NVTA's TransAction

Transportation Action Plan for Northern Virginia

COVID-19: Transportation Impacts and Opportunities

TPB Technical Committee Meeting

October 2, 2020

Item 9

Agenda

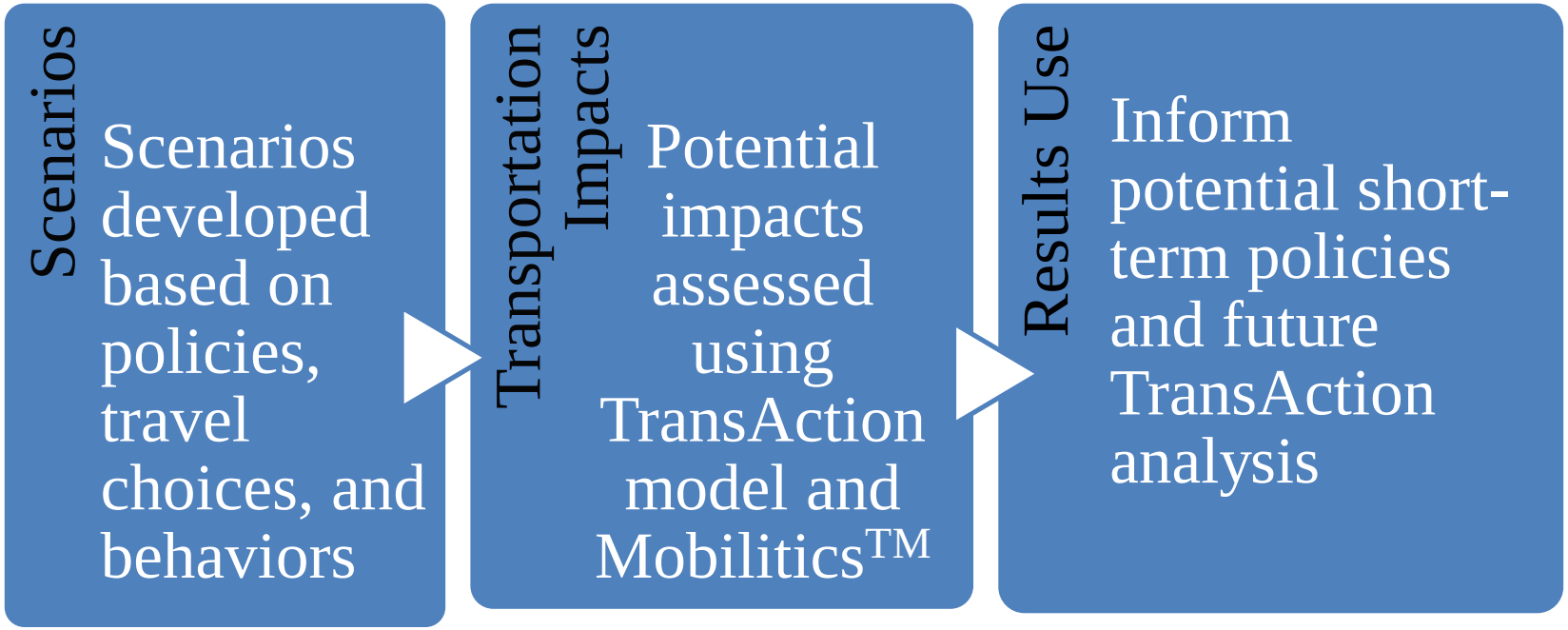
- Overall Goals
- Scenario Analysis & Context
- Scenario Definitions
- Scenario Results & Comparison
- Conclusions
- Update

Overall Goals

- Explore impacts to operating conditions & future transportation project investment considerations
  - Model different recovery scenarios to compare impacts
  - Use this analysis to structure future planning efforts

Scenarios & Impacts

Analyze plausible possible future scenarios, not intended to predict the future or imply any preferences



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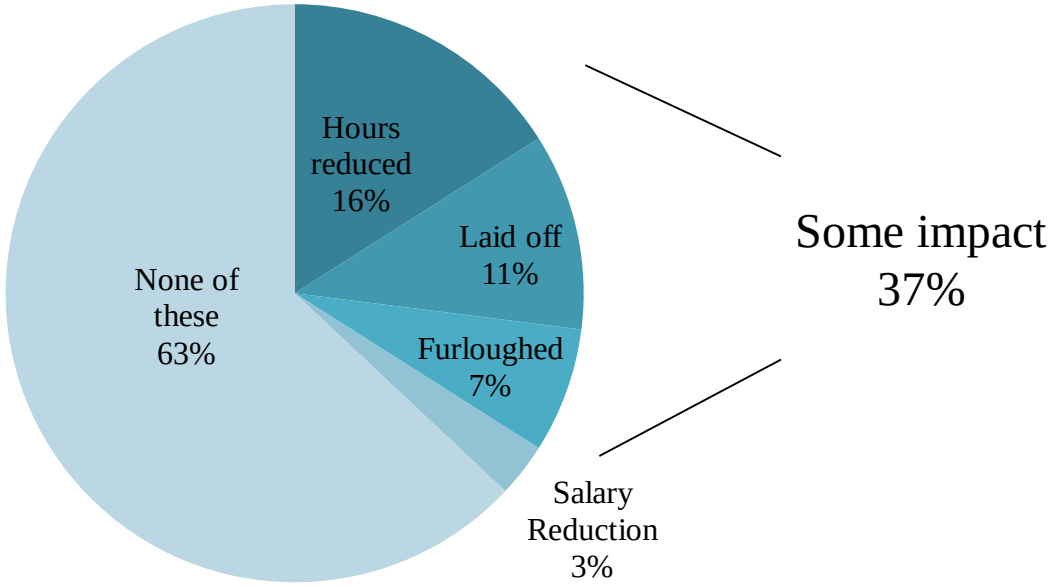
Background

- Through response to and recovery from COVID-19, trip behavior has been impacted starting in March 2020
- As a result:
  - Telework increased
  - Schools and many businesses closed
  - Travel decreased throughout the region
  - Safety concerns about transit and shared-rides

National Trends: Employment

Gen Z, Millennials, and Gen X are feeling the brunt of the economic impact from job or wage impacts due to COVID-19; decreasing their sense of personal security, happiness, productivity, success and sense of accomplishment.



Reduced hours, laid off, furloughed, or salary reduction by generation (NET)

54% Gen Z
51% Millennials
41% Gen X
19% Boomers
6% Silent

BASE: All Respondents (n=1,001)

Q1046C. Which of the following has happened to you in the past month?

Source: Heart+Mind June 5th Roundtable

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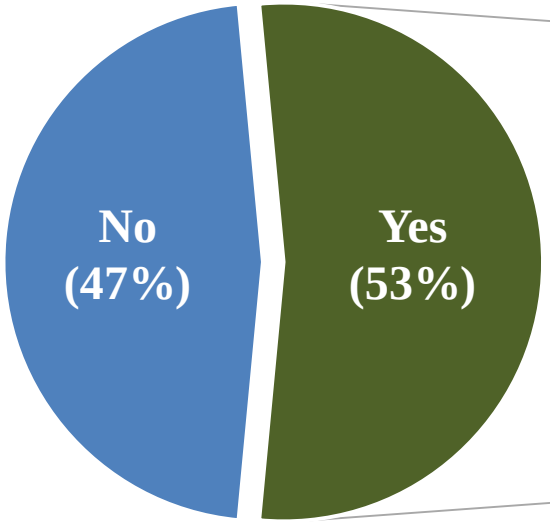
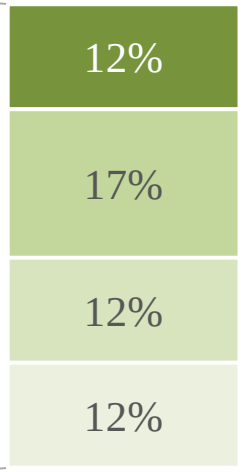
National Trends: Working from Home

Q: Are you currently working from home?



Q: Thinking of your job before the coronavirus outbreak, how often were you able to work from home?



