



SYSTEM PLAN 2050 UPDATE

Regional Public Transportation

Subcommittee

October 23, 2023



System Plan 2050 Vision

VRE will grow to serve the region as the transportation service of choice, creating meaningful connections and economic opportunities in a safe, sustainable, and equitable manner.

2050 System Plan Goals



1. Safety and Reliability



2. Market Growth and Financial Stability



3. Regional System Integration and Equitable Service



4. Sustainability and Resiliency

Transforming Rail in Virginia (TRV)

System Plan's 2030 service alternatives were developed to answer this critical question:

How does VRE leverage this transformational investment to best meet the needs of regional travelers and jurisdiction stakeholders?

...in 2030 and beyond to 2050



Travel Market Assessment

Geographic Travel Patterns

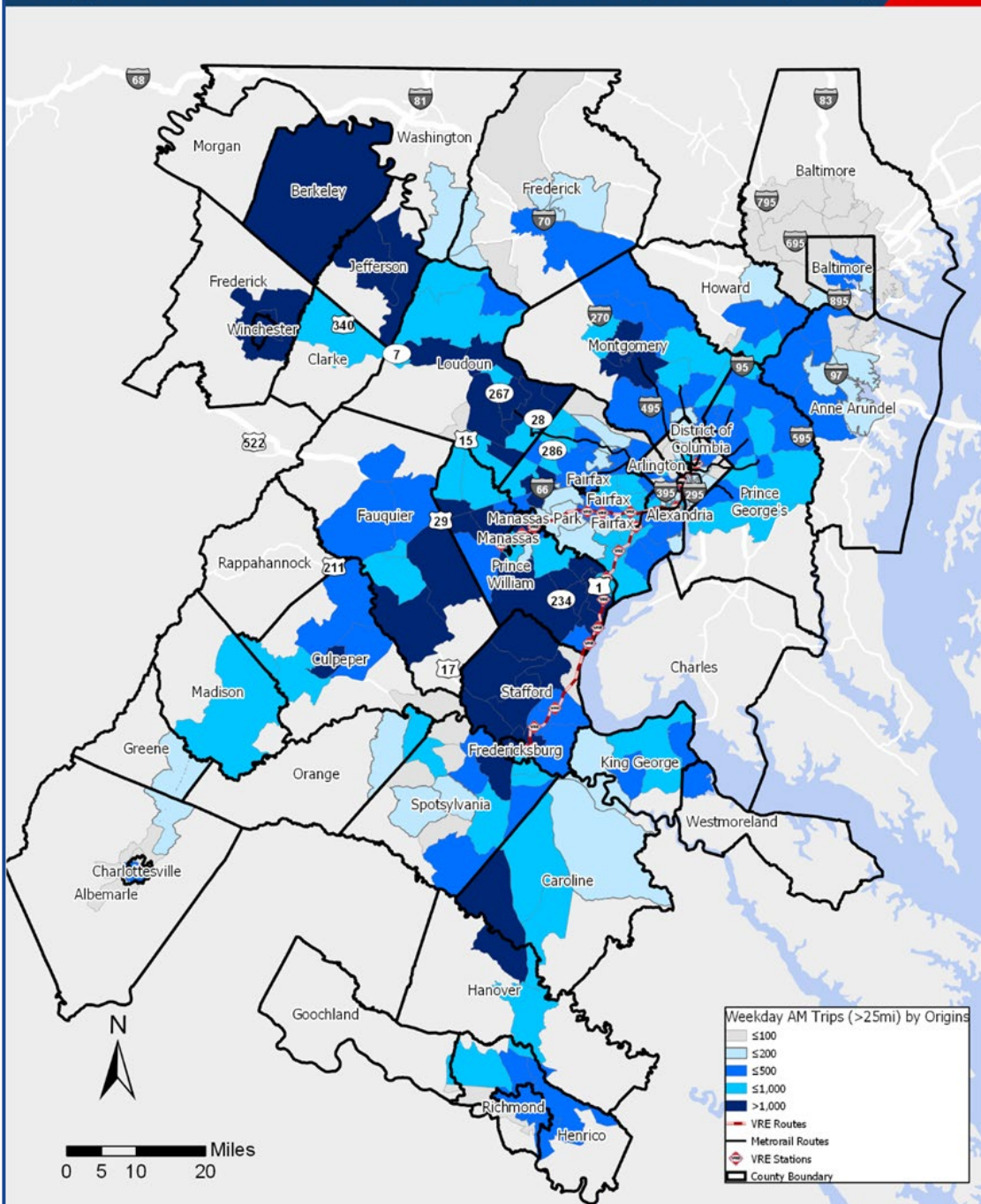
- VRE service provides the most travel time advantage for longer trips
- Most of long-distance trip making is originating in areas far from VRE stations
- Significant number of trips begin or end beyond VRE's termini

O-D pairs with the highest level of +25-mile trip demand

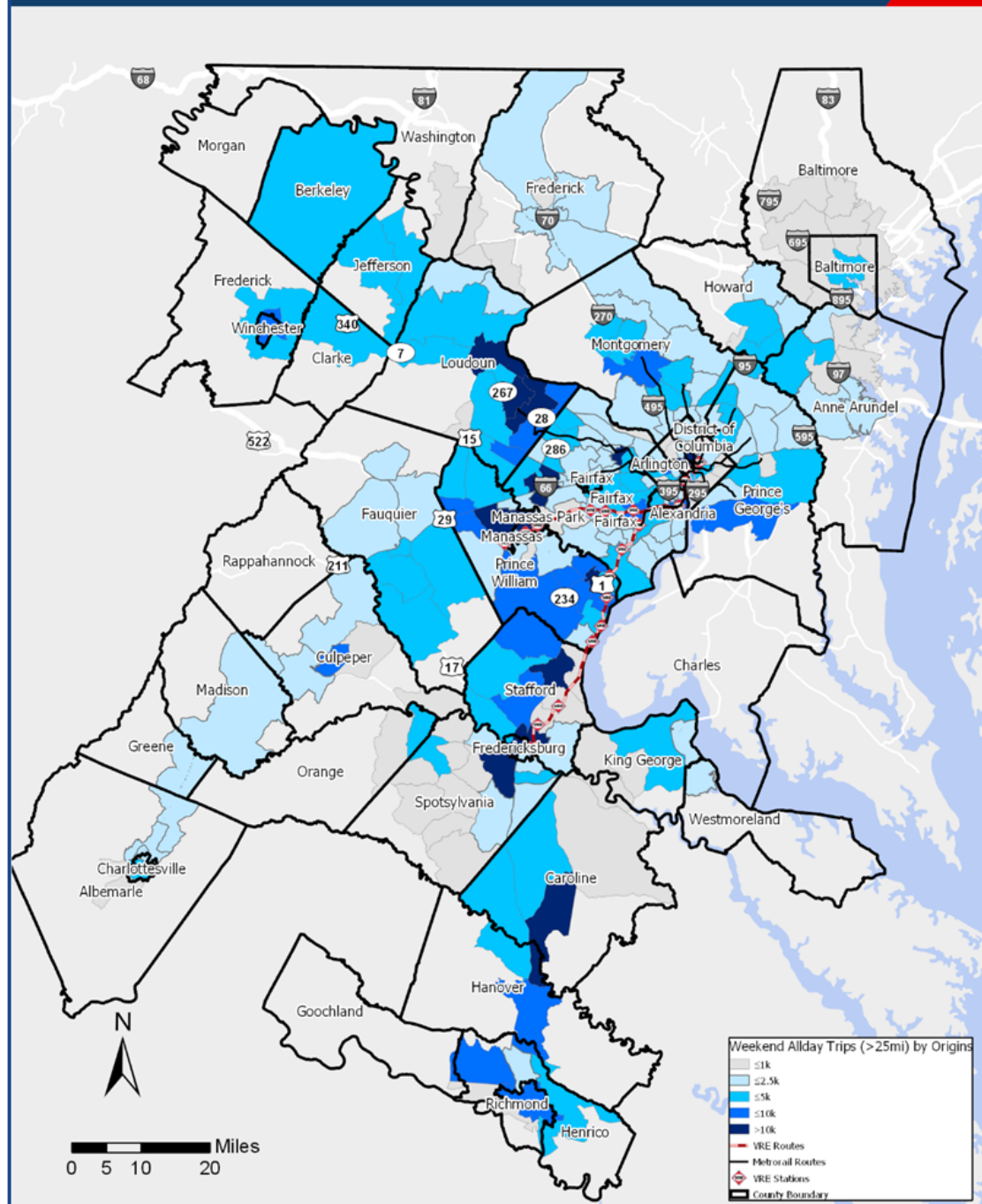
| Weekday Peak | Saturday | Sunday |
|--|----------------------------|----------------------------|
| • Centreville – DC Core | • Centreville – DC Core | • Dulles Airport – DC Core |
| • Caroline County West of I-95 – Central Fredericksburg/South Stafford | • DC Core – Centreville | • DC Core – Centreville |
| • Potomac Mills – DC Core | • Dulles Airport – DC Core | • DC Core – Dulles Airport |



