Connected Corridors
(Virtual) Face-to-Face Meeting

Tuesday, September 1st, 2020
1:30 – 3:30 pm
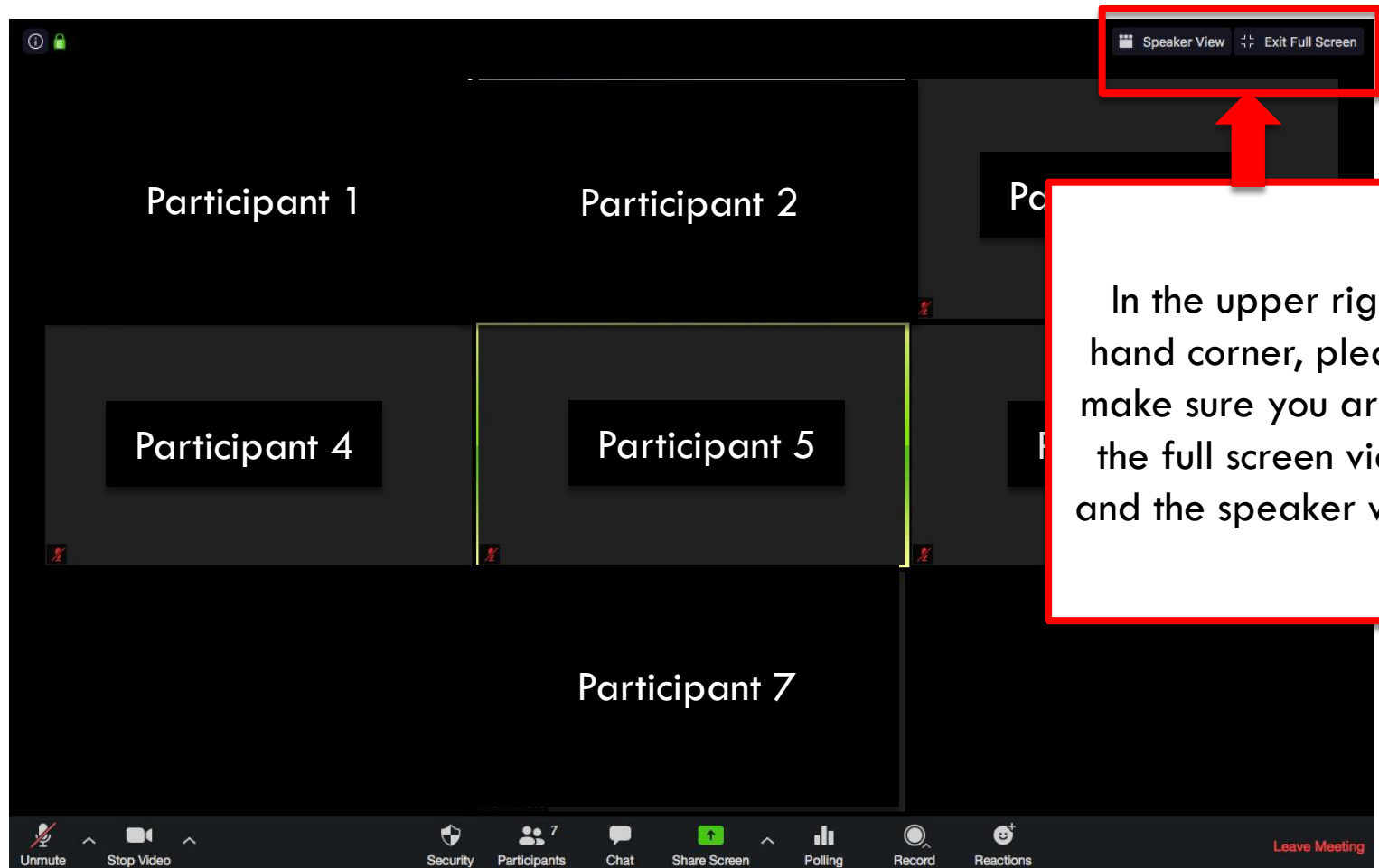via Zoom Video Conferencing

September 1st
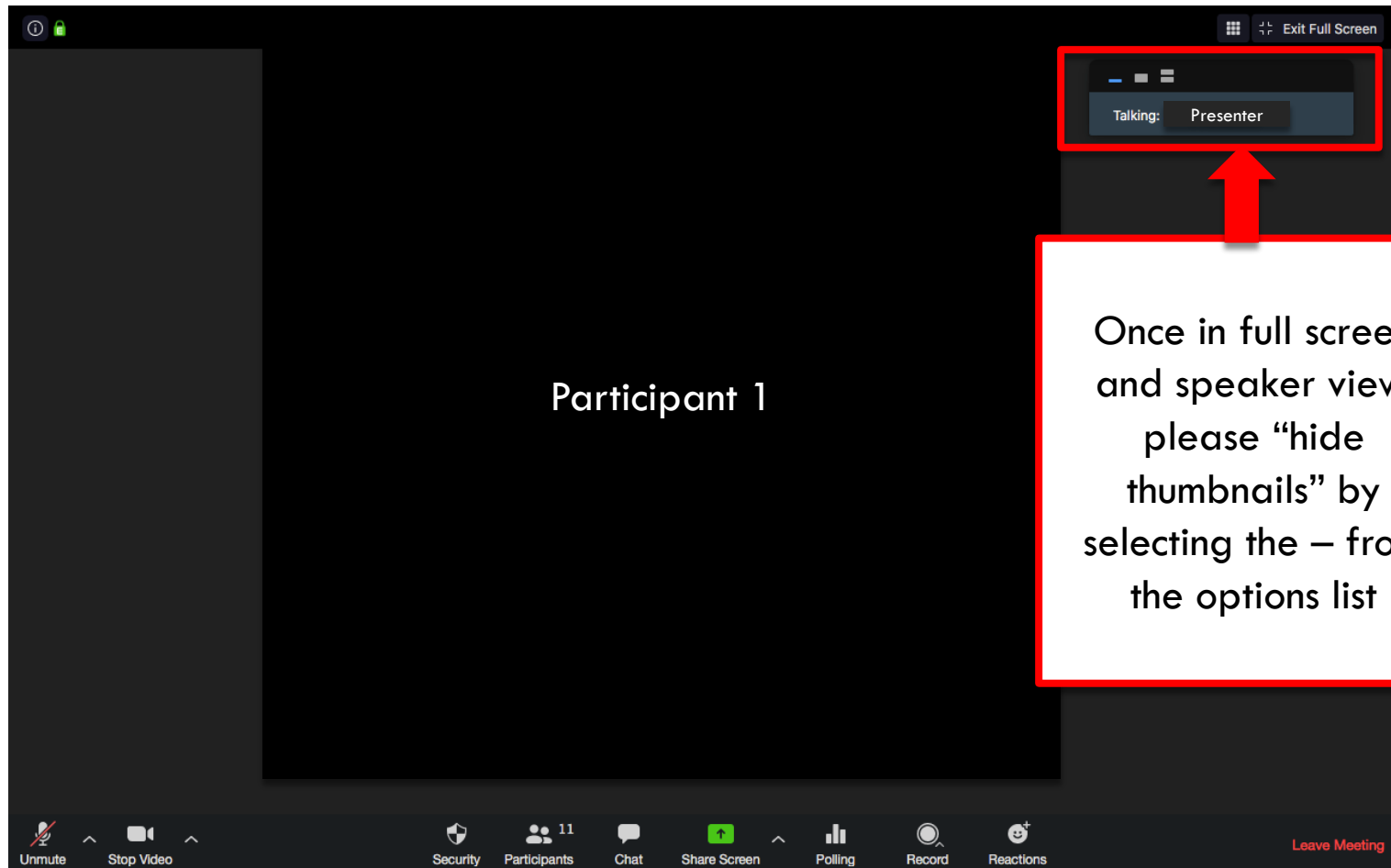2020

Zoom Tips

In the upper right hand corner, please make sure you are in the full screen view and the speaker view

Zoom Tips

Once in full screen and speaker view, please "hide thumbnails" by selecting the – from the options list

Zoom Tips

We will be turning off video and muting all participants during the presentation to conserve bandwidth.

Please unmute yourself and turn your video on to ask a question.

Agenda

- **1:30 - 1:50 PM – Greetings, Introduction and Progress Summary**

- **1:55 – 2:10 ICM System Design Overview**

- **2:15 – 2:35 PM - CC ICM System Demo**

- **2:40 – 2:50 PM - AMS Update**

- **2:55 – 3:05 PM - Kapsch Status Update**

- **3:10 - 3:20 – Parsons Call for Projects Update**

- **3:20 – 3:30 – Round Table and Closing**
  - Next Meeting - Tuesday October 20th

  Note: Meeting location sequence Monrovia, Duarte, LA Metro, Caltrans TMC, County, Arcadia, Pasadena

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I-210 Pilot Implementation Project Progress Summary

- **Complete Call for Projects Procurement** **– Jan 2020**

- **ATMS with CC modifications deployed to Production** **– March 2020**

- **Major functions of the Test DSS work with production
  ATMS incident data** (demonstrated) **– May 2020**

- **Data Hub configuration and deployment management** **– May 2020**
  functions (deployment/release hardening)
  (conducted incremental releases with containers, further hardening as we go through the pilot)

- **Estimation running in the cloud** **– August <- ~~December~~ 2020**
  (In the cloud with limited functionality. Not fully tested yet. Work sch. switched with Prediction.)

- **Complete ATMS Modifications** **– *October* 2020**
  (Received and reviewing the design spec. Date to be confirmed after the spec agreement.)

- **Complete McCain Transparity C2C interface** (Pasadena) **– October 2020**
  (Code is ready to deploy to Prod.; just waiting for the network and SSL certs to be worked out.)

- **Prediction (Aimsun) running in the cloud** **– ~~July~~ -> November 2020**
  (Last to be used. Implement in Linux instead of Windows.)

- **Rules Engine (Drools) running in the cloud** **– August <- – ~~October~~ 2020**
  (Technology is running in the cloud with initial RP generation;
  Remains: workflow enhancements and hardening throughout the Pilot).

- **All ITS Elements Installed in Field** **– Q3-4 2020**
  (20200819_SLD_I210ASI_MonthlyStatusMeeting_v1.0_PARSONS.pptx and slide for p. #8-1,2,3 below;
  ok if Pasadena installs in Dec)

☐ **Integrate Lane Closure Systems***   **– September 2020**
(Per HQ waiting for Mike J. to come back.
Rules engine has to know info. Risk!)

☐ **All data (except new arterial DMS signs)
being received**   **– November 2020**
(i.e. all ITS elements are installed and sending data
through their C2C interfaces)

☐ **Performance Management System Available**   **– December 2020**

☐ **Complete C2C DMS Sign Interfaces**   **– ~~February~~ -> March 2021**
(See Call for Projects slide below;
testing completion moved Feb->Mar 2021)

☐ **Complete Version 1.0 System Production
Deployment/Release**   **– February 2021**

☐ **System Operational Test and Validation**   **– March-May 2021**

☐ **Before Study**   **– March to May 2021**

☐ **Launch Pilot**   **– May 2021**

Note:
* Caltrans HQ IT involvement required. Both the Arterials (built for rail system) and state-wide Freeway LCSs exist and
maintained by CT IT.

