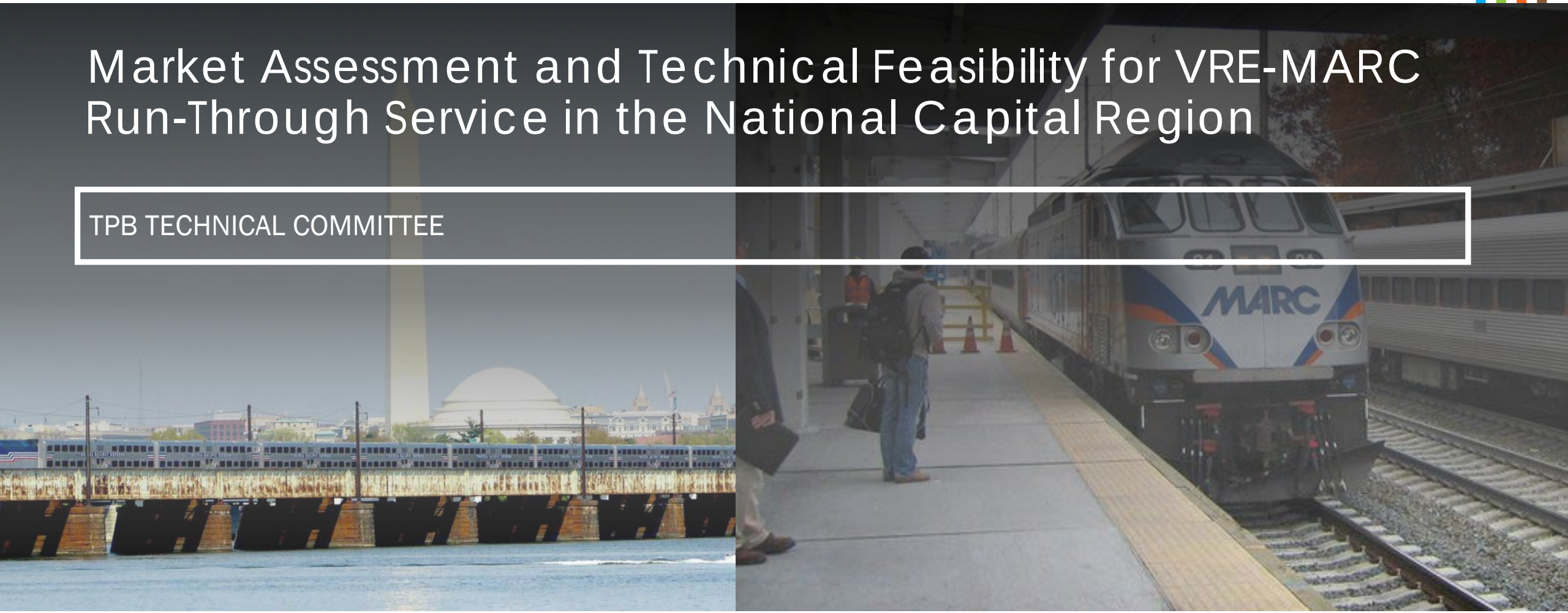
Market Assessment and Technical Feasibility for VRE-MARC Run-Through Service in the National Capital Region

TPB TECHNICAL COMMITTEE



Agenda

- Project Background
- Travel Demand Results
- Key Run-Through Considerations
- Next Steps

Project Background

What is Run-Through Service?

- Operation of commuter trains through Union Station
  - Commuter trains from Maryland would operate to Virginia and vice-versa.
- Concept has decades-long history
- Potential opportunities and transportation benefits from through service
- Renewed regional interest in a fresh evaluation of run-through service

Image source: VRE System Plan 2040

Potential Benefits of Run Through Service

1. Improve access to better jobs and education opportunities for residents
2. Expand the employee pool available to employers
3. Reduce peak congestion on highways and Metrorail (esp. at Union Station)
4. Add a travel option on an existing right-of-way and improve reliability and resiliency of all systems
5. Improve reliability and convenience for longer commutes, especially existing commuter rail riders
6. Reduce midday train storage demand at Union Station

Project Objectives

Understand the market potential for run-through service for both MARC and VRE by developing order of magnitude ridership estimates and inform next steps for future detailed analysis as appropriate.

Three key objectives:

1. Identify the potential market area for through service
2. Identify the potential ridership of through service
3. Acknowledge some of the critical elements for consideration when planning for run-through service

Project Team

Project Lead Agency

Metropolitan Washington Council of Governments

National Capital Region Transportation Planning Board

Technical Advisory Committee

- VRE
- MDOT MTA
- MDOT
- VDRPT
- DDOT
- NVTC
- COG/TPB

Consultants

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INTEGRATED TRANSPORTATION PLANNING