Long-Distance Weekday AM Trips from/to VA by Origins



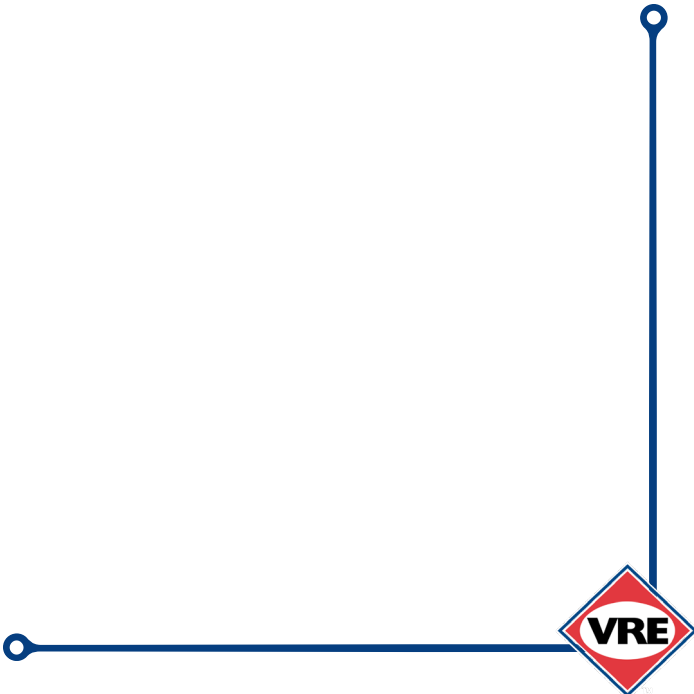
Long-Distance Weekend Daily Trips from/to VA by Origins



| Origin Zone Name | Destination Zone Name | #Trips Daily |
|---------------------------------------|---------------------------------------|--------------|
| DC Core | Centreville | 1,135 |
| Central Culpeper | Warrenton | 1,070 |
| Dulles Airport | DC Core | 1,063 |
| Warrenton | Central Culpeper | 1,042 |
| DC Core | Potomac Mills | 1,038 |
| DC Core | SE Dulles Airport-Air and Space | 984 |
| DC Core | Dulles Airport | 981 |
| Centreville | DC Core | 964 |
| SE Dulles Airport-Air and Space | DC Core | 930 |
| Sterling | Gainesville | 898 |
| North Stafford | DC Core | 845 |
| Caroline County West of I-95 | Central Fredericksburg-South Stafford | 800 |
| Central Fredericksburg-South Stafford | Caroline County West of I-95 | 784 |
| Sterling | Mosaic District-Inova-NVCC | 751 |
| Lake Ridge | DC Core | 747 |
| DC Core | Lake Ridge | 745 |
| Potomac Mills | DC Core | 698 |
| DC Core | North Stafford | 690 |
| Rippon | DC Core | 689 |
| Central Manassas | Bealton | 671 |

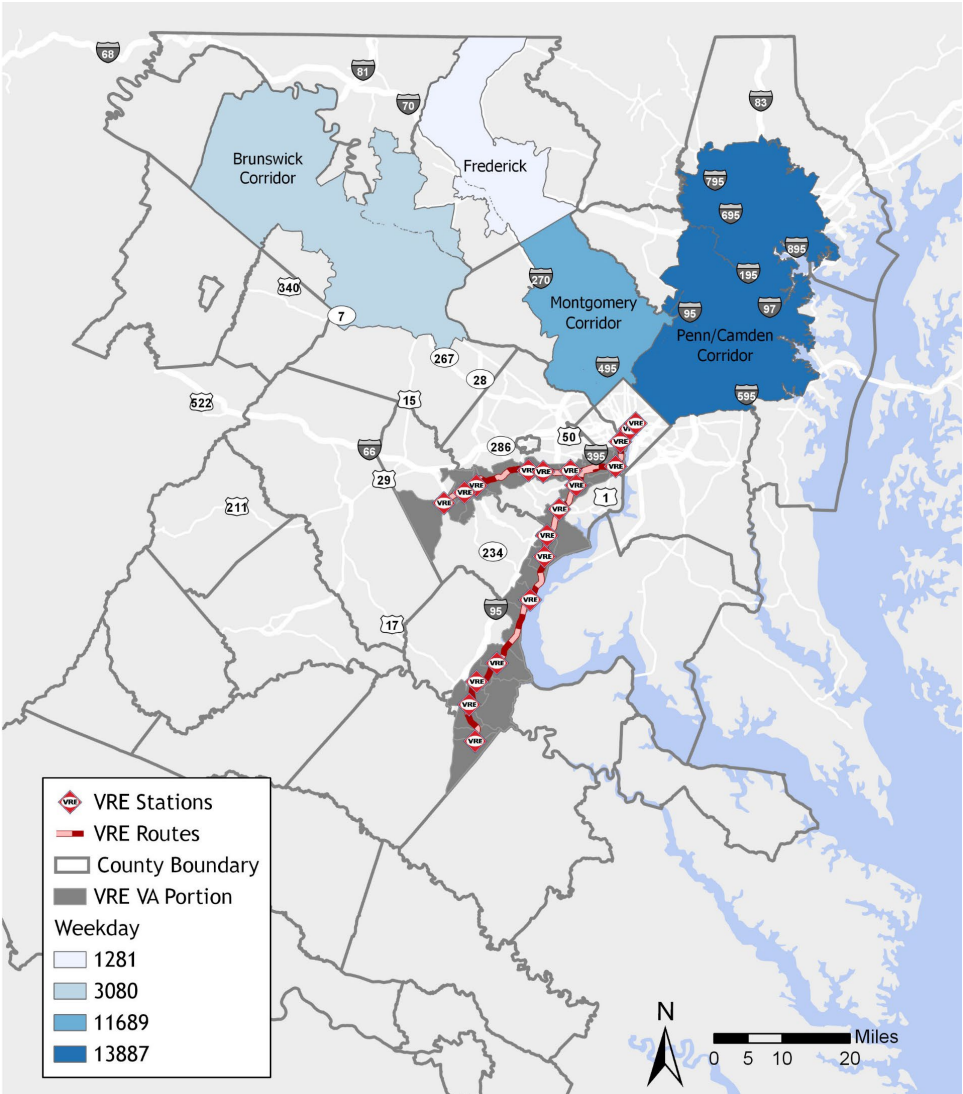
Top Long-Distance Trip ODs w/ One End in Current or Future VRE Service Area

