Addressing The Transportation Crisis on a Budget

Why a Regional Rapid Bus Network Serving Greater Northern Virginia Makes Sense Now

(Revised Version – October 8, 2008)

Presented to the Joint Subcommittee to Study Regional Rapid Transit Networks (October 1, 2008)

Rapid Transit Action Committee

Breakthrough Technologies Institute

SJR 122: Why Are We Here?

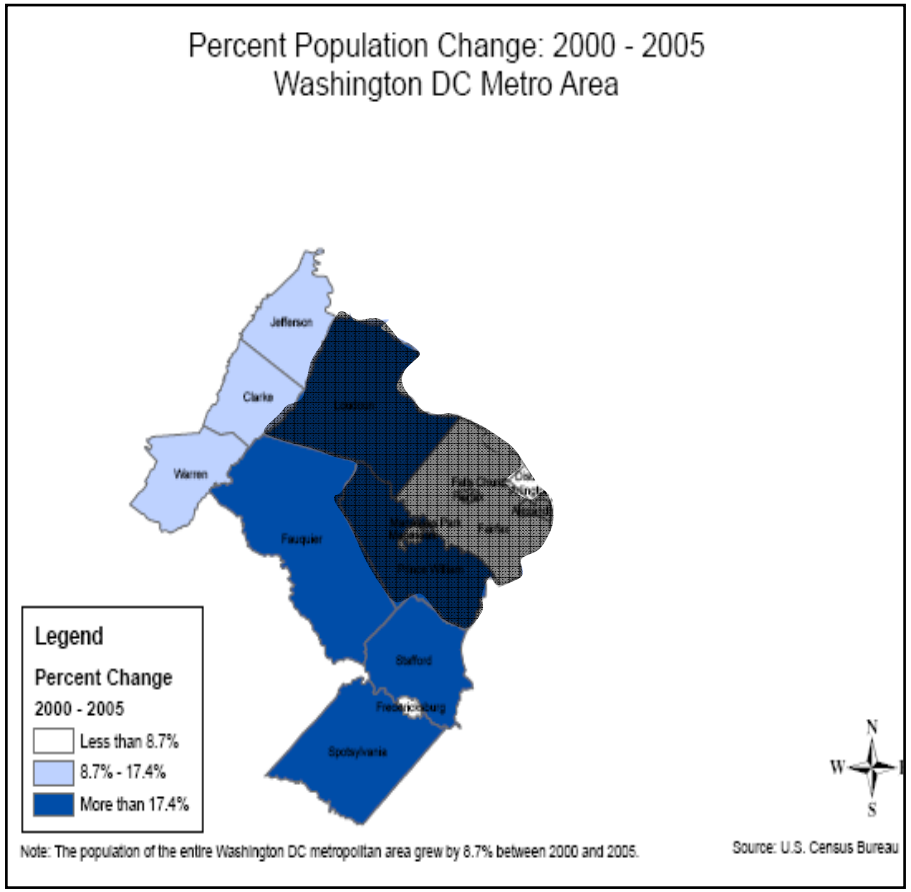
- Transportation and revenue crisis
  - Congestion is increasing
  - Gas prices have exacerbated the economic crisis, impacting household budgets
  - State funding inadequate to solve current problems
    - HMOF and other funds declining
    - Statewide unfunded transportation needs at least $108 billion (2005 – 2025)
      - Source: VTRANS 2025

- Part of the Solution: Bus Rapid Transit

How Did We Get Here – The Urban Dynamic

- Historical perspective on Northern Virginia's growth
  - Job and population centers constantly moving further apart
  - Sprawl creates longer commutes, causing congestion, expensive infrastructure needs
  - State transportation model established in 1930's
- Recent changes (energy, economy, state funding issues, etc.) require reexamination of model