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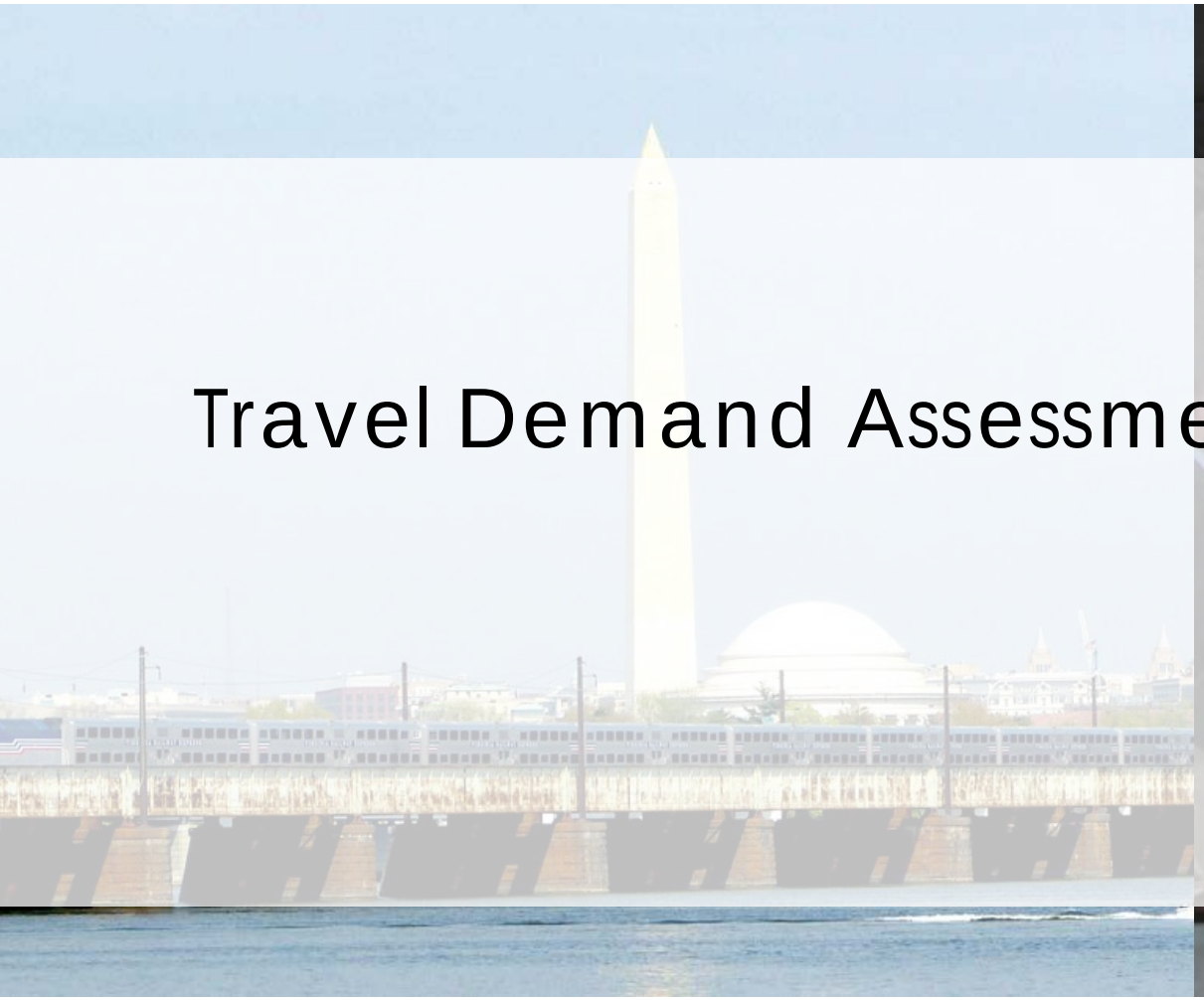
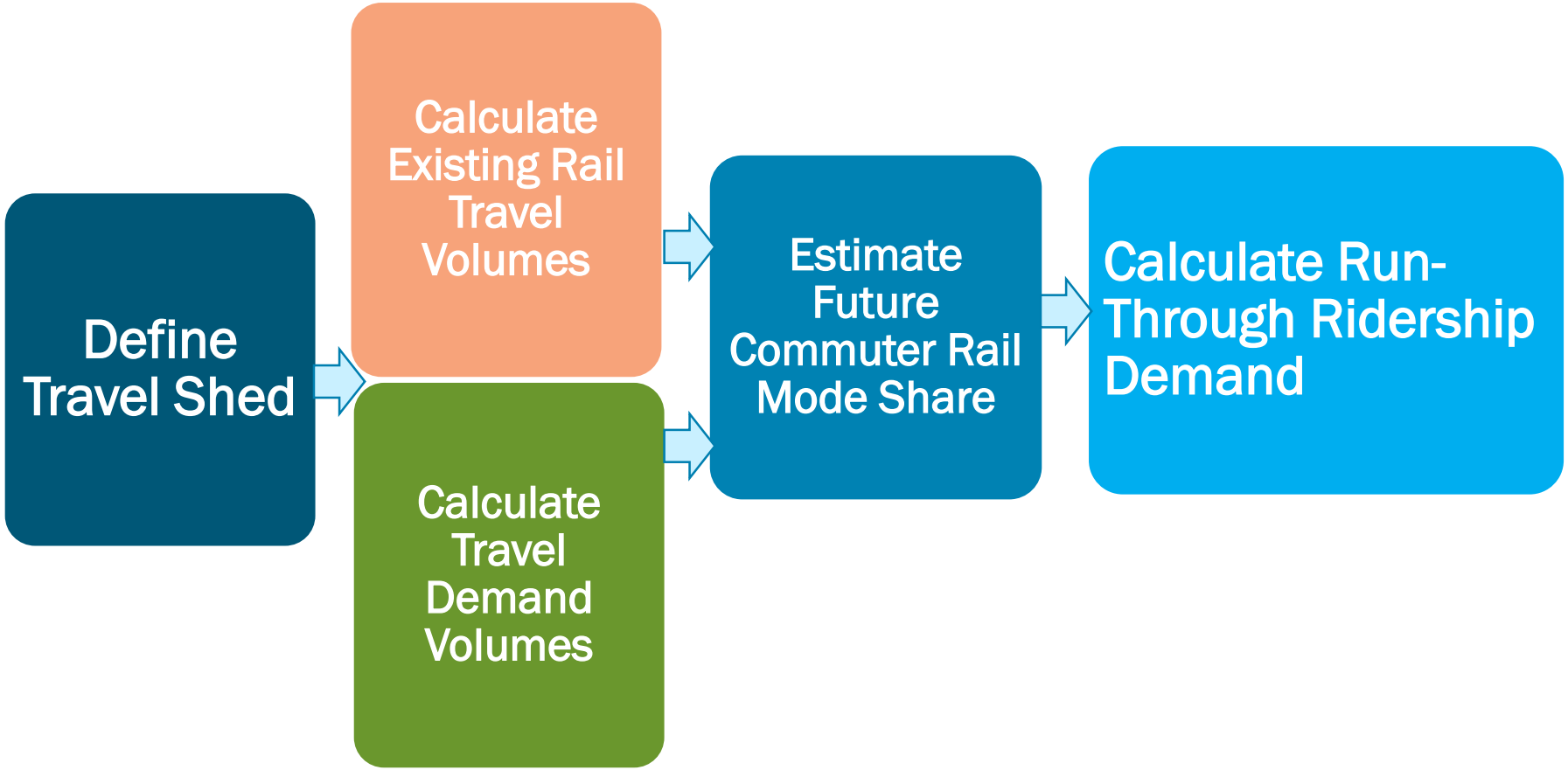
Project Scope

