



# Connected Corridors Face-to-Face Meeting

Tuesday, June 25<sup>th</sup>, 2019

1:30 – 3:30 pm

Arcadia

June 25<sup>th</sup> 2019



# Agenda

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- **1:30 - 2:00 – Program Review**
- **2:00 - 2:20 – Signal Verification/Validation**
- **2:20 – 2:50 – Call for projects update**
- **2:50 – 3:20 – Kapsch Update**
- **3:20 - 3:30 – Closing**
  - ▣ Next Meeting at Pasadena – Tuesday August 6<sup>th</sup>
  - ▣ (Monrovia, Duarte, Caltrans, County, Arcadia, Pasadena)



# MAHMOUD HAJJAR - Corridor Manager

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Mahmoud graduated with a Bachelor of Science Degree in Civil Engineering from the University of Oklahoma in 1981. After graduation, Mahmoud worked in the private sector as a Geotechnical Engineer.

He began his career with Caltrans District 7 in 1990 in the Division of Construction, where he worked as a Resident Engineer performing Construction Management. He joined the Division of Traffic Operations in 1995 as a lead engineer

Mahmoud lives in San Dimas with his wife and three daughters.



# Schedule Discussion – Launch Date

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- **We anticipate launch in the second half of next year**
  - Our schedule has been challenged due to contracting issues related to ITS element purchase, installation and testing
  - Goal – Ready for the ITS World Congress in LA in October 2020
  - Launch date may have moved out but we are moving forward every day



# Schedule Discussion – System Testing

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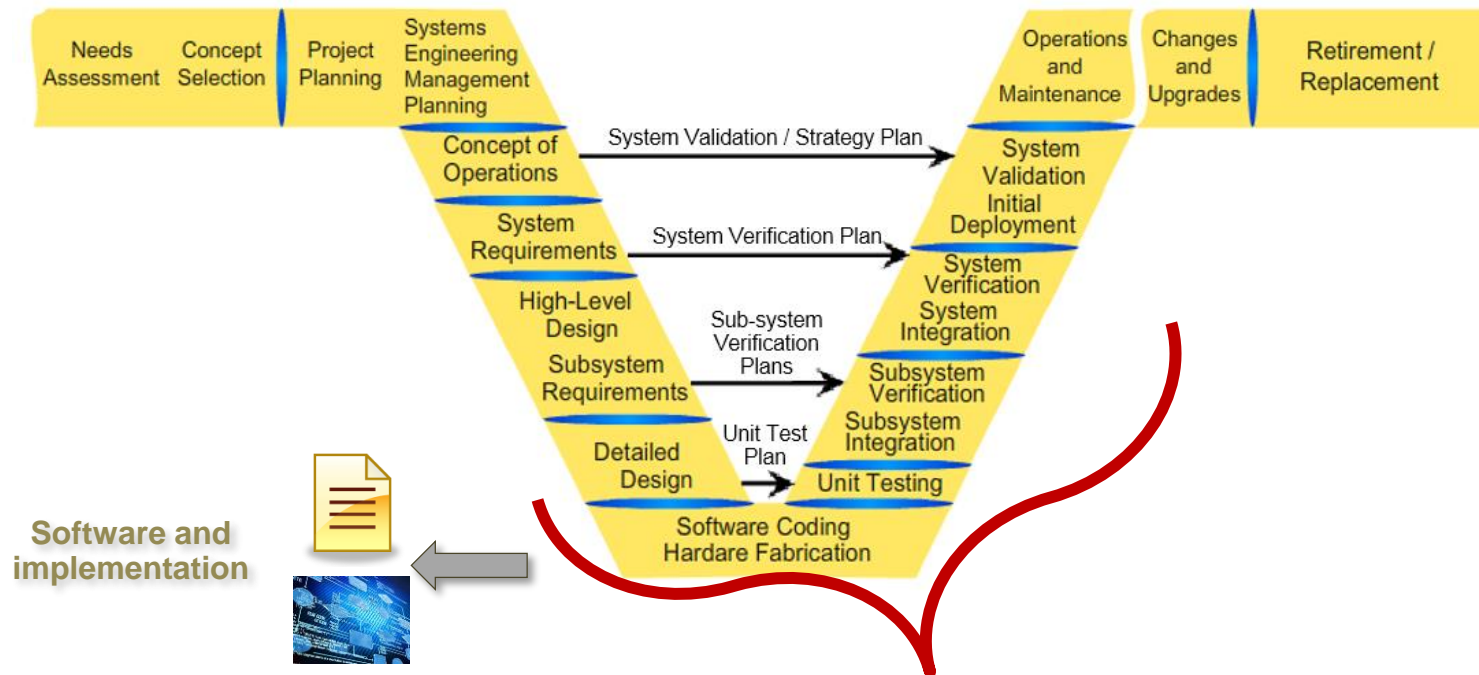
- **We anticipate system testing starting in January**
  - ▣ All interfaces (TCS and ATMS) completed in September
  - ▣ ATMS upgrade moved to production in October
  - ▣ Testing of ability to set plans on controllers in October
  - ▣ Ability to generate response plans in November based on input from ATMS
  - ▣ Kapsch software ready and tested in December
  - ▣ System testing in January
  - ▣ Possible production testing on selected routes where ITS elements are available in first/second quarter 2020



# Systems Engineering Next Steps

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- Design Documents
  - Hardware/Software
  - Integration
- Details of interfaces and implementations
  - Building the system
  - Subsystems will come on line this year



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# Summary

# Freeway Data Quality

- ❑ Core I-210 sensor availability solidly accomplished
- ❑ SR-134 typically in 90% range except for recent outage
- ❑ I-605 fluctuating around 90% target

Freeway Section	Direction	Sensor Availability Percentage	Sensor Availability Target	Past Target Accomplishment	Date of Degradation	Proposed New Target Date
I-210 PM 22.6 - 25	East	78.4%	90%	na	na	5/1/2019
	West	77.6%	90%	na	na	5/1/2019
I-210 PM 25 - 43.25	East	93.2%	90%	3/16/2019		
	West	92.6%	90%	3/2/2019		
SR-134 PM 11.4 - 13.5	East	67.7%	90%	4/27/2019	6/15/2019	
	West	69.0%	90%	4/27/2019	6/15/2019	
I-605 PM 22.93 - 28	North	93.2%	90%	6/15/2019		
	South	87.8%	90%	4/20/2019	4/27/2018	



# Arterial Data Quality

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## □ General

- We now have an application running 24/7 that:
  - Validates each attribute inside every message retrieved received from the TCS systems (currently only Arcadia)
  - These test results are saved to a database
  - We can search for invalid messages for a certain time period and location set
  - Using this we have completed a report on the analysis of TMDD messages from Arcadia
  - No serious issues were found
  - We have also used this information to develop algorithms to construct cycle-based information from Intersection Signal Status messages.