Never before

Before only less than 25% of the time

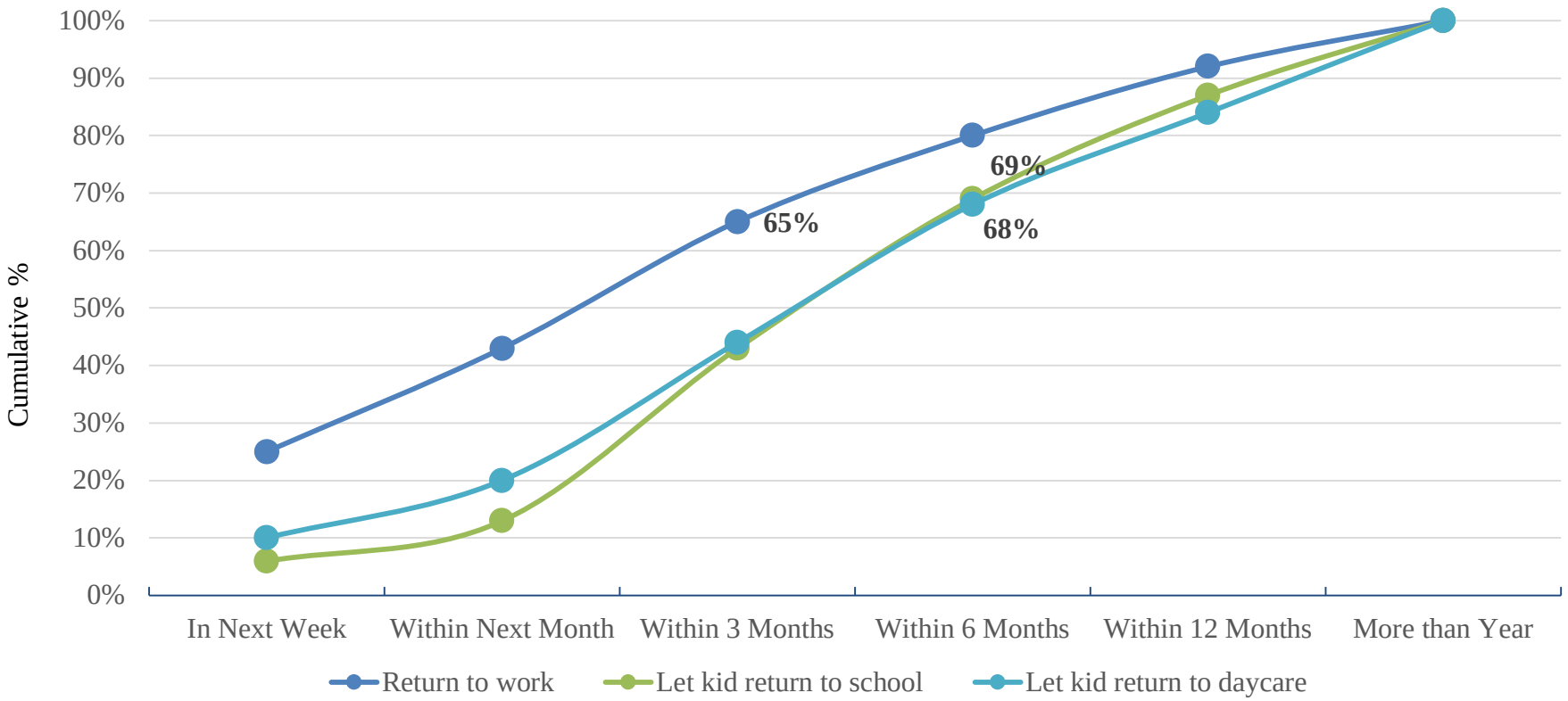
Before between 26-50% of the time

Before more than 50% of the time

Source: Heart+Mind May 27th Roundtable

National Trends: Work Will Return Well in Advance of Childcare

Q: When are you likely to do each of the following?



Source: Heart+Mind June 19th Roundtable

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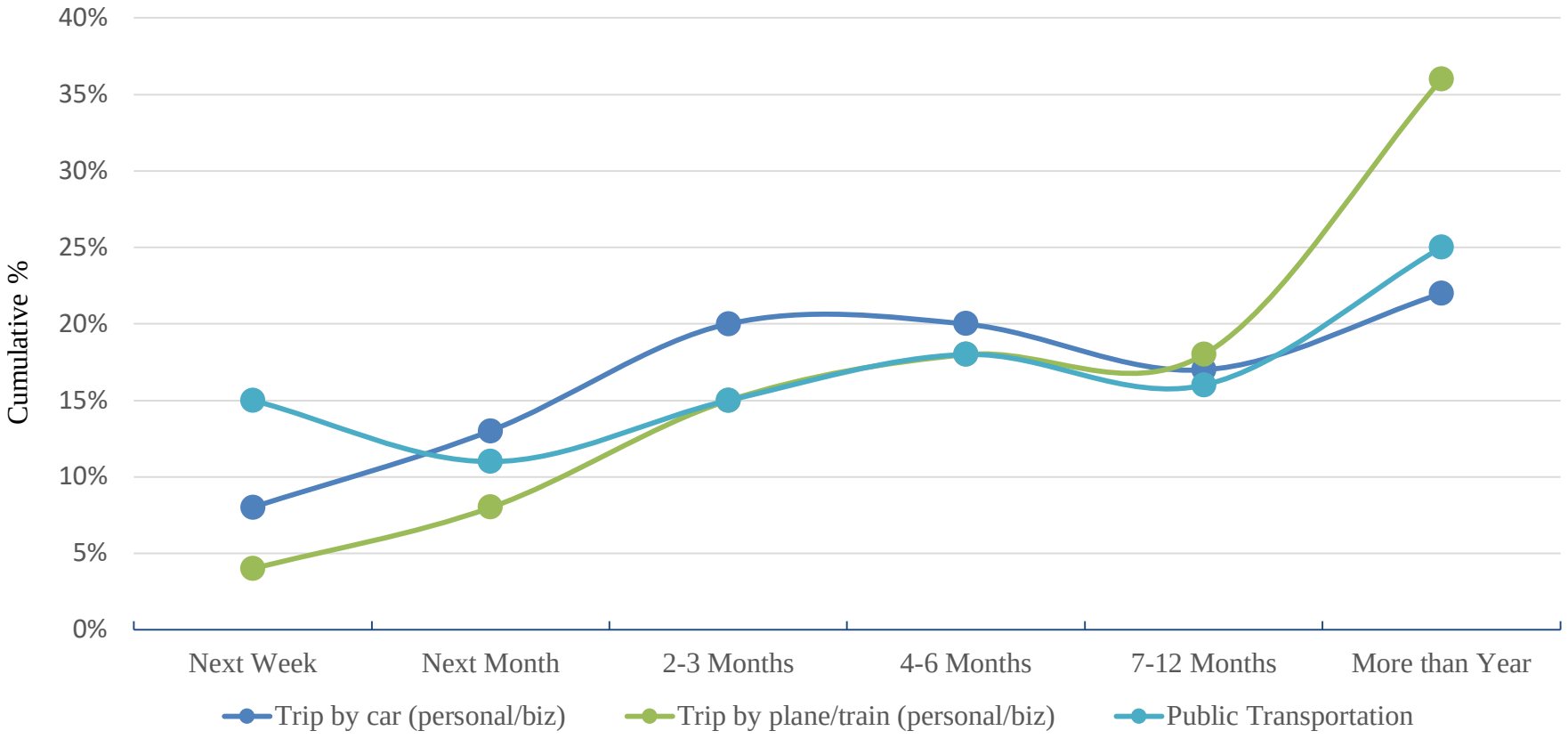
National Trends: Public Transit Lags Behind Car Trips

Q: When are you likely to do each of the following?



Source: Heart+Mind June 19th Roundtable

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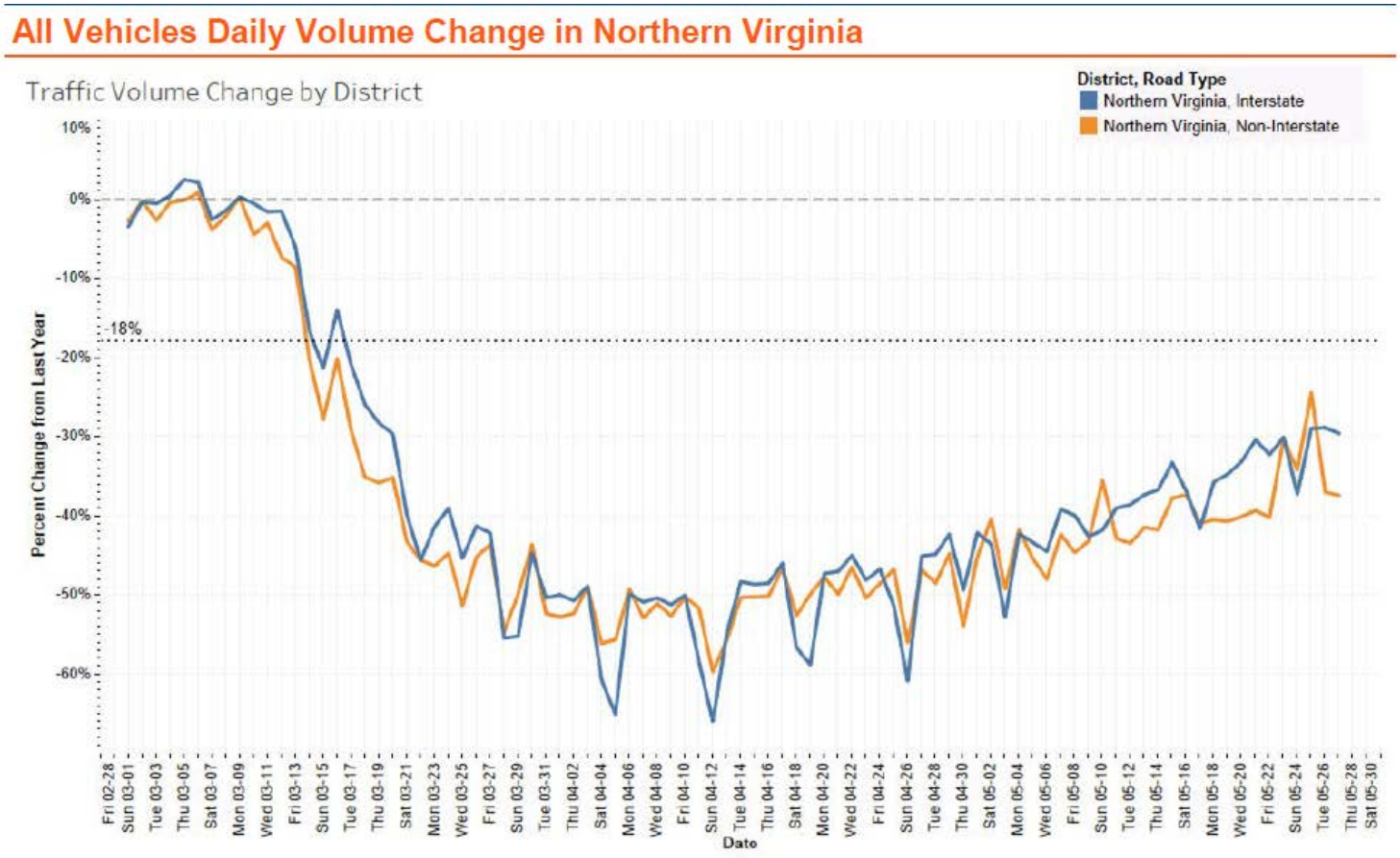
Regional Trends: VDOT Volume Trends



