

Memorandum



CITY OF DALLAS

DATE February 24, 2017

The Honorable Members of the Transportation and Trinity River Project Committee:

TO Lee M. Kleinman (Chair), Deputy Mayor Pro Tem Erik Wilson (Vice-Chair), Mayor Pro Tem Monica R. Alonzo, Sandy Greyson, Adam Medrano, and Casey Thomas II

SUBJECT **Advanced Traffic Management System Project Update**

On Monday, February 27, 2017 you will be briefed on the Advanced Traffic Management System Project Update. The briefing materials are attached for your review.

Please feel free to contact me if you have any questions or concerns.

A handwritten signature in blue ink that reads "Jill Jordan".

Jill A. Jordan, P.E.,
Assistant City Manager

c: Honorable Mayor and Members of the City Council
T.C. Broadnax, City Manager
Larry Casto, City Attorney
Craig D. Kinton, City Auditor
Rosa A. Rios, City Secretary
Daniel F. Solis, Administrative Judge
Kimberly Bizzor Tolbert, Chief of Staff to the City Manager

Mark McDaniel, Acting First Assistant City Manager
Eric D. Campbell, Assistant City Manager
Joey Zapata, Assistant City Manager
M. Elizabeth Reich, Chief Financial Officer
Sana Syed, Public Information Officer
Elsa Cantu, Assistant to the City Manager – Mayor & Council
Directors and Assistant Directors

Advanced Traffic Management System Project Update

**Transportation and Trinity
River Project Committee
February 27, 2017**

**Auro Majumdar, Assistant Director
Mobility and Street Services Department
City of Dallas**



Presentation Overview

- Background/History
- Purpose
- Benefits of Traffic Management System
- Need for Upgrade
- Project Status
- Next Steps



Background

- City's 1980s era analog Traffic Management System, which controls all traffic signals, Dynamic Message signs and Video Cameras, is obsolete and not supported by manufacturers
- The Advanced Traffic Management System (ATMS) Project will replace the current obsolete system with a modern digital system

Previous Council Action

- May 2013 - Council approved purchase of Advanced Traffic Controllers (ATCs)
- September 2013 - Transportation and Trinity River Project Committee briefed on the ATMS project
- May 2014 - Council approved consultant contract to develop specifications for Central Computer System
- September 2014 - Council accepts \$3,847,094 NCTCOG grant for ATMS project
- June 2015 - Council accepts \$2,500,000 NCTCOG/TXDOT grant for the ATMS project

Purpose

This briefing:

- Enumerates benefits of a traffic management system
- Explains the need for upgrading present system
- Provides an update on progress to date on the ATMS project

Benefits of Traffic Management System

- Maximizes progression, minimizes stops
- Reduces congestion, air pollution, fuel consumption and red light running
- Saves time and money – Efficient progression reduces loss of productive time stuck in traffic

Benefits of Traffic Management System contd..

- Signals timed remotely with minimal staff - faster, efficient operations
- Provides capability for incidence management during accidents/events
- Notifies staff about malfunction - reduces maintenance response time
- Benefits over 100 events annually at the American Airlines Center and Fair Park

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Traffic Signal System Six Components