- Task 1: Technical Advisory Committee Coordination and Stakeholder Outreach
- Task 2: Review of Existing Plans and Research
- Task 3.1: Identify Commuter Shed
- Task 3.2: Identify Present and Future Volume of Commuter Travel
- Task 3.3: Highlight Operational and Infrastructure Constraints
- Task 4: Final Report

Travel Demand Assessment

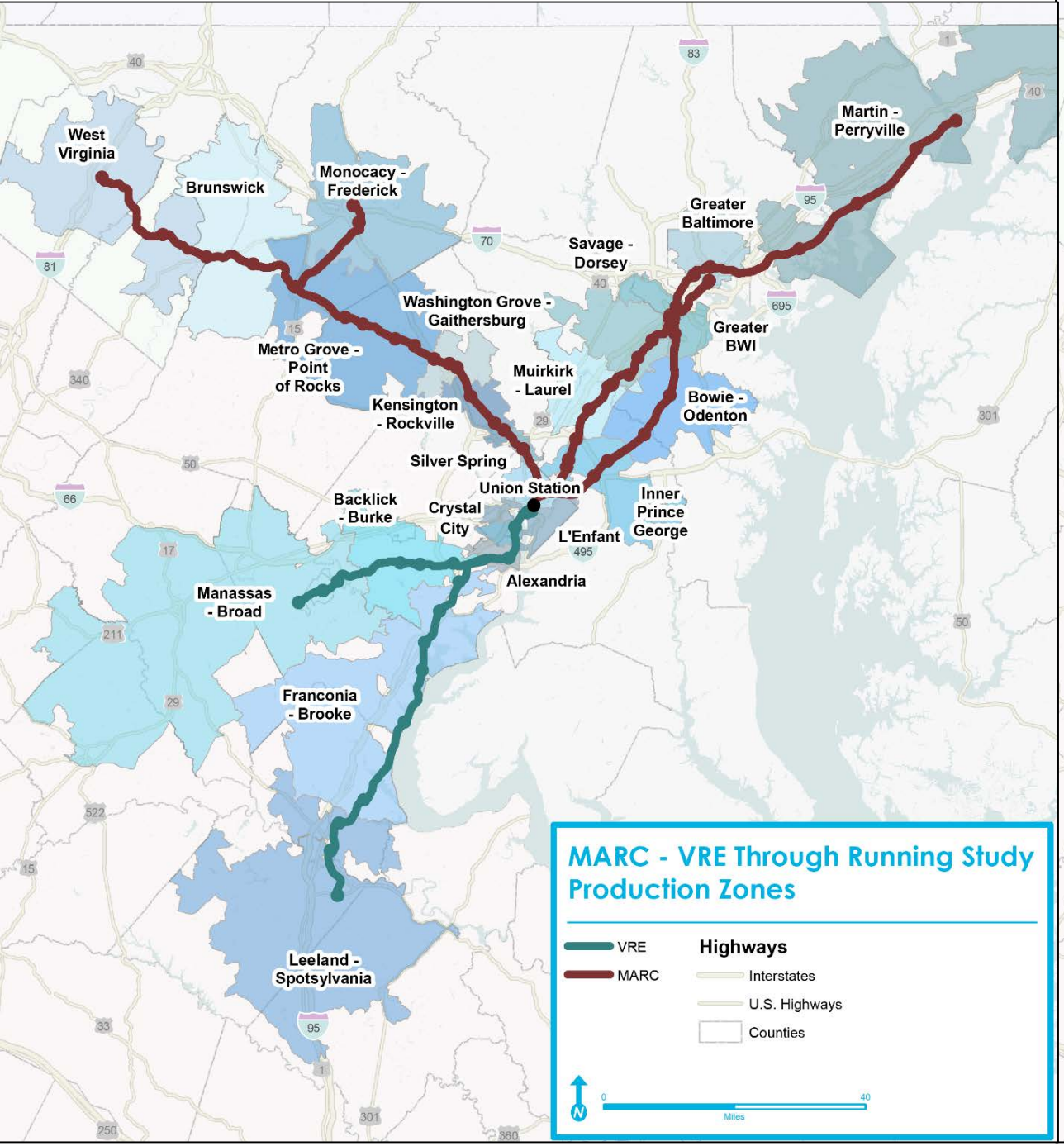


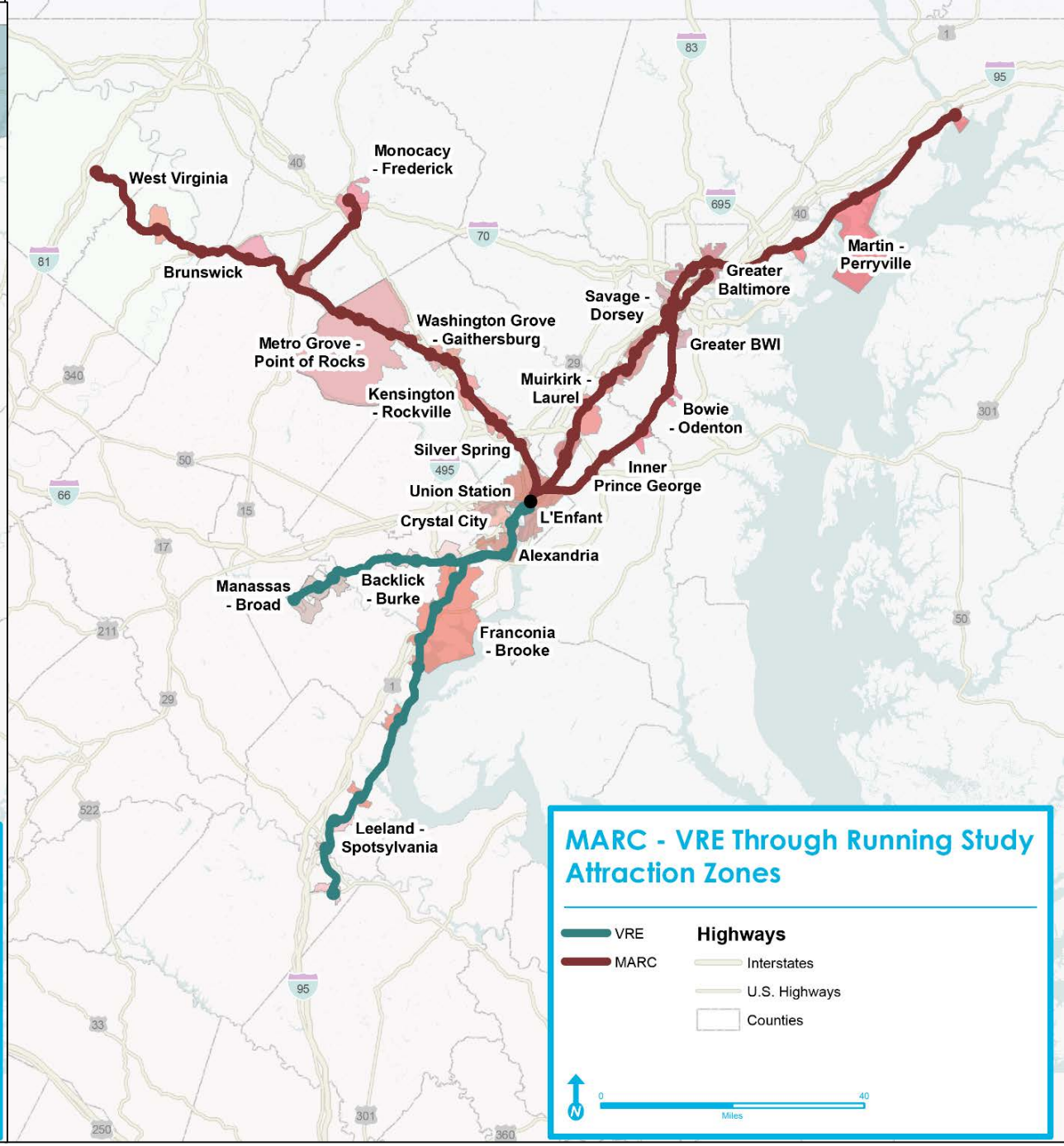
Methodology Overview



Data Used

- Maryland Regional Travel Demand Model
  - Includes Maryland + TPB's model area
- VRE and MARC Origin-Destination Surveys
  - Conducted extensive data cleaning to make the results comparable with model data.
- Census Transportation Planning Package
  - Base figure for travel volume calculations.





