Connected Corridors: I-210 Pilot Project
Integrated Corridor Management (ICM) System

Memorandum of Understanding

August 1, 2018

CONNECTED CORRIDORS I-210 PILOT PROJECT MEMORANDUM OF UNDERSTANDING (MOU)

CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS) & LOCAL AND REGIONAL AGENCIES

This MOU is a compilation of the goals, policies, and procedures intended to be followed by the parties working together in a coordinated manner to enhance traffic operations along the Interstate 210 corridor in the San Gabriel Valley. This MOU is intended to identify the roles and responsibilities of all core stakeholders, and clarify ownership, and operations and maintenance responsibilities for the various equipment and system installed as part of the I-210 Connected Corridors Pilot. The following entities have been identified as the core stakeholders to the I-210 Pilot and are parties to this MOU:

California Department of Transportation (Caltrans), Los Angeles County Metropolitan Transportation Authority (LACMTA) on behalf of Regional Integration of Intelligent Transportation Systems (RIITS), Los Angeles County, and the Cities of Pasadena, Monrovia, Arcadia, and Duarte.

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1. BACKGROUND

The I-210 corridor is one of the most congested corridors in California. Over the years, the cities of Pasadena, Arcadia, Monrovia, and Duarte, and regional agencies, LA County and LA Metro, have implemented a variety of transportation system improvements and technologies. One of the most recent improvements was the addition of six new light rail stations, extending Metro's Gold line further east through the I-210 corridor. The transportation needs of the corridor continue to grow and the stakeholders have long shown a commitment to addressing those needs.

In 2011, Caltrans leadership sought to change its focus from building and managing freeways to collaborating and coordinating with other agencies to maximize scarce resources, and, ultimately, to improve system-wide performance. The agency began focusing on Transportation Systems Management and Operations (TSM&O) strategies and using technology and partnerships to better manage California's vast transportation networks. Later that year, the Connected Corridors (CC) program was developed to help Caltrans achieve its new multi-modal, multi-agency collaborative vision.

Given the existing infrastructure and the commitment of local and regional agencies to improve transportation, the I-210 corridor was selected as the first pilot of the CC program. Connected Corridors is an Integrated Corridor Management (ICM) program that looks at an entire transportation system and all opportunities to move people and goods in the most efficient manner possible to ensure the greatest potential gains in operational performance will be achieved. The program is a collaborative effort to research, develop, test, and deploy a new framework for corridor management in California that aims to change the way state and local transportation agencies manage transportation challenges for years to come.

The I-210 Pilot is serving as a testbed to demonstrate how an ICM project can be developed by engaging corridor stakeholders to build consensus on how to address congestion for the betterment of an entire network.

2. PURPOSE OF MOU

This MOU serves the following purposes:

- Confirm the commitment of all project stakeholders and clarify each agency's ownership, roles, and responsibilities toward the common goal of better incident management through the I-210 Pilot;
- Outline the framework for multi-agency cooperation, collaboration, and governance;
- Signify the long-term commitment of the project partners to fund, operate, and maintain the project and make it a success.

3. PROJECT DESCRIPTION

The I-210 ICM Pilot projects aims to develop strategies for the coordinated management of the I-210 freeway, surrounding arterials, and other relevant transportation systems to reduce congestion and improve overall mobility within the corridor. At this stage, the focus is on managing travel conditions during incidents and events having a significant impact on travel activities. Operational improvements are sought through the coordinated operation, where feasible, of:

- Freeway on-ramp meters
- Freeway-to-freeway connector meters
- Arterial traffic signal control systems
- Freeway and arterial message signs including dynamic and static reroute signs
- Traveler information systems

Improvements will be achieved by developing and deploying the ICM system. At the heart of the proposed system will be a Decision Support System (DSS) designed to help corridor system operators manage incidents, unscheduled events, and planned events more effectively.

