

Progress Report: Regional Value Pricing Study

Task 2: Assess Transit Viability, Land Use Impacts, Revenues and Costs

*Ronald F. Kirby,
Director of Transportation Planning
July 18, 2007*

Task 2: “Identify potential toll revenues, costs, transit viability and land use activity changes for specific high potential corridors”

“Apply the regional model and conduct sensitivity analysis to investigate:

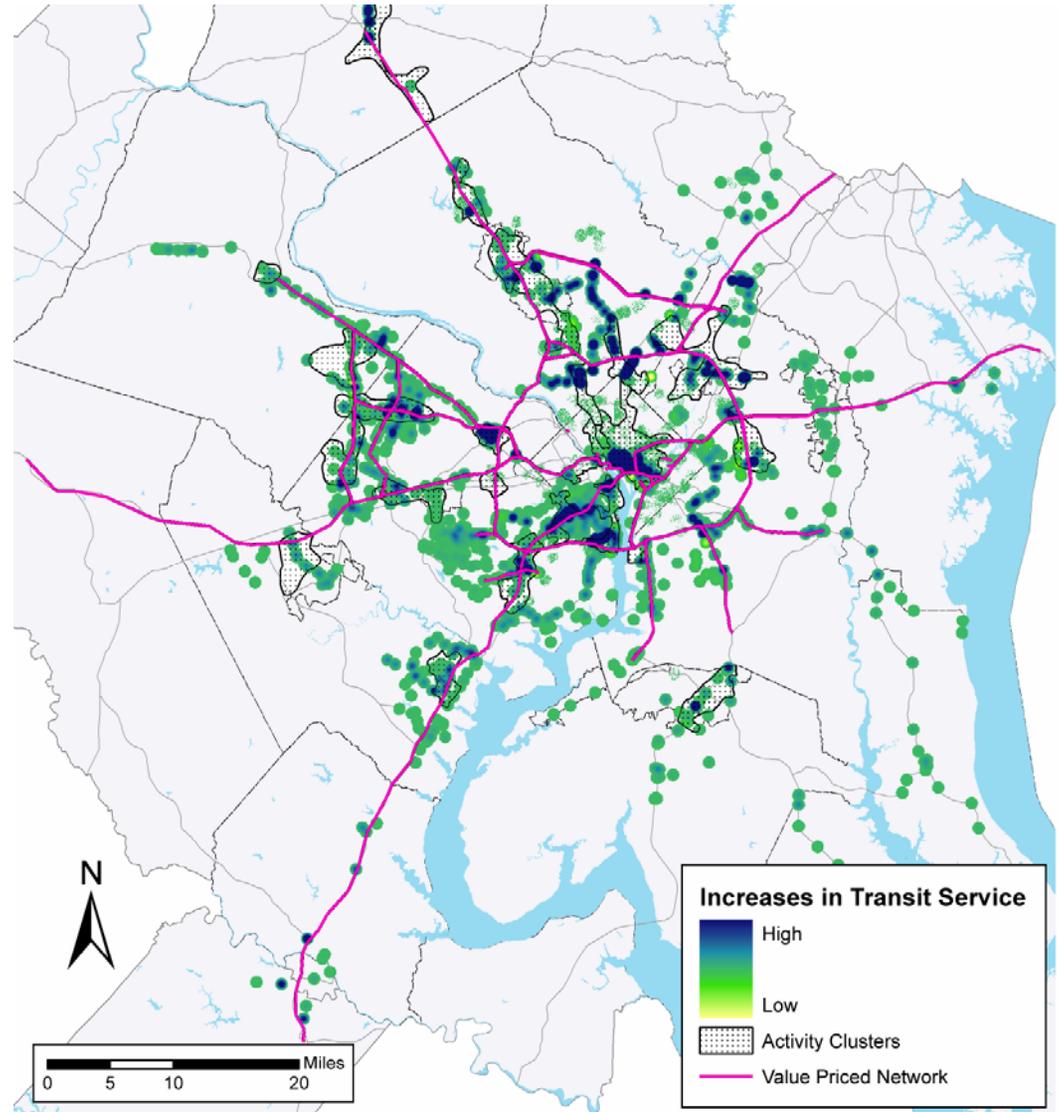
- the **viability of transit** (including possible transit operating assumptions and direct access ramps)
- **changes in land use** activity for *specific corridors* identified in Task 1
- potential **demand, revenue** and **costs**

Examine connectivity to the **regional core** and **activity centers**

Suggest a **phasing** of corridors for variably priced facilities, possibly a network for 2010, 2020 and 2030, and policy options for vehicle eligibility”

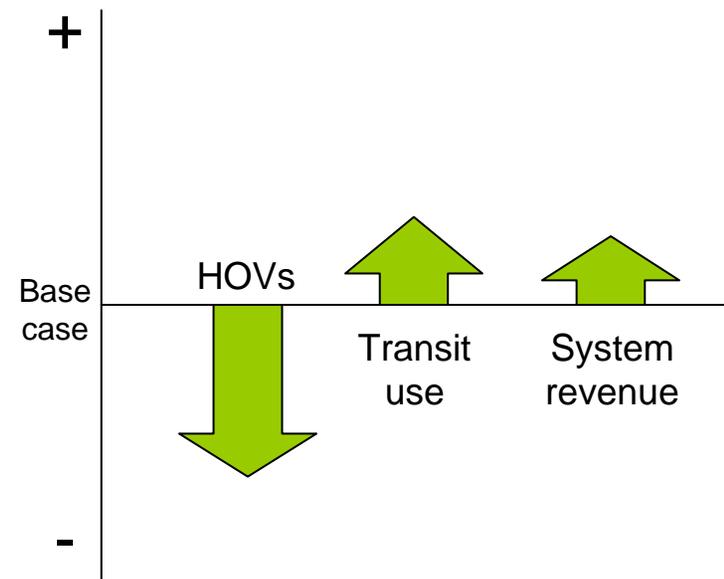
Adding Transit to the BP Network (2030)

