



Northern Virginia Transportation Commission

NVTC

*Thinking Outside the Car Since 1964*



# Virginia Annual Transportation Conference

Thursday, November 8, 2007  
Roanoke, Virginia

Session: Economic Impacts– Prioritizing Investments and Leveraging the Public Private Transportation Act

Presentation: Case Study of the Washington Metropolitan Area Transit Authority.

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Northern Virginia Transportation Commission

# Outline of Presentation

1. Transit in the Washington Metropolitan Region
2. Studies of Economic Impact of WMATA and other Transit.
3. Costs and Benefits of Transit to Virginia
4. Private Sector Opportunities
5. Summary and Conclusions





# NVTC is...



- A regional agency with the mission of managing traffic congestion, restoring clean air, boosting the economy and improving the quality of life for all of Northern Virginia's citizens through effective public transit and ridesharing networks.

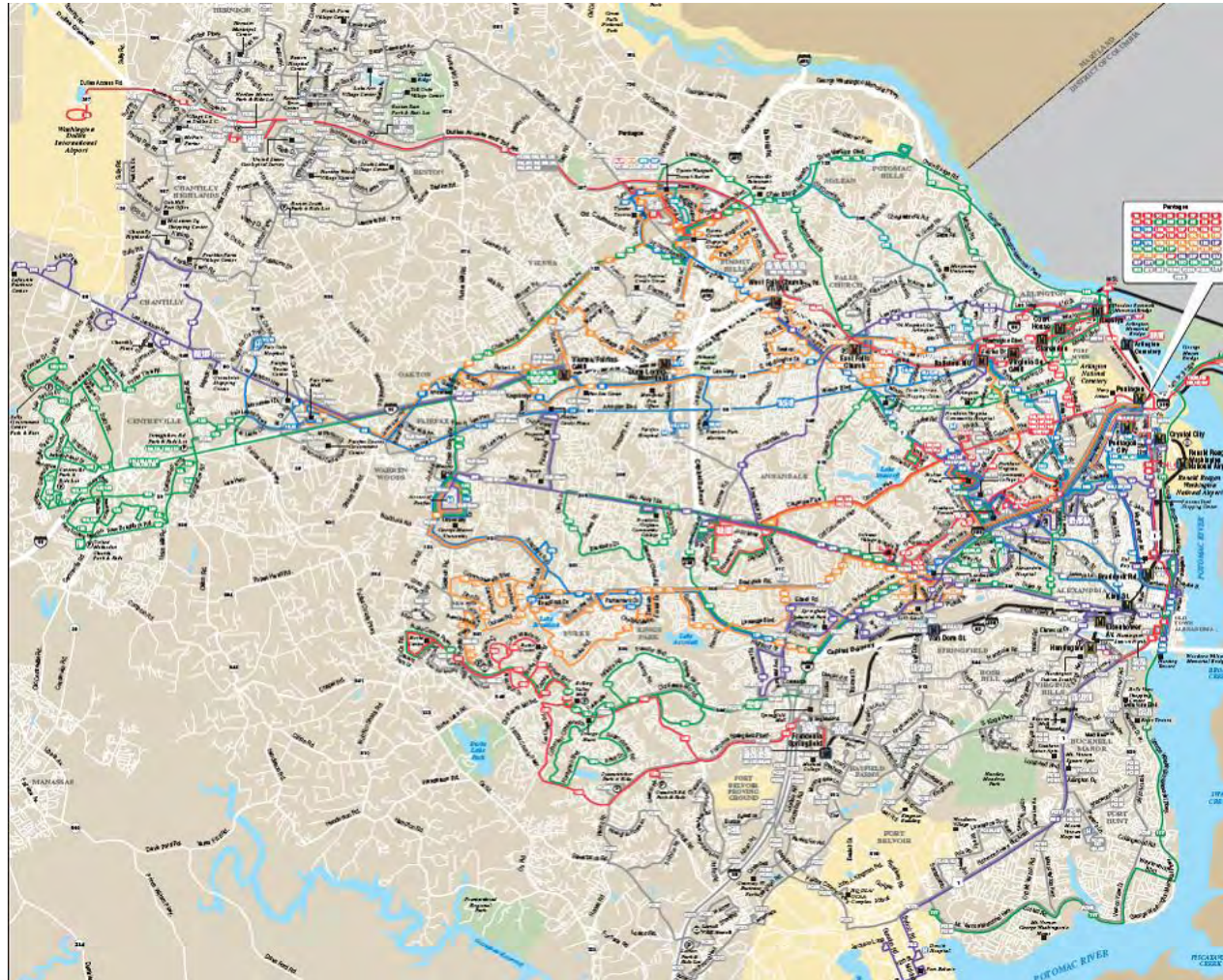
- NVTC includes the counties of Arlington, Fairfax and Loudoun and the cities of Alexandria, Fairfax and Falls Church covering over 1,000 square miles with a population of 1.6 million.