When an incident occurs, travelers naturally seek alternative routes or modes of travel to reach their destination point. Through better data sharing and systems, the I-210 Pilot will better manage the transportation system and enable travelers to make more informed decisions regarding alternative routes and modes of travel.

The project description and ICM System is detailed further in other Systems Engineering (SE) documents available on the project's website at: https://connected-corridors.berkeley.edu/resources/document-library.

4. PROJECT OBJECTIVES

The I-210 Pilot ICM system specifically aims to optimize the system capacity using TSM&O strategies and improve coordination and operations of the corridor specifically during incidents and events through the following approaches:

- Improved real-time system monitoring capabilities through the utilization of emerging data collection techniques, such as probe vehicle data collection capabilities
- Improved coordinated responses to incidents
- Improved ability to adjust corridor operations in real time
- Enhanced ability to influence traffic patterns and travel demand through improved data dissemination techniques
- Implementation of improved traffic and demand management applications
- Improved operational coordination of traffic management along freeways and arterials
- Improved coordination of roadway and transit operations
- Improved coordination of activities among agencies involved in the management and operation of a transportation corridor

The primary goal of the proposed system is to improve overall system performance through the implementation of cross-jurisdictional traffic and demand management strategies considering all relevant travel modes within a corridor. Corridor safety, travel reliability, and improved communication and coordination are some of the key secondary goals.

5. STAKEHOLDERS

Stakeholders in the I-210 Pilot include agencies and groups having a direct interest in system operations and in how the system affects travel conditions in the corridor. Participation by and coordination among the stakeholders is vital to the project's success. For the purposes of this MOU, stakeholders have been divided into two groups: core stakeholders and key stakeholders. Appendix A provides contact information for the core stakeholders.

CORE STAKEHOLDERS-MOU PARTICIPANTS

The core stakeholders that are participating in this MOU are:

- Caltrans District 7
- City of Arcadia
- City of Duarte
- City of Monrovia
- City of Pasadena
- Los Angeles County Department of Public Works (LADPW)
- Los Angeles County Regional Integration of Intelligent Transportation System (RIITS)

KEY STAKEHOLDERS-NOT A PART OF MOU AGREEMENT

Key stakeholders continue to be involved in stakeholder meetings and the development of the tools, technologies, and strategies for the Pilot. The key stakeholders include:

- California Highway Patrol
- Caltrans Headquarters
- Foothill Transit
- Los Angeles County Metropolitan Transportation Authority (Metro)
- Los Angeles County Service Authority for Freeway Emergencies (LA SAFE)
- Pasadena Area Rapid Transit System (ARTS)
- Southern California Association of Governments (SCAG)
- San Gabriel Valley Council of Governments (SGVCOG)
- University of California, Berkeley - PATH
- US Department of Transportation (USDOT)

6. RESPONSIBILITIES

As participants in the I-210 Pilot, core stakeholders agree to the following:

- The core stakeholders agree that the improvements provided by the LA Metro 2015 Call for Projects funding, while installed by CT D7 (the Project Sponsor), will be owned, operated, and maintained by their individual jurisdictions. Separately, the agencies will work with CT D7 to execute an "Asset Transfer Agreement" or similar document that outlines the improvements in each jurisdiction.
- Share real-time transportation data within their jurisdiction through RIITS with the I-210 Pilot Decision Support System, which receives data from the data hub.
- Share video feeds and/or images through RIITS for the purpose of real-time operations and incident management.
- Maintain the health of their jurisdiction's signal systems and sensors to support high-quality reporting.
- Review and approve incident response plans and reroute strategies through the stakeholder's jurisdiction.
- Populate the road closure system with their events and activities.
- All agencies shall work together in the development of proposed coordination timing plans for use during incidents for all signals on agreed upon reroutes (including Caltrans signals). Each agency shall be responsible for implementing all agreed upon coordination onto their controllers for use during an incident.
- Attend regular stakeholder meetings and provide input on updates to the system and its supporting networks.
- Commit to addressing and resolving any issue arising from the I-210 Pilot in a timely manner and at the lowest managerial level possible.