*Variation in blue and red shading depicts boundaries of production and attraction zones

Travel Demand Results

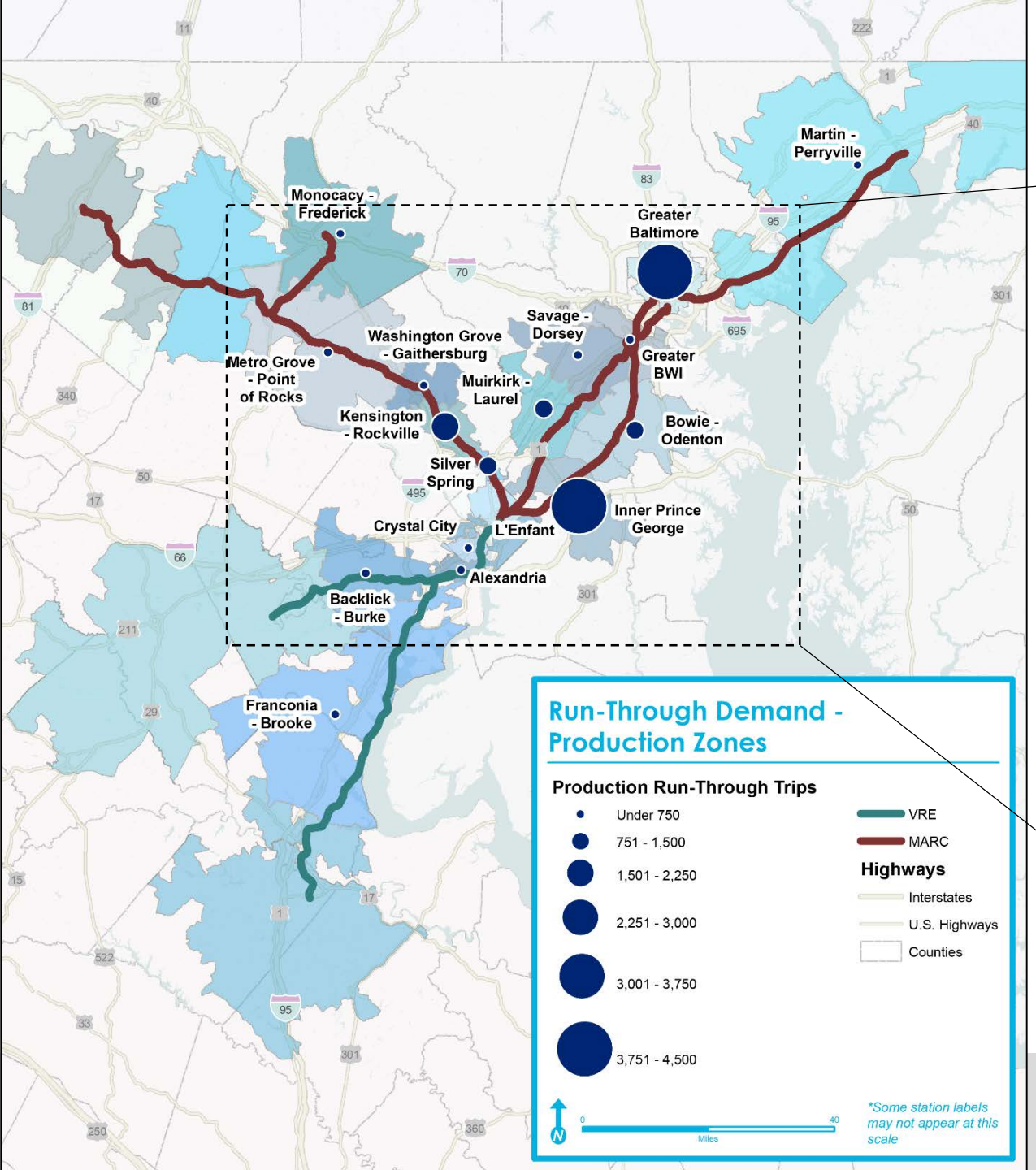
- Observed Data: Existing Run-Through Equivalent Trips
  - Trips on MARC or VRE that cross between each railroads service area. Example: Penn Station to Union Station on MARC; and then Union Station to Pentagon City on Metrorail.
  - 13,900 weekday trips (~27 percent of weekday ridership).
- Modeled: Run-Through Market on All Modes
  - Total daily volume of trips between Production and Attraction (PA) Zones within the MARC and VRE service areas.
  - 440,000 weekday trips in 2030 and 476,000 in 2040.
- Modeled: Run-Through Rail Ridership
  - Estimated ridership on run-through service in 2030 and 2040 model years.
  - 16,200 weekday trips by 2030
  - 17,500 weekday trips by 2040