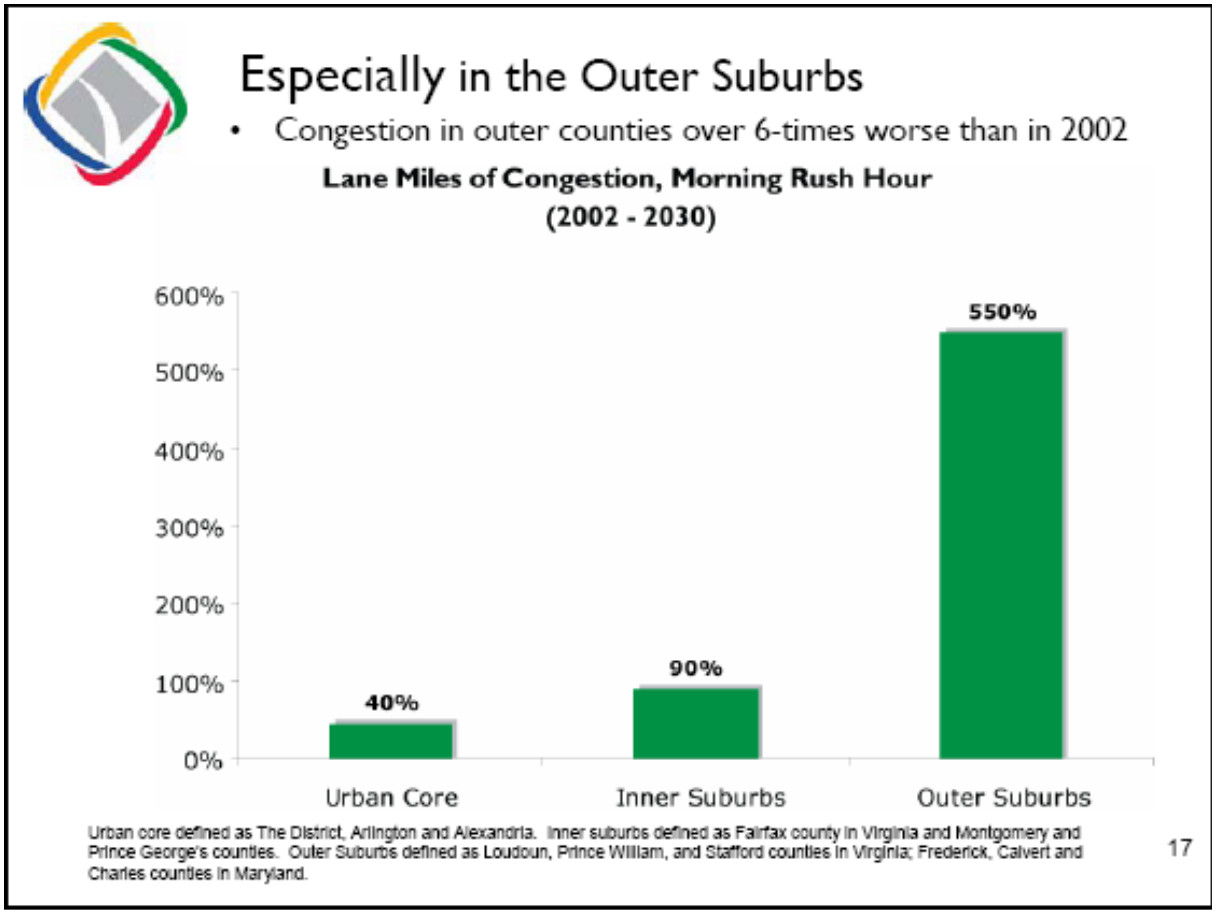
Regional growth outstrips our planning parameters



Source: GMU, Center for Regional Analysis

- Fastest growth always at next ring out
- Counties outside NVTA planning area among fastest growing in the nation
  - Spotsylvania (28.9%)
  - Stafford (27.5%)
  - Culpeper (24.1%)
  - King George (22.8%)
  - Berkeley, WV (23%)
- What happens when we fail to plan for the fast-growing edge cities?

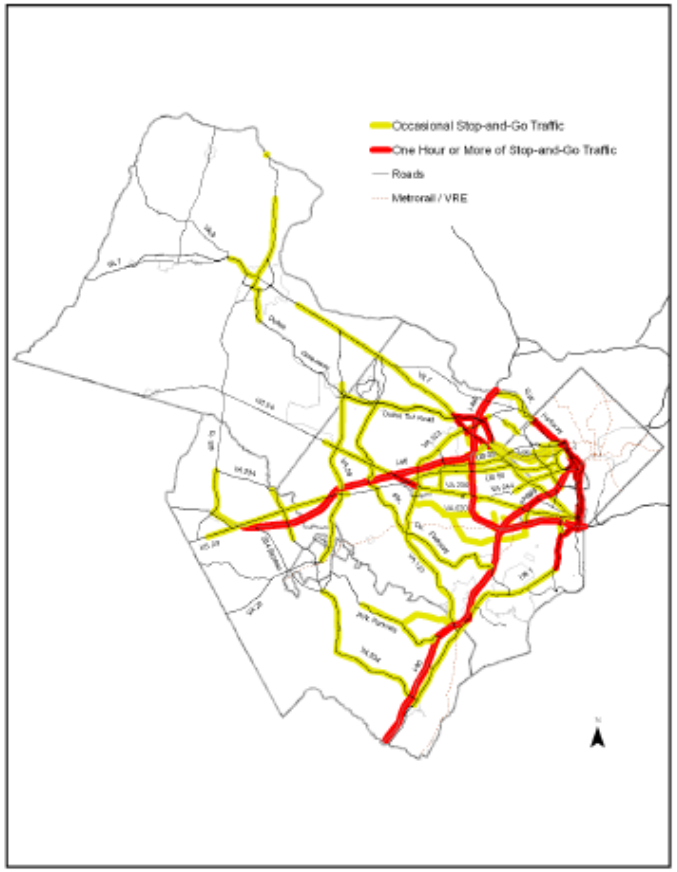
The Greatest Percentage Increase in Congestion is in Outer Suburbs



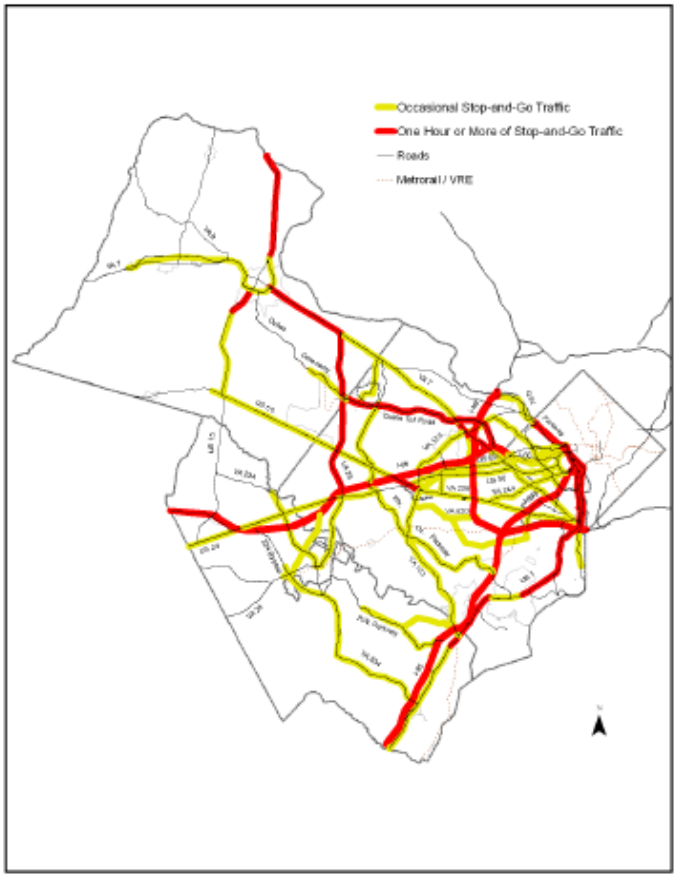
Source: Metropolitan Washington Council of Governments