## □ Arcadia

- Continue to collect and process data from two data sources: Arcadia's TCS server and the IEN.
- Arcadia is steady at 80% reporting sensors



# Arterial Data Quality

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## □ LA County

- Jason from Kimley Horn reminded us that the County KITS system requires a review of its configuration data before the data can be trusted
- We helped review the TMDD messages from LACO.
- We wrote a draft report on the analysis of TMDD messages from LACO and sent it to the development team.

## □ Pasadena

- We are not reviewing Pasadena data yet

## □ Caltrans - TSMSS

- We are not receiving Caltrans data at this time



# Response Plan Generation (Planning Mode)

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- **Began new review of networks, incident location, and asset inventories, and how they relate to response plan generation**
- **Continued response plan generation documentation**
- **Continued working on the desktop application for building response plans**

# Signal Timing Plans for use in Response Plans

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- **All signal control plans have been tested in simulation and provided to stakeholders**
- **Meeting tomorrow with Marty, Kevin and Mahmoud to review signal timings**
- **Pasadena has implemented signal timing for certain arterials and is bringing up good points about transition times, etc**
- **Next tasks are to agree on procedures for testing and validation of signal plans**



# Signal Timing Validation and Test Plan

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PARTNERS FOR ADVANCED TRANSPORTATION TECHNOLOGY  
INSTITUTE OF TRANSPORTATION STUDIES  
UNIVERSITY OF CALIFORNIA, BERKELEY

## Connected Corridors: I-210 Pilot Integrated Corridor Management System

### Response Signal Timings Test and Validation Plan

June 24, 2019



Partners for Advanced Transportation Technology works with researchers, practitioners, and industry to implement transportation research and innovation, including products and services that improve the efficiency, safety, and security of the transportation system.



# Estimation

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## □ Estimation

- The ability to combine multiple point sources of data into an accurate picture of the state of the corridor
- Estimation outputs can be used for decision making

## □ Network requirements for estimation

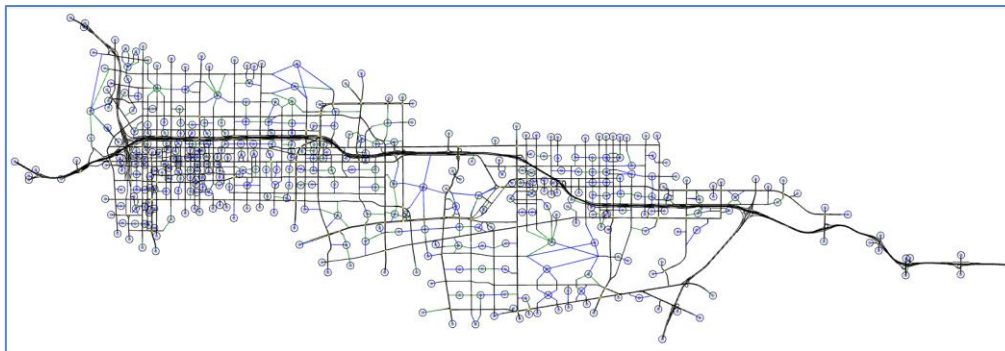
- We are finalizing the TMDD network requirements for performing estimation and for communication the output of the estimation process
- We are now writing a spec document on the Network Structure for the DSS.



# Aimsun Model

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- **Main calibration completed!**
  - ▣ Weekday, Saturday, Sunday
  
- **Some statistics:**
  - ▣ 2579 signal control plans
  - ▣ 7312 detectors
  - ▣ Over 1000 lane miles of roadway
  - ▣ 4242 road sections
  - ▣ 1748 nodes
  - ▣ 395 trip origin / destination nodes



# How to evaluate the effect of an incident

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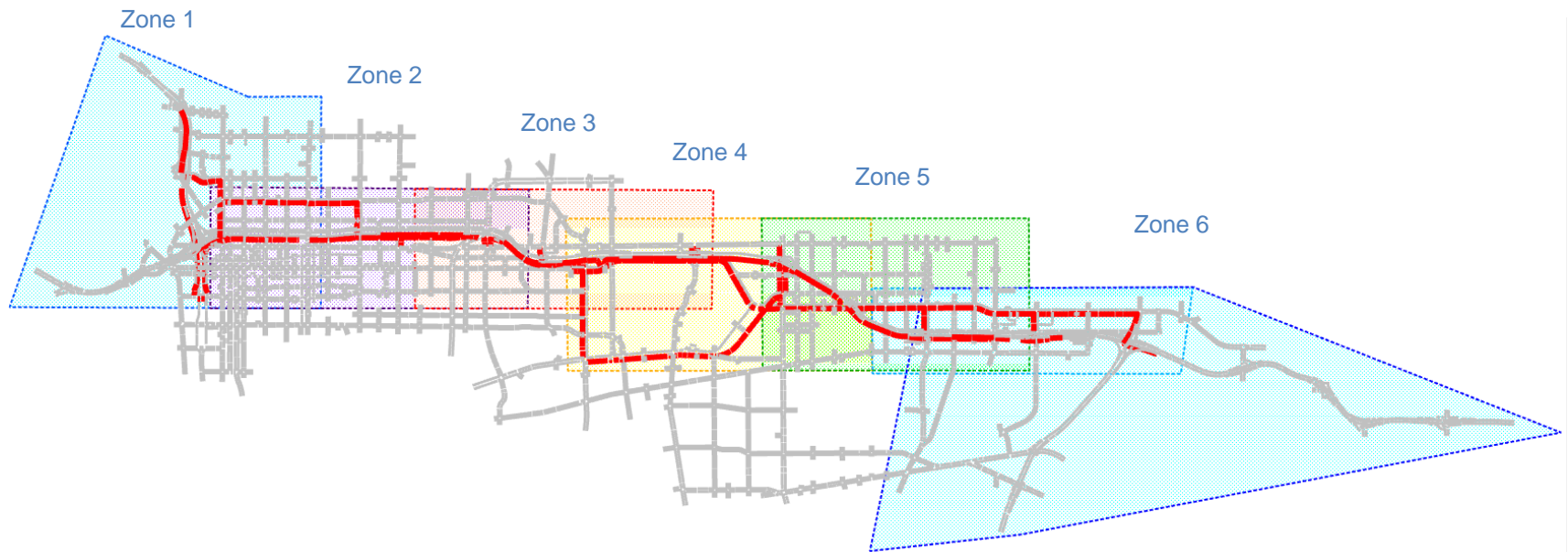
- **Compiling metrics over entire network may significantly dilute assessed impacts of responses to smaller incidents**
- **Strategy: Evaluation Zones**
  - ▣ Divide network into small overlapping evaluations zones
  - ▣ Use single zones to evaluate smaller incidents
  - ▣ Combine zones where/when needed to cover larger areas
- **Preliminary set of 6 zones**





