vehicles, law enforcement, street sweepers, maintenance and construction vehicles, city fleet vehicles for servicing field equipment, and all other vehicles owned, operated, serviced, and maintained by the city. The goal of this user defined object is to allow for maintenance of ALL city vehicle in one location within the cities, a common practice for Smart Cities.	Global Element	Planned
San Diego Gas and Electric Map	San Diego Gas & Electric company has a potential to bring an advanced resource for lat and long mapping. Utility companies have extraordinary mapping capabilities to each residential address which would allow for more detailed trip planning by the end users.	5 Big Moves #5: Next OS	Planned
San Diego Gas and Electric Map	San Diego Gas & Electric company has a potential to bring an advanced resource for lat and long mapping. Utility companies have extraordinary mapping capabilities to each residential address which would allow for more detailed trip planning by the end users.	Global Element	Planned
San Diego HAZMAT Team	<p>The City of San Diego's Hazardous Materials (HAZMAT) Team responds as a secondary specialty response resource to identify and mitigate potential hazardous materials encountered by primary SDFD emergency response resources. The HAZMAT Team routinely responds to assist emergency responders with fuel spills, oil spills, and any other incident where there is a known or unknown hazardous substance.</p> <p>The team utilizes a HAZMAT Unit which includes a mobile mini-laboratory for analyzing materials on site. The HAZMAT Team also utilizes "state of the art" detection and chemical analysis equipment to aid in identifying unknown hazardous and non-hazardous substances. In addition to dealing with "routine" hazardous materials emergency challenges, the HAZMAT Team members are trained in the identification and mitigation of hazardous materials associated with CBRNE (Chemical, Biological, Radiological, Nuclear, and Explosive) Weapons of Mass Destruction (WMDs).</p>	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
San Diego HAZMAT Team	<p>The City of San Diego's Hazardous Materials (HAZMAT) Team responds as a secondary specialty response resource to identify and mitigate potential hazardous materials encountered by primary SDFD emergency response resources. The HAZMAT Team routinely responds to assist emergency responders with fuel spills, oil spills, and any other incident where there is a known or unknown hazardous substance.</p> <p>The team utilizes a HAZMAT Unit which includes a mobile mini-laboratory for analyzing materials on site. The HAZMAT Team also utilizes "state of the art" detection and chemical analysis equipment to aid in identifying unknown hazardous and non-hazardous substances. In addition to dealing with "routine" hazardous materials emergency challenges, the HAZMAT Team members are trained in the identification and mitigation of hazardous materials associated with CBRNE (Chemical, Biological, Radiological, Nuclear, and Explosive) Weapons of Mass Destruction (WMDs).</p>	Global Element	Existing
San Diego Infrastructure Asset Management	<p>City of San Diego's custom designed system Infrastructure Asset Management (IAM) system is used for managing the city's assets. The Public Works Division oversees the asset management system with a huge database that holds everything registered. A private company is hired to manage the fleet systems separately through another system, custom designed for the city.</p> <p>San Diego MCO is home to the Asset Management system; the systems that support decision-making for maintenance, upgrade, and operation of physical transportation assets. Asset management integrates and includes the pavement management systems, bridge management systems, and other systems that inventory and manage the highway infrastructure and other transportation-related assets. The types of assets that are inventoried and managed will vary, and may include the maintenance and construction vehicles and equipment as well as 'soft' assets such as human resources and software. Asset management systems monitor the condition, performance, and availability of the infrastructure and evaluate and prioritize alternative reconstruction,</p>	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
San Diego Infrastructure Asset Management	<p>City of San Diego's custom designed system Infrastructure Asset Management (IAM) system is used for managing the city's assets. The Public Works Division oversees the asset management system with a huge database that holds everything registered. A private company is hired to manage the fleet systems separately through another system, custom designed for the city.</p> <p>San Diego MCO is home to the Asset Management system; the systems that support decision-making for maintenance, upgrade, and operation of physical transportation assets. Asset management integrates and includes the pavement management systems, bridge management systems, and other systems that inventory and manage the highway infrastructure and other transportation-related assets. The types of assets that are inventoried and managed will vary, and may include the maintenance and construction vehicles and equipment as well as 'soft' assets such as human resources and software. Asset management systems monitor the condition, performance, and availability of the infrastructure and evaluate and prioritize alternative reconstruction,</p>	5 Big Moves #5: Next OS	Existing
San Diego Infrastructure Asset Management	<p>City of San Diego's custom designed system Infrastructure Asset Management (IAM) system is used for managing the city's assets. The Public Works Division oversees the asset management system with a huge database that holds everything registered. A private company is hired to manage the fleet systems separately through another system, custom designed for the city.</p> <p>San Diego MCO is home to the Asset Management system; the systems that support decision-making for maintenance, upgrade, and operation of physical transportation assets. Asset management integrates and includes the pavement management systems, bridge management systems, and other systems that inventory and manage the highway infrastructure and other transportation-related assets. The types of assets that are inventoried and managed will vary, and may include the maintenance and construction vehicles and equipment as well as 'soft' assets such as human resources and software. Asset management systems monitor the condition, performance,</p>	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	and availability of the infrastructure and evaluate and prioritize alternative reconstruction,		
San Diego ITS Field Equipment	San Diego has more than 1500 signals with plans for more. Their roadway ITS equipment include DMS, Vids, CCTV and road sensors. Cities 'ITS Roadway Equipment' represents the ITS equipment that is distributed on and along the roadway that monitors and controls traffic monitors, managing the roadway within the City's jurisdiction itself. The City of San Diego may have or add all or part of the following 'ITS Roadway Equipment': traffic detectors, environmental sensors, traffic signals, highway advisory radios, dynamic message signs, CCTV cameras, video image processing systems, grade crossing warning systems, and ramp metering systems. Lane management systems that control access to transportation infrastructure are also included. This object also provides environmental monitoring including sensors that measure road conditions, surface weather, and vehicle emissions. Work zone systems including work zone surveillance, traffic control, driver warning, and work crew safety systems are also included.	5 Big Moves #1: Complete Corridors	Existing
San Diego ITS Field Equipment	San Diego has more than 1500 signals with plans for more. Their roadway ITS equipment include DMS, Vids, CCTV and road sensors. Cities 'ITS Roadway Equipment' represents the ITS equipment that is distributed on and along the roadway that monitors and controls traffic monitors, managing the roadway within the City's jurisdiction itself. The City of San Diego may have or add all or part of the following 'ITS Roadway Equipment': traffic detectors, environmental sensors, traffic signals, highway advisory radios, dynamic message signs, CCTV cameras, video image processing systems, grade	5 Big Moves #2: Transit Leap	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	<p>crossing warning systems, and ramp metering systems. Lane management systems that control access to transportation infrastructure are also included. This object also provides environmental monitoring including sensors that measure road conditions, surface weather, and vehicle emissions. Work zone systems including work zone surveillance, traffic control, driver warning, and work crew safety systems are also included.</p>		
<p>San Diego ITS Field Equipment</p>	<p>San Diego has more than 1500 signals with plans for more. Their roadway ITS equipment include DMS, Vids, CCTV and road sensors. Cities 'ITS Roadway Equipment' represents the ITS equipment that is distributed on and along the roadway that monitors and controls traffic monitors, managing the roadway within the City's jurisdiction itself. The City of San Diego may have or add all or part of the following 'ITS Roadway Equipment': traffic detectors, environmental sensors, traffic signals, highway advisory radios, dynamic message signs, CCTV cameras, video image processing systems, grade crossing warning systems, and ramp metering systems. Lane management systems that control access to transportation infrastructure are also included. This object also provides environmental monitoring including sensors that measure road conditions, surface weather, and vehicle emissions. Work zone systems including work zone surveillance, traffic control, driver warning, and work crew safety systems are also included.</p>	<p>5 Big Moves #3: Mobility Hubs</p>	<p>Existing</p>
<p>San Diego ITS Field Equipment</p>	<p>San Diego has more than 1500 signals with plans for more. Their roadway ITS equipment include DMS, Vids, CCTV and road sensors. Cities 'ITS Roadway Equipment' represents the ITS equipment that is distributed on and along the roadway that monitors and controls traffic monitors, managing the roadway within the City's jurisdiction itself. The City of San Diego may have or add all or part of the following 'ITS Roadway Equipment': traffic detectors, environmental sensors, traffic signals, highway advisory radios, dynamic message signs, CCTV cameras, video image processing systems, grade crossing warning systems, and ramp metering systems. Lane management systems that control access to transportation infrastructure are also included.</p>	<p>5 Big Moves #4: Flexible Fleets</p>	<p>Existing</p>

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	<p>This object also provides environmental monitoring including sensors that measure road conditions, surface weather, and vehicle emissions. Work zone systems including work zone surveillance, traffic control, driver warning, and work crew safety systems are also included.</p>		
<p>San Diego ITS Field Equipment</p>	<p>San Diego has more than 1500 signals with plans for more. Their roadway ITS equipment include DMS, Vids, CCTV and road sensors. Cities 'ITS Roadway Equipment' represents the ITS equipment that is distributed on and along the roadway that monitors and controls traffic monitors, managing the roadway within the City's jurisdiction itself. The City of San Diego may have or add all or part of the following 'ITS Roadway Equipment': traffic detectors, environmental sensors, traffic signals, highway advisory radios, dynamic message signs, CCTV cameras, video image processing systems, grade crossing warning systems, and ramp metering systems. Lane management systems that control access to transportation infrastructure are also included. This object also provides environmental monitoring including sensors that measure road conditions, surface weather, and vehicle emissions. Work zone systems including work zone surveillance, traffic control, driver warning, and work crew safety systems are also included.</p>	<p>5 Big Moves #5: Next OS</p>	<p>Existing</p>
<p>San Diego ITS Field Equipment</p>	<p>San Diego has more than 1500 signals with plans for more. Their roadway ITS equipment include DMS, Vids, CCTV and road sensors. Cities 'ITS Roadway Equipment' represents the ITS equipment that is distributed on and along the roadway that monitors and controls traffic monitors, managing the roadway within the City's jurisdiction itself. The City of San Diego may have or add all or part of the following 'ITS Roadway Equipment': traffic detectors, environmental sensors, traffic signals, highway advisory radios, dynamic message signs, CCTV cameras, video image processing systems, grade crossing warning systems, and ramp metering systems. Lane management systems that control access to transportation infrastructure are also included.</p>	<p>Global Element</p>	<p>Existing</p>

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	<p>This object also provides environmental monitoring including sensors that measure road conditions, surface weather, and vehicle emissions. Work zone systems including work zone surveillance, traffic control, driver warning, and work crew safety systems are also included.</p>		
<p>San Diego Maintenance of Roadway Equipment</p>	<p>City of San Diego contracts for the maintenance aspect of Maintenance and Construction (MCO) management system; the systems that support decision-making for maintenance and ITS equipment upgrades. Asset management integrates systems that inventory and manage the highway infrastructure and other transportation-related assets. The types of assets that are inventoried and managed will vary, but includes the software that identifies maintenance needed on various ITS elements, signals, etc.</p>	<p>5 Big Moves #5: Next OS</p>	<p>Existing</p>
<p>San Diego Maintenance of Roadway Equipment</p>	<p>City of San Diego contracts for the maintenance aspect of Maintenance and Construction (MCO) management system; the systems that support decision-making for maintenance and ITS equipment upgrades. Asset management integrates systems that inventory and manage the highway infrastructure and other transportation-related assets. The types of assets that are inventoried and managed will vary, but includes the software that identifies maintenance needed on various ITS elements, signals, etc.</p>	<p>Global Element</p>	<p>Existing</p>
<p>San Diego Parking Enforcement Systems</p>	<p>The 'Enforcement Center' represents the systems that receive reports of violations detected by various ITS facilities including individual vehicle emissions, lane violations, toll violations, CVO violations, etc.</p>	<p>5 Big Moves #5: Next OS</p>	<p>Existing</p>
<p>San Diego Parking Enforcement Systems</p>	<p>The 'Enforcement Center' represents the systems that receive reports of violations detected by various ITS facilities including individual vehicle emissions, lane violations, toll violations, CVO violations, etc.</p>	<p>Global Element</p>	<p>Existing</p>

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
