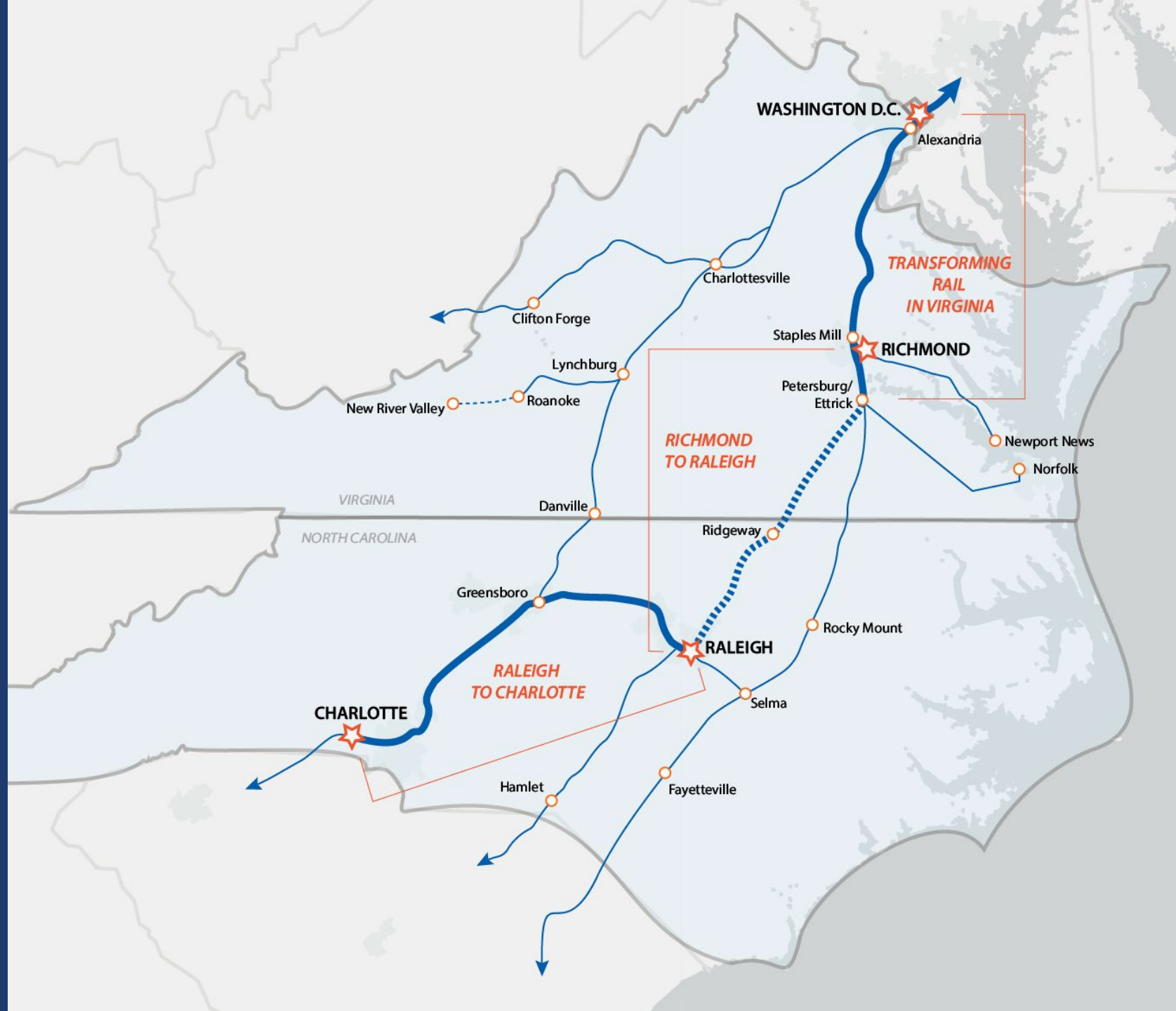


Passenger Rail Service Performance

Jeremy Latimer
Director of Rail Services



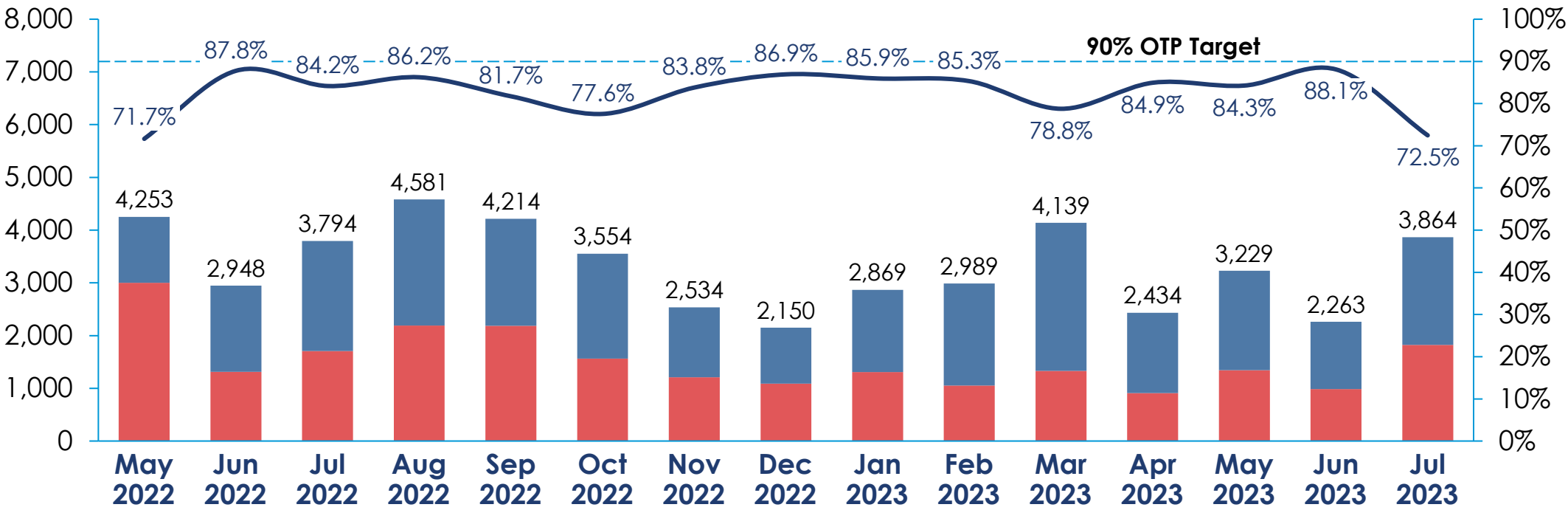
Agenda – August 30, 2023

VPRA Board Meeting Update

- VRE Performance
- Amtrak Performance
- Deep Dives
 - Heat Orders
 - Washington Union Station Issues
 - APMP (Maintenance and Construction Work Coordination)

VRE performance improved considerably from March but is still below 90% on-time percentage

VRE Last Station OTP v. Delay Minutes



— Monthly OTP %
■ Fredericksburg Line Delay Minutes
■ Manassas Line Delay Minutes

VRE On Time Threshold:
trains arrive at last scheduled stop within six minutes of schedule

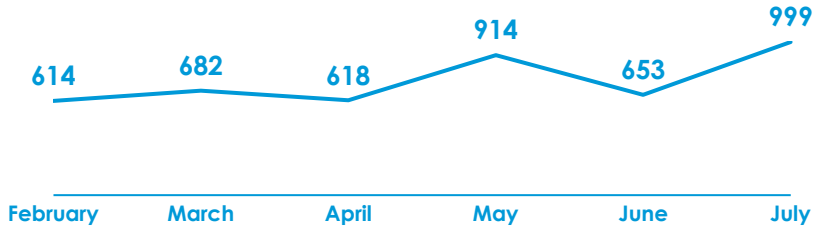


VRE is being impacted by disruptions at Washington and Amtrak trains operating out of slot

Top 4 VRE delay causes over past 6 months (Feb-July 2023)

Amtrak Interference

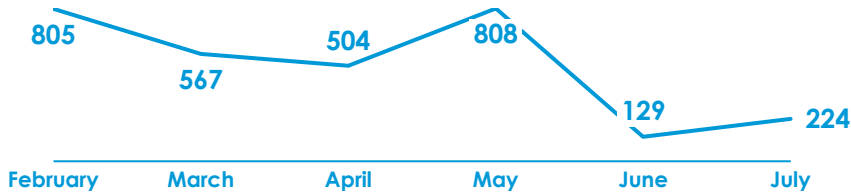
VRE trains delayed by an Amtrak train



← Amtrak interference is at a 6-month high

Slow Orders

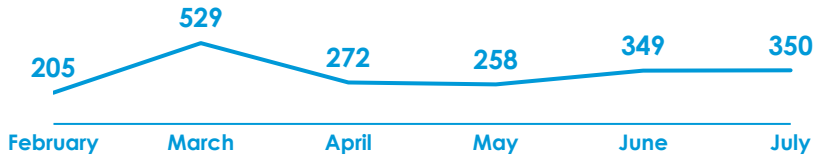
Speed restrictions due to track conditions



← Slow orders have dropped significantly since May

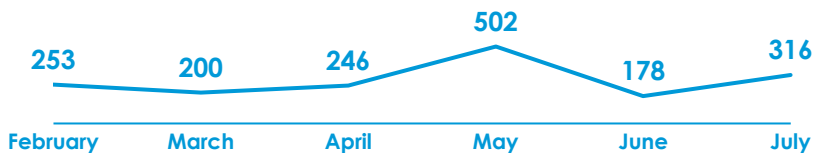
CSX Interference

VRE trains delayed by a CSX freight train



Terminal Congestion

VRE trains delayed within the Washington terminal



← The Service Performance Committee facilitated discussions between VRE and Amtrak about operations at Washington

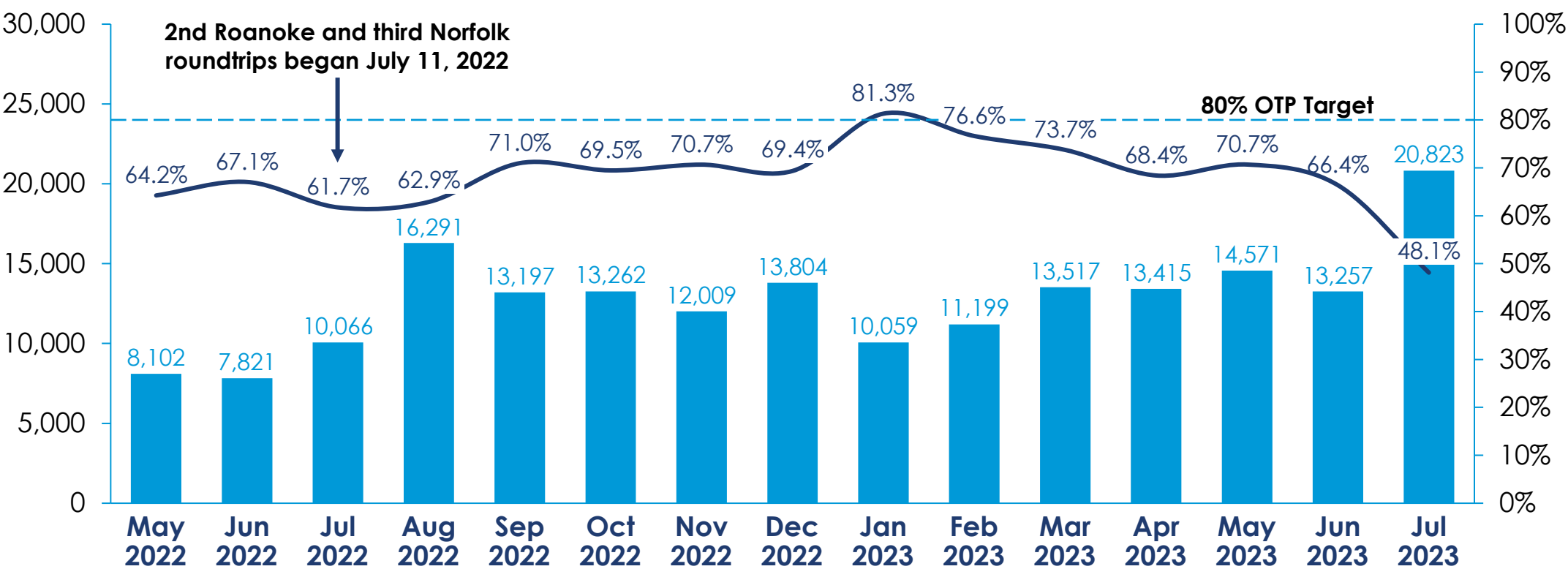
Agenda – August 30, 2023

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Heat orders, slow orders, a July 11 derailment, and July 16 power outage at Washington severely affected July performance