- The agency manages up to \$200 million of state and federal grant funds each year for public transit and serves as a forum for its board of 20 state and local elected officials to resolve issues involving public transit and ridesharing.
- For information about NVTC, please visit [www.thinkoutsidethecar.org](http://www.thinkoutsidethecar.org).





# Transit in the Washington Metropolitan Region



# Transit in the Washington Metropolitan Region





# Transit in Washington Metropolitan Region



## WMATA Budget and Performance

- Current average weekday total ridership is nearly 1.2 million trips (700,000 by Metrorail and 470,000 by Metrobus).
- Metrorail has the second largest ridership in the U.S. and carries 40% of rush hour trips to the core and 18% of all regional rush hour trips. Without WMATA, the region would have 580,000 more cars on the roads and would need 150,000 more parking spaces and 1,400 more highway lane miles.
- Annual operating budget of about \$1.2 billion and capital budget of about \$0.7 billion.
- As of FY 2008, MetroAccess now requires about \$63 million to operate, Metrorail \$638 million and Metrobus \$453 million.
- Metrorail recovers about 80% of operating costs from the farebox and Metrobus about 30%.
- 87% of Metrorail riders and 81% of Metrobus riders are satisfied with the service.
- 80% of Metrobus riders and 98% of Metrorail riders have one or more cars available. Thus, the great majority of riders do so by choice.

# Transit in Washington Metropolitan Region

## WMATA Governance

- Three “states” each with two votes on Metro’s Board of Directors.
- At least one vote needed from each of the three to approve an action.
- Parochial splits among the three and among inner (core) versus outer jurisdictions over location of facilities, extension of bus and rail, allocations of costs, placement of new railcars, quality of service and fare policy.
- Maryland’s and D.C.’s shares of subsidy are all “state” while in Virginia local governments pay most.
- Seeking increased federal partnership (up to \$150 million annually) and may require adding federal board members.



# Northern Virginia's Transit Systems



Potomac and Rappahannock  
Transportation Commission



More Places. More Often. More Columbia Pike.