Mid-April shows the lowest daily volume at -55% compared to 2019 levels

Source: VDOT data presented at the Commonwealth Transportation Board June 17th Meeting

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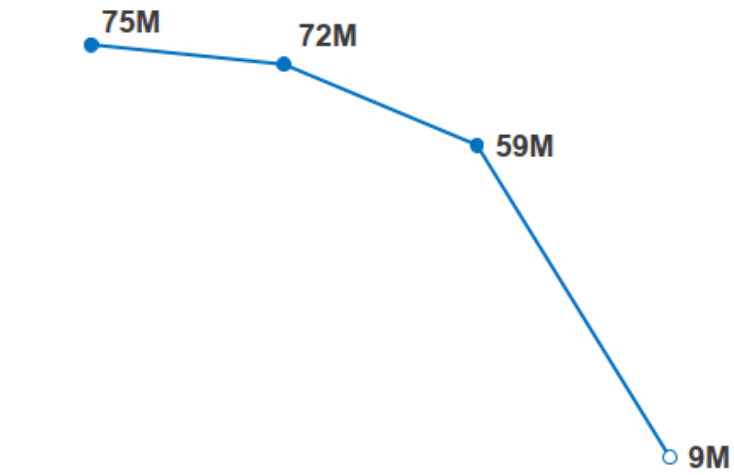
Regional Trends: WMATA Ridership

Ridership Decline of 88% from Q4 FY2020 Budget



- Metrorail 94%
- Metrobus 78%
- MetroAccess 69%

8 WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

Source: WMATA Finance & Capital Committee Meeting May 14, 2020

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Northern Virginia Reopening Phases

- Phase 1 (started 5/29)
  - Continued social distancing & teleworking
  - Non-essential businesses, like restaurants and salons, reopened with limited capacity
- Phase 2 (started 6/12)
  - Social gatherings increase from 10 to 50 people
  - Restaurant and beverage establishments may offer indoor dining at 50% occupancy & certain recreation/entertainment venues without shared equipment may open with restrictions

Northern Virginia Reopening Phases

- Phase 3 (started 7/1)
  - Limit the occupancy of physical spaces to ensure adequate physical distancing may be maintained
  - Encourage telework, when not feasible move/stagger workstations to maintain 6 feet of distance
- Phase 4 “New Normal” – June 2021-2025

Scenario Definitions

Scenario	Short Term (2020-2021)	"New Normal" (2025)
Quick Recovery	Economy recovers by fall and most people are back to work and school	Overall travel is about 95% of pre-COVID levels
Active Transportation	Gradual recovery where more people drive alone or take active transportation (walking/biking)	Active transportation remains higher than 2019; overall travel about 90% of pre-COVID levels
Second Pandemic Wave in October	A second stay at home advisory issued in October, with an increase in job loss and teleworking and a decrease in transit ridership	Most significant impact on overall travel, returning only to about 85% of pre-COVID levels
Cautious Recovery	Most gradual recovery with low school attendance and business related travel is reduced, & E-commerce increases	Overall travel lower than Quick Recovery Scenario at about 90% of pre-COVID levels

Scenario Comparison: Assumptions

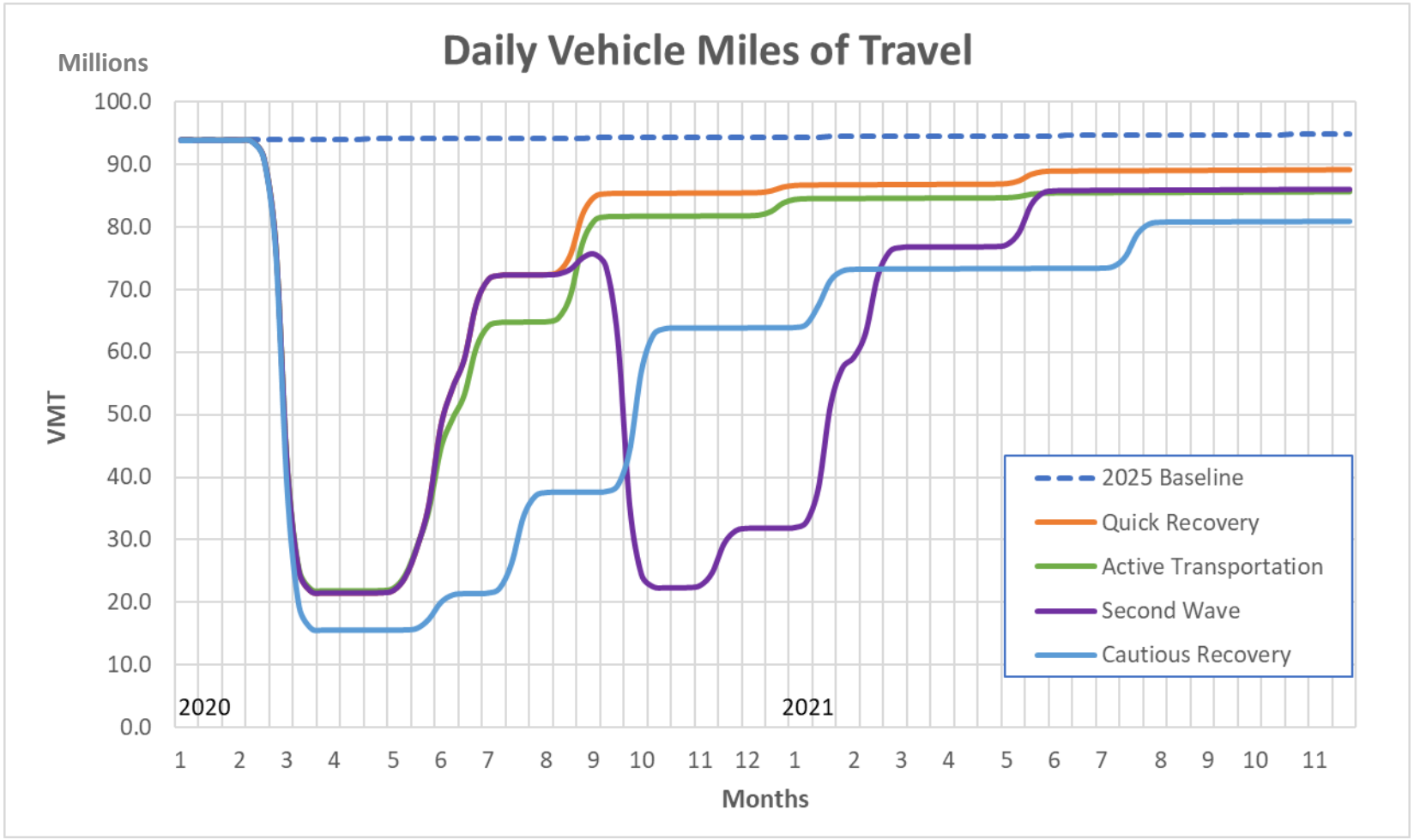
	Quick Recovery		Active Transportation		Second Wave		Cautious Recovery	
	Short Term	New Normal	Short Term	New Normal	Short Term	New Normal	Short Term	New Normal
Telework*	10%	10%	20%	15%	50%	10%	25%	15%
Jobs Lost*	3%	0.5%	5%	1%	10%	6%	8%	2%
School Attendance	90%	95%	90%	95%	0%	100%	40%	90%
Transit Safety Perception	85%	100%	75%	95%	25%	95%	40%	100%
Active Transportation	Pre-COVID Mode Share		60% trips <5 mi are walk/bike. Mode share increases 30%.		Pre-COVID Mode Share		Pre-COVID Mode Share	

**Compared to pre-COVID levels*

Short Term Impacts

Jan 2020 to June 2021

Impact on Vehicle Miles Traveled (VMT)



