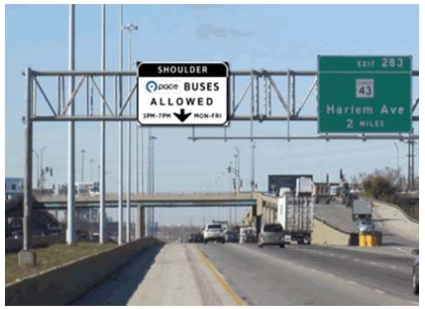

National Capital Region Transportation Planning Board

Bus On Shoulders (BOS) Task Force

Overview of Final Report

September 18, 2013

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Department of Transportation Planning
Metropolitan Washington Council of Governments

History of Task Force

July 2012 TPB Meeting

- Requested that a task force be established to identify promising locations in the region to operate buses on the shoulders of highways.
- Proposed membership, work plan, and schedule approved at September 2012 TPB Meeting.

Task Force Meeting #1 – October 17, 2012

- Discussed local and national/world experience with BOS.
- Requested inputs on corridors to study.
- **Technical Memo #1 -** Summary of local and national/world experience with key issues: implementation, design, operational, and regulatory.

Task Force Meeting #2 – January 19, 2013

- Discussed three study corridors: MD 5/US 301 Corridor in Prince George's and Charles Counties; I-270 Corridor from City of Frederick to the Capital Beltway; Virginia: I-66 Inside the Beltway.
- **Technical Memo #2 -** Summary of discussion of factors affecting BOS feasibility on the three study corridors.

Task Force Meeting #3 – April 17, 2013

- Further reports on three study corridors.
- Discussion of benefit-cost analysis (BCA) model and conceptual results.

Development of Final Report – "*An Assessment of the Feasibility of Bus On Shoulders (BOS) at Select Locations in the National Capital Region*"

- Draft Report distributed in July.
  - Combined technical memoranda and materials presented at three meetings.
- Comments were requested by the end of August and were received from:
  - Frederick County and City of Frederick
  - Maryland State Highway Administration
  - Maryland Department of Planning
  - Virginia Department of Transportation
  - Montgomery County

Structure of Final Report

A. Introduction
B. Local and National Experience with BOS
C. Lessons and Challenges
D. Assessment of Specific Locations
E. Findings
F. References

- Appendices:
  A. Task Force History
  B. Additional Maps and Figures
  C. Benefit Cost Analysis Model

Section C: Lessons and Challenges

- Operational Speeds and Hours
- Roadway Shoulder Width, Structural Strength, Geometry and Sight Distances
- Clearance at Barriers and Overpasses
- Posted Signage and Markings
- Enforcement and Public Outreach and Education
- Emergency Incidents and Responder Access
- Federal and State Exceptions to Design Code
- Eligible Vehicles and Bus Driver Training Requirements

Section D: Assessment of Feasibility at Select Locations

Maryland

- MD 5/US 301 Corridor in Prince George's and Charles Counties.
- I-270 Corridor from City of Frederick to the Capital Beltway.

Virginia

- I-66 Inside the Beltway (making use of the work for VDOT's Pilot Program).

Reviewed information and data for three key criteria:

- **Bus Service** (number of buses and of bus riders)
- **Traffic Congestion** (average speed and unreliability in peak hour)
- **Shoulder Conditions** (known data on shoulder conditions)

Section E: Findings

Shoulder Conditions

- Detailed information is generally unavailable on shoulder width and strength and overall suitability for routine use by buses.
- Pinch points and conflict points on the corridors require additional evaluation.
- Initial capital cost estimates to upgrade the shoulders of some corridors are high, but could be refined with further study.

Targeted Implementation

- BOS implementation is likely to be more feasible if initially targeted to short segments that have high transit usage and high congestion.
- Shoulder upgrade costs could be reduced or minimized if integrated with other road work

Section E: Findings, continued.

Possible Options for Future Study of BOS by Member Agencies

- Update TPB in 2015 on VDOT I-66 Inside the Beltway Pilot Implementation and further BOS developments.
- Contingent upon funding, State DOTs, Jurisdictions, and Transit Operators could continue evaluating corridors for BOS feasibility:
  1. Further refine shoulder condition data through engineering evaluations.
  2. Identify and fund necessary capital improvements for specific segments.
  3. Define necessary procedural and operational steps to conduct BOS projects or pilot programs.
  4. Review long-range roadwork schedule for opportunities to upgrade shoulders for BOS operations in conjunction with rehab / re-surfacing.

Questions?

Chicago I-55 Bus On Shoulders Project – Livery Wrap for PACE Buses

Overview of Comments Received on Draft Report

Key Comments Received on Draft Report

1. Did the shoulders of I-495 (MD) receive capital improvements prior to the 1999-2004 Metrobus route that was allowed to use the shoulders?
   - No definitive answer could be determined, but it appears not. It was noted that these shoulders were built in 1991-92, and there are only five overpasses on I-495 west of MD-355.

2. What impact would bus off-tracking have on needed shoulder width?
   - Buses off-track around curves (i.e., rear wheels follow a shorter path) and may require a larger shoulder width to reduce the possibility of the rear of the bus swinging inside or outside of the shoulder (i.e., intruding on the travel lane or towards the outside of the shoulder).

3. What shoulder width exists along the VDOT I-66 pilot?
   - About 85-90% of the shoulders in the pilot locations are 11’ or greater in width. There is a pinch point in one of the pilot locations where the shoulder is about 10.6’, for a very short length under a bridge. Note that one of the proposed pilot segments has been shortened due to inadequate width on a curve.

Key Comments, continued.

4. What is the basis for the initial capital cost estimates to upgrade the shoulders in Maryland?
   - The initial cost estimates of $4 to $8 million per mile are based on a major quantity review of existing projects and unit prices from recently bid SHA projects. The estimated costs would include full resurfacing of the roadway, full depth shoulder construction, stormwater considerations, work zone management, and other construction costs. They would not include any bridge reconstruction costs.
   - This range of costs is considered comparable to VDOT's figure for upgrading shoulders on I-66 inside the Beltway following a successful pilot project.

5. What is the feasibility of a queue jump and transit signal priority system on the signalized, southern portion of the MD 5/US 301 corridor?
   - As with other proposed corridors or segments for BOS, further studies would be needed. SHA will partner in any efforts once decisions are made on a municipal level to incorporate BOS as a priority.

All Reports Available at:

http://www.mwcog.org/bostf