THE NEW NY BRIDGE

Network Analysis

MTTF MEETING #10 | 2013-10-25

Transit Objectives

- Design and implement cross-corridor bus transit that serves demand over the short, mid, and long-term
- Deliver fast, reliable, comfortable service
- Create simple route structure
- Provide improved transit access to destinations
- Increase ridership in a financially sustainable manner
- Ease congestion on I-287 by moving people from cars to buses
- Provide transit capable of serving traditional and reverse commuters

New Data

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Data Inputs

- Detailed TZx ridership data
  - Provides better transit performance metrics
- Regional Household Travel Survey (RHTS)
  - Provides a more complete picture of travel behavior and markets
- NYSDOT travel time/speed data from EZ-Pass transponders
  - Provides more robust estimates of I-287 travel times
- Downtown White Plains Traffic Analyses
  - Provides better estimates of travel times and access to MNR

Ongoing Analyses

- Traffic Counts on Route 59 from Suffern to Nyack
  - Provides a complete AM and PM picture of local conditions on 59

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System Performance

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Performance Metric #1: Ridership

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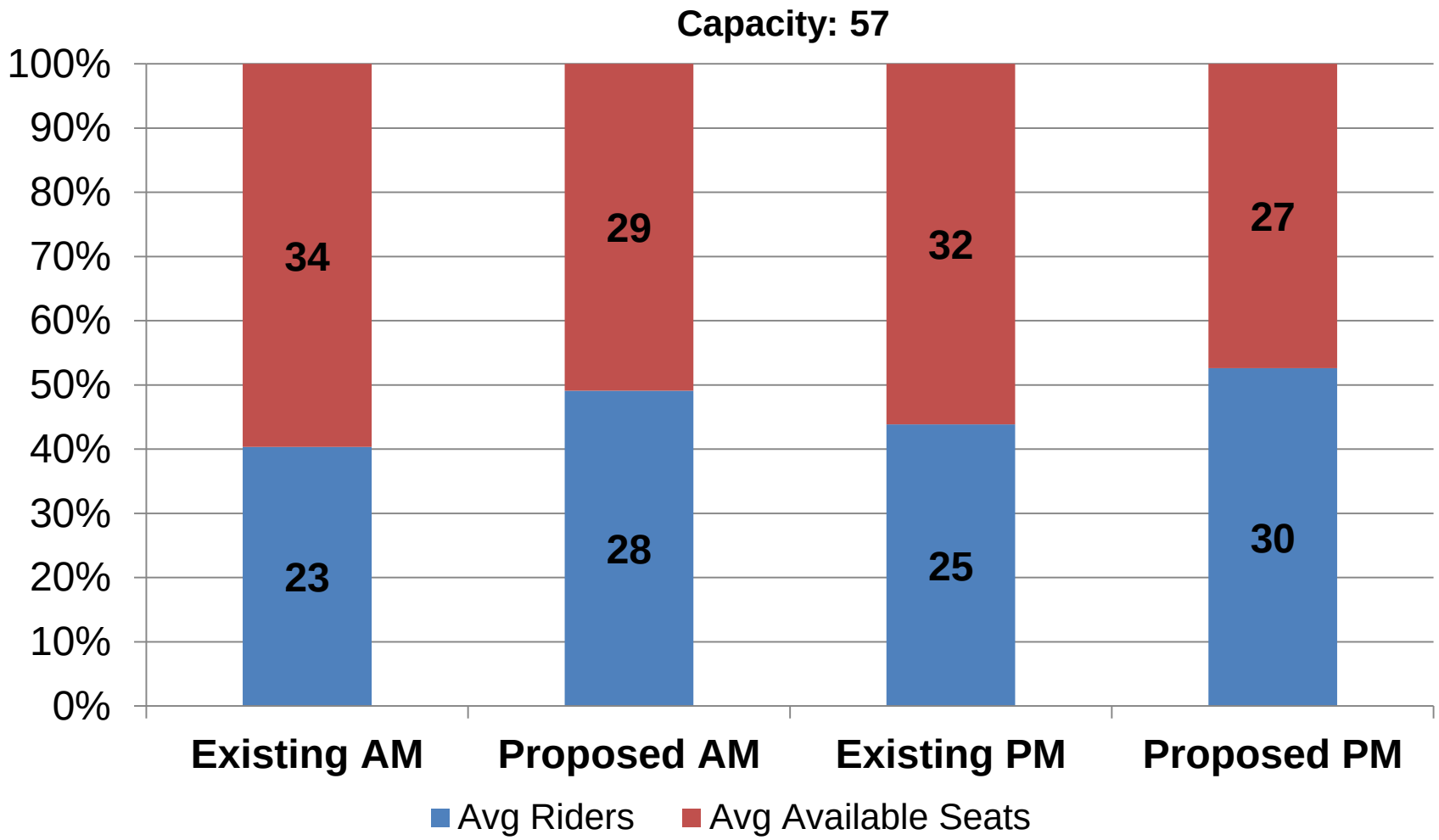
TZx ridership crossing the bridge (May 2013)
Available capacity (extra seats) in the peak periods

AM PEAK (6-10 AM)		
	Eastbound	Westbound
Bus Trips	23	11
Available Seats	1,310	630
Ridership	520	140
Extra Seats	**+790**	**+490**
Bus equiv.	**14 buses**	**9 buses**

PM PEAK (3-7 PM)		
	Eastbound	Westbound
Bus Trips	10	17
Available Seats	570	970
Ridership	180	480
Extra Seats	**+390**	**+490**
Bus equiv.	**7 buses**	**9 buses**

Source: Transport of Rockland May 2013 ridership data

Performance Metric #1: Ridership



Performance Metric #2: Load Factor

What does it measure?

Percentage of seats filled by passengers on all bus trips (passenger miles/seat miles)

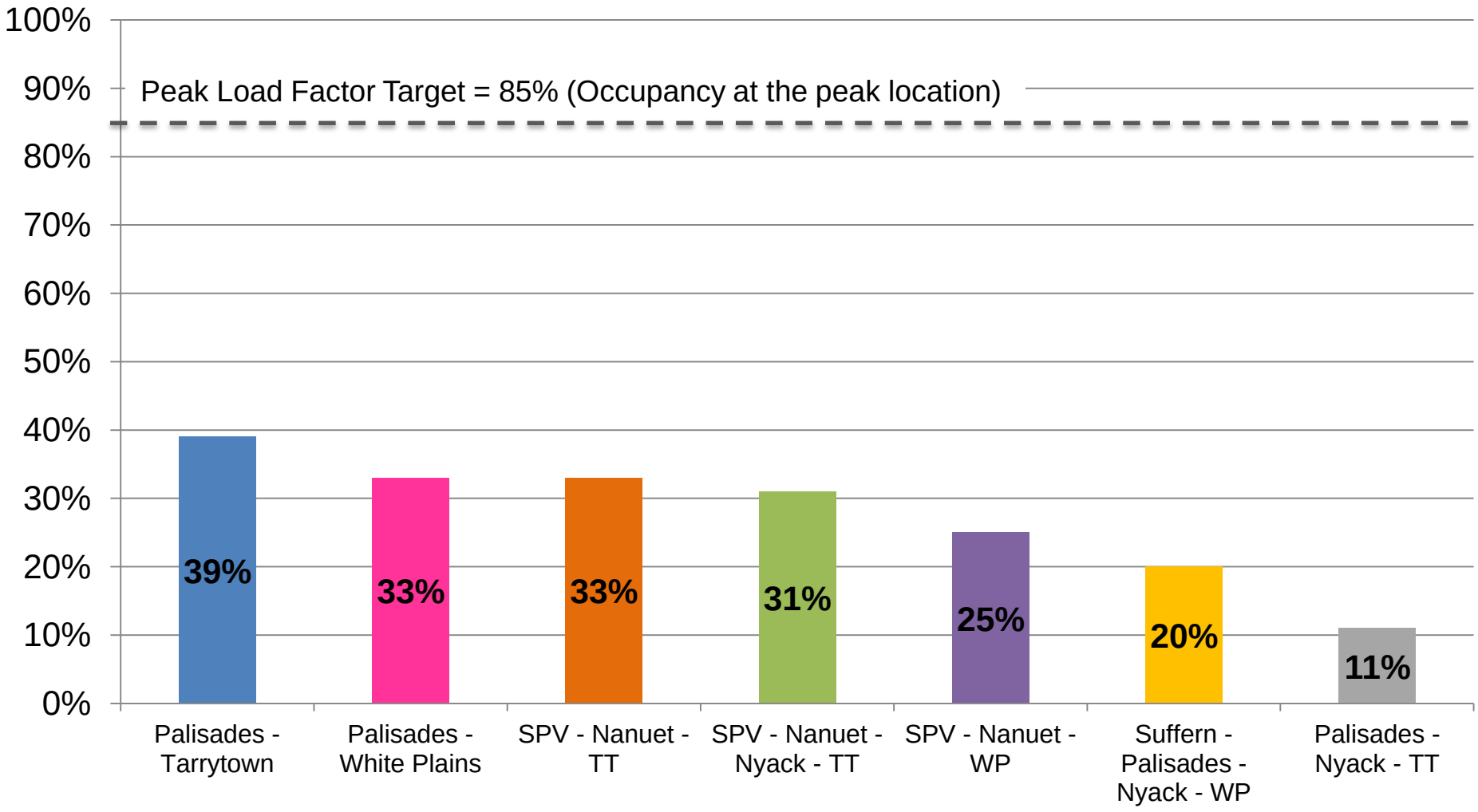
Accounts for occupancy across various trip lengths

Performance Standard

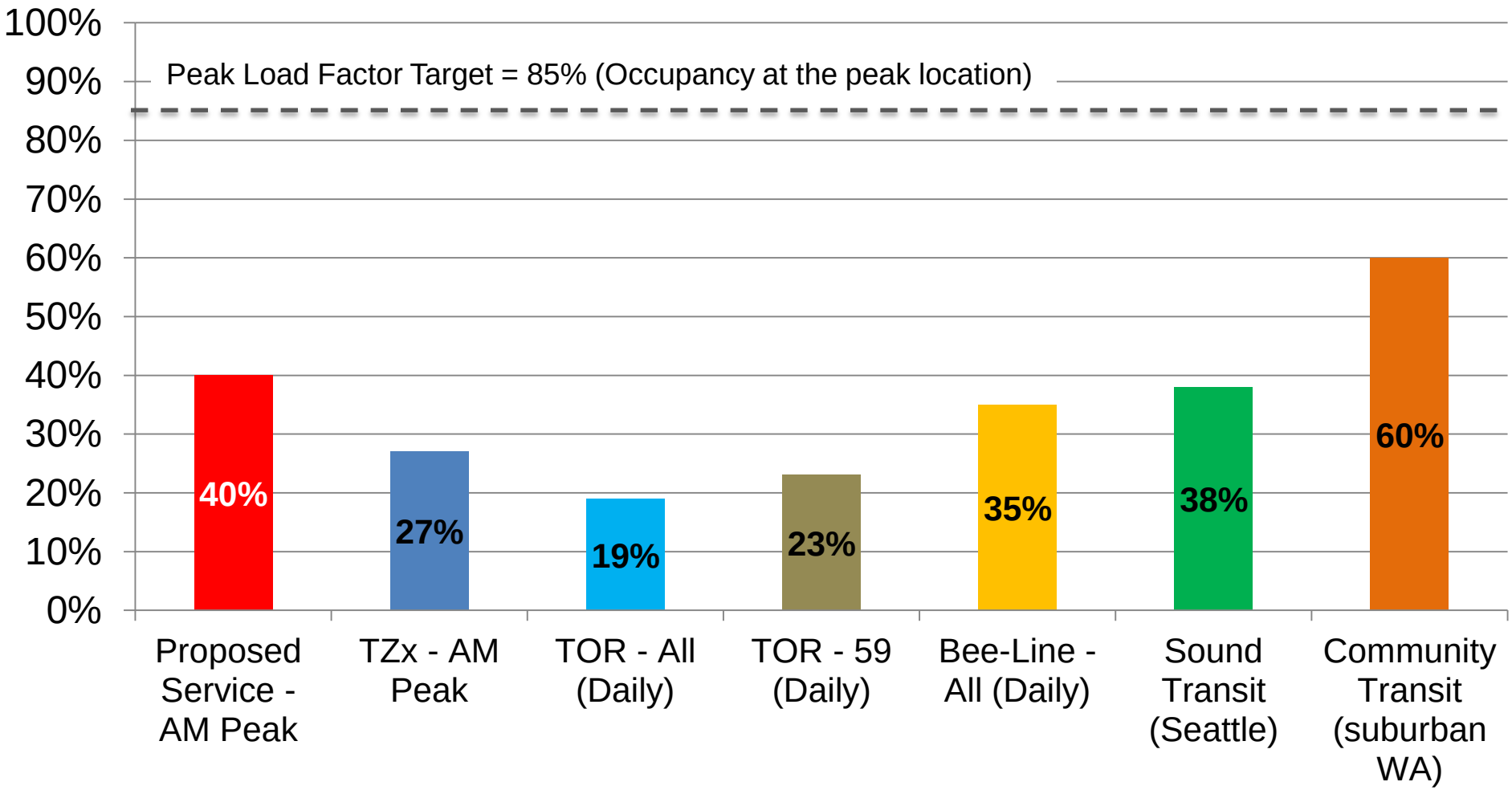
85% (not to exceed) at the maximum load point during the peak