NE Regional All-Station OTP v. Delay Minutes (RF&P Corridor Only)^{1,2}



Amtrak On Time Threshold:
trains arrive at each station stop within fifteen minutes of schedule

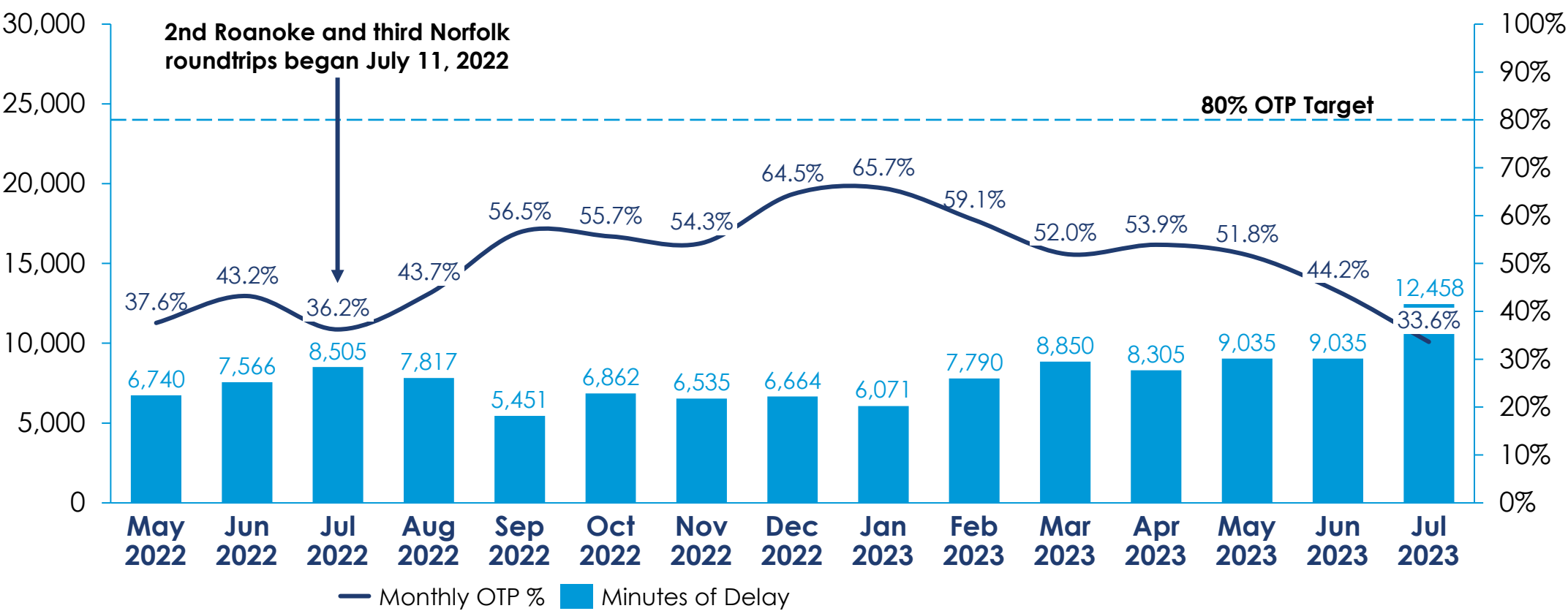
— Monthly OTP % ■ Minutes of Delay

(1) OTP excludes OTP on NS Roanoke corridor
(2) Delay minutes exclude NOD and all delays on NS



The Carolinian, Palmetto, Silver Meteor, and Silver Star similarly struggled in July

Long Distance All-Station OTP v. Delay Minutes (RF&P Corridor Only)^{1,2,3}



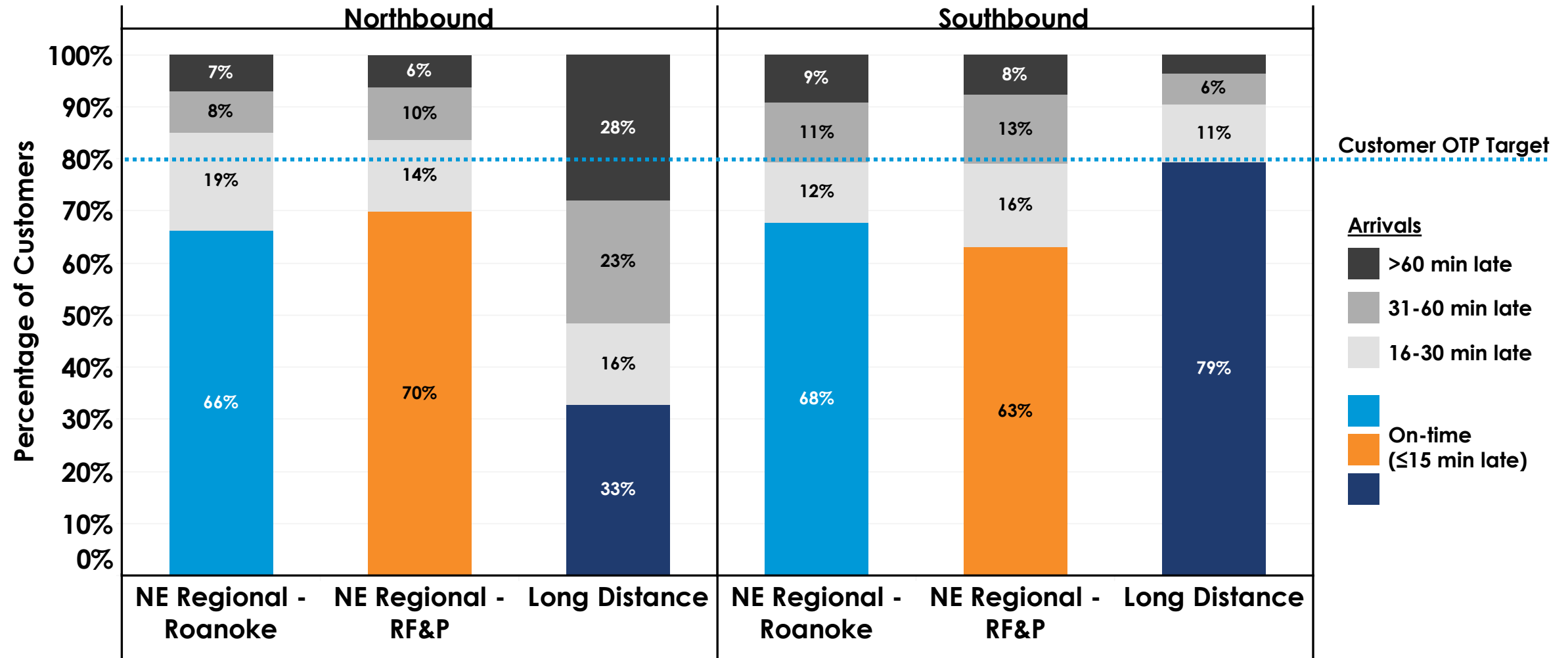
(1) OTP excludes OTP on NS Roanoke corridor
(2) Delay minutes exclude NOD and all delays on NS
(3) Long distance trains include Carolinian, Palmetto, Silver Meteor, Silver Star

Amtrak On Time Threshold:
trains arrive at each station stop within fifteen minutes of schedule



Year-to-date customer on-time performance is below 80%

January to July 2023 Customer On-Time Performance^{1,2}

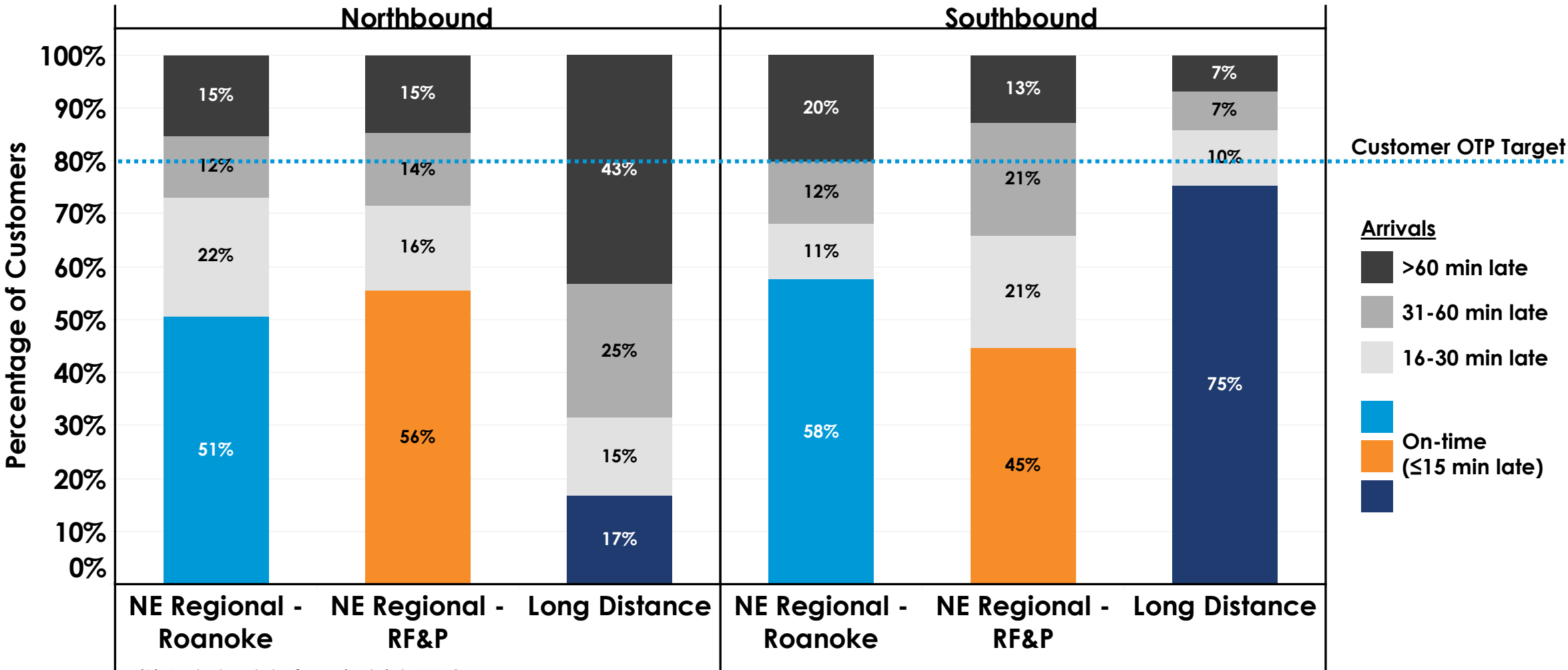


(1) Includes data for arrivals into WAS

(2) Long distance trains: Carolinian, Palmetto, Silver Meteor, Silver Star

Poor performance in July 2023 brings down figures for the year

July 2023 Customer On-Time Performance^{1,2}

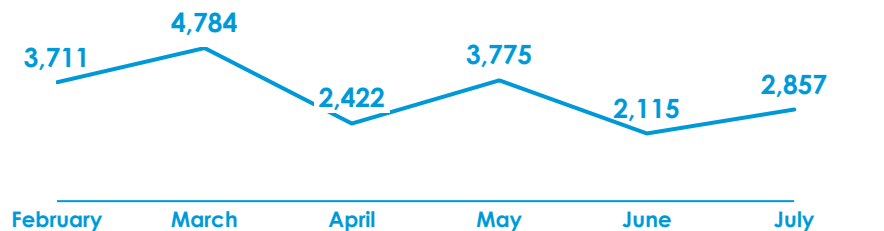


(1) Includes data for arrivals into WAS
(2) Long distance trains: *Carolinian*, *Palmetto*, *Silver Meteor*, *Silver Star*