- Create a bus transit network that operates on the network of variably priced lanes:
 - All planned transit along BP Network
 - Add Beltway bus routes from the TPB-assisted studies
 - Create routes on VA 28 and Fairfax County Parkway
 - Running between I-66 and VA-7
 - Include stops at major activity centers
- Enhance bus speeds/frequencies:
 - Increase speeds, reducing run-times by 10%
 - Increase frequency, reducing headways by 50%



Impacts of Enhanced Transit on the BP Network (2030)

- Increasing Transit Service on the Value Priced Network Results In:
 - Decrease in HOV use: 12%
 - Increase in total system transit use: 4.6%
 - Negligible increase in total VMT
 - Total system revenue increased by 3.6%
- Would expect toll rate decreases and little change in volumes and speeds.
- Results to date indicate that transit will impact tolls in a few “high transit” corridors, but will have little impact in many corridors with modest transit demand and service.
- Analysis still in progress.

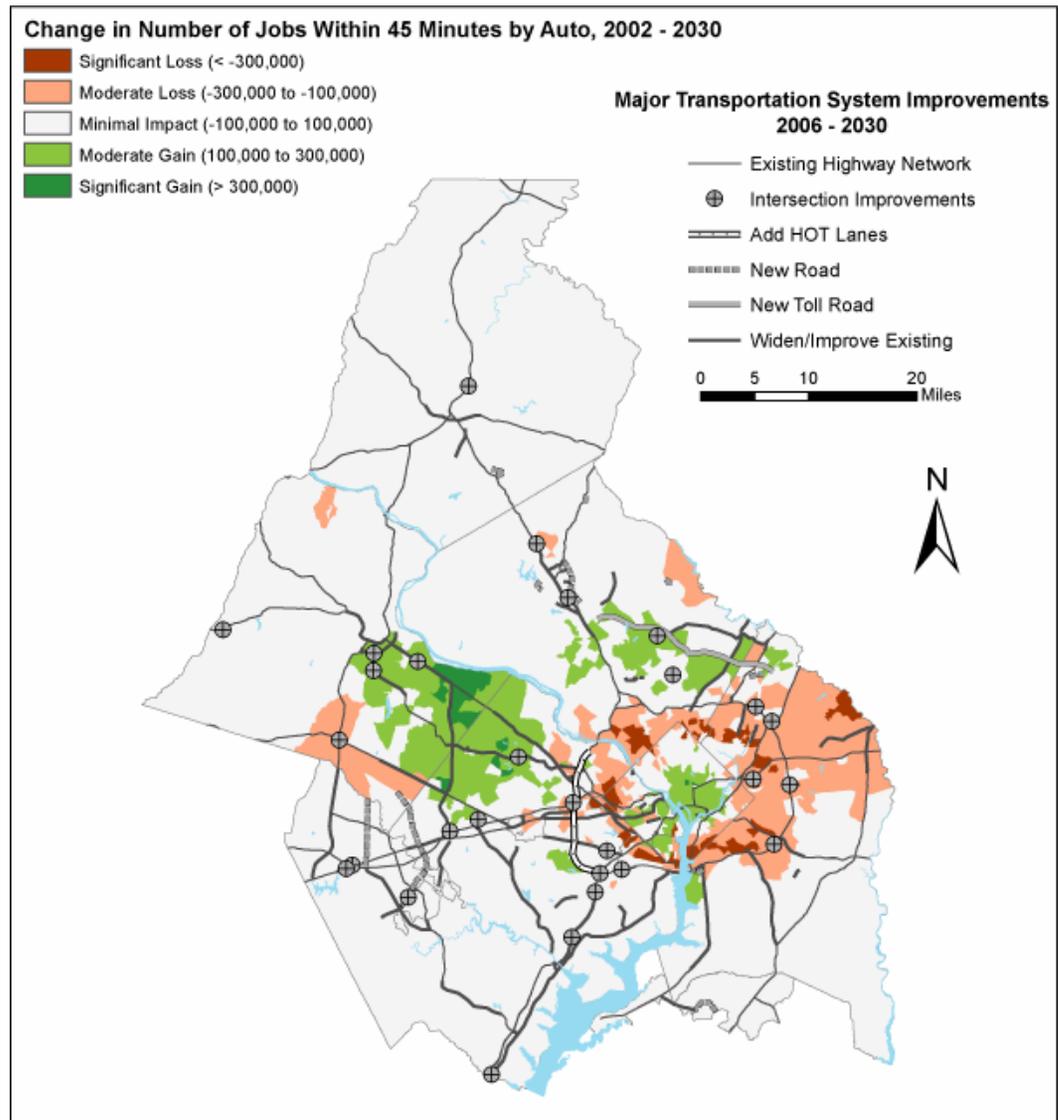


Assessing Potential Impacts on Land Use of the “BP + Transit” VPL Network (2030)

- Land Use changes are influenced by transportation improvements.
- These changes can be attributed to increases in accessibility.
- TPB Accessibility Analysis tool is used to compare change in accessibility between the CLRP for 2030 and the Regional Value Priced Network Scenario