Performance Metric #2: Load Factor

Eastbound AM 4-hr morning peak, TZx Routes (May 2013)



Performance Metric #2: Load Factor



Sound Transit and Community Transit presented as case studies previously

Performance Metric #3: Farebox Recovery

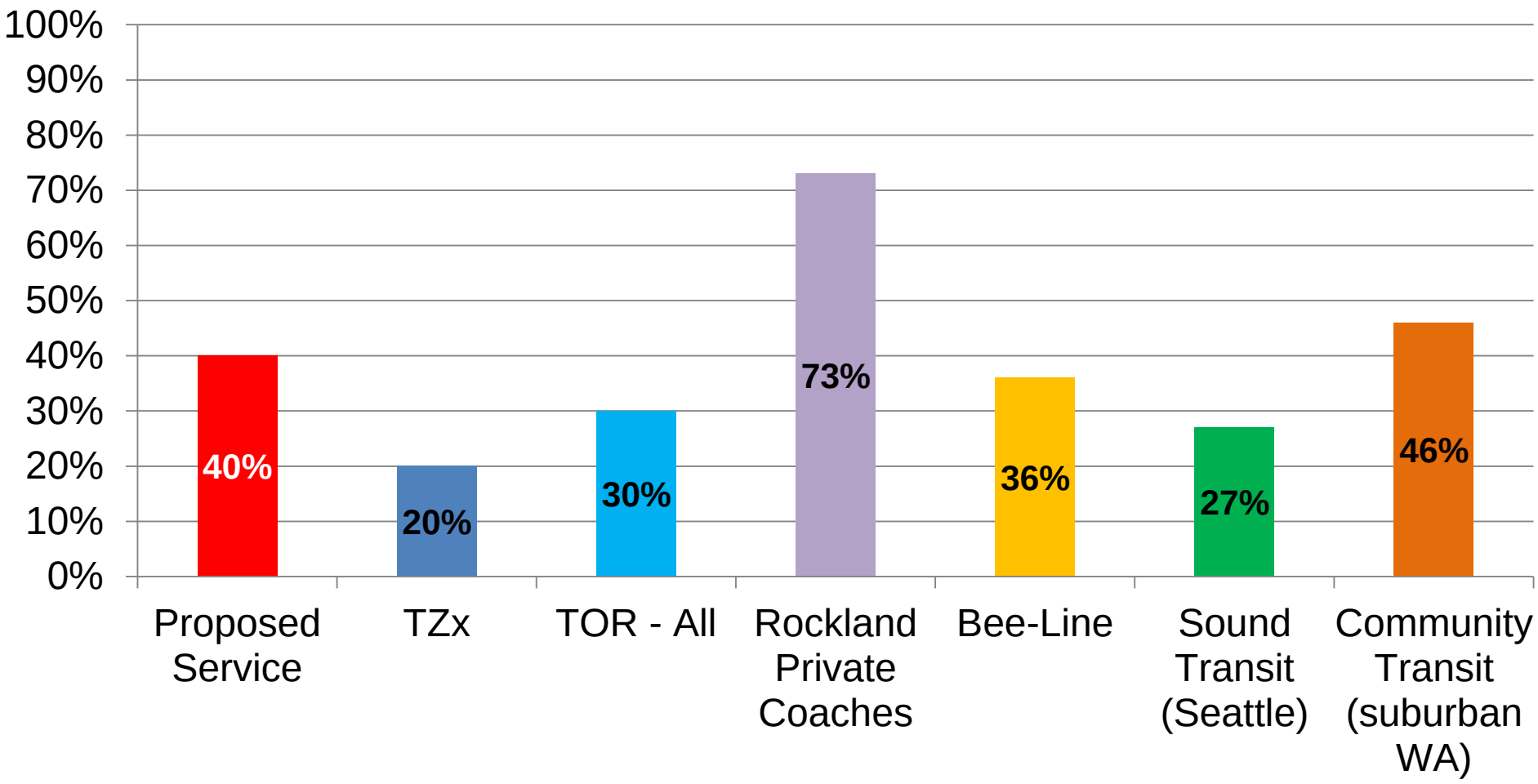
What does it measure?

The percentage of operating costs recovered through fares

Performance Standard

The higher the ratio the less public subsidy is required

Performance Metric #3: Farebox Recovery



Sound Transit and Community Transit presented as case studies previously

Performance Metric #4: Subsidy per Passenger

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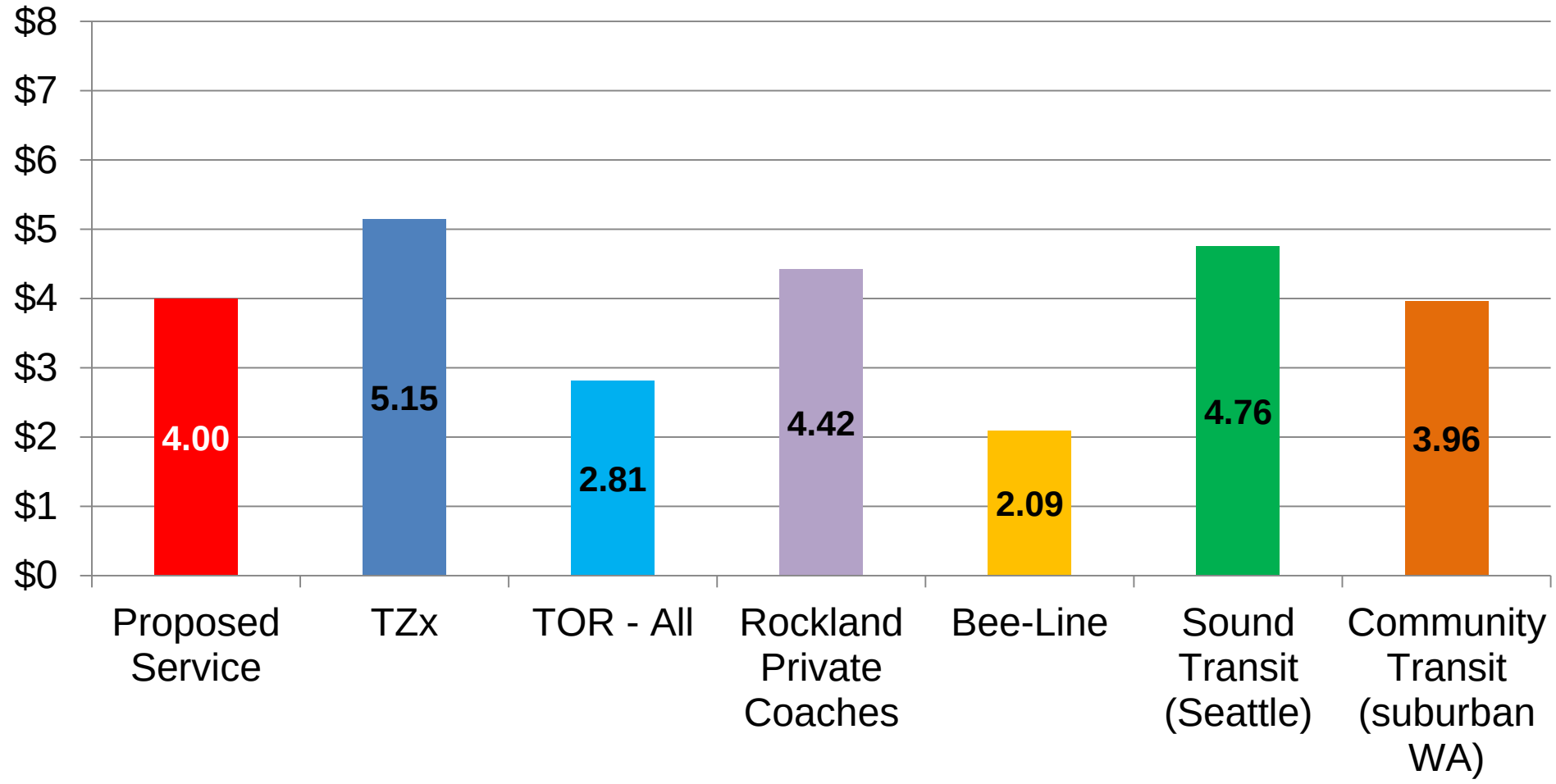
What does it measure?

The amount of government subsidy paid per passenger

Performance Standard

No standard, but a subsidy in the $2 to $4 range is preferable

Performance Metric #4: Subsidy per Passenger



Sound Transit and Community Transit presented as case studies previously

System Performance: Summary

- Low ridership and a high number of available seats on TZx
- Simply adding more service will not increase ridership
- High subsidy costs
- Low profile
- Poor quality of passenger waiting areas

Proposed Improvements

- Short-term infrastructure improvements
  - New buses
  - Improved waiting areas
  - Transit priority measures
- Branded service
- Simple routing
- Integrated fare structure
- Connections to key destinations

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Travel Demand

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Why is Rockland Ridership So Low?