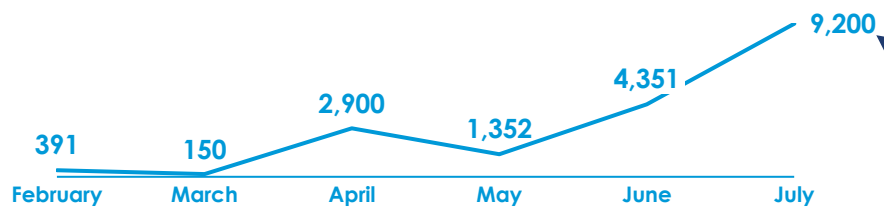
Virginia service continues to be impacted by disruptions at Washington, construction and maintenance-related slow orders, and CSX heat orders

Top 4 Amtrak delay causes over past 6 months (Feb-July 2023)¹

Slow Orders (DSR)
Speed restrictions due to track conditions (non-weather related)

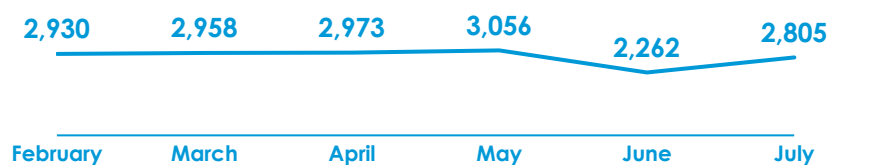


Weather (WTR)
Including heat-related speed restrictions and storms

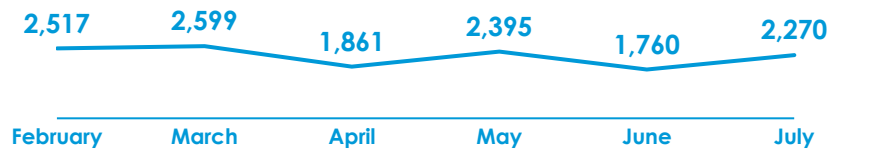


In addition to heat orders, a July 16 lightning strike caused a power outage at Washington and 1,794 minutes of weather-related delays

Amtrak Interference (PTI)
Amtrak trains delayed by other Amtrak trains



Freight Interference (FTI)
Amtrak trains delayed by a freight train



Train interference delays are primarily secondary delays caused by trains operating out of slot (i.e., due to heat and slow orders, delayed engine swaps, late arrivals into Virginia, etc.)

(1) Delay minutes exclude NOD and all delays on NS

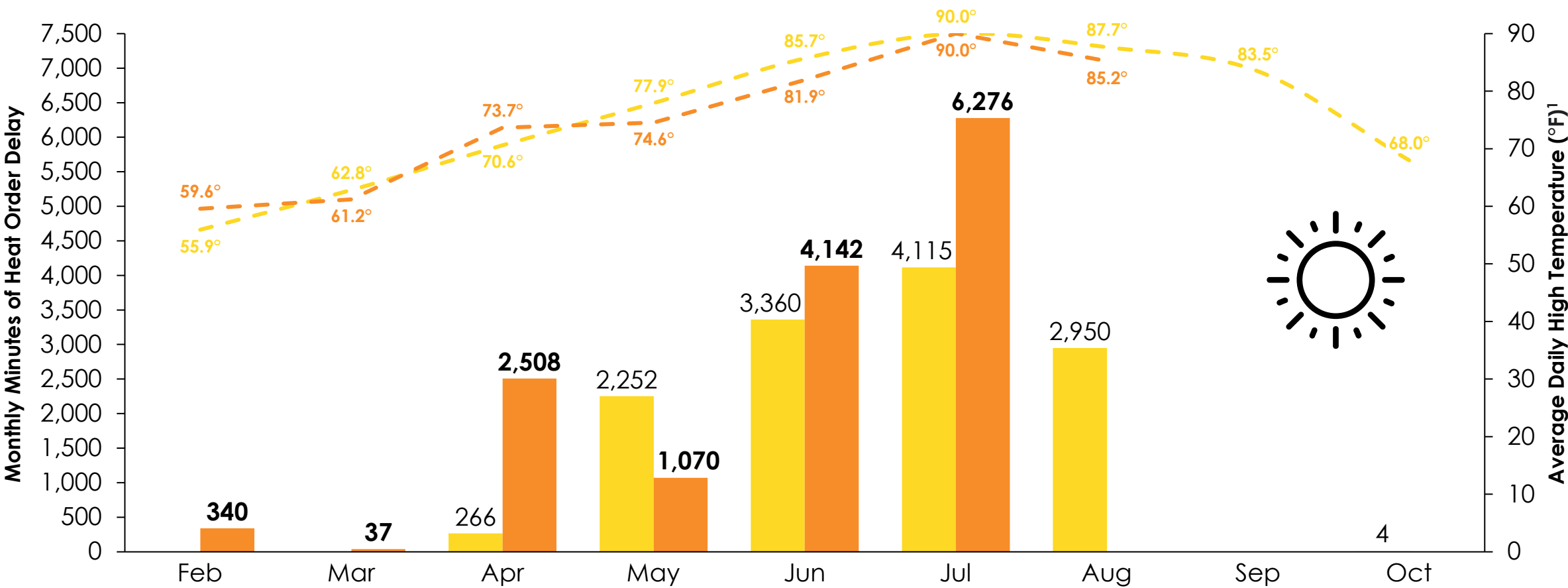
Agenda – August 30, 2023

VPRA Board Meeting Update

- VRE Performance
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Heat order delay minutes in July were 53% higher than July 2022 and the highest ever in a single month since performance monitoring began

Monthly Minutes of Heat Order Delays



2022 Heat Delays 2022 Temperature
2023 Heat Delays 2023 Temperature

(1) Temperature data from Richmond International Airport. August 2023 data through 8/8/23.



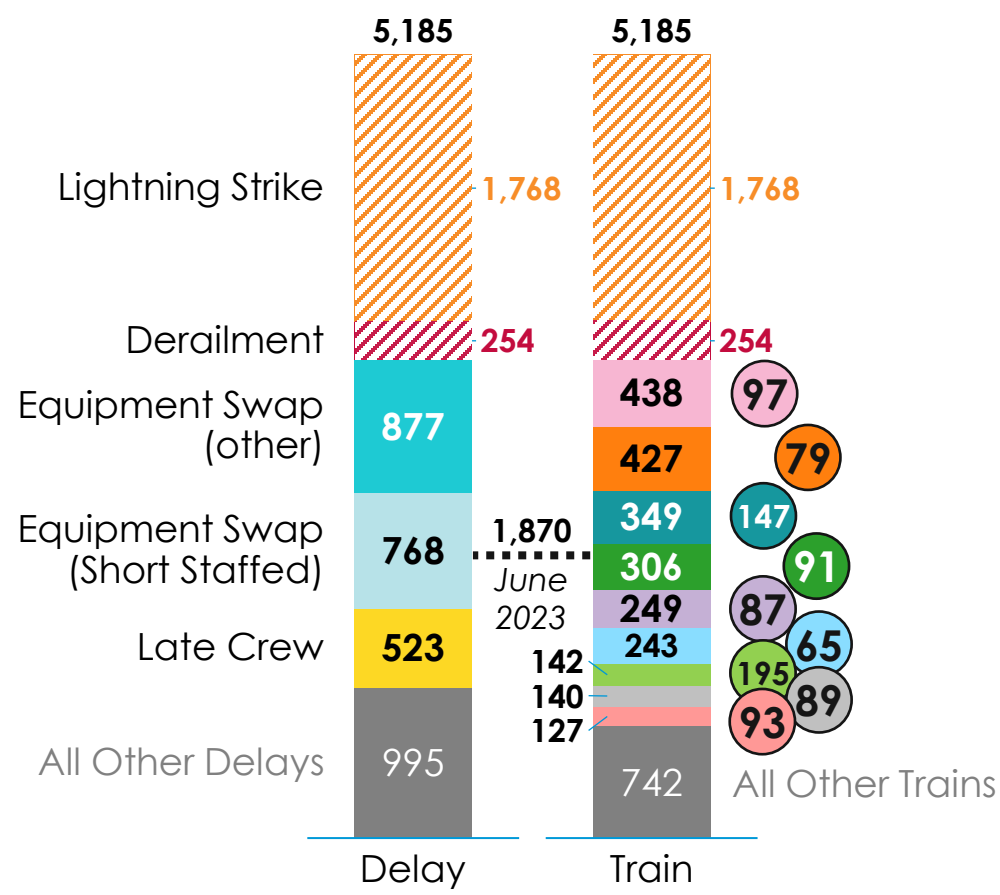
Agenda – August 30, 2023

VPRA Board Meeting Update



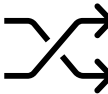

- VRE Performance
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Equipment swaps, many short-staffed, resulted in over 1,600 minutes of delay to southbound trains at WAS in July

Southbound Delays at Washington Union Station (WAS), Jul 2023



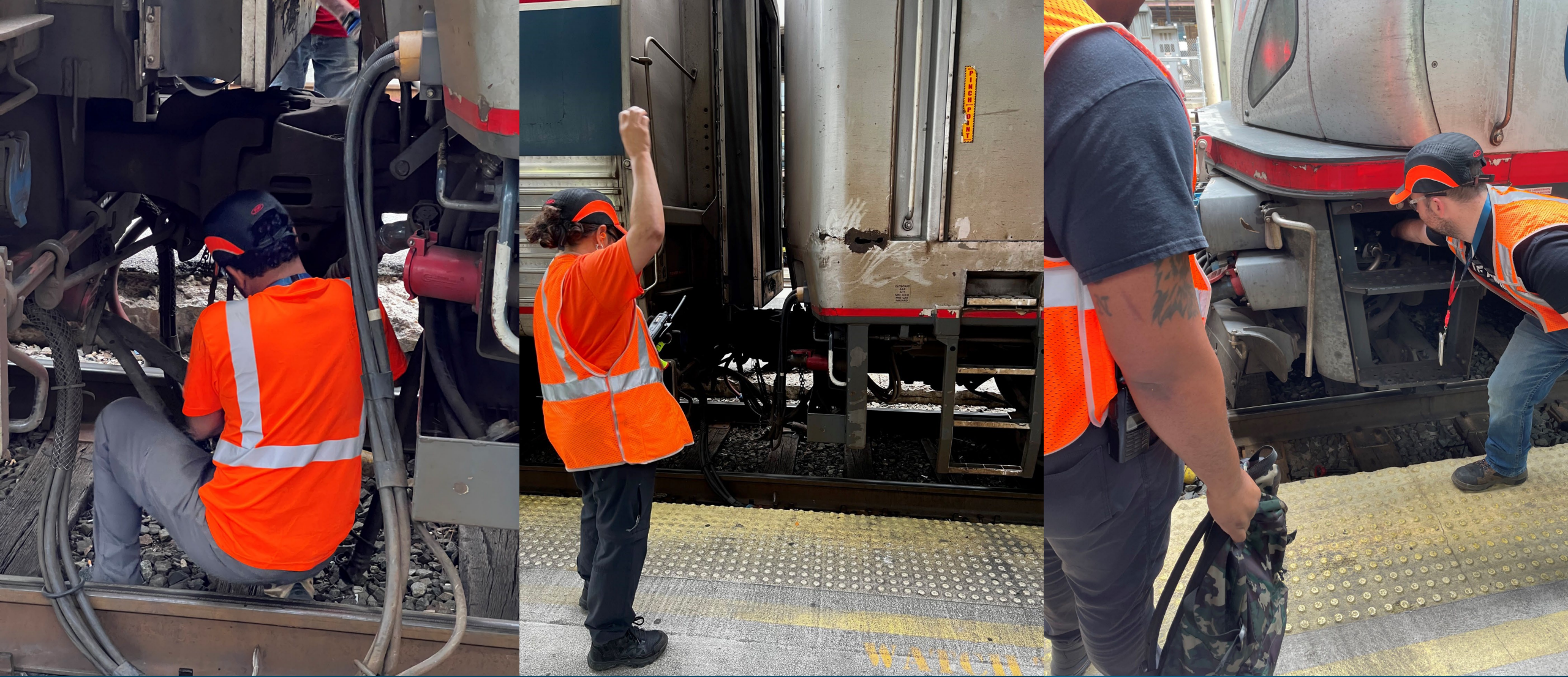
Key themes that show up in the delay remarks:

-  Late engine swaps; Switch/setout of cars and locomotives
-  Mechanical and PTC issues
-  Terminal congestion and train interference
-  Crews arriving on late trains