Weekday Daily Trips



Demand from VRE Service Area to MD

Total daily travel to MARC Service Area from the VRE Service Area

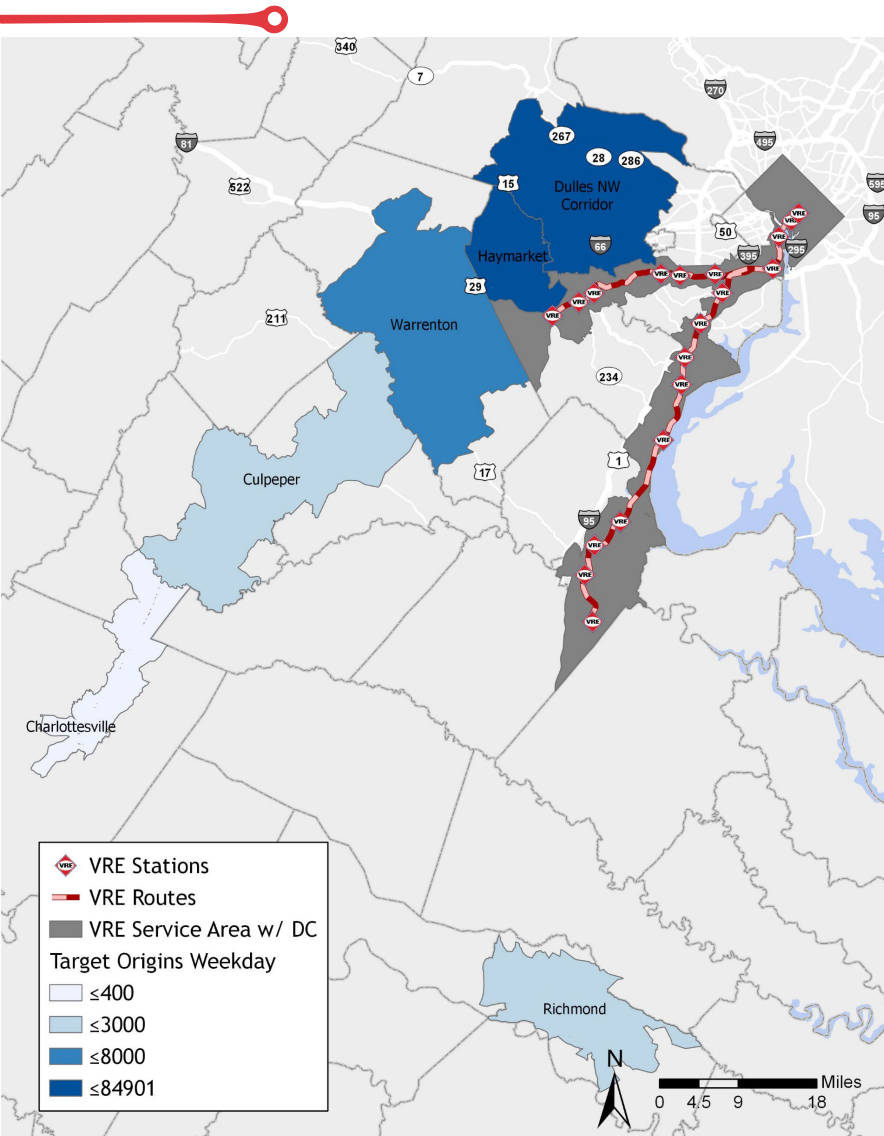


| Destination Area | Weekday | Saturday | Sunday |
|--|---------|----------|--------|
| Brunswick Corridor – WV and VA | 3,080 | 3,747 | 3,402 |
| Frederick | 1,281 | 1,613 | 1,803 |
| Brunswick Corridor - Montgomery County | 11,689 | 12,177 | 12,199 |
| Penn/Camden Corridor | 13,887 | 16,644 | 15,534 |

Data Source: Streetlight Data



Demand to the VRE Service Area from Other Parts of VA



Total daily travel from outside VRE Service Area to VRE Service Area

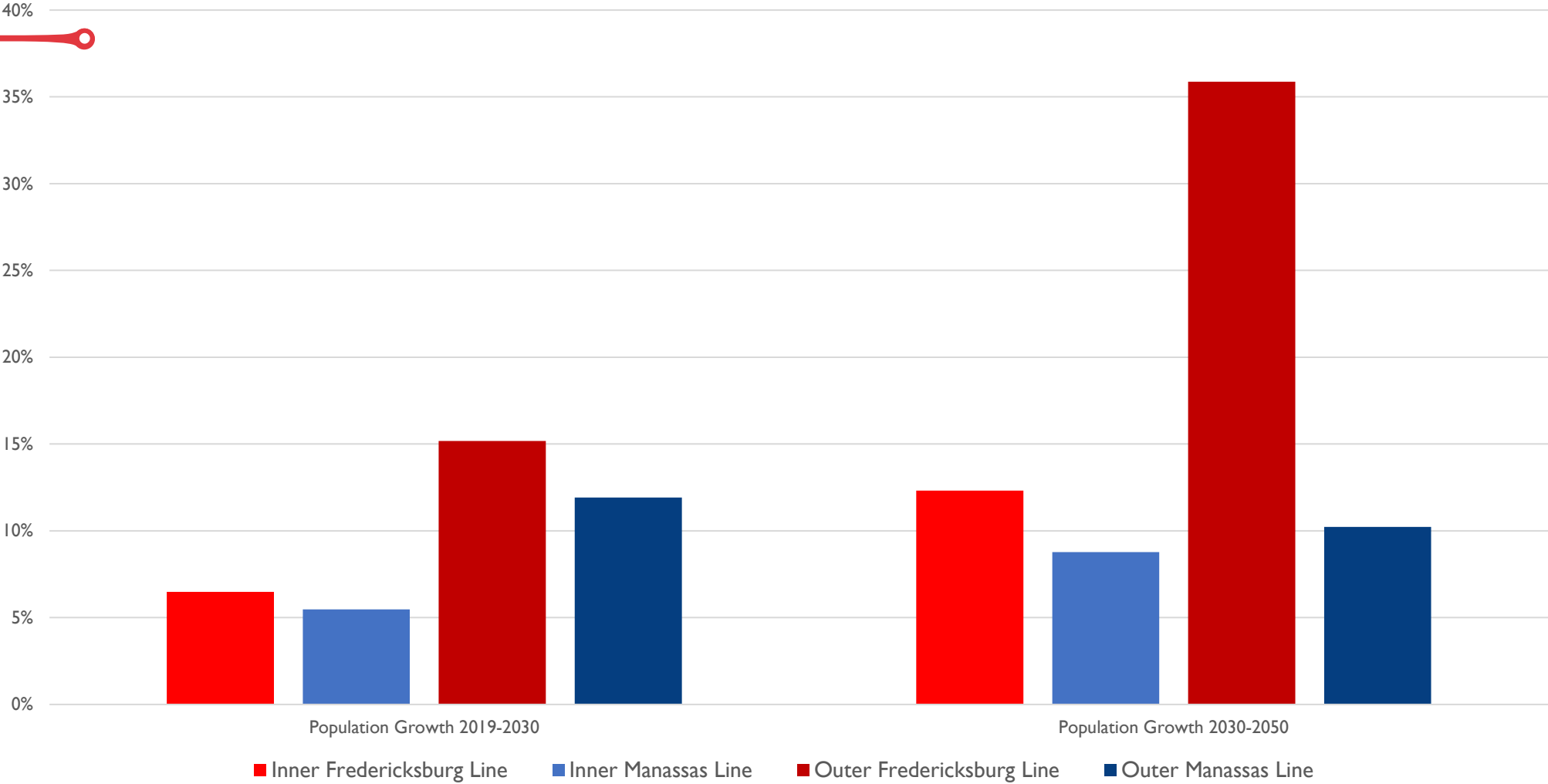
| Origin Area | Weekday | Saturday | Sunday |
|--------------------|---------|----------|--------|
| Richmond | 2,688 | 4,637 | 4,558 |
| Charlottesville | 390 | 950 | 829 |
| Dulles NW Corridor | 84,901 | 94,198 | 80,349 |
| Haymarket | 55,265 | 50,558 | 43,058 |
| Warrenton | 7,090 | 6,846 | 5,727 |
| Culpeper | 2,078 | 2,440 | 1,907 |

We will continue to explore ways we could serve these markets through the 2050 service scenarios.