# Evaluation Zones

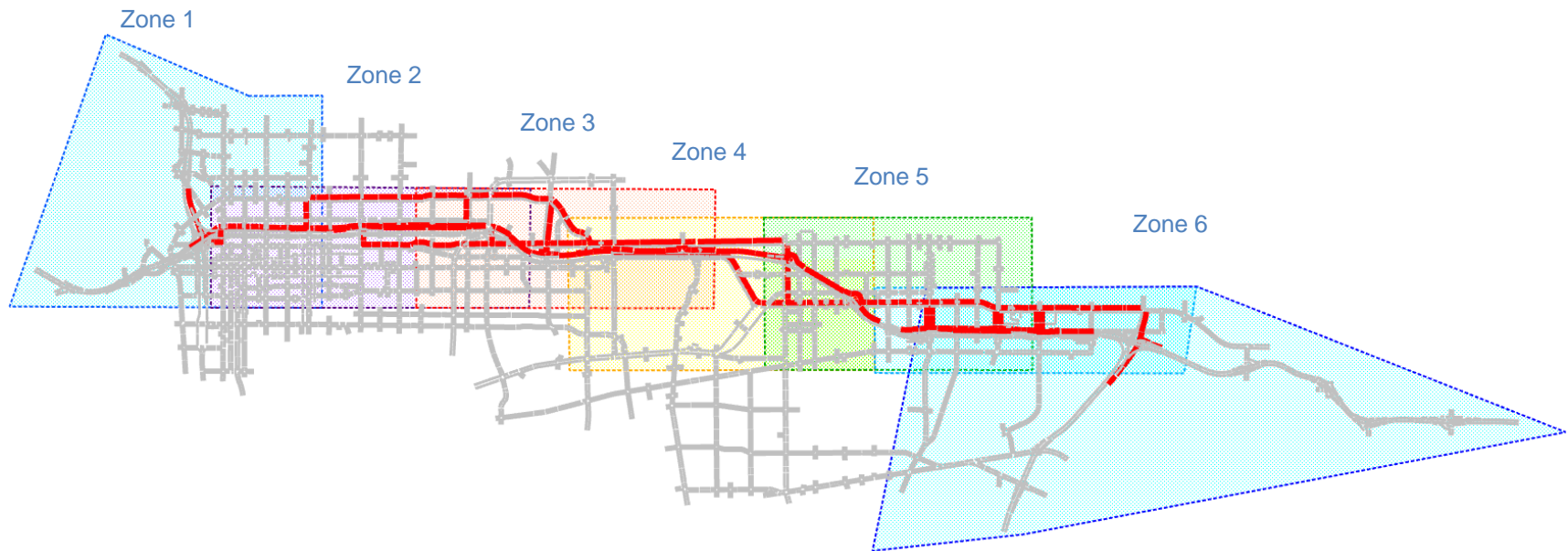
## □ Eastbound detours



# Evaluation Zones

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## □ Westbound detours



# Evaluation Zones

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- **Within each zone, performance is assessed by summing statistics associated with segments inside the zone**
  - VMT
  - VHT
  - Delay
  - Wait time to enter network due to virtual queue at entry points
  
- **Segments belonging to two zones only counted once**



# C2C Networking

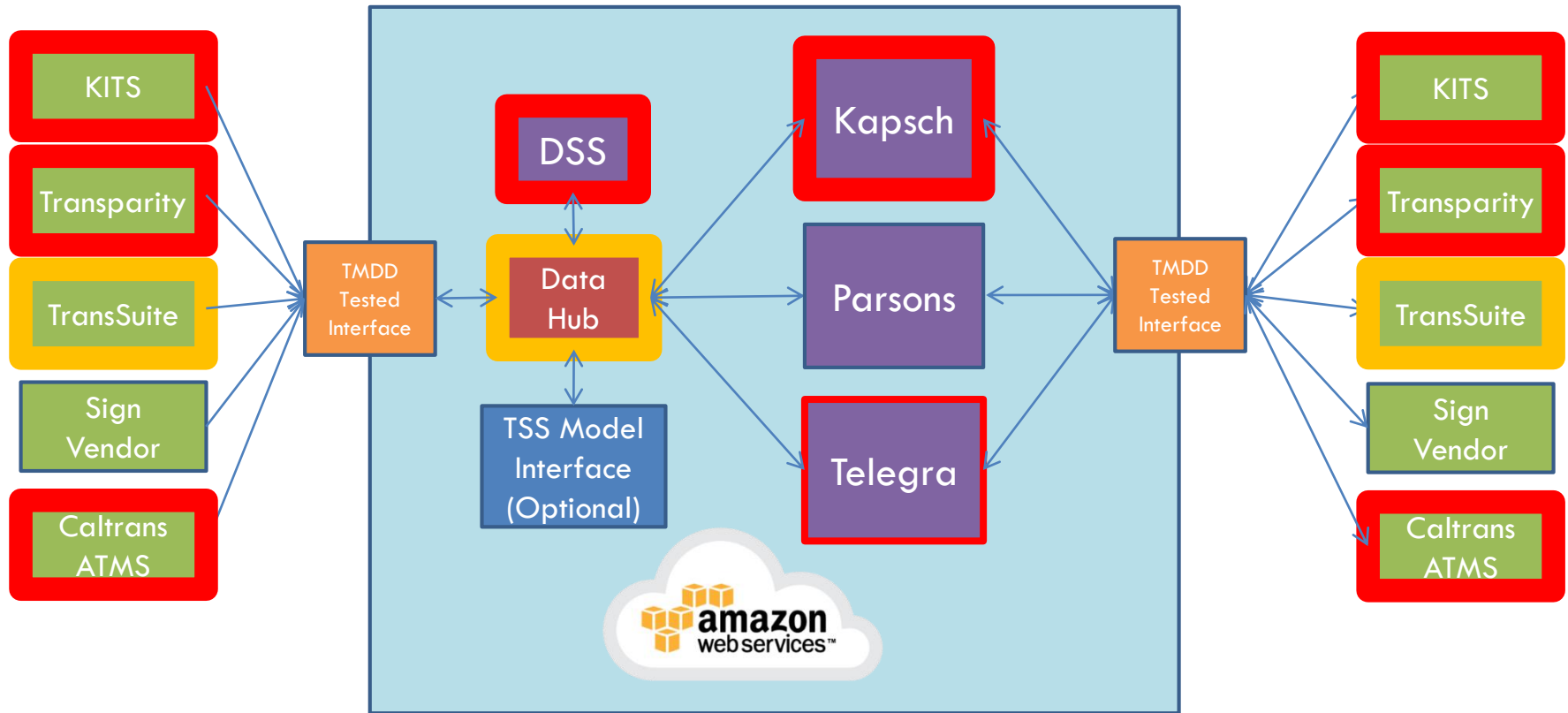
20

- **All major network connections are established!**
  - ▣ Pasadena VPN connection established and tested
  - ▣ TSMSS connections tested
  - ▣ Telegra developer VPN established
  - ▣ LA County Connection working
  - ▣ Arcadia Connection working
  