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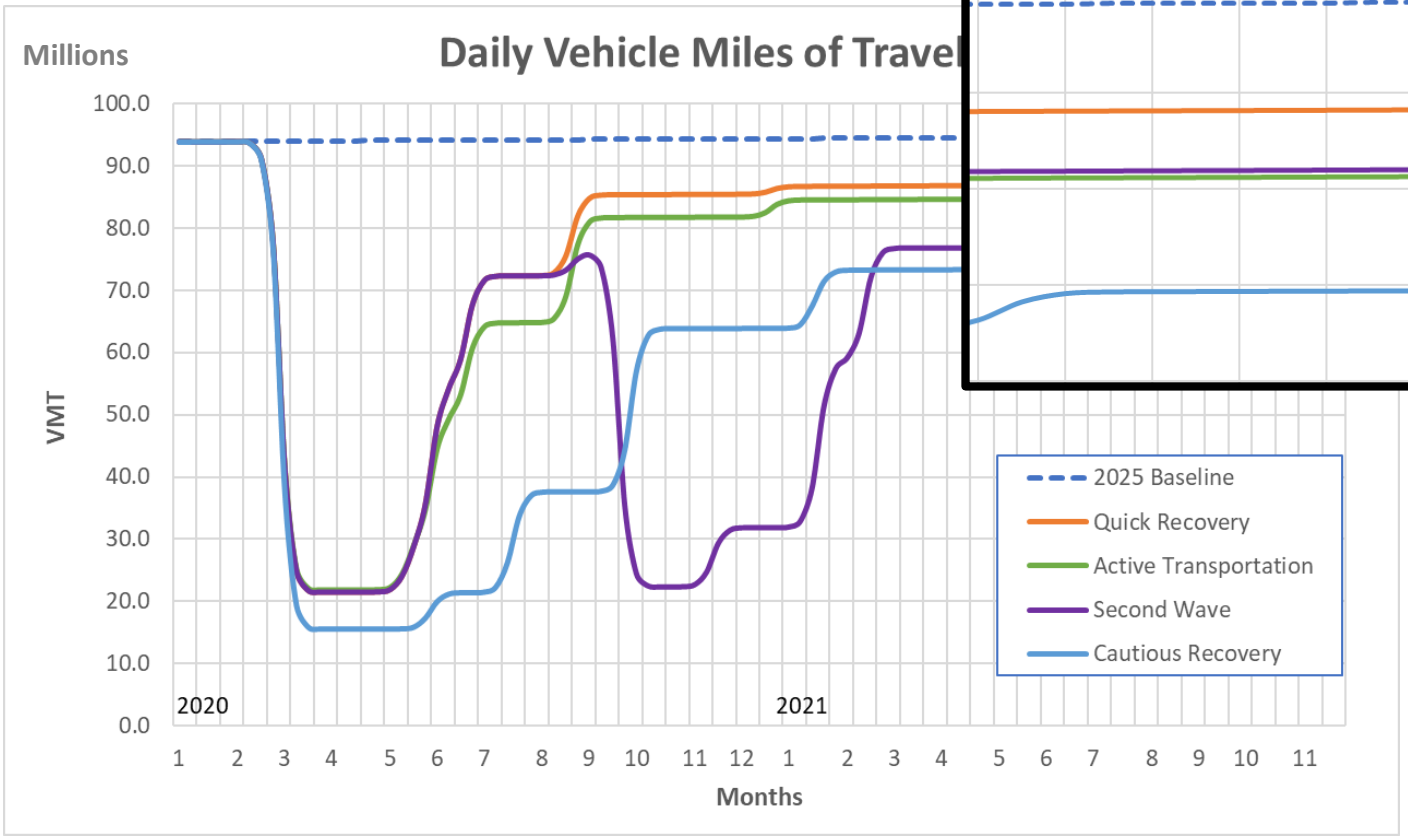

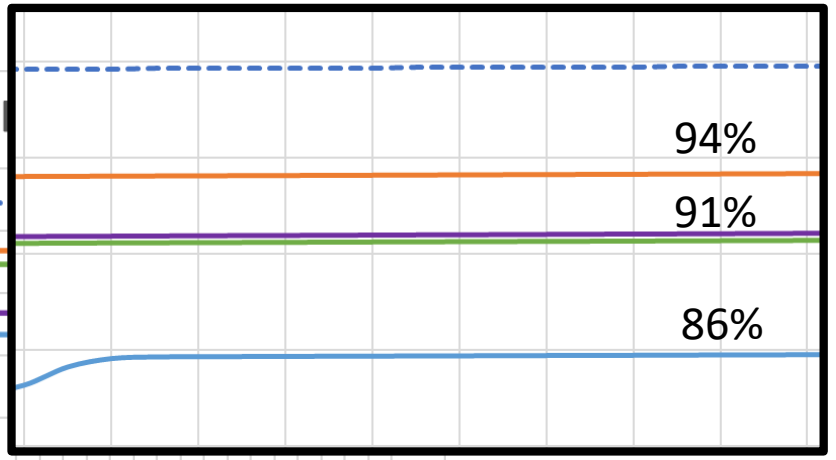

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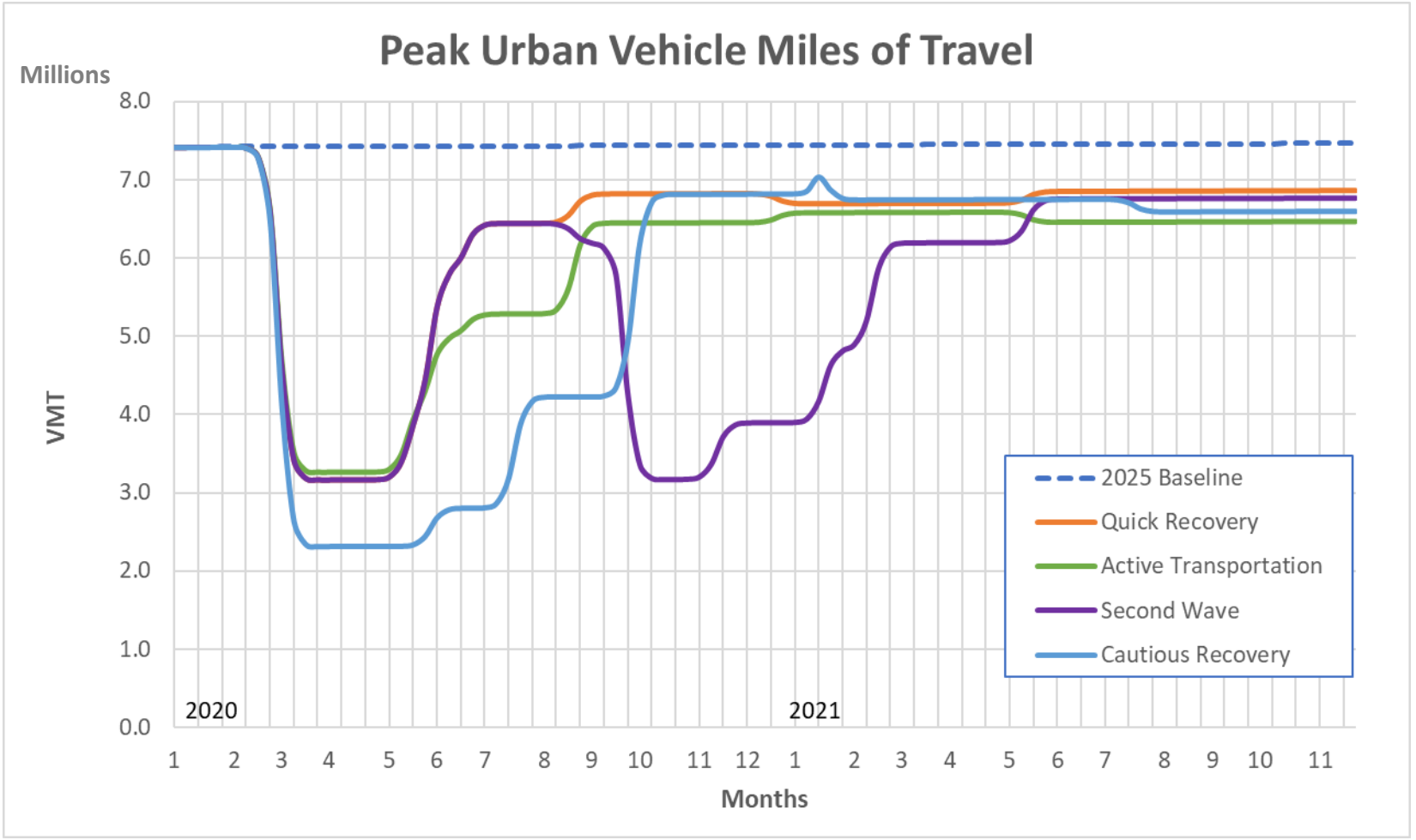
Impact on VMT by Subarea