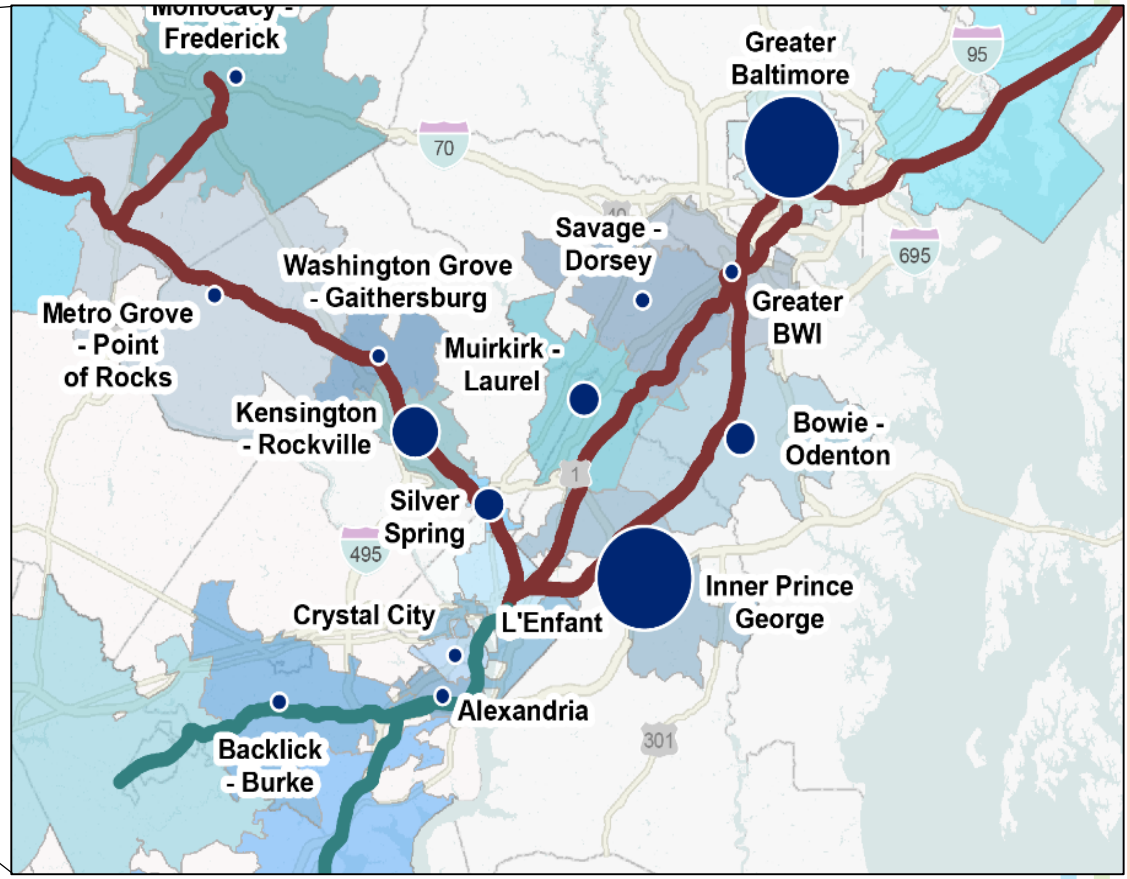
Modeled Run-Through Ridership Estimates

- Penn & Camden and Brunswick to VRE Shared Line accounts for the greatest potential run-through ridership.
- Run through service could increase ridership by 100% at L'Enfant and 33% at Crystal City (2030 forecast).