Current Plans Don't Solve the Problem

2005 Highway System Performance

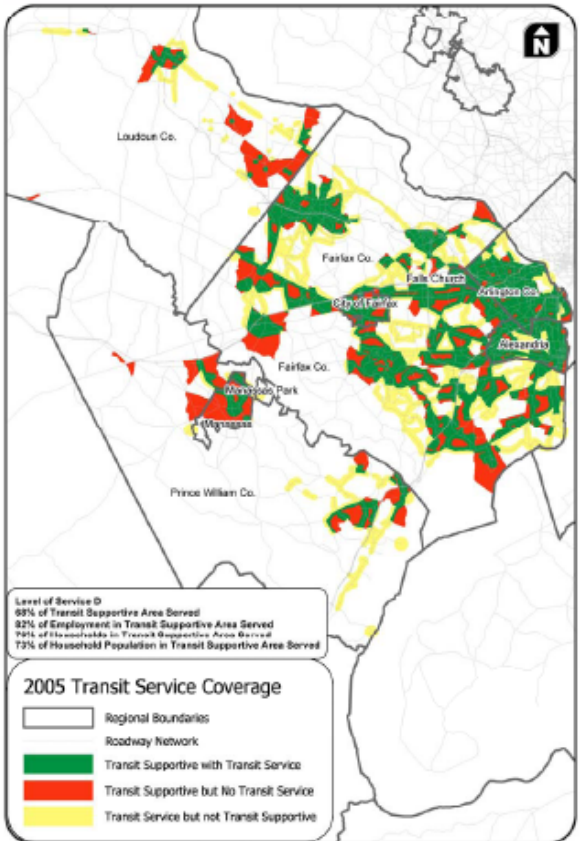


2030 CLRP Highway System Performance

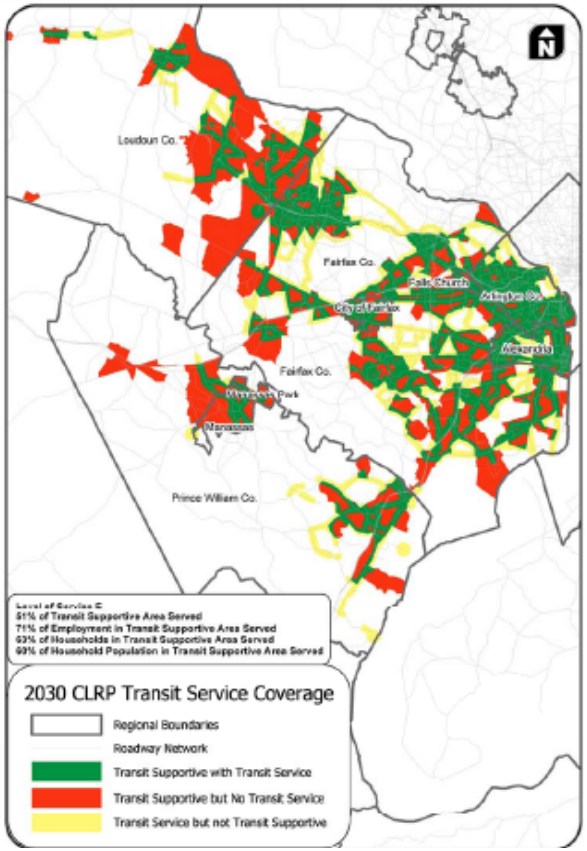


BUT: Current Plan Shows Transit Opportunities

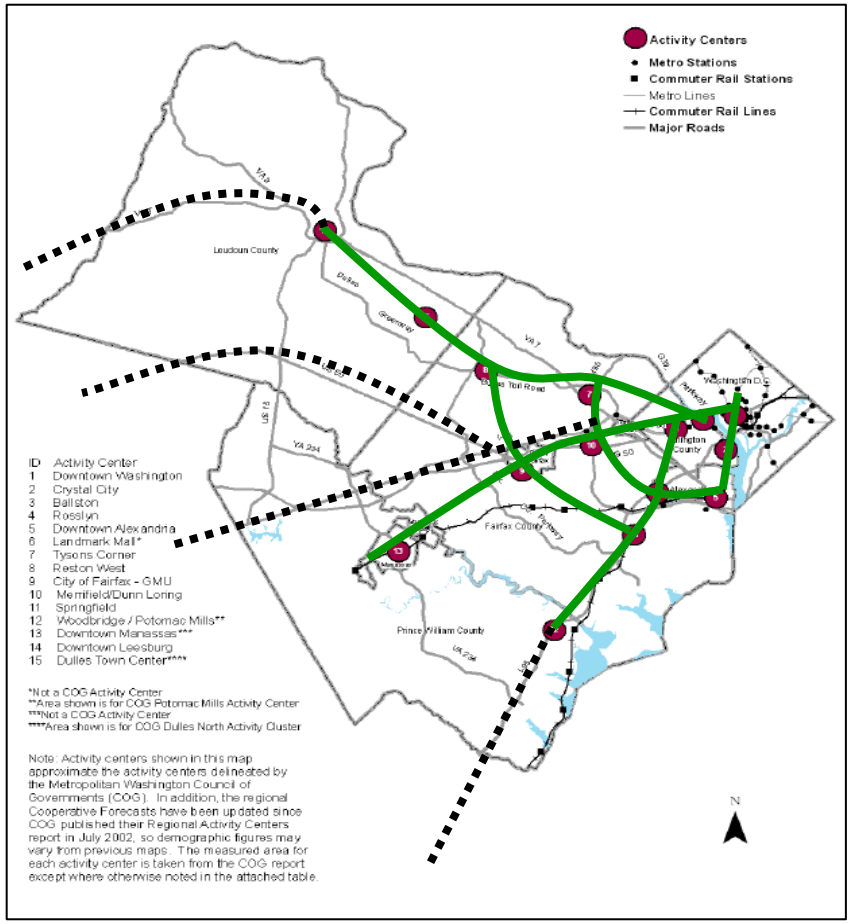
2005 Transit Service LOS



2030 CLRP Transit Service LOS



How to Capture These Opportunities



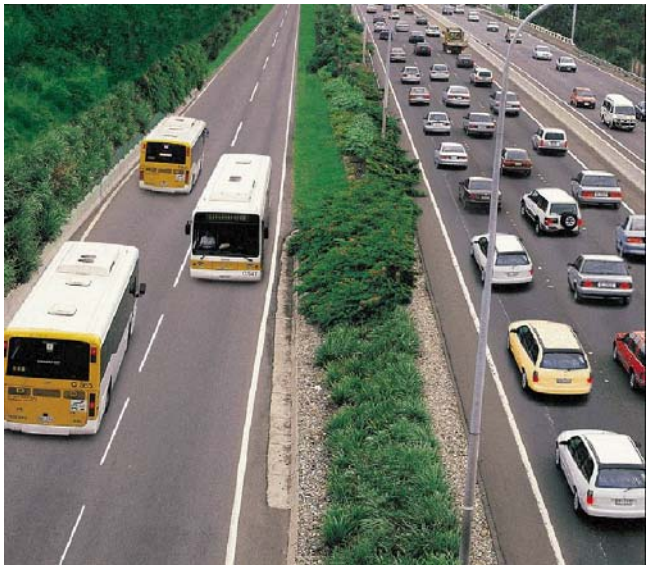
- TransAction 2030: 15 major activity centers in NoVA
  - many more are growing beyond this plan's boundaries
- Connecting activity centers with rapid transit provides:
  - cost-effective, efficient transportation option
  - new opportunities for economic growth at transit stations
- Expand to fast growing outer communities

What is Bus Rapid Transit?

- A premium public transport system that:
  - Improves travel times
  - Improves the customer experience
  - Creates a premium image for public transport
  - Promotes transit-oriented development around stations

BRT Features

- Traffic avoidance
  - Dedicated lanes
  - Traffic signal priority
  - Queue jump lanes
- Better service
  - Higher frequencies
