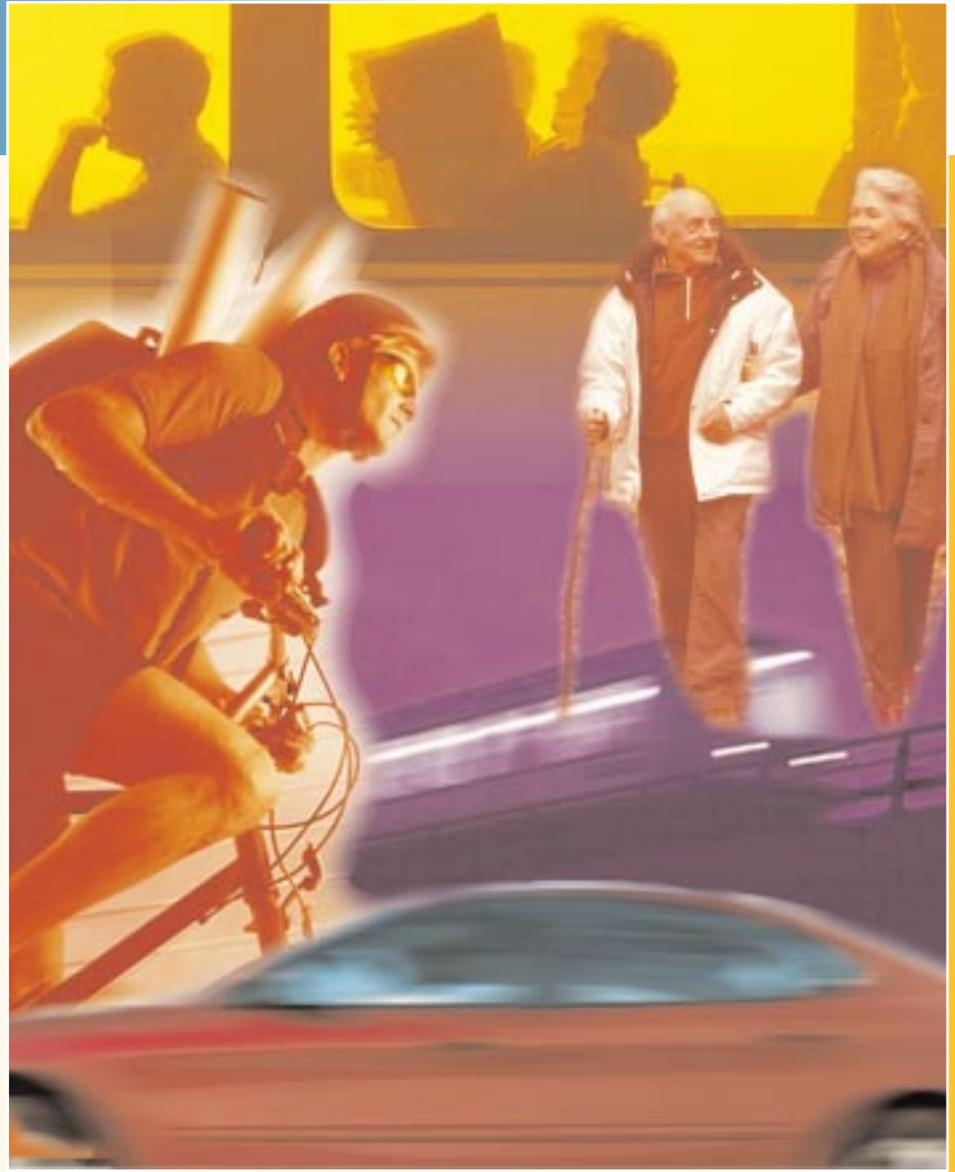


# *TransAction2030*

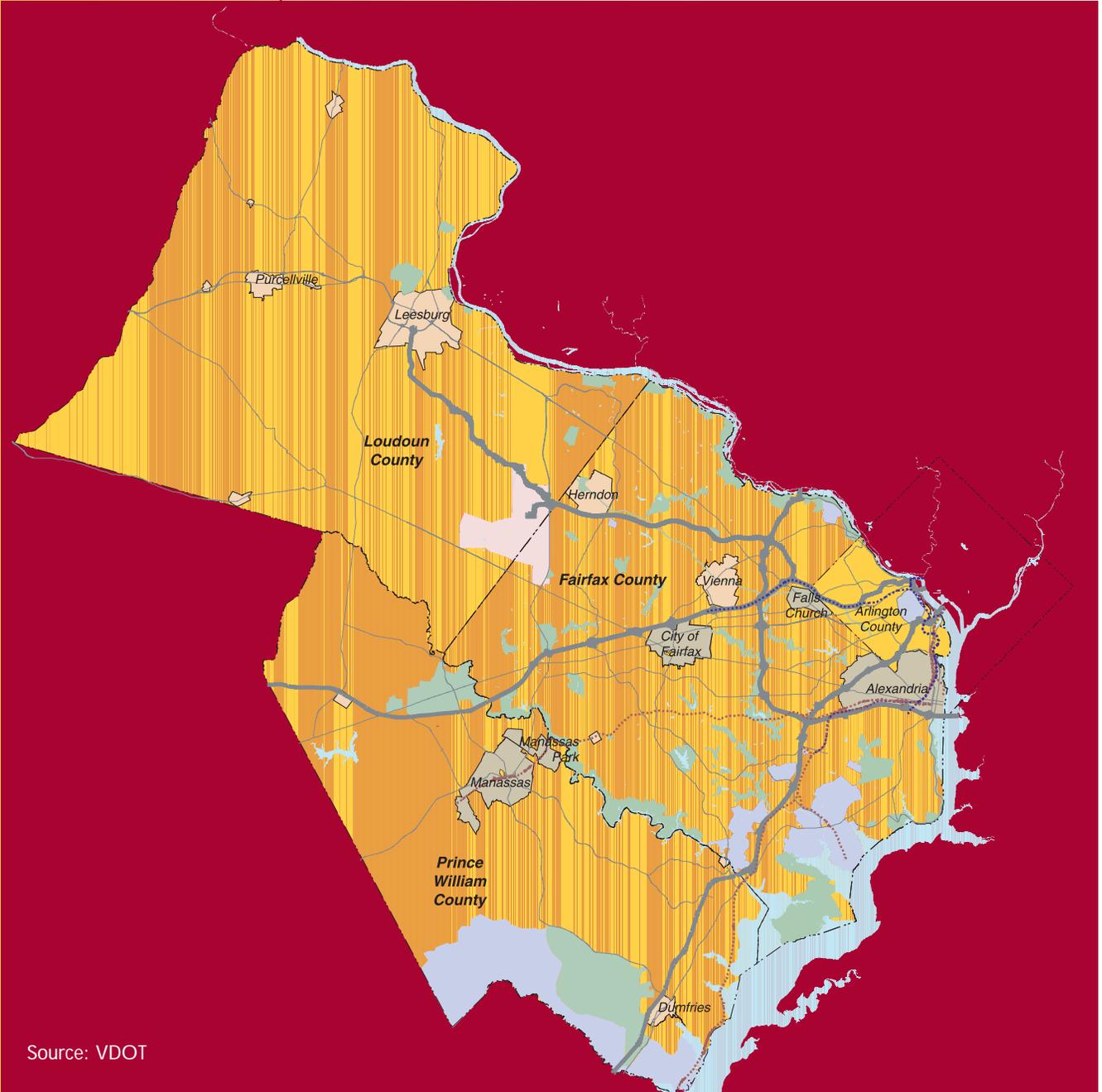
Transportation for Today and Tomorrow



## SUMMARY REPORT



Northern  
Virginia



Source: VDOT

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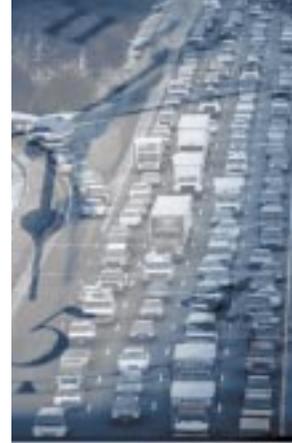
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# Northern Virginia

Northern Virginia is the Commonwealth's fastest growing region in terms of population, employment and development. People continue to be drawn to this area for job opportunities and its educational, cultural and historic attractions. Northern Virginia consists of the counties of Arlington, Fairfax, Loudoun, and Prince William; the cities of Alexandria, Fairfax, Falls Church, Manassas and Manassas Park; and the towns of Dumfries, Herndon, Leesburg, Purcellville, and Vienna.

A fundamental key to maintaining the region's prosperity is a sound transportation system. Northern Virginia's transportation network is multi-modal, consisting of roads, transit, bicycle/pedestrian networks, and two major airports. But the system is currently struggling to serve the traveling needs of residents and countless others traveling in the region for commerce or pleasure. The region must improve its transportation system or the Commonwealth will lose important jobs and their accompanying revenue.

In 2002, the Virginia General Assembly created the Northern Virginia Transportation Authority (NVTA) and charged it with developing a long-range regional transportation plan. This plan, called the TransAction 2030 Plan, updates the 2020 Transportation Plan and provides the blueprint for establishing investment priorities.



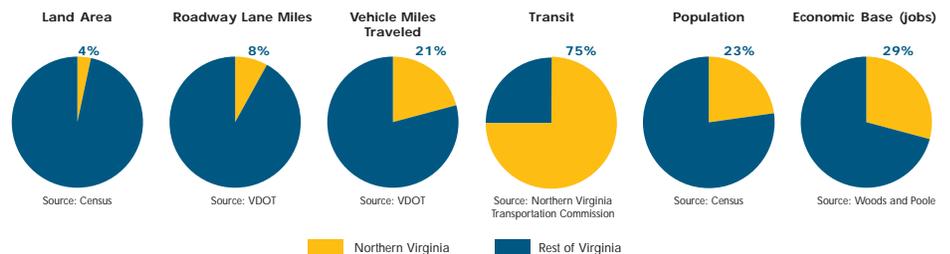
The Washington Post, December 28, 2004



The Washington Post

## Northern Virginia and the Commonwealth

The Northern Virginia region accounts for 21 percent of the vehicle miles traveled (VMT) on only eight percent of the Commonwealth's roadway lane miles. It also accounts for 75 percent of transit ridership within the Commonwealth. The entire transportation system needs an infusion of resources to maintain it in good operating condition and to increase capacity.



## Northern Virginia and the Washington Region

Within the next 25 years, Northern Virginia is expected to continue to attract highly educated professionals as the area absorbs approximately 651,400 new jobs, or more than half of the new jobs expected to come to the Metropolitan Washington Region. It is also projected to attract 918,500 new residents or 56 percent of those expected to relocate in the Metropolitan area. Today, Northern Virginia is home to 2,164,700 residents and 1,238,900 jobs.<sup>1</sup>

