Item 11

Briefing on Regional Bus Priority and Rapid Bus Projects: Planning and Implementation

Transportation Planning Board
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Structure of Presentation

- Overview of Bus Priority and Rapid Bus
- Regional Rapid Bus and Bus Priority Projects
- TIGER Priority Bus Grant Update
- Next Steps

What is Bus Priority?

- The purpose of bus priority is to provide travelers with quick, reliable transportation: more, faster, better, cheaper, safer!
  - 50-60% of bus time is spent in motion
  - 20% is spent at bus stops
  - 20-30% is spent at traffic signals

All of these can be improved upon with various types of bus priority treatments

- Effective bus priority requires implementation of complementary treatments by both bus operators and road/runningway managers:
  - Bus Operators:
    - Limited stop service,
    - All-door boarding & off-board fare collection,
    - Dedicated vehicles,
    - Real-Time Passenger Information (RTPI).
  - Roadway Managers:
    - Transit Signal Priority (TSP),
    - Queue jumps,
    - Bus-only lanes,
    - Bus stops & shelters.

Why Rapid Bus and Bus Priority?

- Over 650,000 bus boardings take place daily in the Washington metropolitan region (39% of all regional transit trips).
  - WMATA Metrobus (67% of bus passenger boardings), Montgomery County Ride-On (15%), Fairfax Connector (5%), the DC Circulator, Alexandria DASH, Prince George's The Bus, PRTC and MTA Commuter Bus (2% each), and other local and commuter services (3%).
- Rapid bus services and bus priority provide the region with the opportunity to improve current bus operations and provide customers with fast, high-quality transit services.
- Both regional projects and local priority treatments offer improved bus speeds and schedule reliability, which in turn lead to:
  - Increased ridership through the improved quality of service offered to customers,
  - Cost savings through more efficient and effective operation.

Bus Priority Implementation Challenges

- Implementing bus priority measures requires close coordination among traffic engineers, planners and bus operators.
  - Operations requirements and runningway design & technology must interface successfully.
  - Trade-offs must be evaluated in roadway space and traffic flows:
    - Bus-only lanes, queue jumps, and improved bus stops or stations require dedicated roadway space.
    - Transit signal priority takes time from current signal cycles and the competing needs of parallel and intersecting vehicle traffic and pedestrian crossings.
  - Agencies must work together across the goals and requirements of each organization.