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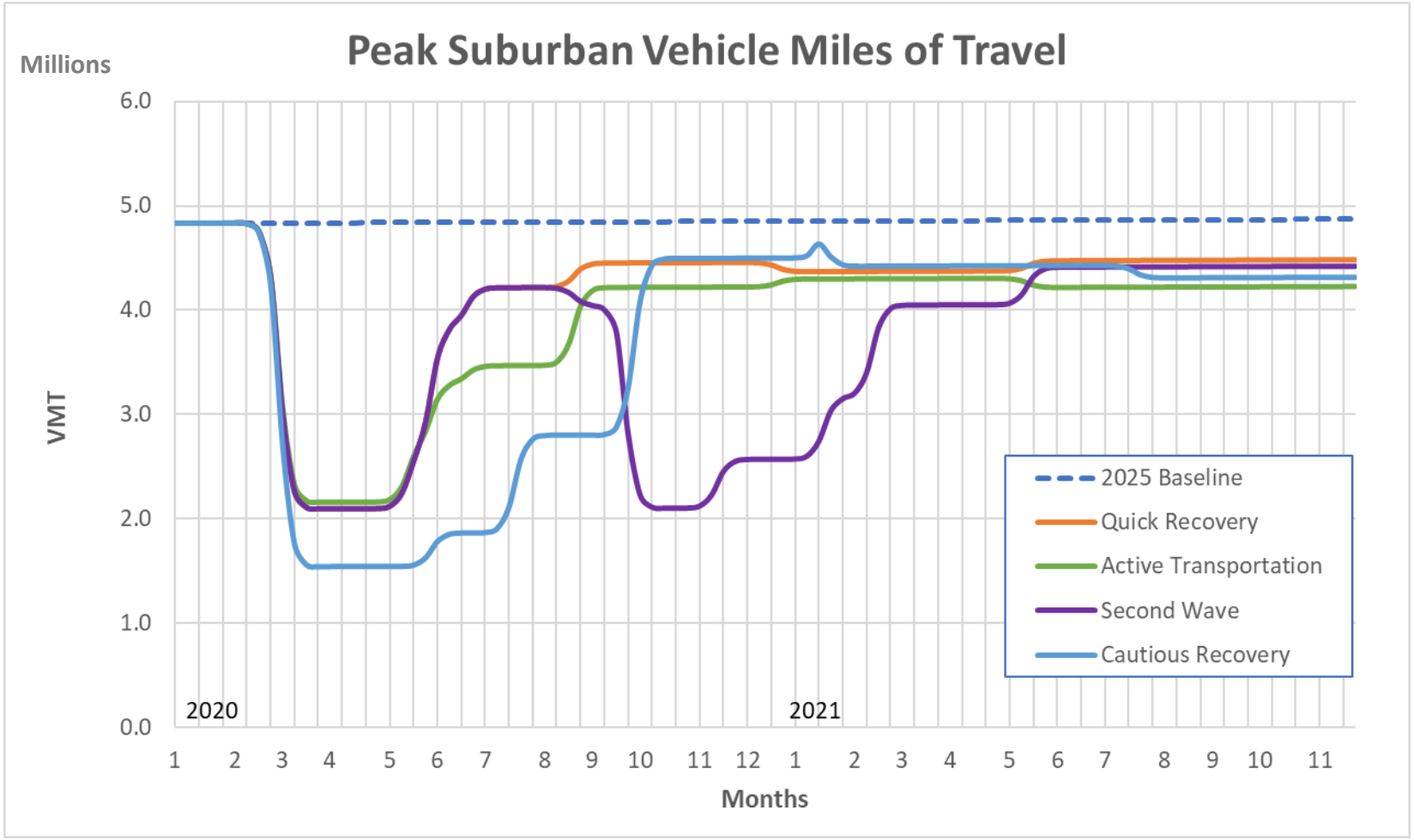
Impact on VMT by Subarea



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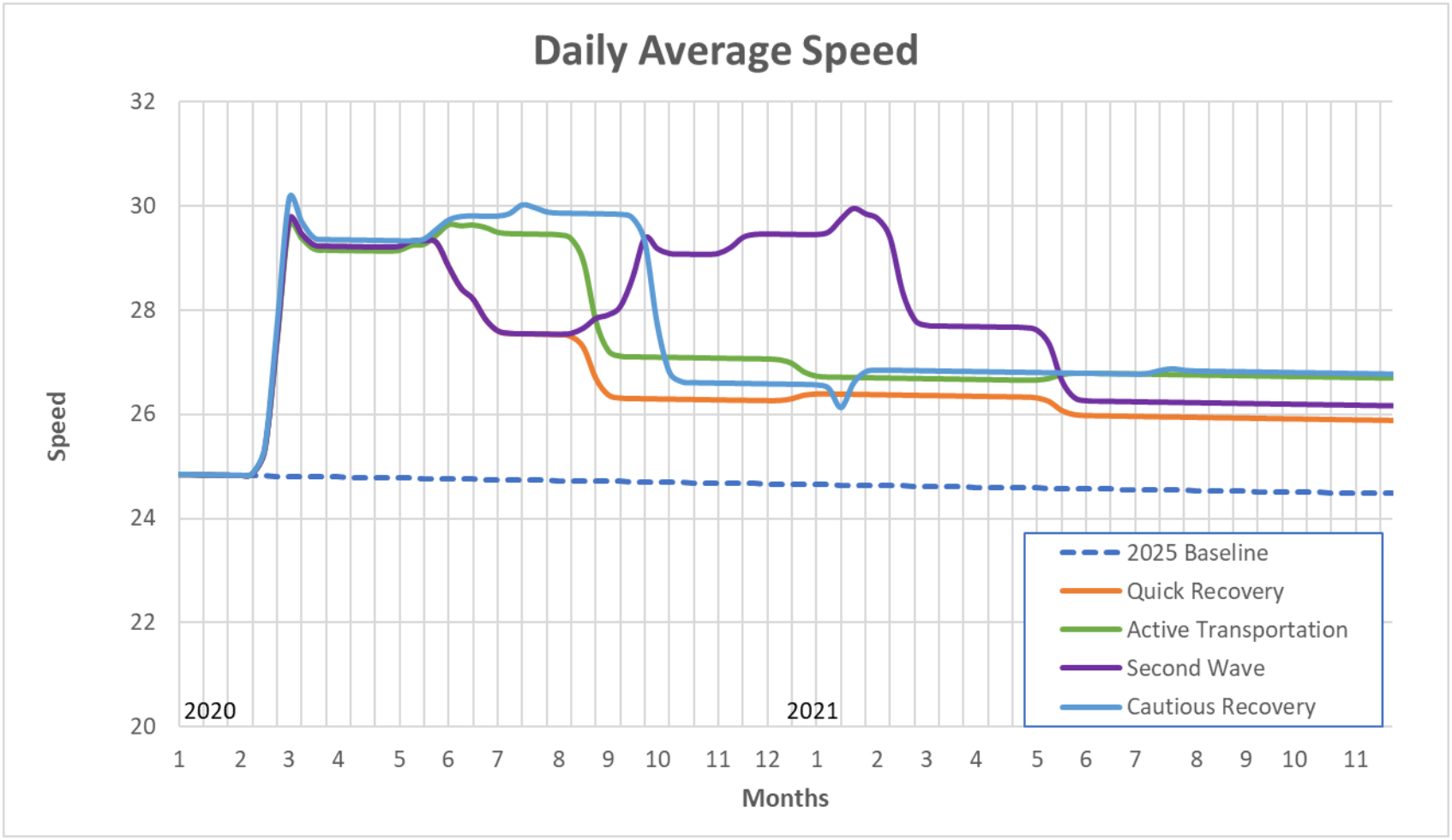
Impact on Vehicle Speed