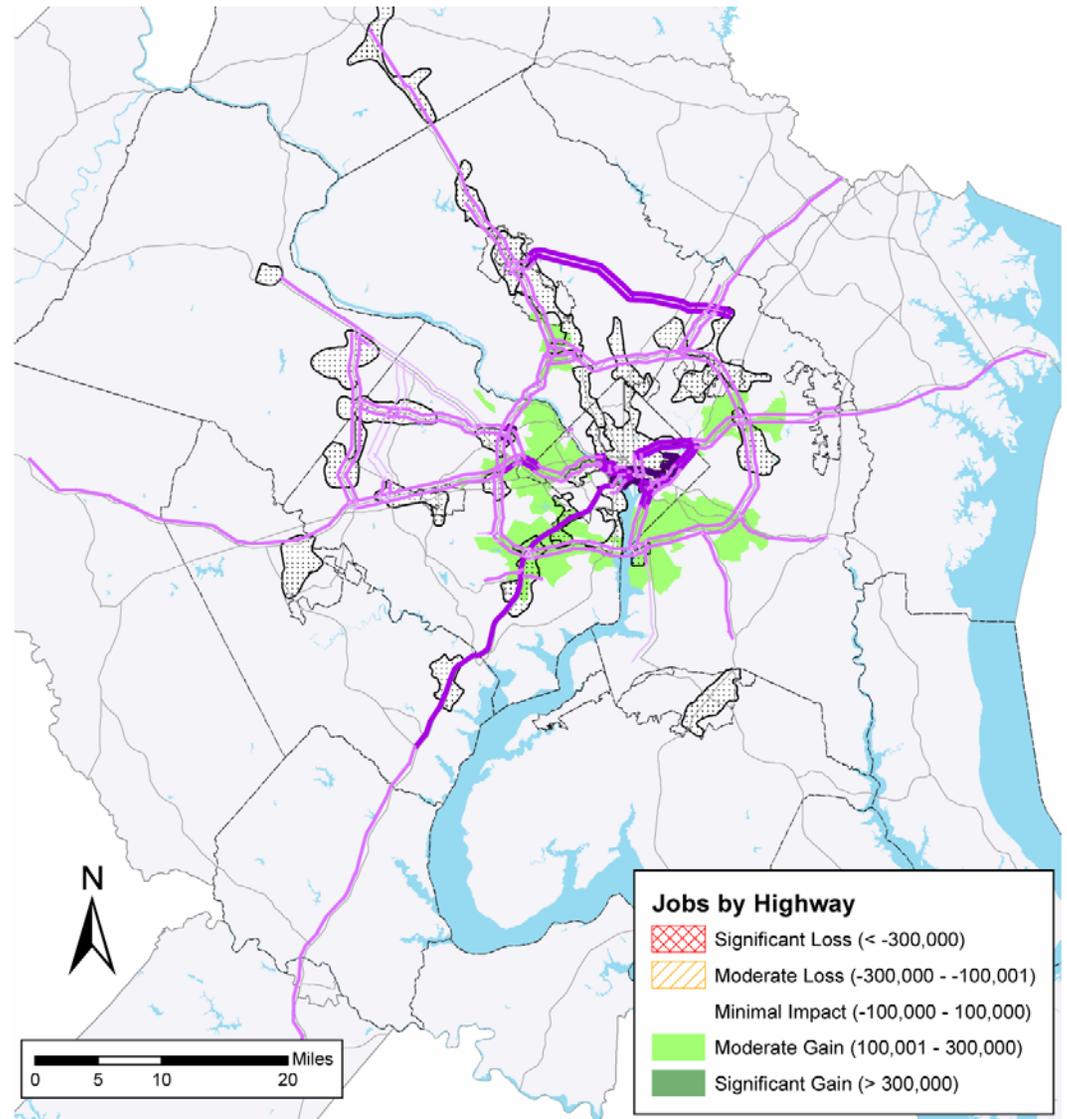
Accessibility Analysis for 2006 CLRP

- Used to assess performance of CLRP
 - Mapping accessibility to jobs and housing within 45 minutes by mode
 - Modes: Highways, Transit, Walk-Access Transit
 - Access to jobs a factor in location of households.
 - Access to households a factor in location of work sites.



VPL Impacts on Land Use: Change in Accessibility to Jobs

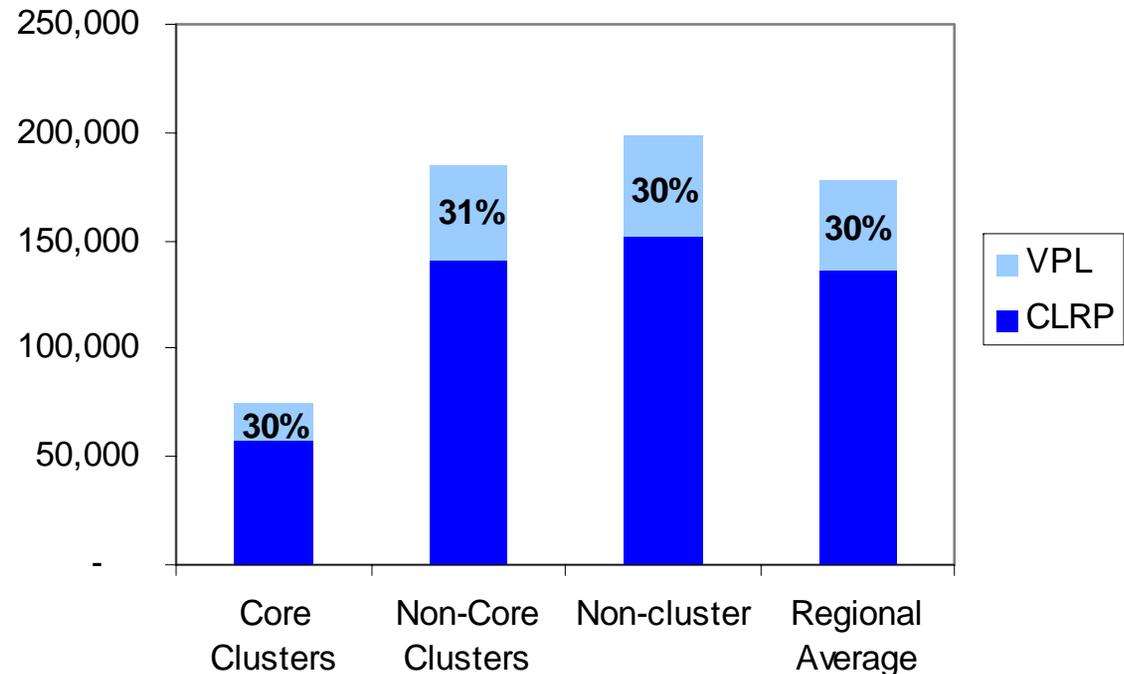
- Moderate impact on accessibility to jobs via highways.
 - Impacts concentrated around major access point in the VPL network.
 - Minimal impact in the exurbs.
- Minimal impact on accessibility to jobs by transit or walk-access transit