Data Source: Streetlight Data



Population Growth Projections

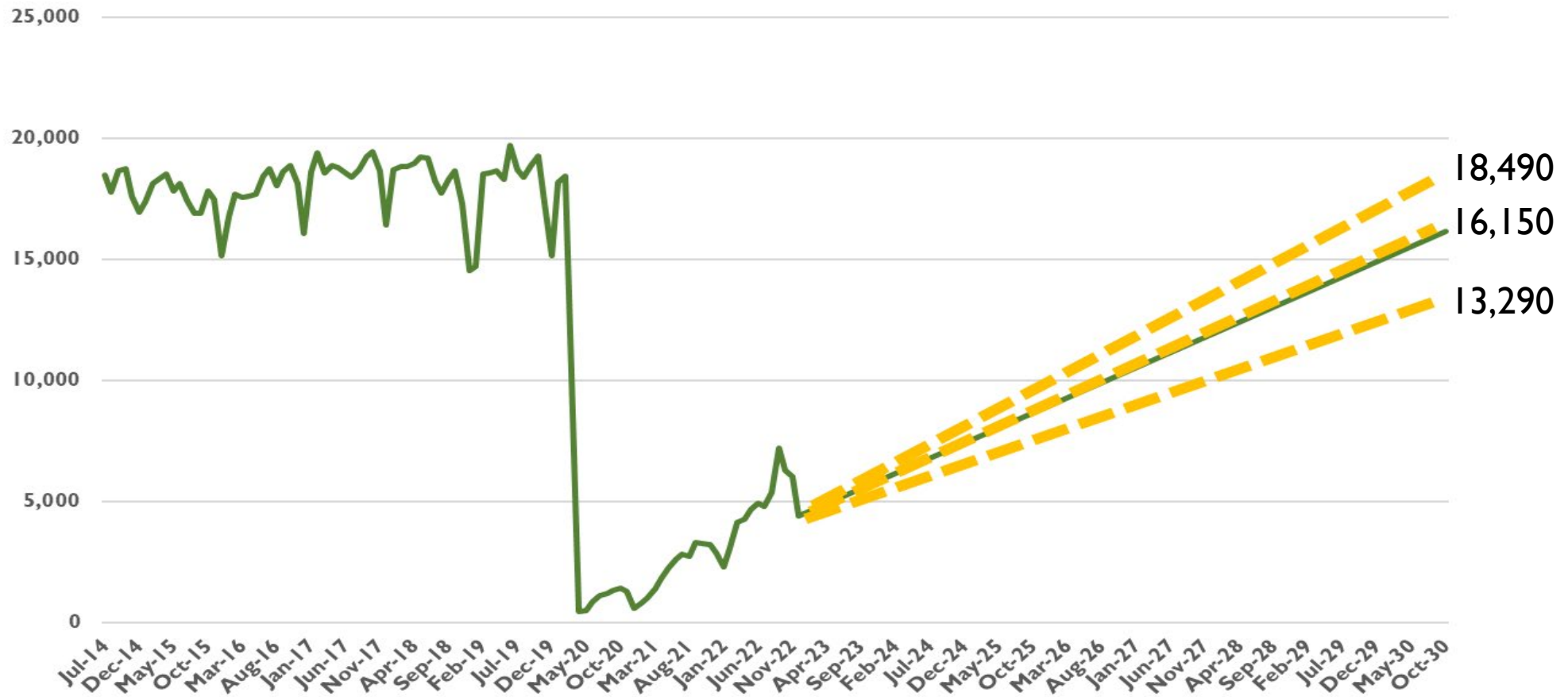


1: FBG Line Outer Stations: Spotsylvania, Fredericksburg, Leeland Road, Brooke, MSS Line Outer Stations: Broad Run, Manassas, Manassas Park
 2: FBG Line Inner Stations: Quantico, Rippon, Woodbridge, Lorton, Franconia, MSS Line Inner Stations: Burke Centre, Rolling Rd., Backlick Rd.



2030 Ridership Forecast: No Build (2023 Service)

2030 average daily ridership with no change to VRE service pattern



Service Scenario Development Process

22 Long List Service Scenarios

Definition
Scoping
Preliminary qualitative evaluation
(Consulted with VRE Operations Planning Work Group)

9 Refined Long List Service Scenarios

Fatal Flaw Analysis (Schedules
Infrastructure, Fleet, etc.)

4 Short List 2050 Service Scenarios

June 2023 Board Workshop

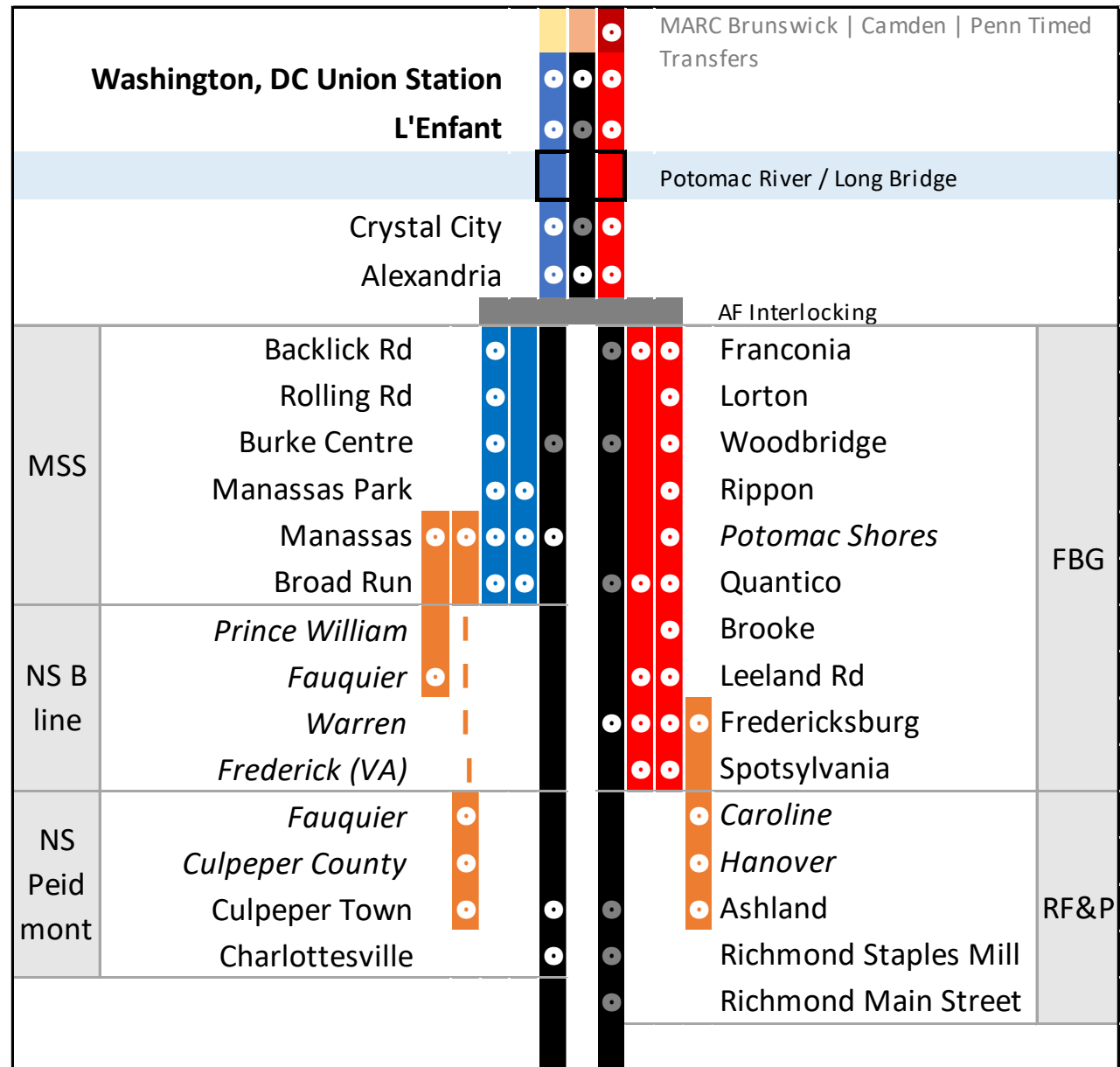
4 Alternatives within 2030 Horizon



2030 Board-Recommended Alternative

WEEKDAYS

- Up to **26** daily trains (14 FBG/12 MSS)
- 2 Fredericksburg Line express trains
- 4 Manassas Line express trains
- Step-Up expanded to most Amtrak trains
- Feeder bus service connects to Express VRE trains at Fredericksburg and Manassas
- Timed transfers to/from MARC Penn Line