Schedule – Pilot Launch to Pilot Completion

- **Pilot Launch** — **– May 2021**
- **Kapsch** — **– May 2021 – September 2021**
- **Parsons** — **– September 2021 – January 2022**
- **Interim Benefits Analysis** — **– January 2022**
- **Telegra** — **– January 2022 – May 2022**
- **After Study** — **– March to April 2022**
- **Kapsch** — **– June 2022 – September 2022**
- **Documentation Completed** — **– September 2022**
- **Procurement of CMS system** — **– August 2022**
- **Procurement of Aimsun** — **– August 2022**
- **Pilot complete** — **- September 2022**

Main Planned Accomplishments for September 2020

- **Software Development**

  - Complete testing of estimation in DSS

  - Complete design sign-off for ATMS fixes

  - Begin integration efforts for DMS signs

  - Support/complete deployment of SSL and Transparity in Pasadena. Begin verification of production data

- **Analysis Modeling and Simulation (AMS)**

  - Design updates for response plan selection using the real-time queue information from estimation

  - Refine estimation to handle exceptional arterial intersection topologies

  - Improve integration of DSS components, Data Hub and Kapsch CMS

Networking and Center to Center Connectivity

- **Caltrans C2C network connectivity for Data Readers**
  - *Pending new release in Production*: Monitoring to be introduced to detect network connection problems involving production VPC

- **Pasadena C2C**
  - Looking forward to testing the connectivity between the Data Hub and Pasadena's servers in support of McCain Transparity application C2C
  - McCain anticipating deployment into D7 network in September
  - Working to implement SSL/TLS encryption in communication

- **Recent short-lived D7 VPN outages**
  - Even short outages can be disruptive

- **Ongoing weekly meetings between RIITS and PATH**
  - D7 Caltrans continues to be available as needed

C2C Connectivity since last Face-to-Face
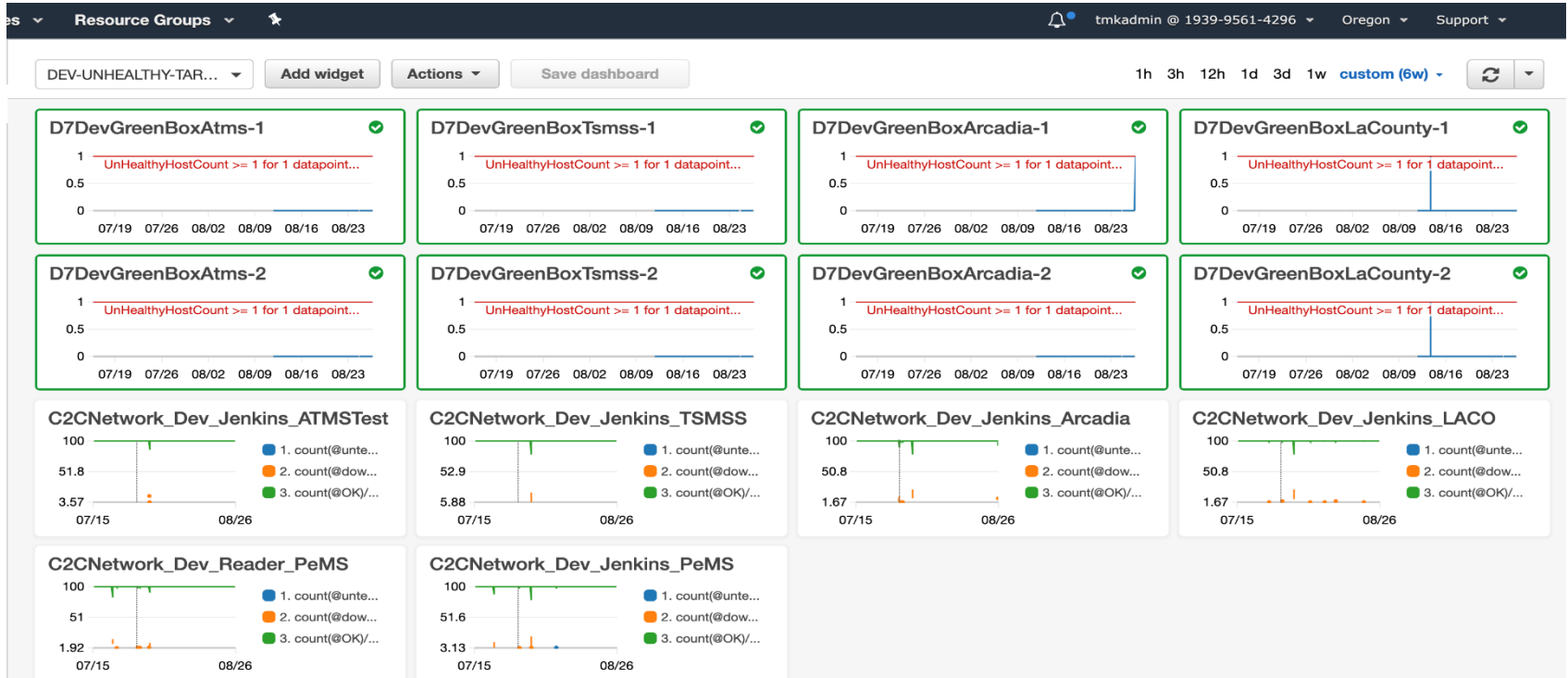
AWS plots reflect "unhealthy" connections.
Jenkins and Reader Chart Legend: Green – OK, Yellow – Down, Blue – Untested.
Pasadena connection has not been completed yet.

C2C Connectivity mostly good

- **Plots show connectivity ***

  - Some history only available for last 2 weeks due to shift to using monitoring from network load balancer.

  - Only minor blips in connectivity

- **System architecture and monitoring have changed**

  - Most plots use AWS provided monitoring for Network Load Balancers

    - These plots reflect 0 "unhealthy" connections

  - Other plots (Jenkins and PeMs Reader) are as before

    - These plots show 100% "OK" connections

* Monitoring of the network connections at the load balancers in front of the readers in Dev. Load balancers are not yet deployed in production so no such monitoring in Prod.

C2C Interface Implementations - Status
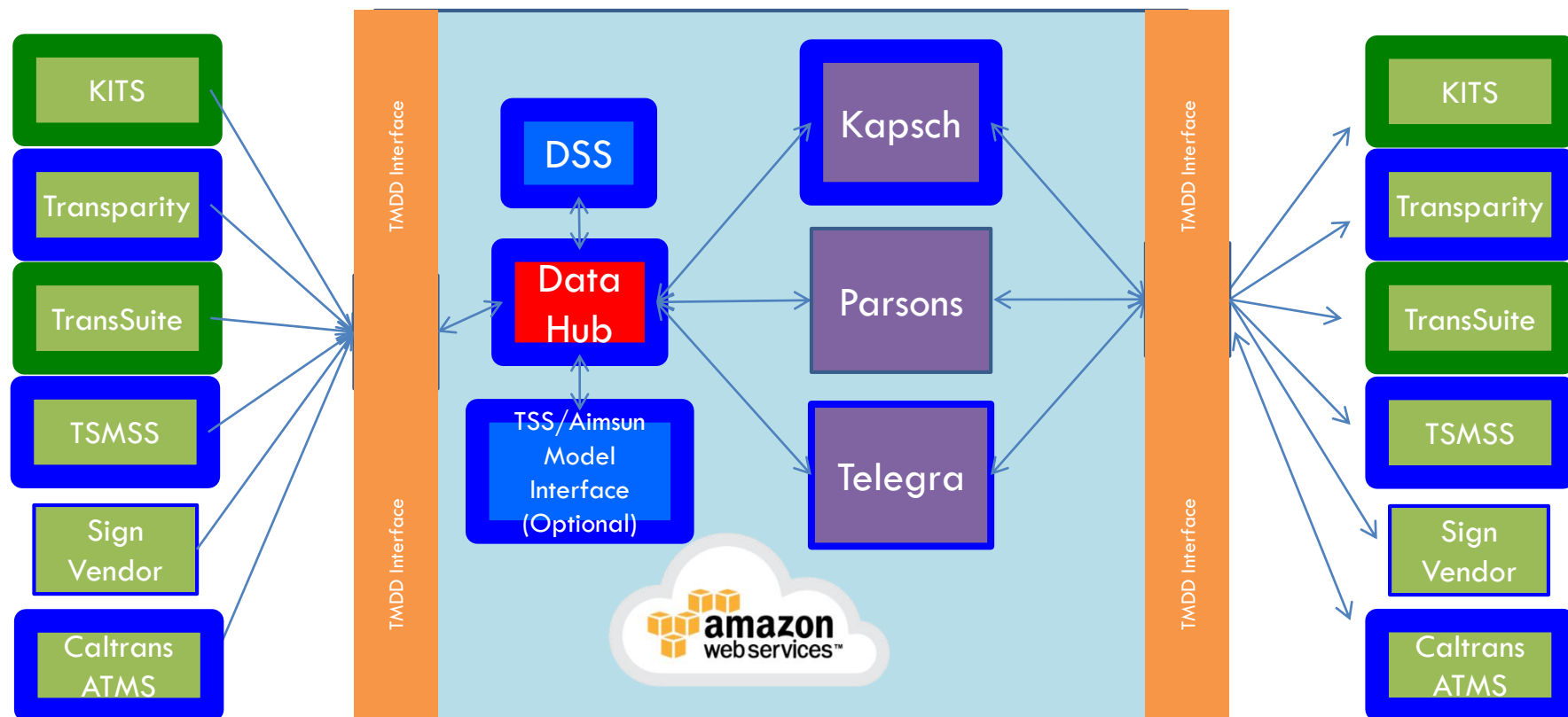
Legend:
Green border – Done; Blue border – In Progress (thickness commensurate with progress)

Systems Integration

- **Pasadena**
  - McCain/Transparity C2C interface – Dialog testing complete. Expect command execution dialog testing completion shortly. Expect to be deploying to Pasadena in September with a production data review to follow. Networking and SSL security still in work.

- **Dynamic Message Signs – Pasadena, LACO, Caltrans**
  - Awaiting interface development. Expect first interface integration efforts to start in September.

- **Caltrans**
  - Reviewing Parsons design for ATMS updates.

Systems Development

- **Production system initial stand-up**

  - CMS – working with Kapsch to integrate initial response plan generation workflow.

- **Updates**

  - Completed automated deployment of test DSS estimation and response plan development to AWS. Working to complete prediction in November.

  - Completed deployment of response plan generation without prediction. Tested and released to integration.

  - Working to address some data pipeline bugs affecting reliability of pipelines.

  - Implementing AWS security enhancements.