San Diego Payment Admin Center	<p>The 'Payment Administration Center' provides general payment administration capabilities and supports the electronic transfer of funds from the customer to the transportation system operator or other service provider. Charges can be recorded for tolls, vehicle-mileage charging, congestion charging, or other goods and services. It supports traveler enrollment and collection of both pre-payment and post-payment transportation fees in coordination with the financial infrastructure supporting electronic payment transactions. The system may establish and administer escrow accounts depending on the clearinghouse scheme and the type of payments involved. It may post a transaction to the customer account, generate a bill (for post-payment accounts), debit an escrow account, or interface to a financial infrastructure to debit a customer designated account. It supports communications with the ITS Roadway Payment Equipment to support fee collection operations. As an alternative, a wide-area wireless interface can be used to communicate directly with vehicle equipment. It also sets and administers the pricing structures and may implement road pricing policies in coordination with the Traffic Management Center.</p>	5 Big Moves #5: Next OS	Existing
San Diego Payment Admin Center	<p>The 'Payment Administration Center' provides general payment administration capabilities and supports the electronic transfer of funds from the customer to the transportation system operator or other service provider. Charges can be recorded for tolls, vehicle-mileage charging, congestion charging, or other goods and services. It supports traveler enrollment and collection of both pre-payment and post-payment transportation fees in coordination with the financial infrastructure supporting electronic payment transactions. The system may establish and administer escrow accounts depending on the clearinghouse scheme and the type of payments involved. It may post a transaction to the customer account, generate a bill (for post-payment accounts), debit an escrow account, or interface to a financial infrastructure to debit a customer designated account. It supports communications with the ITS Roadway Payment Equipment to support fee collection operations. As an alternative, a</p>	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	<p>wide-area wireless interface can be used to communicate directly with vehicle equipment. It also sets and administers the pricing structures and may implement road pricing policies in coordination with the Traffic Management Center.</p>		
<p>San Diego PD Vehicles</p>	<p>San Diego Police Department Vehicles. The Emergency Vehicle On-Board Equipment (OBE) resides in an emergency vehicle and provides the processing, storage, and communications functions that support public safety-related connected vehicle applications. It represents a range of vehicles including those operated by police, fire, and emergency medical services. In addition, it represents other incident response vehicles including towing and recovery vehicles and freeway service patrols. It includes two-way communications to support coordinated response to emergencies. A separate 'Vehicle OBE' physical object supports the general vehicle safety and driver information capabilities that apply to all vehicles, including emergency vehicles. The Emergency Vehicle OBE supplements these general capabilities with capabilities that are specific to emergency vehicles.</p>	<p>5 Big Moves #1: Complete Corridors</p>	<p>Existing</p>
<p>San Diego PD Vehicles</p>	<p>San Diego Police Department Vehicles. The Emergency Vehicle On-Board Equipment (OBE) resides in an emergency vehicle and provides the processing, storage, and communications functions that support public safety-related connected vehicle applications. It represents a range of vehicles including those operated by police, fire, and emergency medical services. In addition, it represents other incident response vehicles including towing and recovery vehicles and freeway service patrols. It includes two-way communications to support coordinated response to emergencies. A separate 'Vehicle OBE' physical object supports the general vehicle safety and driver information capabilities that apply to all vehicles, including emergency</p>	<p>5 Big Moves #5: Next OS</p>	<p>Existing</p>

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	vehicles. The Emergency Vehicle OBE supplements these general capabilities with capabilities that are specific to emergency vehicles.		
San Diego PD Vehicles	San Diego Police Department Vehicles. The Emergency Vehicle On-Board Equipment (OBE) resides in an emergency vehicle and provides the processing, storage, and communications functions that support public safety-related connected vehicle applications. It represents a range of vehicles including those operated by police, fire, and emergency medical services. In addition, it represents other incident response vehicles including towing and recovery vehicles and freeway service patrols. It includes two-way communications to support coordinated response to emergencies. A separate 'Vehicle OBE' physical object supports the general vehicle safety and driver information capabilities that apply to all vehicles, including emergency vehicles. The Emergency Vehicle OBE supplements these general capabilities with capabilities that are specific to emergency vehicles.	Global Element	Existing
San Diego Permitting Center	The 'San Diego Permitting Center' collects, processes, stores and disseminates transportation construction permitting information to their own City. This information is also distributed to system operators for surrounding cities and the state DOT; to other maintenance and construction centers, transportation management centers, transit centers, etc. to alert them about construction on specific corridors so that they can be proactive in signal coordination and re-routing options, transit management centers also receive permitting information so that they can consider re-routing transit for construction.	5 Big Moves #5: Next OS	Existing
San Diego Permitting Center	The 'San Diego Permitting Center' collects, processes, stores and disseminates transportation construction permitting information to their own City. This information is also distributed to system operators for surrounding cities and the state DOT; to other maintenance and construction centers, transportation management centers, transit centers, etc. to alert them about construction	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	on specific corridors so that they can be proactive in signal coordination and re-routing options, transit management centers also receive permitting information so that they can consider re-routing transit for construction.		
San Diego Police Dept Dispatch	<p>San Diego Police Department emergency law enforcement dispatch and, parking enforcement.</p> <p>The 'Enforcement Center' represents the systems that receive reports of violations detected by various electronic and/or ITS parking meters. The City receives the revenue but a vendor collects the meter money. The parking meters on the street belong to the City and the City provides parking enforcement by officers that are part of the PD.</p>	5 Big Moves #1: Complete Corridors	Existing
San Diego Police Dept Dispatch	<p>San Diego Police Department emergency law enforcement dispatch and, parking enforcement.</p> <p>The 'Enforcement Center' represents the systems that receive reports of violations detected by various electronic and/or ITS parking meters. The City receives the revenue but a vendor collects the meter money. The parking meters on the street belong to the City and the City provides parking enforcement by officers that are part of the PD.</p>	5 Big Moves #5: Next OS	Existing
San Diego Police Dept Dispatch	<p>San Diego Police Department emergency law enforcement dispatch and, parking enforcement.</p> <p>The 'Enforcement Center' represents the systems that receive reports of violations detected by various electronic and/or ITS parking meters. The City receives the revenue but a vendor collects the meter money. The parking meters on the street belong to the City and the City provides parking enforcement by officers that are part of the PD.</p>	Global Element	Existing
San Diego Port Terminal Facility	San Diego Port represents intermodal port facilities and the systems they use to track cargo and manage operations. (This element came from the California Statewide ITS Architecture)	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
San Diego Port Terminal Facility	San Diego Port represents intermodal port facilities and the systems they use to track cargo and manage operations. (This element came from the California Statewide ITS Architecture)	Global Element	Existing
San Diego Regional Archived Data System	<p>The 'Archived Data System' collects, archives, manages, and distributes data generated from ITS sources for use in transportation administration, policy evaluation, safety, planning, performance monitoring, program assessment, operations, and research applications. The data received is formatted and tagged with attributes that define the data source, conditions under which it was collected, data transformations, and other information (i.e. meta data) necessary to interpret the data.</p> <p>The archive can fuse ITS generated data with data from non-ITS sources and other archives to generate information products utilizing data from multiple functional areas, modes, and jurisdictions. The archive prepares data products that can serve as inputs to federal, state, and local data reporting systems.</p> <p>The 'Archived Data System' resides within SANDAG and provides focused access to a particular agency's data archives. This data repository represents data archived for later use by SANDAG in traffic planning, etc.</p>	5 Big Moves #5: Next OS	Existing
San Diego Regional Archived Data System	<p>The 'Archived Data System' collects, archives, manages, and distributes data generated from ITS sources for use in transportation administration, policy evaluation, safety, planning, performance monitoring, program assessment, operations, and research applications. The data received is formatted and tagged with attributes that define the data source, conditions under which it was collected, data transformations, and other information (i.e. meta data) necessary to interpret the data.</p> <p>The archive can fuse ITS generated data with data from non-ITS sources and other archives to generate information products utilizing data from multiple functional areas, modes, and jurisdictions. The archive prepares data products that can serve as inputs to federal, state, and local data reporting</p>	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	<p>systems.</p> <p>The 'Archived Data System' resides within SANDAG and provides focused access to a particular agency's data archives. This data repository represents data archived for later use by SANDAG in traffic planning, etc.</p>		
San Diego Regional Data Distribution System	This element represents the ICMS ITS Data Distribution System supported by all stakeholders. The 'Data Distribution System' collects, processes, and distributes ITS data, connecting data producers with data consumers and facilitating data exchange. Data is available for real time data distribution.	5 Big Moves #5: Next OS	Existing
San Diego Regional Data Distribution System	This element represents the ICMS ITS Data Distribution System supported by all stakeholders. The 'Data Distribution System' collects, processes, and distributes ITS data, connecting data producers with data consumers and facilitating data exchange. Data is available for real time data distribution.	Global Element	Existing
San Diego TIC and Website	San Diego Transportation information center (TIC) and Website represents existing and planned traffic information systems and websites within the City of San Diego including the OCI Index used to assign overall conditions to roads. Websites can serve as a transportation information center subsystem and can contain event information, traffic information, maintenance and construction information, and weather information. At the broadest services, this element would serve as a Transportation Information Center' (TIC): collects, processes, stores, and disseminates transportation information to system operators and the traveling public.	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
San Diego TIC and Website	San Diego Transportation information center (TIC) and Website represents existing and planned traffic information systems and websites within the City of San Diego including the OCI Index used to assign overall conditions to roads. Websites can serve as a transportation information center subsystem and can contain event information, traffic information, maintenance and construction information, and weather information. At the broadest services, this element would serve as a Transportation Information Center' (TIC): collects, processes, stores, and disseminates transportation information to system operators and the traveling public.	Global Element	Existing
San Diego Traffic Management Center	The 'Traffic Management Center' monitors and controls traffic and the road network. It represents centers that manage a broad range of transportation facilities and urban and suburban traffic control systems. It communicates with the regional ICMS, it's own ITS Roadway Equipment and possible future Connected Vehicle Roadside Equipment (RSE) to monitor and manage traffic flow and monitor the condition of the roadway, surrounding environmental conditions, and field equipment status. San Diego has more than 1500 signals with plans for more. Their roadway ITS equipment include DMS, Vids, CCTV and road sensors.	5 Big Moves #1: Complete Corridors	Existing
San Diego Traffic Management Center	The 'Traffic Management Center' monitors and controls traffic and the road network. It represents centers that manage a broad range of transportation facilities and urban and suburban traffic control systems. It communicates with the regional ICMS, it's own ITS Roadway Equipment and possible future Connected Vehicle Roadside Equipment (RSE) to monitor and manage traffic flow and monitor the condition of the roadway, surrounding environmental conditions, and field equipment status. San Diego has more than 1500 signals with plans for more. Their roadway ITS equipment include DMS, Vids, CCTV and road sensors.	5 Big Moves #4: Flexible Fleets	Existing
San Diego Traffic Management Center	The 'Traffic Management Center' monitors and controls traffic and the road network. It represents centers that manage a broad range of transportation facilities and urban and suburban traffic control systems. It communicates with the regional ICMS, it's own ITS Roadway Equipment and possible future Connected Vehicle Roadside Equipment (RSE) to monitor and manage traffic	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	flow and monitor the condition of the roadway, surrounding environmental conditions, and field equipment status. San Diego has more than 1500 signals with plans for more. Their roadway ITS equipment include DMS, Vids, CCTV and road sensors.		
