

Update on TIGER Priority Bus Project: Transit Signal Priority (TSP) Procurement

TPB Traffic Signals Subcommittee
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TIGER Grant for Priority Bus Transit in the National Capital Region

Five implementing organizations:

- City of Alexandria, DDOT, MDOT, PRTC, and WMATA

\$58.8 million (100% Federal) – 2011 through 2016

- **PRTC Buses and ITS**
- **US-1 (VA) / Potomac Yard Transitway (*Alexandria*)**
- **Takoma/Langley Transit Center (*MDOT*)**
- **Bus Corridor Priority Treatments (*DDOT, WMATA, MDOT, Alexandria*)**
- **Franconia-Springfield and Pentagon station improvements (*WMATA*)**



TIGER – Transit Signal Priority (TSP) on Bus Corridors

TSP Locations (77 total)

- 16th Street (6)
- Georgia Avenue (4)
- Wisconsin Avenue (5)
- University Blvd (20)
- US 1 - MD (7)
- Van Dorn / Beauregard (8)
- VA-7 / Leesburg Pike (27)

Install April 2014 – July 2016

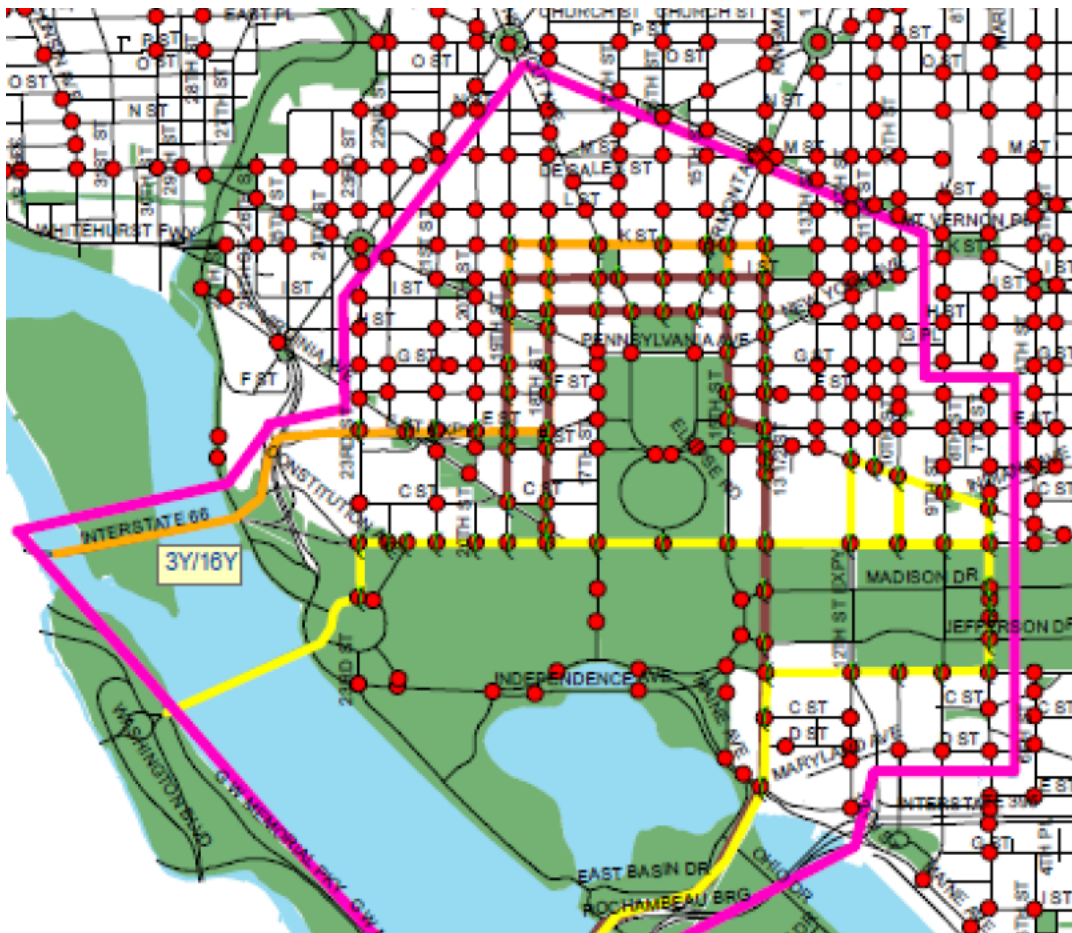
Funding: \$3.2M



TIGER - Signal Optimization & Prioritization

TR Bridge and 14th Street Bridge to K Street

- 203 Traffic Signals in Downtown Core to be improved

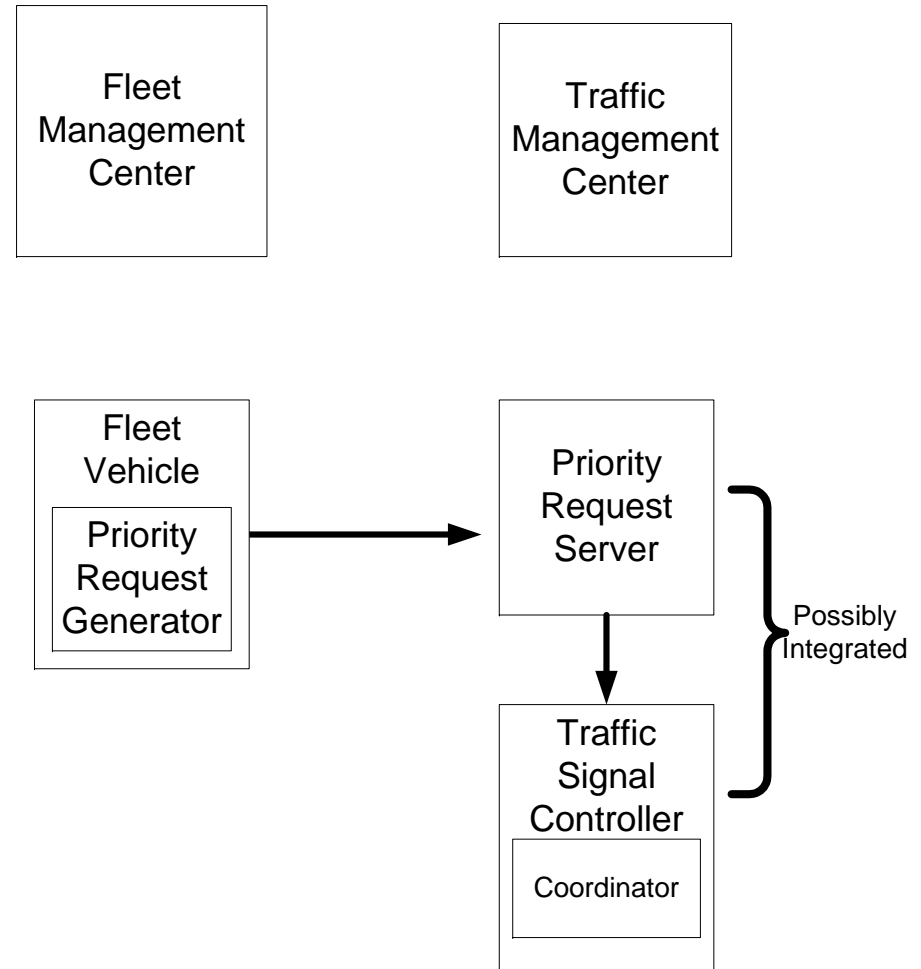


- 82 signals to be both optimized and prioritized
- 121 signals to be optimized

April 2014 – April 2015
Funding: \$6M

Proposed TSP system follows architecture of NCTCIP 1211 Scenario 4

1. AVL System on bus determines whether to provide priority (based on criteria).
 2. Bus sends signal directly to traffic signal to request priority using the Priority Request Generator (PRG).
 3. The Priority Request Server (PRS) evaluates request in terms of importance and priority.
 4. Requests are sent to the Coordinator entity in a Traffic Signal Controller.
- TSP system will provide communications between the Priority Request Servers (PRS) at the wayside and the TSP Management consoles at their designated locations to communicate TSP status and performance data to the TSP Management Centers/consoles for analysis and reporting purposes.



TSP Project: On Board and Wayside Equipment