Northern Virginia's growth in jobs and population could contribute to a regional housing shortage anticipated by the Metropolitan Washington Council of Governments. More residents will then be forced to find housing outside the Metropolitan region requiring longer commutes that will compound congestion on area roads.

1. Source: Metropolitan Washington Council of Governments, Round 7.0 Cooperative Forecasts.

### The TransAction 2030 Plan findings include:

- Over \$15 billion are needed to complete the projects in the Plan
- All modes in the Northern Virginia transportation network are experiencing increased congestion
- Completing items in the region's CLRP does not improve the highway level of service (LOS)
- The highway LOS improves only with completion of TransAction 2030 projects
- The transit LOS analysis shows that more areas have the density to support transit service
- Both highway and transit projects are needed to solve Northern Virginia's congestion.

### Challenges

- Improve travel conditions in severely congested corridors
- Better connect activity centers and enhance all modes of transportation
- Strive to attain federally mandated air quality standards
- Fund aging infrastructure needs
- Attain dedicated funding for critically needed transportation projects.

# TransAction 2030 Plan Process

## Vision, Goals & Strategies

The vision adopted by the Transportation Coordinating Council in 1999 continued to guide this update of the 2020 Plan. However, for the TransAction 2030 Plan a cutting edge approach was used to analyze the extensive transit, bicycle, and pedestrian network to complement the highway network analysis. This multi-modal analysis provides an understanding of the interactions between the modes (driving, taking a bus, walking and biking) to evaluate the effect of investments on all users of the transportation system. The TransAction 2030 planning process also included innovative outreach to all of the communi-

ties that make up the Northern Virginia region. This outreach resulted in input to help prioritize the most desired improvements among eight major transportation corridors. The final set of priorities reflects the public's desire for more multi-modal solutions and includes substantial investment in transit, roads, trails, and sidewalks.