Regional Rapid Bus and Bus Priority Projects: underway and under consideration

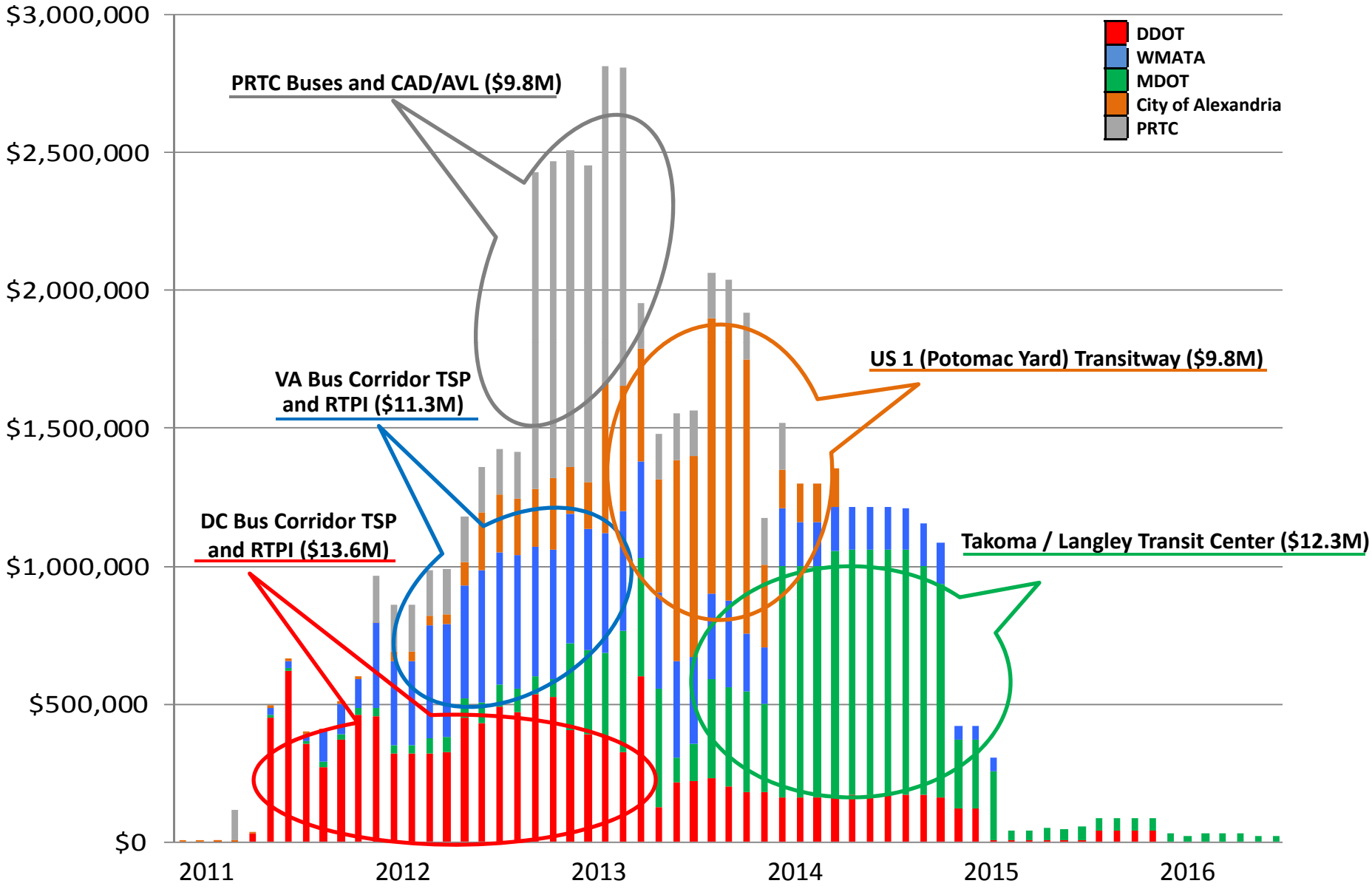
- The Washington region has begun the implementation of a number of significant rapid bus and bus priority projects:
  - **WMATA Priority Corridor Network (PCN),**
    - Express services progressively introduced on major transit corridors.
    - Started with Columbia Pike Ride in 2003, REX in 2004, and continuing with limited-stop services (the "9 series") in the District of Columbia.
  - **TIGER Priority Bus Grant.**
    - Implementing capital projects for improved bus operations and customer service. (2011 through 2016.)
- Further rapid bus projects are under active consideration:
  - **Remaining corridors of the WMATA PCN,**
  - **Montgomery County BRT: study to be released June 2011,**
  - **Rapid Bus on I-95/I-395 & Beltway; Corridor Analysis of I-66.**

TIGER Grant for Priority Bus Transit in the National Capital Region

$58.8 million – 2011 through 2016

- **Takoma/Langley Transit Center**
  – $12.3M Feb 2012 – Aug 2014
- **PRTC Buses and ITS**
  – $10M Jan 2011 – Sep 2013
- **US-1 (VA) / Potomac Yard Transitway**
  – $8.5M Jan 2012 – Oct 2013
- **DC and VA Bus Corridor Priority Treatments**
  – $24.9M Jun 2011 – Jun 2013