- Rockland market is relatively small, low-density, and dispersed around I-287
- Rockland-Manhattan job market mostly served by west-of-Hudson transit: buses and Pascack Valley and Port Jervis Lines
- Rockland-Manhattan via Hudson/Harlem Lines has low demand
- Rockland-Westchester is underserved

Rockland Travel Market Is Small

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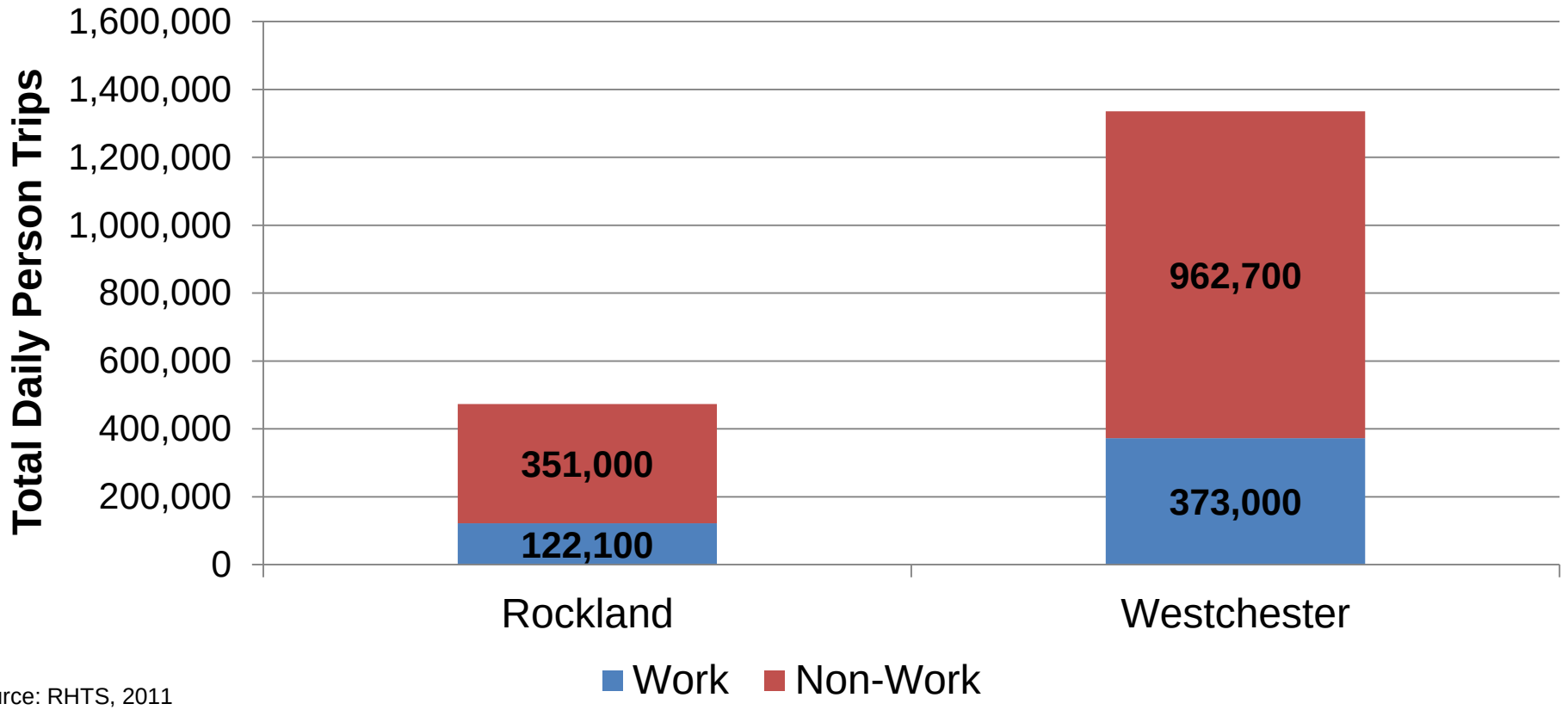
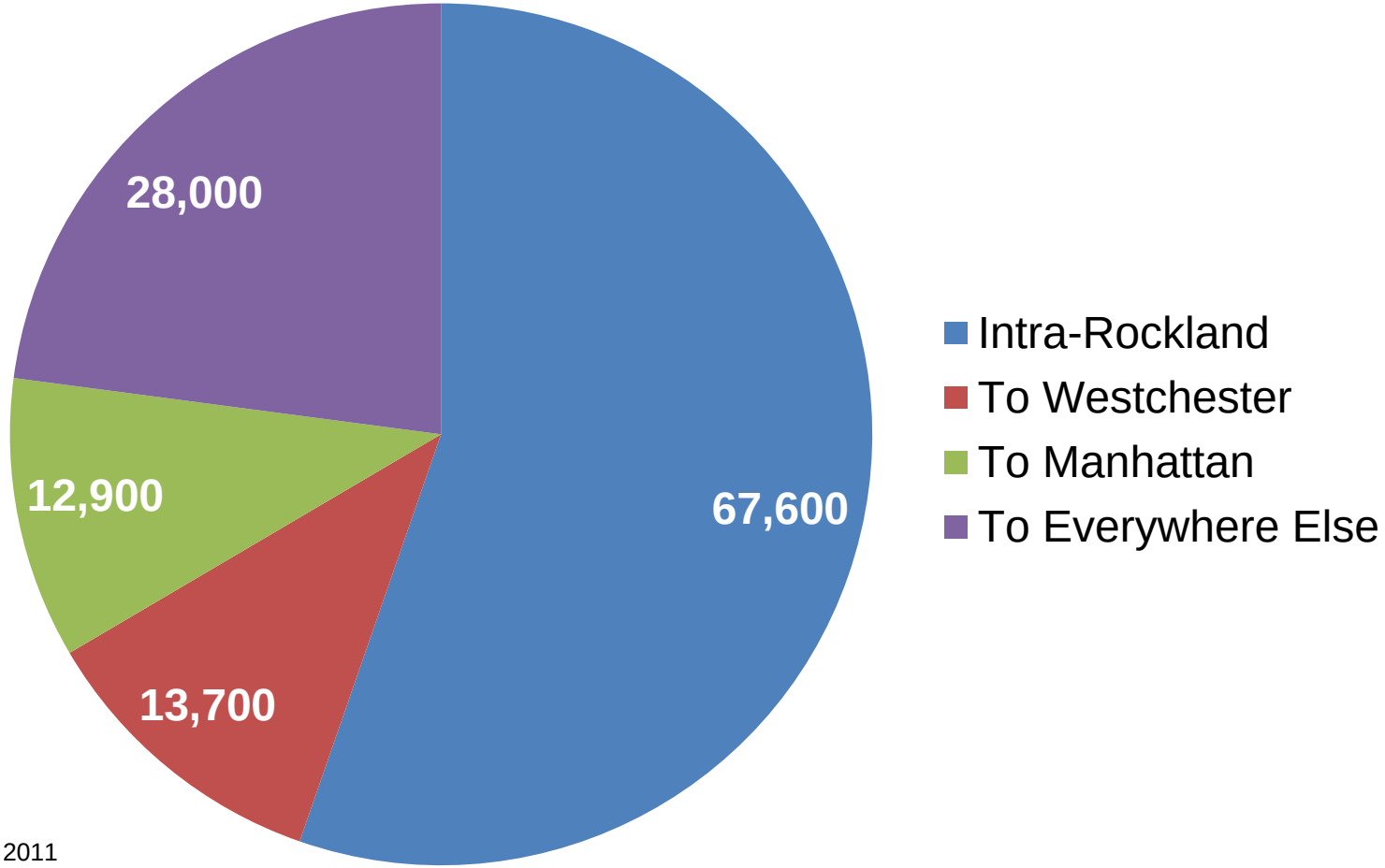
Transit capital and operating investment decisions made based on work trips



Source: RHTS, 2011

Rockland Work Trip Destinations

122,100 Daily Work Trips



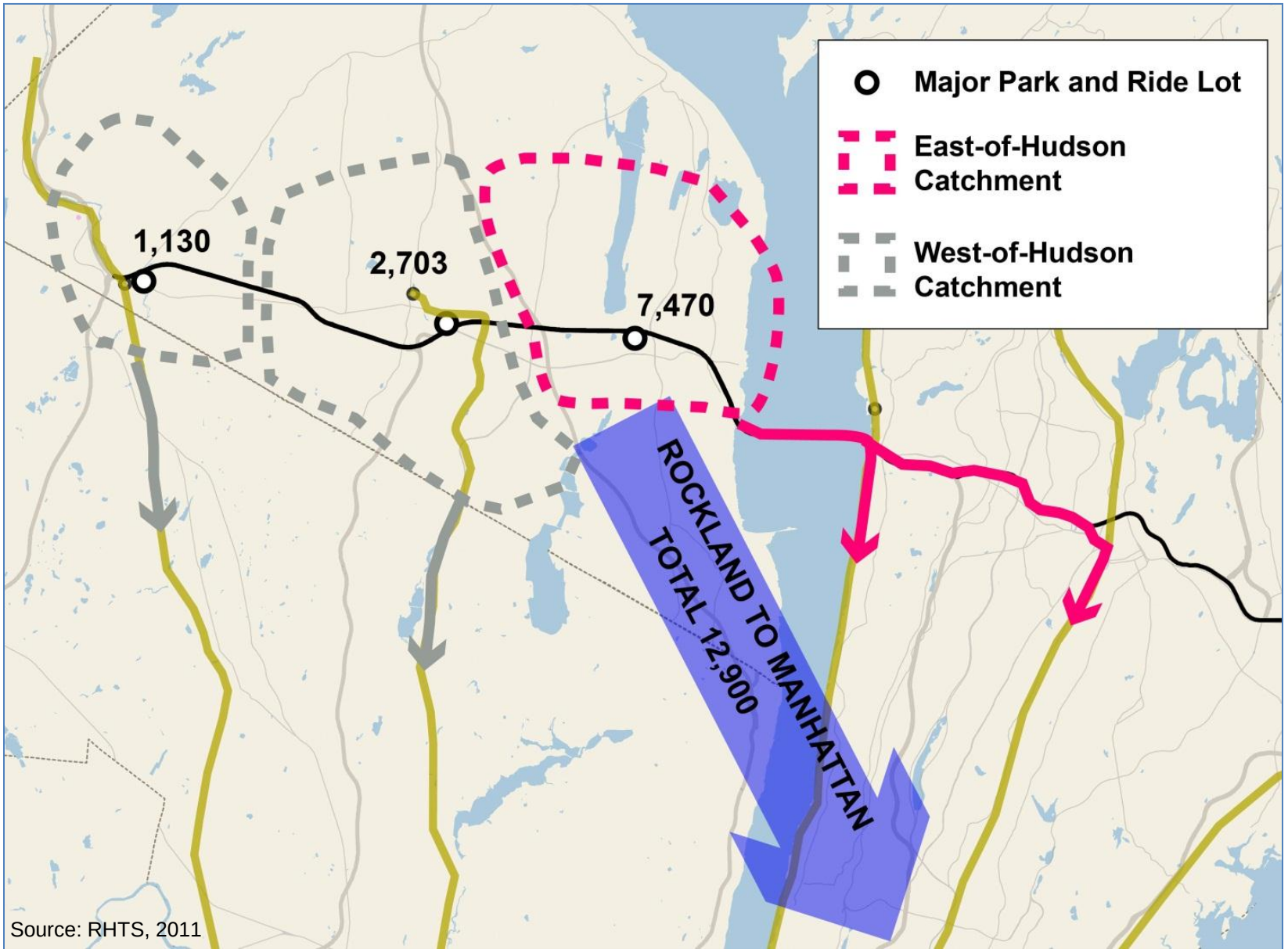
Source: RHTS, 2011

Rockland to Manhattan Work Mode Share

- Bus (Private Coach) = 36%
  - 4,660 commuters
- Train = 28%
  - 450 commuters use TZx and transfer to Hudson or Harlem Lines
  - 530 commuters drive into Tarrytown and transfer to the Hudson Line
  - 100 commuters take the ferry from Haverstraw to Ossining and transfer to the Hudson Line
  - 1,000 commuters take the Port Jervis or Pascack Valley Lines
  - 1,500 commuters drive to New Jersey and transfer to train or ferry
- Auto = 36%
  - 4,440 commuters

Source: RHTS, 2011

Limited Catchment



Source: RHTS, 2011

Residential Density

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Density Benchmark: ~7 – 12 DUA for BRT