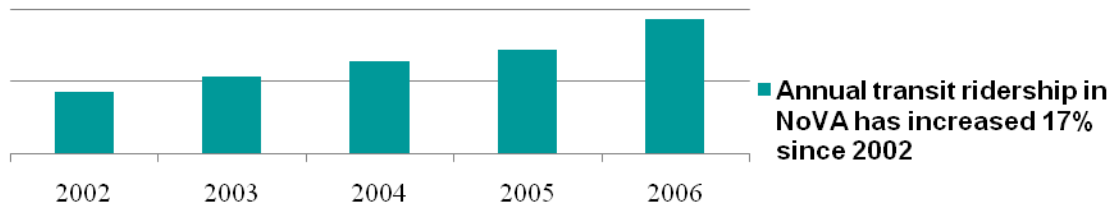




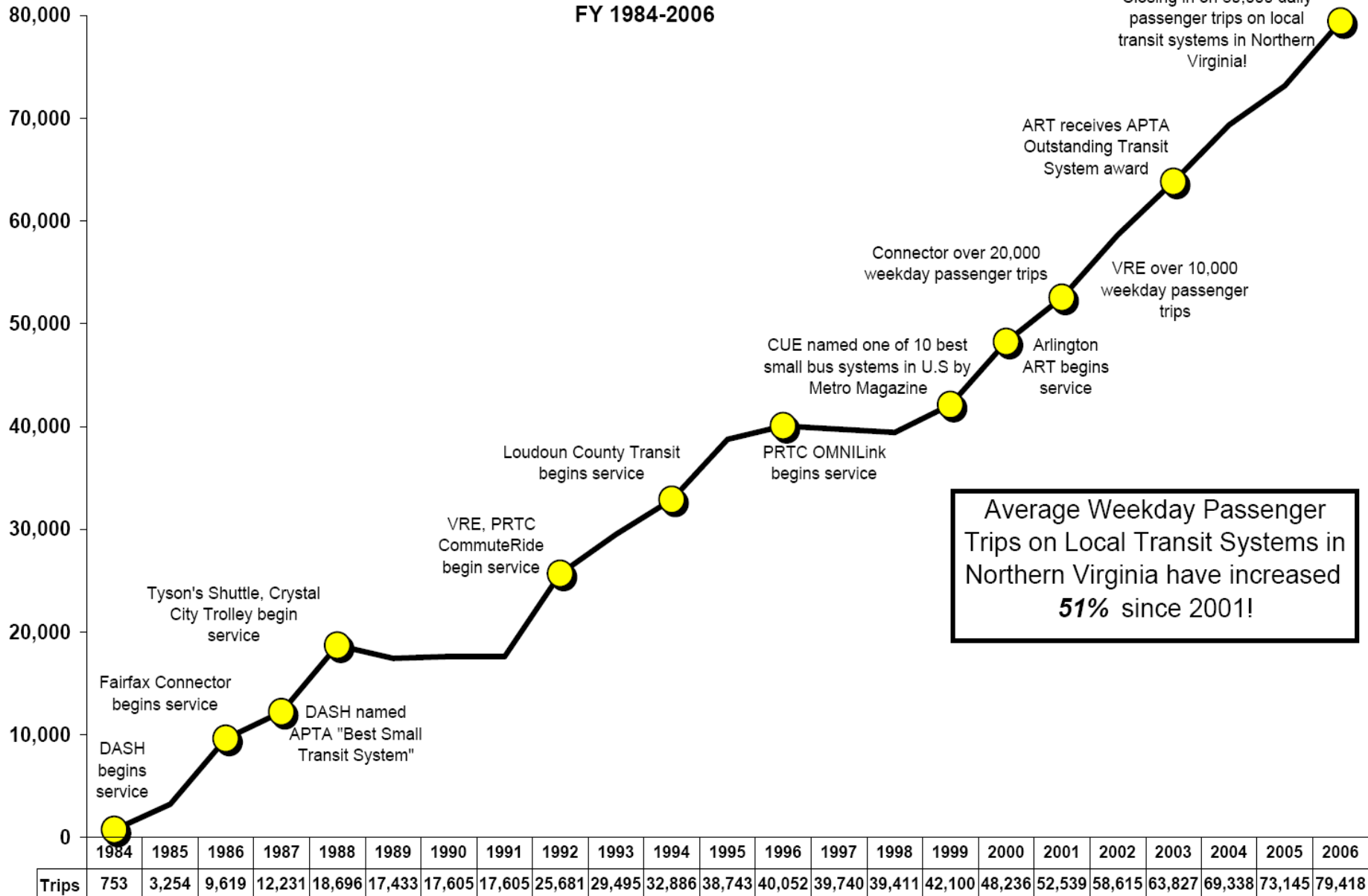
# Total Transit Ridership Growth Northern Virginia FY 2002-2006



Transit Provider	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006
	Passenger Trips	Passenger Trips	Passenger Trips	Passenger Trips	Passenger Trips
Metrorail (Northern Virginia)	80,008,842	83,529,741	87,817,948	89,624,272	94,642,466
Metrobus (Northern Virginia)	21,781,277	20,855,658	19,190,908	19,314,871	20,899,080
Fairfax Connector	6,831,313	7,595,138	7,990,825	8,474,143	9,529,056
Virginia Railway Express	2,735,025	3,179,957	3,645,434	3,745,382	3,640,000
Alexandria DASH Bus	2,736,719	2,986,631	3,131,284	3,323,021	3,556,486
PRTC OMNI Ride Bus	938,778	1,182,996	1,251,316	1,398,026	1,608,583
City of Fairfax CUE Bus	919,877	925,000	985,500	1,068,492	1,093,926
Arlington Transit	251,869	397,001	674,806	788,854	926,574
PRTC OMNI Link Bus	590,182	649,405	604,586	694,367	843,407
Loudon County Transit	212,102	281,829	392,901	513,766	602,333
<b>Total</b>	<b>117,005,984</b>	<b>121,583,356</b>	<b>125,685,507</b>	<b>128,945,194</b>	<b>137,341,911</b>



## Average Weekday Passenger Trips on Northern Virginia Transit Systems\*, FY 1984-2006



\* Northern Virginia Transit Systems for 2004 include DASH, Fairfax Connector, CUE, VRE, PRTC OmniRide and OmniLink, Loudoun County Transit, and Arlington Transit (ART). Previous years may include data from RIBS, Tyson's Shuttle, Crystal City Shuttle, and Loudoun County Commuter Service. WMATA MetroRail and MetroBus data not included. CUE began service in FY 81. Data does not include WMATA reimbursable services such as the GEORGE Bus, REX, Pike Ride, or TAGS



# Virginia Railway Express





# Economic Impact of WMATA



## NVTC Study in 1985:

- Calculate fiscal impact of Metrorail on the Commonwealth to educate the Virginia General Assembly about the need for more state funding. Preceded the successful special session in 1986.
- Performed by Peat Marwick Mitchell & Co. using conservative methodology (no multipliers).
- Interviewed private developers and found from 1972 to 1985:
  - New development with 14 million square feet of office space, 1.7 million of retail, 2,300 hotel rooms and 8,800 residential units.
  - 29,000 new office jobs, 3,000 in retailing and 2,000 in hotels.
  - 2,400 construction jobs average per year.
  - Results in \$284 million net return on state investments through sales taxes, individual and corporate income taxes and document recording fees.
- Internal rate of return of 13% from 1972-95.