  - Level, multiple door boarding
- New technologies
  - Wi-fi and TV on bus
  - Real-time passenger information systems
    - In stations
    - Via internet
    - Cell phone alerts
  - Real-time vehicle tracking and control
  - Hybrid buses



Two General Types of BRT

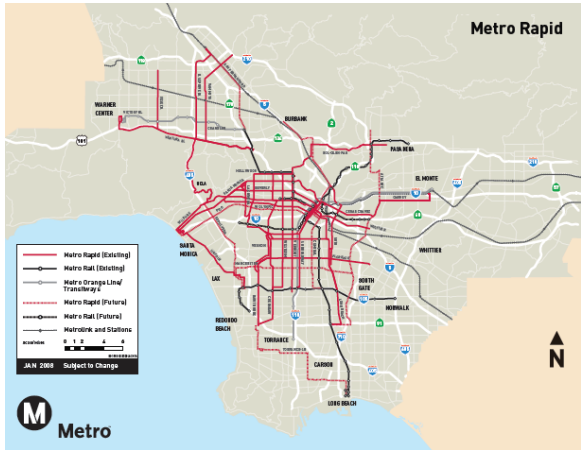
- BRT “Lite” or “Rapid Bus”
  - Low cost, selected improvements to existing bus systems
    - Improved buses
    - Better shelters
    - Traffic signal priority, etc.
- BRT “Heavy” or “Full” BRT
  - Full rapid transit system
    - Dedicated lanes
    - Rail-like stations and amenities
    - Capacity and service comparable to, and in some cases better than, rail transit

What Does BRT Look Like? "Quick Start" – "BRT-Lite"

- Foothill Transit "Silver Streak"
  - 60 foot articulated bus
  - 12 – 15 minute frequency
  - Free on-board wi-fi
  - Boarding through all three doors
  - Route has limited stops and operates mainly on HOV
  - Designed as upgrade to existing, popular local bus route
    - Reduces travel time by 30 minutes compared with previous bus route

What Does BRT Look Like? "Quick Start" – "BRT-Lite"