San Diego Traffic Management Center	The 'Traffic Management Center' monitors and controls traffic and the road network. It represents centers that manage a broad range of transportation facilities and urban and suburban traffic control systems. It communicates with the regional ICMS, it's own ITS Roadway Equipment and possible future Connected Vehicle Roadside Equipment (RSE) to monitor and manage traffic flow and monitor the condition of the roadway, surrounding environmental conditions, and field equipment status. San Diego has more than 1500 signals with plans for more. Their roadway ITS equipment include DMS, Vids, CCTV and road sensors.	Global Element	Existing
SANDAG Back-Office Archived Data	This system collects data related to location of busses for the TOL project, sensors for vehicles, ramp metering status, CMS / EMS sign status and other misc. data and sends it back to SANDAG's back office archive data for use in managing traffic.	5 Big Moves #5: Next OS	Planned
SANDAG Back-Office Archived Data	This system collects data related to location of busses for the TOL project, sensors for vehicles, ramp metering status, CMS / EMS sign status and other misc. data and sends it back to SANDAG's back office archive data for use in managing traffic.	Global Element	Planned
SANDAG Connected Vehicle Field Equipment	Represents field equipment such as sensors, tolling equipment at the roadside, CCTV cameras, and CMS, operated and managed by SANDAG.	5 Big Moves #1: Complete Corridors	Planned
SANDAG Connected Vehicle Field Equipment	Represents field equipment such as sensors, tolling equipment at the roadside, CCTV cameras, and CMS, operated and managed by SANDAG.	5 Big Moves #2: Transit Leap	Planned
SANDAG Connected Vehicle Field Equipment	Represents field equipment such as sensors, tolling equipment at the roadside, CCTV cameras, and CMS, operated and managed by SANDAG.	5 Big Moves #3: Mobility Hubs	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
SANDAG Connected Vehicle Field Equipment	Represents field equipment such as sensors, tolling equipment at the roadside, CCTV cameras, and CMS, operated and managed by SANDAG.	5 Big Moves #4: Flexible Fleets	Planned
SANDAG Connected Vehicle Field Equipment	Represents field equipment such as sensors, tolling equipment at the roadside, CCTV cameras, and CMS, operated and managed by SANDAG.	5 Big Moves #5: Next OS	Planned
SANDAG Connected Vehicle Field Equipment	Represents field equipment such as sensors, tolling equipment at the roadside, CCTV cameras, and CMS, operated and managed by SANDAG.	Global Element	Planned
SANDAG Electronic Tolling Administration	This center-based system provides back office, administration, and customer service functions for the I-15 electronic toll collection system. May also be tied with other ETC Administration systems through a reciprocity network or reconciliation clearinghouse.	5 Big Moves #5: Next OS	Planned
SANDAG Electronic Tolling Administration	This center-based system provides back office, administration, and customer service functions for the I-15 electronic toll collection system. May also be tied with other ETC Administration systems through a reciprocity network or reconciliation clearinghouse.	Global Element	Planned
SANDAG ITS Credential Management System	The 'Cooperative ITS Credentials Management System' (CCMS) is related to Connected Vehicles; a high-level aggregate representation of the interconnected systems that enable trusted communications between mobile devices and other mobile devices, roadside devices, and centers and protect data they handle from unauthorized access. Representing the different interconnected systems that make up a Public Key Infrastructure (PKI), this physical object represents an end user view of the credentials management system with focus on the exchanges between the CCMS and user devices that support the secure distribution, use, and revocation of trust credentials.	5 Big Moves #5: Next OS	Planned
SANDAG ITS Credential Management System	The 'Cooperative ITS Credentials Management System' (CCMS) is related to Connected Vehicles; a high-level aggregate representation of the interconnected systems that enable trusted communications between mobile devices and other mobile devices, roadside devices, and centers and protect data they handle from unauthorized access. Representing the different interconnected systems that make up a Public Key Infrastructure (PKI), this	Global Element	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	<p>physical object represents an end user view of the credentials management system with focus on the exchanges between the CCMS and user devices that support the secure distribution, use, and revocation of trust credentials.</p>		
<p>SANDAG Payment Administration Center</p>	<p>The 'Payment Administration Center' provides general payment administration capabilities and supports the electronic transfer of funds from the customer to the transportation system operator or other service provider. Charges can be recorded for tolls, vehicle-mileage charging, congestion charging, or other goods and services. It supports traveler enrollment and collection of both pre-payment and post-payment transportation fees in coordination with the financial infrastructure supporting electronic payment transactions. The system may establish and administer escrow accounts depending on the clearinghouse scheme and the type of payments involved. It may post a transaction to the customer account, generate a bill (for post-payment accounts), debit an escrow account, or interface to a financial infrastructure to debit a customer designated account. It supports communications with the ITS Roadway Payment Equipment to support fee collection operations. As an alternative, a wide-area wireless interface can be used to communicate directly with vehicle equipment. It also sets and administers the pricing structures and may implement road pricing policies in coordination with the Traffic Management Center.</p>	<p>5 Big Moves #1: Complete Corridors</p>	<p>Existing</p>
<p>SANDAG Payment Administration Center</p>	<p>The 'Payment Administration Center' provides general payment administration capabilities and supports the electronic transfer of funds from the customer to the transportation system operator or other service provider. Charges can be recorded for tolls, vehicle-mileage charging, congestion charging, or other goods and services. It supports traveler enrollment and collection of both pre-payment and post-payment transportation fees in coordination with the financial infrastructure supporting electronic payment transactions. The system may establish and administer escrow accounts depending on the clearinghouse scheme and the</p>	<p>5 Big Moves #2: Transit Leap</p>	<p>Existing</p>

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	<p>type of payments involved. It may post a transaction to the customer account, generate a bill (for post-payment accounts), debit an escrow account, or interface to a financial infrastructure to debit a customer designated account. It supports communications with the ITS Roadway Payment Equipment to support fee collection operations. As an alternative, a wide-area wireless interface can be used to communicate directly with vehicle equipment. It also sets and administers the pricing structures and may implement road pricing policies in coordination with the Traffic Management Center.</p>		
<p>SANDAG Payment Administration Center</p>	<p>The 'Payment Administration Center' provides general payment administration capabilities and supports the electronic transfer of funds from the customer to the transportation system operator or other service provider. Charges can be recorded for tolls, vehicle-mileage charging, congestion charging, or other goods and services. It supports traveler enrollment and collection of both pre-payment and post-payment transportation fees in coordination with the financial infrastructure supporting electronic payment transactions. The system may establish and administer escrow accounts depending on the clearinghouse scheme and the type of payments involved. It may post a transaction to the customer account, generate a bill (for post-payment accounts), debit an escrow account, or interface to a financial infrastructure to debit a customer designated account. It supports communications with the ITS Roadway Payment Equipment to support fee collection operations. As an alternative, a wide-area wireless interface can be used to communicate directly with vehicle equipment. It also sets and administers the pricing structures and may implement road pricing policies in coordination with the Traffic Management Center.</p>	<p>5 Big Moves #3: Mobility Hubs</p>	<p>Existing</p>

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
SANDAG Payment Administration Center	<p>The 'Payment Administration Center' provides general payment administration capabilities and supports the electronic transfer of funds from the customer to the transportation system operator or other service provider. Charges can be recorded for tolls, vehicle-mileage charging, congestion charging, or other goods and services. It supports traveler enrollment and collection of both pre-payment and post-payment transportation fees in coordination with the financial infrastructure supporting electronic payment transactions. The system may establish and administer escrow accounts depending on the clearinghouse scheme and the type of payments involved. It may post a transaction to the customer account, generate a bill (for post-payment accounts), debit an escrow account, or interface to a financial infrastructure to debit a customer designated account. It supports communications with the ITS Roadway Payment Equipment to support fee collection operations. As an alternative, a wide-area wireless interface can be used to communicate directly with vehicle equipment. It also sets and administers the pricing structures and may implement road pricing policies in coordination with the Traffic Management Center.</p>	5 Big Moves #4: Flexible Fleets	Existing
SANDAG Payment Administration Center	<p>The 'Payment Administration Center' provides general payment administration capabilities and supports the electronic transfer of funds from the customer to the transportation system operator or other service provider. Charges can be recorded for tolls, vehicle-mileage charging, congestion charging, or other goods and services. It supports traveler enrollment and collection of both pre-payment and post-payment transportation fees in coordination with the financial infrastructure supporting electronic payment transactions. The system may establish and administer escrow accounts depending on the clearinghouse scheme and the type of payments involved. It may post a transaction to the customer account, generate a bill (for post-payment accounts), debit an escrow account, or interface to a financial infrastructure to debit a customer designated account. It supports communications with the ITS Roadway Payment Equipment to support fee collection operations. As an alternative, a</p>	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	<p>wide-area wireless interface can be used to communicate directly with vehicle equipment. It also sets and administers the pricing structures and may implement road pricing policies in coordination with the Traffic Management Center.</p>		