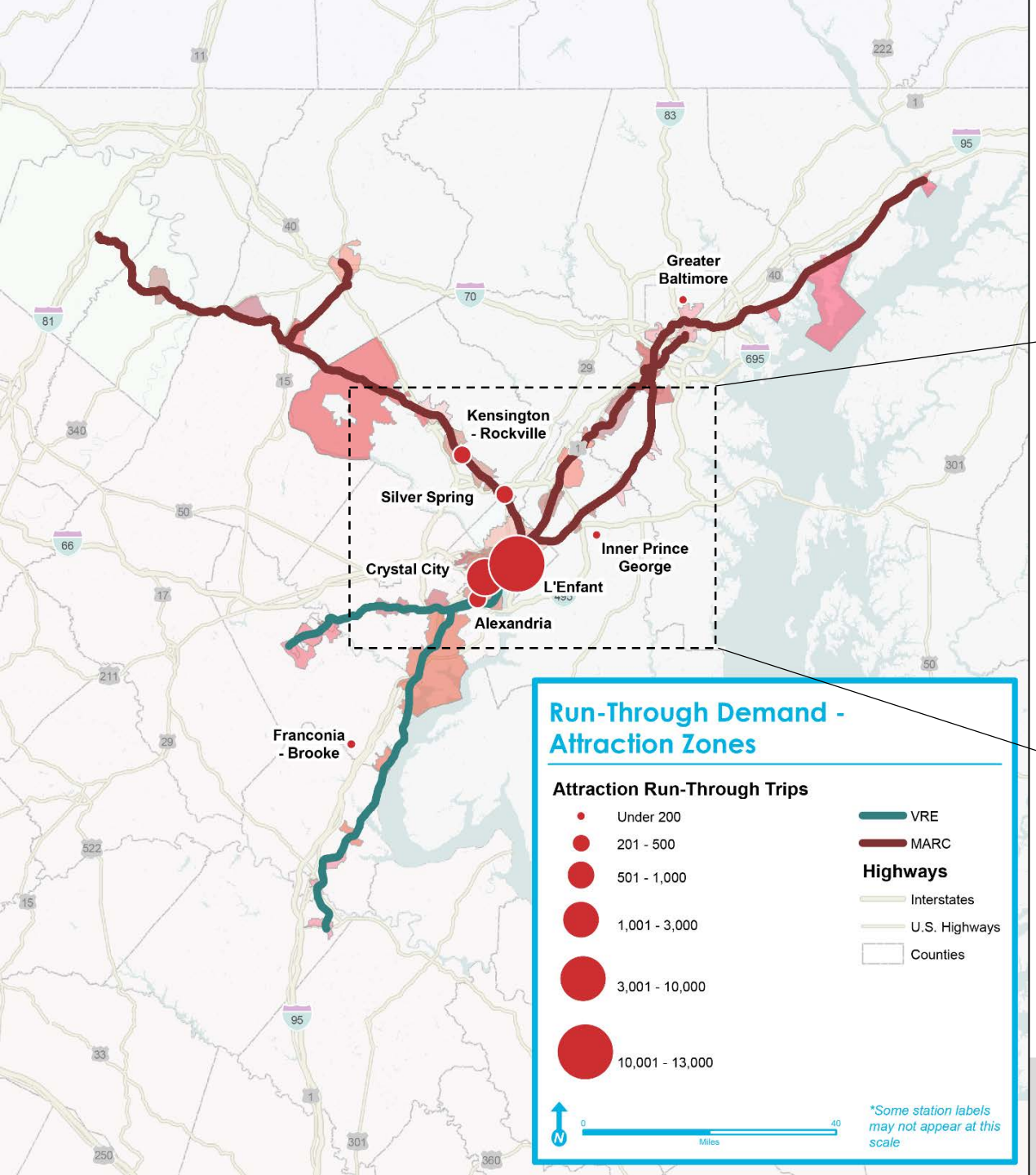
Line Pairs	Base	2030	2040
VRE Shared Line <–> Penn & Camden	9,900	11,600	12,400
Brunswick<–>VRE Shared Line	4,300	4,300	4,700
Brunswick<–>Manassas	100	100	200
Brunswick<–>Fredericksburg	100	100	100
Manassas<–> Penn & Camden	0	100	100
Fredericksburg<–>Penn & Camden	0	0	0
Total	**14,400**	**16,200**	**17,500**

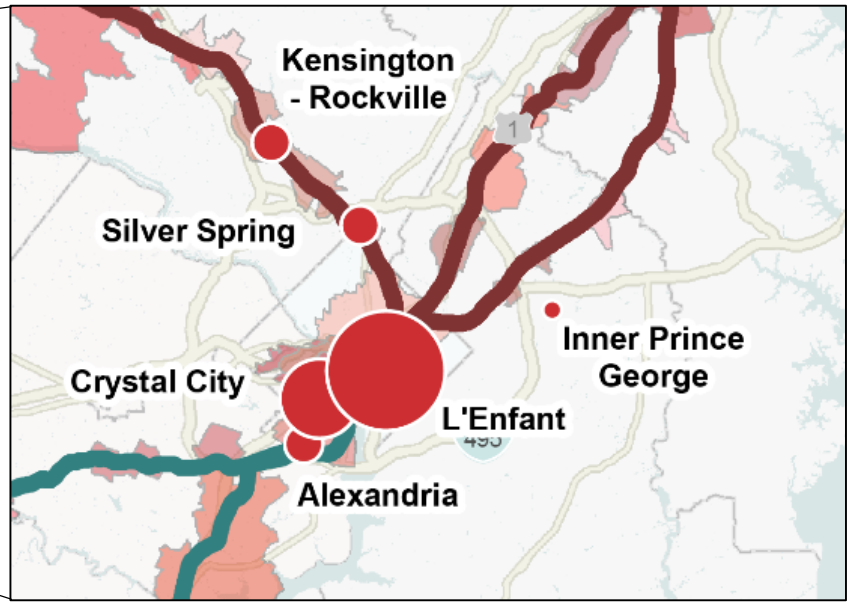
*VRE Shared Line: Alexandria, Crystal City, L'Enfant, Union Station