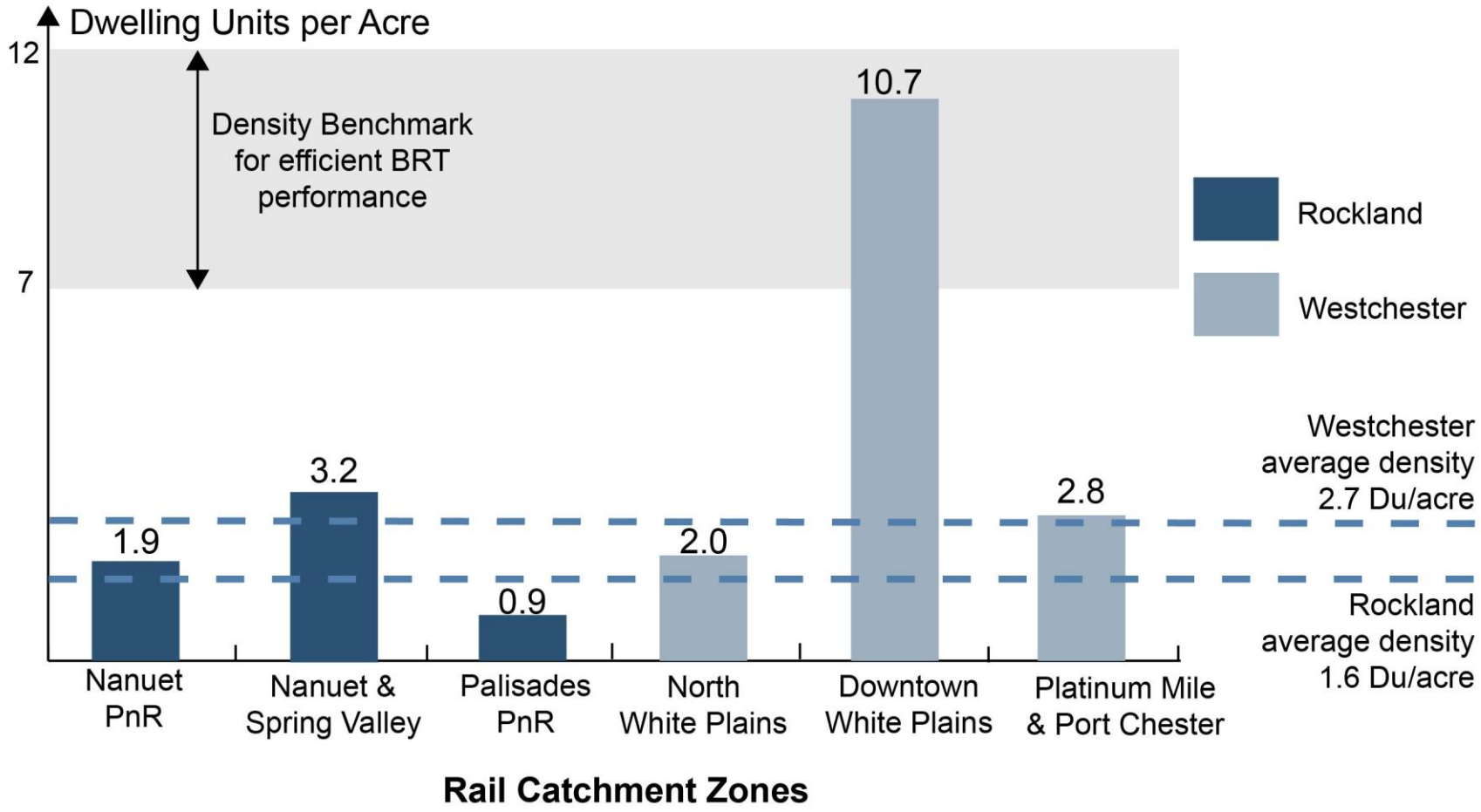
Rockland – I-287 and Route 59 Corridor (3-mile catchment)

Zone	Sub-Area	Area (ac)	Dwelling Units (DU)	Population	DU/acre (DUA)
1	Nyack	2,424	6,880	15,113	2.84
2	W. Nyack	3,376	3,274	8,163	0.97
3	Nanuet/Spring Valley	3,646	11,765	40,838	3.23
4	Suffern/Airmont	3,536	6,224	13,627	1.76
5	Palisades PnR	14,834	12,968	38,534	0.87
6	Nanuet PnR	10,356	19,593	70,204	1.89
Total		**38,171**	**60,704**	**186,479**	**1.59**

Westchester – I-287 and Route 119 Corridor (3-mile catchment)

Zone	Sub-Area	Area (ac)	Dwelling Units (DU)	Population	DU/acre (DUA)
11	Tarrytown/Elmsford	5,615	12,686	31,668	2.26
12	Platinum Mile/ Port Chester	6,041	16,653	42,911	2.76
13	Route 100	4,456	18,899	45,150	4.24
14	Downtown White Plains	567	6,047	12,205	10.66
10	North White Plains	11,848	23,652	59,991	2.00
Total		**28,528**	**77,937**	**191,925**	**2.73**

Residential Density



Travel Demand: Summary

- Small transit market (all markets, all trips) in relation to Westchester
- Smaller cross-county transit market focused around I-287 and White Plains
- Major origin in the Spring Valley/Monsey/Nanuet area has other, faster transit options serving Manhattan than eastern Rockland County
- Cross-corridor Manhattan demand has relatively small Rockland origins (i.e., Nyack, residential areas around the Palisades Center)

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Travel Times

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Travel Time Estimates

- Transit schedules
- Drive-time surveys
- Traffic analyses
- Travel speed data

Traffic Performance – AM

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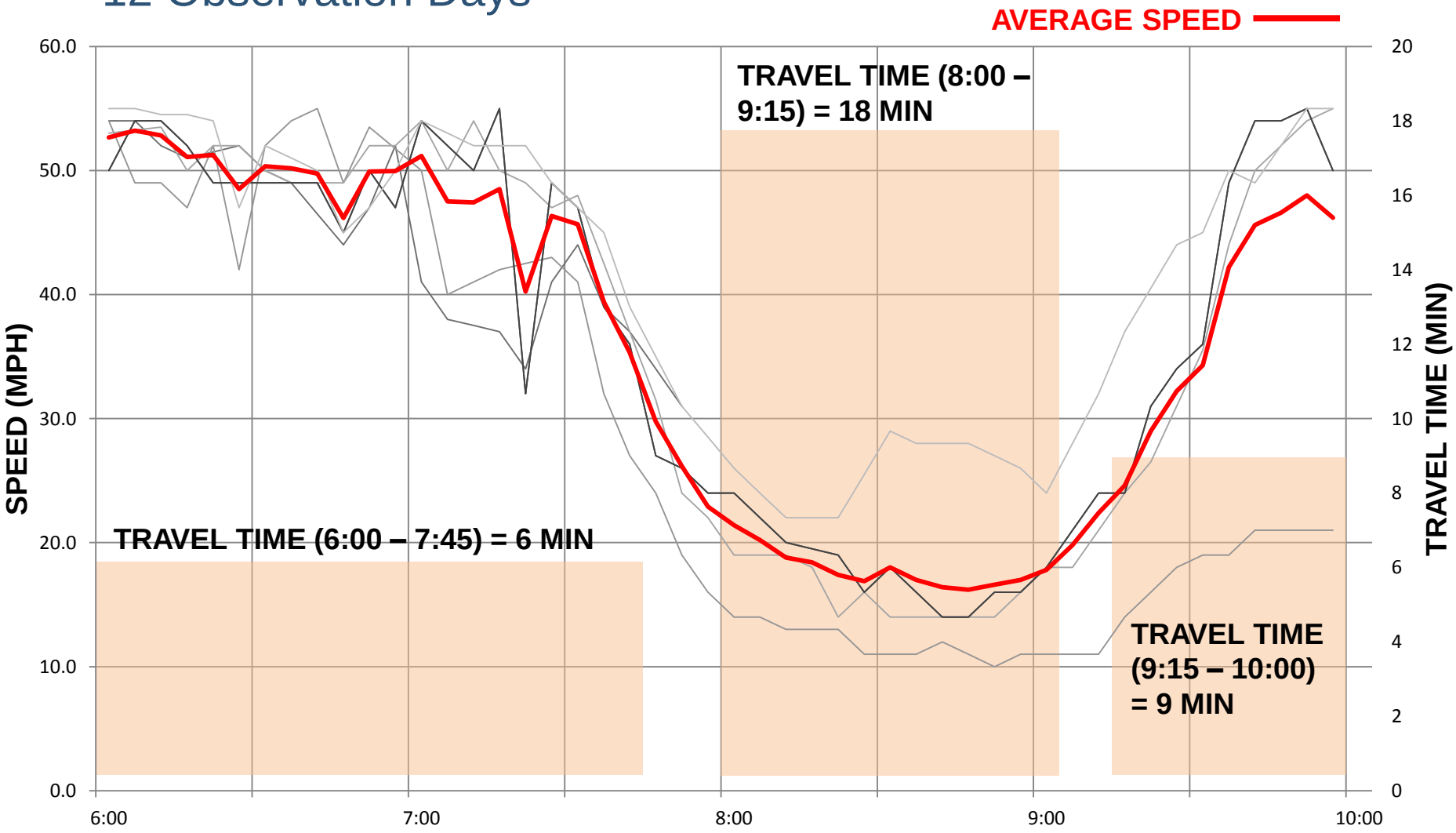
Eastbound I-287: Exit 9 (Tarrytown) to Exit 5 (White Plains)

- 12 Observation Days



Traffic Performance – PM

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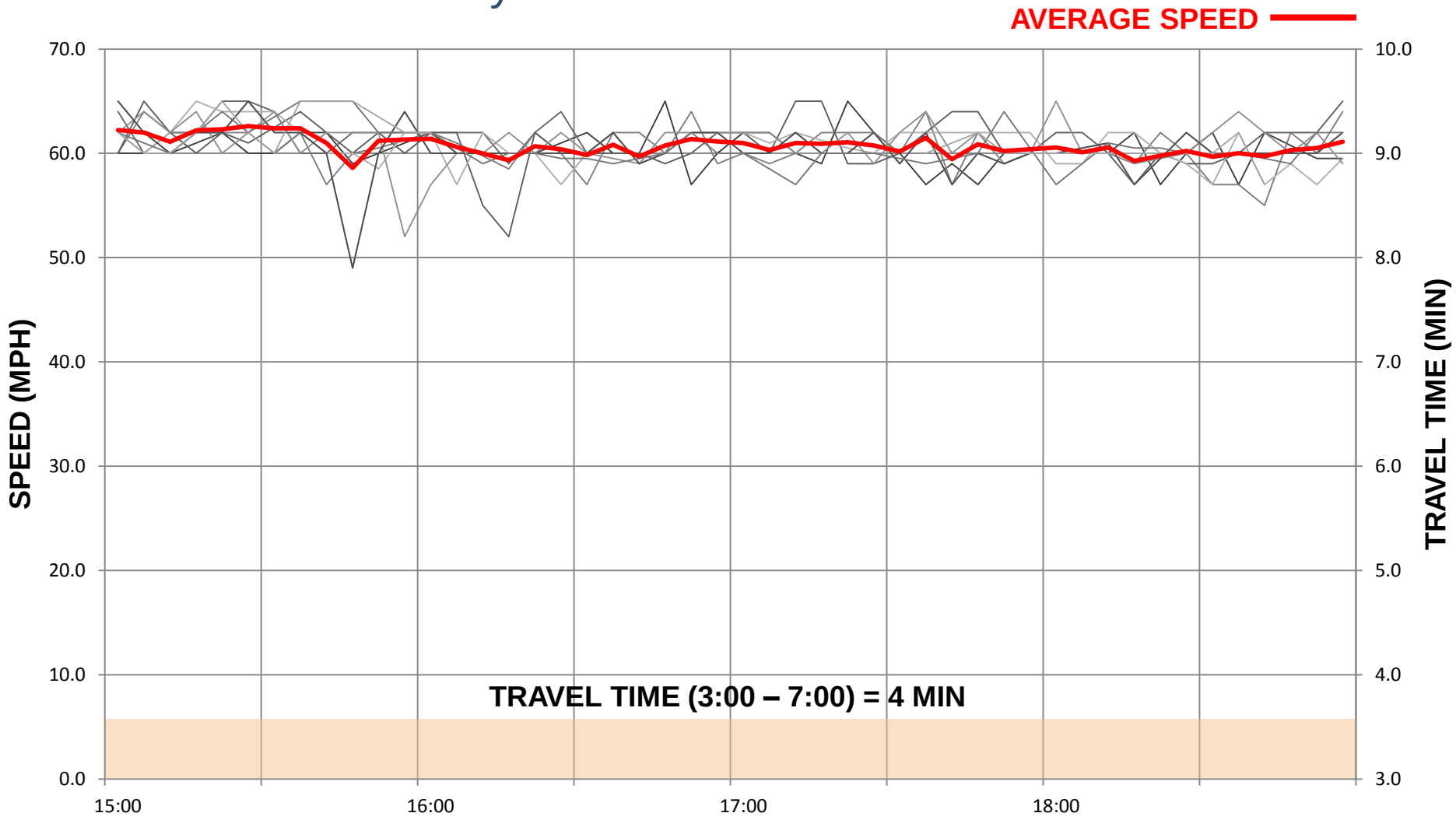
Westbound I-287: Exit 5 (White Plains) to Exit 9 (Tarrytown)