- **Continued refinement of C2C network routing and permission configurations for the various ICM / Stakeholder connections**
  
- **Discussions with D7 TMC IT & RIITS networking personnel regarding the establishment of secure user access to the ICM application**
  
- **Began work on an automated C2C network connection test utility**



# C2C Interface Implementations - Status

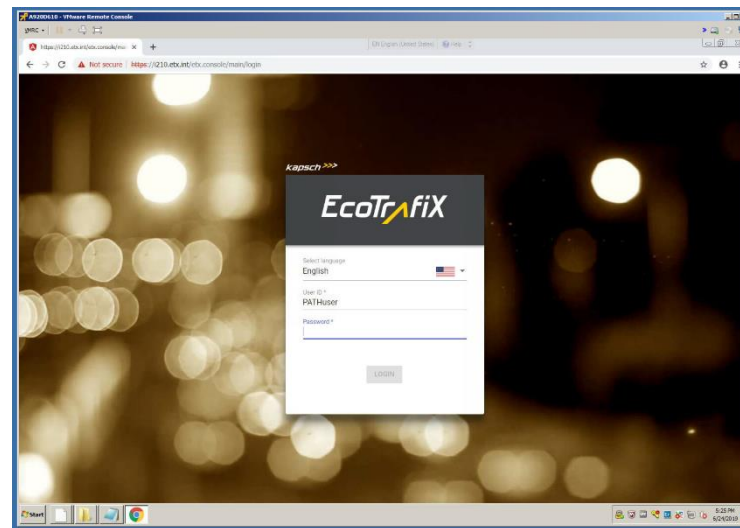
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# Kapsch Update and Demonstration

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- ❑ **Kapsch EcoTrafix is running in the Caltrans Amazon cloud**
- ❑ **PATH can now login to the EcoTrafix application**
- ❑ **We plan to work with Kevin in Arcadia to enable his login for testing purposes**



# Kapsch Main Map Screen – Arcadia Data

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The screenshot displays a web-based map interface for Arcadia, California. The map shows a highlighted transit route in orange, starting from the west and heading east through the city. The route is marked with several blue circular icons containing question marks. The map includes street names such as E Orange Grove Blvd, Foothill Blvd, Colorado St, and Santa Anita Ave. The city names Sierra Madre, Arcadia, and Temple City are visible. On the right side of the screen, there is a data panel for the 'Wheeler / First' section. The panel includes the following information:

- Section name: Wheeler / First
- Phone number: 34.1412, -118.02835
- Controller mode: Free
- Section name: Section 9
- Plan ID: 1
- Cycle: 71
- Offset: 28
- Mode source: Local TOD
- Coordination state: free

Below the data panel, there are icons for settings, a document, a location pin, and a grid. A 'COMMANDS' section at the bottom right contains a 'Sync' button and a 'SYNC' button. The browser address bar shows the URL 'https://i210.ebx.int/etx.console/main/console'. The system tray at the bottom right indicates the time is 5:29 PM on 6/24/2019.

# Response Plan Execution

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The screenshot displays the EcoTrafix web interface. On the left is a map of the Arcadia and Huntington area, showing traffic signals and a red incident icon. The main panel is divided into three sections:

- Huntington / Second:** Shows controller mode as 'Semi Actuated', Section 9, Plan ID 1, Cycle 105, Offset 55, and Mode source 'Local TOD'.
- (9) Traffic incident:** Description: 'Path: on PATH on I-210 WB Westbound I-210 WB Westbound (622)'. Occurred at 17:15:19 - 06/21/2019.
- I-210 W Huntington Diversion:** Status 'Executing'. Includes a 'Confirm execution?' dialog with 'CONFIRM' and 'CANCEL' buttons, and a list of commands:
  1. Initial DSS
  2. 1. Traffic Controller (Huntington / Ga) (Hunt... 'Set Traffic controller mode' (Traffic Lights C... NOT EXECUTED
  3. 2. Ramp Meter (HUNTINGTON DR) (SANTA ANITA... 'TMDD Device Order' on prefixed devices NOT EXECUTED

At the bottom, there are 'COMMANDS' buttons: 'Controller' (Select mode), 'Commands', 'Communication' (PICK, DROP), and 'Sync' (SYNC).





# Systems Development and Integration

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## □ **Cloud Infrastructure**

- Kapsch is running and receiving data in the Caltrans Amazon cloud
- New test harness deployed in dev and test environments.
  - Captures real time field data for later playback during testing
  - This is about as good as testing gets
- Refactoring code dependencies, continuous integration processes, and deployment methods to speed release frequency

## □ **DSS**

- Primary developer back and has just started working again



# Systems Development and Integration

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## □ Datahub

### ▣ Data Quality

- Adding new processor layer for basic data quality checks for all data pipelines.
- Simple at this point, basically checking to see if inventories match and if we are we getting data.
- Note that the data quality checks running on the PC by Qijian are significantly more detailed and thorough
- Qijian's tests will be migrated to the cloud when appropriate
- ▣ Split data processing into pre-processor and processor layers to assist with data quality and testing
- ▣ Cleanup/refactor of command gateway and command data processor interaction to improve internal workflow management



# Systems Integration

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- **Arcadia**
  - ▣ We have identified small issues with data. Nothing dramatic.
  - ▣ Will be releasing report in the near future to Transcore
- **Pasadena**
  - ▣ Design issues with McCain resolved. Reviewing verification plan.
- **LA County**
  - ▣ Continuing testing after short break for vacations. Have identified some minor issues in data exchange mechanics. Will begin deeper dive into data.
- **TSMSS**
  - ▣ System in installed and intersections defined but not configured
  - ▣ Awaiting configuration updates to the Caltrans TSMSS system – Adding sensors etc.