Traffic Signal



Vehicle Detectors



Controller Cabinet



Central Computer System



Communication Link



Traffic Signal Controller



ATMS Upgrade Project - Three Components

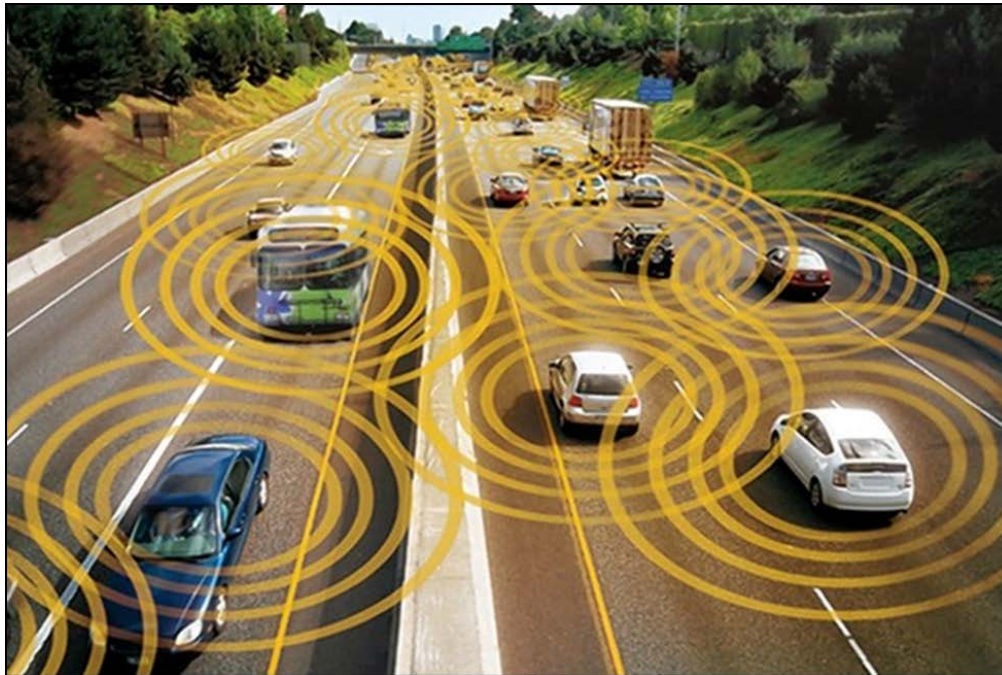
Traffic Signal Controller

- Computer that controls the traffic signal in the field
- Analyzes data from vehicle detectors and other components of the traffic signal
- Communicates with and reports problems to the traffic management center



Communication

- Connects traffic signal controller to central computer system



Central Computer System

- Controls signal timing for the over 1,500 traffic signals in the system
- Can remotely change signal timing
- Can collect traffic data from individual signals
- Allows for remote programming of Dynamic message signs
- Manages traffic monitoring video cameras



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Need for Upgrade

- Traffic signal controllers
- Installed in the early 1990's and are obsolete
- Controller software not supported by developer anymore
- Communication
- Obsolete analog communication over abandoned “twisted pair” Time Warner television cable
- Central computer system
- The 1980's era computer system is past its useful life
- Is not supported by the manufacturer anymore - cannot be repaired if it breaks down – parts are not available

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ATMS Upgrade Project

Replaces three components of the traffic signal system:

- Existing traffic signal controller with Advanced Traffic Signal Controller (ATC)
- Aging Central Computer System (CCS) with new, versatile CCS
- Existing analog communication network with high speed digital communications

Advanced Traffic Signal Controller (ATC)

Project History

- 2011 - Cities of Dallas, Richardson and Ft Worth jointly selected a consultant to develop specifications for ATC
- Procurement effort led by Ft. Worth - Intelight selected as preferred vendor
- 2013 - Council approved ATC procurement