- 12 Observation Days



Travel Times

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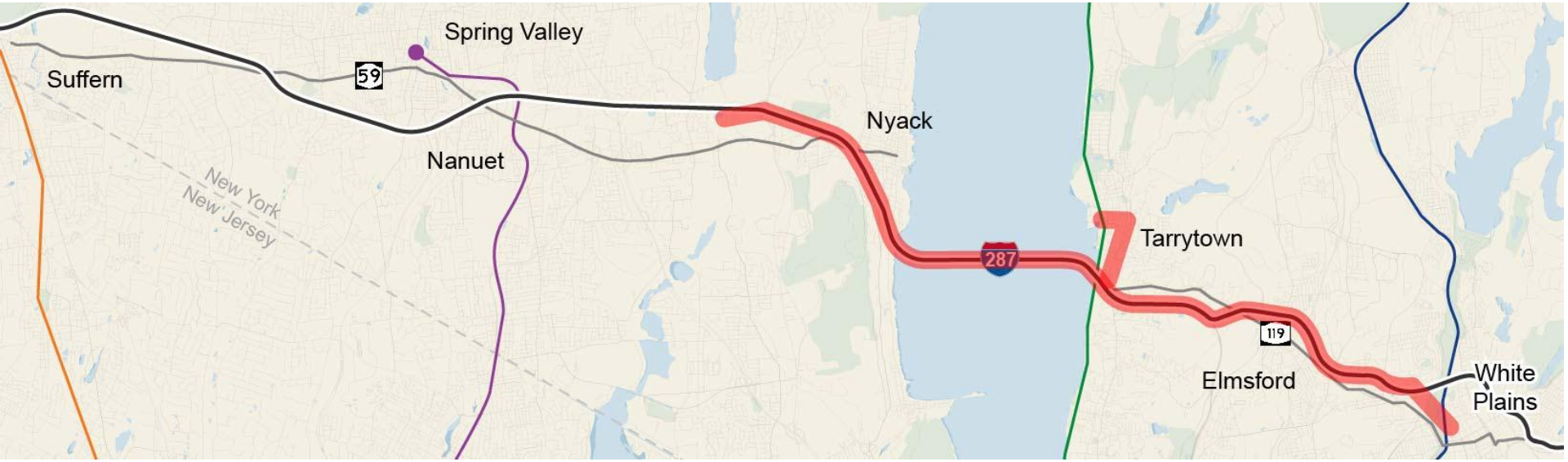
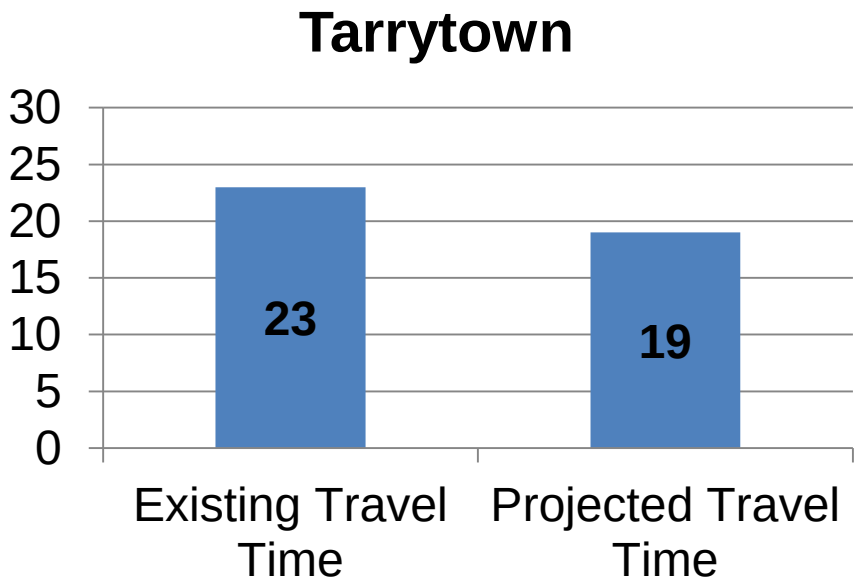
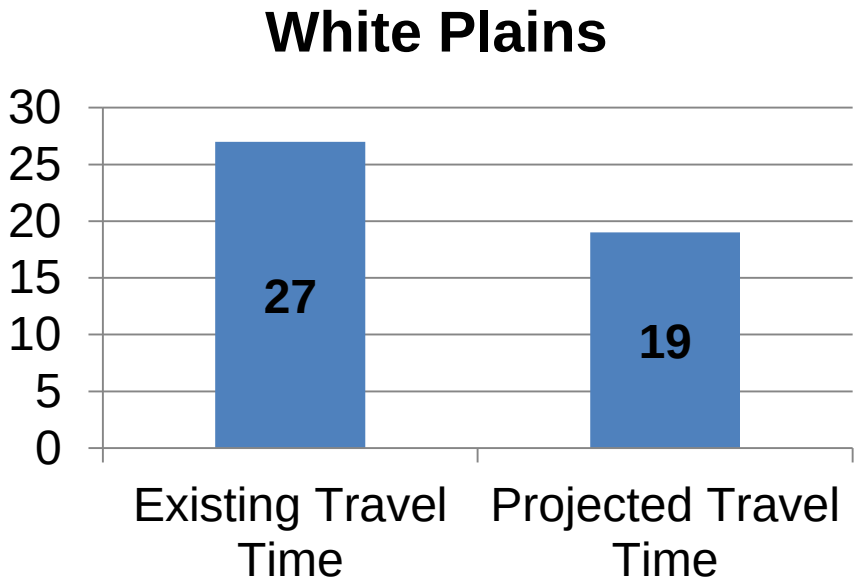
Trip: Palisades Center to Tarrytown / White Plains