# System Integration

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## □ ATMS

- ▣ Parsons has made changes that we are testing
- ▣ ATMS modification update completed by the week of May 20<sup>th</sup>
- ▣ Worked with PATH to support arterial event testing (May 2019 to current)
- ▣ Once PATH testing is complete Kapsch will begin their testing
- ▣ Parsons is available to support additional integration testing
- ▣ We will be working with Caltrans and Parsons, starting tomorrow, to bring real time production data from ramps and signs into the test ATMS.



# Signal Timing Test and Validation Plan

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# Testing versus Validation

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- **Testing verifies the system is working – Can we select a timing plan in a controller**
- **Validation determines whether the signal plan is affecting traffic in the correct way**
- **We need to determine exactly how we will perform the following tests and validations**



# Tests and Validations

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- **Before Validation**
  - ▣ Test 1 – Simulation evaluation – Freeway Incidents
- **Software Systems Test**
  - ▣ Test 2 – System test: Individual intersection control response
  - ▣ Test 3 – System test: Coordinated control response
- **Validation of Operations – Non Incident**
  - ▣ Test 4 – Operational test: Basic individual signal operations
  - ▣ Test 5 – Operational Test: Basic coordinated signal operation
- **Validation of Operations – Incident**
  - ▣ Test 6 – Performance Test: Coordinated response to actual incidents
- **After Validation**
  - ▣ Test 7 – After Incident Review of Response Plan Results



# Testing the ability to select a timing plan

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- **Unique intersections with CC plans: Total - 139**
  - ▣ Arcadia 19
  - ▣ Caltrans 15
  - ▣ Duarte 06
  - ▣ LA County 06
  - ▣ Monrovia 11
  - ▣ Pasadena 82
  
- **We need to determine how we will test that these controllers can be set to a given CC signal timing through a response plan**
  
- **This is a test, meant to ensure the system is working. Not a validation test.**
  - ▣ 1 Signal at a time or multiple
  - ▣ Observation or review of data provided by TCS





# Signal Plan Validation and Testing

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- **A total of 38 eastbound and 32 westbound detours = 70**
- **For each detour, various cycle lengths need to be tested and validated. 105-second, 120-second, 135-second or 150-second cycle.**
- **When considering all the cycle options, a total of 141 unique signal timings plans have been developed and evaluated.**
- **This includes one 105-second plan, 35 120-second plans, 70 135-second plans, and 35 150-second plans.**



# Routes for checking all signals in coordination

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- **WB\_Art\_Maple\_San\_Gabriel\_Walnut**
- **EB\_Art\_DelMar\_StJohn\_Pasadena**
- **EB\_Art\_Colorado-Huntington\_Michillinda\_SantaAnita**
- **EB\_Art\_Evergreen\_Myrtle\_BuenaVista**
- **EB\_Art\_Rosemead-Huntington\_Rosemead\_Myrtle**
- **EB\_Art\_Walnut-Foothill\_SanGabriel\_Baldwin**
- **EB\_Art\_Walnut-Foothill\_SanGabriel\_SantaAnita**
- **WB\_Art\_Huntington\_MountOlive\_Huntington**
- **EB\_Art\_FairOaks\_Mountain\_Marengo**
- **EB\_Art\_OrangeGrove\_MountainStPA\_Hill**
- **WB\_Art\_OrangeGrove\_SierraMadreVilla\_Lake**
- **WB\_Art\_OrangeGrove\_Michillinda\_Altadena**



# Validation During an Incident

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- **Caltrans will send the TMT to a set of signals (TBD)**
- **Other observations will be used**
  - ▣ Perhaps other people
  - ▣ Video
  
- **Summary**
  - ▣ We will be speaking with each stakeholder to determine how they would like to test and validate within their jurisdictions





# I-210 Connected Corridors Face-to-Face Meeting

City of Arcadia,  
City Council Chambers Conference Room,  
240 W. Huntington Drive, Arcadia, CA 91007  
Tuesday, June 25th, 2019  
1:30 – 3:30 pm

June 25, 2019



# Agenda

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- **I-210 CC Arterial Systems Improvement Project System Consulting Services – Scope**
- **Expected Timeline**
- **Status of 9 procurement package**
- **Next Steps**





# I-210 CONNECTED CORRIDORS ARTERIAL SYSTEMS IMPROVEMENT PROJECT SYSTEM CONSULTING SERVICES

## SCOPE OF WORK

June 25, 2019



# Project Objective

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- Assist Caltrans D7 to manage the execution of the 9 arterial ITS improvement projects

#	Package Description	Contract #	Contract Status
1	Bluetooth – Iteris Velocity	07A4470	Completed
2	Bluetooth – BlueToad	07A4477	Awarded, in Progress
3	New Controller Cabinets	07A4603	Under DPAC Review
4	Communication Upgrades	07A4479	Awarded, in Progress
5	Firmware/Timing Plan Updates/Controller Upgrades	07A4480	Awarded, in Progress
6	Video Detection System	07A4481	Awarded, in Progress
7	Data Communication Module and Video Detection Software Upgrade	07A4601	Under DPAC Review
8	Advanced Traveler Information Systems	N/A	DMS – Being Advertised Integration - Under DPAC Review Static Signs – will be handled by Caltrans
9	Environmental Stations with Air Quality Sensors and Open Data Systems	07A4388	Awarded, in Progress