The issues above are compounded by:

-  Switch and signal reliability issues
-  Crew shortages

(1) Excludes NOD and delays on the Cardinal and Crescent



Union Station Site Visit

June 27, 2023

In July, Train 91 (southbound *Silver Star*) arrived off the NEC on-time (within 15 minutes) most days but frequently encountered delays in Washington

Train 91 typically arrives off the NEC on-time

Train 91 Station OTP	May	91 Daily Jun	Jul
Washington Union Station	90%	93%	83%
Alexandria	77%	83%	52%
Richmond Staples Mill Road	26%	30%	3%
Petersburg	29%	30%	3%

Train 91 arrived WAS on-time but left late 10 times in July

Date	Arrive	Depart	Delay Cause(s) at WAS
7/1/2023	-1	32	SVS – Equipment swap
7/9/2023	0	23	SYS – Yard manpower shortage
7/10/2023	6	27	SVS – Waiting on late 95 PTI – Meet 92
7/12/2023	13	15	SYS – Derailment single-tracking
7/17/2023	13	76	SYS – Late crew
7/18/2023	-2	21	SVS – Yard manpower shortage
7/22/2023	8	20	PTI – Congestion with 92 and 195
7/24/2023	2	25	ENG – No HEP
7/29/2023	0	36	SVS – Yard manpower shortage
7/31/2023	8	19	SYS – Late crew

Overall, 14 out of 31 trains departed WAS 15+ minutes late in July

Agenda – August 30, 2023

VPRA Board Meeting Update

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Upcoming construction for TRV will add to the current challenges facing passenger rail service in Virginia

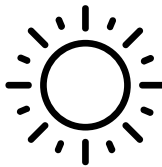
Ongoing challenges



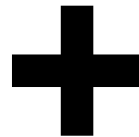
Slow orders from maintenance & non-TRV construction



Crew and engine swap issues



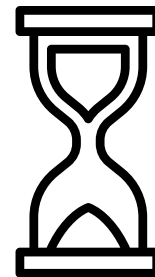
Heat orders



Track and platform closures

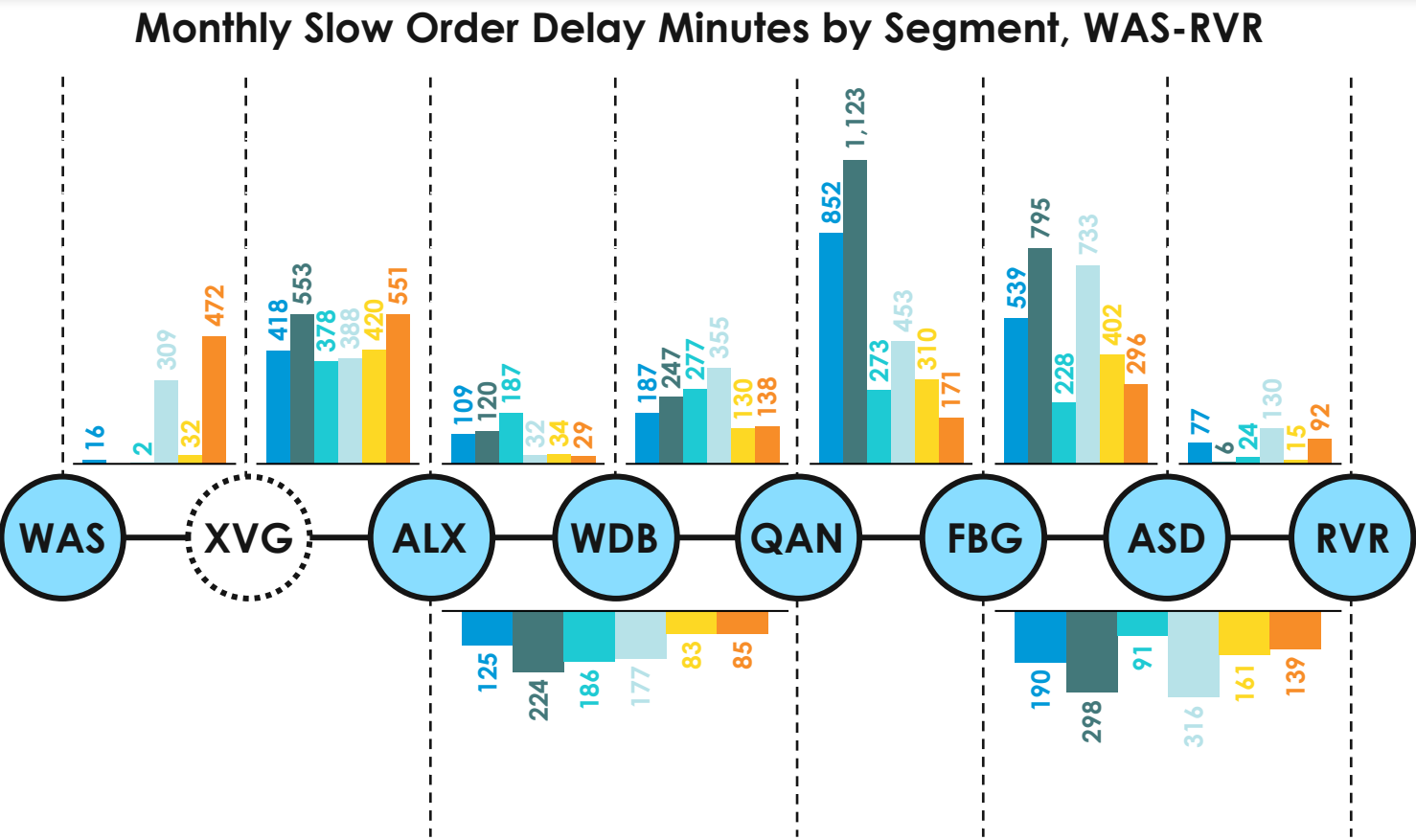


Speed restrictions

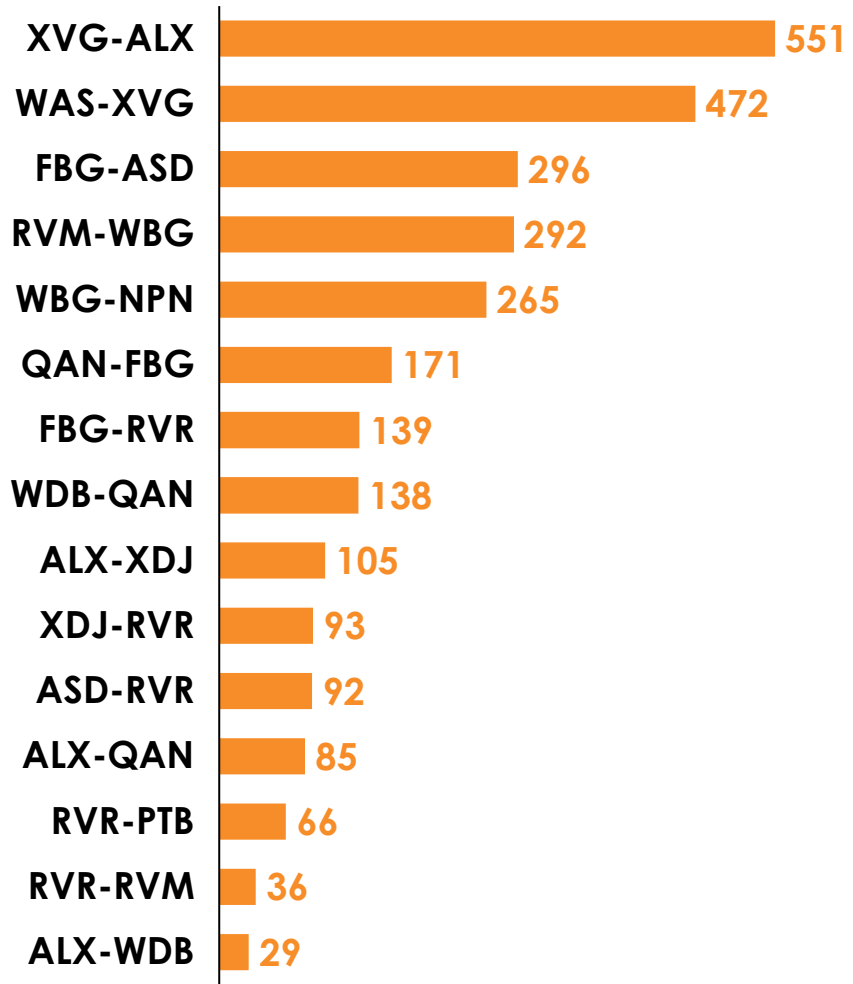


Poor service quality unless proactive action is taken

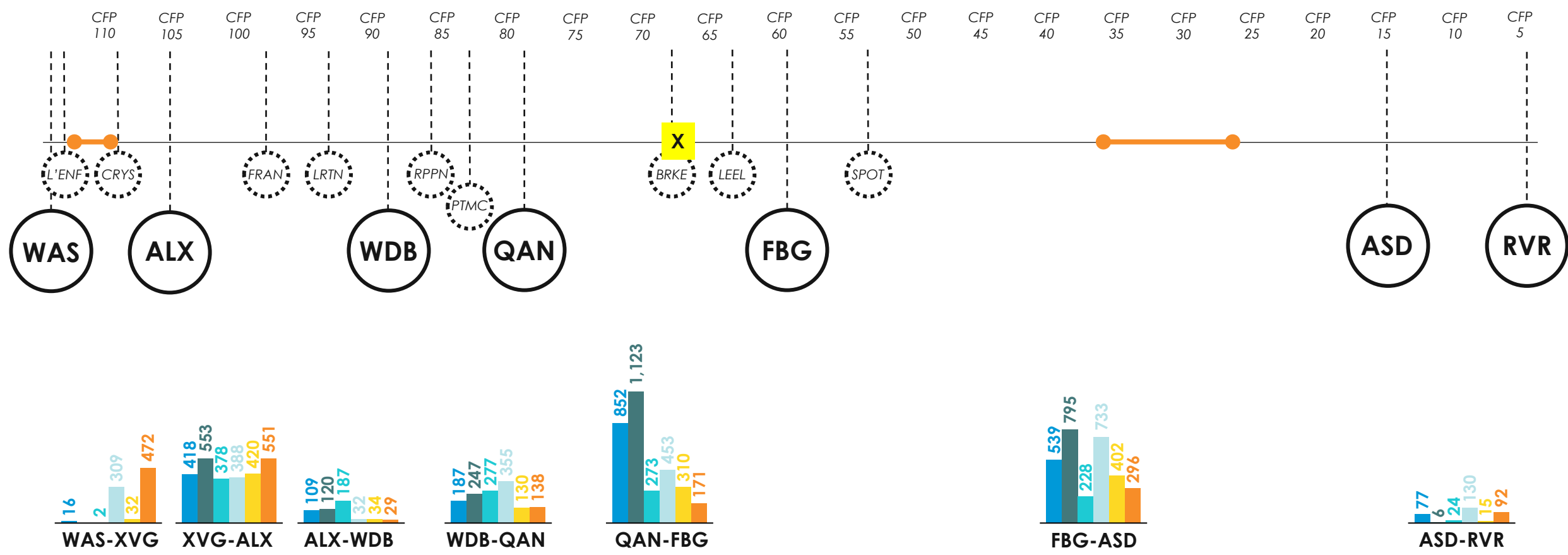
Amtrak Slow Order Delays, Last 6 months



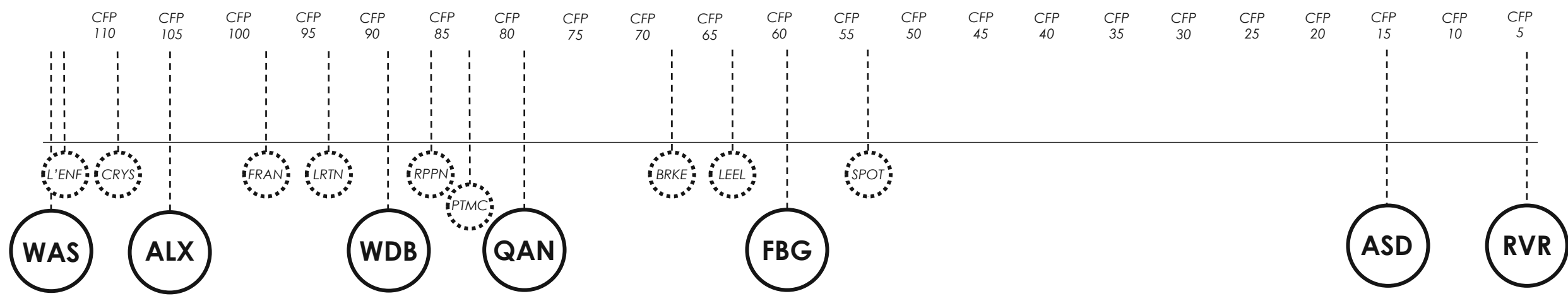
DSR Delay Minutes by Segment, July 2023
excluding segments with <15 min