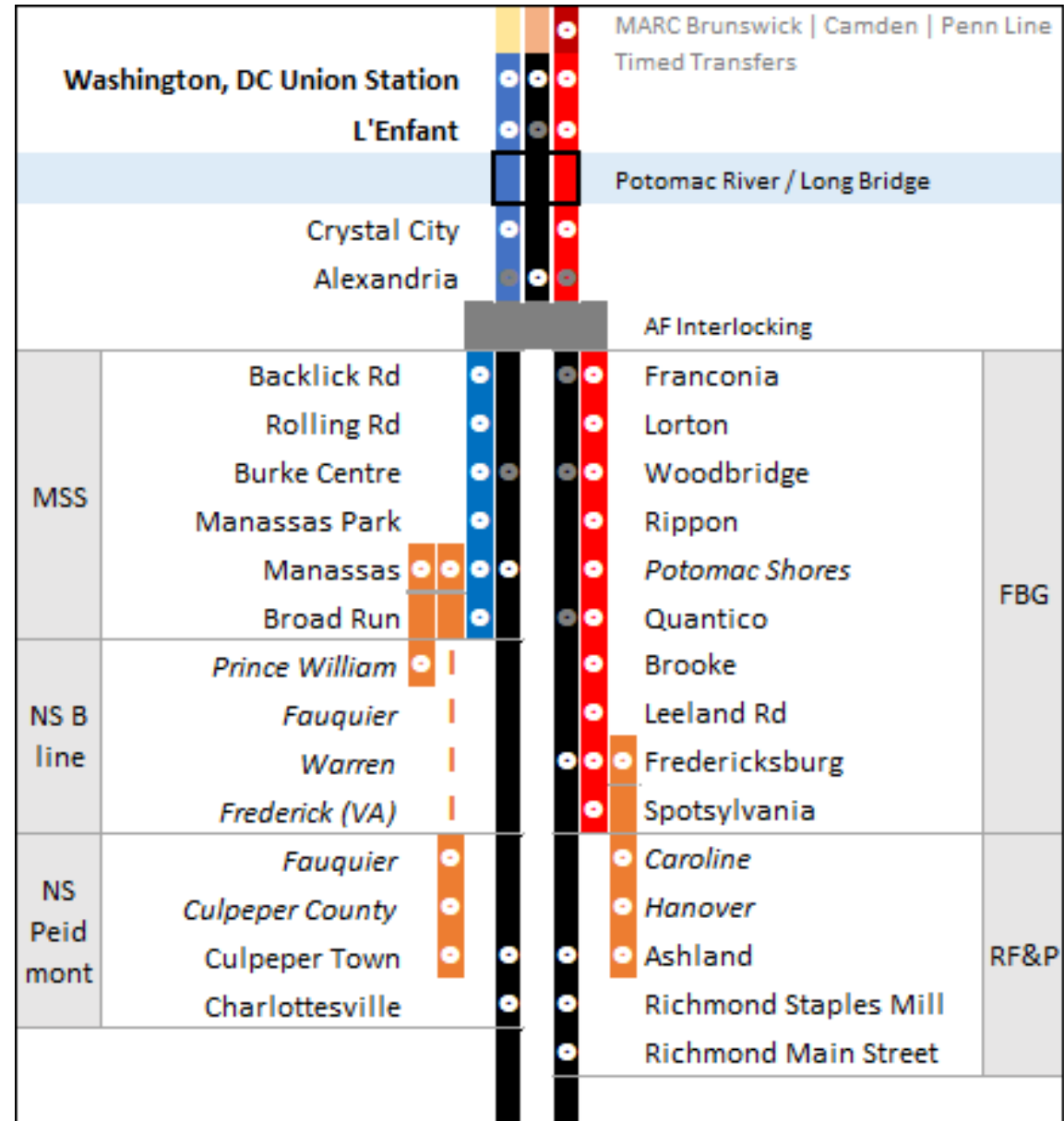
2030 Board-Recommended Alternative

WEEKENDS

- Up to **13** daily trains (7 FBG/ 6 MSS)
- All-Local service
- Limited reverse flow
- Step-Up (or future ticketing agreement) allows weekend travel on most Amtrak trains)
- Flexibility for weekend feeder bus service
- MARC/Amtrak timed transfers at WAS where feasible

★ Board requested phase-in of weekend service

Saturday only **6** trains → Full weekend **13** trains



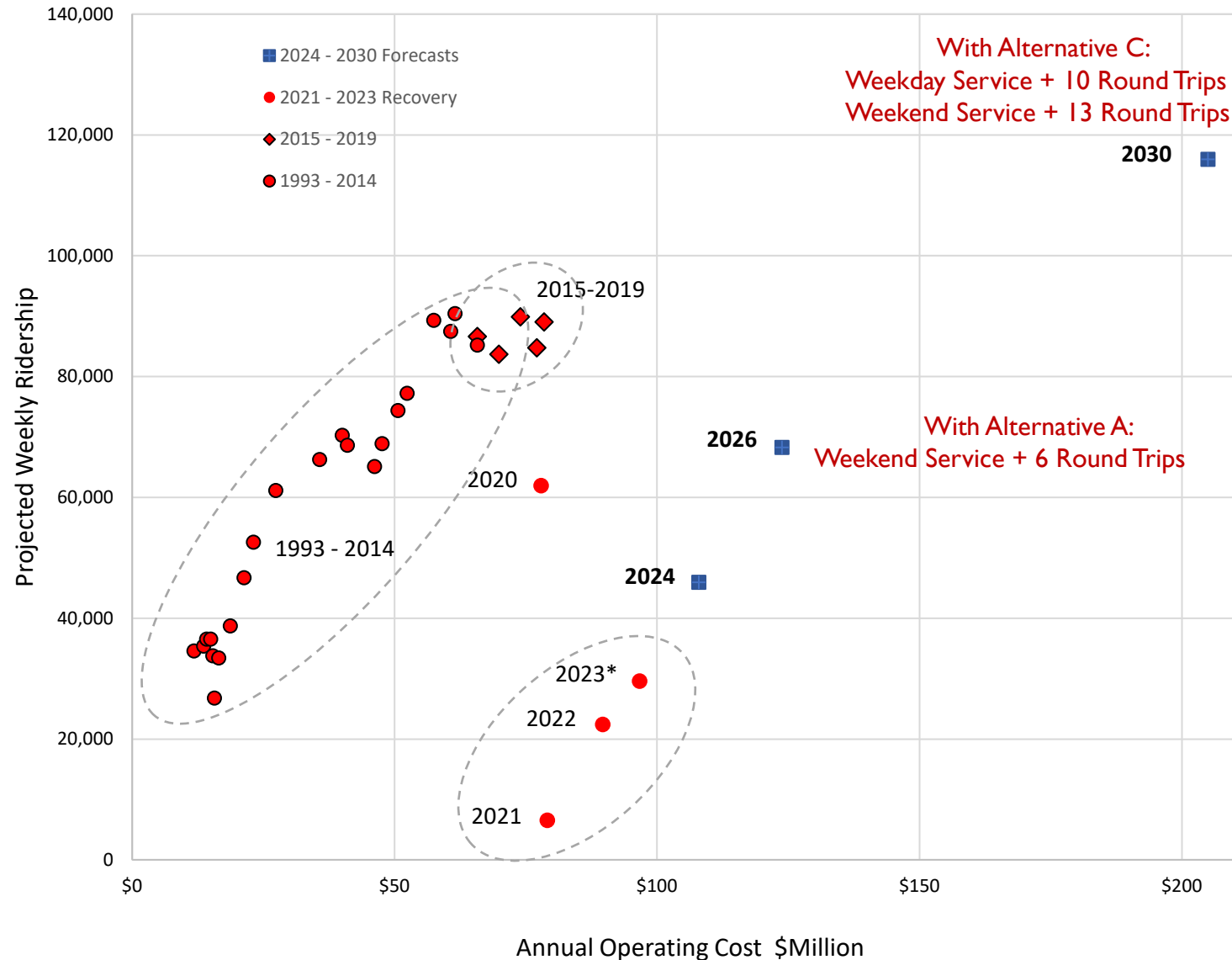
Services Added by 2030

| | FY24 | FY30 Base Weekend | FY30 Expanded Weekend | Percent Increase from Weekday FY24 |
|-----------------------------------|-----------------------------|------------------------------|------------------------------|------------------------------------|
| Daily Trips by Fiscal Year | | | | |
| Weekday Fredericksburg | 16 | 28 | 28 | 75% |
| Weekday Manassas* | 16 | 24 | 24 | 50% |
| Weekend Fredericksburg | 0 | 6 | 14 | N/A |
| Weekend Manassas* | 0 | 6 | 12 | N/A |
| Total | 32 M-F / 0 Sa-Su | 52 M-F / 12 Sa-Su | 52 M-F / 26 Sa-Su | 62.5% |

*Expanded weekday and weekend Manassas Line service contingent upon agreement from Norfolk Southern.