ATC – Project Status

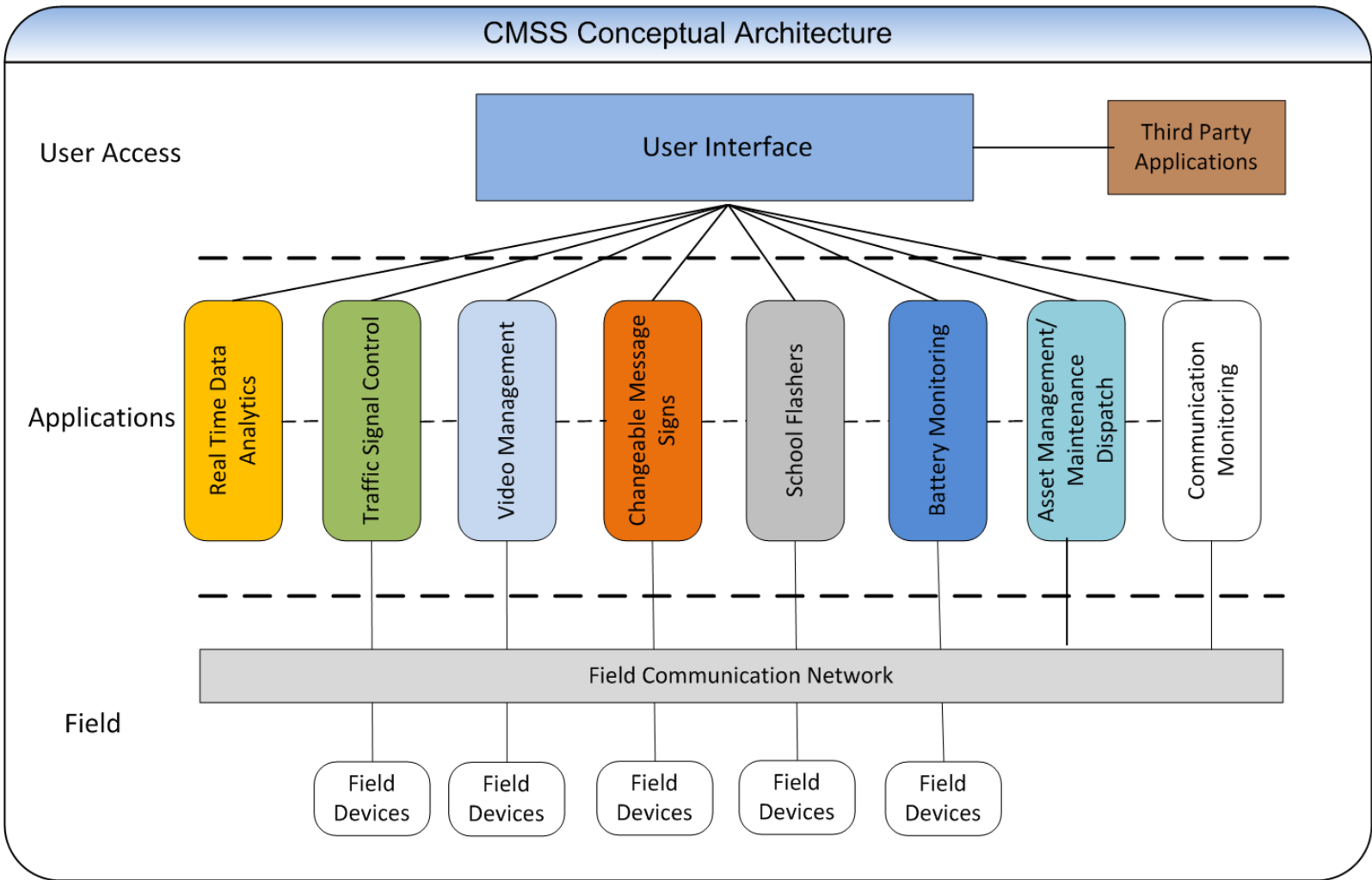
- Deployment of ATCs is critical path item for ATMS project – controllers for 1500+ traffic signals have to be individually programmed, deployed and field tested
- Software testing and acceptance is substantially complete
- Staff has been steadily deploying ATCs over the past two years - over 440 ATCs have been deployed to date

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CCS – Project Status

- Specifications development complete
- System Integrator to develop GUI and provide applications solution selected
- Negotiations on-going with the System Integrator
- Council award in summer 2017

CMSS Conceptual Architecture



Communications System

- CIS testing various communication options citywide
- Options include cellular modems, radio, fiber and mesh
- Cellular modems are the most viable option for traffic signals and is being used in the new ATCs
- All ATCs deployed are using modems – over 440 have been installed to date

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ATMS Upgrade Project Highlights

Truly “Regional” project

- Specifications and requirements developed jointly by traffic staff of the cities of Dallas, Fort Worth, Richardson and Irving. Due to regional benefits of project, Dallas received \$6.3M grants from NCTCOG. Partner cities received additional grant funds
- Will result in uniformity of signal operations for the major cities in DFW region and provide for progression along corridors across jurisdictions
- Will provide for remote and inter-jurisdictional operations capabilities during emergencies and natural disasters.
- Will meet Homeland Security standards

ATMS Upgrade Project Highlights

Versatile and Economical

- Modular Architecture - will allow for future expansion and integration of individual components without wholesale system replacement. Uses off the shelf hardware with expandable software capabilities
- Adaptable and economical – Capable of integrating multiple systems. More economical than newer systems in other major cities

Next Steps

- System Integrator Contract to Council – Summer 2017
- Basic Interim Traffic Signal Management system established – December 2017
- Final modules for critical systems established - 2019
- ATC deployment complete - 2020
- Begin deploying other modules with Council approval/funding

QUESTIONS?



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