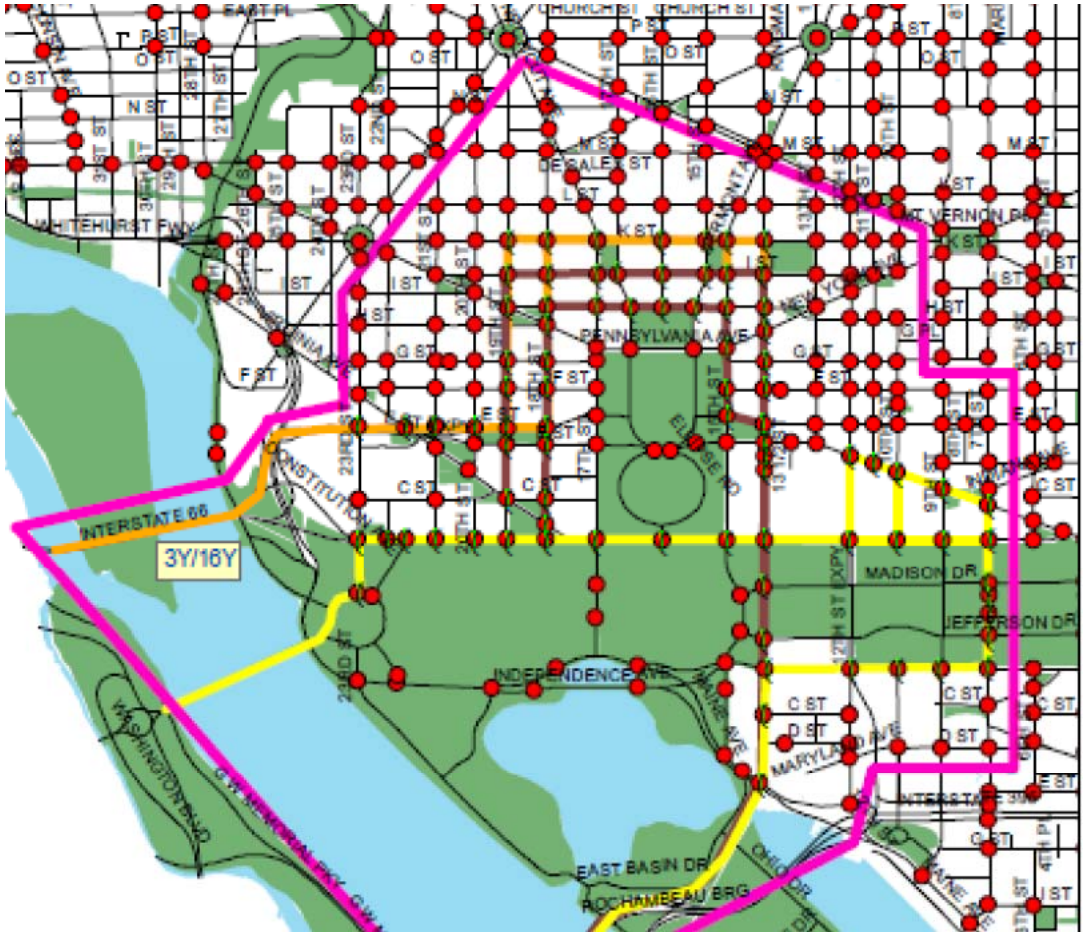
TIGER Expenditure Schedule



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**

Funding: $6M

TIGER – Transit Signal Priority (TSP) on Bus Corridors

What is TSP?

Modification of traffic signal timing to benefit transit vehicles operating along a roadway.

TSP green phase for buses can be: extended, early/advanced, or inserted in cycle.

Types of TSP:

Passive - signals are retimed to account for transit travel speeds or to maximize person throughput rather than vehicle throughput.

Active - bus "announces" its approach to a signal and the signal adjusts the cycle based on predetermined parameters.

- **Conditional** - only giving priority when a bus is behind schedule.
- **Unconditional** - occurs for all buses.

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)

Funding: $3.2M

TIGER – Real Time Passenger Information (RTPI)

- Initially for Metrobus
- Funding also for collecting and displaying local bus info

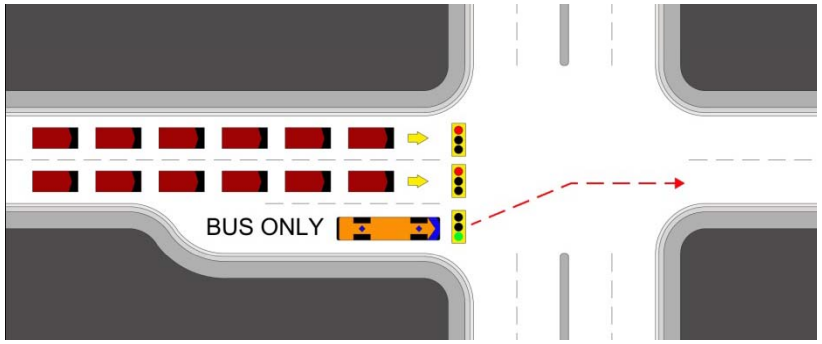
Locations (225 signs total)