<p>SANDAG Payment Administration Center</p>	<p>The 'Payment Administration Center' provides general payment administration capabilities and supports the electronic transfer of funds from the customer to the transportation system operator or other service provider. Charges can be recorded for tolls, vehicle-mileage charging, congestion charging, or other goods and services. It supports traveler enrollment and collection of both pre-payment and post-payment transportation fees in coordination with the financial infrastructure supporting electronic payment transactions. The system may establish and administer escrow accounts depending on the clearinghouse scheme and the type of payments involved. It may post a transaction to the customer account, generate a bill (for post-payment accounts), debit an escrow account, or interface to a financial infrastructure to debit a customer designated account. It supports communications with the ITS Roadway Payment Equipment to support fee collection operations. As an alternative, a wide-area wireless interface can be used to communicate directly with vehicle equipment. It also sets and administers the pricing structures and may implement road pricing policies in coordination with the Traffic Management Center.</p>	<p>Global Element</p>	<p>Existing</p>

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
SANDAG Regional Parking Management	<p>ICMS Parking Management. The Parking Management System provides electronic monitoring and management of parking facilities. It supports an I2V link to the Vehicle that allows electronic collection of parking fees and monitors and controls parking meters that support conventional parking fee collection. It also includes the instrumentation, signs, and other infrastructure that monitors parking lot usage and provides local information about parking availability and other general parking information. This portion of the functionality must be located in the parking facility where it can monitor, classify, and share information with customers and their vehicles. It also interfaces with the financial infrastructure and broadly disseminates parking information to other operational centers in the region. Note that the latter functionality may be located in a back office, remote from the parking facility.</p>	5 Big Moves #1: Complete Corridors	Planned
SANDAG Regional Parking Management	<p>ICMS Parking Management. The Parking Management System provides electronic monitoring and management of parking facilities. It supports an I2V link to the Vehicle that allows electronic collection of parking fees and monitors and controls parking meters that support conventional parking fee collection. It also includes the instrumentation, signs, and other infrastructure that monitors parking lot usage and provides local information about parking availability and other general parking information. This portion of the functionality must be located in the parking facility where it can monitor, classify, and share information with customers and their vehicles. It also interfaces with the financial infrastructure and broadly disseminates parking information to other operational centers in the region. Note that the latter functionality may be located in a back office, remote from the parking facility.</p>	5 Big Moves #5: Next OS	Planned
SANDAG Regional Parking Management	<p>ICMS Parking Management. The Parking Management System provides electronic monitoring and management of parking facilities. It supports an I2V link to the Vehicle that allows electronic collection of parking fees and monitors and controls parking meters that support conventional parking fee collection. It also includes the instrumentation, signs, and other infrastructure that monitors parking lot usage and provides local information about parking availability and other general parking information. This portion of the functionality must be located in the parking facility where it can monitor,</p>	Global Element	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	<p>classify, and share information with customers and their vehicles. It also interfaces with the financial infrastructure and broadly disseminates parking information to other operational centers in the region. Note that the latter functionality may be located in a back office, remote from the parking facility.</p>		
<p>SANDAG Service Monitoring Equipment</p>	<p>The 'Service Monitor System' represents one or more center-based systems that provide monitoring, management and control services necessary to other applications and/or devices operating within the Connected Vehicle Environment. These support services enable other applications to provide transportation services.</p>	<p>5 Big Moves #1: Complete Corridors</p>	<p>Existing</p>
<p>SANDAG Service Monitoring Equipment</p>	<p>The 'Service Monitor System' represents one or more center-based systems that provide monitoring, management and control services necessary to other applications and/or devices operating within the Connected Vehicle Environment. These support services enable other applications to provide transportation services.</p>	<p>5 Big Moves #2: Transit Leap</p>	<p>Existing</p>
<p>SANDAG Service Monitoring Equipment</p>	<p>The 'Service Monitor System' represents one or more center-based systems that provide monitoring, management and control services necessary to other applications and/or devices operating within the Connected Vehicle Environment. These support services enable other applications to provide transportation services.</p>	<p>5 Big Moves #3: Mobility Hubs</p>	<p>Existing</p>
<p>SANDAG Service Monitoring Equipment</p>	<p>The 'Service Monitor System' represents one or more center-based systems that provide monitoring, management and control services necessary to other applications and/or devices operating within the Connected Vehicle Environment. These support services enable other applications to provide transportation services.</p>	<p>5 Big Moves #4: Flexible Fleets</p>	<p>Existing</p>
<p>SANDAG Service Monitoring Equipment</p>	<p>The 'Service Monitor System' represents one or more center-based systems that provide monitoring, management and control services necessary to other applications and/or devices operating within the Connected Vehicle Environment. These support services enable other applications to provide transportation services.</p>	<p>5 Big Moves #5: Next OS</p>	<p>Existing</p>

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
SANDAG Service Monitoring Equipment	The 'Service Monitor System' represents one or more center-based systems that provide monitoring, management and control services necessary to other applications and/or devices operating within the Connected Vehicle Environment. These support services enable other applications to provide transportation services.	Global Element	Existing
SANDAG Support Maintenance Equipment	'Support Maintenance Equipment' represents the equipment used by SANDAG IT personnel and technicians to locally or remotely troubleshoot, initialize, reprogram, and test IT assets that support ITS operations. It may include a laptop, specialized diagnostics tools, or any other general purpose or specialized equipment that is interfaced remotely or locally to support maintenance, repair, and upgrade.	5 Big Moves #1: Complete Corridors	Existing
SANDAG Support Maintenance Equipment	'Support Maintenance Equipment' represents the equipment used by SANDAG IT personnel and technicians to locally or remotely troubleshoot, initialize, reprogram, and test IT assets that support ITS operations. It may include a laptop, specialized diagnostics tools, or any other general purpose or specialized equipment that is interfaced remotely or locally to support maintenance, repair, and upgrade.	5 Big Moves #2: Transit Leap	Existing
SANDAG Support Maintenance Equipment	'Support Maintenance Equipment' represents the equipment used by SANDAG IT personnel and technicians to locally or remotely troubleshoot, initialize, reprogram, and test IT assets that support ITS operations. It may include a laptop, specialized diagnostics tools, or any other general purpose or specialized equipment that is interfaced remotely or locally to support maintenance, repair, and upgrade.	5 Big Moves #3: Mobility Hubs	Existing
SANDAG Support Maintenance Equipment	'Support Maintenance Equipment' represents the equipment used by SANDAG IT personnel and technicians to locally or remotely troubleshoot, initialize, reprogram, and test IT assets that support ITS operations. It may include a laptop, specialized diagnostics tools, or any other general purpose or specialized equipment that is interfaced remotely or locally to support maintenance, repair, and upgrade.	5 Big Moves #4: Flexible Fleets	Existing
SANDAG Support Maintenance Equipment	'Support Maintenance Equipment' represents the equipment used by SANDAG IT personnel and technicians to locally or remotely troubleshoot, initialize, reprogram, and test IT assets that support ITS operations. It may	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	include a laptop, specialized diagnostics tools, or any other general purpose or specialized equipment that is interfaced remotely or locally to support maintenance, repair, and upgrade.		
SANDAG Support Maintenance Equipment	'Support Maintenance Equipment' represents the equipment used by SANDAG IT personnel and technicians to locally or remotely troubleshoot, initialize, reprogram, and test IT assets that support ITS operations. It may include a laptop, specialized diagnostics tools, or any other general purpose or specialized equipment that is interfaced remotely or locally to support maintenance, repair, and upgrade.	Global Element	Existing
SANDAG TIC and Website	San Diego Website is interactive and informative. The web server provides information on 511, FasTrak, transit, the I-15 ICMS Corridor, the information is then put into a hub, data is merged and use to disseminate traveler information to the public via the internet. This information would primarily relate to the operation and status of traffic conditions, accidents, closure times, etc. It could also provide information collected from other sources or links to other sources such as weather conditions, border crossing information, traffic conditions in adjacent jurisdictions, etc.	5 Big Moves #1: Complete Corridors	Planned
SANDAG TIC and Website	San Diego Website is interactive and informative. The web server provides information on 511, FasTrak, transit, the I-15 ICMS Corridor, the information is then put into a hub, data is merged and use to disseminate traveler information to the public via the internet. This information would primarily relate to the operation and status of traffic conditions, accidents, closure times, etc. It could also provide information collected from other sources or links to other sources such as weather conditions, border crossing information, traffic conditions in adjacent jurisdictions, etc.	5 Big Moves #2: Transit Leap	Planned
SANDAG TIC and Website	San Diego Website is interactive and informative. The web server provides information on 511, FasTrak, transit, the I-15 ICMS Corridor, the information is then put into a hub, data is merged and use to disseminate traveler information to the public via the internet. This information would primarily relate to the operation and status of traffic conditions, accidents, closure times, etc. It could also provide information collected from other sources or	5 Big Moves #3: Mobility Hubs	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	links to other sources such as weather conditions, border crossing information, traffic conditions in adjacent jurisdictions, etc.		