### Vision

*“In the 21st century, Northern Virginia will develop and sustain a multi-modal transportation system that supports our economy and quality of life. It will be fiscally sustainable, promote areas of concentrated growth, manage both demand and capacity, and employ the best technology, joining rail, roadway, bus, air, water, pedestrian, and bicycle facilities into an interconnected network.”*

### Goals

The goals developed for the TransAction 2030 Plan build on goals from the 2020 Plan and earlier plans in Northern Virginia and the Metropolitan Washington region. These include:

- Provide an integrated, multi-modal transportation system
- Provide responsive transportation service to customers
- Respect historical and environmental factors
- Recognize the linkage between transportation and land use
- Incorporate the benefits of technology
- Identify funding and legislative initiatives needed to implement the Plan
- Enhance Northern Virginia relationships among jurisdictions, agencies, the public, and the business community.

### Strategies

- Measure the extent of transit service in the region
- Provide increased road and transit capacity
- Improve connections between activity centers
- Use technology for more efficient system operations
- Maintain the existing system for maximum performance
- Provide a multi-modal solution.

# Public Participation

Thousands of citizens participated in the TransAction 2030 planning process. This participation focused on developing a regional consensus on transportation improvement priorities. One of the elements of the outreach effort was a telephone survey of 1,263 citizens. Other citizens participated in seven community events where they prioritized investments in eight corridors. An interactive website provided online activities and project presentations. A project newsletter reached over 3,000 residents and email broadcasts at major milestones in the study were sent to over 1,100 community leaders. A public hearing and open house was held to share the results of the technical analysis and to receive additional input.

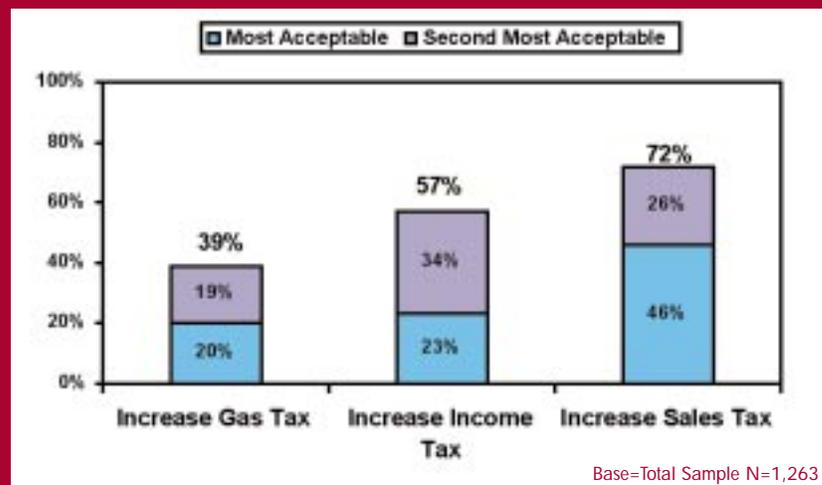
## Telephone Survey

One encouraging result of the telephone survey was the indication that a large number of respondents were willing to contribute monetary resources to help pay for improvements to transit and road widening. The survey asked respondents about their preference for financing options including an add-on income tax and increases in the gas tax and the sales tax. This survey of 1,263 Northern Virginia adults over the age of 18 gave insight into what causes the traveling public frustration and respondents' priorities for transit and road widening projects.

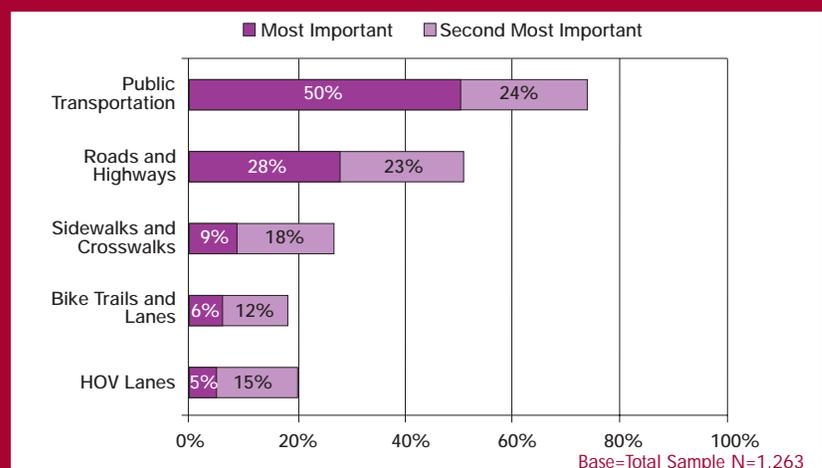
The survey results include:

- The public supported multi-modal solutions
- Those who chose transit as their top priority are willing to pay more to get their project built than are those who chose road widening
- Half of all respondents said that public transportation is their top priority
- Whether living in Prince William County or Arlington County, residents favor transit improvements
- When offered side-by-side comparisons Northern Virginians favored an increase in the sales tax over income or gas tax increases.

### Most and Second Most Acceptable Funding Methods



### Most and Second Most Important General Transportation Priorities



Source: TransAction 2030 Plan

## Evaluation Process

One of TransAction 2030's major goals was to present a list of projects to receive priority funding, based on an estimated funding shortfall of over \$15 billion. To prioritize potential improvements, project-specific criteria were used to evaluate and rank projects by corridor and by mode.

## Constrained Long-Range Plan

The NVTAs highest priority projects are those currently in the Metropolitan Washington Constrained Long Range Plan (CLRP). The CLRP is a blueprint for transportation projects and strategies that can realistically be implemented over the next 25 years for the Metropolitan Washington area. Basically, the projects must be affordable, meet air quality improvement goals, and include other elements of the region's policies. As funding becomes available, projects identified in the TransAction 2030 Plan will be submitted for inclusion in the CLRP.