Procurement

- WMATA will be procuring a Priority Request Communicator (PRC) and the Priority Request Generator (PRG) onboard equipment as part of its fleet-wide Consolidated Ancillary On-Board Equipment (CoABE) project.
- The Priority Request Server (PRS) devices for the wayside equipment will also be procured by WMATA for the VA-7 project .
- Other jurisdictions may order PRS wayside equipment directly (DDOT) or have WMATA order for them (SHA).

Testing/Installation

- WMATA will handle the installation and testing of the onboard and wayside equipment along VA-7, working with each agency/jurisdiction. This testing will also support the City of Alexandria's project on US 1, and SHA and DDOT projects.
- WMATA vendor will complete evaluation of the CoABE project, the Intelligent Vehicle Network (IVN) system, and cellular communications capabilities and coordinate activities with each jurisdiction per the TSP Design Package.

Maintenance

- WMATA will maintain on board equipment. The monthly cellular service fee associated with the wayside equipment will be provided by WMATA.
- Local jurisdictions will maintain the PRS wayside equipment.

Transit Signal Priority (TSP) Architecture

- TSP Options: active and passive, conditional and unconditional
 - WMATA working with traffic signal agencies to determine appropriate architecture
- When does the bus receive TSP?
 - Peak direction only? Or both directions?
 - Should peak-only direction be preferred? Don't want empty bus prioritized over full bus.
 - How often does TSP work?
 - For every bus? Only once every 10 minutes? Once every 5 minutes? What if buses are bunched?
 - When does TSP work?
 - Only in rush hour periods? Or 24/7?
- Each jurisdiction can set own parameters, but does regional consistency make sense?
 - Enables knowledge transfer, common standards, inter-jurisdictional operation of traffic signals and buses.
 - Limits experimentation or local optimization.

Update on TIGER Priority Bus Transit: Transit Signal Priority Procurement

Questions?