SANDAG TIC and Website	San Diego Website is interactive and informative. The web server provides information on 511, FasTrak, transit, the I-15 ICMS Corridor, the information is then put into a hub, data is merged and use to disseminate traveler information to the public via the internet. This information would primarily relate to the operation and status of traffic conditions, accidents, closure times, etc. It could also provide information collected from other sources or links to other sources such as weather conditions, border crossing information, traffic conditions in adjacent jurisdictions, etc.	5 Big Moves #4: Flexible Fleets	Planned
SANDAG TIC and Website	San Diego Website is interactive and informative. The web server provides information on 511, FasTrak, transit, the I-15 ICMS Corridor, the information is then put into a hub, data is merged and use to disseminate traveler information to the public via the internet. This information would primarily relate to the operation and status of traffic conditions, accidents, closure times, etc. It could also provide information collected from other sources or links to other sources such as weather conditions, border crossing information, traffic conditions in adjacent jurisdictions, etc.	5 Big Moves #5: Next OS	Planned
SANDAG TIC and Website	San Diego Website is interactive and informative. The web server provides information on 511, FasTrak, transit, the I-15 ICMS Corridor, the information is then put into a hub, data is merged and use to disseminate traveler information to the public via the internet. This information would primarily relate to the operation and status of traffic conditions, accidents, closure times, etc. It could also provide information collected from other sources or links to other sources such as weather conditions, border crossing information, traffic conditions in adjacent jurisdictions, etc.	Global Element	Planned
SANDAG Virtual TMCs	Traffic operations center that manages the ICMS which manages municipal arterials in and around the San Diego municipal area.	5 Big Moves #1: Complete Corridors	Existing
SANDAG Virtual TMCs	Traffic operations center that manages the ICMS which manages municipal arterials in and around the San Diego municipal area.	5 Big Moves #2: Transit Leap	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
SANDAG Virtual TMCs	Traffic operations center that manages the ICMS which manages municipal arterials in and around the San Diego municipal area.	5 Big Moves #3: Mobility Hubs	Existing
SANDAG Virtual TMCs	Traffic operations center that manages the ICMS which manages municipal arterials in and around the San Diego municipal area.	5 Big Moves #4: Flexible Fleets	Existing
SANDAG Virtual TMCs	Traffic operations center that manages the ICMS which manages municipal arterials in and around the San Diego municipal area.	5 Big Moves #5: Next OS	Existing
SANDAG Virtual TMCs	Traffic operations center that manages the ICMS which manages municipal arterials in and around the San Diego municipal area.	Global Element	Existing
SANDAG Warehouse Map	The 'Map Update System' represents a provider of map databases used to support ITS services. It supports the provision of the map data that are used directly by vehicles (e.g., roadway and intersection geometry data sets), travelers (e.g., navigable maps used for route guidance and display maps used at traveler information points), system operators (e.g., map data used by Traffic Operators to monitor and manage the road network, and map data used by Fleet Managers to manage a vehicle fleet). Products may include simple display maps, map data sets that define detailed road network topology and geometry, or full geographic information system databases that are used to support planning and operations. The map is from "Here" Trapize software.	5 Big Moves #1: Complete Corridors	Existing
SANDAG Warehouse Map	The 'Map Update System' represents a provider of map databases used to support ITS services. It supports the provision of the map data that are used directly by vehicles (e.g., roadway and intersection geometry data sets), travelers (e.g., navigable maps used for route guidance and display maps used at traveler information points), system operators (e.g., map data used by Traffic Operators to monitor and manage the road network, and map data used by Fleet Managers to manage a vehicle fleet). Products may include simple display maps, map data sets that define detailed road network topology and geometry, or full geographic information system databases that are used to support planning and operations. The map is from "Here" Trapize software.	5 Big Moves #2: Transit Leap	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
SANDAG Warehouse Map	The 'Map Update System' represents a provider of map databases used to support ITS services. It supports the provision of the map data that are used directly by vehicles (e.g., roadway and intersection geometry data sets), travelers (e.g., navigable maps used for route guidance and display maps used at traveler information points), system operators (e.g., map data used by Traffic Operators to monitor and manage the road network, and map data used by Fleet Managers to manage a vehicle fleet). Products may include simple display maps, map data sets that define detailed road network topology and geometry, or full geographic information system databases that are used to support planning and operations. The map is from "Here" Trapize software.	5 Big Moves #3: Mobility Hubs	Existing
SANDAG Warehouse Map	The 'Map Update System' represents a provider of map databases used to support ITS services. It supports the provision of the map data that are used directly by vehicles (e.g., roadway and intersection geometry data sets), travelers (e.g., navigable maps used for route guidance and display maps used at traveler information points), system operators (e.g., map data used by Traffic Operators to monitor and manage the road network, and map data used by Fleet Managers to manage a vehicle fleet). Products may include simple display maps, map data sets that define detailed road network topology and geometry, or full geographic information system databases that are used to support planning and operations. The map is from "Here" Trapize software.	5 Big Moves #4: Flexible Fleets	Existing
SANDAG Warehouse Map	The 'Map Update System' represents a provider of map databases used to support ITS services. It supports the provision of the map data that are used directly by vehicles (e.g., roadway and intersection geometry data sets), travelers (e.g., navigable maps used for route guidance and display maps used at traveler information points), system operators (e.g., map data used by Traffic Operators to monitor and manage the road network, and map data used by Fleet Managers to manage a vehicle fleet). Products may include simple display maps, map data sets that define detailed road network topology and geometry, or full geographic information system databases that	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	are used to support planning and operations. The map is from "Here" Trapize software.		
SANDAG Warehouse Map	The 'Map Update System' represents a provider of map databases used to support ITS services. It supports the provision of the map data that are used directly by vehicles (e.g., roadway and intersection geometry data sets), travelers (e.g., navigable maps used for route guidance and display maps used at traveler information points), system operators (e.g., map data used by Traffic Operators to monitor and manage the road network, and map data used by Fleet Managers to manage a vehicle fleet). Products may include simple display maps, map data sets that define detailed road network topology and geometry, or full geographic information system databases that are used to support planning and operations. The map is from "Here" Trapize software.	Global Element	Existing
SAT Data Warehouse	Servicio de Administracion Tributaria (SAT) Data collection and warehousing system to collect border related information for Aduanas. Archived data used to support planning activities.	5 Big Moves #5: Next OS	Planned
SAT Data Warehouse	Servicio de Administracion Tributaria (SAT) Data collection and warehousing system to collect border related information for Aduanas. Archived data used to support planning activities.	Global Element	Planned
Shipment Logistics Providers Systems	This element represents database systems of third party logistics providers, freight forwarders, and shippers agents or freight brokers.	5 Big Moves #4: Flexible Fleets	Planned
Shipment Logistics Providers Systems	This element represents database systems of third party logistics providers, freight forwarders, and shippers agents or freight brokers.	5 Big Moves #5: Next OS	Planned
Shipment Logistics Providers Systems	This element represents database systems of third party logistics providers, freight forwarders, and shippers agents or freight brokers.	Global Element	Planned
Single State Registration System (SSRS)	Commercial vehicle registration system.	5 Big Moves #4: Flexible Fleets	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Single State Registration System (SSRS)	Commercial vehicle registration system.	5 Big Moves #5: Next OS	Existing
Single State Registration System (SSRS)	Commercial vehicle registration system.	Global Element	Existing
Social Networking Services	Subscription based services operated by private providers that provide an option for real-time traveler information dissemination examples of services that include Waze, Facebook and Twitter.	5 Big Moves #5: Next OS	Existing
Social Networking Services	Subscription based services operated by private providers that provide an option for real-time traveler information dissemination examples of services that include Waze, Facebook and Twitter.	Global Element	Existing
Southern California Electronic Toll Collection	This element represents the electronic toll collection systems in the related California Statewide ITS Architecture.	5 Big Moves #1: Complete Corridors	Existing
Southern California Electronic Toll Collection	This element represents the electronic toll collection systems in the related California Statewide ITS Architecture.	5 Big Moves #5: Next OS	Existing
Southern California Electronic Toll Collection	This element represents the electronic toll collection systems in the related California Statewide ITS Architecture.	Global Element	Existing
State CVO Electronic Permitting System	Automated Electronic Permitting System consists of three components. The first component is the server component, which consists of the database and primary application. The second component is a client developed for State personnel to administrator and maintains system data. The last component is the State CVO Credentials/Permitting Interface.	5 Big Moves #1: Complete Corridors	Planned
State CVO Electronic Permitting System	Automated Electronic Permitting System consists of three components. The first component is the server component, which consists of the database and primary application. The second component is a client developed for State personnel to administrator and maintains system data. The last component is the State CVO Credentials/Permitting Interface.	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
State CVO Electronic Permitting System	Automated Electronic Permitting System consists of three components. The first component is the server component, which consists of the database and primary application. The second component is a client developed for State personnel to administrator and maintains system data. The last component is the State CVO Credentials/Permitting Interface.	Global Element	Planned
Tijuana Field Equipment	Represents Tijuana field equipment such as sensors, CCTV, and Dynamic Message Signs, traffic signal controllers, etc., operated and managed by municipal traffic agencies.	5 Big Moves #5: Next OS	Planned
Tijuana Field Equipment	Represents Tijuana field equipment such as sensors, CCTV, and Dynamic Message Signs, traffic signal controllers, etc., operated and managed by municipal traffic agencies.	Global Element	Planned
Tijuana Traffic Operations Center	Traffic operations center that manages municipal arterials in the vicinity of the border.	5 Big Moves #5: Next OS	Planned
Tijuana Traffic Operations Center	Traffic operations center that manages municipal arterials in the vicinity of the border.	Global Element	Planned
Toll Reconciliation Clearinghouse	Supporting reciprocity between toll agencies/service centers by exchanging information that supports reconciliation of toll charges by customers that are enrolled with other toll service centers. May include toll schedule information, customer information and other toll service information that is coordinated between toll agencies or centers.	5 Big Moves #1: Complete Corridors	Existing
Toll Reconciliation Clearinghouse	Supporting reciprocity between toll agencies/service centers by exchanging information that supports reconciliation of toll charges by customers that are enrolled with other toll service centers. May include toll schedule information, customer information and other toll service information that is coordinated between toll agencies or centers.	5 Big Moves #5: Next OS	Existing
Toll Reconciliation Clearinghouse	Supporting reciprocity between toll agencies/service centers by exchanging information that supports reconciliation of toll charges by customers that are enrolled with other toll service centers. May include toll schedule information, customer information and other toll service information that is coordinated between toll agencies or centers.	Global Element	Existing