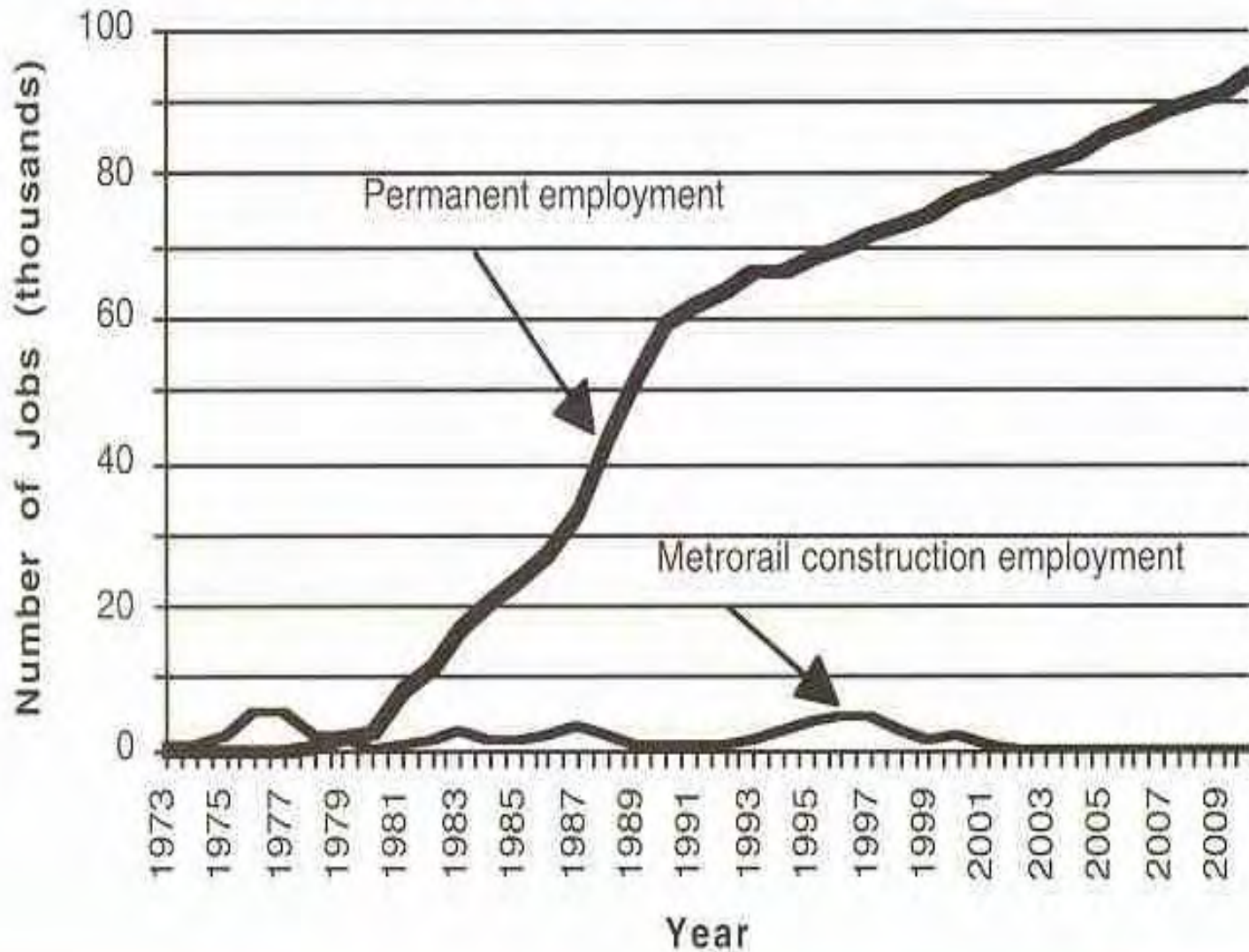
# Economic Impact of WMATA



## NVTC Study in 1994:

- Retained the same firm and methodology.
- Confirmed and expanded earlier predictions. By 2010, Metrorail will yield through expanded scale and quality of developments:
  - 25 million square feet of offices, 1.8 million retail, 4,000 hotel rooms and 31,000 additional residential units.
  - 86,000 new office jobs, 1,500 retail and 3,500 hotel.
  - Results in \$1.2 billion in excess revenues to the Commonwealth.
- Internal rate of return of 19.2% from 1995-2010.