Amtrak Slow Order Delays, Last 6 months



Q1 2024 Planned APMP Work



Long Bridge – Northern
Early Works/Construction Start – Dec 2023 – Oct 2024

Potomac Shores Station (MP 83.0)
Construction, Q1 2023 – Q1 2024

Alexandria Fourth Track (MP 110.1 – MP 104.1)
Utility relocation, Q3 2023 – Q2 2024

Quantico Station Improvements (MP 78.9)
Phase 2 Construction, Dec 2023 – Feb 2024
Phase 3 Construction, Feb 2024 – Apr 2024

Lorton Third Track (MP 99.0 – MP 92.3)
Utility relocation, Q4 2023 – Q4 2026

Arkendale Third Track (MP 78.9 – MP 78.2)
Phase 3 Work, Dec 2023 – Jan 2024
Signal Cut Over, Jan 2024 – Mar 2024



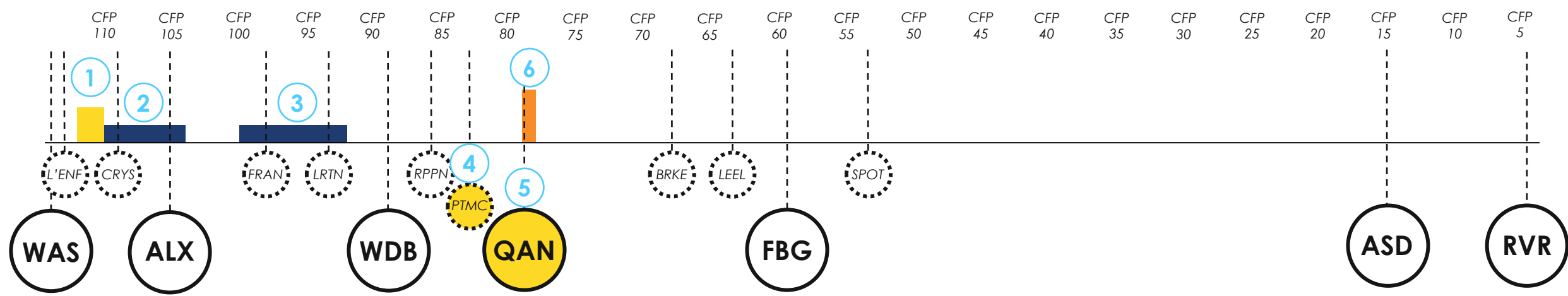
Minimal (1)
Work adjacent to tracks or otherwise low impact to service

Minor (2)
Trains may experience minimal speed restrictions

Moderate (3)
Trains will incur delays while traveling through the work zone

Major (4)
Trains will not be able to operate reliably through the work zone

Q1 2024 Planned APMP Work



1

Long Bridge – Northern
Early Works/Construction Start – Dec 2023 – Oct 2024

2

Alexandria Fourth Track (MP 110.1 – MP 104.1)
Utility relocation, Q3 2023 – Q2 2024

3

Lorton Third Track (MP 99.0 – MP 92.3)
Utility relocation, Q4 2023 – Q4 2026

4

Potomac Shores Station (MP 83.0)
Construction, Q1 2023 – Q1 2024

5

Quantico Station Improvements (MP 78.9)
Phase 2 Construction, Dec 2023 – Feb 2024
Phase 3 Construction, Feb 2024 – Apr 2024

6

Arkendale Third Track (MP 78.9 – MP 78.2)
Phase 3 Work, Dec 2023 – Jan 2024
Signal Cut Over, Jan 2024 – Mar 2024



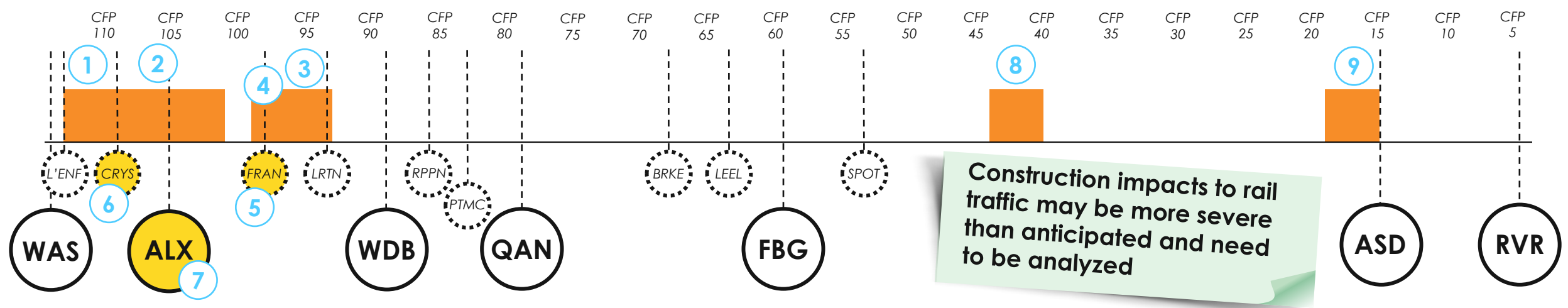
Minimal (1)
Work adjacent to tracks or otherwise low impact to service

Minor (2)
Trains may experience minimal speed restrictions

Moderate (3)
Trains will incur delays while traveling through the work zone

Major (4)
Trains will not be able to operate reliably through the work zone

Q2 2025 Planned APMP Work



- 1 Long Bridge**
Southern Construction, Q2 2025 – Q2 2031
Northern Construction, Q3 2024 – Q4 2030
- 2 Alexandria Fourth Track**
Construction, Q2 2024 – Q3 2026
- 3 Lorton Third Track**
Construction, Q2 2025 – Q3 2027

- 4 Franconia-Spfd Bypass**
Construction, Q3 2024 – Q4 2026
- 5 Franconia-Spfd Station**
Construction, Q3 2024 – Q3 2026
- 6 Crystal City Station**
Construction, Q3 2024 – Q3 2026

- 7 Alexandria Station**
Construction, Q2 2024 – Q1 2026
- 8 Woodford-Milford 3rd Track**
Construction, Q2 2025 – Q4 2026
- 9 Hanover 3rd Track**
Construction, Q2 2025 – Q4 2026



Minimal (1)
Work adjacent to tracks or otherwise low impact to service

Minor (2)
Trains may experience minimal speed restrictions

Moderate (3)
Trains will incur delays while traveling through the work zone

Major (4)
Trains will not be able to operate reliably through the work zone

The severity of the anticipated impact will inform the appropriate mitigation measure

Analysis

How long will the work last?

Overnight, weeks, months, years?

What is the expected impact to service?

None, minor delays, major delays, temporary reduction in capacity, total blockage?

What other projects are ongoing?

Do the cumulative impacts of multiple projects create a larger impact?