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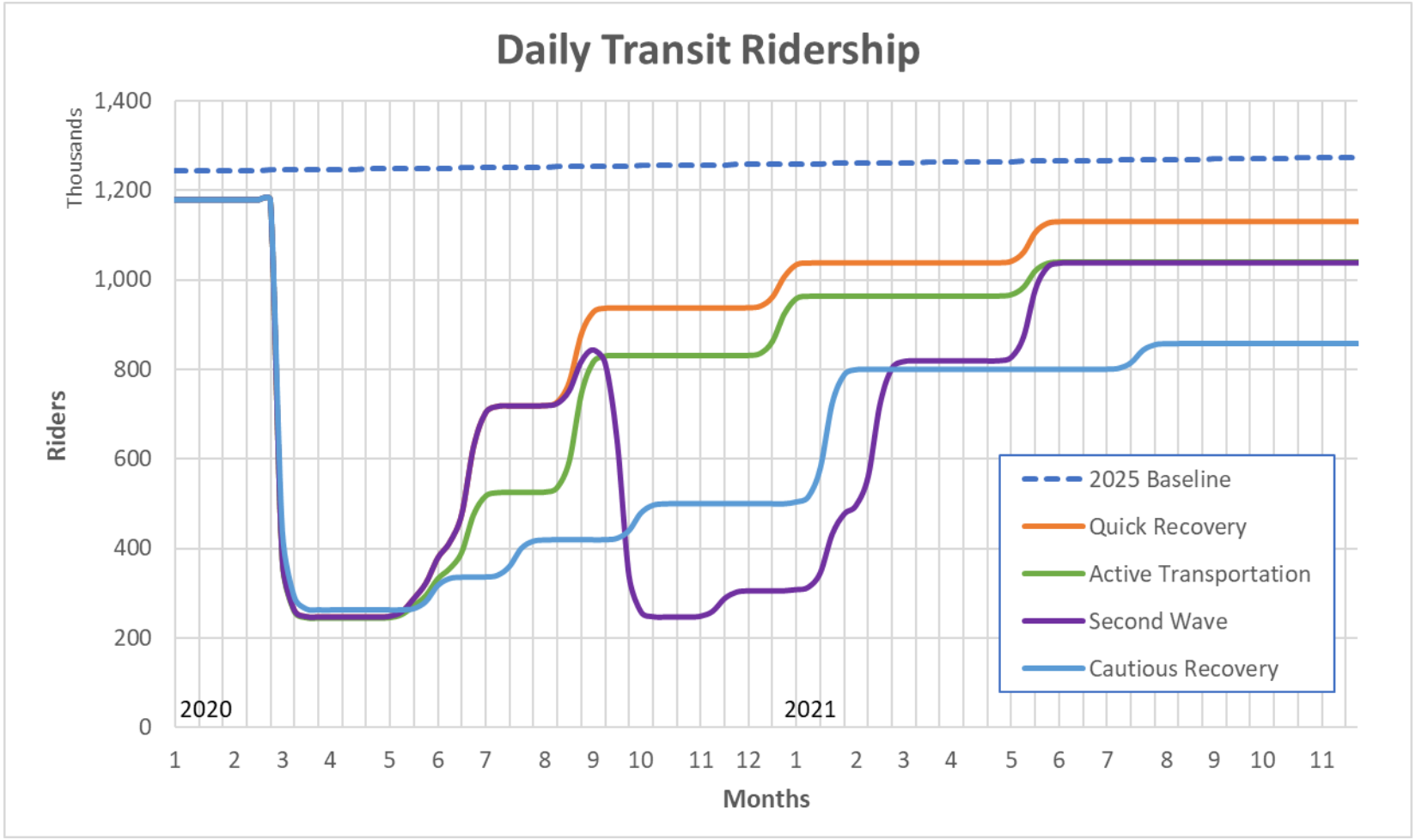
Impact on Transit Ridership



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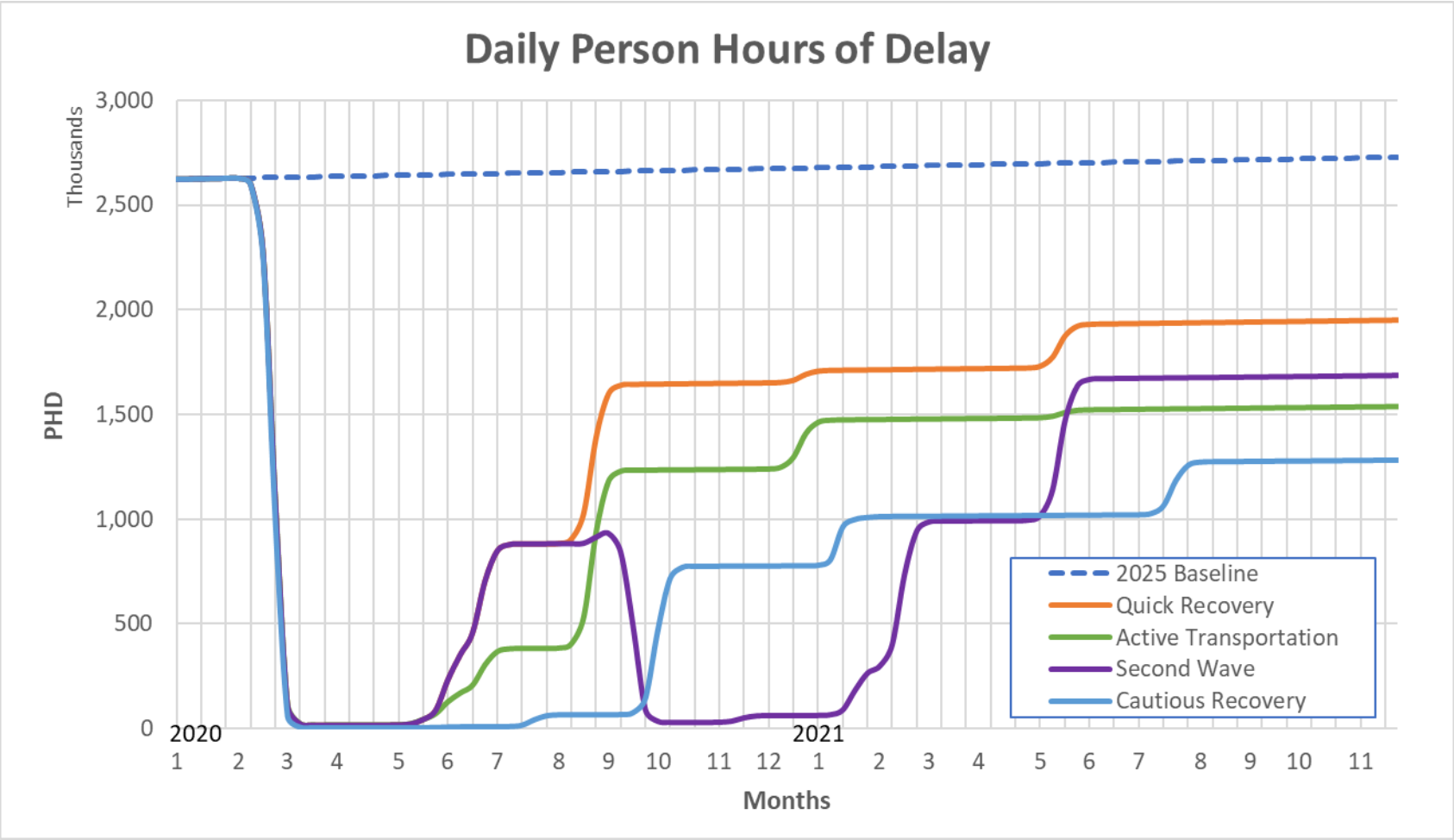
Impact on Person Hours of Delay



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“New Normal” Impacts

Horizon Year: 2025

2025 Transportation Network Performance

- Evaluate the scenarios using TransAction performance metrics
- Multi-modal measures that address accessibility and mobility in the region
  - Congestion
  - Transit ridership
  - VMT, etc.

Findings: Selected Measures (2025)

Measures (Weekday)	Base 2025 Conditions	Quick Recovery (%Change)	Active Transportation (%Change)	Second Wave (%Change)	Cautious Recovery (%Change)
Auto Trips	6,883,071	-16%	-46%	-24%	-38%
Transit Trips	618,202	-15%	-36%	-22%	-37%
Transit Share%	8.2%	+0.1%	+1.4%	+0.2%	+0.1%
Transit Boardings	889,648	-15%	-33%	-22%	-37%
Miles of Travel (Person)	116,060,798	-16%	-30%	-24%	-38%
Hours of Travel (Person)	4,040,851	-31%	-49%	-42%	-55%
Hours of Delay (Person)	1,472,169	-57%	-81%	-72%	-85%
Transit Crowding	1,564	-34%	-58%	-58%	-66%

Findings: VMT by Jurisdiction (2025)

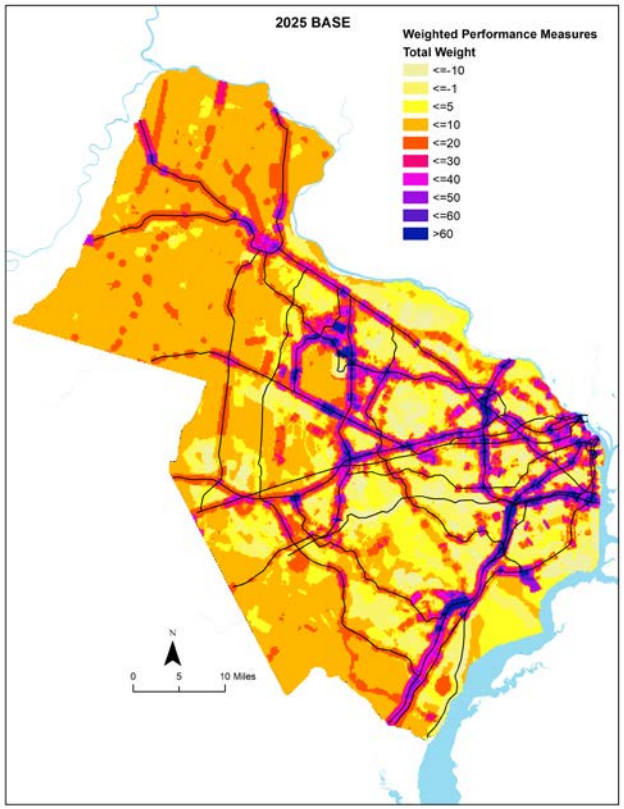
Miles of Travel Per Person (Auto & Transit)	Base Conditions (2025)	Quick Recovery (%Change)	Active Transportation (%Change)	Second Wave (%Change)	Cautious Recovery (%Change)
Arlington	8.3 mil	-19%	-35%	-28%	-45%
Alexandria	5.2 mil	-18%	-36%	-28%	-44%
Fairfax, Fairfax City & Falls Church	62.0 mil	-16%	-29%	-24%	-38%
Loudoun	18.1 mil	-14%	-28%	-21%	-34%
Prince William, Manassas & Manassas Park	22.5 mil	-16%	-31%	-24%	-38%