- Los Angeles Metro Rapid
  - 450 mile, 26 corridor network completed in 8 years
  - Key attributes
    - Simple route layout
    - Frequent service: 3-10 minutes
    - Level boarding
    - Traffic signal priority
    - Color-coded buses and stations
    - Enhanced stations include lighting, canopies and "Next Bus" displays



What Does BRT Look Like? "Quick Start" – "BRT-Lite"

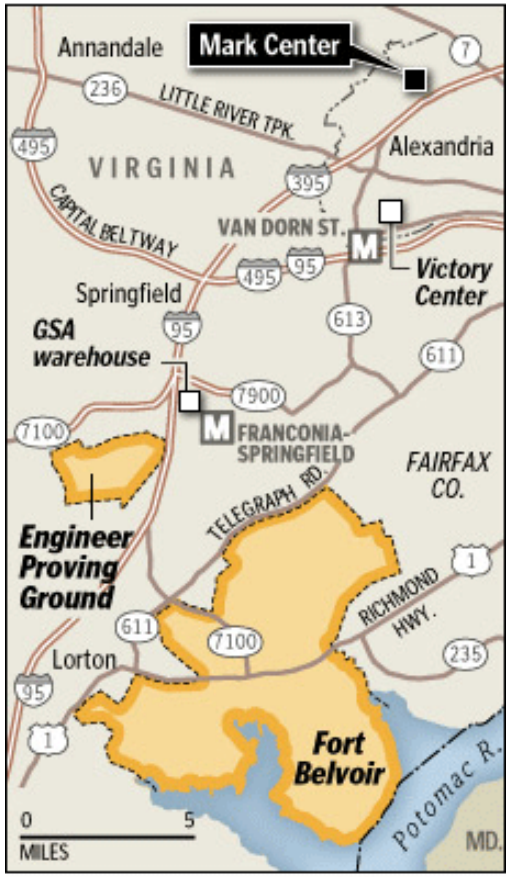
- Kansas City, MAX
  - Enhanced shelters
  - GPS-based "next bus" displays in stations
  - Peak hour bus only lanes
  - Higher frequencies

What Does BRT Look Like? "Quick Start" – "BRT-Lite"

- Las Vegas MAX
  - 8 miles (downtown to Nellis AFB)
  - Enhanced stations
  - Traffic signal priority
  - Level boarding

Why Do We Need Quick Start?

- For example:
  - Just announced: 6,400 Army jobs slated for Ft Belvoir moved to Mark Center
  - Major congestion impact
  - Significant improvements in bus transit required to mitigate this impact
    - The Commonwealth and Alexandria already considering such improvements



By Laris Karklis — The Washington Post

Source: Washington Post, 9/30/2008; 10/01/2008

What Does BRT Look Like? "Full BRT" – "BRT Heavy"

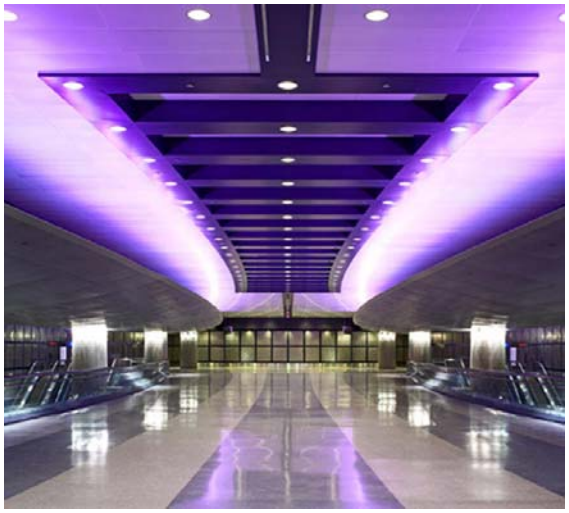
- Brisbane busways
  - Fully dedicated BRT network
  - Vehicles
    - Operate only on the busway (like a train), or
    - Leave the busway to circulate in neighborhoods (thus getting passengers closer to their destinations without a transfer).
  - Includes
    - a BRT subway beneath downtown
    - A solar-powered "green bridge" (bus, bicycle, pedestrian only)
    - Substantial transit-oriented development at stations

What Does BRT Look Like? "Full BRT" – "BRT Heavy"

- Results:
  - Off-busway operations eliminated many transfers and created more one-seat rides
  - Carrying more than 10,000 passengers per hopur in the peak direction
  - 120 percent ridership increase in the 1st 4 years
  - 26% of riders previously drove cars
  - Travel time reduced from 60 minutes by car to 18 minutes (Eight Mile Plains to CBD)

What Does BRT Look Like? "Full BRT" – "BRT Heavy"

- Boston Silver Line
  - Connects downtown with Logan Airport
    - Rated best transit – airport connection in the nation
  - Includes BRT subway and two underground stations
  - Substantial TOD in the waterfront district