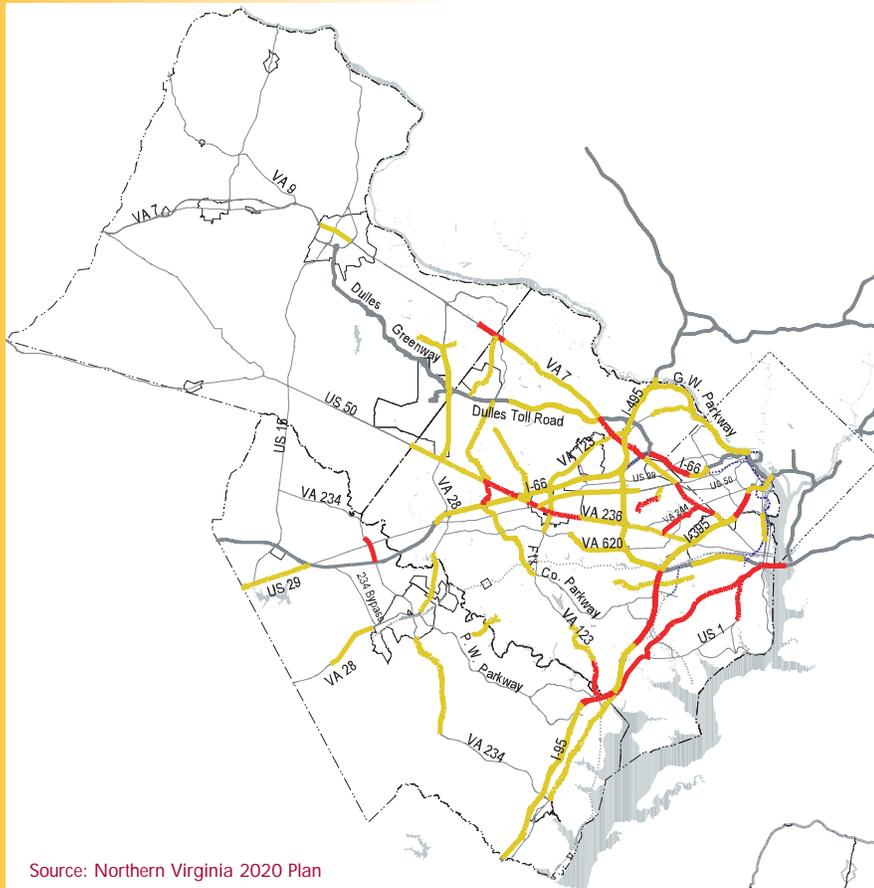
## Evaluation Criteria



Source: TransAction 2030 Plan

# Highway System Performance

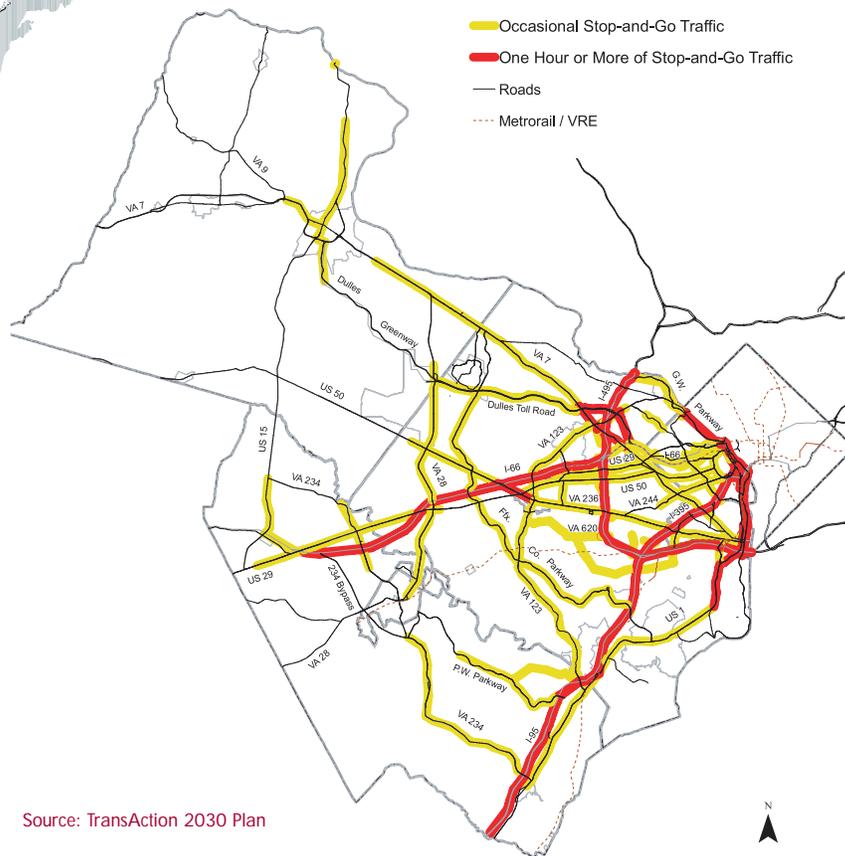
## 1999 Highway System Peak Period Performance



Source: Northern Virginia 2020 Plan

*These maps show the dramatic deterioration of the roadway system in just six years.*

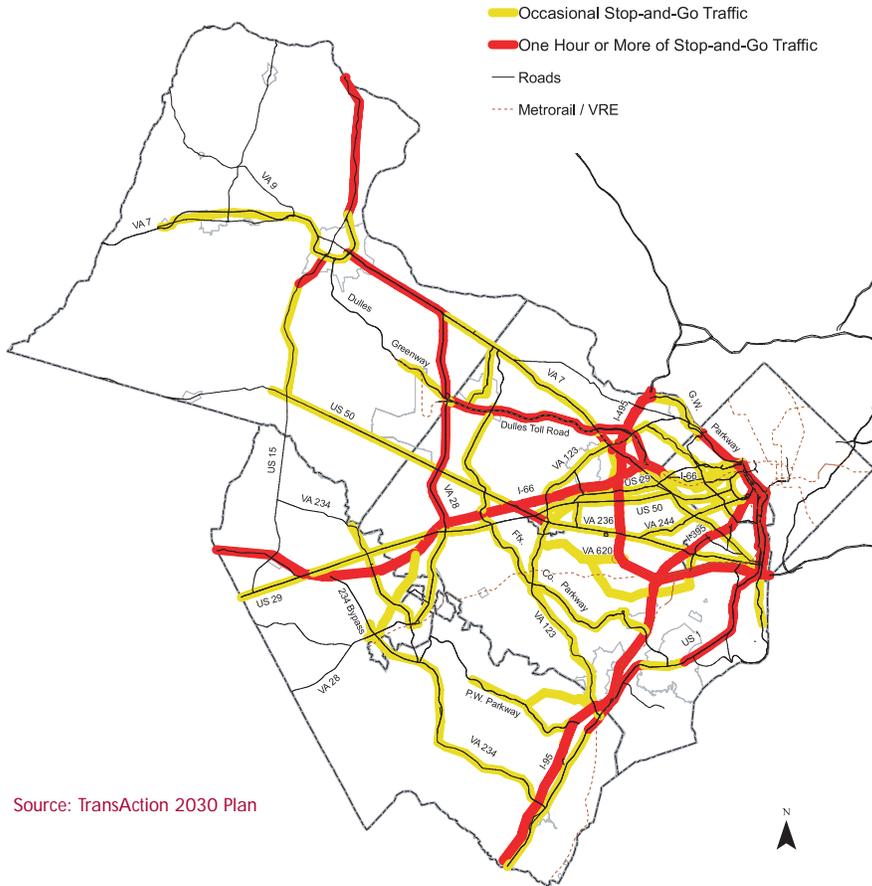
## 2005 Highway System Peak Period Performance