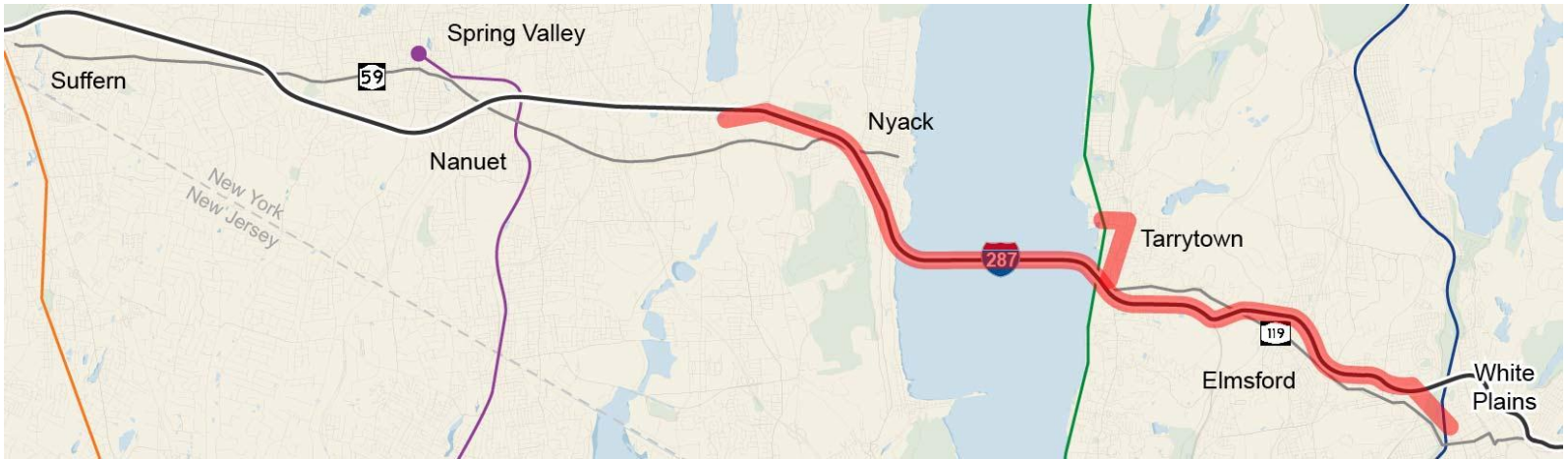


Travel Times – Summary

Palisades Center to Tarrytown / White Plains – **7 AM**

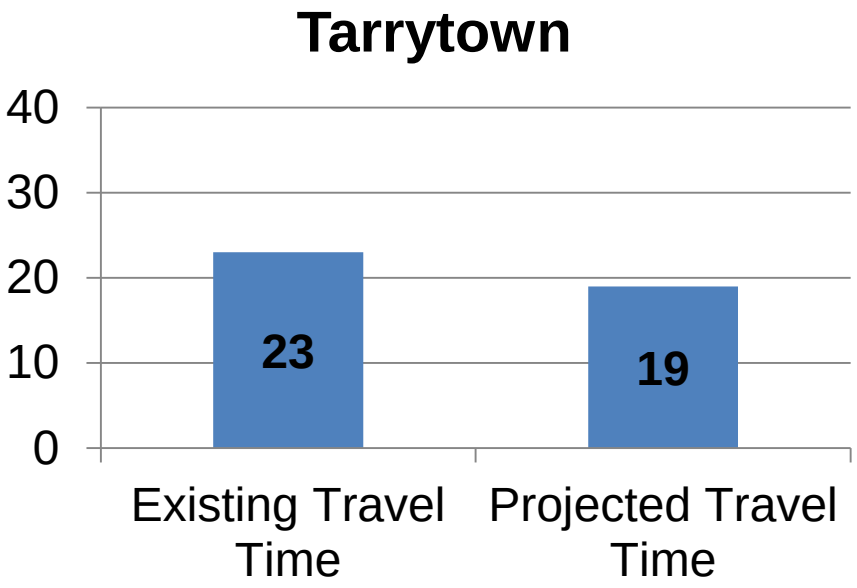


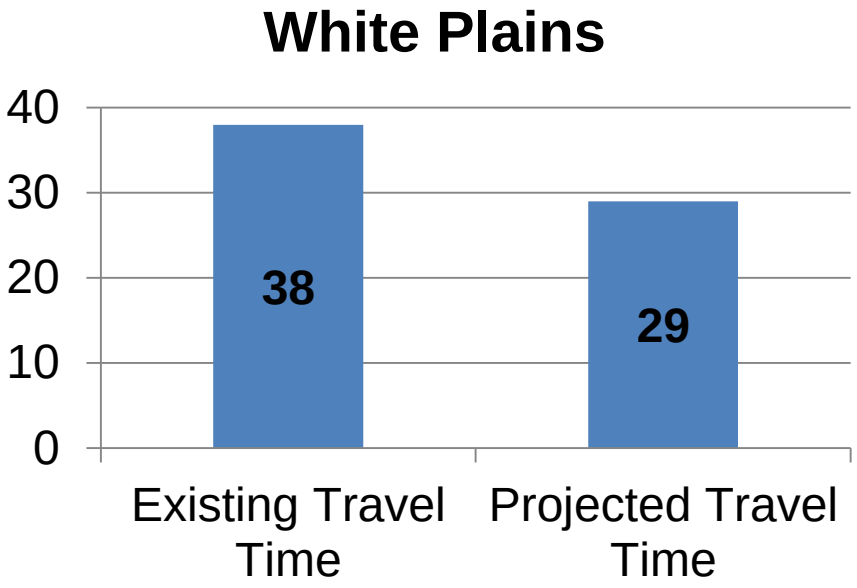


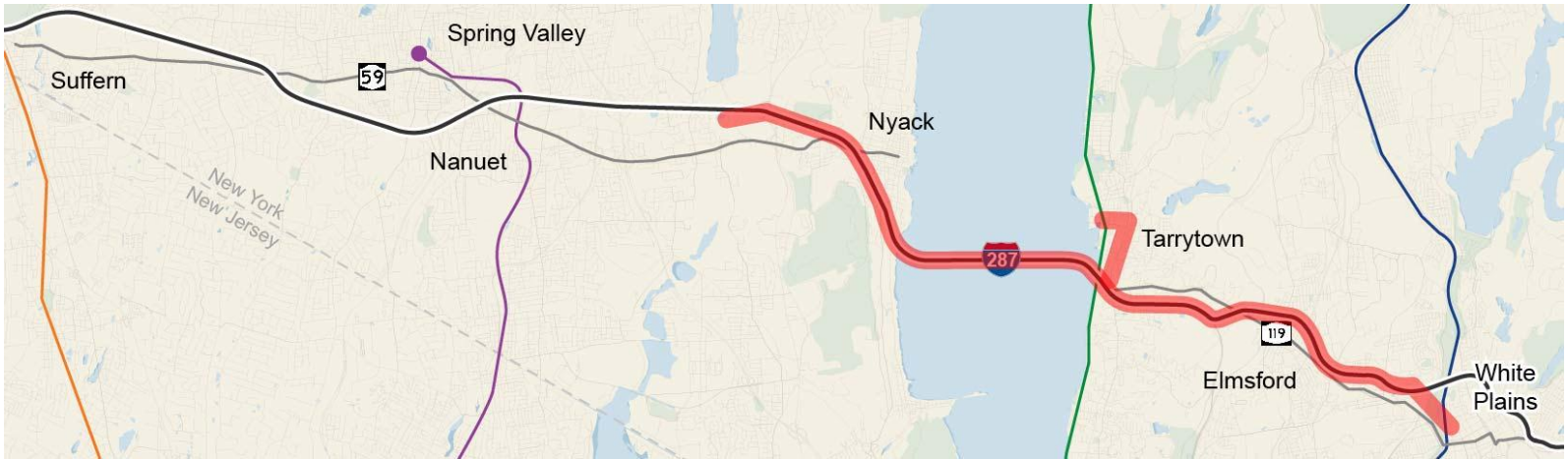


Travel Times – Summary

Palisades Center to Tarrytown / White Plains – **8 AM**

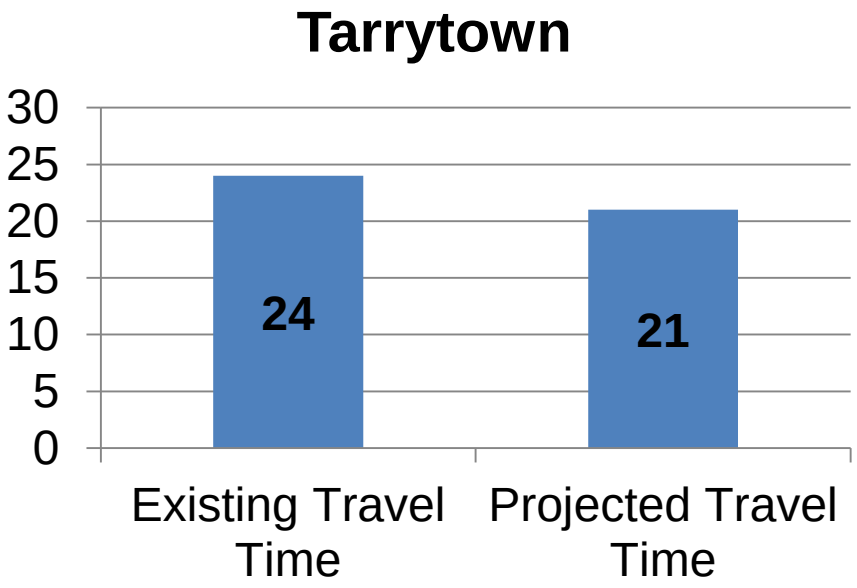


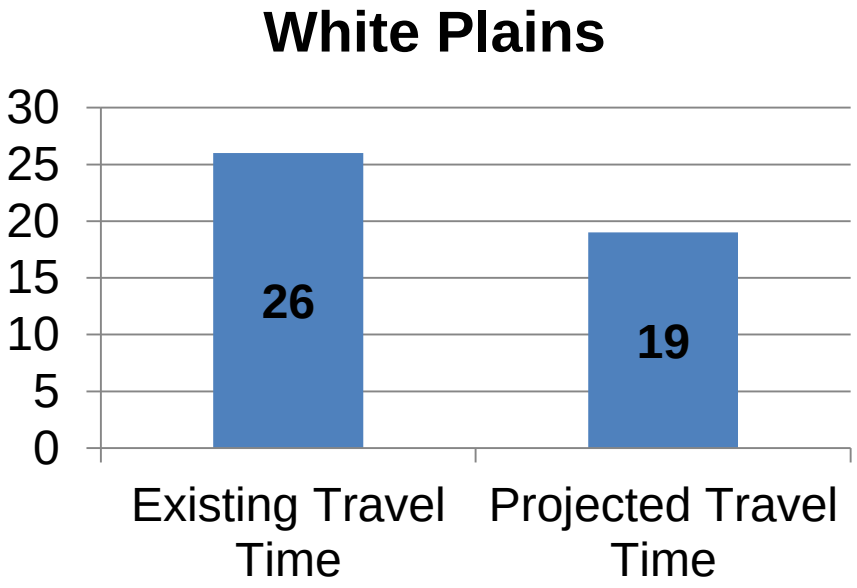


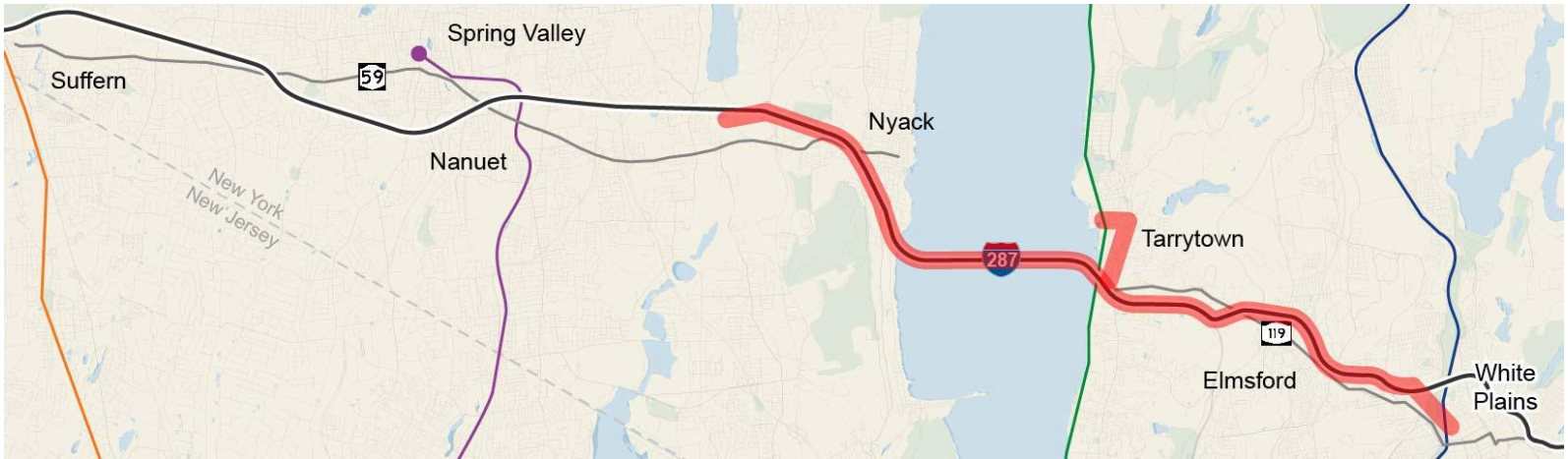


Travel Times – Summary

Tarrytown / White Plains to Palisades Center – **5 PM**







Travel Times

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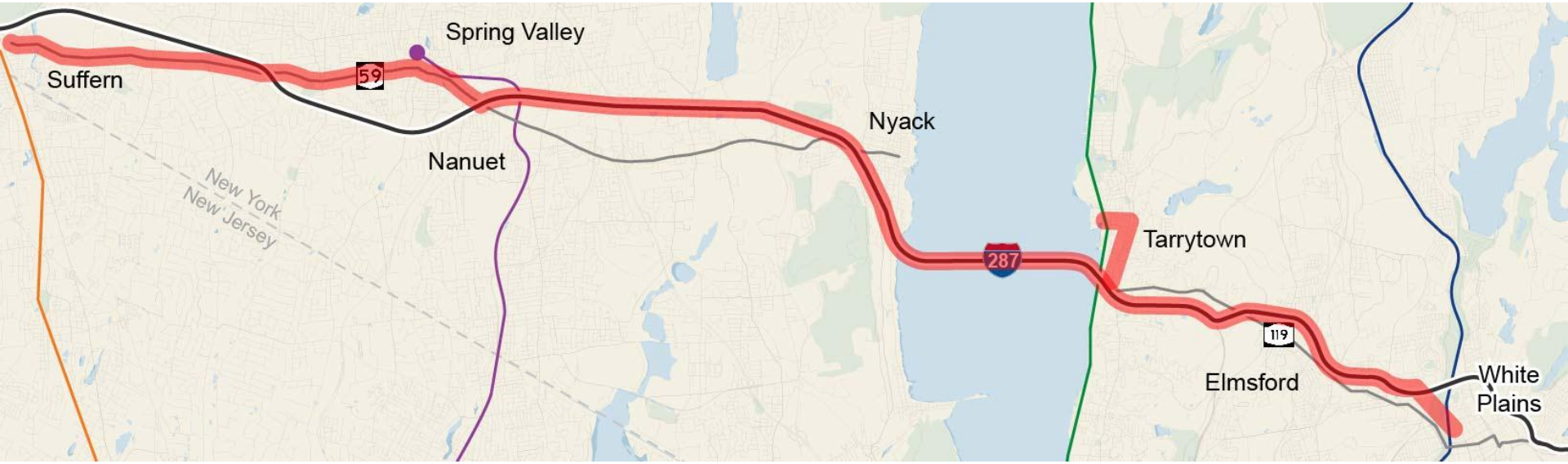
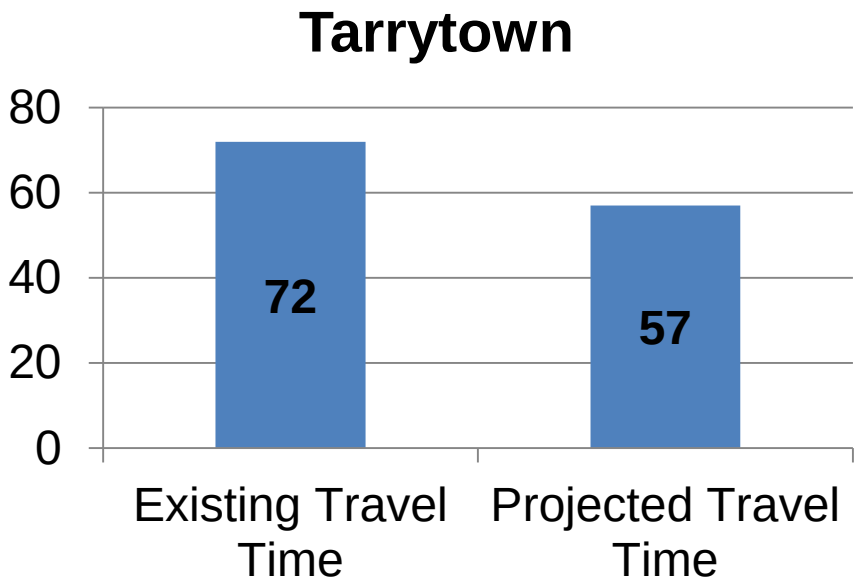
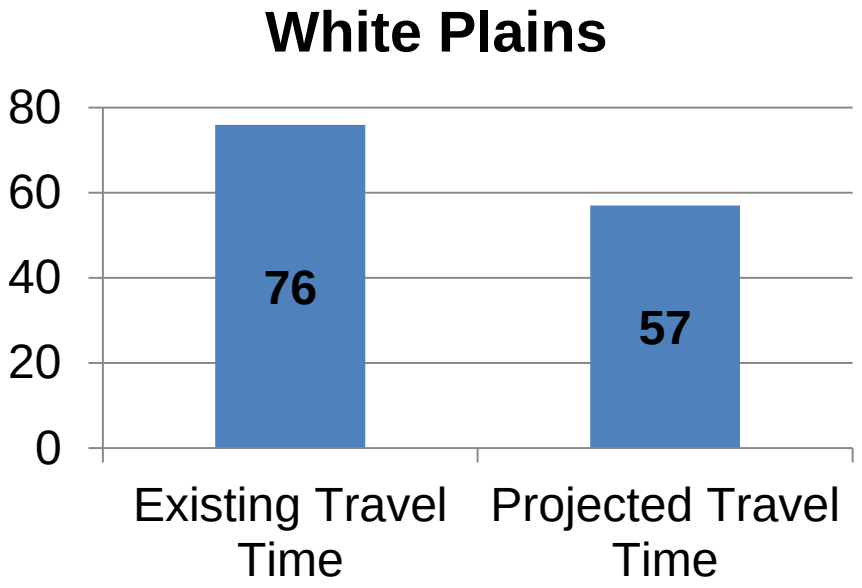
Trip: Suffern to Tarrytown / White Plains