2030 Operating Cost vs Projected Ridership

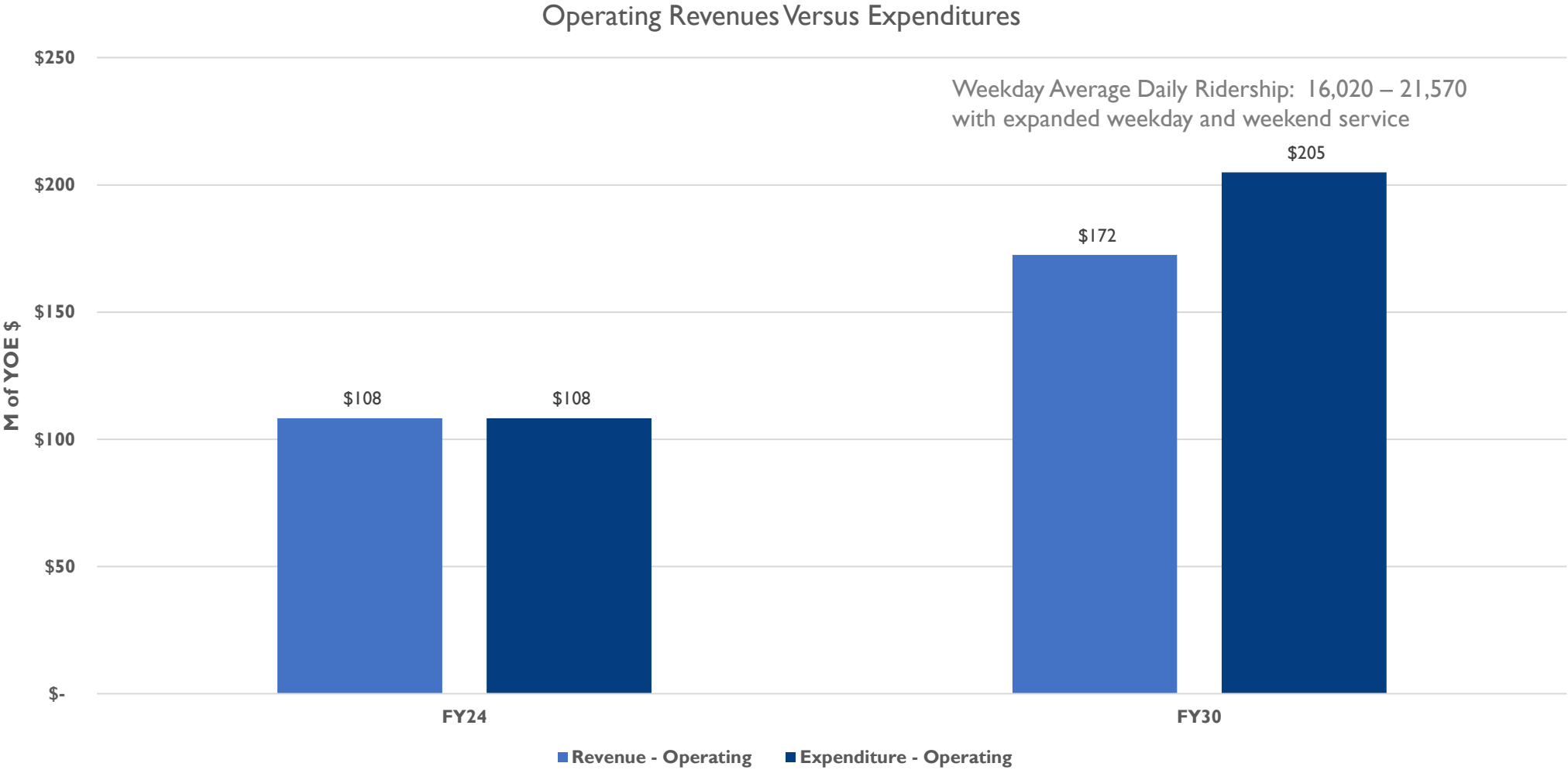


All historical data from National Transit Database (NTD) and VRE

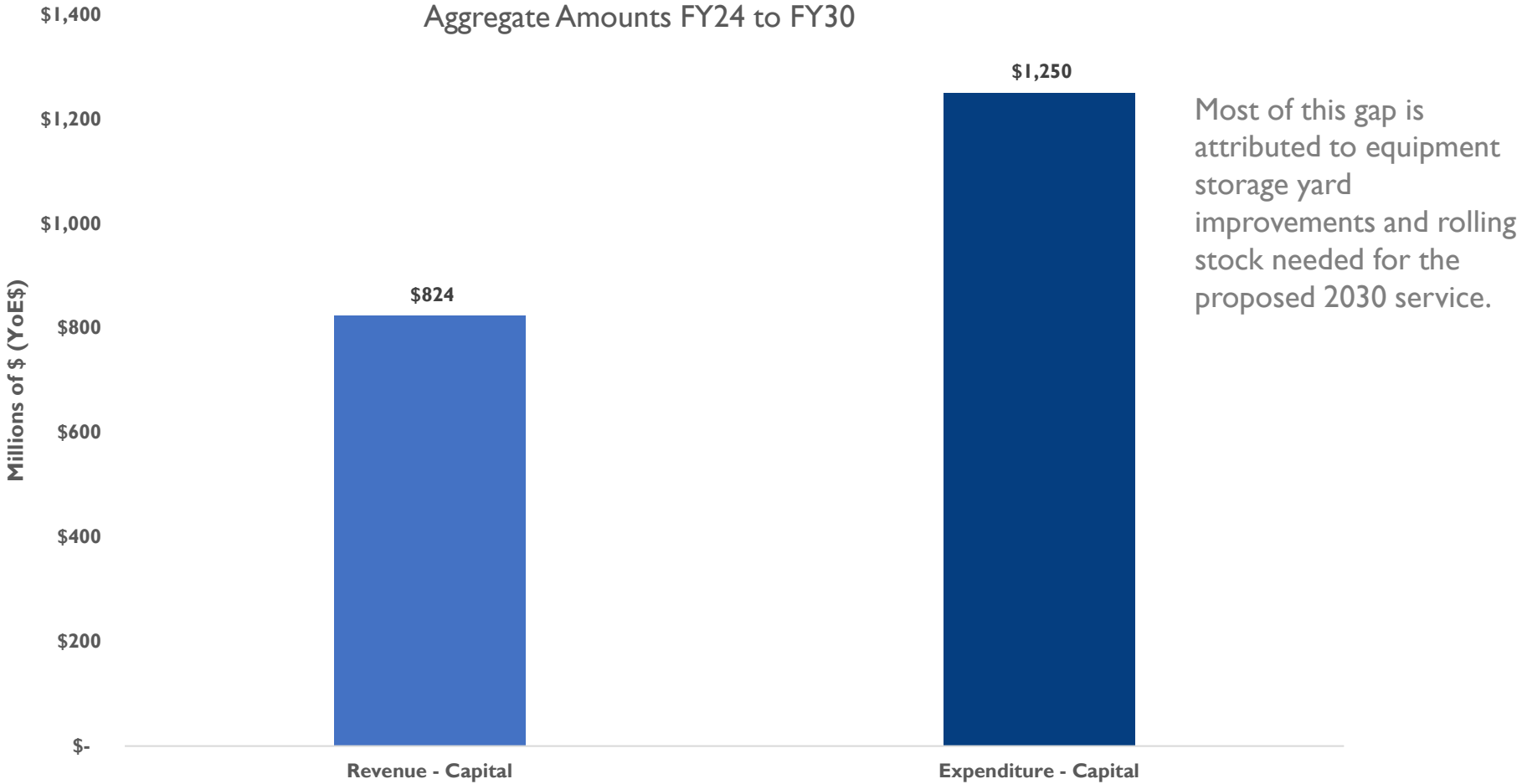
2023 contains 3 months of data



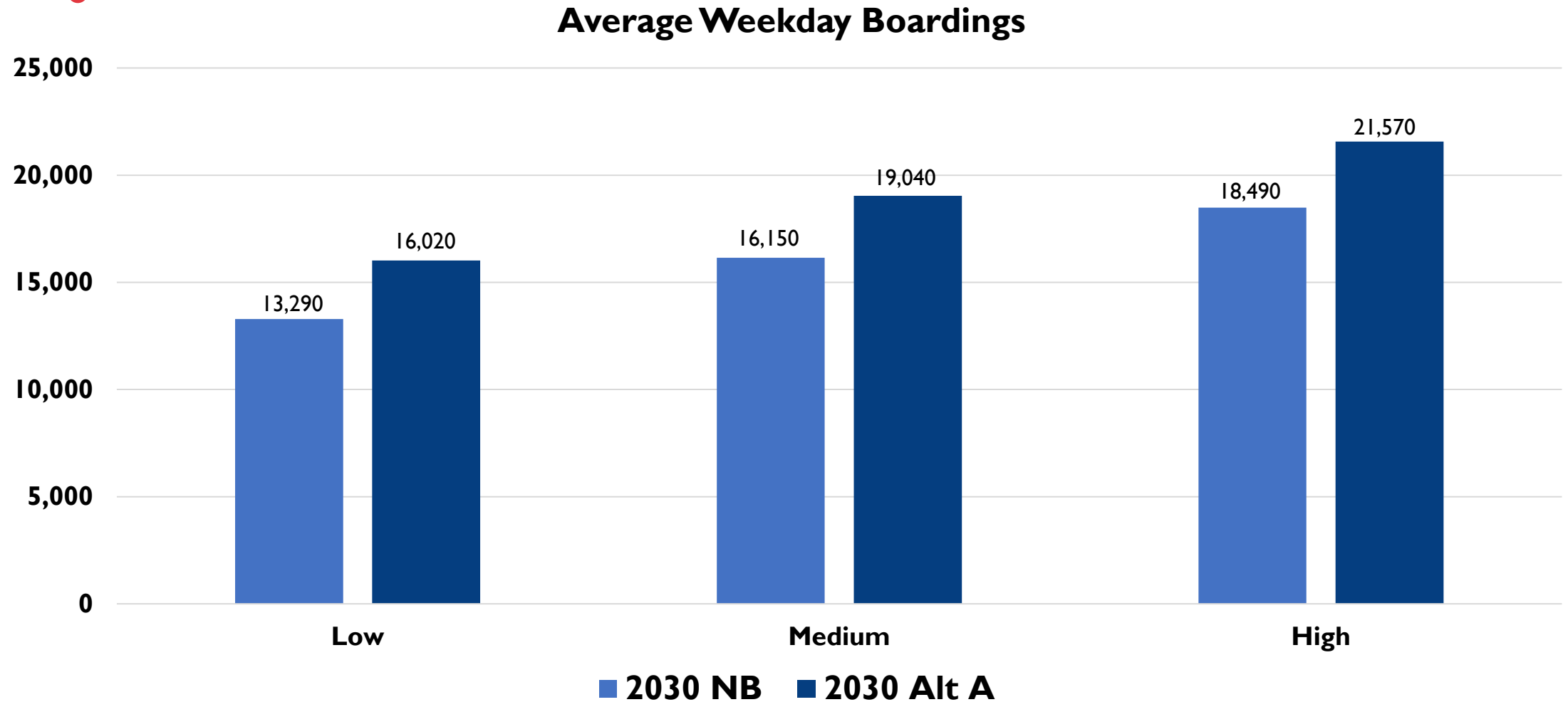
Revenue vs. Expenditure



Forecast FY30 Capital Funding Gap

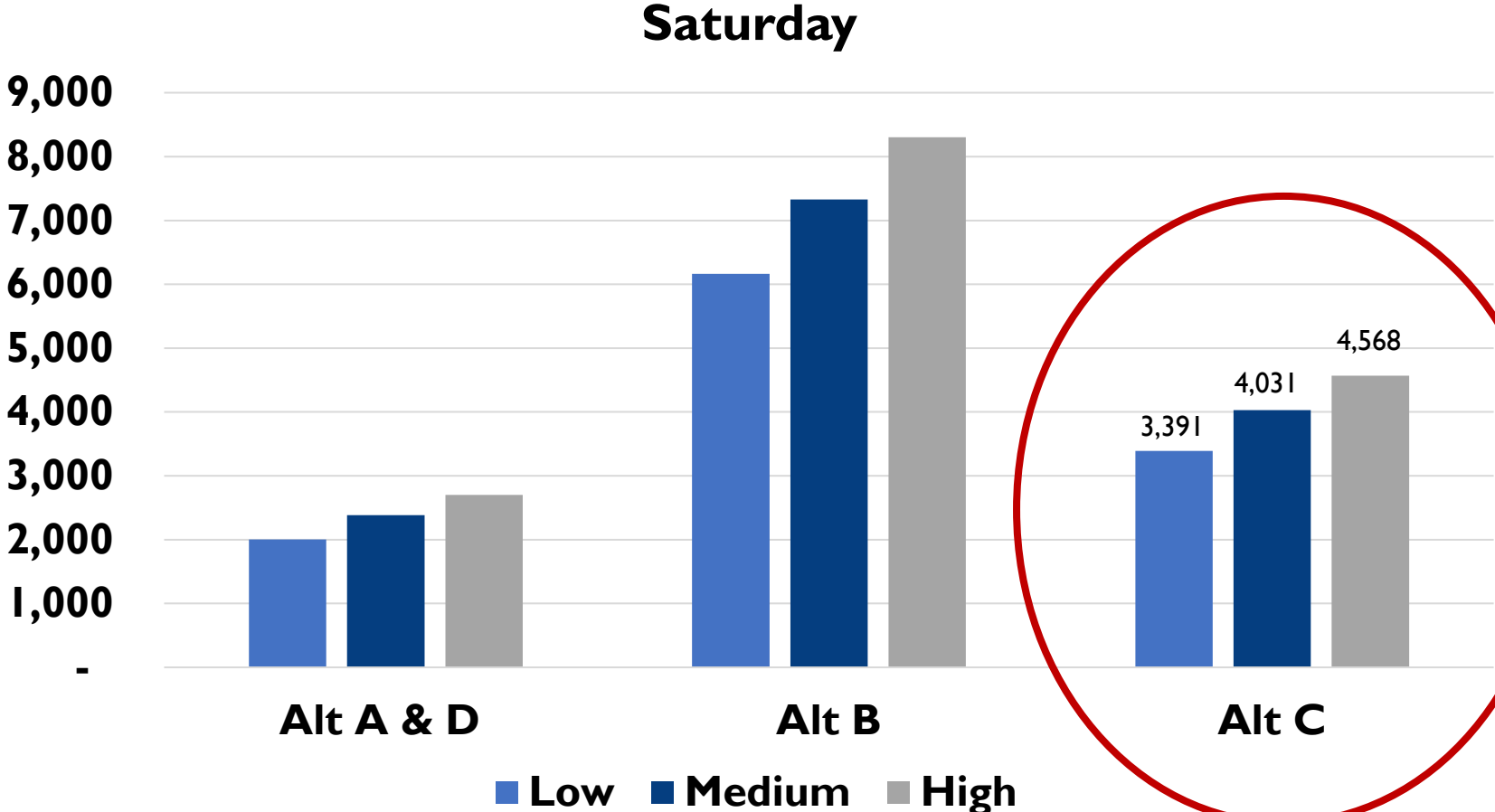


2030 Weekday Ridership Forecasts: Alt A vs No Build



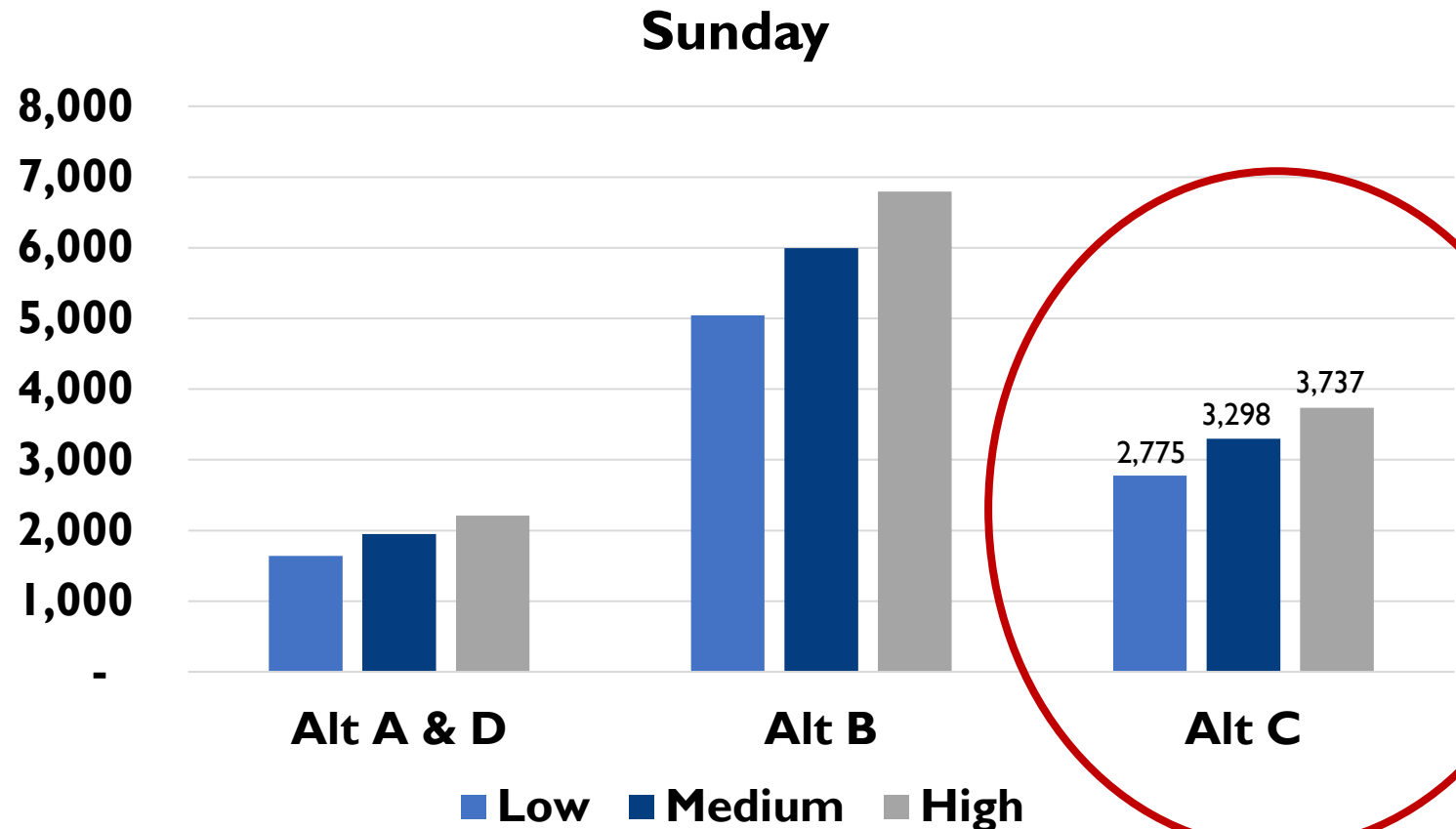
2030 Average Saturday Ridership Forecasts

Average Saturday Boardings



2030 Average Sunday Ridership Forecasts

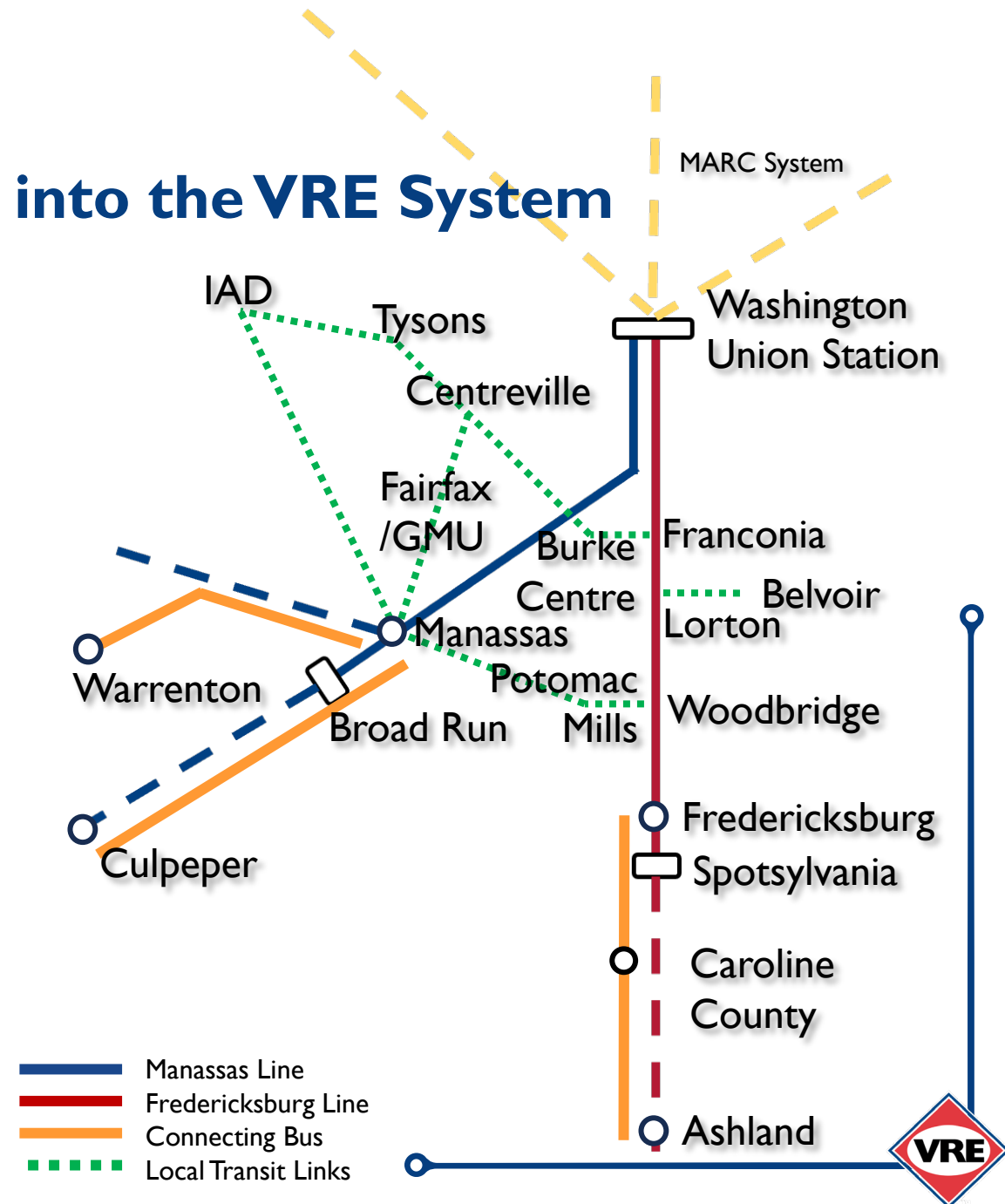
Average Sunday Boardings



Connecting Bus and Rail

Bringing Long-Distance Commuters into the VRE System