# Metrorail Generated Jobs





# Economic Impact of Transit



- Resources for the Future published in 2006 a study of the current benefits and optimal provision of transit in the Washington D.C. area ([www.rff.org/documents/RFF-DP-06-21.pdf](http://www.rff.org/documents/RFF-DP-06-21.pdf)).
- If transit weren't available, a multinomial logit model showed greater time costs of driving and parking less savings in operating and capital costs of transit. These amount to net transit benefits of about \$6.00 per transit trip. This did not include externalities such as energy, air quality and safety.
- With 137 million annual trips in Northern Virginia alone (about 86 transit trips per capita), the annual net benefits are \$822 million. (Statewide per capita annual transit trips are 24 in Virginia.)
- The optimal level of transit service in the region is about 14% greater than at present.

# Cost and Benefits of Transit to Virginia

## Local Level of Effort

- It now costs over \$636 million dollars annually to operate, maintain and invest in public transit in Northern Virginia.
- Local sources (fares, 2% gas tax, local subsidies) provide two-thirds.
- For FY 2005, NVTC's jurisdictions had a local level of effort of \$208 per person. The next largest effort was in the Richmond District at \$20 per person.







# Cost and Benefits of Transit to Virginia

## Sources of Funding

Total NoVA Transit Budgeted Operating and Capital Expenses (Including WMATA and VRE, excluding Omni-Ride/Omni-Link) for FY 2008

• Local General Fund & Bonds	\$115 million	18.1 %
• Passenger Fares	\$220 million	34.6 %
• NoVA Gas Tax	\$37 million	5.8 %
• State Aid	\$149 million	23.4 %
• Federal Aid	<u>\$115 million</u>	<u>18.1 %</u>
 NVTC Total	 \$636 million	 100%



# Costs and Benefits of Transit to Virginia

## Energy

- Using factors from the American Public Transportation Association, fuel savings in Northern Virginia from public transit use are about \$819 per transit user per year or \$190 million for the region (assume 273 gallons per person per year times 232,000 persons with gas at \$3 per gallon).
- WMATA uses \$26 million annually of electricity for facilities plus \$45.6 million for propulsion. PEPCO is doing an audit and promises to save the equivalent of 2,173 vehicles taken off the road.



# Costs and Benefits of Transit to Virginia

## Air Quality

- APTA estimates that public transportation produces 95% less CO, 90% less VOC, and half as much CO<sub>2</sub> and NO<sub>x</sub> per passenger mile as private vehicles.
- Taking transit to work saves 22 pounds per day of the greenhouse gas CO<sub>2</sub> , or 4,800 pounds per year. Northern Virginia's 232,000 average daily riders save 5.1 million pounds per day (over 2550 tons).

*Be Part of the Solution*

**Reduce Ozone Pollution!**

Ride the bus FREE in Northern Virginia on forecast Code Orange and Red Bad Air Days.



[www.ridefreenova.org](http://www.ridefreenova.org)



# Costs and Benefits of Transit to Virginia



## Congestion

- The Washington region ranks among the top three in congestion costs reported each year by the Texas Transportation Institute.
- As of 2005, annual congestion costs are \$2.3 billion (time and fuel wasted). Without previous investments in public transit, the total would be a half billion dollars greater.
- Current annual congestion costs are over \$1,000 per commuter per year with an average of 60 hours spent in congestion.
- Congestion is like a tax paid to oil companies and oil producing nations. NVRTA found in a survey for its TransAction 2030 plan that most residents would pay at least a dollar a day to improve public transit and reduce congestion.
- That is roughly equivalent to a 1.8% sales tax on \$20,000 of purchases per year, or a gas tax of over 90 cents per gallon (10,000 miles driven per year at 25 miles per gallon).
- A recent Washington Post poll found 92% of Northern Virginians believe traffic congestion is a problem (and 72% a serious problem). Statewide the proportions are 63% and 39% respectively.