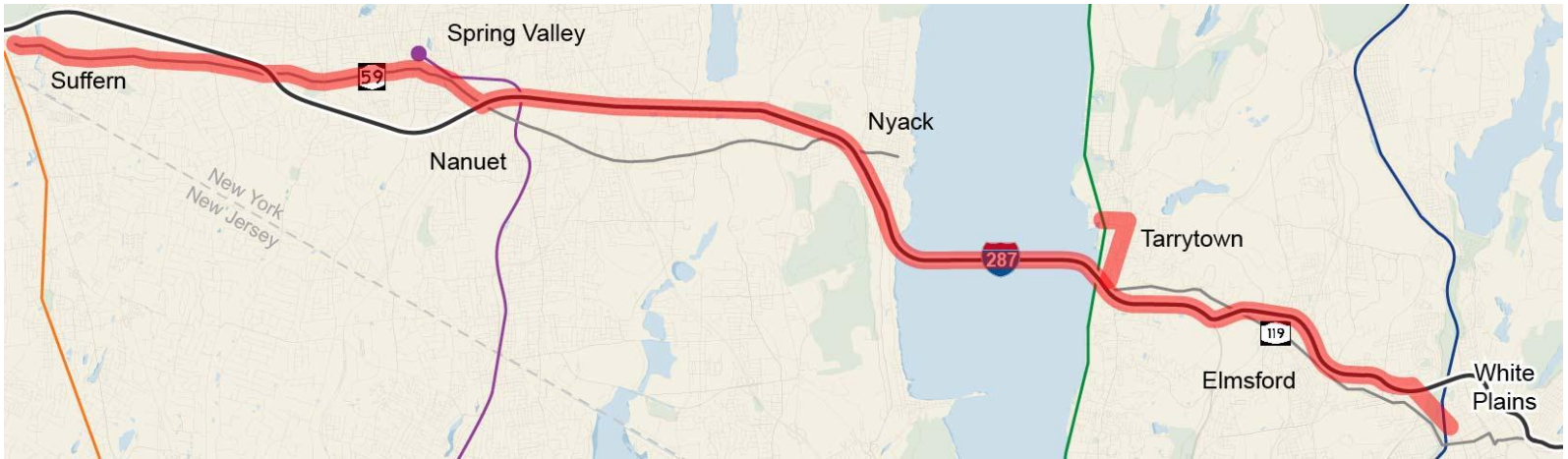


Travel Times – Summary

Suffern to Tarrytown / White Plains – **7 AM**



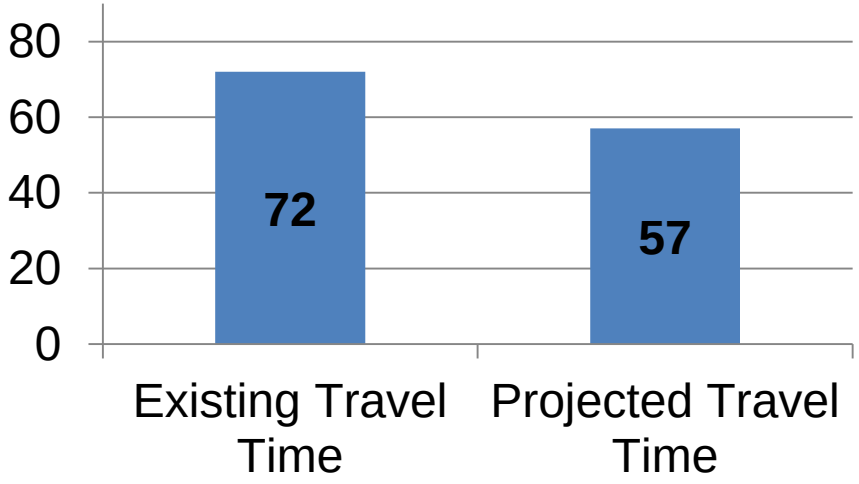




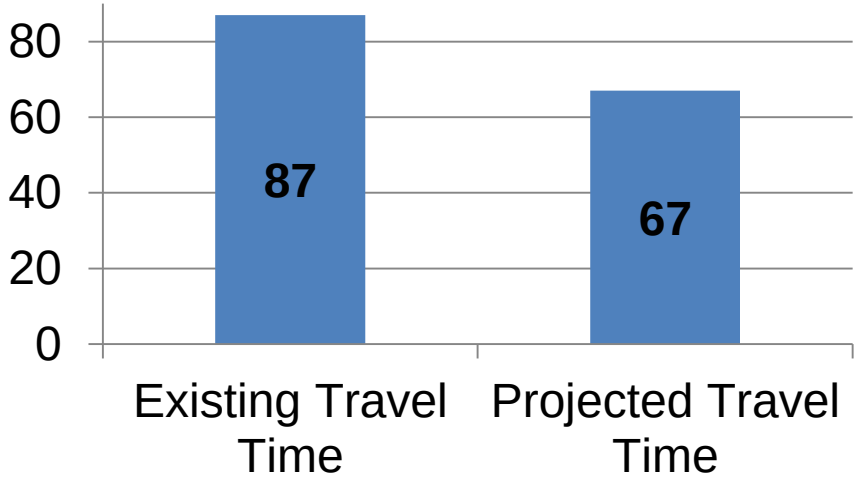
Travel Times – Summary

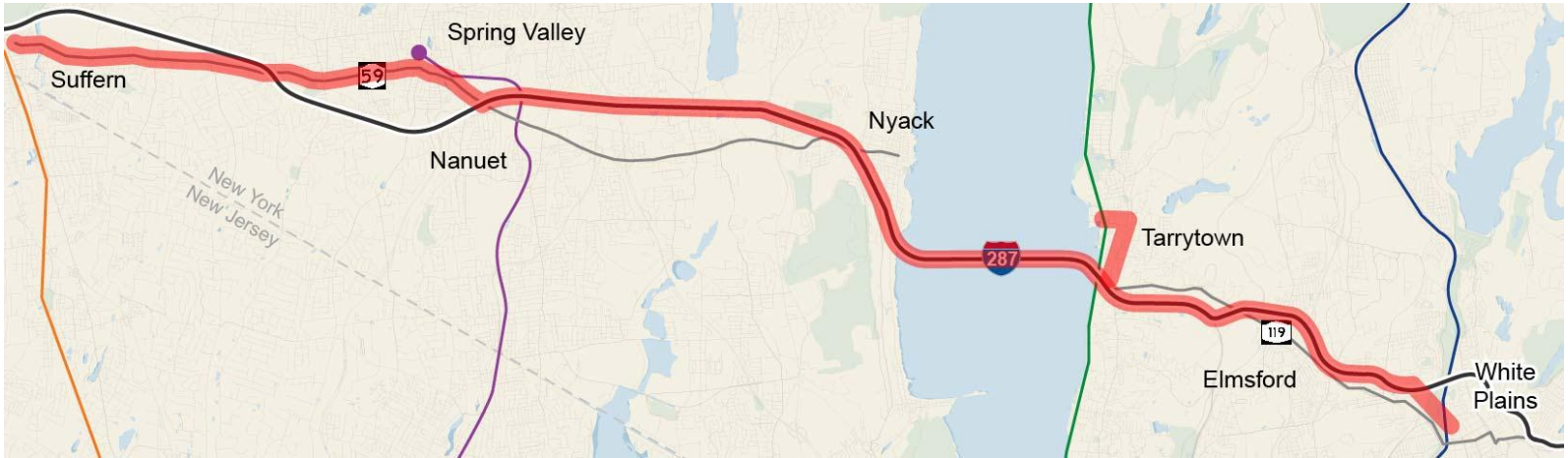
Suffern to Tarrytown / White Plains – **8 AM**