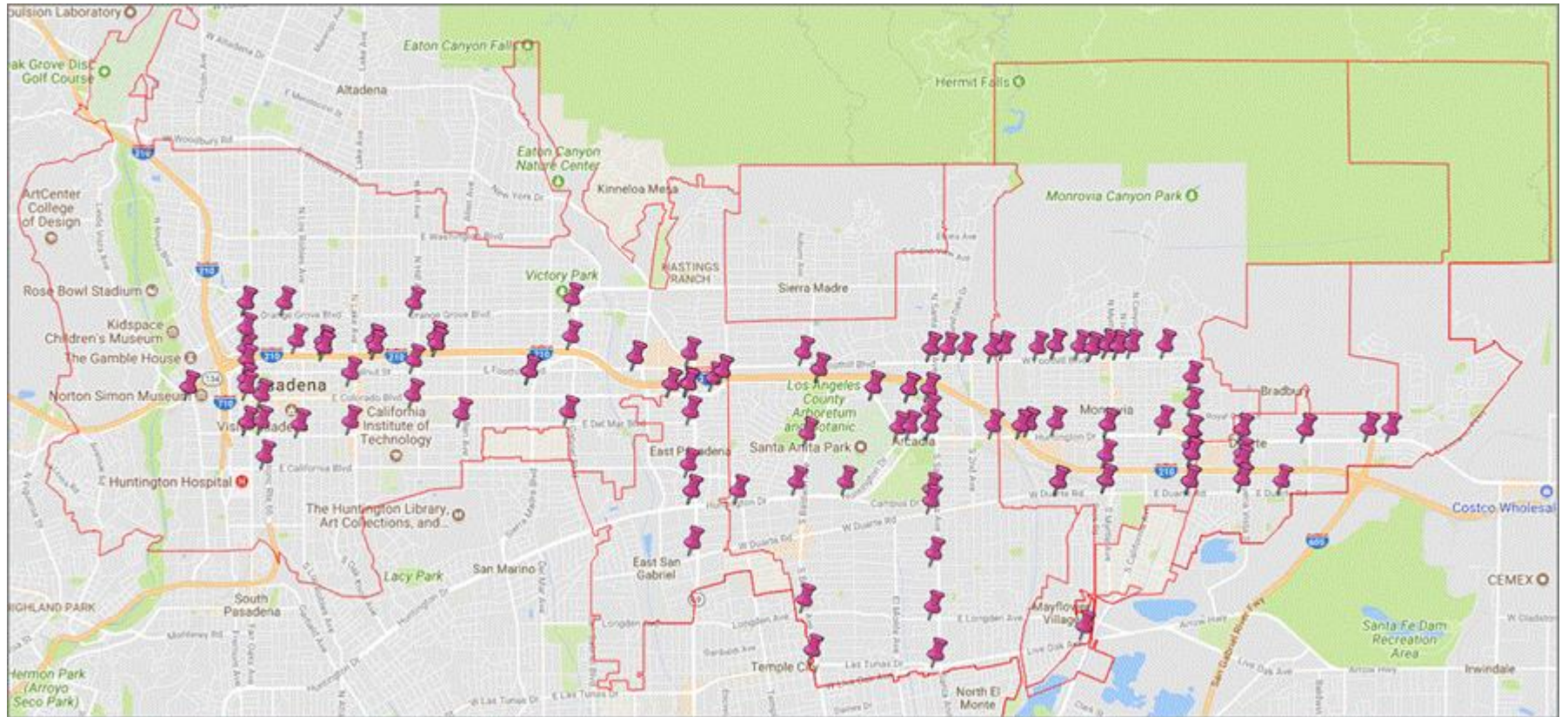
# Project Area

#	Package Description	Contract #	Metro & Caltrans	City of Pasadena	City of Arcadia	City of Monrovia	City of Duarte	LA County
1	Bluetooth – Iteris Velocity	07A4470	√		√			
2	Bluetooth – BlueToad	07A4477	√	√		√	√	√
3	New Controller Cabinets	07A4603	√	√	√			
4	Communication Upgrades	07A4479	√		√	√	√	√
5	Firmware/Timing Plan Updates/Controller Upgrades	07A4480	√	√	√	√		√
6	Video Detection System	07A4481	√	√	√	√	√	√
7	Data Communication Module and Video Detection Software Upgrade	07A4601	√	√	√	√	√	√
8	Advanced Traveler Information Systems	N/A	√	√	√	√	√	√
9	Environmental Stations with Air Quality Sensors and Open Data Systems (ODS)	07A4388	√					



# Project Area (cont.)

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# UPDATE ON PACKAGES 1-9

June 25, 2019



# Target Timeline - 6 awarded Packages

Year	2018							2019														
Month	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12			
Prepare Submittal		█																				
Equipment Procurement & Delivery								█														
Test Plan/Procedure									█													
Installation									█													
Testing & Acceptance													█									
Training														█								



Soft Launch of I-210 CC System (Est.)

# Target Timeline - 3 unawarded Packages

Year	2019							2020												
Month	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	
Prepare Submittal				█																
Equipment Procurement & Delivery					█															
Test Plan/Procedure					█															
Installation						█														
Testing & Acceptance							█													
Training								█												



Hard Launch of I-210 CC System (Est.)



# Update on 9 Packages

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Pkg. #	Package Name	Contract #	Project Status
1	Bluetooth – Iteris Velocity	07A4470 PTM	<ul style="list-style-type: none"> <li>• NTP: 7/10/2018</li> <li>• Kick-off Meeting: 7/30/2018</li> <li>• Submittal Approved: 8/16/2018</li> <li>• Equipment ready, Permit Ready, Testing Plan Approved</li> <li>• Installation QC checklist being prepared</li> <li>• Installation &amp; Testing Completed on 5/29 &amp; 5/30/2019</li> <li>• Accepted by Arcadia</li> <li>• Tracking Minor Punchlist Items</li> </ul>
2	Bluetooth – BlueToad	07A4477 DBX	<ul style="list-style-type: none"> <li>• NTP: 7/10/2018</li> <li>• Kick-off Meeting: 7/30/2018</li> <li>• Submittal Approved: 10/12/2018</li> <li>• LA County: VM server configured on 5/15/2019; field installation to be scheduled</li> <li>• Pasadena: Physical server to be configured</li> <li>• Installation QC checklist ready</li> <li>• Revised Acceptance Test Plan to be distributed to stakeholder for review &amp; approval</li> <li>• Expected to be completed: August 2019 (90%)</li> </ul>

# Update on 9 Packages (cont.)

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Pkg. #	Package Name	Contract #	Project Status
3	New Controller Cabinets	07A4603	<ul style="list-style-type: none"> <li>Disqualified: Bids came above the SB limit (314k).</li> <li>Procurement Package revised per Stakeholder comments on Pkg. 5</li> <li>Cancelled by DPAC in the week of Mar 15, 2019</li> <li>Revised package (reduce reference, service contract not engineering contract) being reviewed by DPAC</li> <li>Expected to be awarded: Jul/Aug, 2019</li> <li>Expected to be completed: First Quarter, 2020</li> </ul>
4	Communication Upgrades	07A4479 Kanaan Construction	<ul style="list-style-type: none"> <li>NTP: 7/13/2018</li> <li>Kick-off Meeting: 7/30/2018</li> <li>Submittal &amp; RFI Approved: 5/6/2019</li> <li>Equipment being procured</li> <li>Installation QC checklist &amp; testing plan being prepared</li> <li>Expected to be completed: August 2019 (80%)</li> </ul>