ICM System Design Overview

Highest Level Design
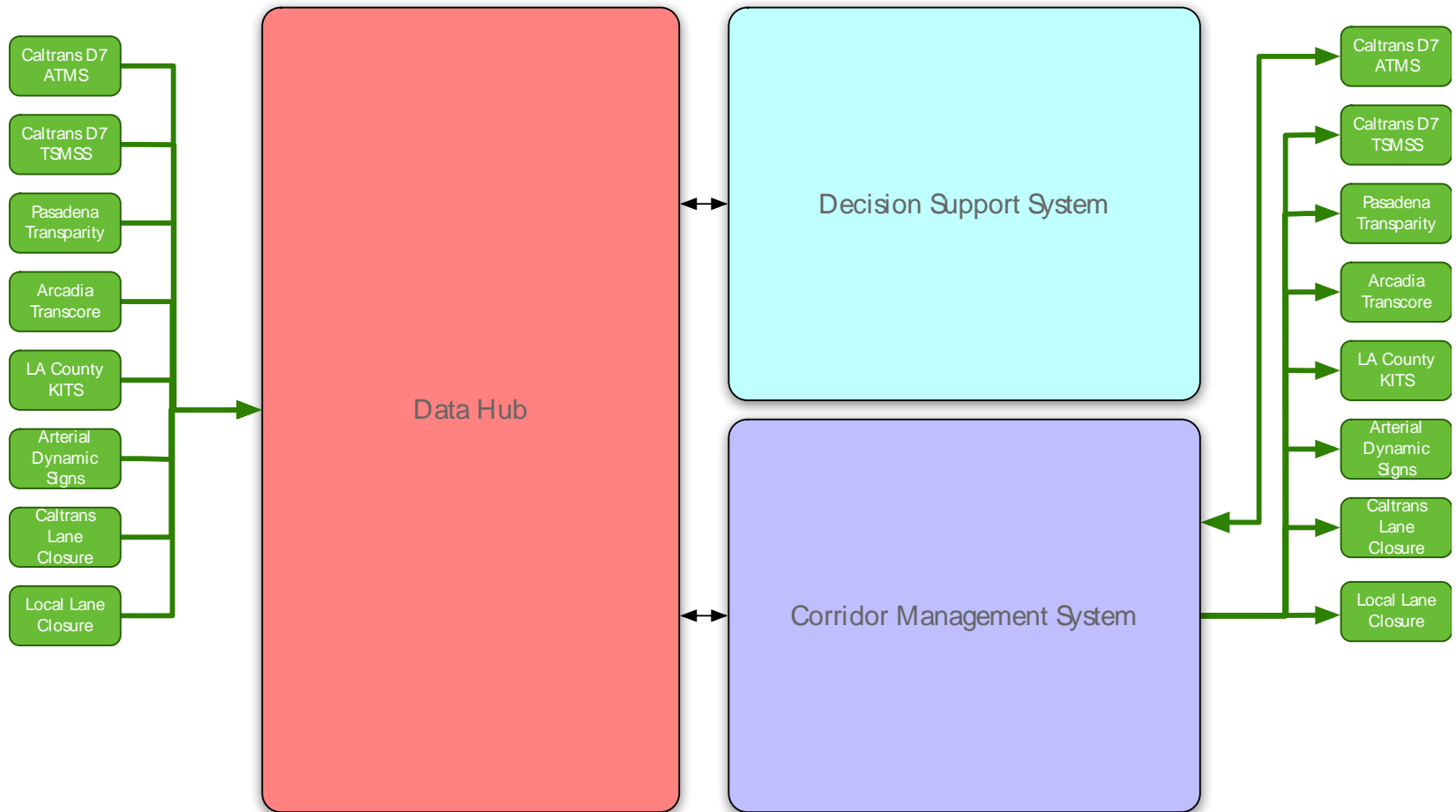
Design Objectives

- ## **Real time operation**
  - **Fast data processing**
  - **High data volume capability**
  - **DSS speed to decision**
- ## **Flexibility for future/regional needs**
  - **Add or subtract capabilities to fit future needs**
- ## **Highly Scalable**
  - **Scalable for increased demand**
  - **Scalable for added services/capabilities/data sources**
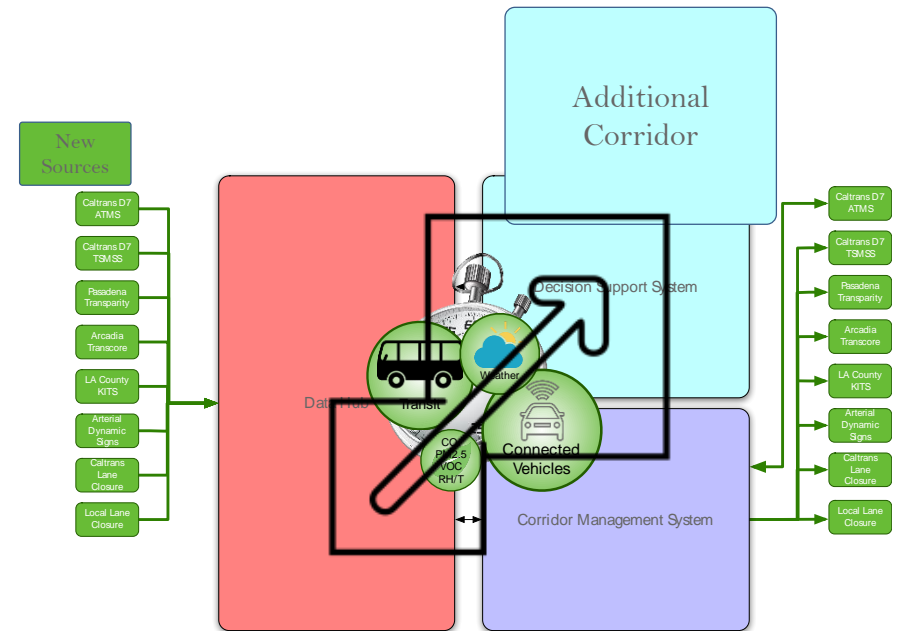
Design Objectives (continued)

◻ **Secure**

◻ **Futureproof**

- ◼ Able to adapt and grow to handle data demands of the future
- ◼ Able to add features and capabilities with minimal change to existing system

◻ **Fault tolerant**

- ◼ Able to recover from any core system hardware failure automatically
- ◼ Able to continue operation with limited degradation upon external system failure

◻ **Limit IT support requirements**

- ◼ Automated deployment and recovery
- ◼ No core system locally hosted components – Cloud based system

Primary Design Patterns

- **Distributed, independent services connected by messaging**
  - Scalability
  - Fault tolerance, reliability

- **NoSQL databases**
  - Scalability
  - Performance

- **Data standardization (TMDD)**
  - Portability, Componentization

Primary Design Patterns

- **Configuration based design**
  - Services are generic and provided operation specific information via configuration
  - Configuration at 3 levels – build-time, deploy-time, run-time

- **100% Cloud-based**
  - Deployment automation
  - Scalability automation
  - Security automation
  - Recovery automation
  - High availability, fast recovery

- **No-touch production operation**
  - More secure, more locked down

A Little Deeper
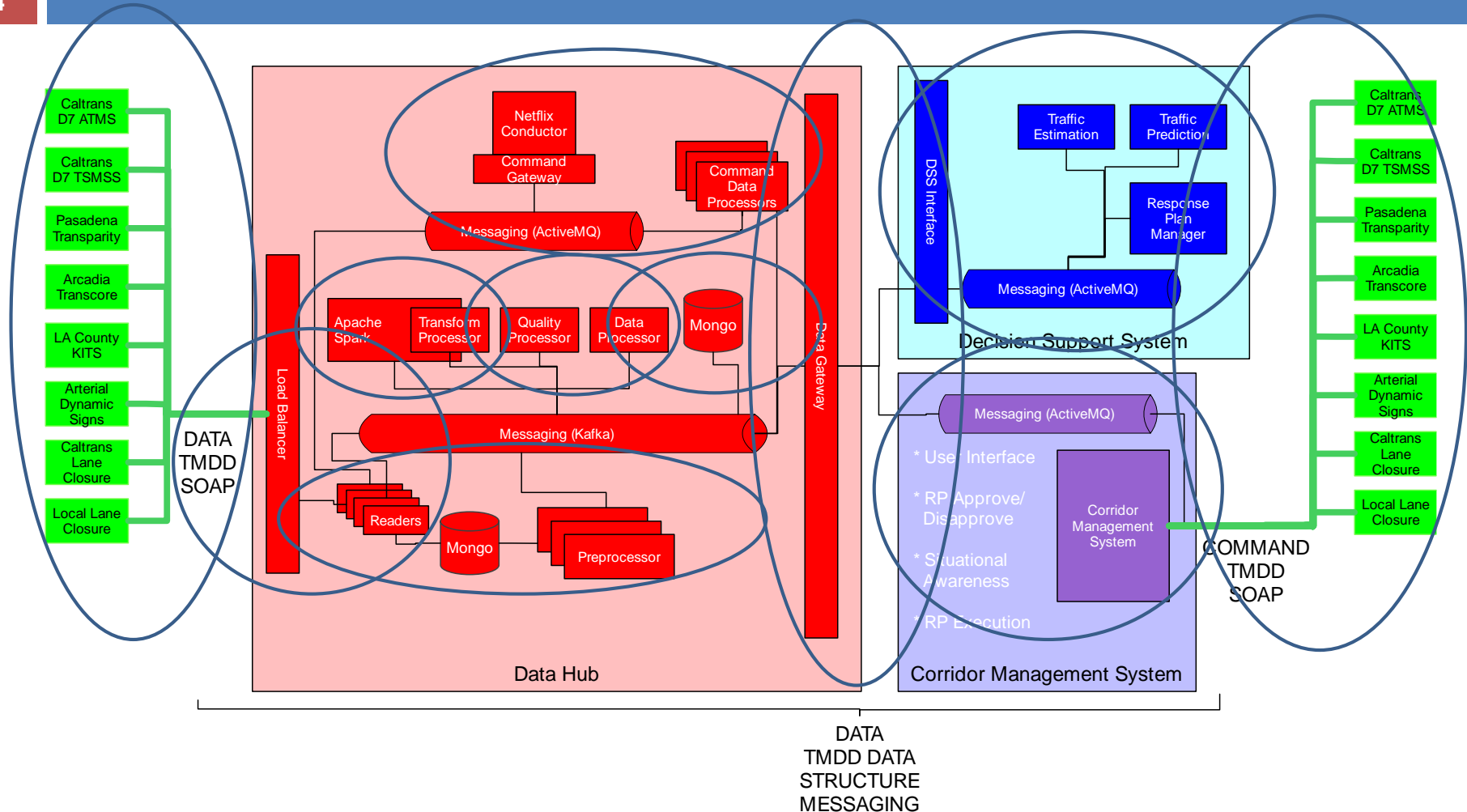
What is Today's Demonstration

Data Flows

- ❑ Arcadia
- ❑ ATMS (Test)
- ❑ TSMSS
- ❑ LACO

Incident Mgt

- ❑ Incident
- ❑ Response Plan
- ❑ Reject and Approve
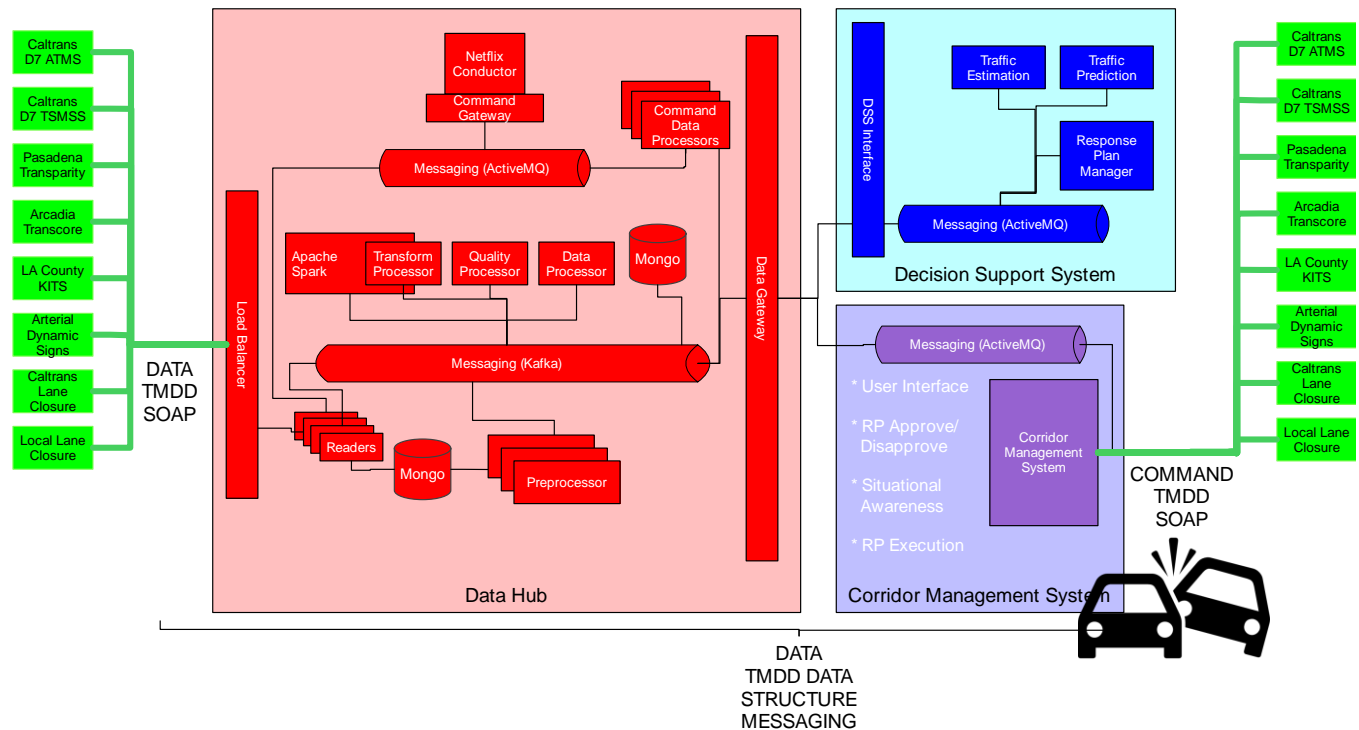
Analysis Modeling & Simulation and ICM System Demo

CC ICM System Overview

External Data Sources

Connected Corridors ICM Core System

Response Plan Execution in the Field

Other…

KITS,
(LA County),
(Duarte/Monrovia)

Transparity,
(Pasadena)

TransSuite,
(Arcadia)

DMS
Sign Vendors

TSMSS

ATMS
Caltrans
CMS, DMS and Ramp Meters

TMDD Interface

TMDD Interface

Decision Support
System (DSS)

Data Hub

Interface for cities:
1. To see global view of
entire corridor
2. To enter arterial events
3. To approve/disapprove
response plans

CMS (Kapsch)
Local Agency
Interface

TMDD Interface

TMDD Interface

ATMS
Caltrans
User Interface

Interface for Caltrans:
1. To enter freeway incidents
2. To approve/disapprove
response plans

KITS,
(LA County),
(Duarte/Monrovia)

Other…

Transparity
(Pasadena)

TransSuite
(Arcadia)