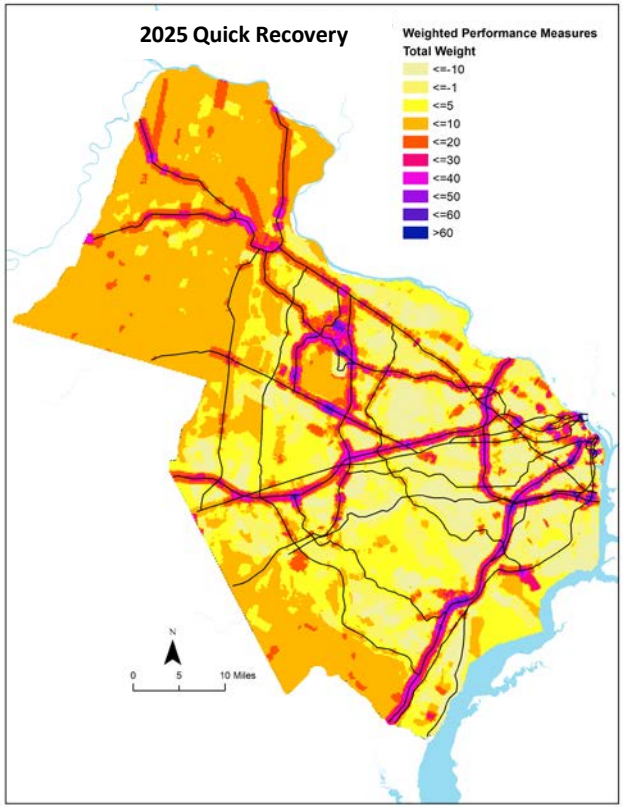
Findings: PHD by Jurisdiction (2025)

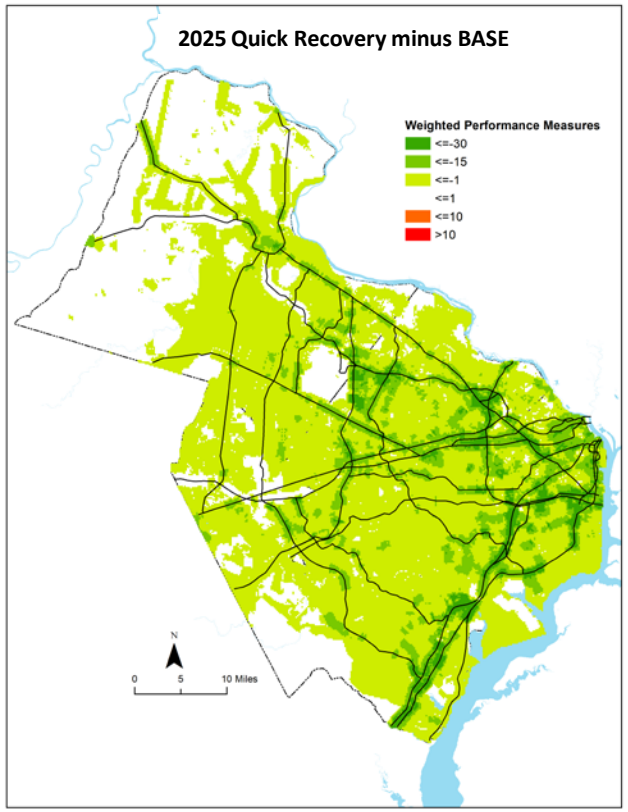
Person Hours of Delay (PHD)	Base Conditions (2025)	Quick Recovery (%Change)	Active Transportation (%Change)	Second Wave (%Change)	Cautious Recovery (%Change)
Arlington	143,000	-66%	-87%	-80%	-92%
Alexandria	84,500	-69%	-90%	-83%	-94%
Fairfax, Fairfax City & Falls Church	792,000	-61%	-83%	-75%	-88%
Loudoun	264,400	-44%	-68%	-57%	-72%
Prince William, Manassas & Manassas Park	188,300	-48%	-77%	-68%	-84%

Example:
Overall Impact of Quick Recovery Scenario

Weighted Performance Measures







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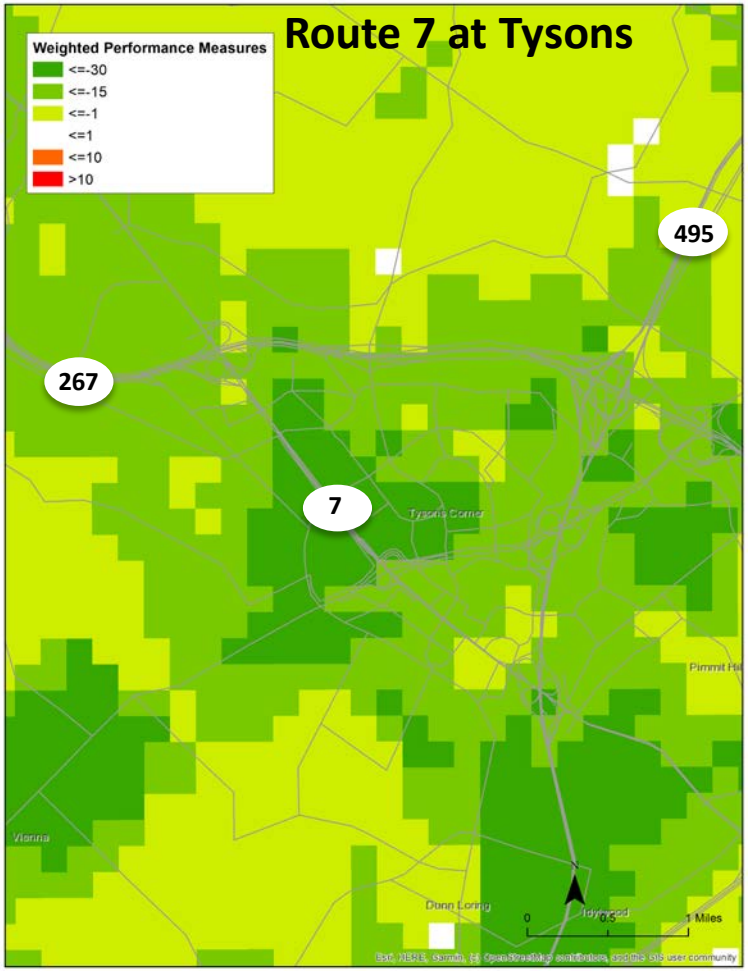
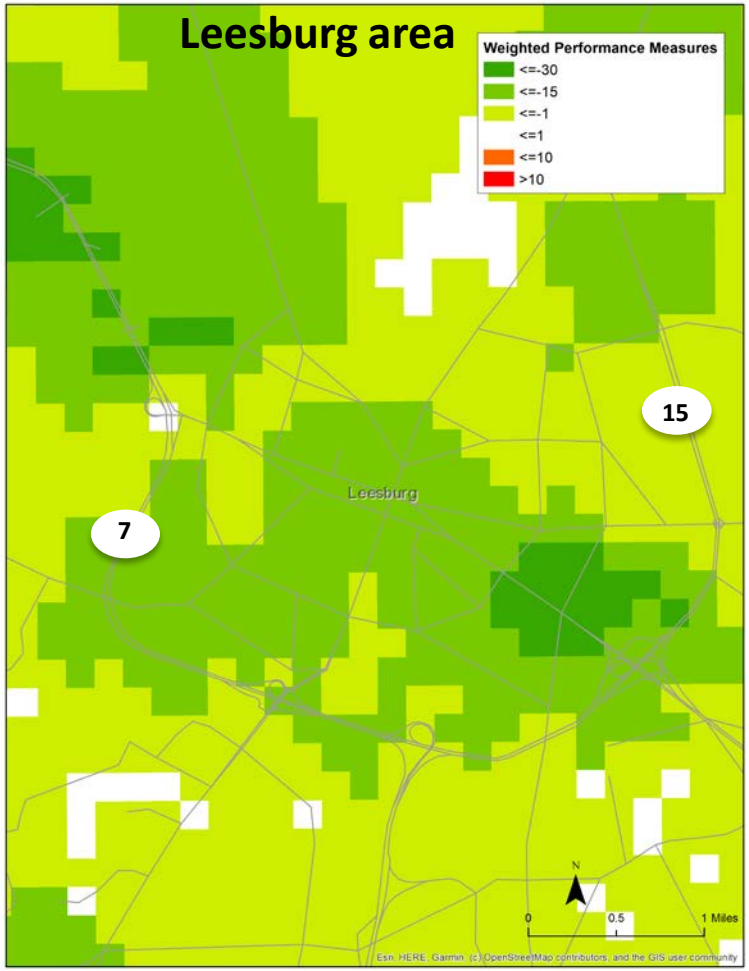
Cautious Recovery Scenario: Route 7 Tysons; Leesburg