# Update on 9 Packages (cont.)

Pkg. #	Package Name	Contract #	Project Status
5	Firmware/Timing Plan Updates/Controller Upgrades	07A4480 CPE, Inc	<ul style="list-style-type: none"> <li>• NTP: 7/17/2018</li> <li>• Kick-off Meeting: 7/30/2018</li> <li>• Submittal Reviewed and Required Equipment changed per Stakeholder Comment</li> <li>• Contractor revised price estimate (\$183,227.18) 6% higher than original amount (\$171,600)</li> <li>• Coordinated with stakeholders and contractor to further clarify the requirements &amp; responsibilities at each location</li> <li>• Contractor is updating the price estimate</li> <li>• Expected to be completed: October 2019 (80%)</li> </ul>

# Update on 9 Packages (cont.)

Pkg. #	Package Name	Contract #	Project Status
6	Video Detection System	07A4481 Traffic Loops Crackfilling, Inc	<ul style="list-style-type: none"> <li>NTP: 7/10/2018</li> <li>Kick-off Meeting: 7/30/2018</li> <li>10/9/2018: Conducted Site Survey</li> <li>10/18/18: Submittal approved</li> <li>Installation:                             <ul style="list-style-type: none"> <li>13 out of 22 installations are completed (2 LA County, 5 Monrovia, 3 Arcadia, 3 Pasadena)</li> <li>3 locations in Duarte – pull boxes &amp; conduits are full; City will fix. Contractor’s work is on-hold.</li> <li>1 location in Pasadena: conduit too small. Contractor will recommend solution &amp; provide cost estimate</li> </ul> </li> <li>Expected to be completed: August 2019 (90%)</li> </ul>
7	Data Communication Module and Video Detection Software Upgrade	07A4601	<ul style="list-style-type: none"> <li>Disqualified: Bids came above the SB limit (314k).</li> <li>Originally cancelled by DPAC;</li> <li>Revised Package (service contract not IT contract) being reviewed by DPAC for further consideration</li> <li>Expected to be awarded: Jul/Aug, 2019</li> <li>Expected to be completed: First Quarter, 2020</li> </ul>



# Update on 9 Packages (cont.)

Pkg. #	Package Name	Contract #	Project Status
8	Advanced Traveler Information Systems	N/A	<ul style="list-style-type: none"> <li>• Divided to 3 parts:               <ul style="list-style-type: none"> <li>• DMS Procurement – being advertised</li> <li>• Integration -- being reviewed by DPAC</li> <li>• Static Sign Procurement - will be handled by Caltrans Maintenance Group (It may take months if there are no existing static signs in the maintenance shop)</li> </ul> </li> <li>• Expected to be awarded: Jul/Aug, 2019</li> <li>• Expected to be completed: Second Quarter, 2020</li> </ul>
9	Environmental Stations with Air Quality Sensors and Open Data Systems (ODS)	07A4388 Cal Poly Pomona	<ul style="list-style-type: none"> <li>• NTP: 6/29/18</li> <li>• Kick-off Meeting: 7/12/18</li> <li>• Environmental stations               <ul style="list-style-type: none"> <li>• Roadside study done</li> <li>• Field installation done – 6/7/19</li> <li>• Collect data and analyze data - ongoing</li> </ul> </li> <li>• ODS               <ul style="list-style-type: none"> <li>• CPP continuously coordinates with PATH</li> </ul> </li> <li>• Expected to be completed: Oct 2019 (80%)</li> </ul>

# Next Steps

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- Package 1: Track/close punchlist items
- Package 2: Testing Plan to be distributed for stakeholder review; schedule installation in LA County; set up server-to-server communications or decide alternative
- Package 3: Tracking status
- Package 4: Prepare installation QC checklist & testing plan
- Package 5: Review revised cost estimate
- Package 6:
  - Follow up with Duarte on the pullbox/conduit fixing progress
  - Submit cost estimate (RFI # 4) for 1 location in Pasadena
  - Scheduling installation & testing for the remaining locations
- Package 7: Tracking status
- Package 8: Tracking status
- Package 9: Support coordination



# **Thank You and Questions?**

June 25, 2019




**kapsch** >>>  
challenging limits

Kapsch TrafficCom

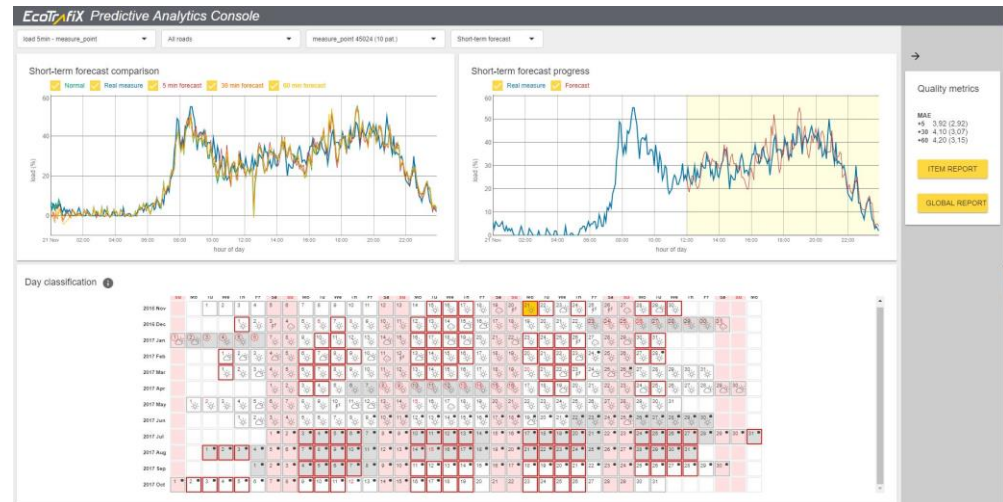
## *I-210 CALTRANS Pilot, June 25, 2019*

*Integrated Corridor Management*

- 
- > EcoTrafIX Status
    - > New Features
    - > Environment
    - > Interfaces
    - > Next Steps

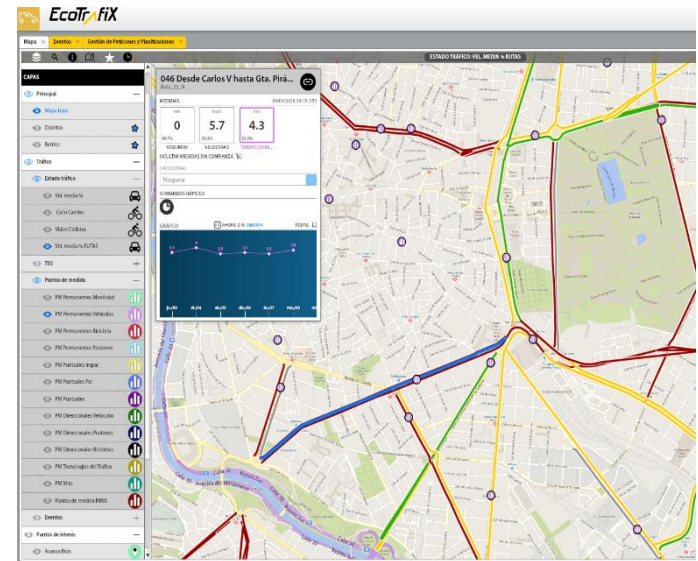
## EcoTrafIX Status

- > New Features
  - > Voting – customize EcoTrafIX behavior for pilot
  - > Response Plans – import from DSS
  - > Ramp Meters – added for pilot
  - > Upgraded to EcoTrafIX V3.0
    - > Automated Performance Measures
    - > Predictive analytics
    - > Interactive Reports
    - > Cloud deployment
    - > Arithmetic triggers