DMS
Sign Vendors

TSMSS

ATMS
Caltrans
CMS, DMS and Ramp Meters

Demonstration Overview

Demonstration Overview

☐ **This is the map that illustrates data flows**
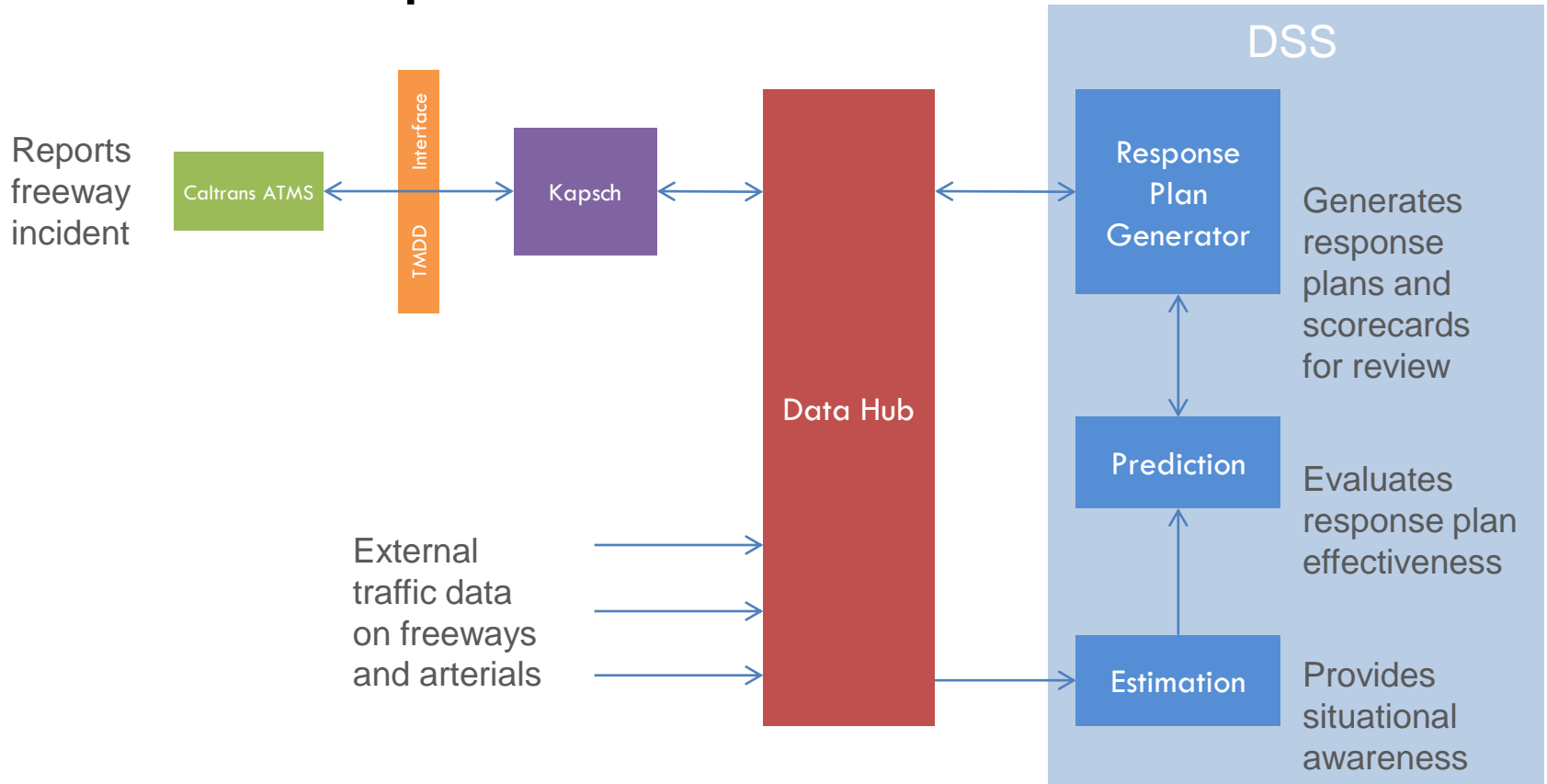
Estimation Data Flow (Previous Demo)

☐ **Estimation was demonstrated previously**
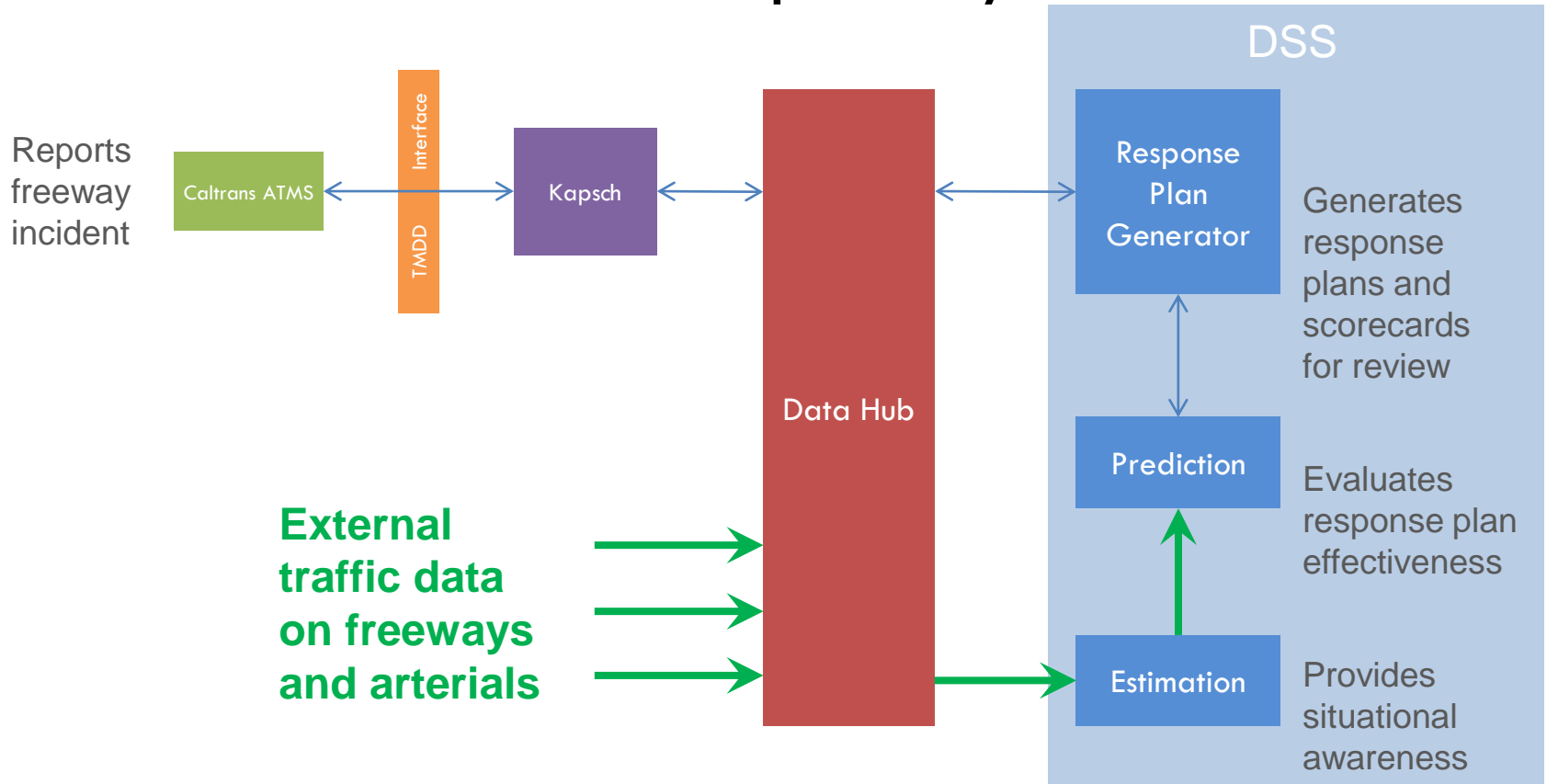
Incident Data Flow (Previous Demo)

☐ **An ATMS incident triggers response plan generation**
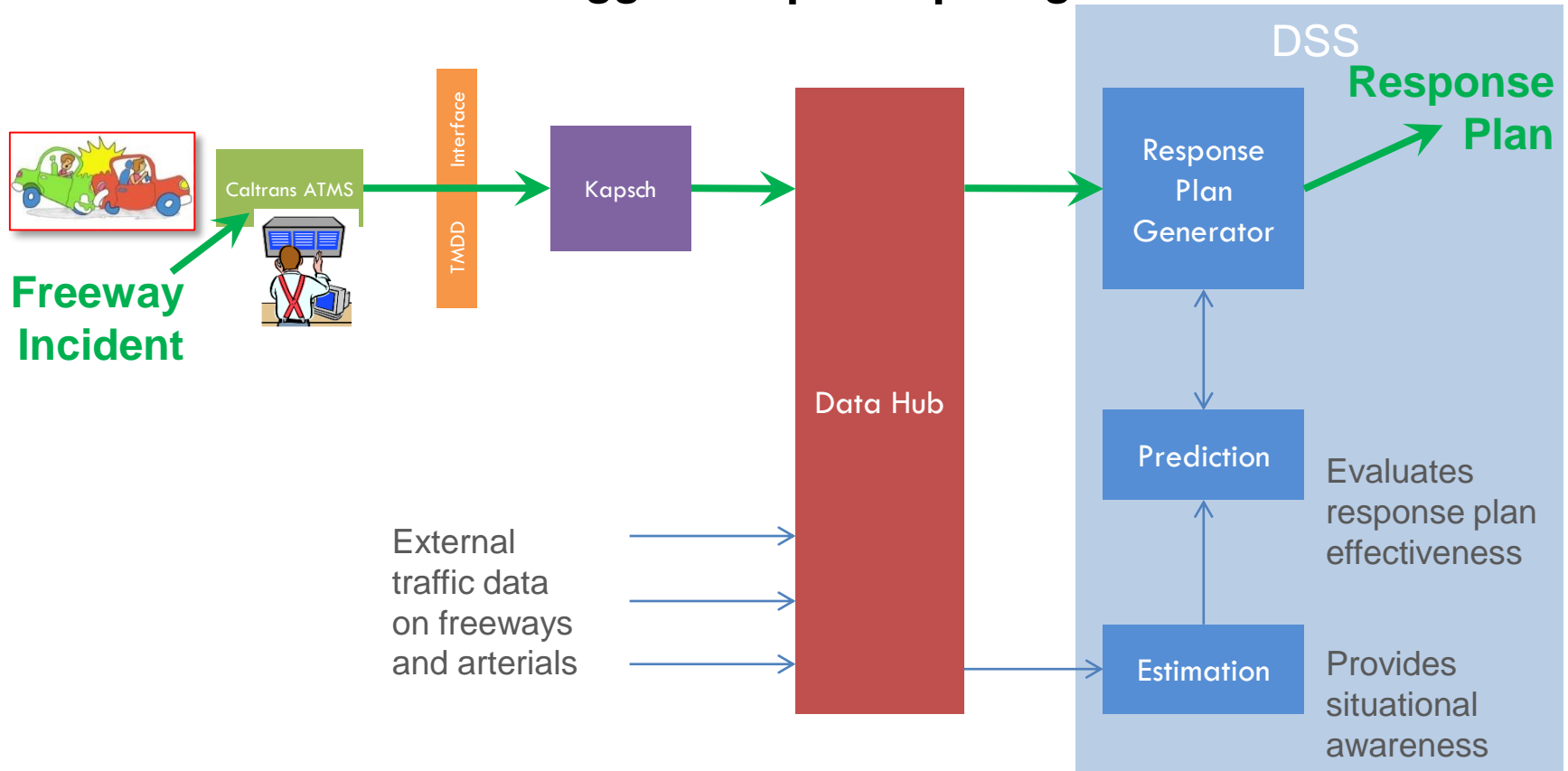
Scorecard Generation (Previous Demo)

