

Priority Corridor Network (PCN) Evaluation Identification of Running Way Locations

*Project Update
COG Tech Committee
April 9, 2010*





Presentation Outline

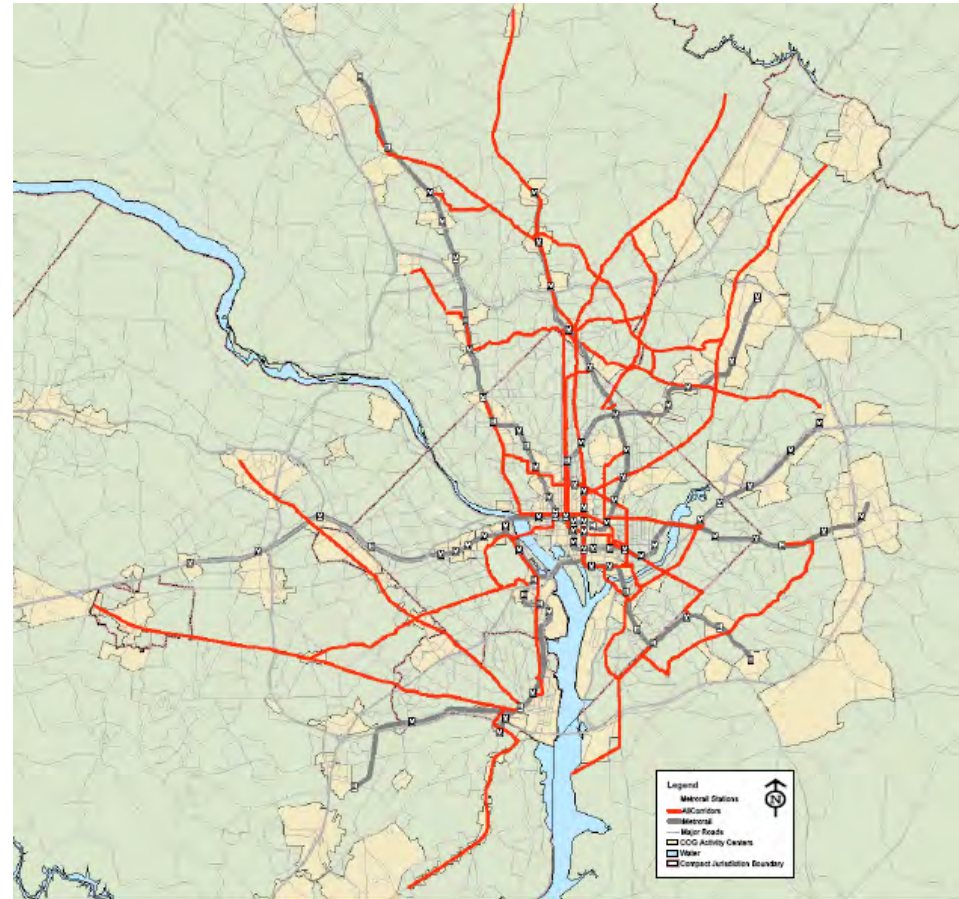
- **Summary of Findings**
- **Methodology of Study**
 - Metro PCN
 - Summary of Findings
 - Study Purpose
- **PCN Evaluation**
 - Characteristics
 - Networks Analyzed
- **Conclusions**
 - Exclusive bus lanes
 - Benefits
- **Next Steps**





Metro PCN

- Metro decided to focus resources on existing top performing corridors
- Selected 23 corridors with the highest ridership and geographic importance
- Currently conducting service evaluations on these corridors
- However, since Metro does not own/operate any of the signal systems or roads in the region, a comprehensive running way strategy is often left out of these analysis
- Findings could apply to other corridors, including buses on freeway and HOV lanes





Summary of Findings

- **Studied bus running-way improvements on priority corridors from a systems perspective**
 - **Systems level, not intersection specific**
- **Identified appropriate treatments per roadway segment**
 - **First study in region to analyze both private auto operations AND transit ridership in making transit infrastructure recommendations**
- **Can expect over 25% increase in transit riders along the PCN corridors over background growth**
 - **Including a substantial diversion of trips from Metrorail**
 - **Substantial operational savings obtained from bus only lane infrastructure**
- **Jurisdictions need to develop implementation plans to identify specific treatments and cost per segment**



Study Purpose

- Priority Corridor service evaluations are already being completed, but need to identify where running way can best augment those services
- Identify corridor segments where running way improvements have the greatest benefits
- Quantify regional benefits
- Identify corridor segments where detailed implementation and feasibility studies are needed