- 2030 scenarios enable service expansion via connecting bus service
- Buses extend the reach of VRE and complement VRE express service, Amtrak VA trains, and Virginia Breeze service
- Transfer to/from MARC Penn Line accomplished through timed transfers and ticketing policies



Key Findings



1. VRE needs to secure additional dedicated operating funding streams
2. Raising fares and jurisdictional subsidy at historical levels is not a viable solution on its own to close the financial gap
3. Ridership growth between now and 2030 will look like VRE's first 20 years in operation, but with a higher cost structure
4. There are additional capital costs before 2030 that drive funding gap
 - Additional rolling stock
 - Expansion of tracks at Crossroads Yard
 - Potential mid-day storage needs
5. VRE does not expect significant increases in either State or Federal revenues by FY30



Looking Ahead

October 2023 VRE Operations Board Presentation:

- Refined operations and financial projections for Preferred 2030 Alt.
- More discussion on 2050 Scenario (incl. geographic expansion)
- Request to proceed to Phase III of System Plan

System Plan Phase III:

- Public pop-ups on 2050 System Vision Concepts—November 2023
- Prepare detailed capital needs assessment
- Detail needed jurisdiction/transit agency coordination through 2050
- Finalize preferred 2050 scenario and adopt Plan in March 2024



THANK YOU