Source: TransAction 2030 Plan

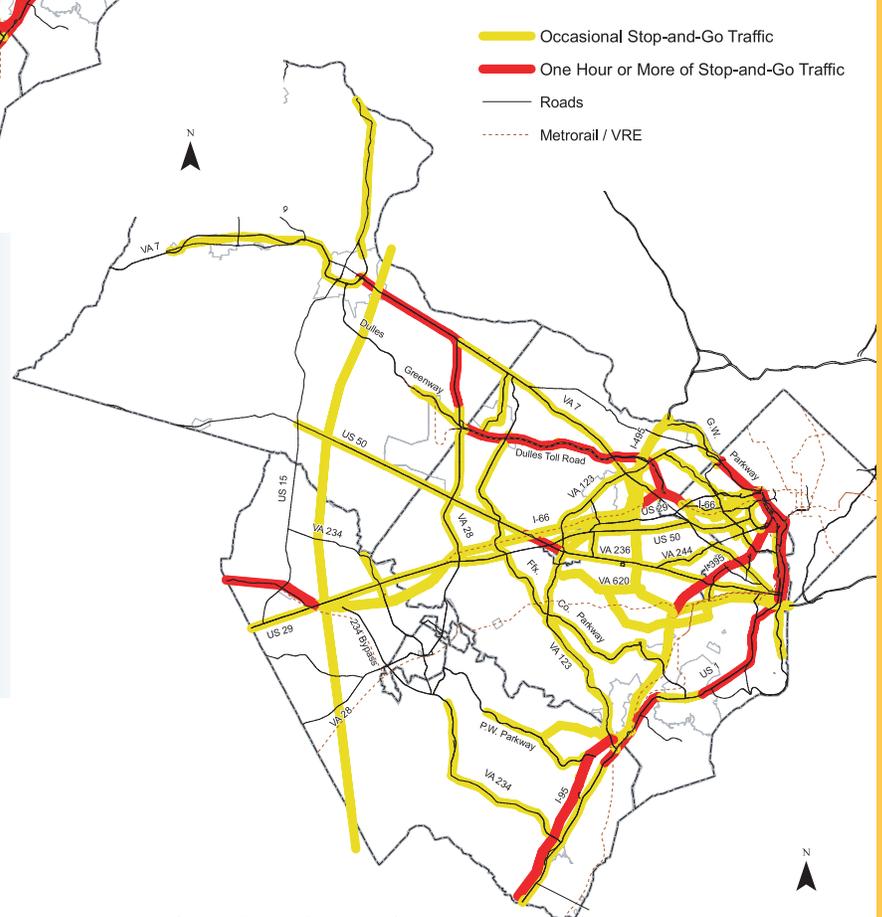
# Highway System Performance

## 2030 CLRP Highway System Peak Period Performance



Source: TransAction 2030 Plan

## TransAction 2030 Plan Highway System Peak Period Performance



Source: TransAction 2030 Plan

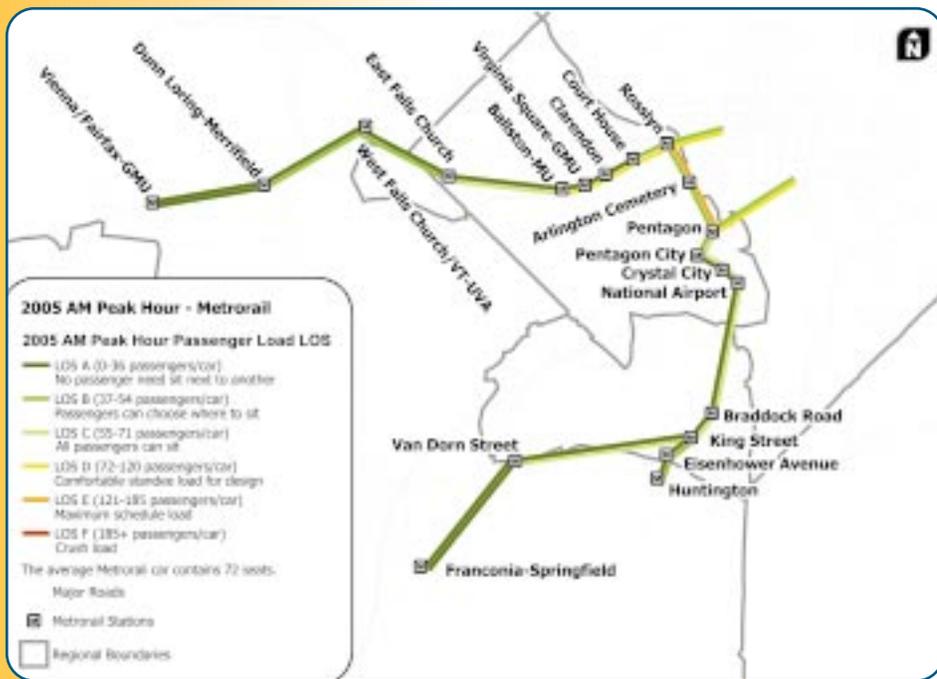
Implementation of CLRP Projects has little effect on congestion. The additional investment called for in the TransAction 2030 Plan is necessary to improve travel and quality of life in Northern Virginia.