Impact Finding

Short-term /
low impact

Multiple projects with
minor impacts

Long-term /
high impact

Prevents service from
operating safely

Potential Course of Action

Passenger service
notice

Rescheduling of work
activities

Schedule change

Cancellation

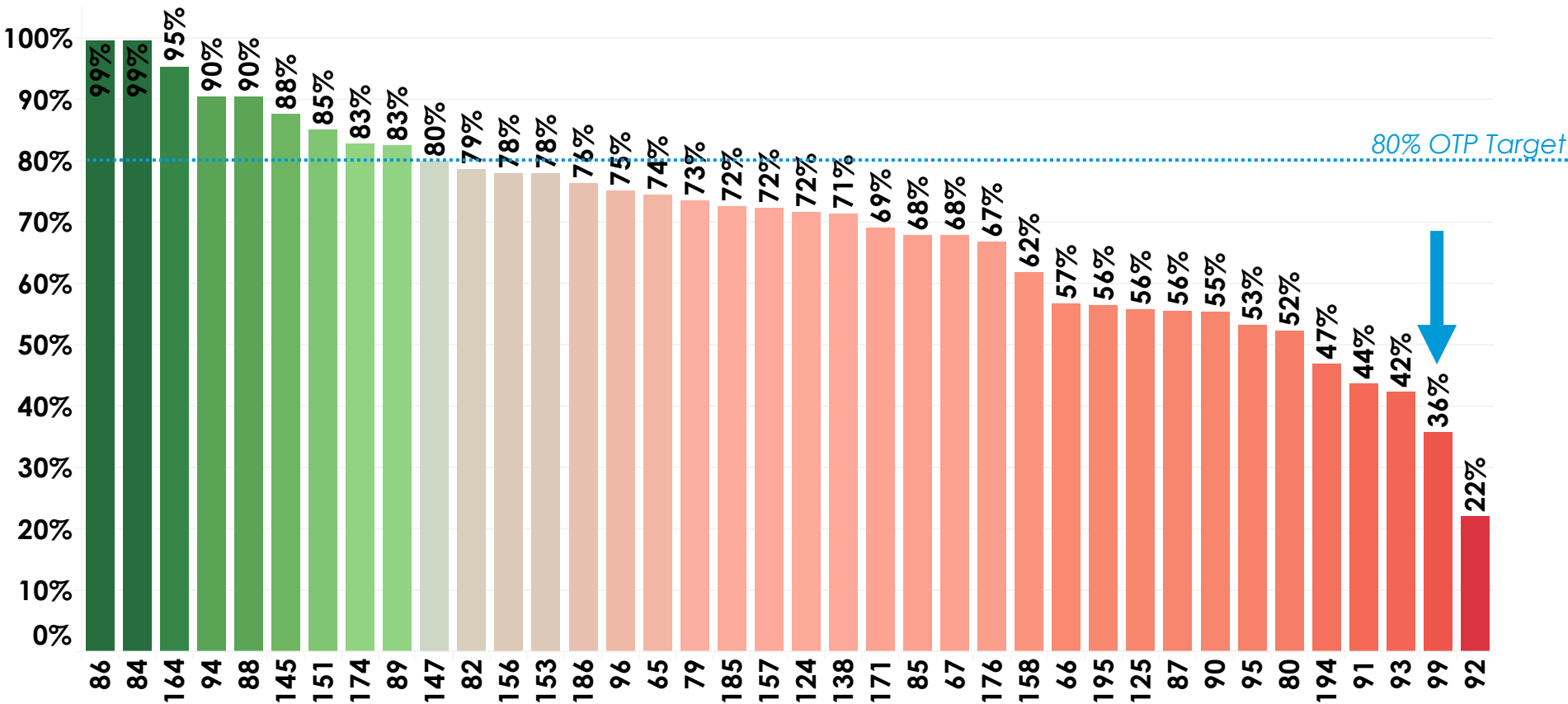


Last resort

Appendix

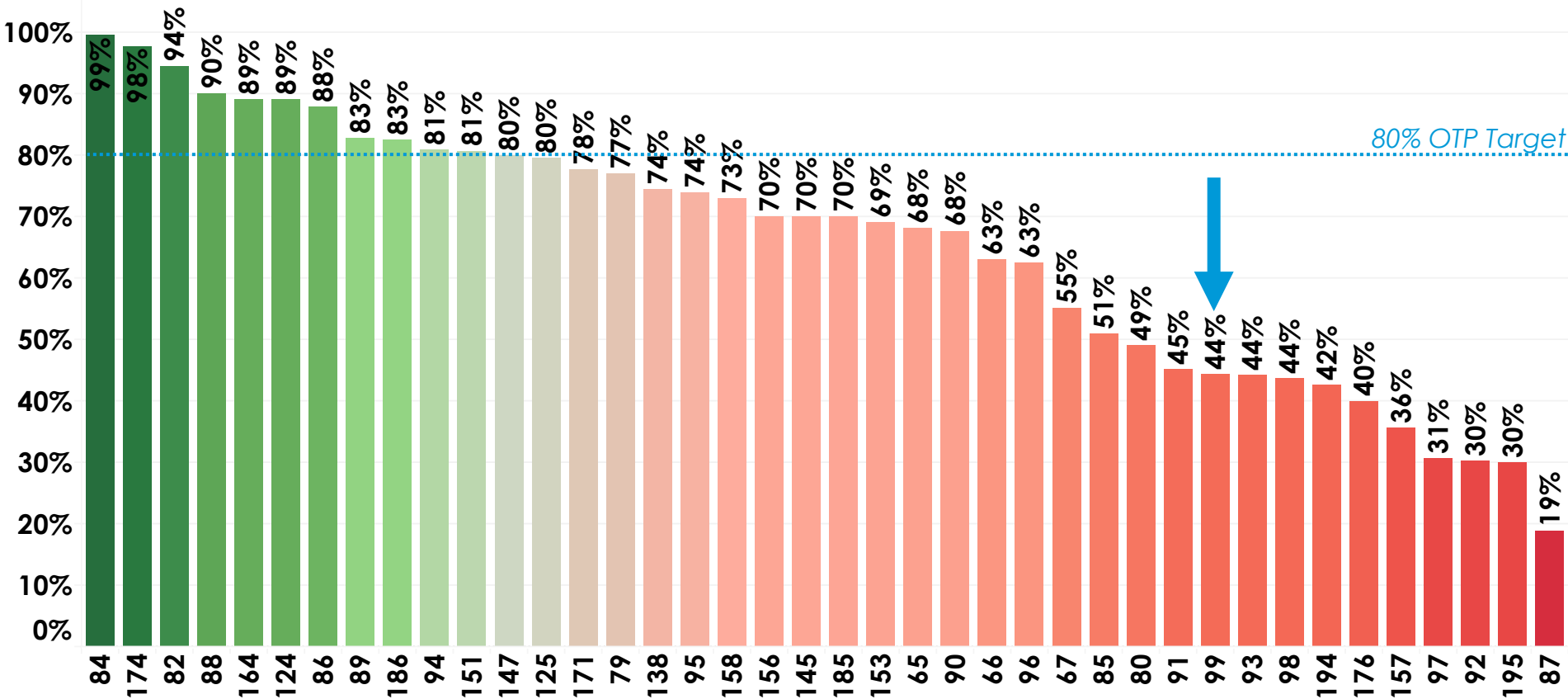


All-Station OTP by Train, September 2022¹



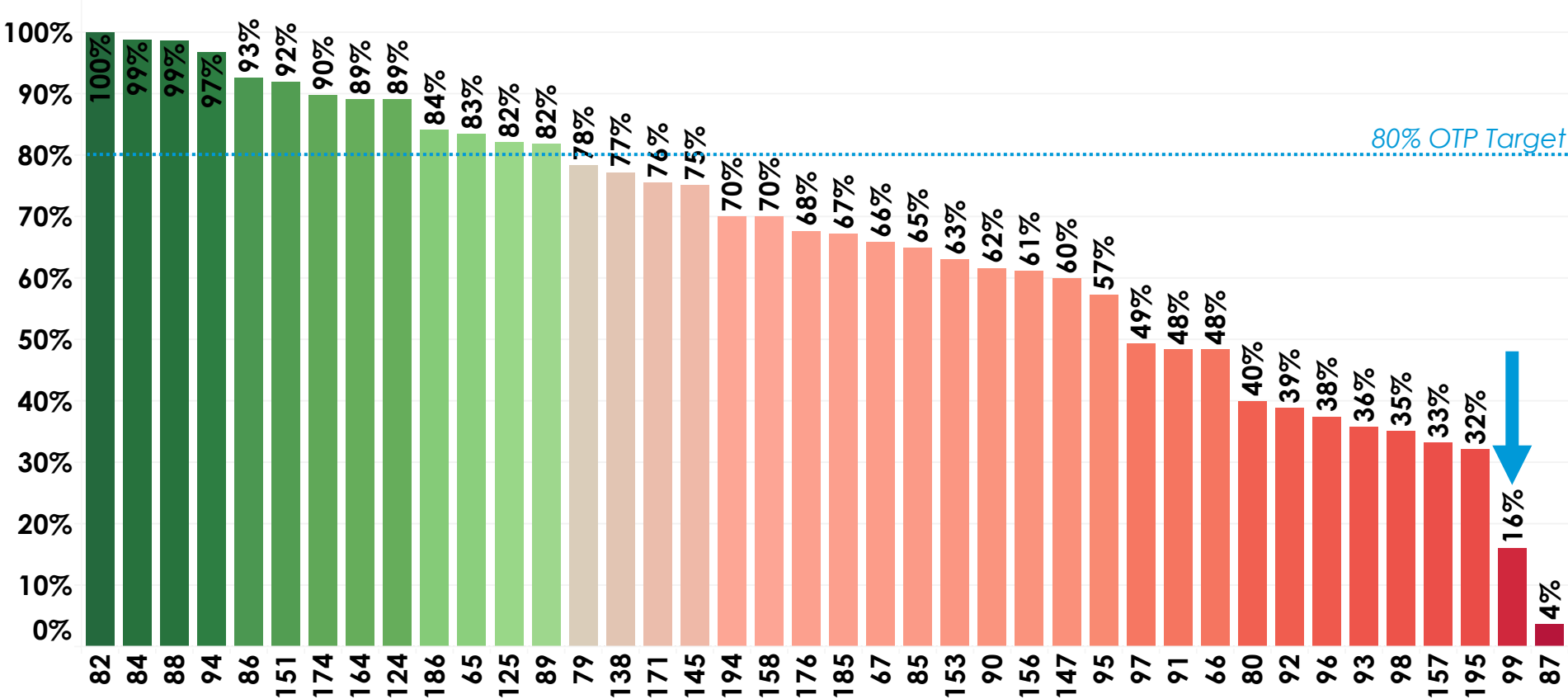
(1) Excludes OTP on the Roanoke line; OTP reported for Roanoke trains (Ex: 147, 145, 176) only includes arrivals at ALX and WAS

All-Station OTP by Train, October 2022¹



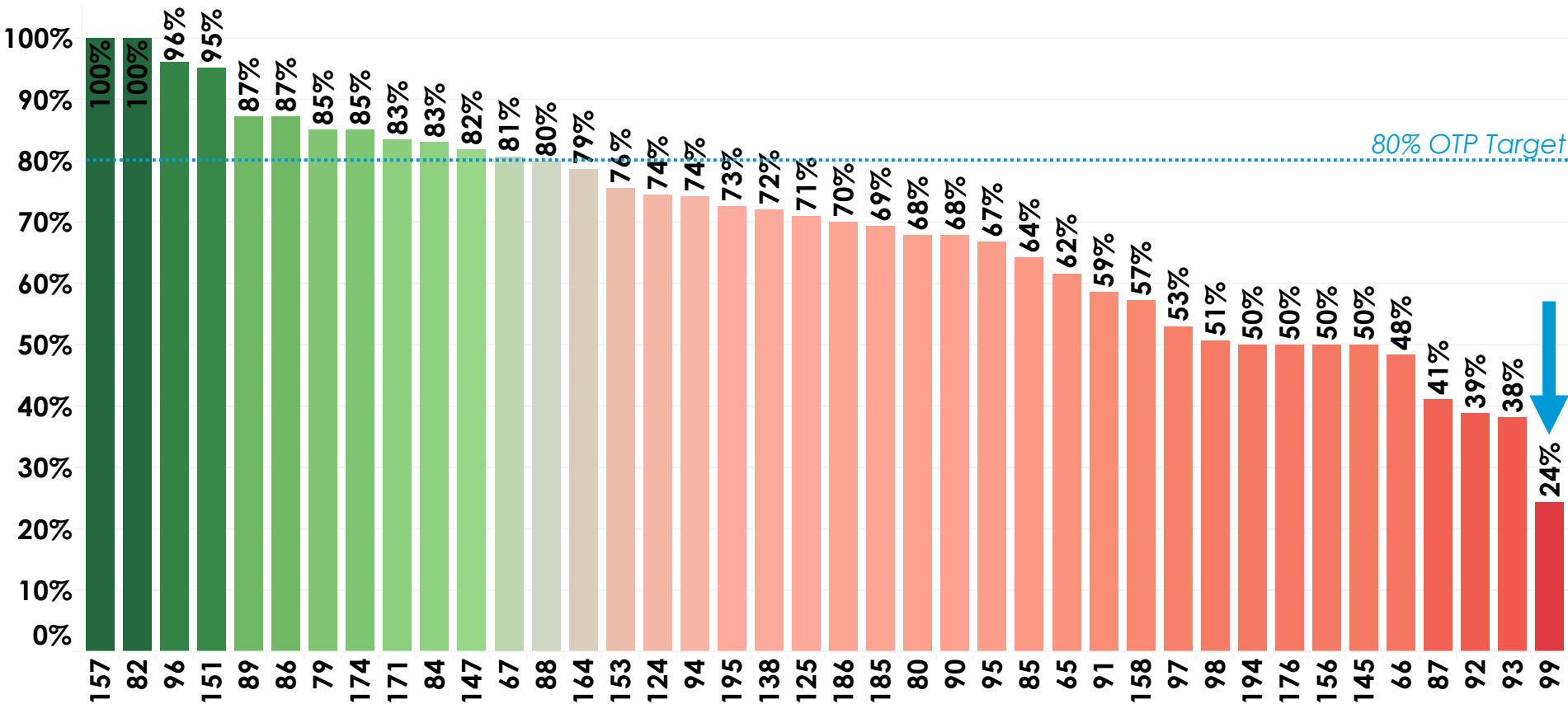
(1) Excludes OTP on the Roanoke line; OTP reported for Roanoke trains (Ex: 147, 145, 176) only includes arrivals at ALX and WAS

All-Station OTP by Train, November 2022¹



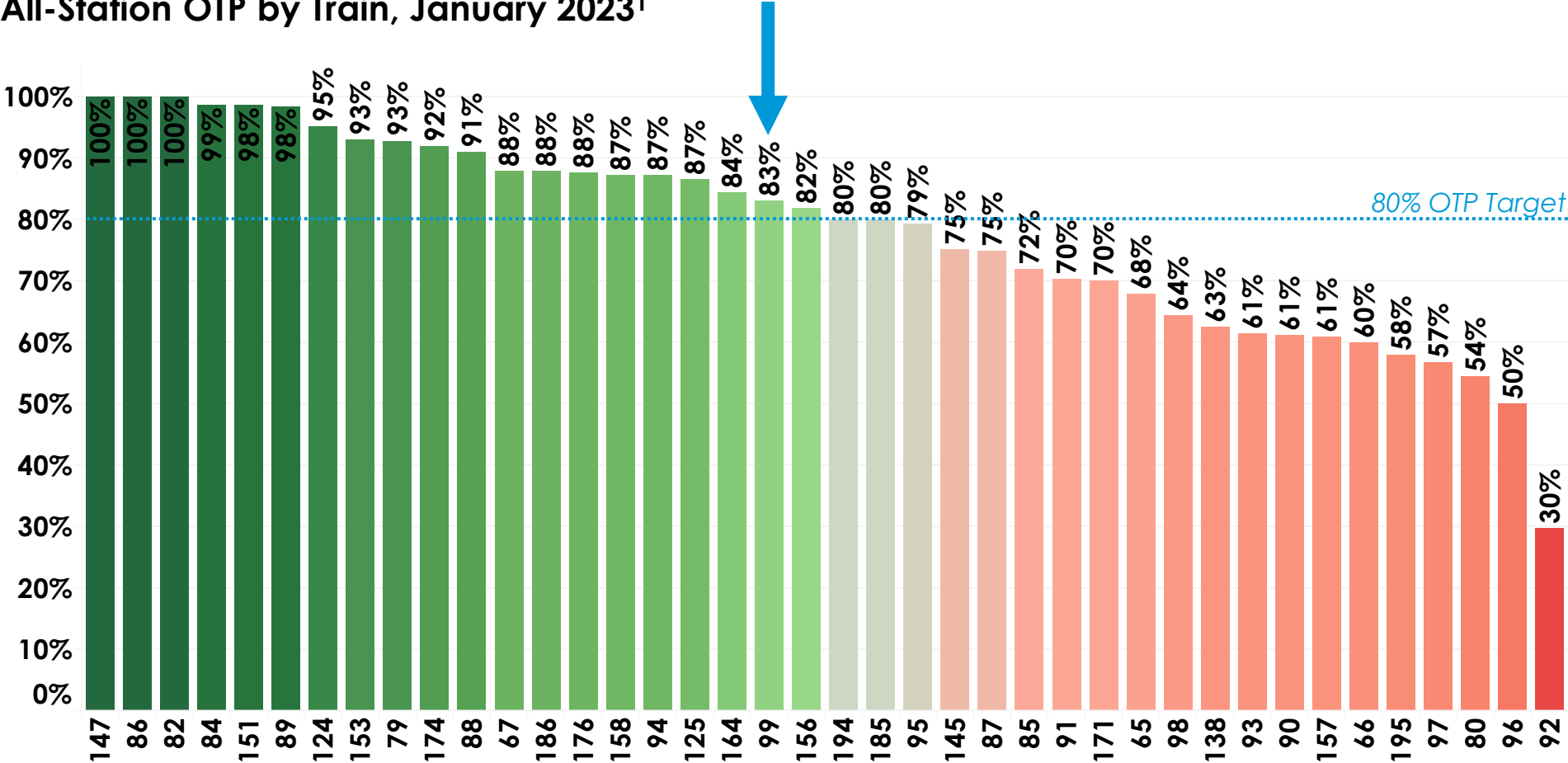
(1) Excludes OTP on the Roanoke line; OTP reported for Roanoke trains (Ex: 147, 145, 176) only includes arrivals at ALX and WAS