☐ **Automatic scorecard generation**
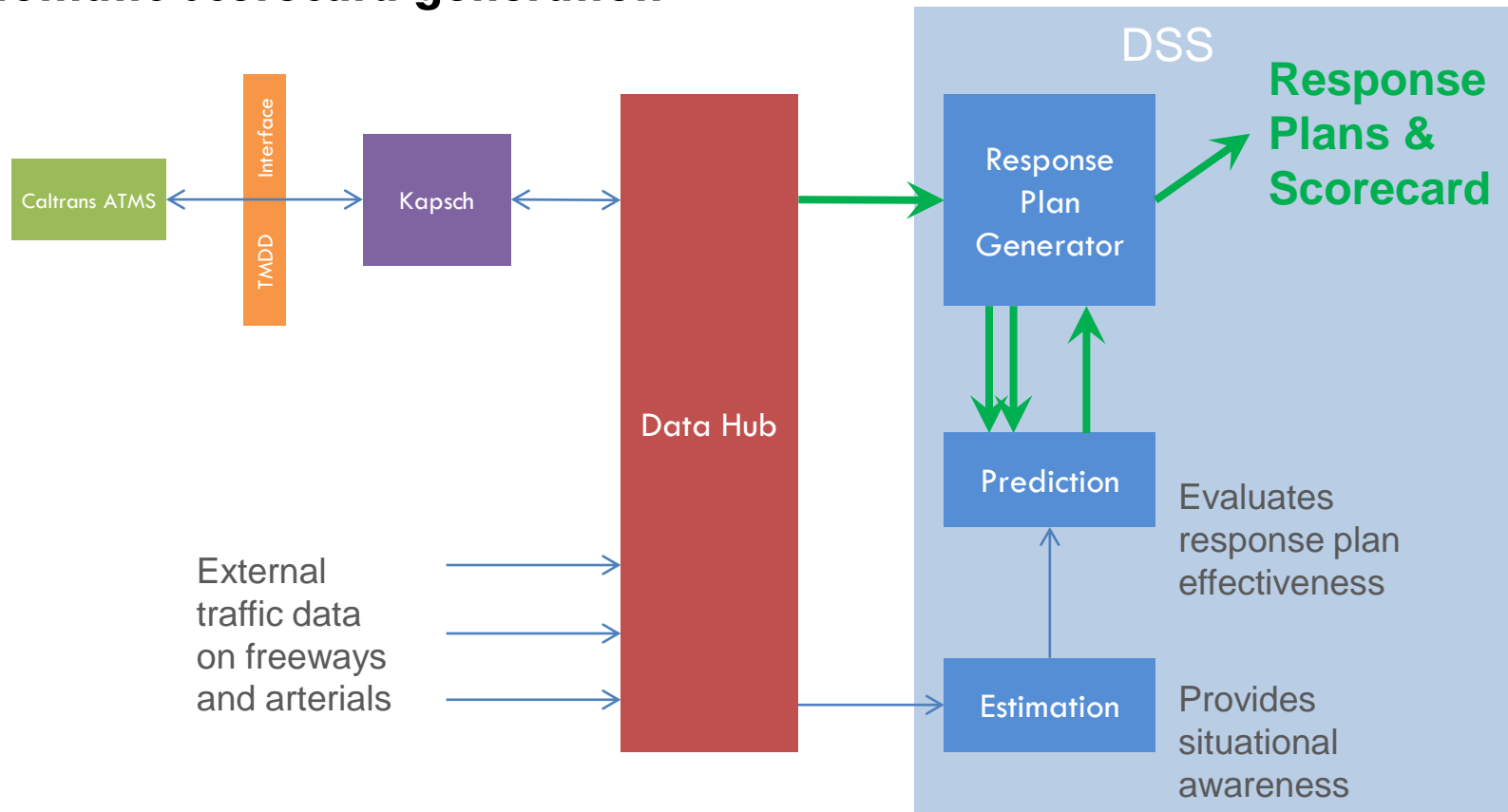
Approval of one Response Plan (Last Time)

□ **Response Plan sent to Kapsch CMS** (RP reviewed and approved)

Demo For Today

On the surface, this demo will appear similar to last time, but is in fact **_profoundly_** different
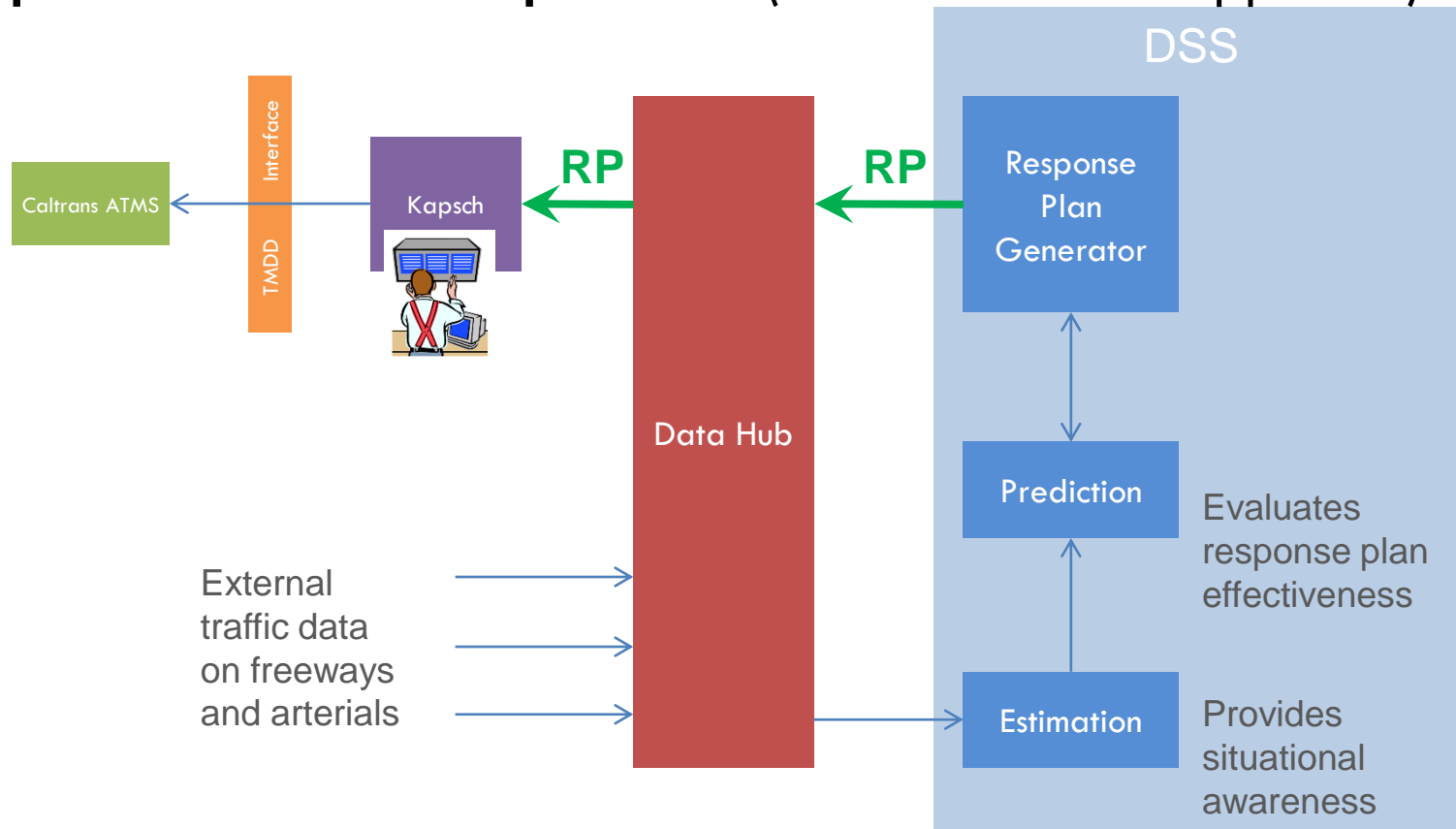
□ **Demonstration of workflow between Data Hub and Kapsch CMS**

Important Points about Today's Demo

- **New things since last time**
  - DSS now running in the AWS cloud, not on my laptop(s)
  - New plumbing behind the scenes using the Netflix Conductor workflows
  - The demonstration will show the process to reject the first response plan and approve the second response plan
  - Behind the scenes this process requires communication back and forth between Kapsch CMS and the Data Hub

- **For today's demo**
  - Response plans are generated based on rules only (bypassing the Estimation and Prediction)
  - We will not focus on the details of the response plans, but rather on the process for rejecting and approving them
  - The incident will be manually entered as if it came from the ATMS. We are using the Kapsch CMS to illustrate the view of the cities and county

Preview of Screens

…and things to look for

Interface shown as Arcadia

Indicates the user, in this case Arcadia

Incident location

Incident location on I-210 WB near Baldwin

Incident entered as if arriving from ATMS

A clone of an incident has been preloaded into the Kapsch CMS

Incident activated

When status is changed to confirmed, the incident will be sent to the Data Hub. The workflow is started.

First response plan

Details of first response plan shown here

Rejection of first response plan

Arcadia disapproves

Second response plan for consideration

Arrival of second response plan

Approval of second plan

Arcadia approval

Final approval

Plan prevented from being implemented in the field, because the launch is not until next year

Approval of all stakeholders

46 Live Demonstration

47 Conclusion

Demo For Today

On the surface, this demo will appear similar to last time, but is in fact **_profoundly_** different

☐ **Demonstration of workflow between Data Hub and Kapsch CMS**
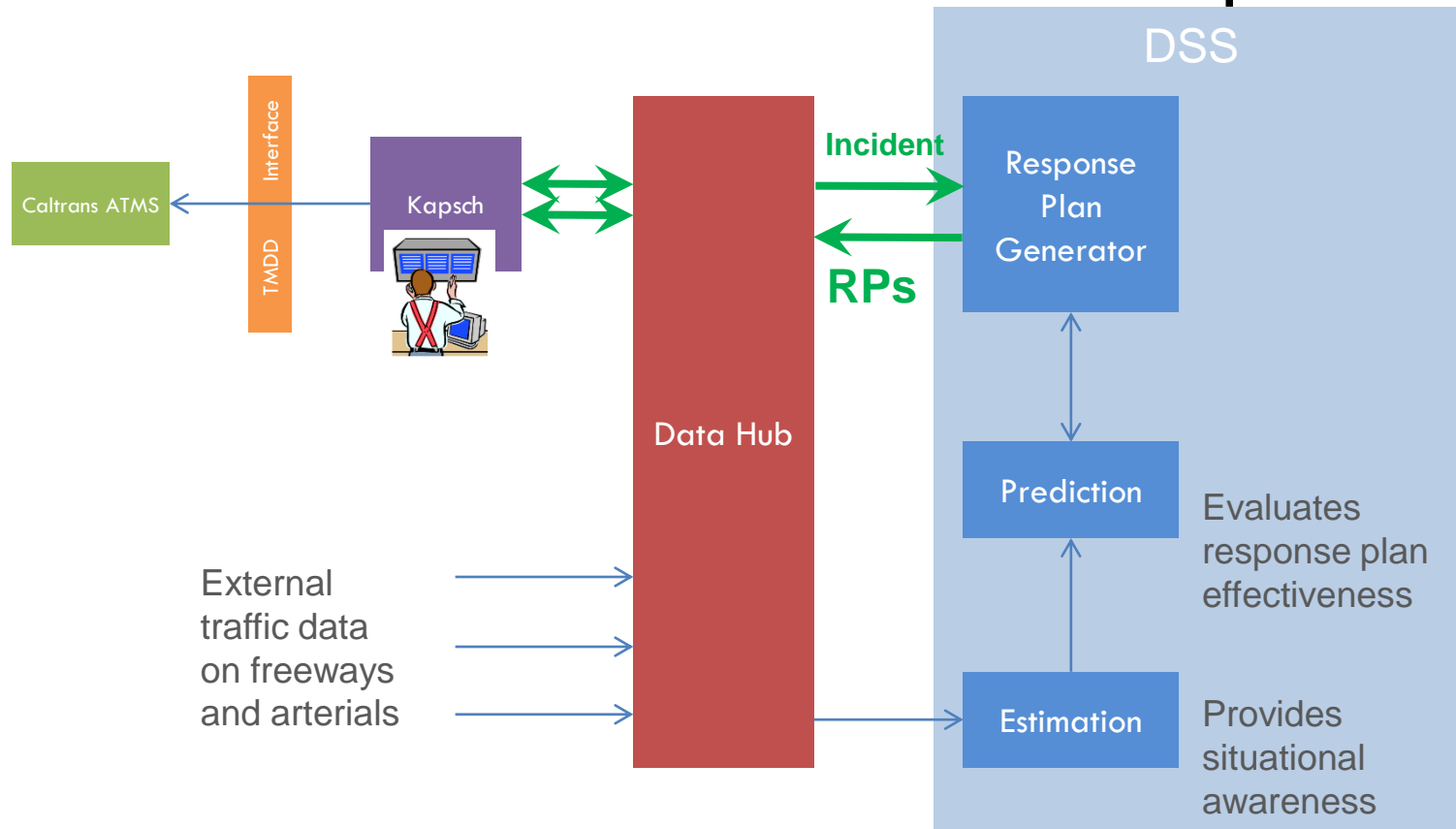
Accomplishments

□ **Demonstrated progress**

- ▫ Response Plan Generator processes updated and running in the Integration environment in the cloud! Further functionality enhancements to continue

- ▫ Continued progress on integration with Kapsch CMS and Data Hub: Ability to reject and accept response plans

- ▫ Ability to bypass estimation and prediction – returning response plan in seconds

Accomplishments

- **Analysis Modeling and Simulation (AMS)**
    - All estimation components now run in the Integration environment in the cloud! The next step is to complete testing
    - All recent signal timing plans have been updated in the Aimsun model and testing has been successful in the new version of Aimsun 20
    - Finished coding of real-time queue estimation for use with rules (for better RPG decision to narrow down the list of RPs)

Next Steps

- Design updates for response plan selection using the real-time queue information from estimation