# Costs and Benefits of Transit to Virginia

## Economic Activity and Access to Jobs:

- With just over 25% of Virginia's population almost 75% of statewide transit ridership occurs in Northern Virginia.
- From 2000 to 2005, the Washington Metropolitan area has generated more net new jobs (359,000) than any other U.S. metropolitan region, with Northern Virginia supplying 60% of this growth.
- BY 2030, jobs will grow by 39% from 2005 to 5.3 million, while households will grow 35% to 3.2 million. Without better transit, people will need to move further out (sprawl) and drive further to work (congestion).
- About 30% of the Commonwealth's jobs are in Northern Virginia and they produce about 36% of statewide sales tax revenues and 45% of statewide income tax.
- APTA estimates every \$10 million invested in transit capital yields \$30 million in increased business sales and every \$10 million invested in transit operations yields \$32 million.
- Metro and its local transit partners move Virginia's economy.



# Costs and Benefits of Transit to Virginia

## Safety and Security

- On September 11, 2001, Metrorail kept operating and helped the region's commuters arrive home safely. Current evacuation plans depend heavily on transit.
- Accident and fatality rates for public transit are far superior to private automobiles, as reported by the National Safety Council. Average deaths per 100 million passenger miles are 0.77 for automobiles and 0.03 for urban transit (rail and bus).
- Traffic accidents are a function of density (cars per mile of road). Drivers pay directly for insurance but not for the risks they impose on other drivers by contributing to the density of traffic. Internalizing this cost might cost \$220 billion per year, nationwide (see [http://works.bepress.com/aaron\\_edlin/21/](http://works.bepress.com/aaron_edlin/21/) for the 2006 article in the Journal of Political Economy).

# ***IF YOU DRIVE EVERY DAY, YOU DEPEND ON TRANSIT!***



**You may not realize it...but if you drive your car every day, you depend on public transit. Every trip taken on public transit is a trip NOT taken on a public road, which means less traffic and fewer delays. Traffic is bad now, but without the demand-reduction created by transit ridership, the road network in Northern Virginia would be at a total standstill. An increased investment in public transit will lead to road conditions more like the lanes on the right, rather than the all too familiar sight of the lanes on the left.**