Tarrytown



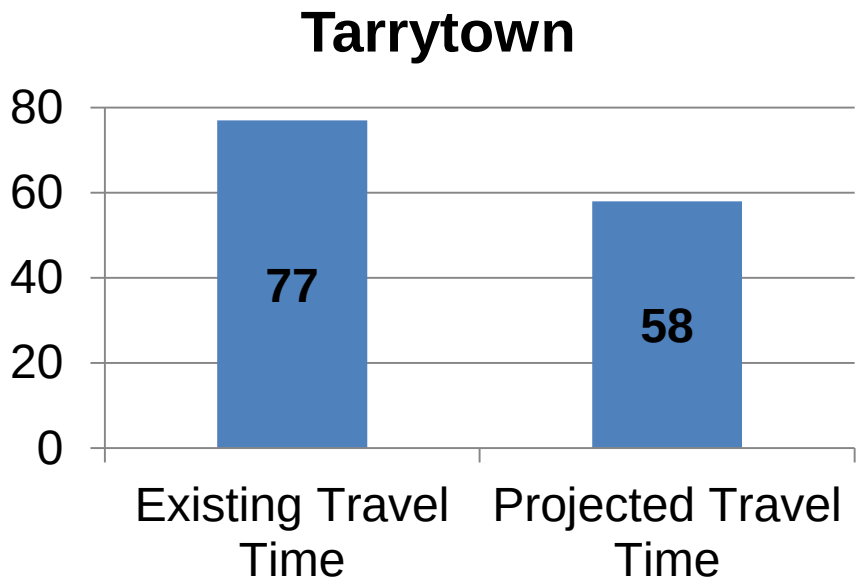
White Plains

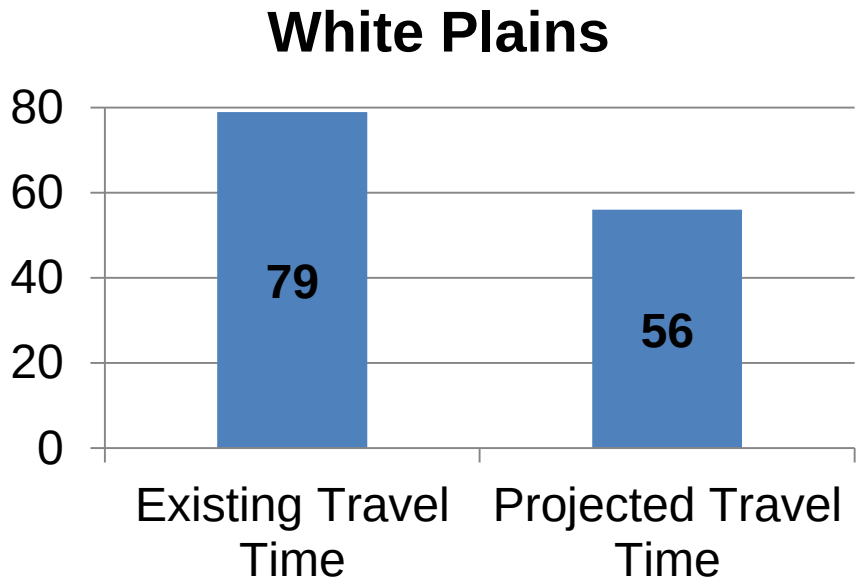


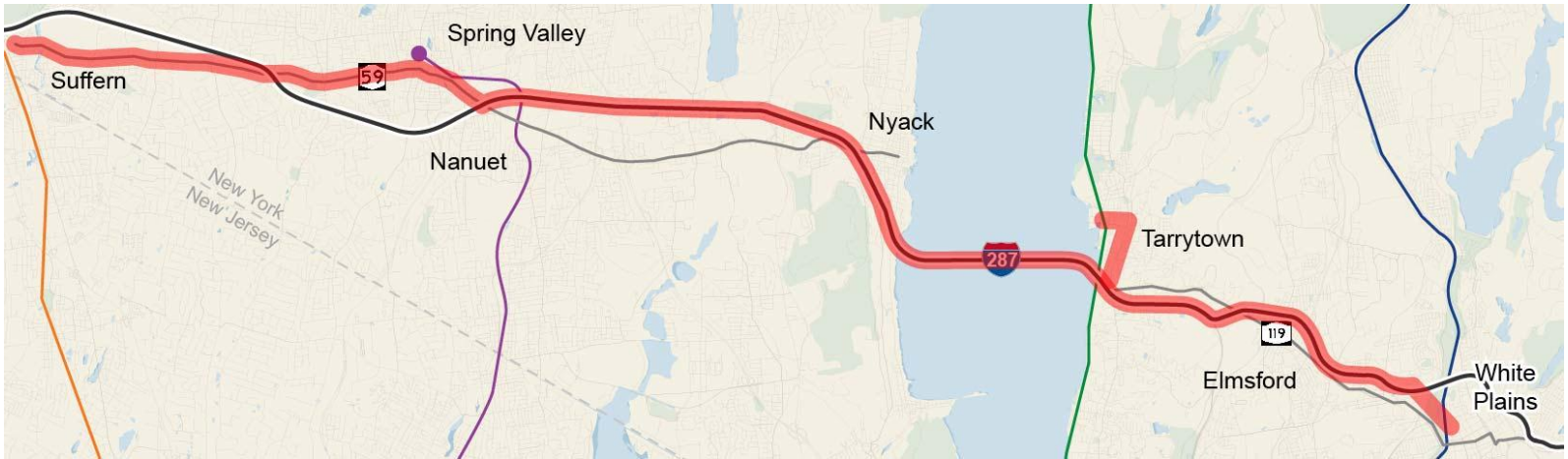


Travel Times – Summary

Tarrytown / White Plains to Suffern – **5 PM**







Travel Times – Summary

- Interventions will reduce travel times
- AM Peak
  - 7 am – Travel times from Rockland to Tarrytown / White Plains are comparable
    - Conditions along 287 EB in Westchester are stable
  - 8 am – Travel time to White Plains increases
    - Conditions along 287 EB in Westchester deteriorate post-7:45 am
    - Longer-term investment needed to address this
- PM Peak
  - Travel times from Tarrytown / White Plains to Rockland are comparable
    - Conditions along 287 WB in Westchester are stable

Travel time is only part of the story…

Transit Connections

Number of intermodal transit connections available at:

- **White Plains 29**
  - MNR Harlem Line
  - Bee Line 1W, 3, 5, 6, 11, 12, 13, 14, 15, 17, 20, 21, 27, 40, 41, 60, 62, 63, 77
  - Shuttles to Platinum Mile (6)
  - OWL
  - TLC
  - I-Bus

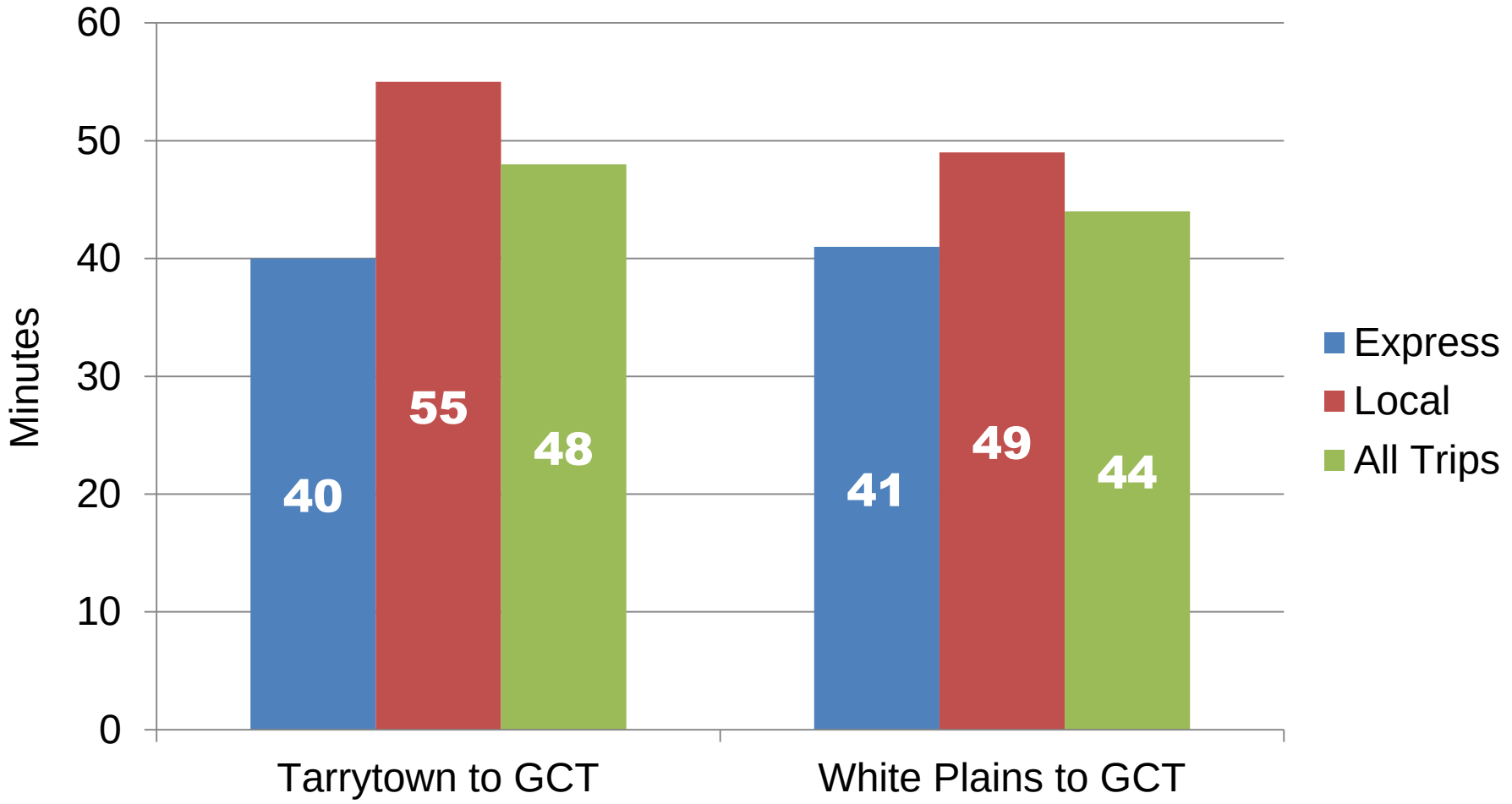
- **Tarrytown 3**
  - MNR Hudson Line
  - Bee-Line 1T, 13

Train Frequencies

AM Metro-North Departures, 6:00 – 8:15 am

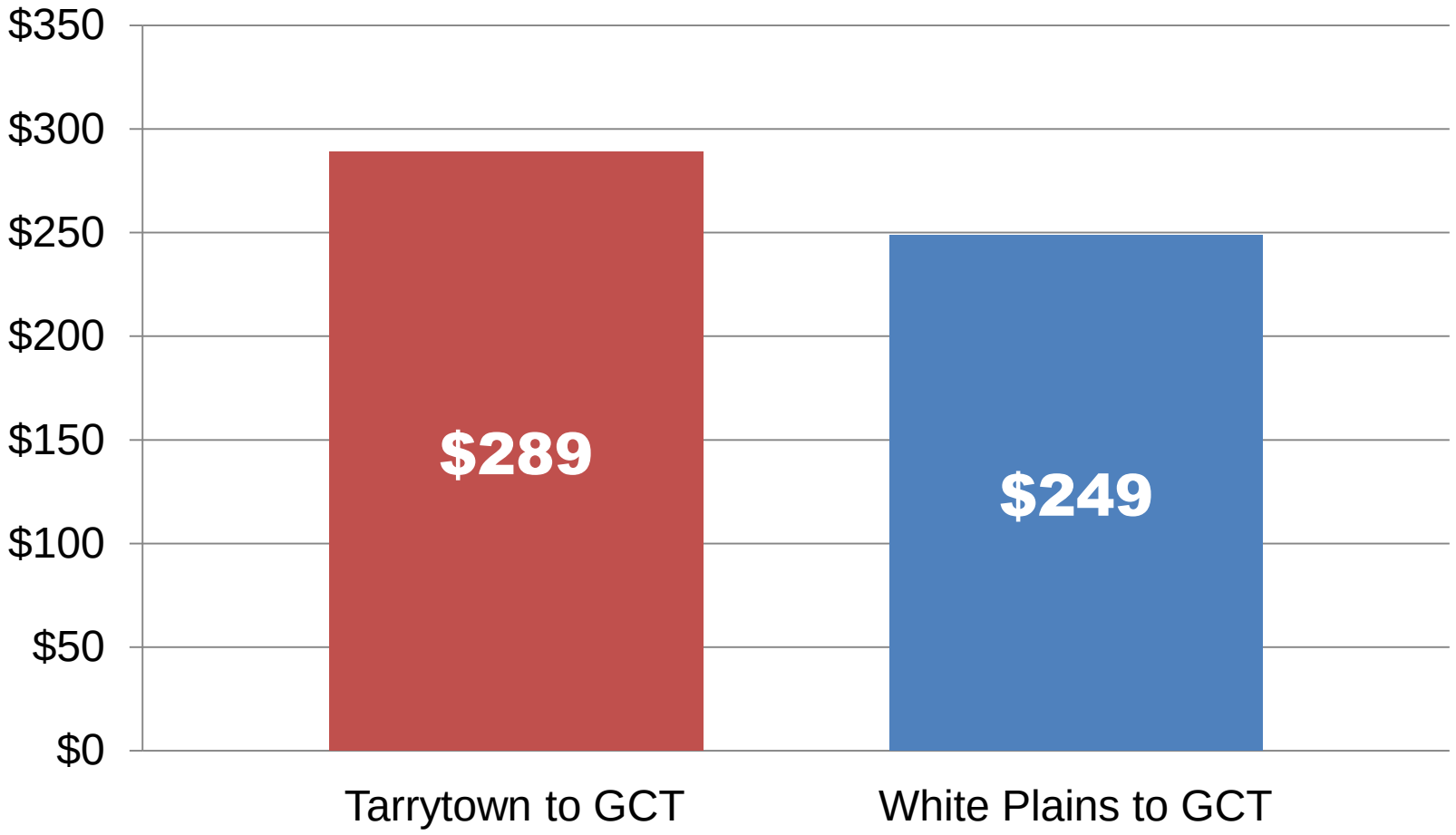
Departure Type	From Tarrytown	From White Plains
Express	5	14
Local	6	7
Total	11	21

Travel Times to GCT



Times shown are average of inbound trip times between 6:00 and 8:15 am (anticipating pre-9:00 am arrival to GCT)

Monthly Train Fares



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Discussion

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