- Refine estimation to handle exceptional arterial intersection topologies

- Continue to migrate software components to the cloud

- Improve integration of DSS components, Data Hub and Kapsch CMS
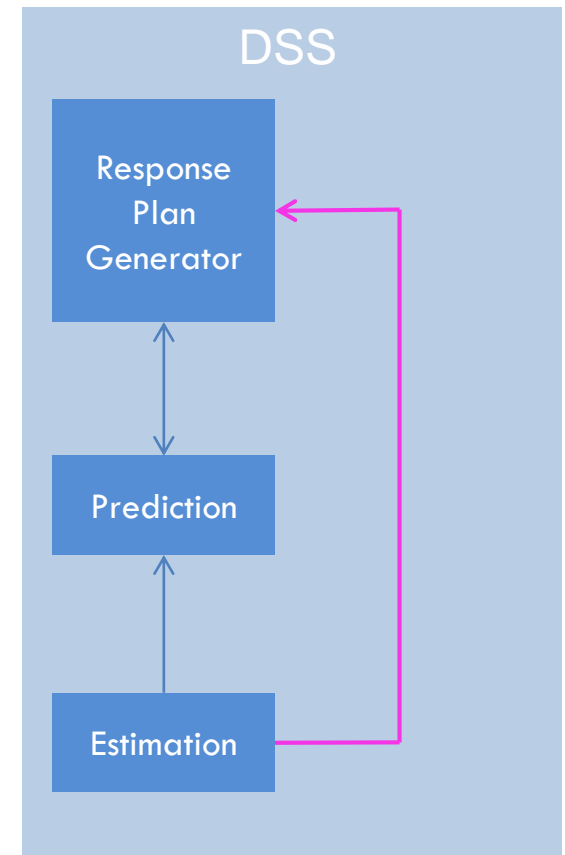
Data Quality

I-210 – Freeway Data Quality

- ☐ **Excellent overall data availability on core I-210**
- ☐ **SR-134 is under construction**
- ☐ **Replaced controller on I-605**
- ☐ **Improved real-time availability of data in August**
- ☐ **Configuration changes to URMS have improved stability**

| Caltrans (freeways) | Arcadia | Pasadena | Summary |

Data Readiness Grid

Asset Data and Status Weekly Report (08/31/2020)					
Agency	**System**	**Asset Type**	**Critical for Launch?**	**Ready for Launch?**	**Comment**
Caltrans	PeMS	PeMS Data	Yes (as a workaround for ATMS)	Yes	
	ATMS	Freeway Detector Messages	No (workaround available)	NA	
		Ramp Meter Messages	Yes	Almost	
		DMS Messages	Yes	Almost	
	TSMSS/TransSuite	Intersection Detector	Yes	No	Awaiting software update in October
		Intersection Signal	Workaround available	NA	Will likely use same workaround as Arcadia
Arcadia	TransSuite	Intersection Detector	Yes	Almost	
		Intersection Signal	Workaround available	NA	Workaround available
LACO	KITS	Intersection Detector	Yes	Almost	
		Intersection Signal	Requires workarounds	No	Workarounds not yet implemented
Duarte	KITS	Intersection Detector	Yes	Almost	
		Intersection Signal	Requires workarounds	No	Workarounds not yet implemented
Monrovia	KITS	Intersection Detector	Yes	No	Service request issued
		Intersection Signal	Requires workarounds	No	Workarounds not yet implemented
Pasadena	McCain	Intersection Detector	Yes	No	
		Intersection Signal	Workaround possibility depends on intersection data	No	

Stakeholder Progress

Response Plans – Stakeholder Progress

- **Pasadena (80 CC Intersections)**

  - All intersections are programmed with Connected Corridors flush plans

- **LA County (6 CC Intersections)**

  - All intersections are programmed with Connected Corridors flush plans

- **Monrovia and Duarte (15 CC Intersections)**

  - All intersections are programmed with Connected Corridors flush plans

Response Plans – Stakeholder Progress

- **Arcadia (19 CC Intersections)**

  - 17 intersections are programmed with Connected Corridors flush plans on Huntington, Foothill, and Santa Anita

  - Two new 2070 controllers installed on Colorado

  - Timing database files received by PATH

- **Caltrans TSMSS (13 CC Intersections)**

  - All signal plans loaded onto controllers

  - A controller has been configured for bench testing and made available to PATH

Kapsch Update

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CC ICM System Overview

External Data Sources

Connected Corridors ICM Core System

Response Plan Execution in the Field

Other…

KITS,
(LA County),
(Duarte/Monrovia)

Transparity,
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TransSuite,
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DMS
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TMDD Interface

TMDD Interface

Decision Support System (DSS)

Data Hub

Interface for cities:
1. To see global view of entire corridor
2. To enter arterial events
3. To approve/disapprove response plans

CMS (Kapsch) Local Agency Interface

TMDD Interface

TMDD Interface

KITS,
(LA County),
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Other…

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User Interface

Interface for Caltrans:
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I-210 Integrated Corridor Management
Kapsch Update
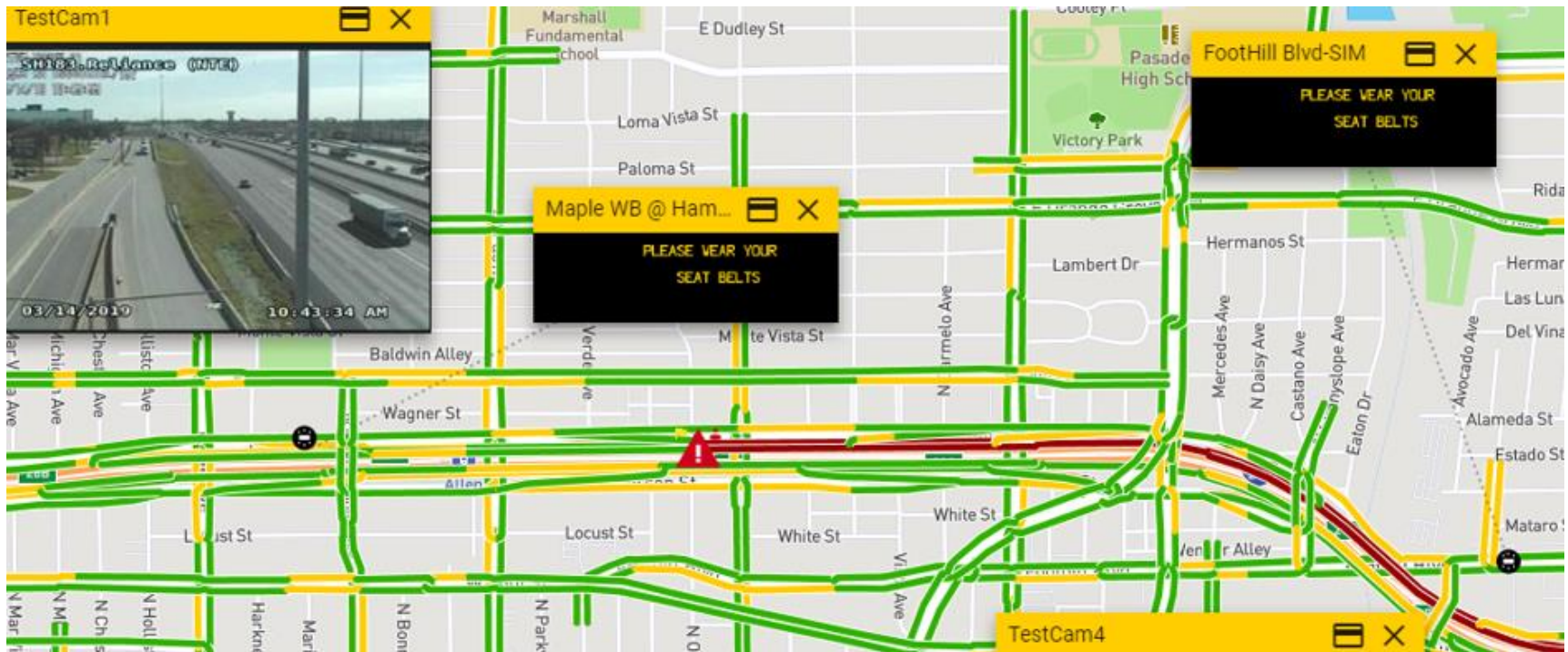
Tim O'Leary
September 1, 2020

EcoTrafiX Product Status

❑ EcoTrafiX V3.3 Scheduled for released November 2020

❑ Available for deployment on future projects

▫ Key Features:

  ■ Advanced Response Plan Editing

  ■ Complex Response Plan Scheduling

  ■ Advanced Signal Control Features
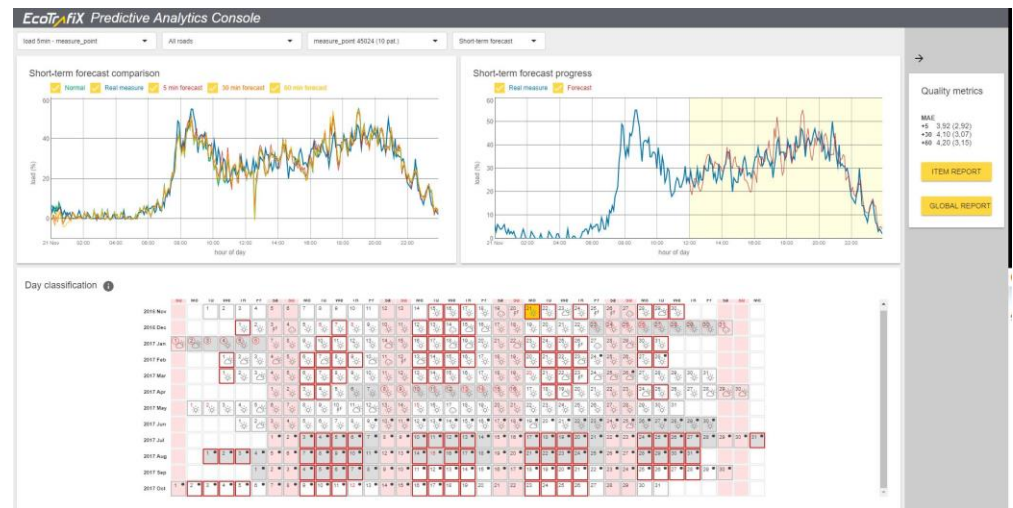
EcoTrafiX Interface Status

Good progress:

☐ EcoTrafiX integrated with DSS Response Plans in AWS environment

☐ EcoTrafiX integrated agency voting with DSS in AWS environment

EcoTrafiX Interface Status

Interface

Integrated

Ready to integrate

In development

TMCs

Arcadia

LA County

Others

Caltrans ATMS

Ramp Meter Commands

Voting

Events

Response Plans

Signal Controller Commands

DMS Commands

EcoTrafiX (CMS)

Events

Ramp Meters

Voting

Response Plans

DMS

Signal Controllers

PATH HUB
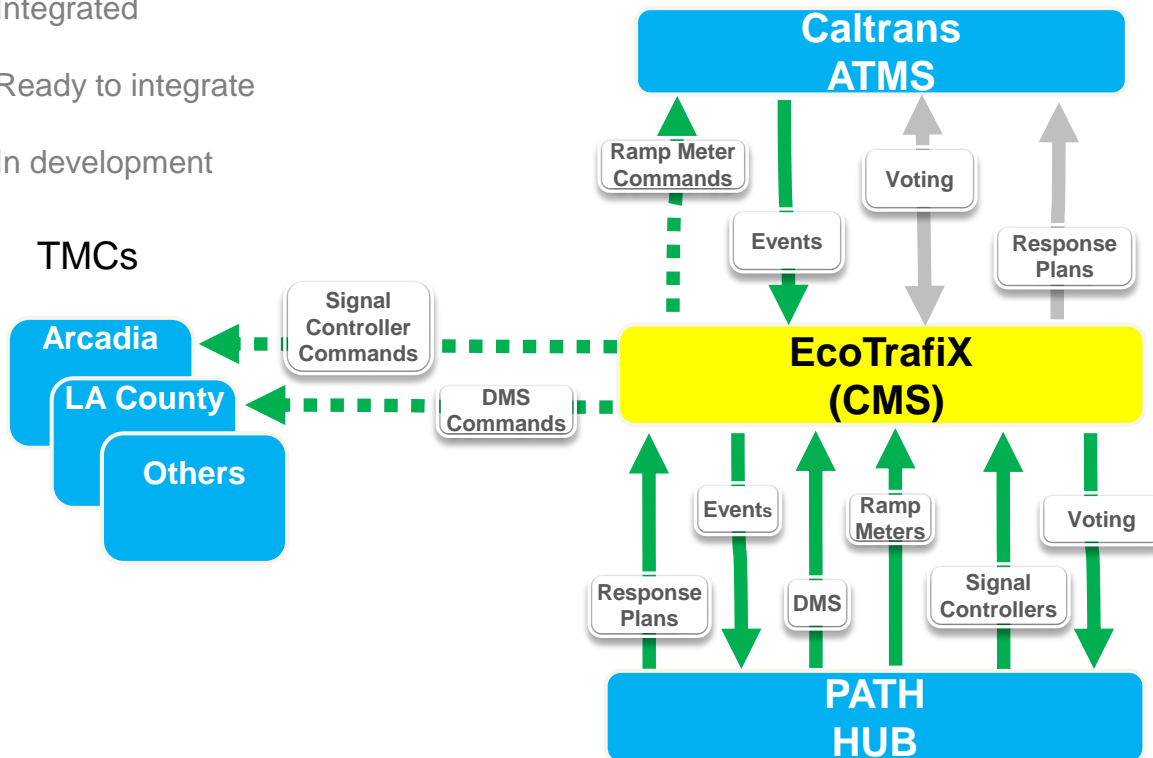
EcoTrafiX Status

Next Steps

- Request TMCs execute device commands

- EcoTrafiX send Response Plans to ATMS

- EcoTrafiX exchange Voting with ATMS

Thank You!