7. COSTS AND FUNDING

In 2011, Caltrans Headquarters initiated an agreement with UC Berkeley PATH to research and develop the Connected Corridors Program. Over the next 18 months, the two partners investigated various corridors throughout the state to determine Caltrans District 7 and the I-210 corridor was the best option for the Program's inaugural Pilot.

At the end of 2014, Caltrans secured $24.8 million in SHOPP (State Highway Operation and Protection Program) funding to purchase and install the necessary equipment and systems for the freeway improvements. The following year, LA Metro awarded Caltrans $6.4 million in funding through their 2015 Call for Projects to procured and install the necessary equipment and systems for the arterial improvements. Additionally, the I-210 Pilot team spent significant time developing and installing equipment and systems to integrate with each agency's existing system. Appendix B lists the equipment purchased and installed through the SHOPP and Call for Projects funding. Any additional equipment desired by an individual agency, but not procured through the Call for Projects or SHOPP funding, shall be funded by the

requesting agency.

Once the purchased equipment is installed and deployed, each jurisdiction is the owner and operator of their individual systems and supporting equipment. This includes dynamic and static signs, primarily used for reroutes, travel time measurement devices, center-to-center communication interfaces, and traffic signal systems. All costs related to the operations and maintenance of each jurisdiction's equipment and systems will be the responsibility of that jurisdiction.

Caltrans District 7 will continue to fund and operate the Los Angeles Regional Traffic Management Center (LARTMC) with 24 hours per day/7 days per week corridor/asset monitoring. Additionally, District 7 agrees to be responsible for the maintenance and operation of the I-210 Pilot ICM System and its supporting infrastructure and systems. This includes the Decision Support System, Corridor Management System, and cloud computing technologies to maintain real-time operation of the ICM system, as well as ramp metering, wayfinding signs, traffic signals, travel time measurement devices and detector sensors within Caltrans jurisdiction.

All training related to deploying and operating the I-210 Pilot and ICM systems will be provided by the appropriate vendor for all stakeholders.

8. GOVERNANCE

It is the intent that all technical and operational matters be resolved among the partnering agencies at the lowest working level. In general, the I-210 Pilot activities will be directed through each agency's primary contact and then advanced through each agency's chain of command as needed.

All stakeholders acknowledge and recognize the improvements made through the I-210 Pilot activities provide significant regional and local benefits and all parties share an interest in its operation and expenditures. Therefore, stakeholders will make every effort to address and resolve issues in a timely matter and with the lowest working level possible.

9. AMENDMENTS AND ADMINISTRATIVE MODIFICATIONS

Amendments or additional appendices may be developed and implemented by mutual written agreement of all signatories at any time without the need to renegotiate the entire MOU. The term of this MOU shall remain unchanged unless otherwise expressly stated in the amended MOU.

Any amendment that extends the term of this MOU shall be treated as a renewal.

A party may also terminate its participation in this MOU after providing 30 days written notice to the other parties.

10. TERMS AND RENEWAL

This MOU shall have a term of five (5) years beginning on the date of the last signature, unless extended by partnering agencies pursuant to an approved amendment.

11. SIGNATURES

The Core Stakeholders are identified in Section 5 and each has its own signature page.

The following Core Stakeholders support this Memorandum of Understanding for the Interstate 210 (I-210) Connected Corridors Pilot and have caused this Agreement to be executed by their respective officers. (The Core Stakeholders are identified in Section 5 and each has its own signature page.)

Executed Between:

Los Angeles County Metropolitan Transportation Authority (LACMTA) for RIITS:

Phillip A. Washington, Chief Executive Officer

Date: 7/31/2018

Caltrans District 7:

John Bulinski , District Director, Caltrans District 7

Date: 11/16/2018

The following Core Stakeholders support this Memorandum of Understanding for the Interstate 210 (I-210) Connected Corridors Pilot and have caused this Agreement to be executed by their respective officers. (The Core Stakeholders are identified in Section 5 and each has its own signature page.)