All-Station OTP by Train, December 2022¹



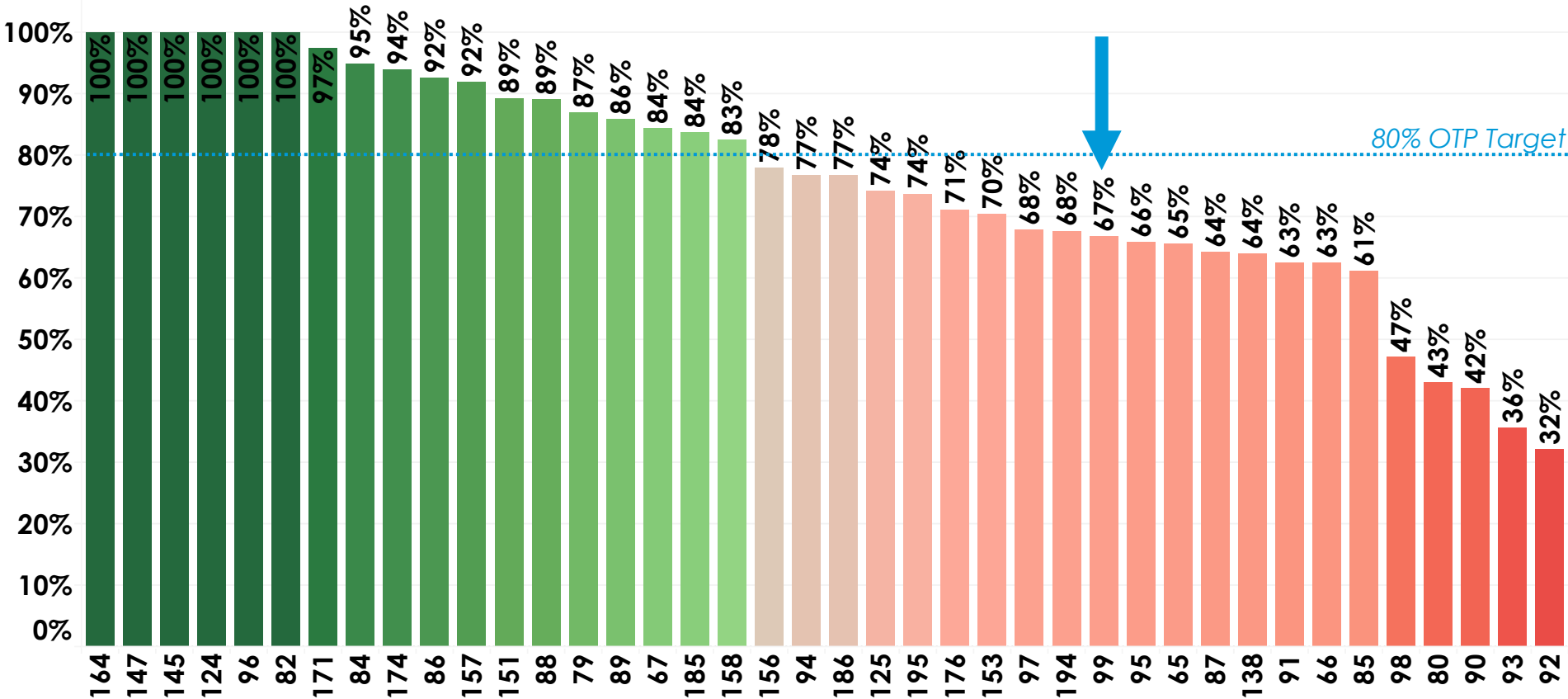
(1) Excludes OTP on the Roanoke line; OTP reported for Roanoke trains (Ex: 147, 145, 176) only includes arrivals at ALX and WAS

All-Station OTP by Train, January 2023¹



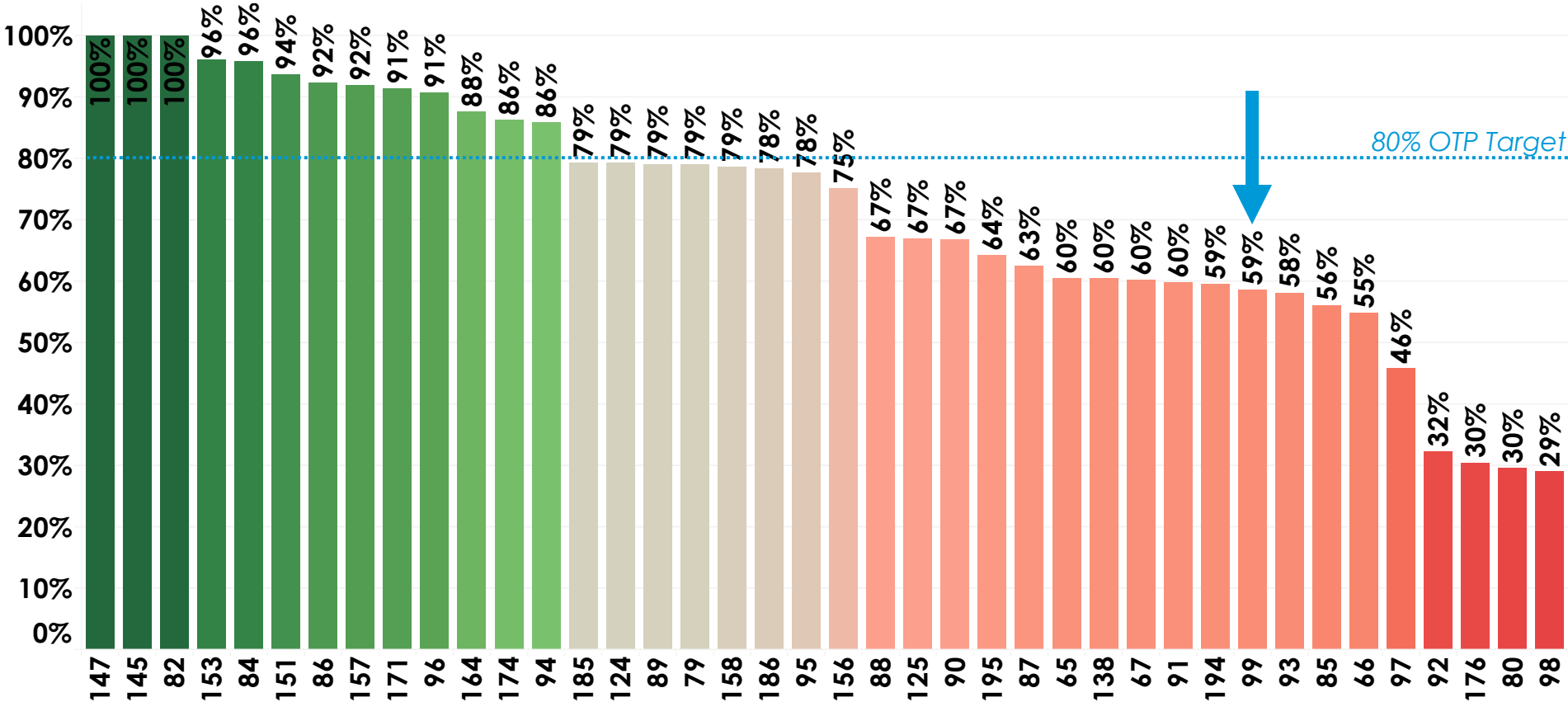
(1) Excludes OTP on the Roanoke line; OTP reported for Roanoke trains (Ex: 147, 145, 176) only includes arrivals at ALX and WAS

All-Station OTP by Train, February 2023¹



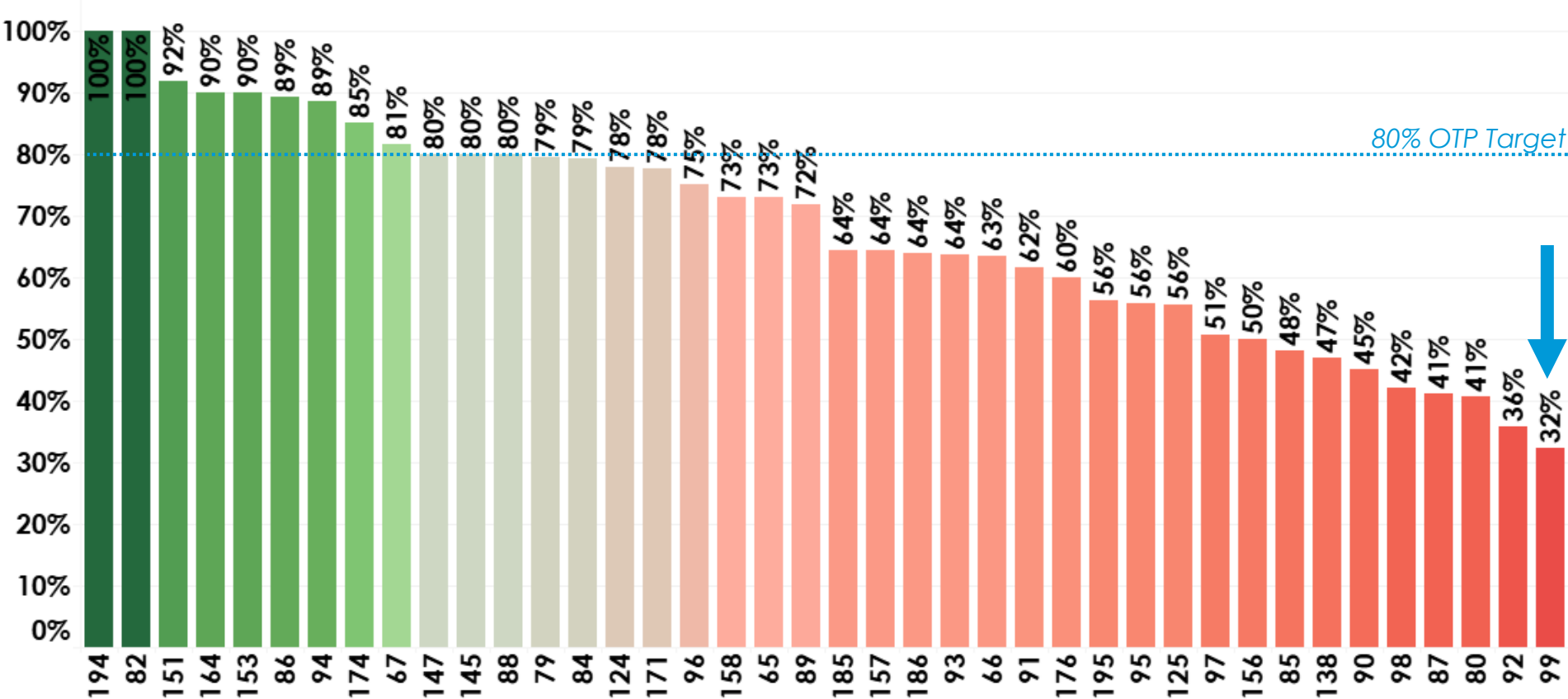
(1) Excludes OTP on the Roanoke line; OTP reported for Roanoke trains (Ex: 147, 145, 176) only includes arrivals at ALX and WAS