# Transit Performance

## Metrorail

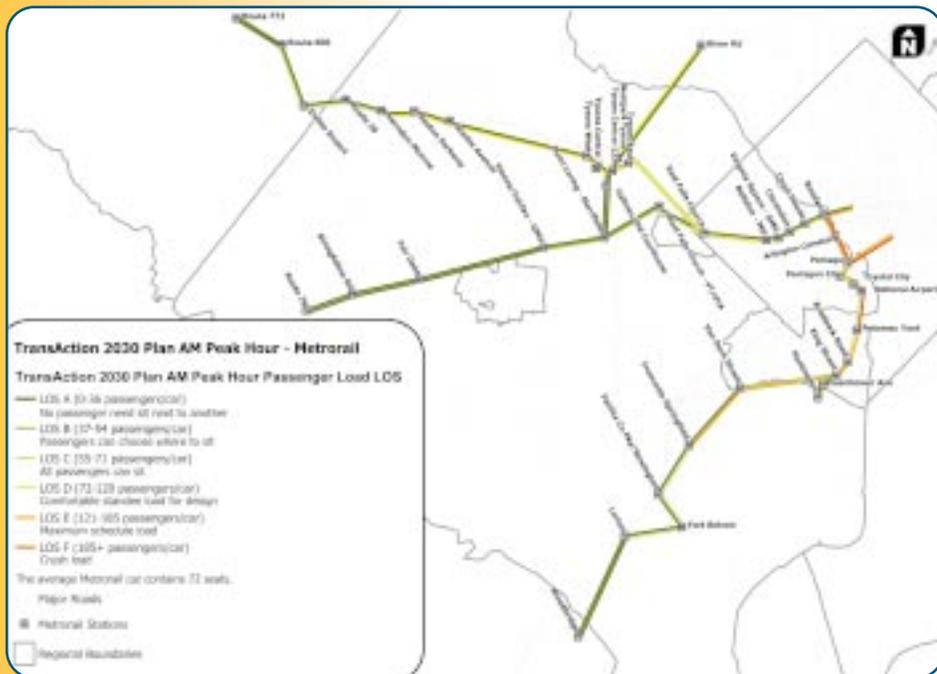


2005 Metrorail Passenger Load Level of Service



Sources: WMATA (train volumes), MWCOG model (base mapping & passenger volumes)

TransAction 2030 Plan Metrorail Passenger Load Level of Service



Sources: WMATA (train volumes), MWCOG model (base mapping & passenger volumes)

Rail is the most popular form of transit. Ridership continues to increase on Metrorail and Virginia Railway Express (VRE) as well as on all bus systems within Northern Virginia. The passenger load level of service shows crowding on various segments of the rail system, in both the current transit network and the future network proposed by TransAction 2030.

For the 2030 Study, the Dulles Corridor Metrorail Project was assumed to be built. Light Rail is proposed on Columbia Pike, VA Route 7, US Route 1, and VA Route 28. These rail connections and extensions will provide more travel choices and capacity in these corridors.

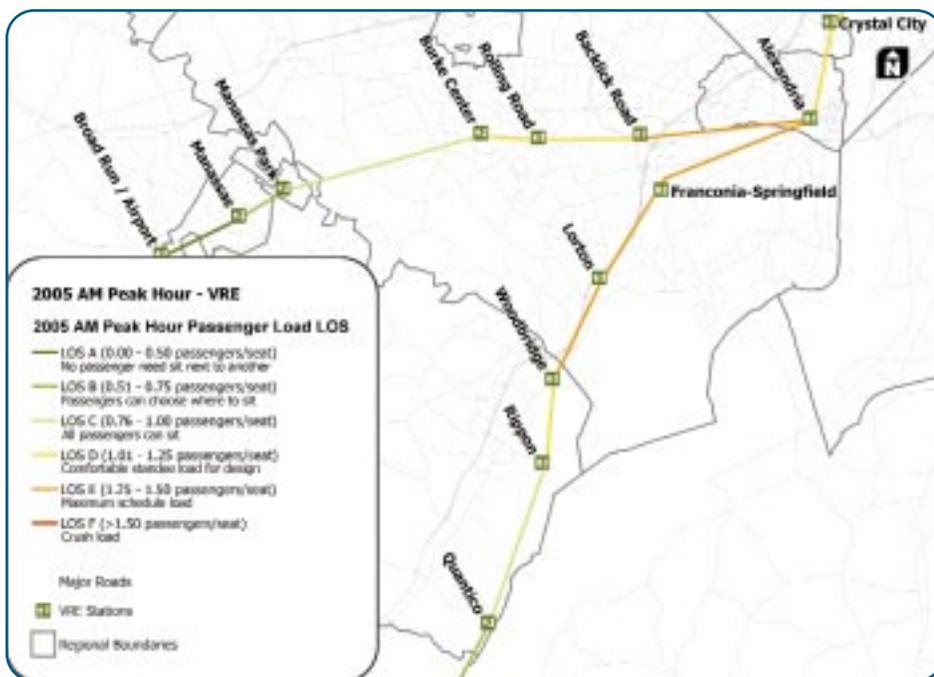
TransAction 2030 extends Metrorail service into areas not currently served, including a rail crossing of the Potomac River.

# Transit Performance

## Virginia Railway Express (VRE)

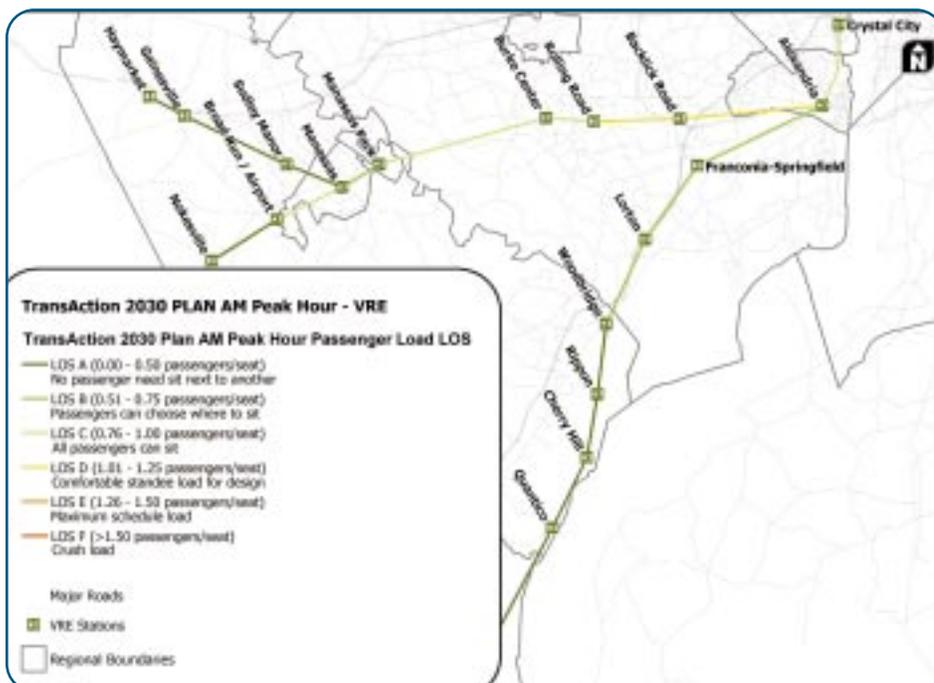
The TransAction 2030 network improves service on VRE Routes.