## EcoTrafIX Status

- > Environment Status
- > **EcoTrafIX is running in the CALTRANS Cloud (AWS)!**
- > Message integration has begun with PATH's Hub
- > ATMS will soon be available for integration



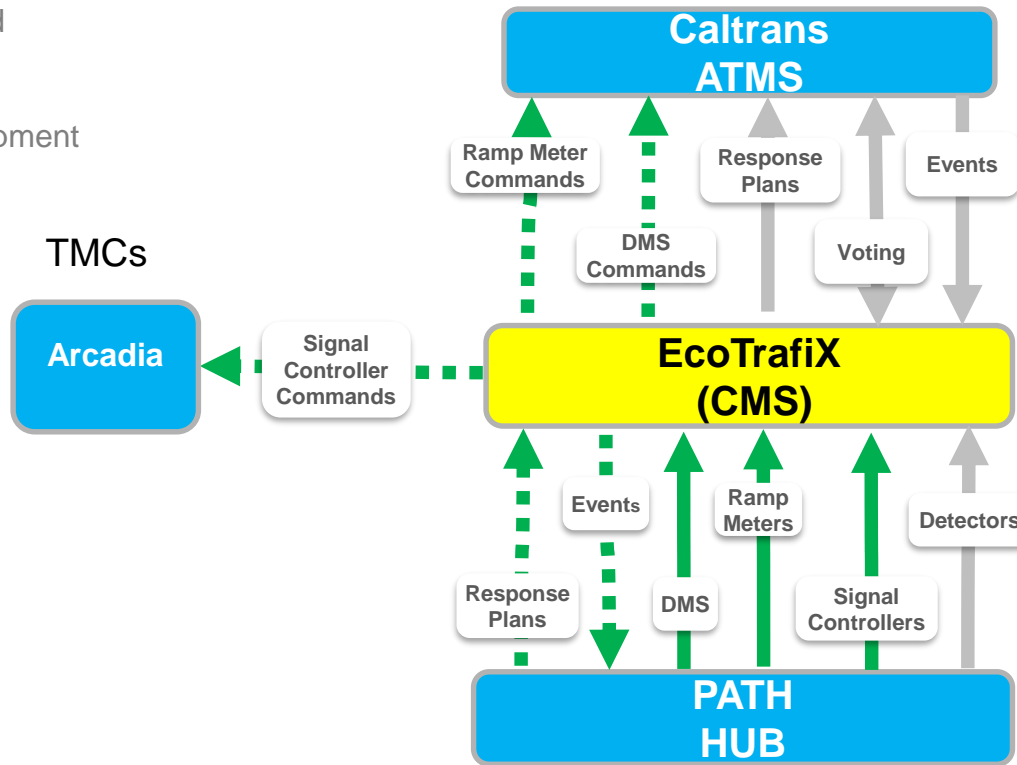
## *EcoTrafIX Status*

### >Interface Status

- > Publish Events to Hub – ready to integrate with DSS
- > Receive Events – simulated until ATMS is available in AWS
- > Response Plans – ready to receive from DSS
- > Traffic Signals live from Arcadia & some LA County signals
- > DMS – ready to receive from ATMS
- > Ramp Meters – simulated from ATMS
- > Response Plan Item Execution – ready to integrate with TMCs



# EcoTrafIX Status



## *EcoTrafIX Status*

### >Next Steps

- >Integrate with PATH's Hub
  - >EcoTrafIX send Events to HUB
  - >DSS send Response Plans to EcoTrafIX
- >Integrate with CALTRANS ATMS
  - >ATMS send Events to EcoTrafIX/HUB
  - >EcoTrafIX send Response Plans to ATMS
  - >EcoTrafIX exchange Voting with ATMS
  - >EcoTrafIX exchange Center Active with ATMS

## *EcoTrafIX Demo*

- > Scenario: Accident on I-210 WB between Huntington Dr and Santa Anita Ave
  - > Assume ATMS has already sent the event to EcoTrafIX
  - > Simulate DSS sending Response Plan to EcoTrafIX
  - > CALTRANS and Arcadia users vote on the Response Plan
  - > Execute Response Plan
    - > Arcadia signals gives preference to Huntington WB and Santa Anita NB
    - > ATMS reduces rate at Huntington on-ramp
    - > ATMS increases rate at Santa Anita on-ramp
  - > Termination plan
    - > Arcadia signals return to Section Plan
    - > ATMS reverts rates for Huntington and Santa Anita on-ramps

# Kapsch TrafficCom

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# The Demo

**EcoTrafix** 1/3 0/2 1 3 18:22 PA

**MAP**

Sierra Madre Arcadia Temple City

**Huntington / Second** 34.14015, -118.02488

Controller mode: Semi Actuated  
Section name: Section 9

Plan ID: 1  
Cycle: 105  
Offset: 55

Mode source: Local TOD  
Coordination state: free

**(9) Traffic incident** 34.14502, -118.02507

Description: Path: on PATH on I-210 WB Westbound I-210 WB Westbound (622)  
17:15:19 - 06/21/2019

**I-210 W Huntington Diversion** Executing

I-210 W Huntington Diversion

Confirm execution?

VOTES (0/2) COMMENTS (0)

**COMMANDS**

Controller: Select mode

Commands

Communication:

Sync:

PLANS

Search plans

I-210 W Huntington Diversion  
1/2 execution(s)

1. Initial DSS

2. Traffic Controller (Huntington / Ga) (Hunti...  
"Set Traffic controller mode" (Traffic Lights C...  
NOT EXECUTED

3. Ramp Meter (HUNTINGTON DR) (SANTA ANITA...  
"TMDD Device Order" on prefixed devices  
NOT EXECUTED

**Thank You  
and  
Next Meeting  
(Suggest Tuesday  
August 6<sup>th</sup> at Pasadena)**