- 16th Street (30)
- Georgia Avenue (25)
- H St / Benning Rd (28)
- Wisconsin Avenue (40)
- Addison Road (14)
- University Blvd (19)
- Veirs Mill Road (25)
- VA-7 / Leesburg Pike (31)
- Pentagon and Franconia-Springfield Stations (13)

Funding: $2.4M

Other TIGER Improvements

- **Queue Jump Lanes (14 total)**
  - University Blvd (4)
  - US-1 MD (7)
  - Veirs Mill Road (1)
  - Van Dorn - Beauregard (2)
- **Georgia Avenue Bus Only Lane**
  - Florida Ave to Barry Place *(Howard University)* (~1/3 mile).
- **Shelter Improvements, Emergency Call Boxes, Signal Power Supplies, Curb Extensions.**



TIGER – Performance Measures

1. Faster, More Reliable Buses

- Transit Signal Priority, Queue Jumps, and Transitway/Bus Only Lanes will improve travel speeds and schedule adherence for buses.
- New buses and dispatch control will improve operations for PRTC.

2. Bus Service Quality (-> Ridership)

- Real Time Passenger Information, Metrorail station access improvements, new Bus Bays and Bus Stop improvements, and the Langley / Takoma Transit Center will improve the quality of service and attract more riders.

3. Safety

- The Langley / Takoma Transit Center will reduce bus customer foot crossings of two major arteries and improve traveler safety.

Reports are due to USDOT on each TIGER project component.

- Evaluate results from before project, one year after, and two years after.
- Cost-benefit analysis and consideration of operating cost savings.

TIGER Project Implementation – Status

- First of 42 project activities is complete: Installation of Security Cameras on 15 PRTC Buses ($195K)
- Construction and further technology components now in design and procurement stages.
- On March 9, a TIGER Project Implementation Meeting brought together traffic engineers, planners, and bus operators:
  - TIGER Owners: Alexandria, DDOT, MDOT, PRTC, and WMATA
  - Other Partners: VDOT; Prince George's, Montgomery, Fairfax, and Arlington Counties
  - Discussed opportunities to coordinate technical procurements of TSP & RTPI, and design and installation work.
- TIGER Grant is being overseen by FTA Project Management. High visibility for a stimulus grant project in the National Capital Region.

TPB Activities to Date on Bus Priority

- TPB Regional Bus Subcommittee *(UPWP Core Program: $100,000 annually)*
  - **Overview of Local and Regional Transit Services** (TPB - Sep 2010). Reviewed the contribution of bus to regional travel.
  - **2011 List of Priority Regional Projects** for bus services - updated from the 2008 list. To be presented to TPB at the May 2011 meeting.
    - Priority areas include better ways of serving customers, connecting the region, solving bottlenecks and hot spots, and responding to federal relocation & BRAC.
- WMATA Priority Corridor Network *(Technical Assistance: $300,000 in FYs 09/10)*
  - **PCN Evaluation** (TPB - Jan 2011). Evaluated the benefits of a complete network of bus priority measures across 23 Metrobus corridors, carrying >250,000 customers per day.
- Guidelines on Priority Bus Treatments *($110,000 in FYs 10/11)*
  - **Reference Guide** of priority bus treatment feasibility, costs, and benefits developed in cooperation with regional traffic engineers and bus operators.
  - TPB Technical Committee to receive a presentation in May 2011.

Next Steps on Rapid Bus and Bus Priority

- Multimodal Coordination / Bus Hot Spots *(Tech. Assistance: $216,000 in FY 12)*
  - **Conceptual Design** of arterial bus priority treatments at identified "hot spot" locations, including projected capital costs, operating savings, and customer benefits.
  - Approved as part of the 2012 UPWP in March; to begin in July 2011. ($30,000 from each DOT and $126,000 from WMATA).

- General Activities
  - **TIGER Updates** to TPB as major milestones are reached.
  - Presentation of related work of the TPB Regional Bus Subcommittee and other regional transit activities.
    - e.g., Overview of Local and Regional Transit Services (TPB - Sep 2010), Overview of Light Rail and Streetcar Projects and Proposals (TPB - Dec 2010).
  - Revised Aspirations Scenario, with a regional rapid bus network.

Briefing on Regional Bus Priority and Rapid Bus Projects

Questions?