Tolling Enforcement Center	The 'Enforcement Center' represents the systems that receive reports of violations detected by various ITS facilities including individual toll violations	5 Big Moves #1: Complete Corridors	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Tolling Enforcement Center	The 'Enforcement Center' represents the systems that receive reports of violations detected by various ITS facilities including individual toll violations	5 Big Moves #2: Transit Leap	Existing
Tolling Enforcement Center	The 'Enforcement Center' represents the systems that receive reports of violations detected by various ITS facilities including individual toll violations	5 Big Moves #3: Mobility Hubs	Existing
Tolling Enforcement Center	The 'Enforcement Center' represents the systems that receive reports of violations detected by various ITS facilities including individual toll violations	5 Big Moves #4: Flexible Fleets	Existing
Tolling Enforcement Center	The 'Enforcement Center' represents the systems that receive reports of violations detected by various ITS facilities including individual toll violations	5 Big Moves #5: Next OS	Existing
Tolling Enforcement Center	The 'Enforcement Center' represents the systems that receive reports of violations detected by various ITS facilities including individual toll violations	Global Element	Existing
Tolling Traveler Support	The traveler support equipment	5 Big Moves #1: Complete Corridors	Existing
Tolling Traveler Support	The traveler support equipment	5 Big Moves #2: Transit Leap	Existing
Tolling Traveler Support	The traveler support equipment	5 Big Moves #3: Mobility Hubs	Existing
Tolling Traveler Support	The traveler support equipment	5 Big Moves #4: Flexible Fleets	Existing
Tolling Traveler Support	The traveler support equipment	5 Big Moves #5: Next OS	Existing
Tolling Traveler Support	The traveler support equipment	Global Element	Existing
Tourist Information System	Systems providing information on local event schedules, traffic conditions, other items of interest to tourists in a region.	5 Big Moves #5: Next OS	Planned
Tourist Information System	Systems providing information on local event schedules, traffic conditions, other items of interest to tourists in a region.	Global Element	Planned
Trans Network Co-op (TNC) Centers	This regional ITS element represents the center(s) that provide on demand services such as bike share, electric scooter, on demand rides like Uber and Lyft, etc. These centers are mapped to both payment administration and Transportation Information Centers.	5 Big Moves #3: Mobility Hubs	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Trans Network Co-op (TNC) Centers	This regional ITS element represents the center(s) that provide on demand services such as bike share, electric scooter, on demand rides like Uber and Lyft, etc. These centers are mapped to both payment administration and Transportation Information Centers.	5 Big Moves #4: Flexible Fleets	Existing
Trans Network Co-op (TNC) Centers	This regional ITS element represents the center(s) that provide on demand services such as bike share, electric scooter, on demand rides like Uber and Lyft, etc. These centers are mapped to both payment administration and Transportation Information Centers.	5 Big Moves #5: Next OS	Existing
Trans Network Co-op (TNC) Centers	This regional ITS element represents the center(s) that provide on demand services such as bike share, electric scooter, on demand rides like Uber and Lyft, etc. These centers are mapped to both payment administration and Transportation Information Centers.	Global Element	Existing
Trapize Mapping	NCTD and MTS use Trapize software for providing maps from "here to there" when providing riders with traveler information.	5 Big Moves #5: Next OS	Existing
Trapize Mapping	NCTD and MTS use Trapize software for providing maps from "here to there" when providing riders with traveler information.	Global Element	Existing
Traveler	The 'Traveler' represents any individual who uses transportation services. The interfaces to the traveler provide general pre-trip and en-route information supporting trip planning, personal guidance, and requests for assistance in an emergency that are relevant to all transportation system users. It also represents users of a public transportation system and addresses interfaces these users have within a transit vehicle or at transit facilities such as roadside stops and transit centers.	5 Big Moves #1: Complete Corridors	Existing
Traveler	The 'Traveler' represents any individual who uses transportation services. The interfaces to the traveler provide general pre-trip and en-route information supporting trip planning, personal guidance, and requests for assistance in an emergency that are relevant to all transportation system users. It also represents users of a public transportation system and addresses interfaces these users have within a transit vehicle or at transit facilities such as roadside stops and transit centers.	5 Big Moves #2: Transit Leap	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Traveler	The 'Traveler' represents any individual who uses transportation services. The interfaces to the traveler provide general pre-trip and en-route information supporting trip planning, personal guidance, and requests for assistance in an emergency that are relevant to all transportation system users. It also represents users of a public transportation system and addresses interfaces these users have within a transit vehicle or at transit facilities such as roadside stops and transit centers.	5 Big Moves #3: Mobility Hubs	Existing
Traveler	The 'Traveler' represents any individual who uses transportation services. The interfaces to the traveler provide general pre-trip and en-route information supporting trip planning, personal guidance, and requests for assistance in an emergency that are relevant to all transportation system users. It also represents users of a public transportation system and addresses interfaces these users have within a transit vehicle or at transit facilities such as roadside stops and transit centers.	5 Big Moves #4: Flexible Fleets	Existing
Traveler	The 'Traveler' represents any individual who uses transportation services. The interfaces to the traveler provide general pre-trip and en-route information supporting trip planning, personal guidance, and requests for assistance in an emergency that are relevant to all transportation system users. It also represents users of a public transportation system and addresses interfaces these users have within a transit vehicle or at transit facilities such as roadside stops and transit centers.	5 Big Moves #5: Next OS	Existing
Traveler	The 'Traveler' represents any individual who uses transportation services. The interfaces to the traveler provide general pre-trip and en-route information supporting trip planning, personal guidance, and requests for assistance in an emergency that are relevant to all transportation system users. It also represents users of a public transportation system and addresses interfaces these users have within a transit vehicle or at transit facilities such as roadside stops and transit centers.	Global Element	Existing
Traveler ID Card	Smart Card used by travelers at the border to expedite identification. The card could represent a passport or Visa with RFID. The 'Traveler Card' stores traveler identification information, including biometric information, that can	5 Big Moves #3: Mobility Hubs	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	be used in trusted traveler programs to expedite clearance through security checkpoints at borders or security-critical areas.		
Traveler ID Card	Smart Card used by travelers at the border to expedite identification. The card could represent a passport or Visa with RFID. The 'Traveler Card' stores traveler identification information, including biometric information, that can be used in trusted traveler programs to expedite clearance through security checkpoints at borders or security-critical areas.	5 Big Moves #5: Next OS	Existing
Traveler ID Card	Smart Card used by travelers at the border to expedite identification. The card could represent a passport or Visa with RFID. The 'Traveler Card' stores traveler identification information, including biometric information, that can be used in trusted traveler programs to expedite clearance through security checkpoints at borders or security-critical areas.	Global Element	Existing
Traveler Support Equipment for Shared Rides	'Traveler Support Equipment' represents the access to traveler information at transit stations, transit stops, other fixed sites along travel routes (e.g., rest stops, merchant locations), and major trip generation locations such as special event centers, hotels, office complexes, amusement parks, and theaters. Traveler information access points include kiosks and informational displays supporting varied levels of interaction and information access. At transit stops this might be simple displays providing schedule information and imminent arrival signals. This may be extended to include multi-modal information including traffic conditions and transit schedules to support mode and route selection at major trip generation sites. Personalized route planning and route guidance information can also be provided based on criteria supplied by the traveler. It also supports service enrollment and electronic payment of transit fares. In addition to the traveler information provision, it also enhances security in public areas by supporting traveler activated silent alarms.	5 Big Moves #3: Mobility Hubs	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
<p>Traveler Support Equipment for Shared Rides</p>	<p>'Traveler Support Equipment' represents the access to traveler information at transit stations, transit stops, other fixed sites along travel routes (e.g., rest stops, merchant locations), and major trip generation locations such as special event centers, hotels, office complexes, amusement parks, and theaters. Traveler information access points include kiosks and informational displays supporting varied levels of interaction and information access. At transit stops this might be simple displays providing schedule information and imminent arrival signals. This may be extended to include multi-modal information including traffic conditions and transit schedules to support mode and route selection at major trip generation sites. Personalized route planning and route guidance information can also be provided based on criteria supplied by the traveler. It also supports service enrollment and electronic payment of transit fares. In addition to the traveler information provision, it also enhances security in public areas by supporting traveler activated silent alarms.</p>	<p>5 Big Moves #4: Flexible Fleets</p>	<p>Planned</p>
<p>Traveler Support Equipment for Shared Rides</p>	<p>'Traveler Support Equipment' represents the access to traveler information at transit stations, transit stops, other fixed sites along travel routes (e.g., rest stops, merchant locations), and major trip generation locations such as special event centers, hotels, office complexes, amusement parks, and theaters. Traveler information access points include kiosks and informational displays supporting varied levels of interaction and information access. At transit stops this might be simple displays providing schedule information and imminent arrival signals. This may be extended to include multi-modal information including traffic conditions and transit schedules to support mode and route selection at major trip generation sites. Personalized route planning and route guidance information can also be provided based on criteria supplied by the traveler. It also supports service enrollment and electronic payment of transit fares. In addition to the traveler information provision, it also enhances security in public areas by supporting traveler activated silent alarms.</p>	<p>Global Element</p>	<p>Planned</p>

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
<p>Tribal Emergency Management Centers</p>	<p>Emergency Management Centers and Emergency Ops Centers owned and operated by Native American tribes in southern California. The 'Emergency Management Center' represents systems that support incident management, disaster response and evacuation, security monitoring, and other security and public safety-oriented ITS applications. It includes the functions associated with fixed and mobile public safety communications centers including public safety call taker and dispatch centers operated by police (including transit police), fire, and emergency medical services. It includes the functions associated with Emergency Operations Centers that are activated at local, regional, state, and federal levels for emergencies and the portable and transportable systems that support Incident Command System operations at an incident.</p> <p>This Center also represents systems associated with towing and recovery, freeway service patrols, HAZMAT response teams, and mayday service providers. It manages sensor and surveillance equipment used to enhance transportation security of the roadway infrastructure (including bridges, tunnels, interchanges, and other key roadway segments) and the public transportation system (including transit vehicles, public areas such as transit stops and stations, facilities such as transit yards, and transit infrastructure such as rail, bridges, tunnels, or bus guideways). It provides security/surveillance services to improve traveler security in public areas not a part of the public transportation system.</p>	<p>5 Big Moves #1: Complete Corridors</p>	<p>Existing</p>