Kapsch TrafficCom

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Parsons – Call for Projects Update

Agenda

- **I-210 CC Arterial Systems Improvement Project System Consulting Services – Overview**

- **Status of 9 procurement package**

- **Next Steps**

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

STATUS OVERVIEW

Sep 1, 2020

Project Objective

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

#	Package Description	Contract #	Contract Status	Target
1	Bluetooth – Iteris Velocity	07A4470	Completed, Contract Closed	5/31/2019
2	Bluetooth – BlueToad	07A4477	Final System Testing Phase	9/4/2020
3	New Controller Cabinets	07A4761	Material Procurement	Q3-4,2020
4	Communication Upgrades	07A4479	Completed, Contract Closed	6/30/2020
5	Firmware/Timing Plan Updates/Controller Upgrades	07A4480	Material Procurement	Q3-4,2020
6	Video Detection System	07A4481	Completed, Contract Closed	6/30/2020
7	Data Communication Module and Video Detection Software Upgrade	07A4755	Material Inspection	Q3-4,2020
8-1	DMS Procurement	07A4792-3	in Progress	Sep 2020
8-2	DMS Integration	07A4794	Development Phase	Q1, 2021
8-3	DMS & Static Sign Installation	N/A	To be handled by stakeholders	Q3-4,2020
9	Environmental Stations with Air Quality Sensors and Open Data Systems	07A4388	Development Phase	Q1,2021

Project Area

#	Package Description	Contract #	Metro & Caltrans	City of Pasadena	City of Arcadia	City of Monrovia	City of Duarte	LA County	Foothill Transit
1	Bluetooth – Iteris Velocity	07A4470	√		√				
2	Bluetooth – BlueToad	07A4477	√	√		√	√	√	
3	New Controller Cabinets	07A4761	√	√	√				
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	07A4755	√	√	√	√	√	√	
8-1	DMS Procurement	07A4792-3	√	√				√	
8-2	DMS Integration	07A4794	√	√				√	
8-3	21 DMS Installation	Stakeholders	√	√				√	
	11 Static Sign Installation	Stakeholders	√	√	√		√	√	
9	Environmental Stations with Air Quality Sensors and Open Data Systems (ODS)	07A4388	√	√					√

Project Area (cont.)
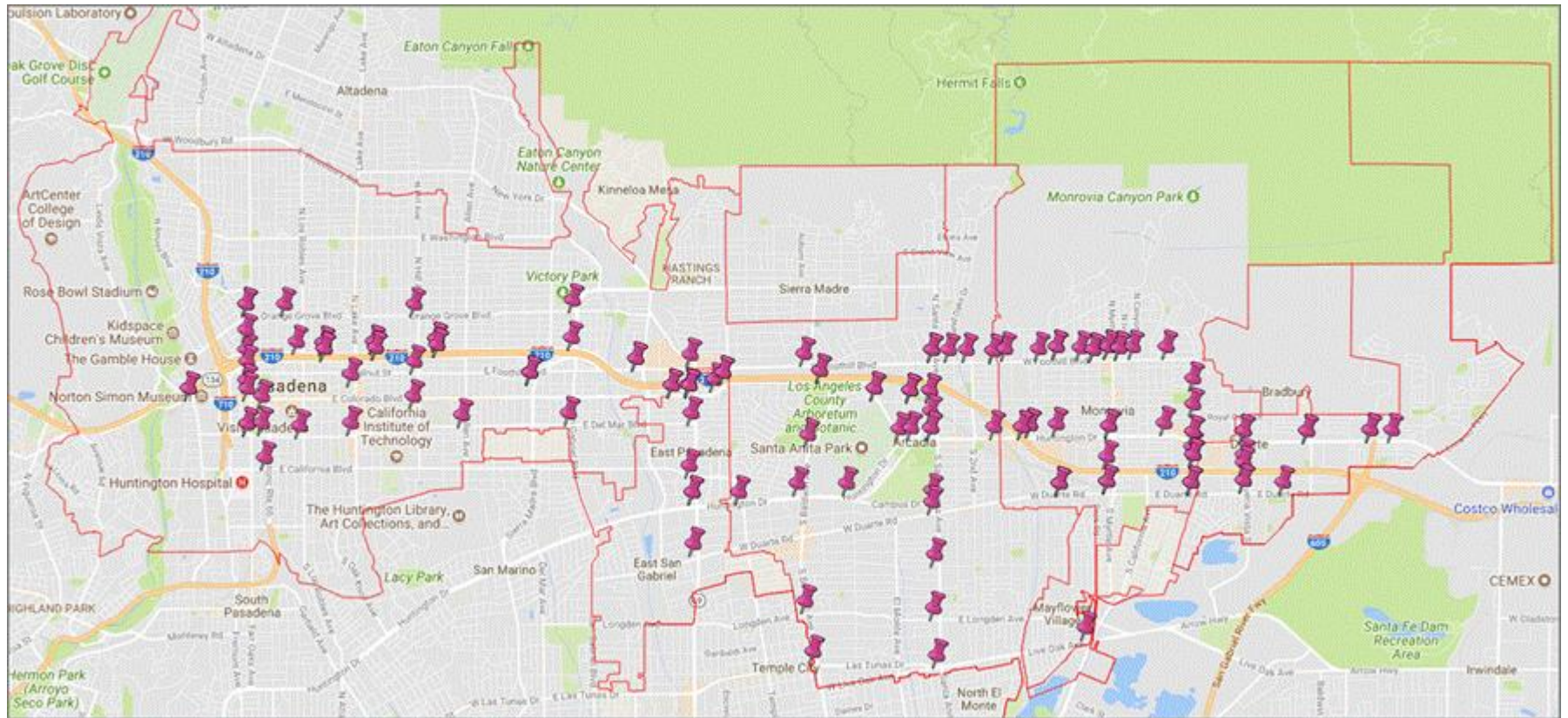
UPDATE ON

PACKAGES 1-9

Sep 1, 2020

Package Status – Pkg # 1

Pkg. #	Pkg.	Contract #	Project Status
1	Bluetooth – Iteris Velocity	07A4470 PTM	• NTP: 7/10/2018 • Kick-off Meeting: 7/30/2018 • Submittal Approved: 8/16/2018 • Installation & Testing Completed on 5/29 & 5/30/2019 • Accepted by Arcadia, Documents Submitted • Completed

Package Status – Pkg # 2

Pkg. #	Pkg.	Contract #	Project Status
2	Bluetooth – BlueToad	07A4477 DBX	- NTP: 7/10/2018 - Kick-off Meeting: 7/30/2018 - Submittal Approved: 10/12/2018 - Field Installation & Testing: Completed (May 2020) - LACo, Monrovia, Duarte:10 locations - Caltrans: 1 location without existing comms. Equipment delivered to LACo Pasadena: 11 locations completed - TMC Server Installation & Configuration: Completed (May 2020) - LA Co <-> Pasadena Server Communications: configured & tested - System Acceptance Testing & Training: - Pasadena: Completed 8/27/2020 - LA County, Monrovia, Duarte: Troubleshooting communications to 4 locations - Expected to be completed: 9/4/2020 (95%)

Package Status – Pkg # 2

☐ **P2 – BlueToad Travel Time System – Comm. Architecture**

11 locations

10 locations

Future

3rd Party System
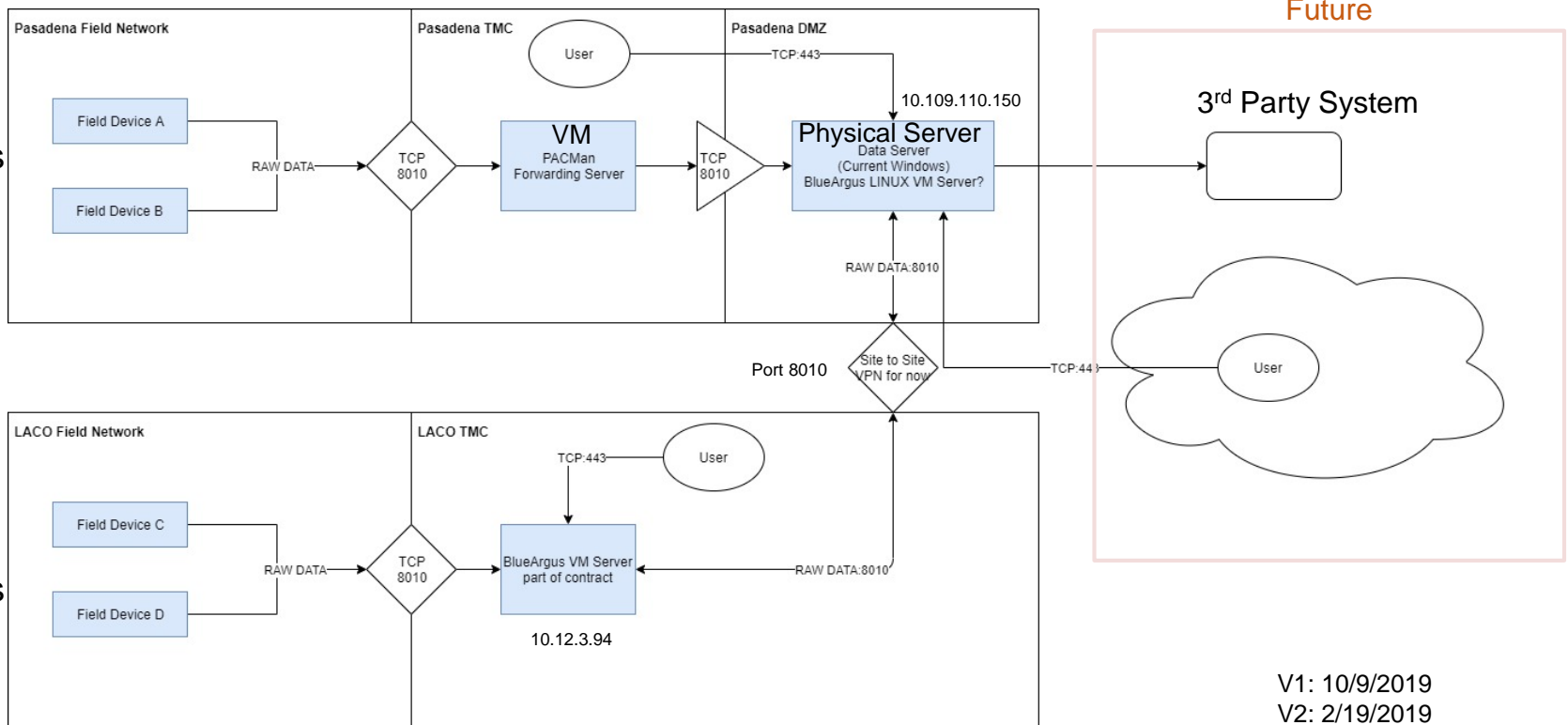
V1: 10/9/2019
V2: 2/19/2019
V3: 6/11/2020

Package Status – Pkg # 3

Pkg. #	Package Name	Contract #	Project Status
3	New Controller Cabinets	07A4761 Crosstown	**Advertised: 9/26/19** - Awarded: 2/11/2020 - NTP: 2/19/2020 - Kick-off Meeting: 2/25/2020 - Material Submittal Review - Arcadia (1 locations): Approved - Pasadena (7 locations): Approved - Installation : - Arcadia: completed & tested - Used city-furnished controller, new equipment to be delivered to City - Pasadena: Layout plans are needed for 3 locations; Relocation plans are needed for 4 location on bridge - City and contractor conducted site investigation on 6/24/20 - Contractor will submit the plans and cost estimate - Expected to be completed: Q3-Q4, 2020

Package Status – Pkg # 4

Pkg. #	Package Name	Contract #	Project Status
4	Communication Upgrades	07A4479 Kanaan Construction	• NTP: 7/13/2018 • Kick-off Meeting: 7/30/2018 • Submittal & RFI Approved: 5/6/2019 • Equipment procured • Installation of 35 locations: completed • Testing & Acceptance: completed (1/13/2020 & 4/14/2020) • Contract Closed: 6/30/2020