***In Northern Virginia, we all depend on public transportation.***



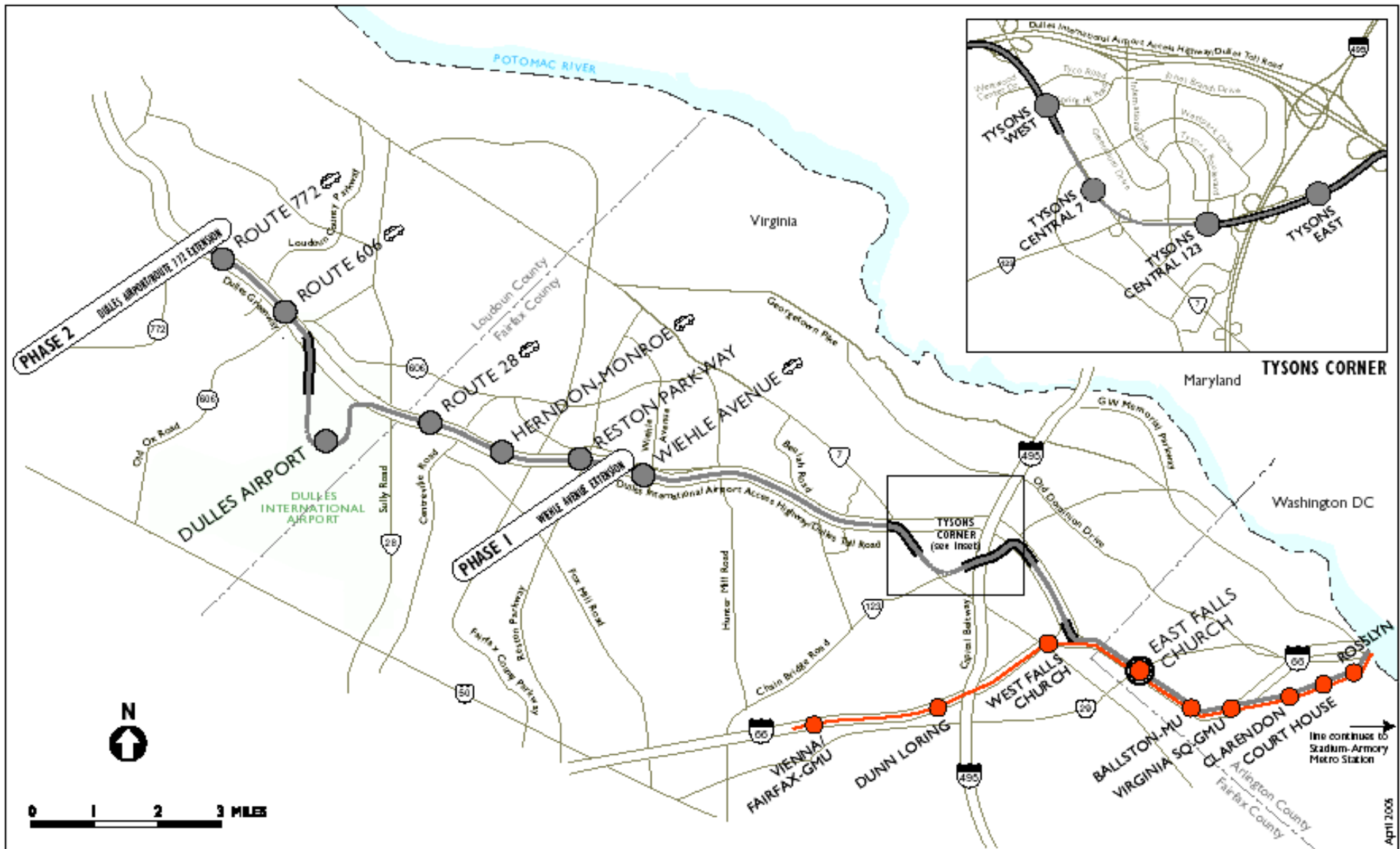
# Private Sector Opportunities



## Dulles Corridor (see [www.dullesmetro.com](http://www.dullesmetro.com))

- The airport opened in 1962 with a “super rail” proposal .
- In the succeeding decades, many monorail, express bus, light rail, BRT and heavy rail proposals, many sponsored by the private sector.
- Currently, the Metropolitan Washington Airports Authority and the Commonwealth of Virginia have signed a 50-year transfer agreement for MWAA to operate, maintain and improve the Dulles Toll Road, manage construction of the Metrorail extension and finance all debt service.
- Unique local and intergovernmental funding agreements are in place with Fairfax and Loudoun counties, WMATA and the private project partners. Total Phase 1 and 2 costs over \$5 billion. Waiting for federal approval (will provide \$900 million).
- Phase I operations estimated to begin in mid-2013 and Phase 2 in 2015, subject to federal funding and approvals.
- Controversies include use of Dulles tolls, private sector involvement, tunnel vs. above ground, extent of special taxation districts, Metro jurisdictions’ concerns over economic advantages and subsidy allocation.





**LEGEND**

- Existing Orange Line Track and Station
- Transfer Station
- New Station
- New Underground Station
- Parking
- Surface Track
- Elevated Track
- Underground Track



For more information  
[www.dullesmetro.com](http://www.dullesmetro.com)  
 703.288.7000



# Private Sector Opportunities



## HOT Lanes

- US DOT has provided \$848 million this year to several urban areas throughout the U.S. to implement variable pricing (road prices vary with levels of congestion and tolls are charged to enter restricted zones). Other demonstrations feature user fees based on vehicle miles traveled versus gallons of fuel purchased.
- Northern Virginia has two active variable pricing opportunities, both featuring PPTA proposals from Fluor-Transurban. (see [www.virginiahotlanes.com](http://www.virginiahotlanes.com)). HOV and transit would be free.
- The Capital Beltway project is further along, with construction of four new lanes of 14 miles (added to eight existing lanes) likely to begin in 2008.
- The I-95/395 56-mile project is proving to be more controversial, as it would use the existing successful HOV lanes. An ongoing DRPT study in cooperation with the Northern Virginia jurisdictions is examining how transit services could be improved using the “excess” toll revenues.