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
<p>Tribal Emergency Management Centers</p>	<p>Emergency Management Centers and Emergency Ops Centers owned and operated by Native American tribes in southern California. The 'Emergency Management Center' represents systems that support incident management, disaster response and evacuation, security monitoring, and other security and public safety-oriented ITS applications. It includes the functions associated with fixed and mobile public safety communications centers including public safety call taker and dispatch centers operated by police (including transit police), fire, and emergency medical services. It includes the functions associated with Emergency Operations Centers that are activated at local, regional, state, and federal levels for emergencies and the portable and transportable systems that support Incident Command System operations at an incident.</p> <p>This Center also represents systems associated with towing and recovery, freeway service patrols, HAZMAT response teams, and mayday service providers. It manages sensor and surveillance equipment used to enhance transportation security of the roadway infrastructure (including bridges, tunnels, interchanges, and other key roadway segments) and the public transportation system (including transit vehicles, public areas such as transit stops and stations, facilities such as transit yards, and transit infrastructure such as rail, bridges, tunnels, or bus guideways). It provides security/surveillance services to improve traveler security in public areas not a part of the public transportation system.</p>	<p>5 Big Moves #5: Next OS</p>	<p>Existing</p>

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Tribal Emergency Management Centers	<p>Emergency Management Centers and Emergency Ops Centers owned and operated by Native American tribes in southern California. The 'Emergency Management Center' represents systems that support incident management, disaster response and evacuation, security monitoring, and other security and public safety-oriented ITS applications. It includes the functions associated with fixed and mobile public safety communications centers including public safety call taker and dispatch centers operated by police (including transit police), fire, and emergency medical services. It includes the functions associated with Emergency Operations Centers that are activated at local, regional, state, and federal levels for emergencies and the portable and transportable systems that support Incident Command System operations at an incident.</p> <p>This Center also represents systems associated with towing and recovery, freeway service patrols, HAZMAT response teams, and mayday service providers. It manages sensor and surveillance equipment used to enhance transportation security of the roadway infrastructure (including bridges, tunnels, interchanges, and other key roadway segments) and the public transportation system (including transit vehicles, public areas such as transit stops and stations, facilities such as transit yards, and transit infrastructure such as rail, bridges, tunnels, or bus guideways). It provides security/surveillance services to improve traveler security in public areas not a part of the public transportation system.</p>	Global Element	Existing
Tribal ITS Field Equipment	Field equipment such as signals, CCTV, etc.	5 Big Moves #1: Complete Corridors	Existing
Tribal ITS Field Equipment	Field equipment such as signals, CCTV, etc.	5 Big Moves #5: Next OS	Existing
Tribal ITS Field Equipment	Field equipment such as signals, CCTV, etc.	Global Element	Existing
Tribal Maintenance Operations	Tribal Maintenance Operations	5 Big Moves #1: Complete Corridors	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Tribal Maintenance Operations	Tribal Maintenance Operations	5 Big Moves #5: Next OS	Planned
Tribal Maintenance Operations	Tribal Maintenance Operations	Global Element	Planned
Tribal MCO Vehicles	Tribal government maintenance and construction vehicles used for maintaining roadways and construction activities.	5 Big Moves #1: Complete Corridors	Planned
Tribal MCO Vehicles	Tribal government maintenance and construction vehicles used for maintaining roadways and construction activities.	5 Big Moves #5: Next OS	Planned
Tribal MCO Vehicles	Tribal government maintenance and construction vehicles used for maintaining roadways and construction activities.	Global Element	Planned
Tribal PD and Fire	Tribal government Police Department and Fire dispatch	5 Big Moves #1: Complete Corridors	Existing
Tribal PD and Fire	Tribal government Police Department and Fire dispatch	5 Big Moves #5: Next OS	Existing
Tribal PD and Fire	Tribal government Police Department and Fire dispatch	Global Element	Existing
Tribal PD and Fire Vehicles	Tribal governmental police department and fire department vehicles.	5 Big Moves #1: Complete Corridors	Existing
Tribal PD and Fire Vehicles	Tribal governmental police department and fire department vehicles.	5 Big Moves #5: Next OS	Existing
Tribal PD and Fire Vehicles	Tribal governmental police department and fire department vehicles.	Global Element	Existing
Tribal Transportation Operations	Systems providing traffic management of the tribal communities highways and roads in the San Diego region.	5 Big Moves #1: Complete Corridors	Existing
Tribal Transportation Operations	Systems providing traffic management of the tribal communities highways and roads in the San Diego region.	5 Big Moves #5: Next OS	Existing
Tribal Transportation Operations	Systems providing traffic management of the tribal communities highways and roads in the San Diego region.	Global Element	Existing
TV, Local Print and Broadcast Media	Media' represents the information systems that provide traffic reports, travel conditions, and other transportation-related news services to the traveling public through radio, TV, and other media. Traffic and travel advisory information that are collected by ITS are provided to this object. It is also a source for traffic flow information, incident and special event information,	5 Big Moves #5: Next OS	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	and other events that may have implications for the transportation system. Broadcast media outlets send alerts about conditions/incidents near the border and other traveler information.		
TV, Local Print and Broadcast Media	Media' represents the information systems that provide traffic reports, travel conditions, and other transportation-related news services to the traveling public through radio, TV, and other media. Traffic and travel advisory information that are collected by ITS are provided to this object. It is also a source for traffic flow information, incident and special event information, and other events that may have implications for the transportation system. Broadcast media outlets send alerts about conditions/incidents near the border and other traveler information.	Global Element	Existing
US Automated Roadside Inspection and Enforcement Systems	A system used by US states to conduct roadside safety inspections, including ASPEN, to collect inspection details, print the inspection report, and transfer results to state/national information systems.	5 Big Moves #1: Complete Corridors	Planned
US Automated Roadside Inspection and Enforcement Systems	A system used by US states to conduct roadside safety inspections, including ASPEN, to collect inspection details, print the inspection report, and transfer results to state/national information systems.	5 Big Moves #5: Next OS	Planned
US Automated Roadside Inspection and Enforcement Systems	A system used by US states to conduct roadside safety inspections, including ASPEN, to collect inspection details, print the inspection report, and transfer results to state/national information systems.	Global Element	Planned
US Border Inspection Administration Systems	Back-office systems and databases coordinating activities among the border crossings. Data collected and disseminated to other government systems and users. Includes systems that support programs such as FAST and Sentri. The Automated Commercial Environment (ACE) is the commercial trade processing system for US Customs and Border Protection, supporting import/export cargo processing and enforcement operations at the border.	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
US Border Inspection Administration Systems	Back-office systems and databases coordinating activities among the border crossings. Data collected and disseminated to other government systems and users. Includes systems that support programs such as FAST and Sentri. The Automated Commercial Environment (ACE) is the commercial trade processing system for US Customs and Border Protection, supporting import/export cargo processing and enforcement operations at the border.	Global Element	Planned
US Border Inspection Systems	Represents systems used by US Customs and Border Protection at the border.	5 Big Moves #5: Next OS	Planned
US Border Inspection Systems	Represents systems used by US Customs and Border Protection at the border.	Global Element	Planned
US Border Inspection Systems (BWT Processing)	Represents systems used by the CBP at the border crossing that is focused on the processing of data from Border Wait Times (BWT) field surveillance equipment in order to determine current, actual, and predicted border wait times. Actual processing may be performed by a piece of equipment located at the border crossing or in a back-office somewhere. There is a complex mapping used to relate this element to both the Border Inspection Systems terminator for the border interfacing as well as a Traffic Management Subsystem (TMS) subsystem from the National ITS Architecture to capture the processing of traffic data coming from surveillance equipment in order to develop travel time information.	5 Big Moves #5: Next OS	Planned
US Border Inspection Systems (BWT Processing)	Represents systems used by the CBP at the border crossing that is focused on the processing of data from Border Wait Times (BWT) field surveillance equipment in order to determine current, actual, and predicted border wait times. Actual processing may be performed by a piece of equipment located at the border crossing or in a back-office somewhere. There is a complex mapping used to relate this element to both the Border Inspection Systems terminator for the border interfacing as well as a Traffic Management Subsystem (TMS) subsystem from the National ITS Architecture to capture the processing of traffic data coming from surveillance equipment in order to develop travel time information.	Global Element	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
US Border Services Field Equipment	This element includes all field equipment operated by DHS at the border. The equipment includes a radiation portal monitor (which is a detection device that provides Customs and Border Protection (CBP) with a passive, non-intrusive means to screen trucks and other conveyances for the presence of nuclear and radiological materials. These systems are capable of detecting various types of radiation emanating from nuclear devices, dirty bombs, special nuclear materials, natural sources, and isotopes commonly used in medicine and industry). The equipment also includes ITS field equipment such as sensors, CCTV, and Dynamic Message Signs, traffic signal controllers, etc., operated and managed by US Border agencies.	5 Big Moves #1: Complete Corridors	Planned
US Border Services Field Equipment	This element includes all field equipment operated by DHS at the border. The equipment includes a radiation portal monitor (which is a detection device that provides Customs and Border Protection (CBP) with a passive, non-intrusive means to screen trucks and other conveyances for the presence of nuclear and radiological materials. These systems are capable of detecting various types of radiation emanating from nuclear devices, dirty bombs, special nuclear materials, natural sources, and isotopes commonly used in medicine and industry). The equipment also includes ITS field equipment such as sensors, CCTV, and Dynamic Message Signs, traffic signal controllers, etc., operated and managed by US Border agencies.	5 Big Moves #5: Next OS	Planned
US Border Services Field Equipment	This element includes all field equipment operated by DHS at the border. The equipment includes a radiation portal monitor (which is a detection device that provides Customs and Border Protection (CBP) with a passive, non-intrusive means to screen trucks and other conveyances for the presence of nuclear and radiological materials. These systems are capable of detecting various types of radiation emanating from nuclear devices, dirty bombs, special nuclear materials, natural sources, and isotopes commonly used in medicine and industry). The equipment also includes ITS field equipment such as sensors, CCTV, and Dynamic Message Signs, traffic signal controllers, etc., operated and managed by US Border agencies.	Global Element	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
US Bureau of Transportation Statistics Systems	Bureau of US government that would collect data from Border Information administration systems (e.g. ACE) and then provide that data to archives in the architecture.	5 Big Moves #5: Next OS	Planned
US Bureau of Transportation Statistics Systems	Bureau of US government that would collect data from Border Information administration systems (e.g. ACE) and then provide that data to archives in the architecture.	Global Element	Planned
US CBP Facility Master Plan System	Data collection and warehousing system to collect border related information for CBP. Archived data used to support planning activities.	5 Big Moves #5: Next OS	Planned