* Variation in blue shading depicts boundaries of production zones





* Variation in red shading depicts boundaries of attraction zones

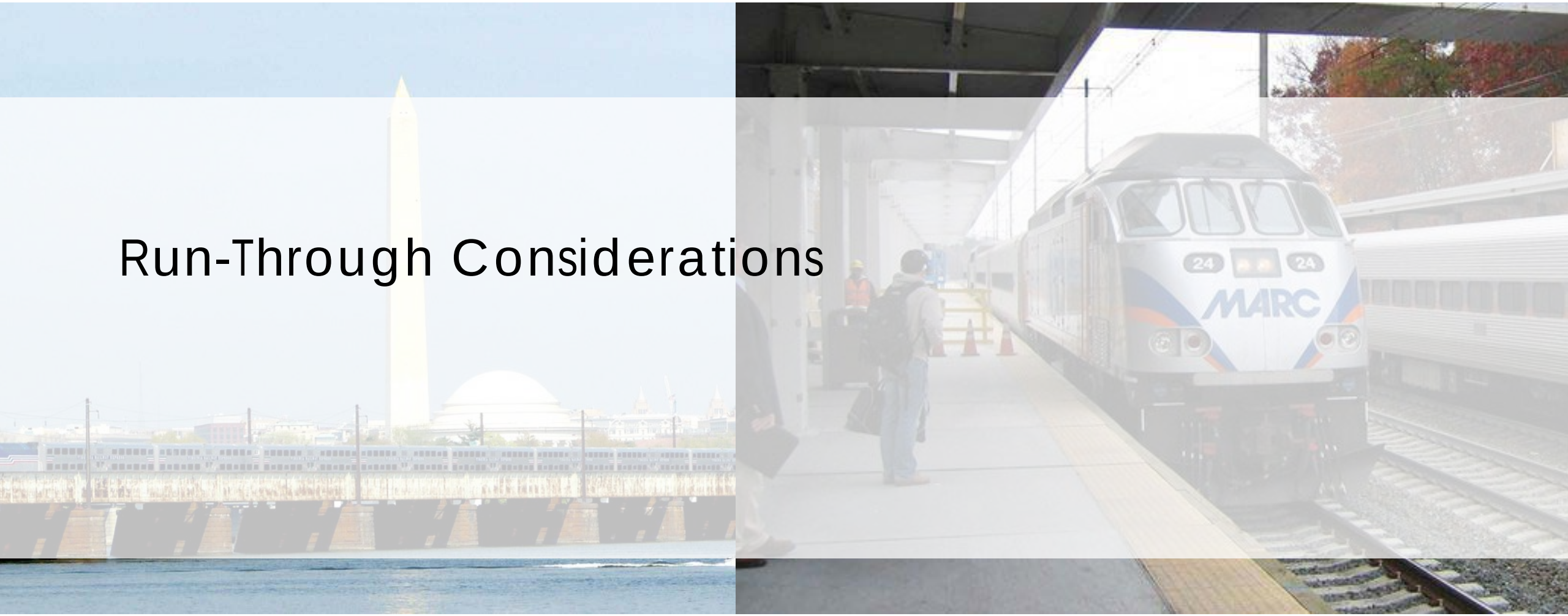
Conclusions: There is a Market for Run-Through Service

- The data suggests:
  - The greatest demand for run-through service is between Baltimore and Alexandria.
    - Run-through trip production primarily generated in Maryland.
  - Modest demand for service on the Frederick to Alexandria corridor.
  - The top trip attractor for run-through trips is L'Enfant.
    - These trips are largely already occurring on MARC and transferring to Metrorail
  - Alexandria and Crystal City are more moderate attractors of run-through trips, followed by Silver Spring and Rockville.

Caveats

- Analysis does not account for induced demand from travel times, reliability, fare policy, or convenience (reduced transfers).
- Assumes adopted land use forecasts do not change.
- Based on mode share of existing service. Does not evaluate impact of:
  - Changes to service patterns from existing frequency and span.
  - Improved access to stations or additional TOD development beyond adopted land-use forecast.

Run-Through Considerations



Variables Impacting Run-Through Service

- Timing of capacity expansion
  - Long Bridge
  - L'Enfant Station and Fourth Track
  - Virginia Rail Improvement Program
  - Union Station
- Service Model
  - Level of service
  - Extent of run-through service within each agency's service areas.
- Existing system resources

Long Bridge EIS

Run-Through Considerations

- Operations
  - Ex: Train & Engine Service Employees, Dispatching, Equipment and Management
- Mechanical
  - Ex: Equipment availability, maintenance, servicing, and supplies.
- Capacity and Capital
  - Ex: Rolling stock, stations, storage/layover, and warehouses.
- Institutional
  - Ex: Union agreements, host railroad contracts, cost sharing, pricing and ticketing.
- Construction/Maintenance of Traffic
  - Ex: station re-construction, repairs, structures, rail

Next Steps

Next Steps

- This study is just a starting point for developing run-through service. Some of the key next steps for run-through service, include:
  - Review of results of market assessment by MARC and VRE
  - Evaluation of existing resources and ability to accommodate run-through service
  - Additional technical analysis to address questions prompted by the market assessment
  - Determine construction schedule for existing, funded projects within the corridor
  - Continued agency coordination