2005 VRE Passenger Load Level of Service



Sources: VRE (train volumes), MWCOG model

TransAction 2030 Plan VRE Passenger Load Level of Service



Sources: VRE (ridership projections), MWCOG model

## Northern Virginia Transit Trips 2005

- 300,000 average weekday passenger trips on Metrorail
- Another 140,000 average weekday passenger trips on Metrobus and locally operated bus systems
- More than 15,000 average weekday passenger trips on VRE.

Source: NVTC FY 2005

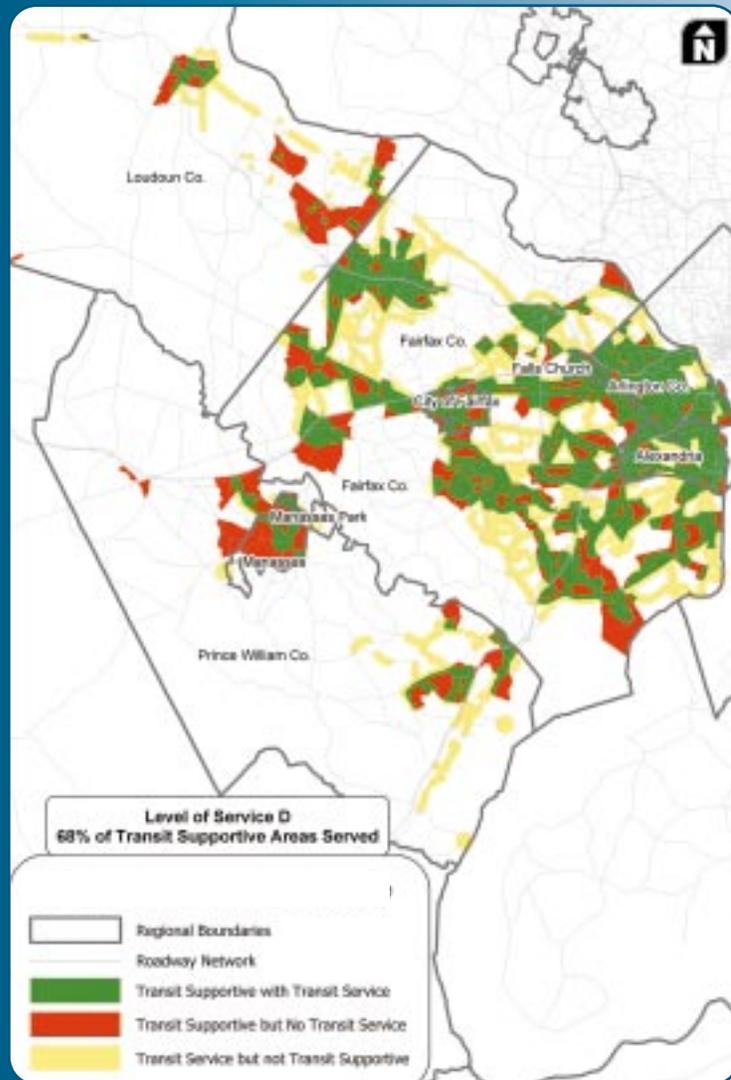
# The Multi-Modal System

## Transit Analysis

One of the cornerstones of this planning update is the inclusion of a ground-breaking analysis of transit performance. The analysis that was done to assess the existing transit performance, the anticipated performance with the improvements contained within the CLRP plan, and the TransAction 2030 Plan, looked at five measures:

- How much of Northern Virginia is served by transit
- How crowded are trains and buses
- How often can you take a train or bus to get to major destinations
- How many hours during the day is transit available to the public and
- How does the travel time by transit compare with that by car for the same trip.

*Transit trips have grown 4% annually*



Source: TransAction 2030 Plan

2005 Transit Service Coverage



## Multi-modal Corridor LOS Examples

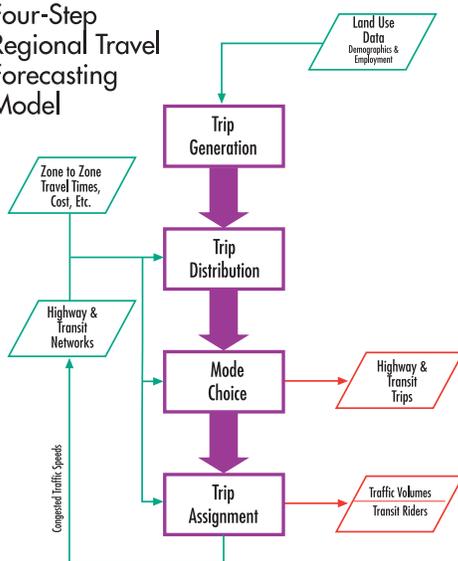
This multi-modal analysis helps us understand the interaction between modes and evaluates the effects of proposed investments on each mode.

Source: Florida DOT Quality/LOS Handbook, 2002

## Travel Demand Model

The Travel Demand Model developed by the Metropolitan Washington Council of Governments was used to evaluate the effects of transportation investments before improvements are implemented. The model simulates future traffic patterns and volumes on the road investments based on projected growth in population, jobs, and households, as well as future land use.

### Four-Step Regional Travel Forecasting Model



Source: Metropolitan Washington COG

## Highway Improvements

The TransAction 2030 Plan proposes roadway improvement projects throughout the Northern Virginia region. The improvements are focused on increasing roadway capacity and improving the efficiency of existing roadways. This includes a range of roadway widening, reconstruction, and facility upgrade improvement projects, including:

- Widening the Beltway, I-66 outside the Beltway, US Route 29, and VA Route 28
- Reconstruction of Elden Street, US Route 15, US Route 29, and Beltway interchanges
- Facility upgrades of VA Route 28 and VA Route 234.

## Transit Improvements

A wide range of transit system improvement projects have been evaluated, including:

- Extensions of Metrorail to Centreville and Potomac Mills
- Circumferential Metrorail line in the I-495 Beltway corridor between Dunn Loring and Bethesda, Maryland
- Light Rail lines along VA Route 7/ Columbia Pike and between Manassas and Dulles Airport
- High capacity transit line in the US Route 1 corridor between Alexandria and the Pentagon
- Extensions of VRE to Haymarket and Nokesville
- Priority and express bus service in multiple corridors
- New and expanded HOV facilities.