Package Status – Pkg # 5

Pkg. #	Package Name	Contract #	Project Status

5	Firmware/Timing Plan Updates/Controller Upgrades	07A4480 CPE, Inc	• NTP: 7/17/2018
			• Kick-off Meeting: 7/30/2018
			• Changed hardware/firmware requirements per Stakeholder Comment; revised price estimate ($124,971) lower than original amount ($171,600) – reviewed & approved by stakeholders (Arcadia, Pasadena, LA County, Caltrans)
			• Material
			  • Submittals – approved
			  • Materials Procurement - order placed, Estimated Date of Delivery (EDD) end of Sep 2020 (original EDD 8/5/2020)
			• Installation
			  • 3 locations in Monrovia:
			    • 3 D4 firmware licenses added to LACo license database on 7/15/2020, LACo is updating timing plan
			    • spare 1C module in LA County or Arcadia can be used to test firmware upgrade
			  • 2 locations in Arcadia: City has installed spare controllers. New equipment to be delivered to City
			  • Other locations: Oct – Nov 2020
			• Expected to be completed: Q4, 2020

Package Status – Pkg # 6

Pkg. #	Package Name	Contract #	Project Status

6	Video Detection System	07A4481 Traffic Loops Crackfilling, Inc	• NTP: 7/10/18
			• Kick-off Meeting: 7/30/18
			• 10/9/18: Conducted Site Survey
			• 10/18/18: Submittal approved
			• Installation: all 22 locations completed (Mar 2020)
			• Installation (22 locations):
			   • 22 locations: all completed
			   • Installation of conduit: completed
			• Acceptance Testing: Completed
			• As-built & Test Reports: Completed
			• Contract Closed: 6/30/2020

Package Status – Pkg # 7

Pkg. #	Package Name	Contract #	Project Status

7	Data Communication Module and Video Detection Software Upgrade	07A4755 Crosstown	• Advertised: 1/2/2020
			• Awarded: 2/11/2020
			• NTP: 2/19/2020
			• Kick-off Meeting: 2/25/2020
			• Materials
			    • LA County (4): approved
			    • Duarte (1): approved
			    • Monrovia (3): approved
			    • Arcadia (14): approved
			    • Pasadena (change from 8 to 6): approved
			• Procurement: Completed 7/10/2020
			• Installation:
			    • 85% done
			    • 1 Arcadia Location: scheduling site investigation & preparing cost estimate
			• Expected to be completed: Oct 2020

Package Status – Pkg # 8-1, 8-2, 8-3

Year	2020												2021						
Month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7
DMS Procurement		▓	▓																
DMS Delivery		▓	▓	▓	▓	▓	▓	▓	▓										
DMS Installation									▓	▓	▓								
DMS Integration				▓	▓	▓	▓	▓	▓	▓	▓	▓	▓						
DMS System Testing									▓	▓	▓	▓	▓	▓					
Training															▓	▓	⇧		

May 2021, Hard Launch of I-210 CC System (Est.)

Item	Total	Caltrans	Arcadia	Pasadena	Duarte	Monrovia	LA County
# of DMS	21	2		17			2
DMS Locations	21	2		17			2
# of Static Signs	31	3	12	1	6	6	3
Static Signs Locations	11	3	4	1	1	1	1
Installation		Caltrans	Arcadia	Pasadena	Duarte	Monrovia	LA County

Package Status – Pkg # 8-1

Pkg. #	Package Name	Contract #	Project Status
8-1	Advanced Traveler Information Systems: DMS Procurement	07A4792-3 Elan Moyal	• Advertised: 10/25/19 • Awarded: 12/2/ 2019 • Kickoff meeting: 12/19/2019 • Material Submittals & procurement: in progress • Expected to be completed: Sep 2020

Package Status – Pkg # 8-1

Item	Total	Caltrans	LACO	Pasadena	Ordered	Delivery
DMS & Mounting Hardware	21	2	2	17	3/27/20	Mid Sep 2020 (impacted by COVID19)
DMS Poles & Anchor Bolts	19	0	2	17	2/21/20	DMS Pole Source Inspection: 5/13/2020 2 delivered to LACO: 6/15/2020 (confirmed) 17 delivered to Pasadena: 6/15/2020 (confirmed) DMS Anchor Bots Source Inspection: 7/7/2020 19 delivered to Pasadena: 7/9/2020 (confirmed) Green tag & Orange tag to Caltrans : 8/18/2020 (Parsons)
Pull boxes	19	0	2	17	4/30/20	2 delivered to LACO: 5/21/2020 (confirmed) 17 delivered to Pasadena: 6/1/2020 (confirmed)
Power & Comm Cables	11,000 ft	TBD	TBD	TBD	4/23/20	9 boxes delivered to Pasadena: 6/4/2020 (confirmed) 1 box delivered to LA County: 8/18/2020 (confirmed) 1 box delivered to Caltrans: 8/18/2020 (Parsons)
Radios	12	0	0	12	5/5/20	Delivered to Pasadena: 6/1/2020 (confirmed)
Sign Control System with API	3	1	1	1	3/27/20	API v1.5 being updated to address comments Est. Delivery Date: 9/11/2020
Servers	1	1	0	0	Lead time: 3 weeks	LACo: VM has been set up Pasadena: VM will be provided, provided spec of additional resources needed (price quote received) Caltrans: Physical Server (revised quote received)

Package Status – Pkg # 8-2

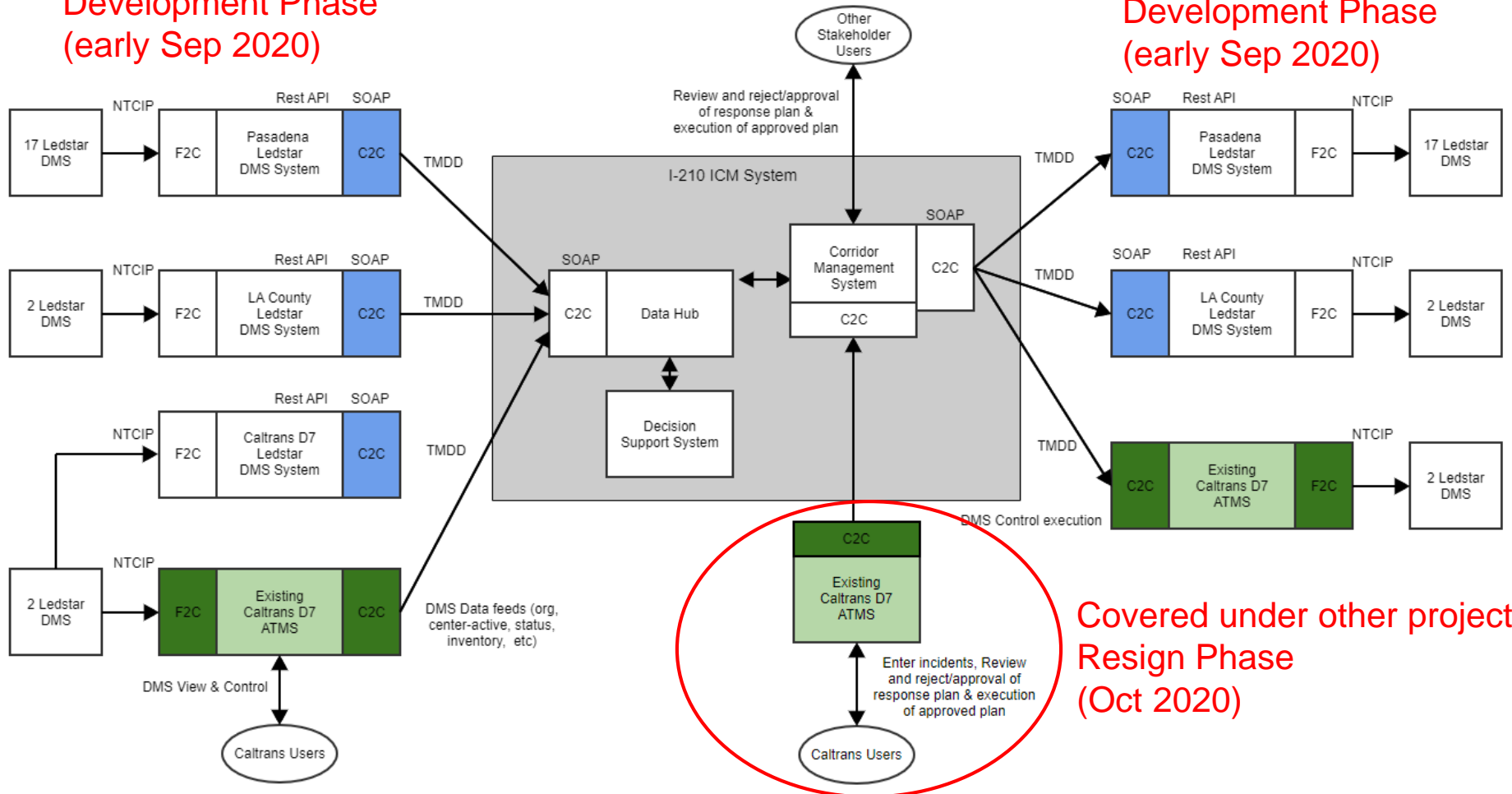| Pkg. #	Package Name	Contract #	Project Status
8-2	Advanced Traveler Information Systems: DMS Integration	07A4794 Parsons	• Advertised: 11/14/19 • Awarded: 1/3/ 2020 • Kickoff meeting: 1/14/2020 • Construction Support • Installation QC checklist v2 submitted • DMS System Development • System Diagrams: completed • Development Requirements: (v6) completed • Design: completed • Development: in progress 9/11/2020 • Virtual end-to-end testing: in progress • DMS System Integration • TMC installation & integration: LA CO TMC – 9/18/2020 • DMS System Testing • C2C testing – starting late Sep 2020 • Field DMS & end-to-end integration – Oct-Nov 2020 • Training • DMS workshop – scheduled on 9/9/2020 • Expected to be completed: Q1, 2021

Package Status – Pkg # 8-2

Development Phase (early Sep 2020)

Development Phase (early Sep 2020)

Covered under other project: Resign Phase (Oct 2020)

Package Status – Pkg # 8-3

Pkg. #	Package Name	Contract #	Project Status
8-3	Advanced Traveler Information Systems: DMS & static sign Installation	N/A to be handled by Caltrans, LAPDW, & Pasadena	• **Static Signs DMS Installation:** • Installation QC Checklist & location infor distributed • Material Delivery: mid Sep 2020 • Installation: handled by stakeholder • LA County: Est. Oct-Dec 2020 • Pasadena: Est. Oct-Dec 2020 (to be discussed) • Installation Support: • Ledstar will provide telephone/videocall support during installation, along with installation and hook-up instructional documentation. • On-site assistance can be purchased • Expected to be completed: Q4 2020 • **Static Signs Installation:** • Installation QC Checklist & location infor distributed • Ordered by Caltrans Maintenance Group: Jul 2019 • Arrived Caltrans Maintenance Shop: May 2020 • Material Inspection: passed on 6/4/2020 • Material Delivery: 8/18/2020 • Installation: handled by stakeholder • Expected to be completed: Q4, 2020

Package Status – Pkg # 9

Pkg. #	Pkg.	Contract #	Project Status

9	Environmental Stations with Air Quality Sensors and Open Data Systems (ODS)	07A4388 Cal Poly Pomona	• NTP: 6/29/18
			• Kick-off Meeting: 7/12/18
			• 3 Environmental stations
			  • Field installation done – 6/7/19
			  • Collect data and analyze data - ongoing
			• ODS Development
			  • Developed parser for transit data from Foothill Transit & Pasadena Transit
			  • Developed parser for sample response plan (ICD v1.2)
			  • Improving the program to match transit routes and diversion routes.
			• ODS Configuration and Testing
			  • Received Inventory of Road Network from PATH
			  • Need Inventory of Signal ID & Ramp Meter ID
			  • Coordinate with PATH to test automated data
			• Expected to be completed: Q1 2021 (85%)

Next Steps

- □ General: Need all stakeholders' prompt response on RFIs & submittal reviews to keep the project on schedule.

- □ Package 2: Final System Acceptance Testing & Training

- □ Package 3: Submit layout plans & relocation plans; submit cost estimate

- □ Package 5: Track material delivery

- □ Package 7: Complete installation

- □ Package 8-1: Complete procurement

- □ Package 8-2: Complete development, start integration at LA Co TMC

- □ Package 8-3: Track installation status

- □ Package 9: Get requested information; Coordinate testing

Thank You and Questions?

Sep 1, 2020

Thank You
and
Next Meeting
(Suggest Tuesday October 20th @ Zoom)