US CBP Facility Master Plan System	Data collection and warehousing system to collect border related information for CBP. Archived data used to support planning activities.	Global Element	Planned
US CBP Website	Website containing border crossing specific information.	5 Big Moves #5: Next OS	Planned
US CBP Website	Website containing border crossing specific information.	Global Element	Planned
US Emergency Operations Center (OME)	Includes operations centers at federal, state, county, and city levels. Primarily activated during large-scale incidents or disasters, involves communication and coordination with public safety agencies and any other services needed during a disaster.	5 Big Moves #5: Next OS	Planned
US Emergency Operations Center (OME)	Includes operations centers at federal, state, county, and city levels. Primarily activated during large-scale incidents or disasters, involves communication and coordination with public safety agencies and any other services needed during a disaster.	Global Element	Planned
US FHWA Federal Lands Planning System	Data collection and warehousing system to collect transportation related information for Federal Lands. Archived data used to support planning activities.	5 Big Moves #5: Next OS	Planned
US FHWA Federal Lands Planning System	Data collection and warehousing system to collect transportation related information for Federal Lands. Archived data used to support planning activities.	Global Element	Planned
US GSA Infrastructure Planning System	Data collection and warehousing system to collect border/transportation related information for GSA. Archived data used to support planning activities for border facilities.	5 Big Moves #5: Next OS	Planned
US GSA Infrastructure Planning System	Data collection and warehousing system to collect border/transportation related information for GSA. Archived data used to support planning activities for border facilities.	Global Element	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
US Inland Check Point	Inland check point located within 100 miles of the border, serving border patrol and vehicle inspection functions.	5 Big Moves #1: Complete Corridors	Planned
US Inland Check Point	Inland check point located within 100 miles of the border, serving border patrol and vehicle inspection functions.	5 Big Moves #5: Next OS	Planned
US Inland Check Point	Inland check point located within 100 miles of the border, serving border patrol and vehicle inspection functions.	Global Element	Planned
US Public Health Systems	Represents public health related systems operated by Health and Human Services, (e.g. FDA) and by Department of Agriculture (e.g. plant and animal).	5 Big Moves #5: Next OS	Planned
US Public Health Systems	Represents public health related systems operated by Health and Human Services, (e.g. FDA) and by Department of Agriculture (e.g. plant and animal).	Global Element	Planned
US Weather Service Forecasting System	Provides weather, hydrologic, and climate information, forecasts, and warnings of hazardous weather including thunderstorms, flooding, hurricanes, tornadoes, winter weather, tsunamis, and climate events.	5 Big Moves #5: Next OS	Planned
US Weather Service Forecasting System	Provides weather, hydrologic, and climate information, forecasts, and warnings of hazardous weather including thunderstorms, flooding, hurricanes, tornadoes, winter weather, tsunamis, and climate events.	Global Element	Planned
User Personal Information Devices	User Personal Computing Devices refers to equipment an individual owns and can personalize with their choices for information about transportation networks. An Internet-connected PC is an example. Cell Phones (web enabled), Personal Computers, and PDA's (hand held devices) used by individuals to access information concerning traffic conditions, incidents, weather, routing, trip planning, and border crossing information in Mexico or the United States. Includes regional and national information service providers, such as Navigator, SmartRoutes, or Metro Traffic that provide travel information to the traveling public (both subscription service and general broadcast information) through these devices.	5 Big Moves #5: Next OS	Existing
User Personal Information Devices	User Personal Computing Devices refers to equipment an individual owns and can personalize with their choices for information about transportation networks. An Internet-connected PC is an example. Cell Phones (web enabled), Personal Computers, and PDA's (hand held devices) used by individuals to access information concerning traffic conditions, incidents, weather, routing, trip planning, and border crossing information in Mexico or	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	the United States. Includes regional and national information service providers, such as Navigator, SmartRoutes, or Metro Traffic that provide travel information to the traveling public (both subscription service and general broadcast information) through these devices.		
Vehicle GPS and Time Data	The 'Vehicle Location and Time Data Source' provides accurate position information for vehicle-based mobile devices. While a Global Positioning System (GPS) Receiver is the most common implementation, this physical object represents any technology that provides a position fix in three dimensions and time with sufficient accuracy. This data can be used for location through a vehicle OBE (ie for time stamping and performance monitoring).	5 Big Moves #1: Complete Corridors	Planned
Vehicle GPS and Time Data	The 'Vehicle Location and Time Data Source' provides accurate position information for vehicle-based mobile devices. While a Global Positioning System (GPS) Receiver is the most common implementation, this physical object represents any technology that provides a position fix in three dimensions and time with sufficient accuracy. This data can be used for location through a vehicle OBE (ie for time stamping and performance monitoring).	5 Big Moves #5: Next OS	Planned
Vehicle GPS and Time Data	The 'Vehicle Location and Time Data Source' provides accurate position information for vehicle-based mobile devices. While a Global Positioning System (GPS) Receiver is the most common implementation, this physical object represents any technology that provides a position fix in three dimensions and time with sufficient accuracy. This data can be used for location through a vehicle OBE (ie for time stamping and performance monitoring).	Global Element	Planned
Verizon LTE Cellular Network	Private APN network set up for Caltrans D11 Field Device Backhaul, in areas where agency fiber is not yet accessible.	5 Big Moves #5: Next OS	Planned
Verizon LTE Cellular Network	Private APN network set up for Caltrans D11 Field Device Backhaul, in areas where agency fiber is not yet accessible.	Global Element	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Vulnerable Road Users	'Vulnerable Road Users' represents any roadway user not in a motorized vehicle capable of operating at the posted speed for the roadway in question, and also any roadway user in a vehicle not designed to encase (and thus protect) its occupants. This includes pedestrians, cyclists, wheelchair users, two-wheeled scooter micromobility users, as well as powered scooters and motorcycles. Note that this terminator represents the physical properties of vulnerable road users and their conveyance that may be sensed to support safe vehicle automation and traffic management in mixed mode applications where a variety of road users share the right-of-way. See also 'Pedestrian' and 'Cyclist' Physical Objects that represent the human interface to these vulnerable road users.	5 Big Moves #1: Complete Corridors	Planned
Vulnerable Road Users	'Vulnerable Road Users' represents any roadway user not in a motorized vehicle capable of operating at the posted speed for the roadway in question, and also any roadway user in a vehicle not designed to encase (and thus protect) its occupants. This includes pedestrians, cyclists, wheelchair users, two-wheeled scooter micromobility users, as well as powered scooters and motorcycles. Note that this terminator represents the physical properties of vulnerable road users and their conveyance that may be sensed to support safe vehicle automation and traffic management in mixed mode applications where a variety of road users share the right-of-way. See also 'Pedestrian' and 'Cyclist' Physical Objects that represent the human interface to these vulnerable road users.	5 Big Moves #2: Transit Leap	Planned
Vulnerable Road Users	'Vulnerable Road Users' represents any roadway user not in a motorized vehicle capable of operating at the posted speed for the roadway in question, and also any roadway user in a vehicle not designed to encase (and thus protect) its occupants. This includes pedestrians, cyclists, wheelchair users, two-wheeled scooter micromobility users, as well as powered scooters and motorcycles. Note that this terminator represents the physical properties of vulnerable road users and their conveyance that may be sensed to support safe vehicle automation and traffic management in mixed mode applications where a variety of road users share the right-of-way. See also 'Pedestrian' and	5 Big Moves #3: Mobility Hubs	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	'Cyclist' Physical Objects that represent the human interface to these vulnerable road users.		
Vulnerable Road Users	'Vulnerable Road Users' represents any roadway user not in a motorized vehicle capable of operating at the posted speed for the roadway in question, and also any roadway user in a vehicle not designed to encase (and thus protect) its occupants. This includes pedestrians, cyclists, wheelchair users, two-wheeled scooter micromobility users, as well as powered scooters and motorcycles. Note that this terminator represents the physical properties of vulnerable road users and their conveyance that may be sensed to support safe vehicle automation and traffic management in mixed mode applications where a variety of road users share the right-of-way. See also 'Pedestrian' and 'Cyclist' Physical Objects that represent the human interface to these vulnerable road users.	5 Big Moves #4: Flexible Fleets	Planned
Vulnerable Road Users	'Vulnerable Road Users' represents any roadway user not in a motorized vehicle capable of operating at the posted speed for the roadway in question, and also any roadway user in a vehicle not designed to encase (and thus protect) its occupants. This includes pedestrians, cyclists, wheelchair users, two-wheeled scooter micromobility users, as well as powered scooters and motorcycles. Note that this terminator represents the physical properties of vulnerable road users and their conveyance that may be sensed to support safe vehicle automation and traffic management in mixed mode applications where a variety of road users share the right-of-way. See also 'Pedestrian' and 'Cyclist' Physical Objects that represent the human interface to these vulnerable road users.	5 Big Moves #5: Next OS	Planned

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
Vulnerable Road Users	<p>'Vulnerable Road Users' represents any roadway user not in a motorized vehicle capable of operating at the posted speed for the roadway in question, and also any roadway user in a vehicle not designed to encase (and thus protect) its occupants. This includes pedestrians, cyclists, wheelchair users, two-wheeled scooter micromobility users, as well as powered scooters and motorcycles. Note that this terminator represents the physical properties of vulnerable road users and their conveyance that may be sensed to support safe vehicle automation and traffic management in mixed mode applications where a variety of road users share the right-of-way. See also 'Pedestrian' and 'Cyclist' Physical Objects that represent the human interface to these vulnerable road users.</p>	Global Element	Planned
Wide Area Alerting Systems	<p>Wide Area Alerting Systems are used throughout the state to notify the public when there is an emergency often through a rapid notification system used to contact the public by telephone during times of emergency.</p> <p>Through a reverse 911 system, residents receive a recorded message in English and Spanish notifying them of the nature of the emergency, and what steps they should take to eliminate risks associated with the emergency. Any public safety agency can activate the system, which can be used for emergency incidents that pose a danger to life or property. Potential uses include emergencies such as major fires, floods, public safety threats, hazardous materials spills, police incidents, and endangered children or elderly persons.</p>	5 Big Moves #5: Next OS	Existing
Wide Area Alerting Systems	<p>Wide Area Alerting Systems are used throughout the state to notify the public when there is an emergency often through a rapid notification system used to contact the public by telephone during times of emergency.</p> <p>Through a reverse 911 system, residents receive a recorded message in English and Spanish notifying them of the nature of the emergency, and what steps they should take to eliminate risks associated with the emergency. Any public safety agency can activate the system, which can be used for emergency incidents that pose a danger to life or property. Potential uses</p>	Global Element	Existing

Regional ITS Architecture Inventory Elements

Element Name	Element Description	Big Move	Status
	include emergencies such as major fires, floods, public safety threats, hazardous materials spills, police incidents, and endangered children or elderly persons.		