VPL Impacts on Land Use: Change in Accessibility to Jobs

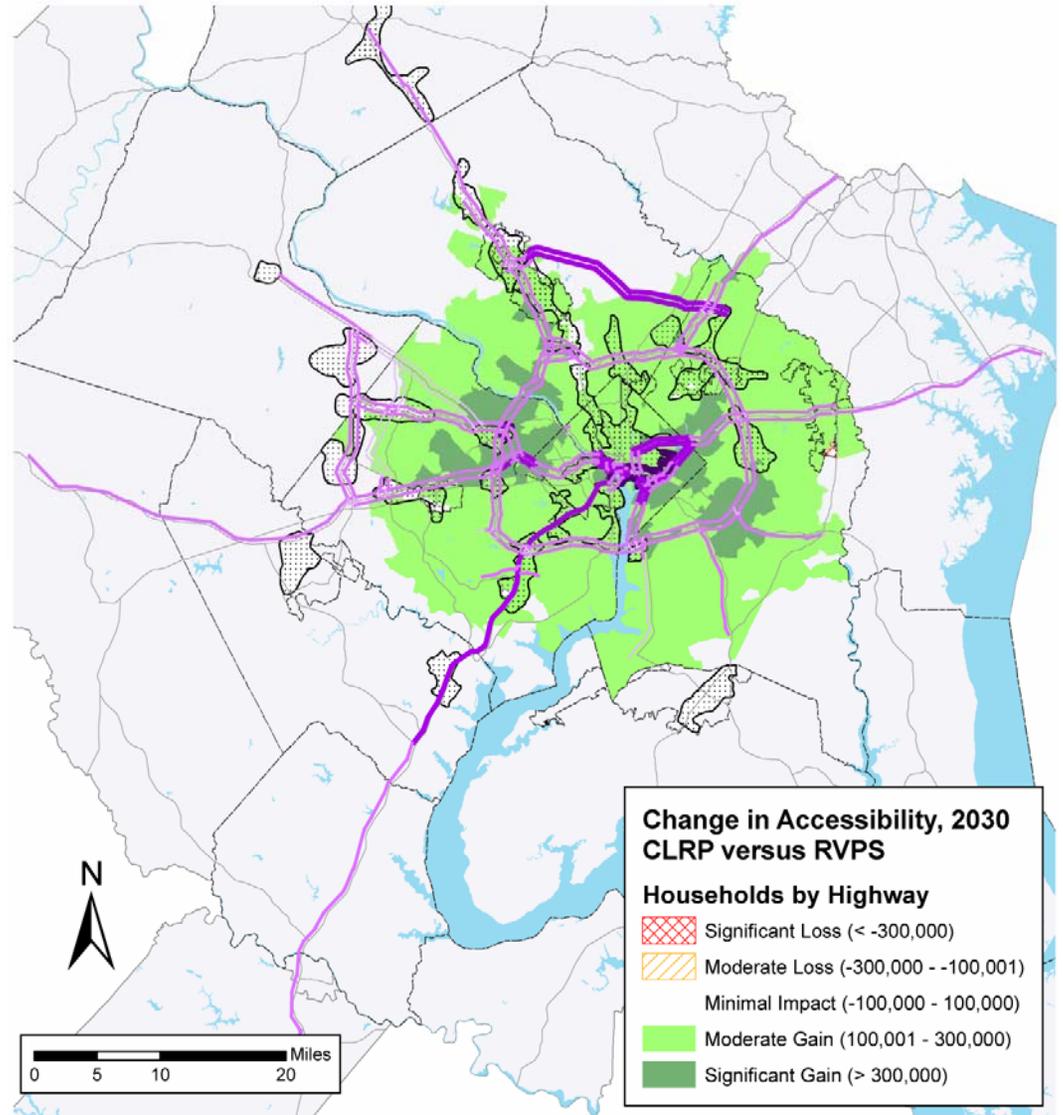
- Percentage increases are evenly distributed among core clusters, non-core clusters and non-cluster areas
- Non-core clusters and non-cluster areas maintain highest accessibility