Executed Between:

Los Angeles County
Department of Public Works:

Phil K. Doudar, Assistant Deputy Director

Date: 5/30/18

Caltrans District 7:

John Bulinski , District Director, Caltrans District 7

Date: 11/16/2018

The following Core Stakeholders support this Memorandum of Understanding for the Interstate 210 (I-210) Connected Corridors Pilot and have caused this Agreement to be executed by their respective officers. (The Core Stakeholders are identified in Section 5 and each has its own signature page.)

Executed Between:

City of Pasadena:

FAR Steve Mermell, City Manager

JULIE A.GUTIERREZ
Assistant City Manager

Date: 5-1-18

APPROVED
AS TO FORM:

This 25th day of April, 2018

By _____

Assistant City Attorney

Caltrans District 7:

John Bulinski , District Director, Caltrans District 7

Date: 11/16/2018

The following Core Stakeholders support this Memorandum of Understanding for the Interstate 210 (I-210) Connected Corridors Pilot and have caused this Agreement to be executed by their respective officers. (The Core Stakeholders are identified in the table above and each has its own signature page.)

Executed Between:

City of Arcadia:

Dominic Lazzaretto, City Manager

Date: July 24, 2018

Caltrans District 7:

John Bulinski , District Director, Caltrans District 7

Date: 11/16/2018

The following Core Stakeholders support this Memorandum of Understanding for the Interstate 210 (I-210) Connected Corridors Pilot and have caused this Agreement to be executed by their respective officers. (The Core Stakeholders are identified in Section 5 and each has its own signature page.)

Executed Between:

City of Monrovia:

Tina Cherry, Director, Public Services

Date: 11.6.18

Caltrans District 7:

John Bulinski, District Director, Caltrans District 7

Date: 11/16/2018

The following Core Stakeholders support this Memorandum of Understanding for the Interstate 210 (I-210) Connected Corridors Pilot and have caused this Agreement to be executed by their respective officers. (The Core Stakeholders are identified in Section 5 and each has its own signature page.)

Executed Between:

City of Duarte: _____

Craig Hensley, Community Development Director

Date: Nov. 6, 2018

Caltrans District 7: _____

John Bulinski , District Director, Caltrans District 7

Date: 11/16/2018

APPENDIX A: CONTACTS

Agency	Primary Contact	Secondary Contact
Caltrans District 7	Mort Fahrtash Chief, Office of District Traffic Manager 323-259-1764 morteza.fahrtash@dot.ca.gov	Allen Z. Chen Senior Transportation Engineer, Electrical 213.897.8922 allen.z.chen@dot.ca.gov
City of Arcadia	Philip Wray Deputy Development Services Director/City Engineer 626-574-5411 pwray@ci.arcadia.ca.us	Kevin Merrill Principal Civil Engineer 626-574-5481 kmerrill@ArcadiaCA.gov
City of Duarte	Amanda Hamilton Public Works Manager 626-357-7931 ahamilton@accessduarte.com	
City of Monrovia	Tina Cherry Public Services Director 626-256-8226 tcherry@ci.monrovia.ca.us	Sean Sullivan Public Works Division Manager 626-932-5522 ssullivan@ci.monrovia.ca.us
City of Pasadena	Bahman Janka Transportation Administrator 626-744-4610 bjanka@cityofpasadena.net	Joaquin Siques Traffic Engineer JSiques@cityofpasadena.net
Los Angeles County Department of Public Works (LADPW)	Jane White Senior Civil Engineer 626-300-4774 jwhite@dpw.lacounty.gov	Marty Amundson Senior Civil Engineer 626-300-2012 mamund@dpw.lacounty.gov
Los Angeles County Metropolitan Transportation Authority (LACMTA)	Ken Coleman Deputy Executive Officer, Congestion Reduction Programs 213-922-2951 colemank@metro.net	Kali Fogel RIITS Program Manager Congestion Reduction 213-922-2665 fogelk@metro.net