## Bicycle and Trail Improvements

The TransAction 2030 Plan includes over \$60 million in improvements to the Northern Virginia multi-use trail system. These improvements were identified as part of the Northern Virginia Regional Bikeway and Trail Network Study completed by VDOT. Major trail projects include:

- VA Route 7 between Leesburg and Alexandria
- Beltway Trail
- Potomac Heritage Trail
- US Route 1 between Stafford County and the Beltway.



In addition, over 150 individual trail projects are included to improve linkages between activity centers and provide connections along and between existing trails.

## System-Wide Technology Improvements

The TransAction 2030 Plan will continue to monitor the benefits of technological advances to our transportation system through:

- Intelligent Transportation Systems (ITS)
- Telecommuting
- Monitoring of technology, particularly relating to transit systems.

## Park and Ride Lot Improvements

The TransAction 2030 Plan provides for expanded Park and Ride lots.

## Cost Estimates

TransAction 2030 combined the cost estimates for projects currently in the Northern Virginia portion of the Metropolitan Washington region's Constrained Long-Range Plan (CLRP) with estimates for the additional TransAction 2030 improvements recommended in this report. Operation and maintenance costs were then included for all improvements. The results revealed that to fund CLRP projects alone would cost \$30 billion between 2004 and 2030; and funding TransAction 2030 Plan's additional recommended improvements would cost an additional \$16.6 billion. Thus, the full cost of implementing all of these improvements adds up to \$46.6 billion (in 2005 dollars).

- \$664 million per year in new funding will be needed to implement the TransAction 2030 Plan

- Funding sources must be arranged to satisfy this need

### Current Plan (Northern Virginia Portion of Region's CLRP)<sup>(1)</sup> Total Cost (2004-2030)<sup>(2)</sup>

#### Average Yearly Cost<sup>(3)</sup>

Roadway
Transit
Bike/Pedestrian
Technology
Total

### System Expansion \$11.9 Billion

#### \$ Million

\$ 256
\$ 182
\$ 1
\$ 2
\$ 441

### Operation/ Preservation \$18.1 Billion

#### \$ Million

\$ 285
\$ 373
\$ 6
\$ 6
\$ 670

= \$30.0 Billion

### TransAction 2030 Plan Improvements Added to Current Plan Total Cost (2006-2030)<sup>(2)</sup>

#### Average Yearly Cost<sup>(3)</sup>

Roadway
Transit
Bike/Pedestrian
Total

\$15.4 Billion

#### \$ Million

\$ 300
\$ 314
\$ 2
\$ 616

\$1.2 Billion<sup>(4)</sup>

#### \$ Million

\$ 6
\$ 41
\$ 1
\$ 48

= \$16.6 Billion

### Grand Total TransAction 2030 Plan Costs

**\$27.3 Billion**

**\$19.3 Billion**

**= \$46.6 Billion**

#### Notes:

1. Source: MWCOG 2004 Update to the Financially Constrained Long Range Transportation Plan (2004-2030).
2. Source: Results of the Financial Analysis for the 2003 Constrained Long-Range Transportation Plan, Cambridge Systematics, Inc. 2003 costs in report inflated by 10% to reflect 2005 constant dollars.
3. Average yearly capital system expansion estimates equal total cost in 2005 dollars divided by number of years in each Plan. Inflation and debt financing are not included.
4. Operation/preservation cost estimates based on projected year of completion for each project from the 2020 Plan.

## Funding

The TransAction 2030 Plan improvements identified will cost more than \$15 billion. In addition, \$1.2 billion will be needed to operate and maintain these improvements. Meanwhile, funding from federal and state sources for highway and transit construction is becoming less certain. It is estimated that by 2018, all available state funding will be dedicated to maintenance, leaving no available money to match federal funding. There is also the challenge of meeting federal air quality standards, which if not met could mean the loss of access to federal funding for highway and transit construction. While many of the projects that are currently in the CLRP are scheduled to be built in out years, they are actually needed much sooner because of the continuing growth in employment and residents. The text box to the right illustrates revenues that could be generated through several mechanisms.

## Potential Revenue Sources

Each of the following revenue sources would generate about \$175 million each year.

- Increasing the sales tax an extra one-half cent on each \$1 of taxable purchases
- Increasing the state income tax an extra \$25 for each \$10,000 of taxable income
- Increasing the gas tax an extra 17 and one-half cents on a gallon of gas.

Note: Amounts assume participation of all Northern Virginia jurisdictions. The items above could be used to support bonds for transportation improvements.

## Next Steps

Adoption of the TransAction 2030 Plan by NVTA represents the first step in making TransAction 2030's vision a reality. More work is needed to secure funding for the highest priority improvements recommended in the Plan. Immediate next steps include:

- Share TransAction 2030 findings with the Virginia General Assembly
- Use TransAction 2030 Plan as input to Metropolitan Washington Constrained Long-Range Plan (CLRP) update
- Conduct additional Northern Virginia discussion on funding
- Incorporate TransAction 2030 Plan into Virginia's long-range transportation plan
- Update jurisdictions' comprehensive plans

## About the NVTA

The Virginia General Assembly created the Northern Virginia Transportation Authority on July 1, 2002 and charged it with development of a long-range transportation plan for the Northern Virginia region. NVTA recommends to the Commonwealth Transportation Board (CTB) which transportation projects should receive funding.

The Authority is comprised of 16 members; nine are mayors or chairs, or their designees, of the nine cities and counties that are members of the Authority; two are members of the House of Delegates; one is a State Senator; and two are citizens appointed by the Governor. In addition, the Director of Virginia's Department of Rail and Public Transportation and the Commonwealth Transportation Commissioner, or designee, serve as non-voting members.

### Northern Virginia Transportation Authority Membership:

David F. Snyder, NVTA Chairman; City of Falls Church

Christopher E. Zimmerman, NVTA Vice Chairman; Arlington County

William D. Euille, City of Alexandria

Robert F. Lederer, City of Fairfax

Gerald E. Connolly, Fairfax County

Scott K. York, Loudoun County

Harry J. "Hal" Parrish, II, City of Manassas

Bryan Polk, City of Manassas Park

Sean T. Connaughton, Prince William County

William C. Mims, Virginia Senate

Vincent F. Callahan, Jr., Virginia House of Delegates

Jeffrey M. Frederick, Virginia House of Delegates

Margaret E. G. Vanderhuy, Governor's Appointee

(Vacant), Governor's Appointee, CTB Member

Karen Rae, Director, DRPT

Dennis Morrison, Administrator, Northern Virginia District Office, VDOT



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