Change in Accessibility to Jobs by Highway
for Activity Clusters



VPL Impacts on Land Use: Change in Accessibility to Households by Highways

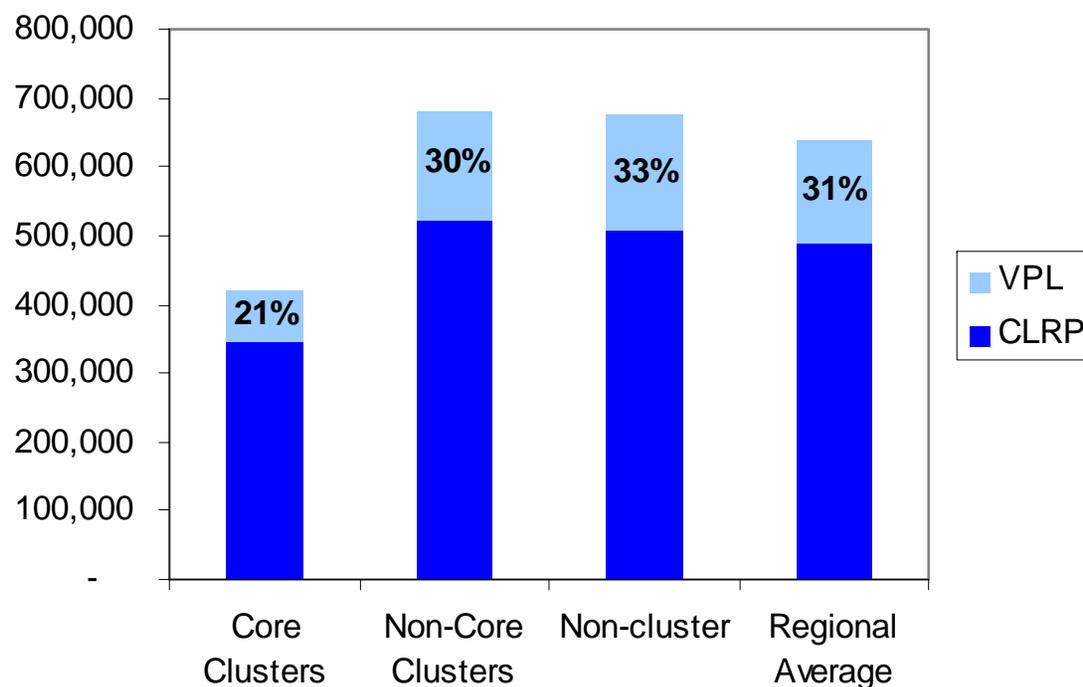
- Significant gains near intersections of major roadways in the VPL network.
- Moderate gains throughout the regional core and inner suburbs.
- Minimal impact in the exurbs.



VPL Impacts on Land Use: Change in Accessibility to Households by Highways

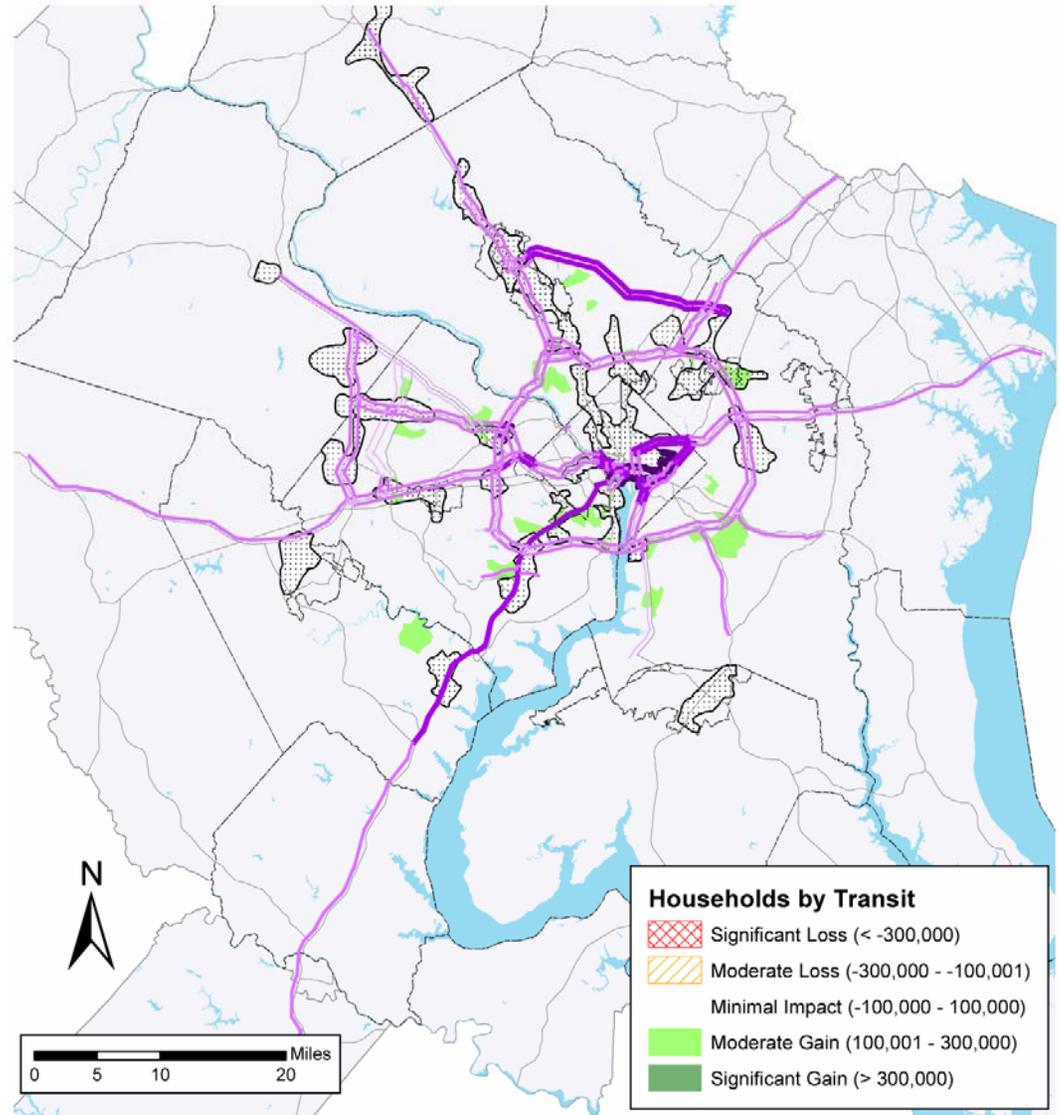
- Non-core clusters and non-cluster areas experience greatest increase in accessibility and maintain the highest levels of accessibility