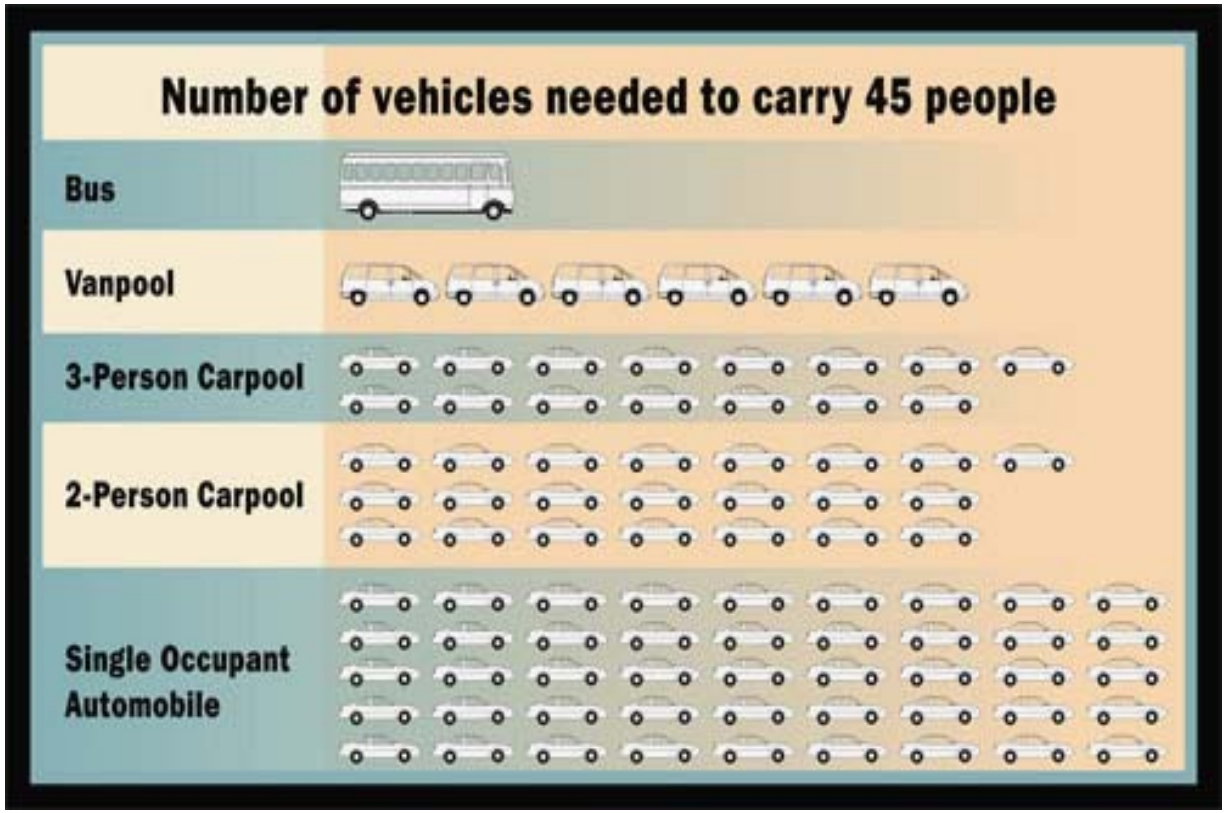


What Does BRT Look Like? "Full BRT" – "BRT Heavy"

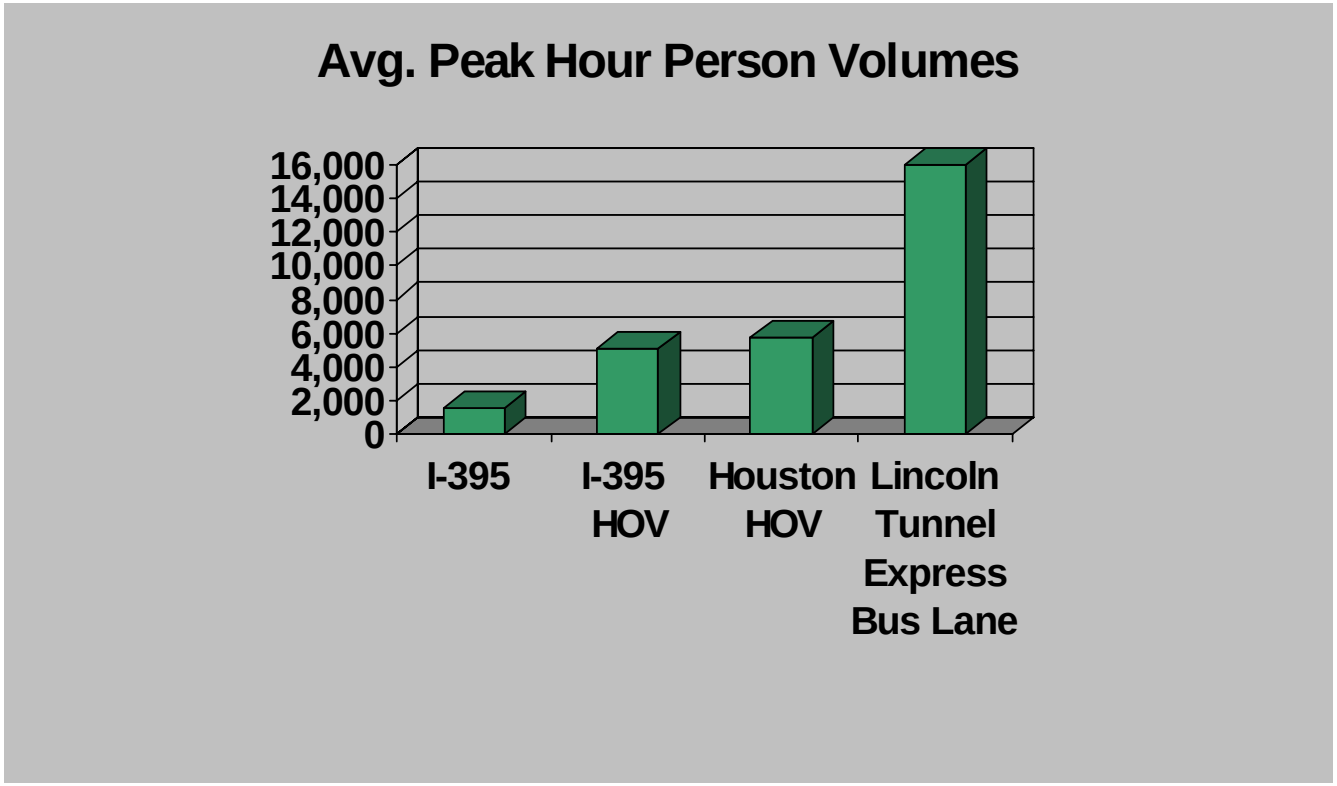
- Los Angeles Orange Line
  - 14 miles, fully dedicated BRT
  - 13 stations
- 22,000 weekday boardings forecast for 2020, but achieved within the first 7 months of opening
- 18 percent of riders previously drove cars, mostly on an adjacent freeway