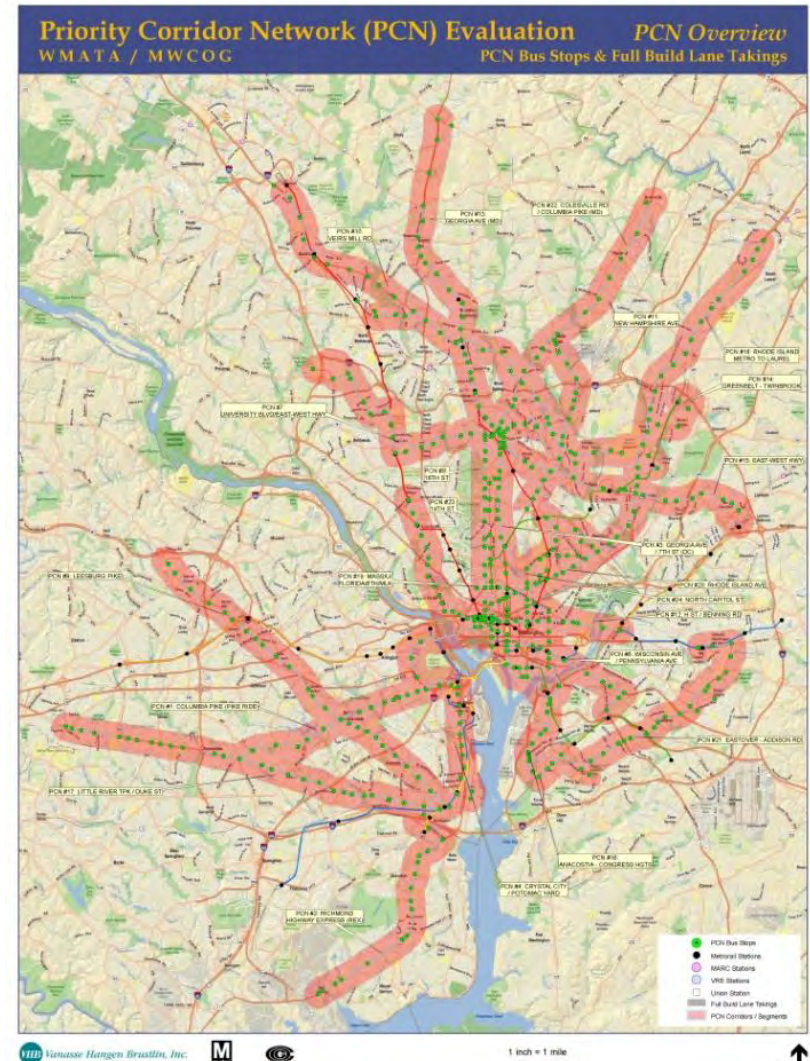
PCN Characteristics Studied

Research quantified time savings associated with:

- Exclusive bus lanes
- Queue jumpers
- Transit signal priority
- Limited stops
- Off-board fare collection

Developed input assumptions for the regional travel demand model based on this research

Segmented all 23 corridors into homogeneous environmental and operating characteristics for analysis





Network Analysis

Conduct network evaluation using COG/TPB travel demand model

- 2008 CLRP baseline
- Full build (assuming overlay of express service with 10 min headway)
 - Assuming a dedicated transit lane for all 23 corridors
 - Quantifies “best case” benefit basket from PCN priority lane implementation
- Modified (assuming overlay of express service with 10 min headway)
 - Segments that have low performing transit ridership or a large negative impact on adjacent traffic did not receive exclusive lanes