Change in Accessibility to Households by Highway for Activity Clusters



VPL Impacts on Land Use: Change in Accessibility to Households by Transit

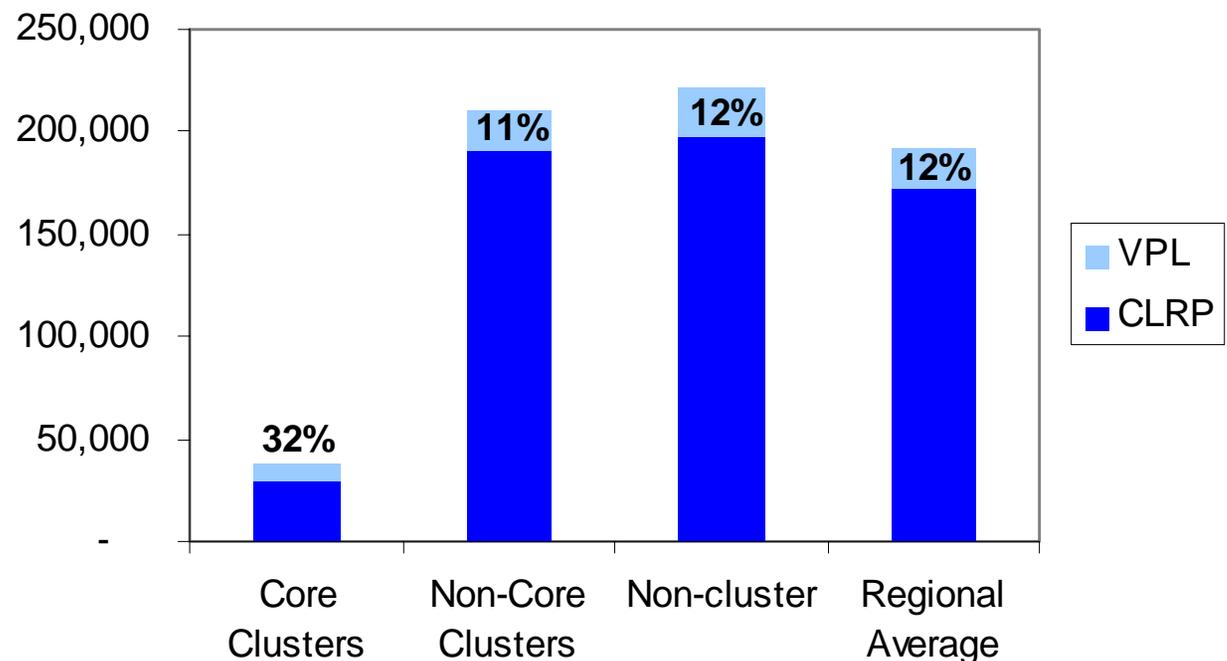
- Small, isolated patches of moderate accessibility gain throughout the region.
- Employers interested in providing transit-accessible jobs could locate in these areas.



VPL Impacts on Land Use: Change in Accessibility to Households by Transit

- Core clusters experience the greatest percentage increase
- Non-core clusters and non-cluster areas maintain the highest levels of accessibility

Change in Accessibility to Households by Transit for Activity Clusters



VPL Impacts on Land Use: Initial Assessment

- **Accessibility to Jobs:**
 - Changes in accessibility to jobs suggest minimal impact on location of new households
- **Accessibility to Households:**
 - Employers likely to be attracted to locations near major intersections of the value priced network
 - Areas within and outside of activity clusters show similar increases in accessibility