Why It Works: Taking Cars off the Road

- 1 Bus carries more people than, or equivalent of:
  - 6 van pools
  - 15 HOV3's
  - 22 HOV2's
  - 45 SOV's



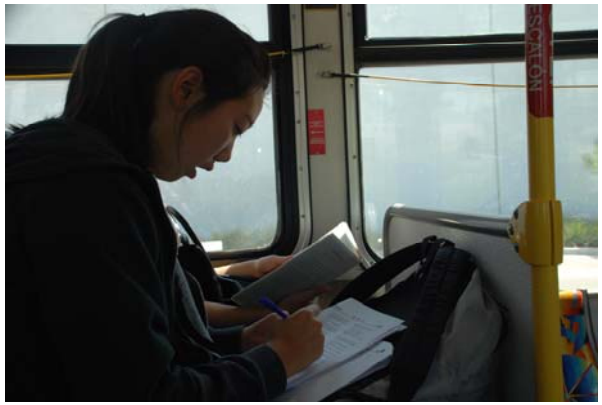
Why It Works:
More Efficient Use of Existing Lanes



Sources: Northern Virginia Transportation Commission; US Department of Transportation; Port Authority of New York and New Jersey

Why It Works: People Save Money and Time

- Potential savings $1,500 to 5,000 or more per year
  - 52 mile daily commute to and from Dale City / Pentagon
    - SOV
      - costs $30 in car usage (IRS rate), plus parking
      - Takes 2 hours in traffic
    - OmniRide
      - $9.00 fare round trip
      - 35 min. each way
      - Annual savings: $5040, not including parking
- The longer the commute, the greater the potential savings



Why It Works: People Like It

Service (DC Metro Region)	Average Ridership Growth (1996 – 2006)
Commuter bus	+10% annually
Local circulator / feeder bus	+7% annually
Metrorail	+4% annually

- Specific examples:
  - OmniRide, LC Transit, MTA ridership collectively up 165% (1996-2006)
  - OmniLink ridership up 440% (1996-2006)
  - Arlington Art up 790% (1996-2006)

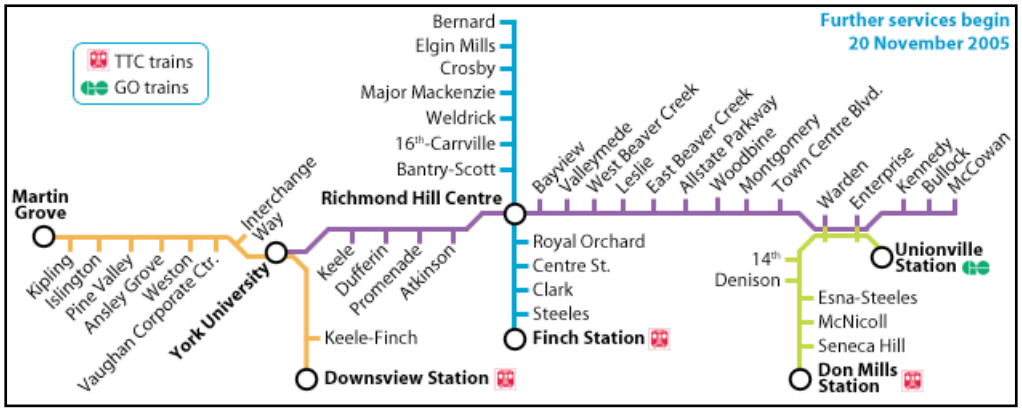
Source: Transportation Planning Board, Regional Bus Committee (2008)

Why It Works: Quick and Inexpensive

- Capital costs and infrastructure requirements: relatively low
  - Quick, cost-effective implementation
  - Can use existing infrastructure
  - Scalable over time
- Examples
  - Los Angeles Metro Rapid
    - Initial capital cost (first two corridors): $200,000 per mile (excluding buses)
  - Kansas City MAX
    - $21 million total vs. estimated $300 - $700 million for light rail on the same route
  - Los Angeles Orange Line
    - $25 million/mile

Why It Works: Quick and Inexpensive

- Suburban Toronto's VIVA BRT
  - Opened 2005
  - 56 miles, 4 corridors
  - Frequency of 15 minutes or less at all times
- Results
  - 30% increase in transit trips
  - 7,000 car trips off the road per day
- Costs
  - Phase 1: $142 million (2005 dollars)
    - $2.5 million/per mile
    - Includes infrastructure, buses, project management, etc.