Weighted Performance Measures





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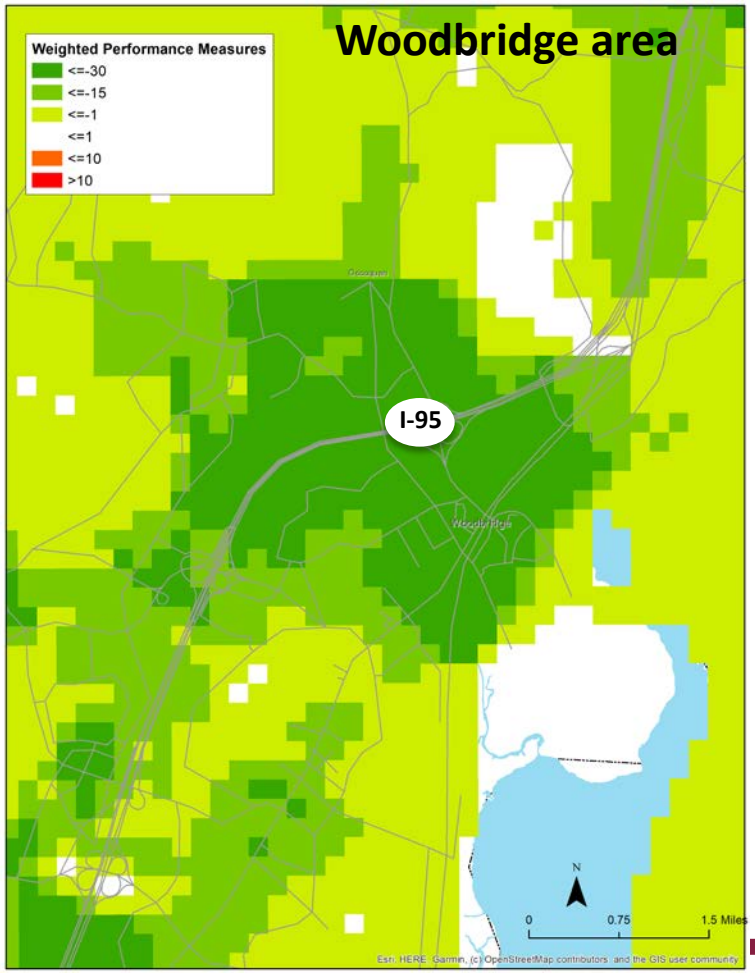
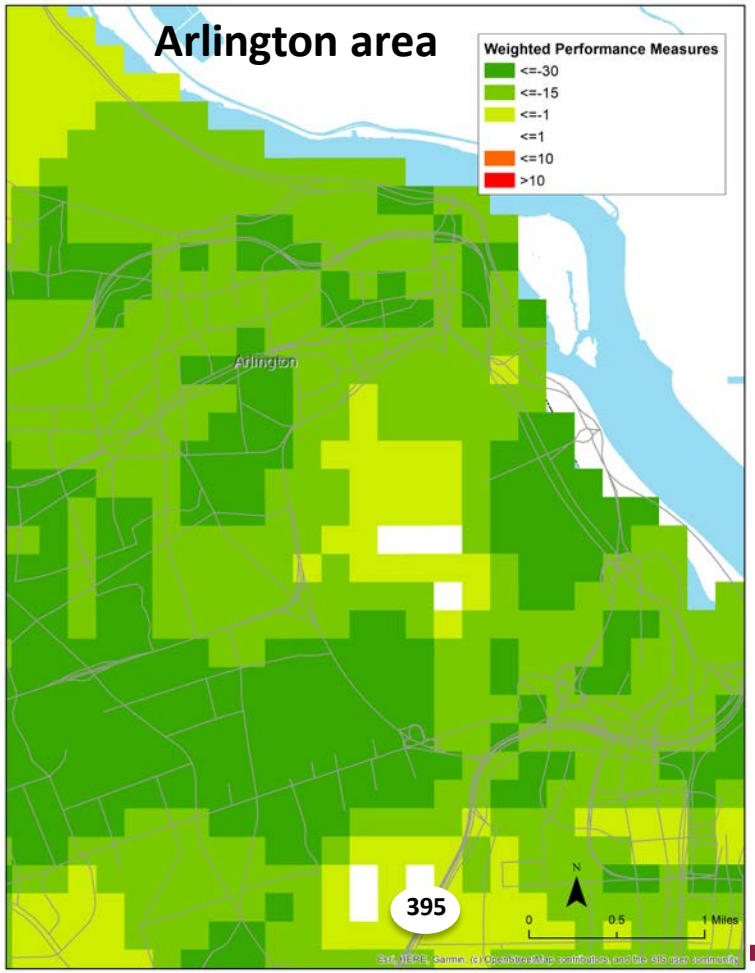
Cautious Recovery Scenario: I-95 South near Woodbridge; Arlington

Weighted Performance Measures





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“New Normal” Scenario Observations

- All four scenarios assume 10-15 percent more telework than pre-COVID levels, and school attendance levels close to pre-COVID levels
- All four scenarios reduce auto and transit trips
  - ‘Active Transportation’ scenario has the largest impact for auto trips (46 percent reduction)
  - ‘Cautious Recovery’ scenarios has the largest impact for transit trips (37 percent reduction)
- All four scenarios reduce person hours of delay
  - ‘Cautious Recovery’ scenario has the largest impact (85 percent reduction)
  - Impact is most pronounced among inner jurisdictions, but is still significant for outer jurisdictions
  - Impact is evident along major corridors

Conclusions

- Short Term
  - The majority of changes occur within the first 18 months and level off around June 2021
- "New Normal"
  - Teleworking and economic impacts result in:
    - Traffic volumes and transit ridership that do not fully recover to pre-COVID levels
    - Significant reductions in time spent traveling and time lost in congestion
    - While congestion reduction impacts are a positive, transit ridership reduction may be challenging to financial stability of some transit agencies

Implications for NVTA's Planning and Programming Responsibilities, and Transportation Policy

- These findings suggest several topics for further consideration through the upcoming TransAction planning process and ongoing capital program development
  - Potential **policies** to support continued teleworking at greater than pre-COVID levels while mitigating impact on transit ridership, e.g. incentivization
  - **Using data** to further refine understanding of travel choices by households and businesses, and implications on the network
  - Quantifying the extent to which **TDM programs** influence travel behavior
  - Projects that support **multiple modes of transportation**
  - Emphasis on **flexible use of right-of-way** to accommodate changing travel patterns

Update 1 –2020 Employer Telework Survey (Commuter Connections)

- May/June 2020, 180 employers
- At the time of the survey, 95% of worksites had telework; telework was common pre-pandemic also - 76% had at least some telework before
  - But during the pandemic, the average share of employees who teleworked grew from 36% to 82% at sites with telework
- More than half of worksites anticipate a post-pandemic telework level that is higher than the pre-pandemic level
- 80% of employers said managers reported benefits of managing remotely
  - Nearly three in ten said managers noted greater worker productivity and increased communication with workers
- 92% of employers said employees reported benefits of working from home
  - The greatest employee benefits were on not commuting, comfortable work environment, and personal cost savings

https://www.mwcog.org/file.aspx?&A=tz5rpElFhjTiKHExX7dWMvg83ClrZ2TxhPYVR%2bRq%2fqE%3d

Update 2 – Virginia Commuter Survey Results (VDOT/DRPT)

- June/July 2020; 5,493 respondents
- Three times as many commuters are working from home at least once per week compared to before COVID-19.
  - Of those, 76% are currently working from home full-time, compared to only 13% before.
  - 60% of those working from home do not know when they will be returning to their workplace
  - 80% of respondents would like to work from home at least one day per week after the pandemic.

https://www.virginiadot.org/travel/commuter-survey.asp

Update 3 – Capital COVID-19 Snapshot (Greater Washington Partnership)

- August 2020; 430 employers (representing 275,000 residents)
- This fall, about one-third of the region's workforce is expected to physically return to worksites.
- Of employers who had long-term reopening plans, on average, those employers expect to have 72% of their employees return to the office by Summer 2021.
- However, a third of responding employers are still unsure of their summer 2021 plans.
- Nearly half of employers indicated a high level of concern about public transit safety and a low level of confidence that public agencies can control crowding and enforce the wearing of masks.

https://www.greaterwashingtonpartnership.com/capital-covid-snapshot/

Backup Slides

Performance Measures

1.1.1	Total Person Hours of Delay
1.1.2	Transit Crowding
1.1.3	Person Hours of Congested Travel in Automobiles
1.1.4	Person Hours of Congested Travel in Transit Vehicles
1.2.1	Congestion Severity: Maximum Travel Time Ratio
1.2.2	Congestion Duration
1.3.1	Percent of jobs/population within ½ mile of high frequency and/or high performance transit
1.3.2	Access to jobs within 45 mins by auto or within 60 mins by transit
1.4.1	Average travel time per motorized trip between Regional Activity Centers
1.4.2	Walkable/bikeable environment within a Regional Activity Center
2.1.1	Safety of the transportation system
2.2.1	First and last mile connections
2.3.1	Travel by non-SOV modes
2.4.1	Person hours of travel caused by 10% increase in PM peak hour demand
3.1.1	Vehicles miles traveled (VMT) by speed