Demand, Revenue and Costs

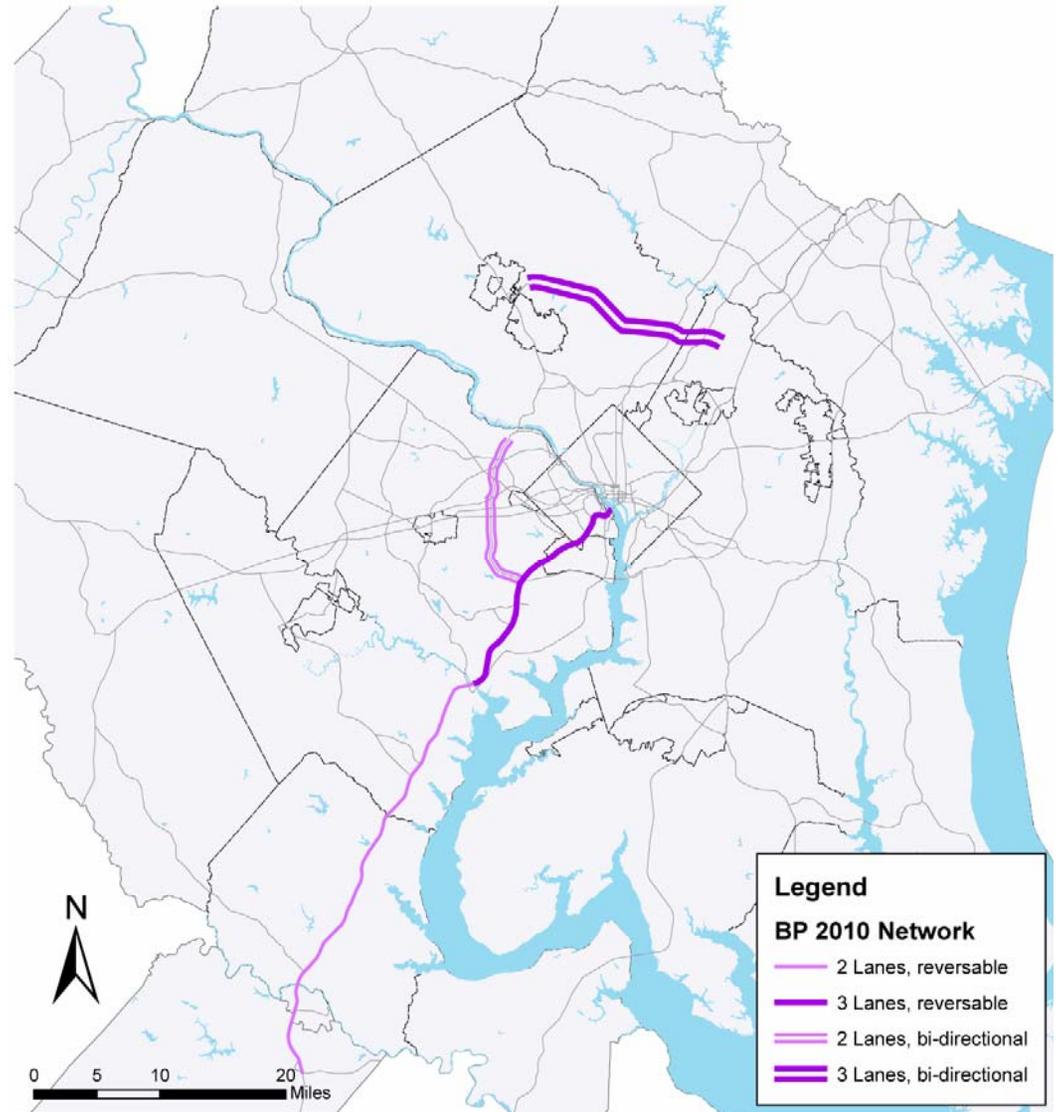
- Demand and revenue are outputs of regional travel demand model
- Costs will be estimated for 2030 using values from current projects and corridor studies in the region
 - Cost of adding 2 new lanes
 - Virginia Beltway HOT Lanes Project
 - Cost of adding 1 lane and converting one lane (HOV or GPL)
 - Maryland Beltway Study
 - Cost of tolling existing lanes
 - Shirley Highway
- Three revenue/cost categories anticipated :
 - Insufficient revenue to cover costs (e.g., ICC)
 - Revenues commensurate with costs (e.g., VA Beltway HOT Lanes)
 - Excess revenue (e.g., Shirley Highway)

Phasing Plan

- 2010/2015: Currently planned value priced projects
- 2020/2025: Add new lanes where ROW exists, price existing lanes where ROW restricted
- 2030/2035: Full scenario BP implementation

2010/2015 Network

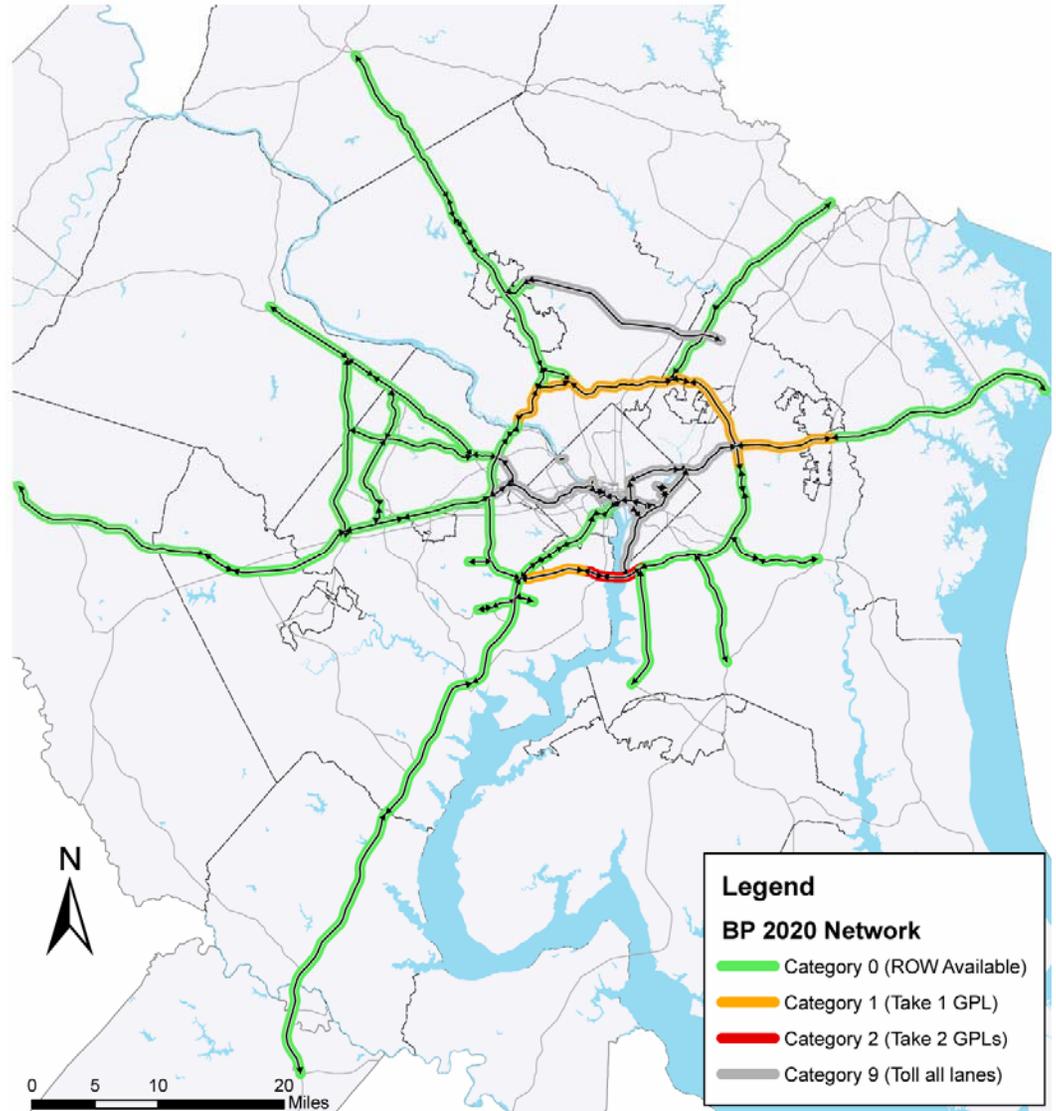
- Currently planned or proposed value-priced facilities:
 - Beltway HOT Lanes
 - InterCounty Connector
 - I-95/395 HOT Lanes



