WASHINGTON METRO AREA TRANSIT AUTHORITY

BUS PLANNING, SCHEDULE AND CUSTOMER FACILITIES

TRANSIT SIGNAL PRIORITY (TSP)

VA-7 LEESBURG PIKE

OCTOBER 2, 2014

Transit Signal Priority (TSP)

Is an operational strategy that facilitates the efficient movement of transit vehicles, through traffic-controlled, signalized intersections.

TSP - Key Objectives

- Increase transit on-time performance by reducing travel time variability.
- Increase transit travel speeds by way of activating adjustments to traffic signal timing.
- Enhancement bus service performance through use of the Automated Vehicle Location (AVL) system.

TSP - Project Description

- Improve Bus Service Performance in the Washington Region.
- Utilize on-board and wayside technology for Traffic Signal Priority.
- Traffic signal controller determines priority.
- TIGER funds will be used to fund the planning, design and construction phases of VA-7 (Leesburg Pike) project.

TSP - Key Stakeholders/Jurisdictions for VA-7 Corridor

- Virginia Department of Transportation
- City of Falls Church
- City of Alexandria
- Washington Metro Area Transit Authority
  - All 25 intersections have been finalized and approved.

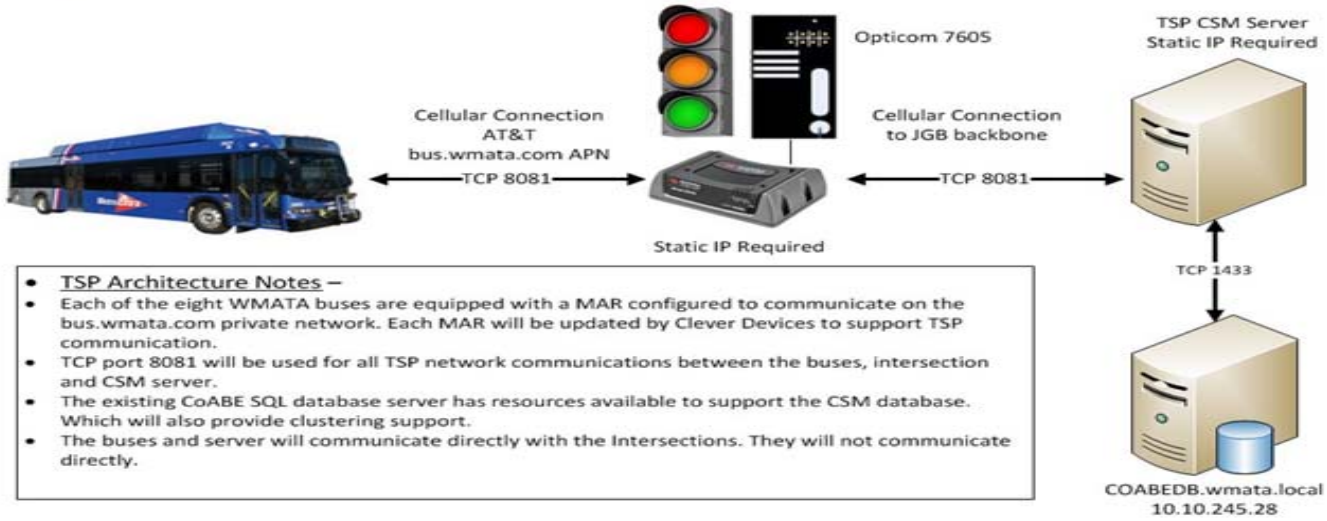
TSP - System Requirements

- Geographical Information System
- Automated Vehicle Location (AVL)
- Transit Signal Priority Detection System
- Transit Signal Request Generator (On Board Bus Equipment)
- TSP Data Messaging Format
- Cellular/Wi-Fi Network(s) and Communication Modem
- Software
- Hardware
- Transit Signal Request Server (Wayside Equipment)

TSP - Open System Architecture

- Utilizing Off-the shelf Software and Hardware
- TSP system will integrate the NTCIP 1211 into the Consolidated Ancillary On-Board Equipment and Fixed-End System (CoABE & FES)
- Selected Communications Technology to the wayside equipment PRS will be via existing CoABE & FES cellular modem
- WMATA's Bus Engineering (BENG) has an existing on-board equipment contract with Clever Devices to implement TSP
- BENG has developed a technical specification and Clever Devices has provided a design architecture proposal which has been reviewed by each jurisdiction. The awarded change order will include hardware, software, installation and training for TSP

TSP – Architecture Overview



- TSP Architecture Notes –
- Each of the eight WMATA buses are equipped with a MAR configured to communicate on the bus.wmata.com private network. Each MAR will be updated by Clever Devices to support TSP communication.
- TCP port 8081 will be used for all TSP network communications between the buses, intersection and CSM server.
- The existing CoABE SQL database server has resources available to support the CSM database. Which will also provide clustering support.
- The buses and server will communicate directly with the Intersections. They will not communicate directly.

TSP – Intersection Installation

TSP - Agency/Jurisdictional Coordination

- Development of Memorandum of Understanding (MOU)
- Replacement/Reimbursement of Traffic Signal Equipment
- Design/Installation of TSP Equipment (Antenna)

TSP - Design Specification History/ 2014

- Preliminary Design Agency Meeting(s) – February 2014
- Distribute TSP Test Equipment – March/April – 2014
- VA-7 Intersection Inventory – May 2014
- Final Design Agency Meeting(s) – May 2014
- TSP Coordination Meeting/ VDOT – August 2014
- TSP Coordination Meeting / WMATA IT – August & September 2014
- TSP Coordination Meeting/ City of Alexandria – September 2014
- TSP Coordination Meeting/ City of Falls Church – September 2014

TSP – Project Schedule

- Acceptance Test Procedures – September/October - 2014
- CMS Design, Install and Testing – October 2014
- Intersection Installations – October/November - 2014
- Intersection Install/TSP Test @ VA -7 – November 2014
  - Old Gallows Road – Selected as Test Site Location
  - All Jurisdictions Invited to Demonstration
- System Acceptance Test – February 2015
- Implementation – Fall 2014 through End of 2015.