All-Station OTP by Train, March 2023¹



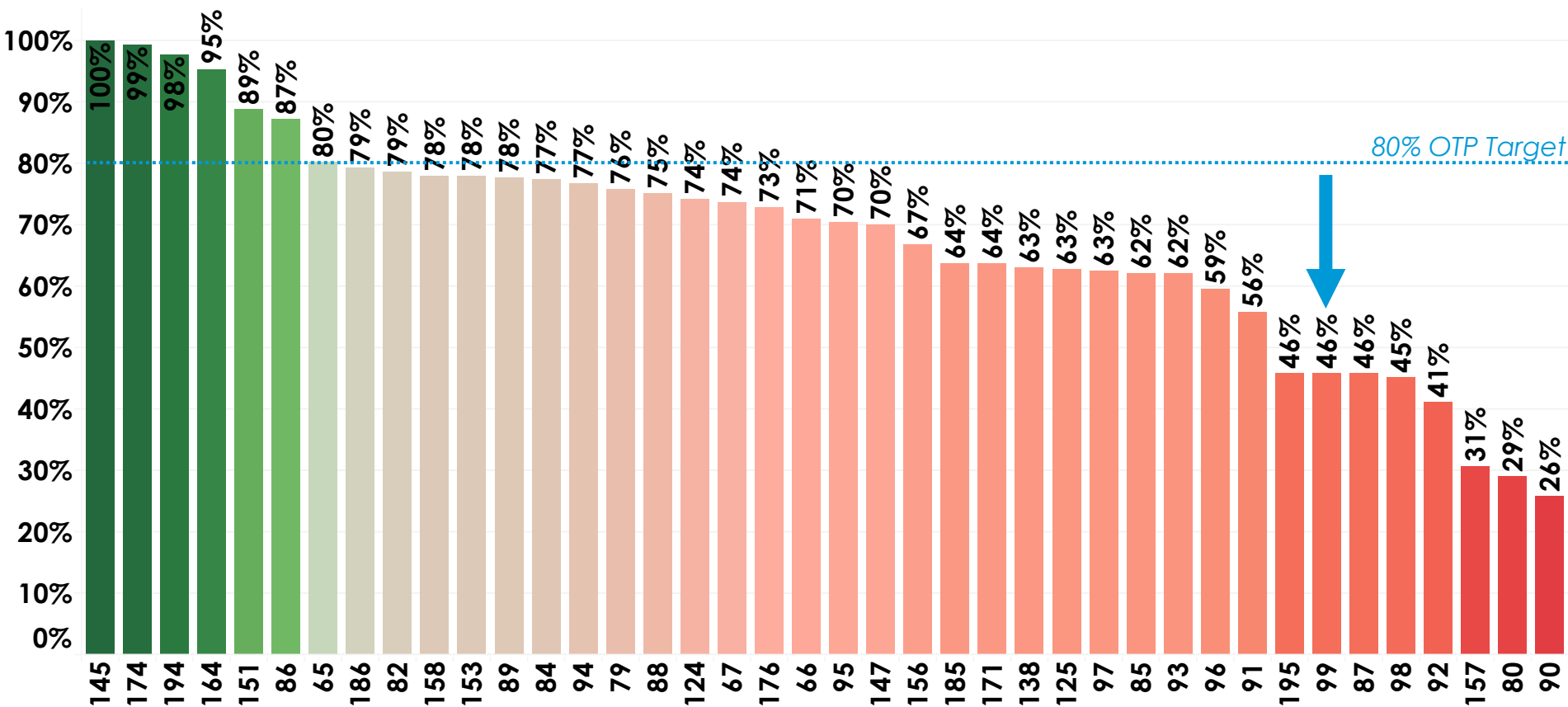
(1) Excludes OTP on the Roanoke line; OTP reported for Roanoke trains (Ex: 147, 145, 176) only includes arrivals at ALX and WAS

All-Station OTP by Train, April 2023¹



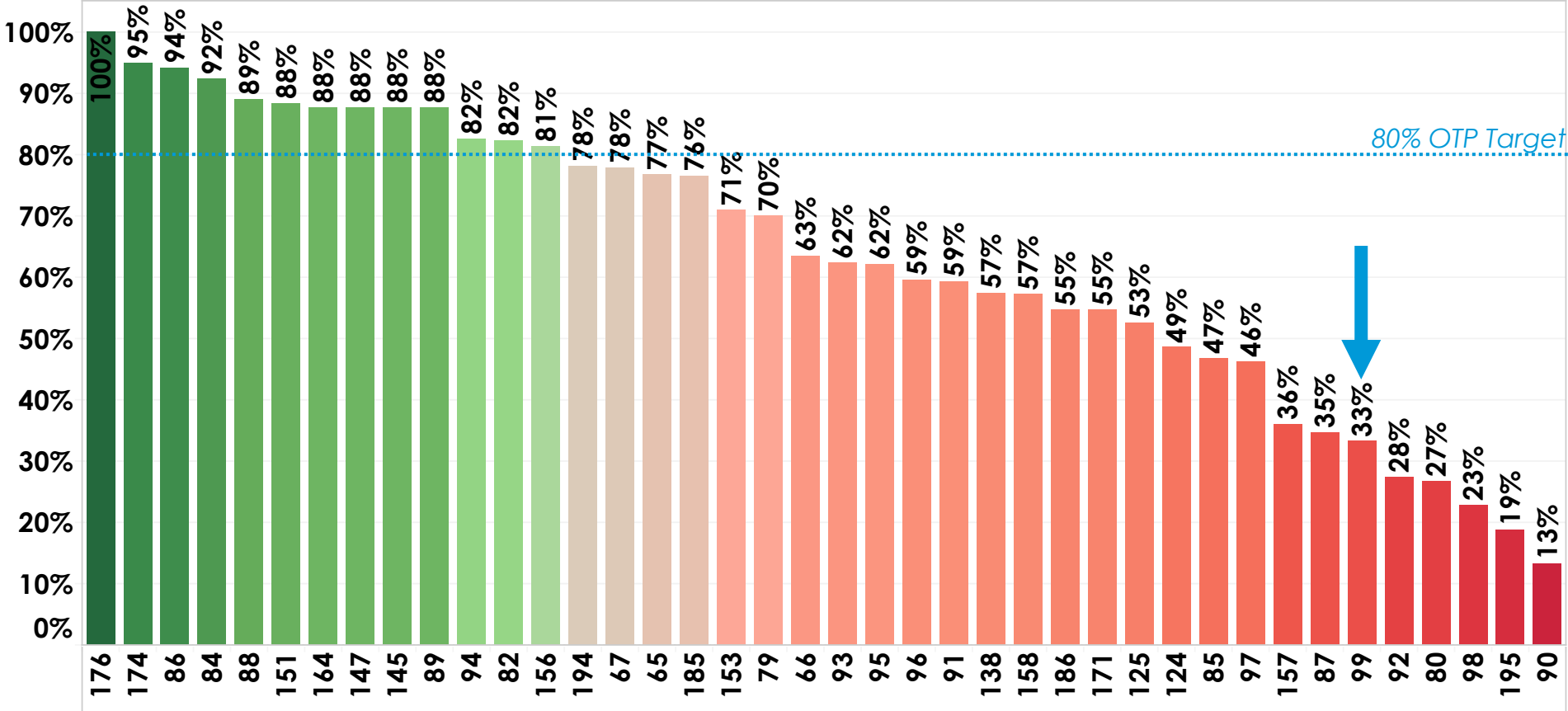
(1) Excludes OTP on the Roanoke line; OTP reported for Roanoke trains (Ex: 147, 145, 176) only includes arrivals at ALX and WAS

All-Station OTP by Train, May 2023¹



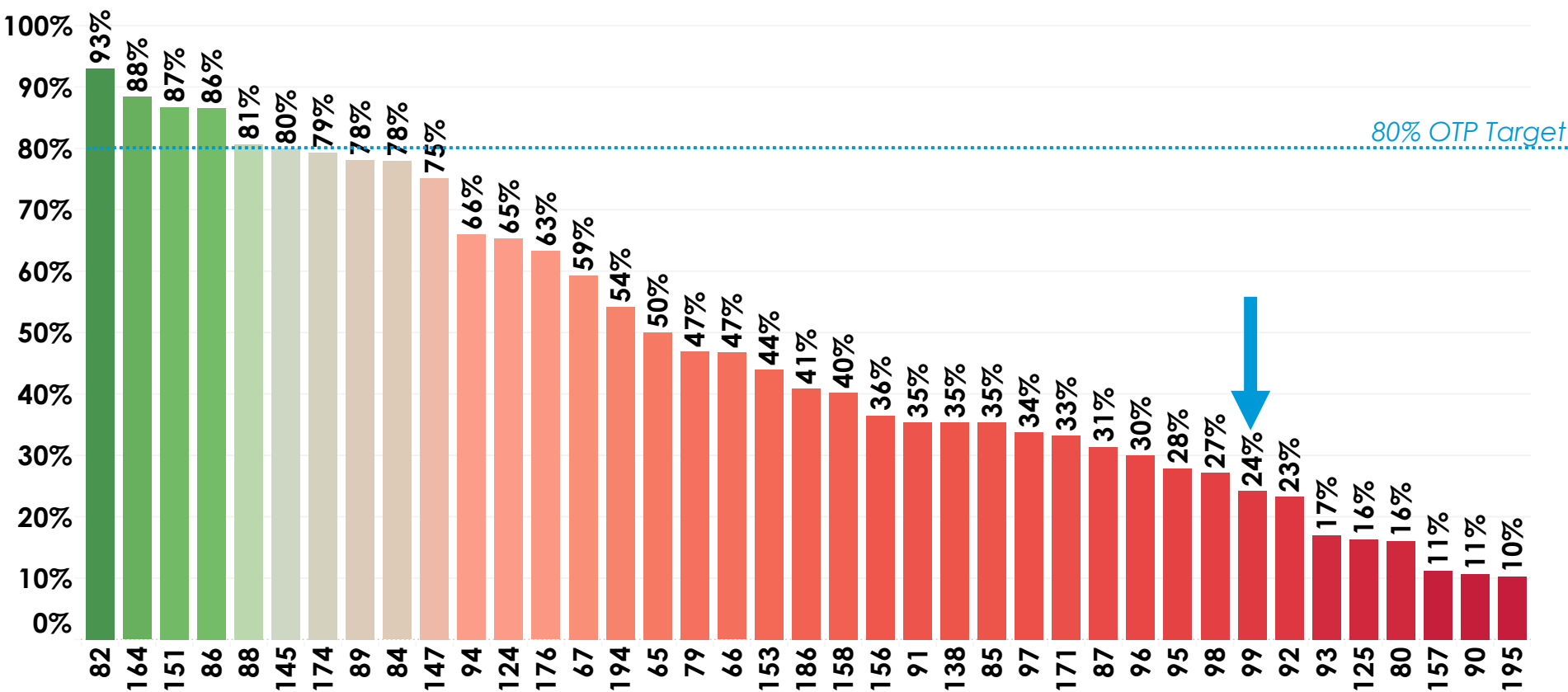
(1) Excludes OTP on the Roanoke line; OTP reported for Roanoke trains (Ex: 147, 145, 176) only includes arrivals at ALX and WAS

All-Station OTP by Train, June 2023¹



(1) Excludes OTP on the Roanoke line; OTP reported for Roanoke trains (Ex: 147, 145, 176) only includes arrivals at ALX and WAS

All-Station OTP by Train, April 2023¹



(1) Excludes OTP on the Roanoke line; OTP reported for Roanoke trains (Ex: 147, 145, 176) only includes arrivals at ALX and WAS

Board Meeting Dates

Next Meeting

Wednesday, December 6, 2023

10:30 a.m. to 2:40 p.m.

VPRA

Truist Place

919 East Main Street

4th Floor – Piedmont Room

Richmond, Virginia 23219

Next Year: 2024

Tuesday, January 23

Tuesday, June 4

Tuesday, August 27

Tuesday, November 19