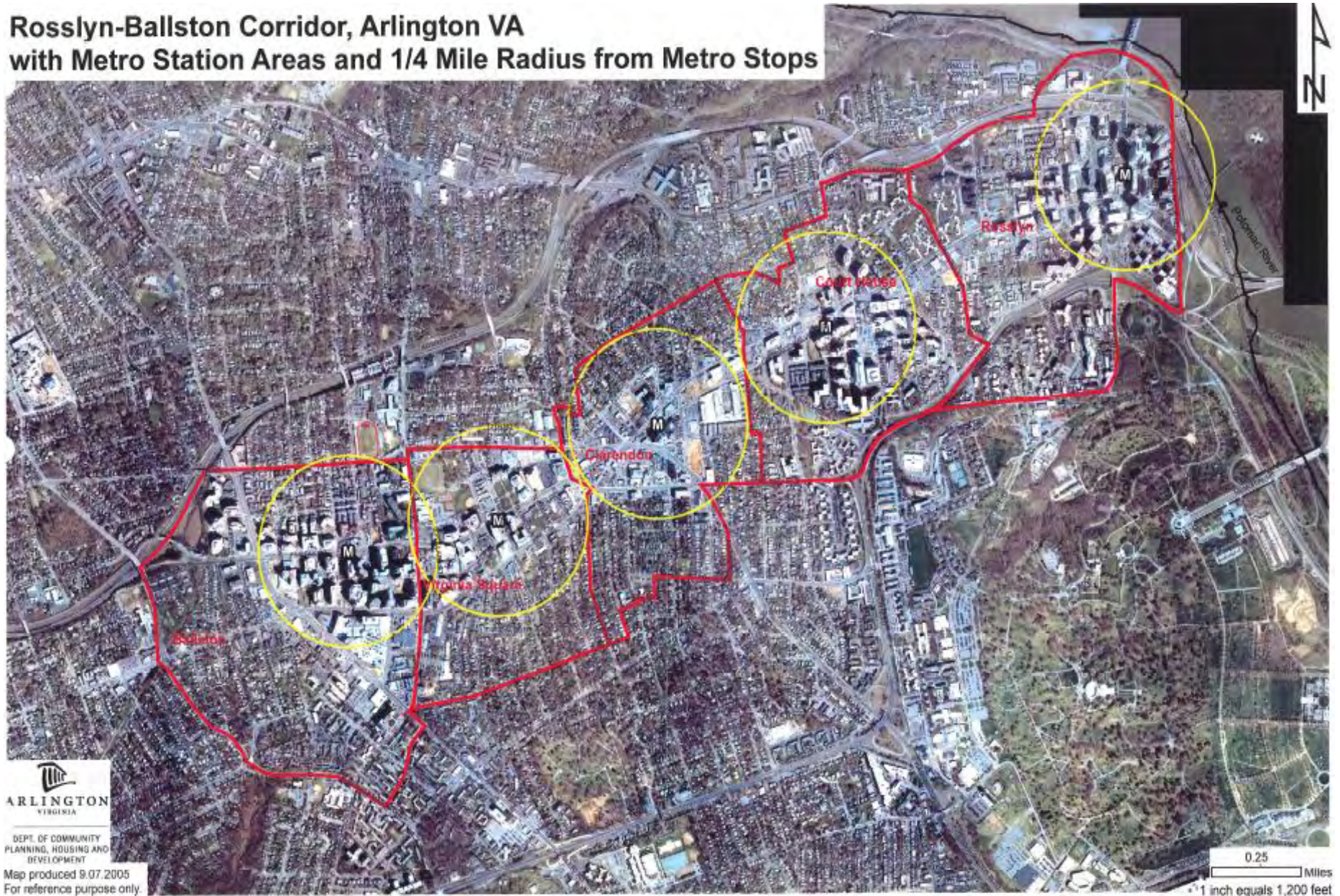
# Private Sector Opportunities



## Transit Oriented Development

- The value of development at or within a quarter mile of Metrorail stations is \$25 billion.
- In Arlington, 30% of property tax revenue is generated by the eight percent of mixed use development on the land area (two square miles) concentrated near the Metrorail Orange Line in the Rosslyn-Ballston Corridor.
- In that corridor, land values grew 84% from 2002 through 2006 to \$4 billion.
- In both Metrorail corridors in Arlington and considering all sources of local taxes, 51% of tax revenue is generated.

# Rosslyn-Ballston Corridor, Arlington VA with Metro Station Areas and 1/4 Mile Radius from Metro Stops



  
**ARLINGTON**  
VIRGINIA  
DEPT. OF COMMUNITY  
PLANNING, HOUSING AND  
DEVELOPMENT  
Map produced 9.07.2005  
For reference purpose only.

0.25 Miles  
1 inch equals 1,200 feet



# Summary and Conclusions



- WMATA represents the greatest triumph of foresight and intergovernmental cooperation in the history of the region.
- Its investment continues to pay off in jobs created, tax revenues, mobility, congestion relief, quality of life, energy savings, air quality, safety and security and in many other ways.
- Private sector involvement has played a key role in terms of advocacy, contract operations, design, construction and finance.
- Because the region has fallen so far behind in coping with its transportation crisis, the private sector will have a greater future role through PPTA proposals (design, finance, build, operate, maintain) using variable pricing and tax-increment financing.
- Metro is too important to allow to fail. Dedicated funding and greater regional cooperation are needed.

# What would you do without METRO?



These people found out the hard way.



## More Information



- For more transit performance facts and links to each public transit system, visit NVTC's website at:

[www.thinkoutsidethecar.org](http://www.thinkoutsidethecar.org)

- Questions?