Why It Works:

Balanced Growth / Revitalization Through TOD

- Downtown Markham (Suburban Toronto's Viva)
  - 243-acre, $3+ billion master-planned community
  - BRT/pedestrian-only street serves as centerpiece
  - Currently under construction
    - 175 townhouses
    - 4,000 condominiums
    - 455,000 square feet of commercial
    - 460,000 square feet of retail
    - 3,697,000 square feet business park, including Canada's first LEED Gold certified building
    - 27.5 acres of parks
    - 44.6 acres of open spaces

BRT/Pedestrian-only street

Source: The Remington Group

Downtown Markham

Transforming an Auto-oriented Suburb

To this!

Pedestrian Friendly and Carefree Promenade. The word conjures images of a leisurely, Sunday stroll. **Simcoe Promenade** takes its cue from the famous North American and European promenades where you can walk to a popular bistro, pass the time at your local coffee bar or read the Sunday Times in the comfort of your favourite bookstore.

From this……

Why It Works:

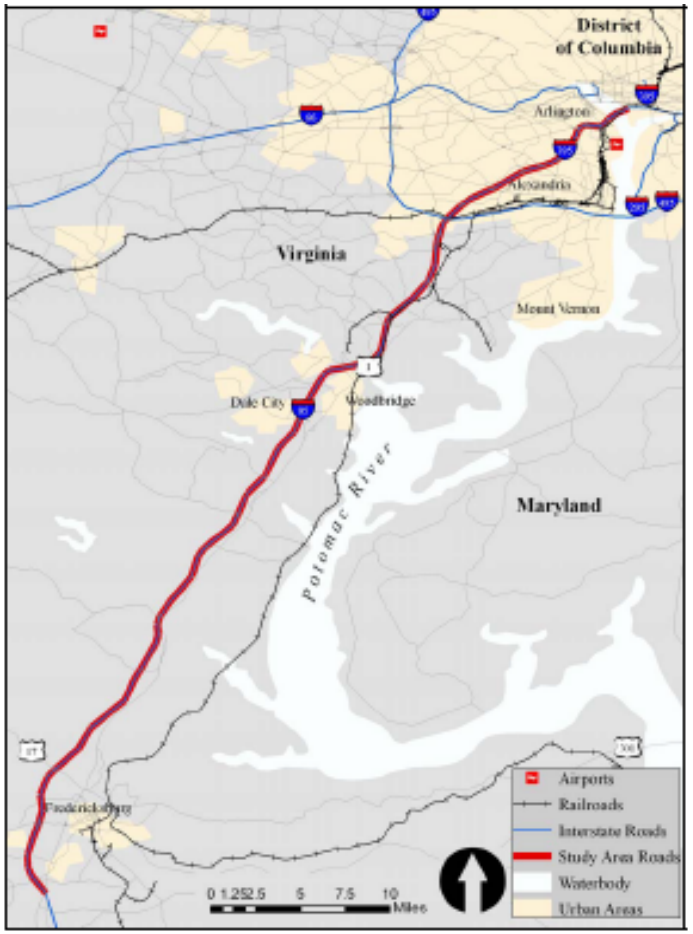
Urban Revitalization Through TOD

- Cleveland's Euclid Corridor BRT
  - More than $4.3 billion in projects planned or occurred around BRT stations

Source: "Euclid Corridor Project Driving Over $4.3 Billion in Cleveland Development," Cleveland Plain Dealer, February 10, 2008

Why It Works:
Fits in With Current Projects

- I-95/395 Transit/TDM study (Feb. ’08)
  - 56 mile-long corridor
  - More than a dozen new and enhanced bus services in the study area
  - Infrastructure improvements
    - BRT stations
    - Park and ride lots
- Application to other corridors
  - I-66
  - I-495
  - Route 1
  - Route 50
  - Route 28
- Urgent case: Ft. Belvoir



Possible Next Steps – Near Term

- **To address the crisis:**
  - Develop short-term, high impact projects
    - Allocate resources to projects that maximize moving people cost-effectively
      - E.g., more bus service in HOV lanes and major arterials, establish peak hour bus priority, shoulder bus lanes, etc.
    - Build upon existing DRPT BRT/TDM projects
      - Evaluate providing BRT-type service to BRAC-impacted areas
  - Use quick delivery, cost-effective transit options, like BRT, as economic recovery tool
    - Help families
    - Stimulate economy
    - Help businesses access labor / customers

Possible Next Steps – Longer Term

- **Get ahead of the growth curve**
  - Recognize and redefine the expanded Northern Virginia
  - Establish a regional rapid transit network to connect existing and emerging activity centers within this region
    - Start with network of high priority corridors (e.g., potential for strong future demand based upon anticipated growth and land use policies)
    - Facilitate greater coordination among transit planners and providers throughout Greater Northern Virginia
  - Improve linkage between land use plans and transport capacity
    - Create an integrated transport and land use plan for Greater Northern Virginia
    - Set criteria, guidelines, and incentives to encourage local governments and other stakeholders to comply with the plan

Conclusion: We Need a New Paradigm

- It is time to re-think transportation and land use in the Commonwealth
- We need to consider new mechanisms that establish clear goals, strategies, and priorities
  - Recognize realistic resource and time constraints
  - Set priorities to make most cost-effective use of those resource
  - Maximize efficient movement of people and goods, not just vehicles (e.g., evaluate redefining level of service in terms of moving people)
  - Evaluate ways to correct mismatch between land use planning and transportation capacity

Thank You!

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Bill Vincent 202 785-4222 x 30

More information about BRT:

www.gobrt.org

Federal Transit Administration:
http://www.fta.dot.gov/assistance/technology/research_4240.html

National Bus Rapid Transit Institute: www.nbrti.org