THANK YOU

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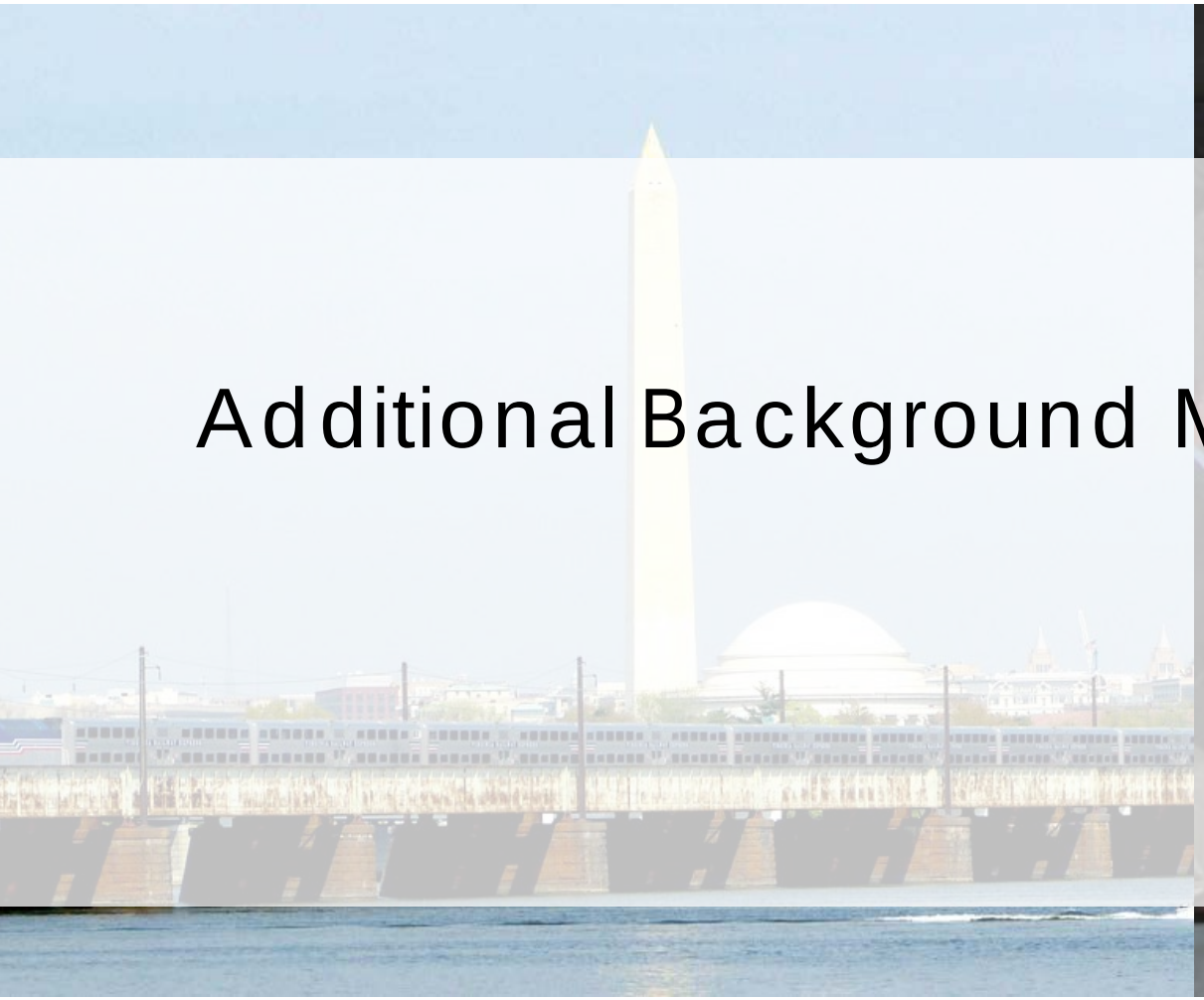
Additional Background Material



Observed Data on Run-Through Equivalent Trips

- Largest volume of trips between the Penn & Camden Line to VRE Shared Line.
- Majority of trips produced in MARC service area and attracted to zones in VRE service area.

Line Pairs	2016-2018 Ridership
VRE Shared Line <–> Penn & Camden	10,800
Brunswick<–>VRE Shared Line	2,800
Manassas<–> Penn & Camden	200
Fredericksburg<–> Penn & Camden	100
Brunswick<–>Fredericksburg	-
Brunswick<–>Manassas	-
Total	**13,900**

Modeled Total Travel Volume

- Majority of travel volume between production zones along the Brunswick or Camden & Penn lines and production zones along the VRE Shared Line
- Penn & Camden to VRE Shared Line to see greatest absolute growth over the next 20 years.

Line Pairs	2015	2030	2040
VRE Shared Line <–> Penn & Camden	208,900	241,500	260,300
Brunswick<–>VRE Shared Line	166,000	166,300	182,000
Brunswick<–>Manassas	9,800	10,200	10,700
Manassas<–> Penn & Camden	5,600	9,300	9,100
Brunswick<–>Fredericksburg	5,300	6,400	6,800
Fredericksburg<–>Penn & Camden	5,100	6,400	6,600
Total	**400,700**	**440,100**	**475,500**

Attraction Zones	Run-Through Rail Ridership		Overall Travel Demand		Production Zones	Run-Through Rail Ridership		Overall Travel Demand	
L'Enfant	13,000	81%	313,600	73%	Inner Prince George's County	4,200	26%	129,800	28%
Crystal City	1,500	9%	45,000	10%	Baltimore	3,900	11%	10,300	15%
Alexandria	500	3%	17,600	4%	Kensington-Rockville	1,600	8%	62,300	12%
Kensington-Rockville	300	2%	12,100	3%	Silver Spring	1,300	8%	48,800	9%
Silver Spring	300	2%	10,600	2%	Muirkirk-Laurel	1,300	6%	38,300	6%
Baltimore	200	1%	6,800	2%	Bowie-Odenton	900	4%	26,400	6%
Inner Prince George's County	200	1%	9,900	1%	Washington Grove-Gaithersburg	600	3%	22,600	4%
Franconia-Brooke	100	0%	8,000	2%	Savage-Dorsey	500	3%	15,700	4%
Backlick-Burke	0	0%	2,900	1%	Martin-Perryville	500	3%	18,600	3%
Muirkirk-Laurel	0	0%	5,900	1%	L'Enfant	400	2%	13,100	2%
Washington Grove-Gaithersburg	0	0%	2,100	0%	Monocacy-Frederick	300	22%	12,300	2%
Metro Grove-Point of Rocks	0	0%	2,100	0%	Metro Grove-Point of Rocks	200	1%	9,900	2%
Savage-Dorsey	0	0%	1,200	0%	Backlick-Burke	200	1%	8,400	2%
Monocacy-Frederick	0	0%	1,000	0%	Alexandria	200	1%	7,600	1%
Manassas-Broad	0	0%	1,000	0%	Crystal City	200	1%	5,400	1%
Greater BWI	0	0%	200	0%	Greater BWI	100	0%	2,600	1%
Bowie-Odenton	0	0%	100	0%	Franconia-Brooke	100	0%	4,800	1%
Brunswick	0	0%	0	0%	Manassas-Broad	0	0%	2,700	1%
Leeland-Spotsylvania	0	0%	0	0%	Brunswick	0	0%	600	0%
Martin-Perryville	0	0%	0	0%	West Virginia	0	0%	0	0%
West Virginia	0	0%	0	0%	Leeland-Spotsylvania	0	0%	0	0%
Total	16,100		440,100		Total	16,500		440,200	