Defining the Modified Scenario

Review results of full build

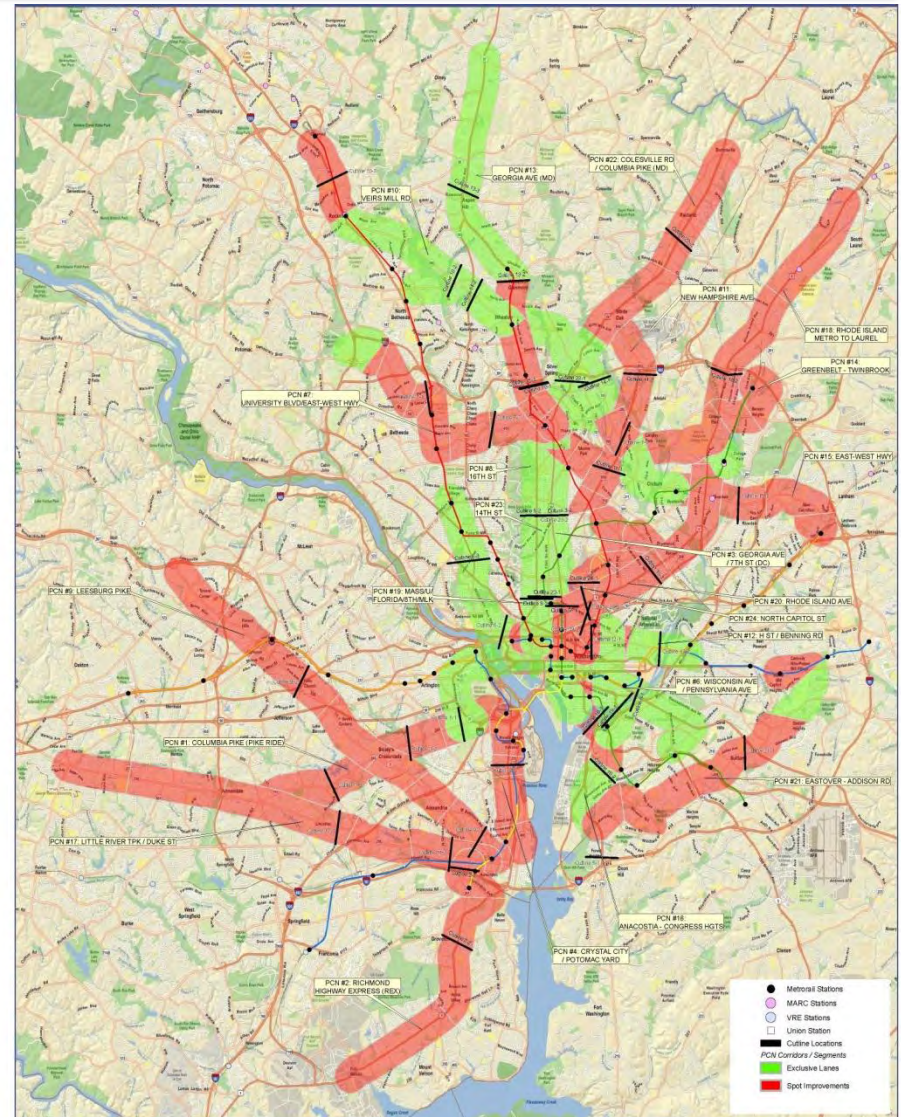
- Establish criteria (ie thresholds) for bus only lane implementation
 - Used four model outputs:
 - Transit criteria:
 - 2030 full build transit ridership
 - change in ridership from 2030 no build to 2030 full build
 - General traffic criteria:
 - private auto volume/capacity ratio
 - reduction in auto trips from 2030 no build to 2030 full build
 - First study in region where bus lane takings include analysis of adjacent effects on private automobiles (in some cases v/c actually went down!)
- Assign investment level per segment
 - High – bus only lane
 - Medium – TSP, queue jumps and service improvements



Conclusions

Exclusive bus lanes

- Exclusive bus lanes appear warranted along approximately 100 miles of the PCN network
- The remaining 135 miles warrant TSP or service only enhancement





Conclusions (cont.)

Benefits

- **Transit Ridership – Gross numbers**
 - The modified network would attract over 100,000 new daily transit riders
 - The modified network would divert over 90,000 daily riders from Metrorail
- **Transit Ridership – In context**
 - Background growth by 2030 is around 50% on the PCN corridors
 - Bus ridership on the 23 corridors increased approximately 25% above background growth
 - Bus ridership over the entire Metrobus system increased by 12% over background growth
 - Overall Metro transit (bus and rail) ridership increased by 7% over background growth
 - COG regional transit ridership (Metrobus, rail, commuter bus, commuter rail and local bus providers) increased by 4% over background growth



Conclusions (cont.)

Benefits (compared to 2030 no build)

- Average daily bus speeds increase by 15%
- Average travel time per PCN passenger decreases by 10%

Impacts (compared to 2030 no build)

- Average daily auto vehicle hours increase by 2%
- No significant impact on regional VMT
 - Slight increase in model “noise” (Daily auto VMT increased by .17%)



Conclusions (cont.)

Points of Interest

- **Regional Cooperation**
 - Actual segment running way treatments and associated project costs must be identified during detailed feasibility and implementation study
- **Service Only vs. Exclusive Lanes**
 - Referenced ridership numbers are assuming approximately 100 miles of exclusive lane operations. A sensitivity analysis was conducted to see ridership results obtained from service only enhancements
 - *Ridership* - very similar under both scenarios...major different being that the exclusive lanes diverted a significant amount of riders off of the rail system
 - *Operational subsidy* – it will take approximately 250 buses to obtain the above reference ridership with the service only enhancements, but only 175 buses with the exclusive lane network



Next Steps

Implementation

- **Awarded TIGER–running way improvements on 9 PCN corridors**
 - Applied for Bus Livability and Urban Circulator

Working groups/active projects

- **SHA**
 - Coordination with system preservation program
- **VDOT**
 - Transit Signal Priority Implementation team
- **Montgomery County**
 - County wide BRT study
 - Veirs Mill and Georgia Ave BRT NEPA Analysis
- **COG**
 - Bus Priority Guidelines project



Questions

