



ENVISION
ROUTE 7

Northern Virginia Transportation Authority

Project Status Phase II Milestone 1

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Northern Virginia Transportation Commission

Study Work Program and Schedule

The Road Ahead

INFORM AND ENGAGE



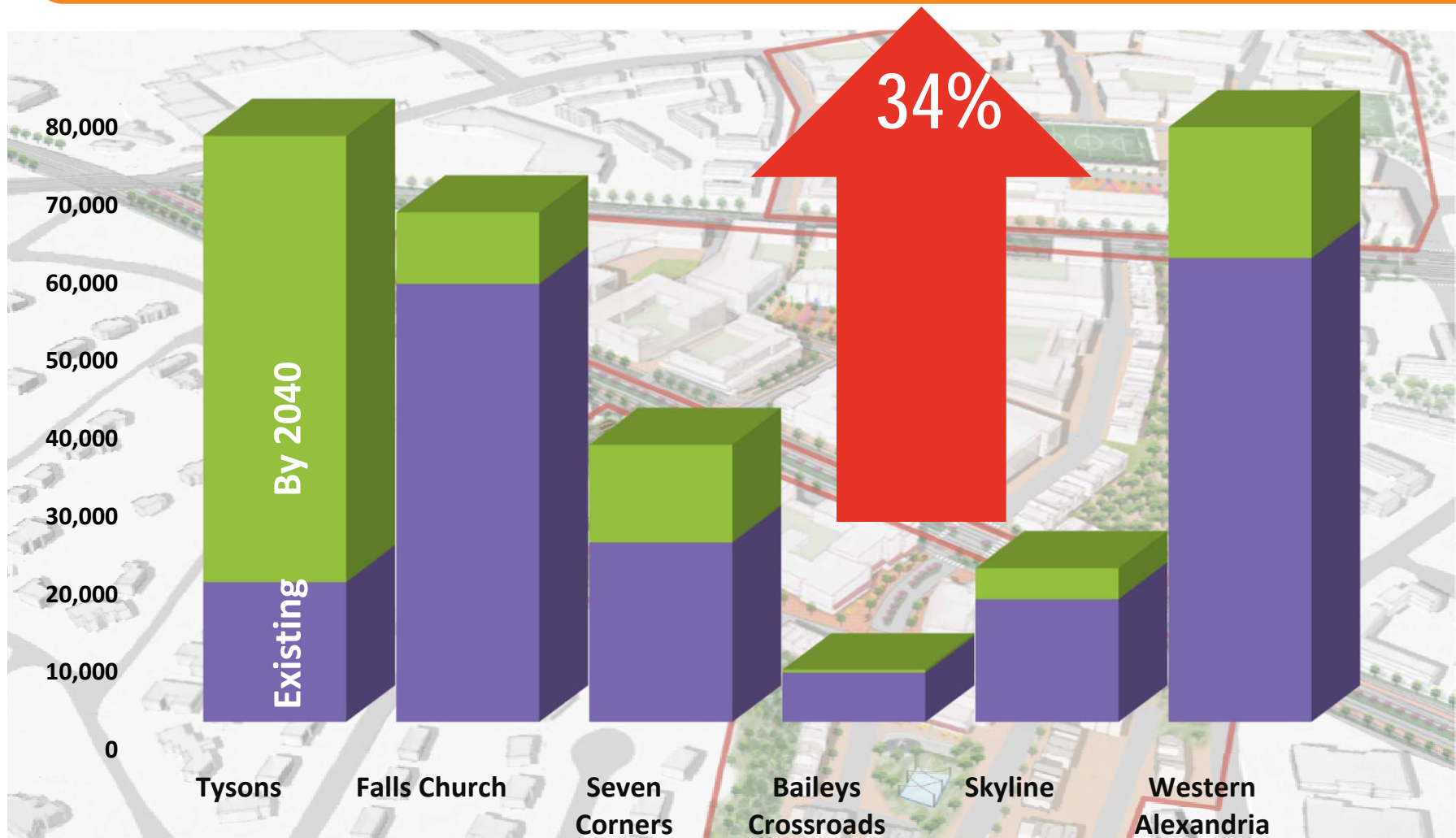
LEGEND

- Route 7 Corridor
- Route 7 Corridor Options
- Route 7 Corridor Station Options
- Route 7/Wmata Metrorail
- Stations
- Wmata Metrorail Stations
- Wmata Metrorail

Study Area

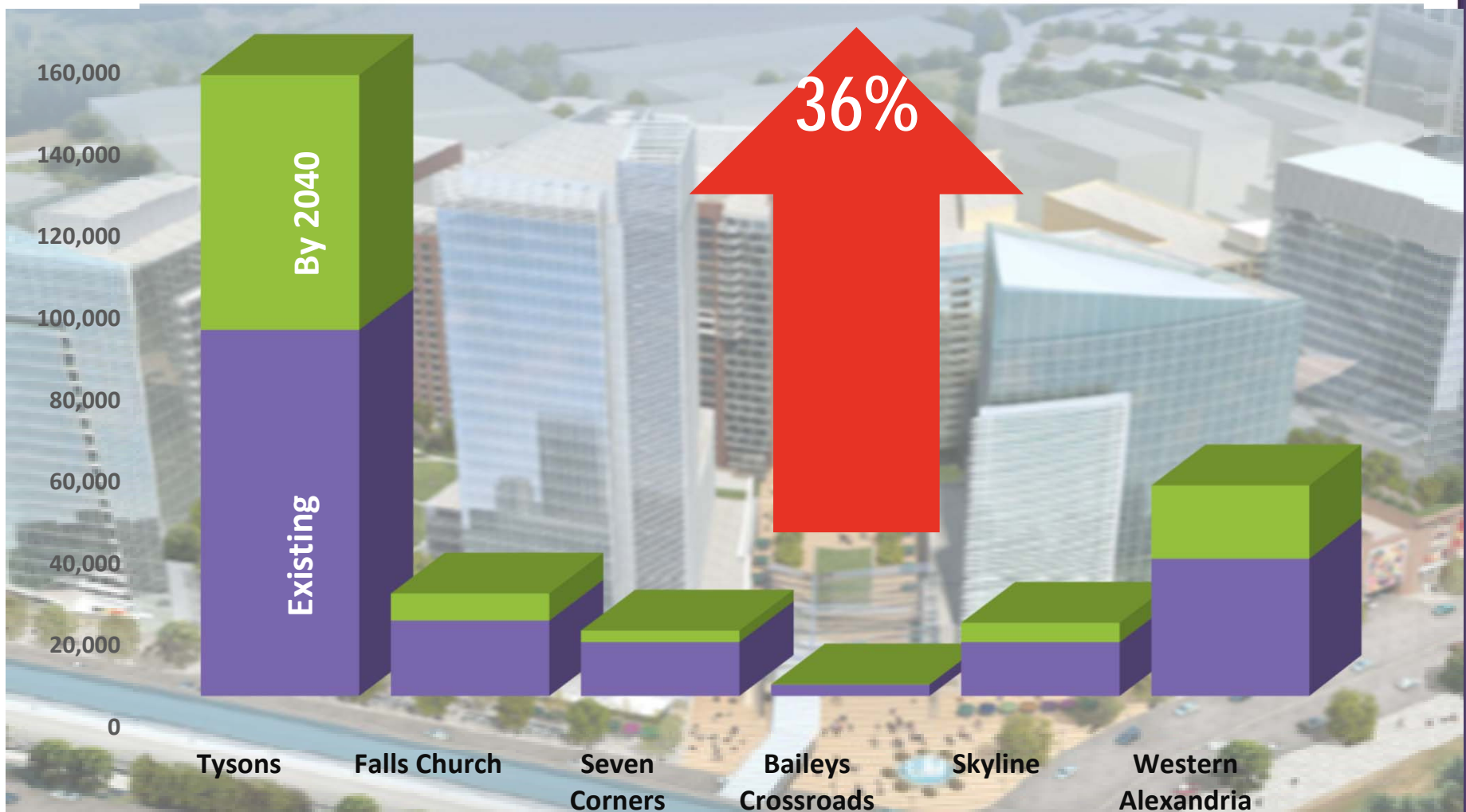


A Growing Corridor



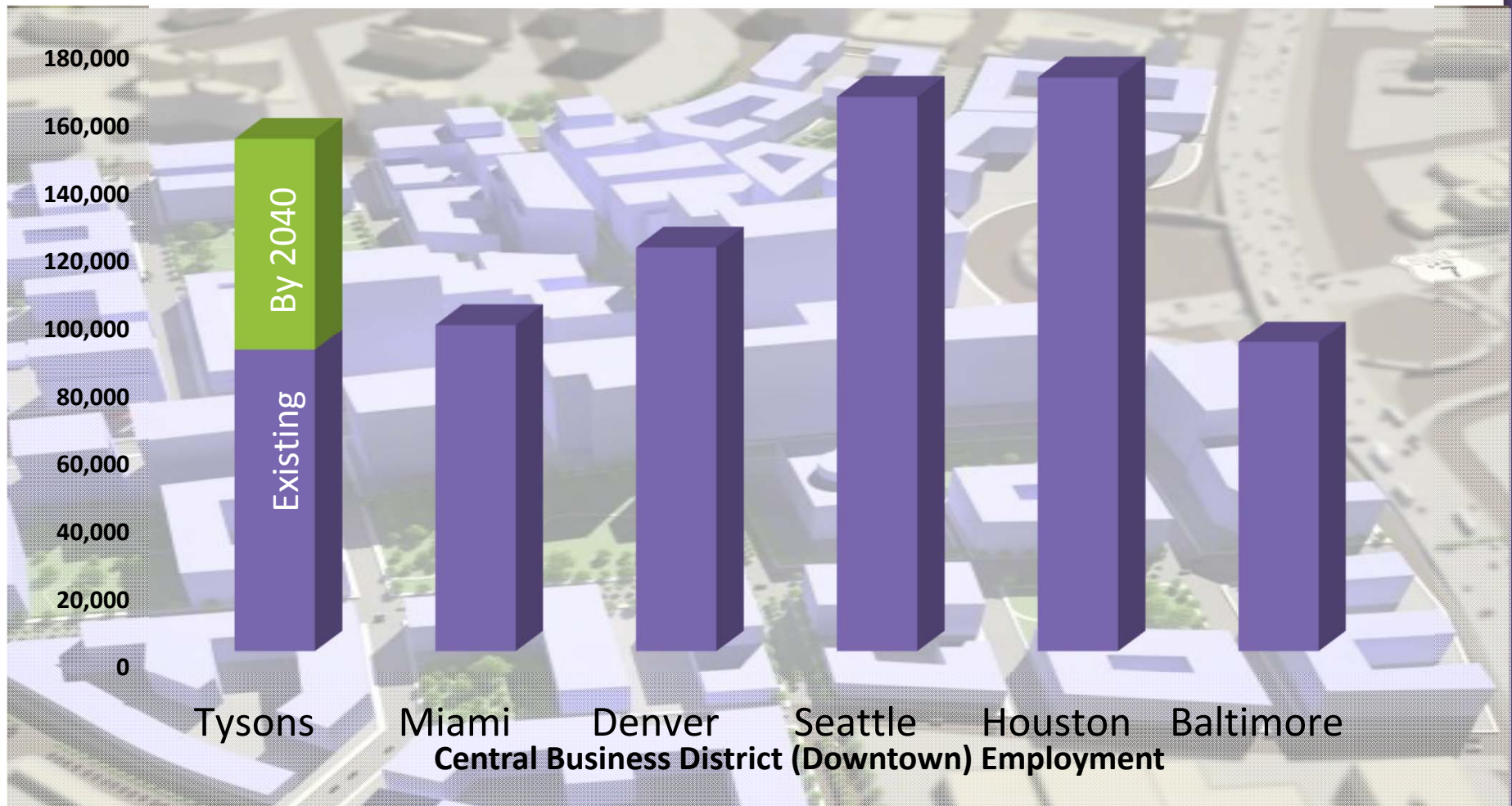
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Job Growth



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Tyson's CBD Comparison



Corridor-Wide Benefits of High Capacity Transit

- ➔ Connecting people and businesses to economic opportunity
- ➔ Increasing transportation choices
- ➔ Moving more people
- ➔ Providing a faster trip
- ➔ Offering higher quality service



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Questions

- What type of transit service would best serve people and businesses in the corridor?

MODE

Bus Rapid Transit (BRT)

Guideways

- Mixed-flow traffic: Vehicles operate with automobiles in an existing traffic lane.
- Dedicated lanes: Lanes may be physically separated or denoted by pavement or markings.



Vehicles

- Doors on both sides
- 120 persons per vehicle
- All-electric or hybrid power
- Larger windows
- Low-floor boarding/alighting



Light Rail Transit (LRT)

Guideways

- Operates on steel tracks
- Dedicated rights of way: Typically operates in dedicated space. Can include aerial structures to eliminate traffic conflicts.
- Developing technology may allow for in-pavement power or no power in short sections.



Vehicles

- Doors on both sides
- 200 persons per vehicle
- Uses overhead electric wires for power
- Low-floor boarding/alighting



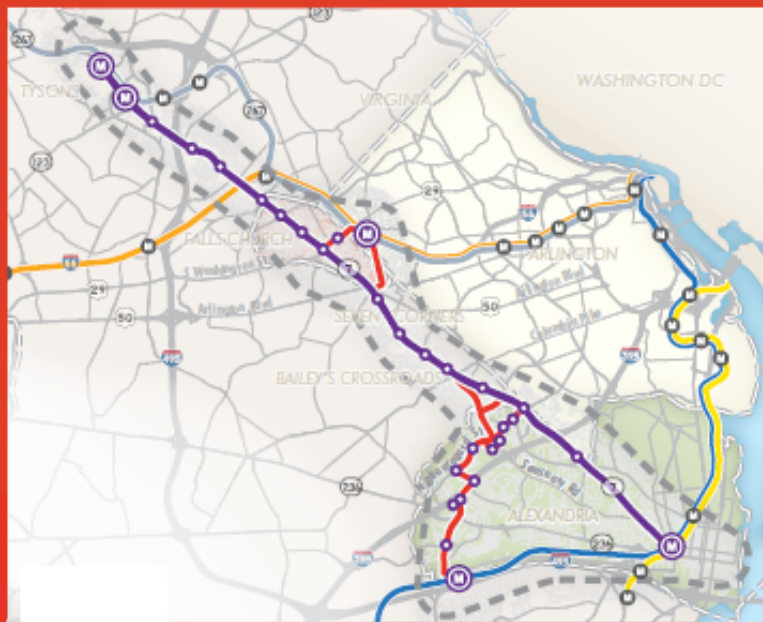
Transportation System Management (TSM) is another alternative being considered. TSM is a low-capital investment strategy that can improve transit system operations. TSM can be implemented using the following techniques:

- Signal improvements, reducing intersection delay
- Service changes
- Queue jumps to bypass traffic at intersections

Questions

- Where should it go?
- How do we make it financially viable?

ALIGNMENT AND TERMINI



This study will help identify the final alignment for the service. The western terminus has been identified as the Spring Hill Metrorail Station. An option that provides service to East Falls Church Metrorail Station is being analyzed as a potential mid-corridor connection. Currently, three termini are proposed at the eastern end of the corridor.

- Terminus Option A: Mark Center
- Terminus Option B: Van Dorn Street Metrorail Station
- Terminus Option C: King Street Metrorail Station

FINANCIAL SUSTAINABILITY

This project will require a sustainable financial plan to fund and/or finance the preferred alternative. Dedicated funding sources will need to be identified. The following sources are currently being evaluated:

Federal

- New Starts
- TIGER Grants

State

- Department of Rail and Public Transportation Capital Assistance Grants
- Commonwealth Transportation Fund
- Public-Private Partnerships

Local

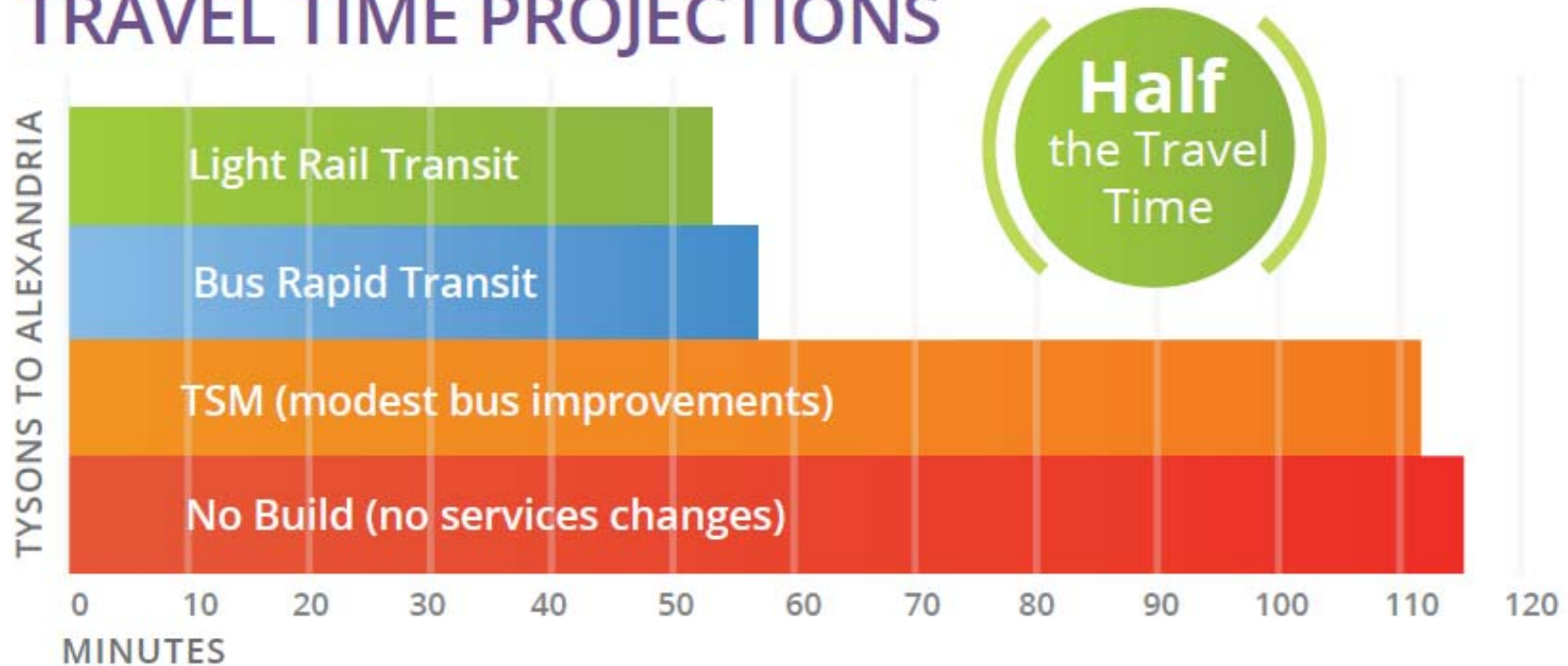
- Motor Vehicle Sales Tax
- Grantor's and Transient Occupancy Taxes
- Value Capture
- Tax Increment Financing

Alternatives

- ➡ No-Build (NB)
- ➡ Transportation System Management (TSM)
- ➡ Alt 2 – BRT: Tysons to Mark Center with East Falls Church Metrorail Station Connection
- ➡ Alt 4 – BRT: Tysons to Mark Center without East Falls Church Metrorail Station Connection
- ➡ Alt 5 - BRT: Tysons to Kings Street with East Falls Church Metrorail Station Connection
- ➡ Alt 6 – LRT: Tysons to Mark Center with East Falls Church Metrorail Station Connection

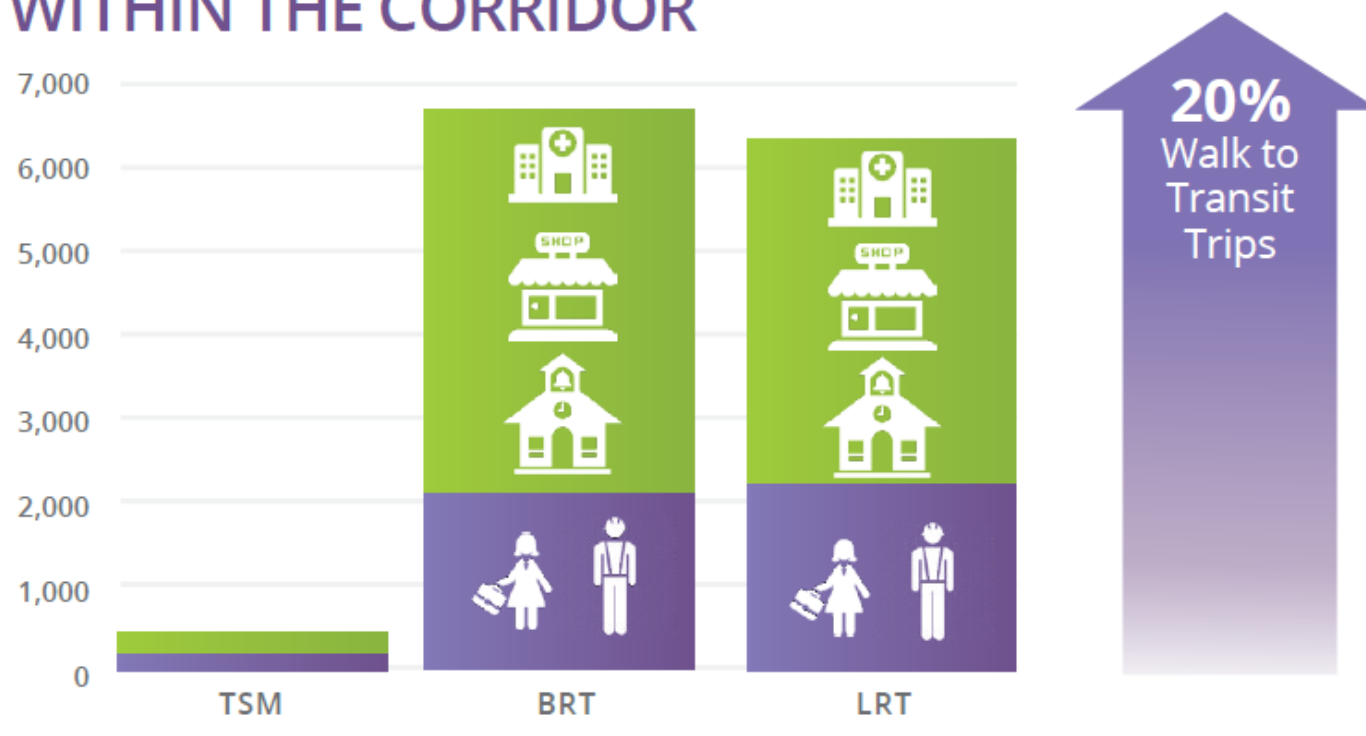
Travel Demand Analysis – Travel Time

TRAVEL TIME PROJECTIONS



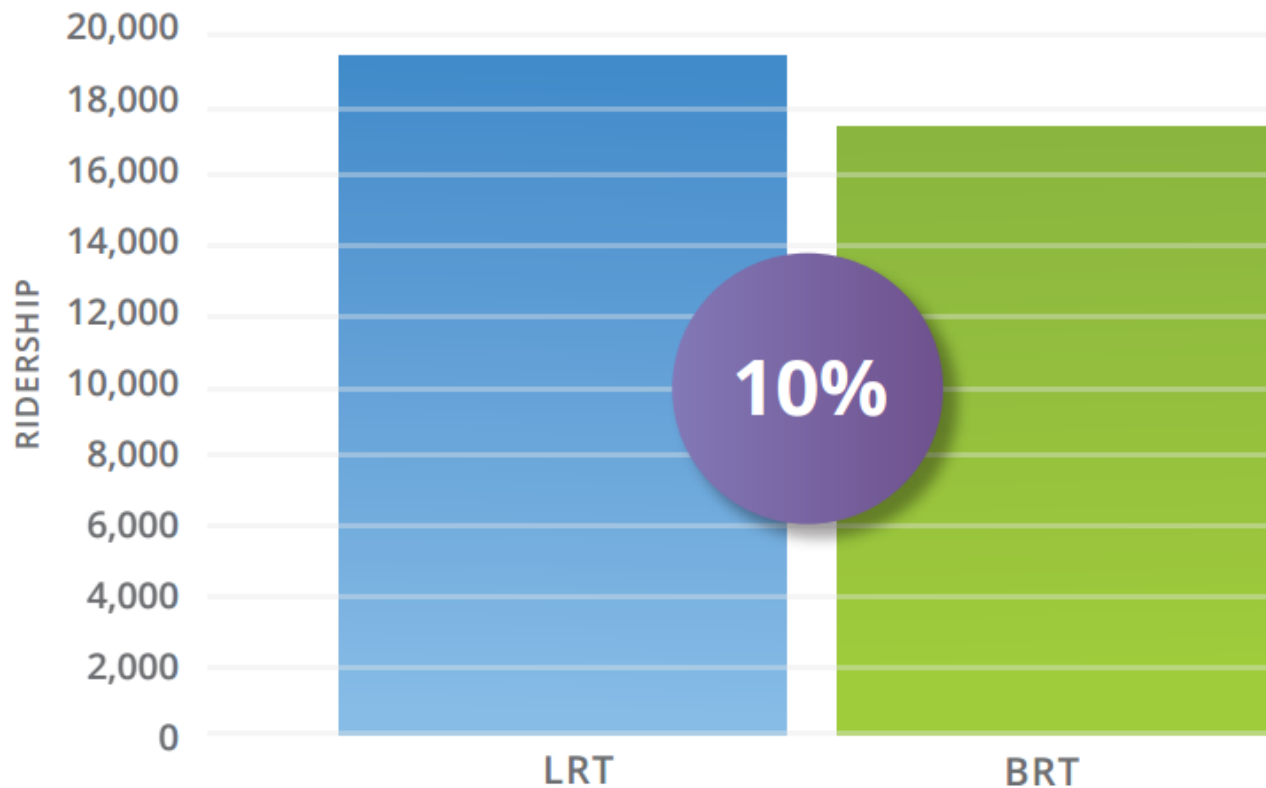
Travel Demand Analysis – Transit Trips

2040 NEW DAILY TRANSIT TRIPS WITHIN THE CORRIDOR



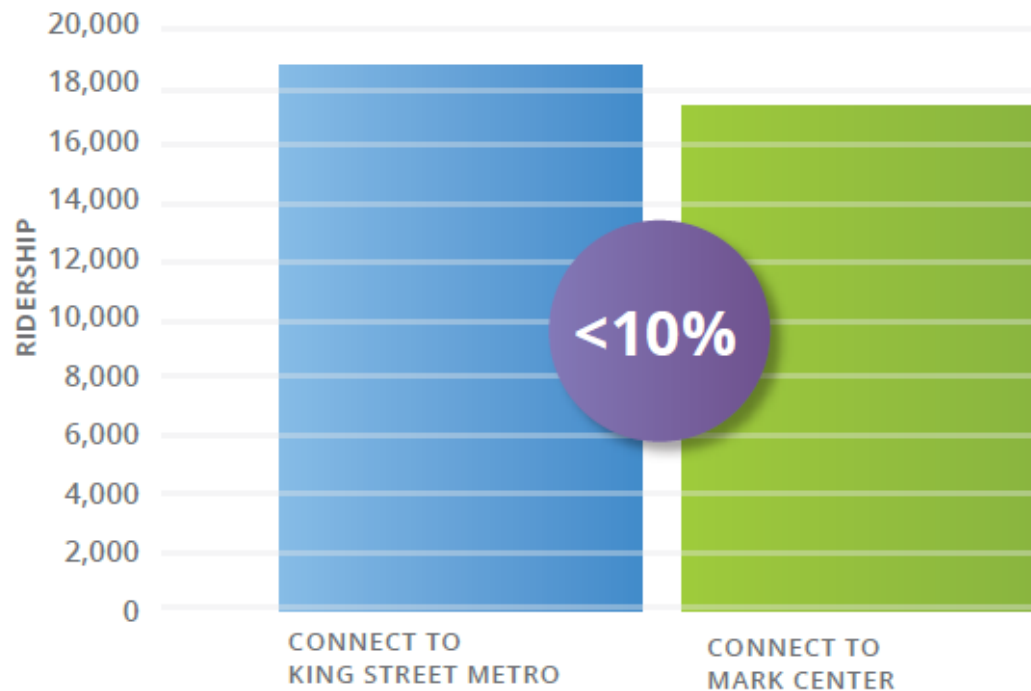
Travel Demand Analysis – Transit Trips

The number of new transit riders on LRT and BRT differs by 10 percent



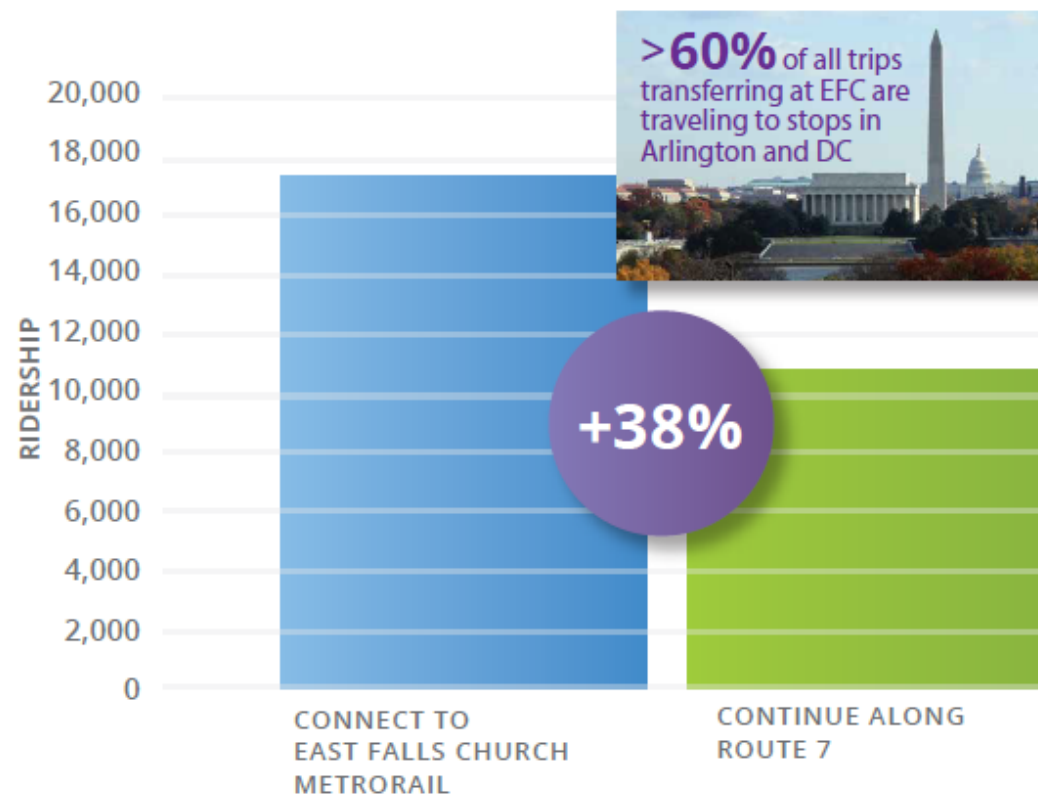
Travel Demand Analysis – Transit Trips

The number of new transit trips differs by less than 10 percent when service terminates at Mark Center as opposed to the King Street Metrorail Station



Travel Demand Analysis – Transit Trips

Connecting to the East Falls Church Metrorail Station, instead of limiting service to Route 7, will increase new transit trips by nearly 40 percent



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Cost Estimates

CAPITAL COSTS

Capital costs are one-time, fixed costs associated with building the service line. Major capital costs for a new transit system include:

- **Physical construction of the alignment:** additional roadways, steel rails (LRT), and lane reconfiguration
- **Stations and stops:** structures, shelters, seats, and amenities
- **Right-of-way purchase:** buying land for the route, stations or stops
- **Site work:** demolition, road work, and utility relocation
- **Systems:** communications, signals, electrification (LRT), and fare collection
- **Vehicles**
- **Maintenance facilities**
- **Professional services:** engineers, architects, lawyers, and permitting fees



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Cost Estimates

	Route Miles	Stations	Capital Costs (millions)	Cost Per Mile (millions)
BRT - Tysons to Van Dorn Street Metrorail Station with EFC connection (Alt. 1)	15.2	24	\$305.74	\$20.10
BRT - Tysons to Mark Center with EFC connection (Alt. 2)	12.5	21	\$266.28	\$21.24
BRT - Tysons to Van Dorn Street Metrorail Station w/o EFC connection (Alt. 3)	13.1	22	\$267.36	\$20.41
BRT - Tysons to Mark Center w/o EFC connection (Alt. 4)	10.4	19	\$227.90	\$21.86
BRT - Tysons to King Street Metrorail Station with EFC connection (Alt. 5)	14.6	19	\$295.27	\$20.23
LRT At-grade - Tysons to Mark Center with EFC connection (Alt. 6)	12.6	21	\$946.08	\$75.25
LRT - Same as Alt. 6 above, but with two elevated rail sections near EFC (Alt. 7)	12.6	21	\$997.44	\$79.34

Cost Estimates

SIMILAR PROJECTS THROUGHOUT THE REGION

Various BRT and LRT projects have been proposed or constructed throughout the region. Below are several capital cost estimates, which include construction and real estate acquisition.

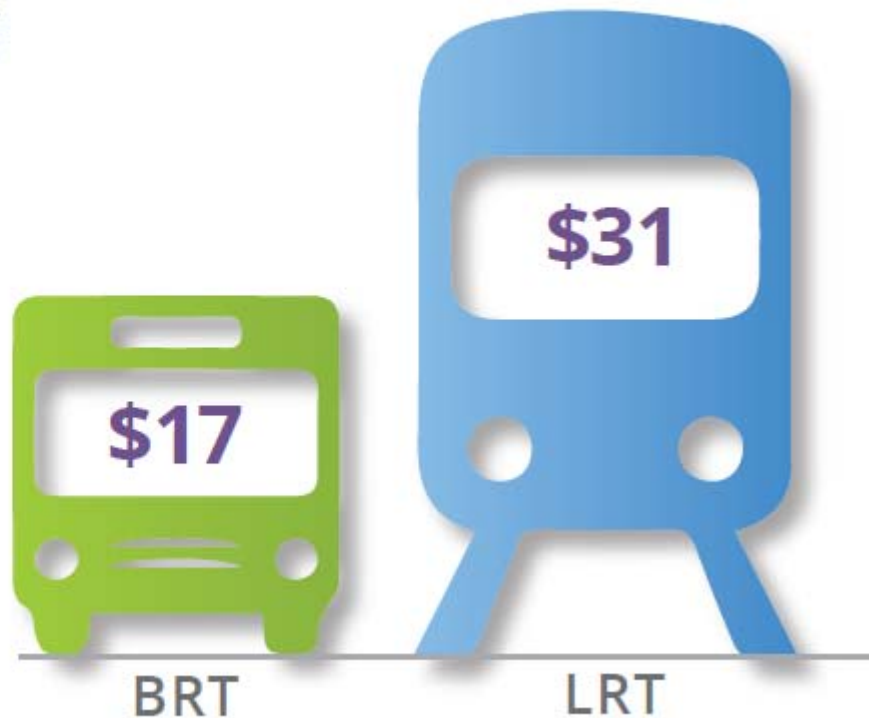
	Route Miles	Capital Costs (millions)	Cost Per Mile (millions)
LRT – Purple Line – Maryland	16.2	\$2,448	\$151
LRT – Virginia Beach Transit Extension – Virginia	3.1	\$279	\$90
BRT – Corridor Cities Transitway – Maryland	9.0	\$545	\$61
BRT – GRTC Pulse – Richmond, Virginia	7.6	\$54	\$7
BRT – Route 1 Metroway – Alexandria, Virginia	0.8	\$23	\$21
BRT – West End Transitway	5.3	\$140	\$26

Cost Estimates

ANNUAL OPERATING COSTS (MILLIONS)

Projected annual operating costs are an important measure of the long-term viability of a high-capacity transit system.

Comparable national systems were used to develop cost estimates for LRT and BRT.



Preliminary Comparison of the Modal Options



Travel Time
Saved



New Daily
Transit
Riders



Passengers
Per Vehicle



Capital Costs



Operating
Costs



Light Rail (LRT)

55%

9,600

200

\$990
m

\$31 M



Bus Rapid Transit (BRT)

50%

8,600

120

\$250
m

\$17 M

Lane Configurations