2020/2025 Network

- At least 2 VPLs per direction (lanes reversible on some facilities)
- Lanes added where ROW exists
- GPLs converted to VPLs where ROW does not exist
- Special Segments:
 - US-50 inside the Beltway: No new lanes, toll all existing lanes.
 - WWB Project Area: 1 bus-only lane, 2 VPLs and three local/GPLs.
- Determination based on studies and inspection of satellite photography
- Includes enhanced bus transit where financially feasible

Analysis shows some facilities such as the 14th Street Bridge cannot be made directional.



The Analysis Has Identified Likely Chokepoints That Need To Be Addressed

- Two types of chokepoints:
 - Lane drops in the network
 - e.g., I-95 south of Springfield
 - Access and egress points
 - e.g., Tysons Corner
- Potential solutions:
 - Increase capacity through chokepoint
 - Toll chokepoints, including previously toll-free ramps
 - Transit-only lanes through chokepoints

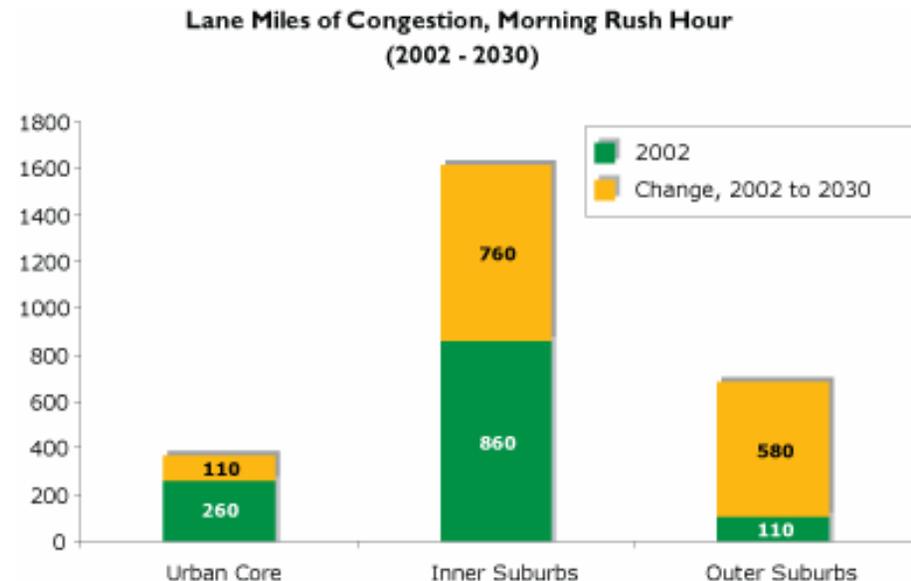
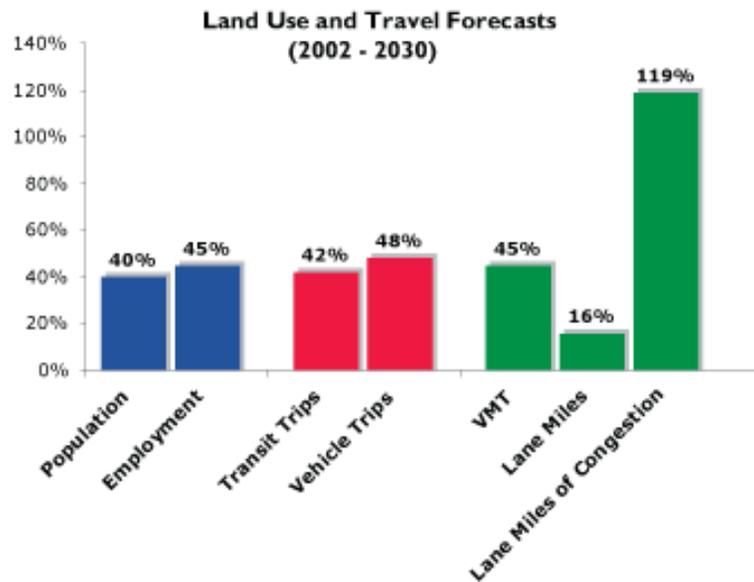
Next Steps: Task 2

Finalize Task 2

- Finalize Transit Impacts
- Land Use Changes
 - Which areas might experience changes in land use due to increased accessibility?
- Phasing Plan
 - Analyze proposed 2020 network

Next Steps: Task 3

- Network of High Potential Corridors: Financial Analysis, Analysis of Feasibility using Scenario Study (RMAS) Measures of Effectiveness
- Will apply CLRP Plan Performance analyses to VPL Scenario
- Examples of Plan Performance analysis for the 2006 CLRP:



Next Steps: Task 4

- Equity Analysis: What will be the impacts on low-income and minority populations?
- Will apply equity analysis techniques from the CLRP to the VPL Scenario.
- Example of equity analysis for the 2006 CLRP:

