National Capital Region
Transportation Planning Board

TPB REGIONAL PUBLIC TRANSPORTATION SUBCOMMITTEE (RPTS)

Tuesday, April 22, 2025
12:00 – 2:00 P.M.
MWCOG Offices – Meeting Room 1
In-person/Hybrid

Chair: Stephen Miller, MDOT-MTA

AGENDA

12:00 P.M. **1. WELCOME**
Stephen Miller, RPTS Chair

12:05 P.M. **2. TRANSPORT FOR LONDON'S "SMART STATIONS" A.I. PILOT**
Nicholas Allen, Transport for London (UK) Lead Technology Advisory Manager

12:30 P.M. **3. ARLINGTON, TX'S AUTONOMOUS MICROTRANSIT SERVICE – RAPID**
Ann Foss, City of Arlington, TX Transportation Planning and Programming Manager

12:50 P.M **4. WMATA'S NEXT GENERATION TRANSIT SIGNAL PRIORITY PLANS**
Ruochang Huang, WMATA Transit Signal Priority Program Manager

1:10 P.M **5. TPB'S "COMMUTER CASH" TRIP PLANNING APP AND TDM UPDATE**
Stacey King, TPB Transportation Demand Program Manager

1:30 P.M. **6. VISUALIZE 2050 PLAN DEVELOPMENT UPDATE**
Sergio Ritacco, TPB Transportation Planner

1:50 P.M. **7. OTHER BUSINESS**
Stephen Miller, RPTS Chair

- *Solicitation for Maryland and Virginia Transportation Alternatives Set-Aside Program* - TAP *(Vicki Caudullo)*

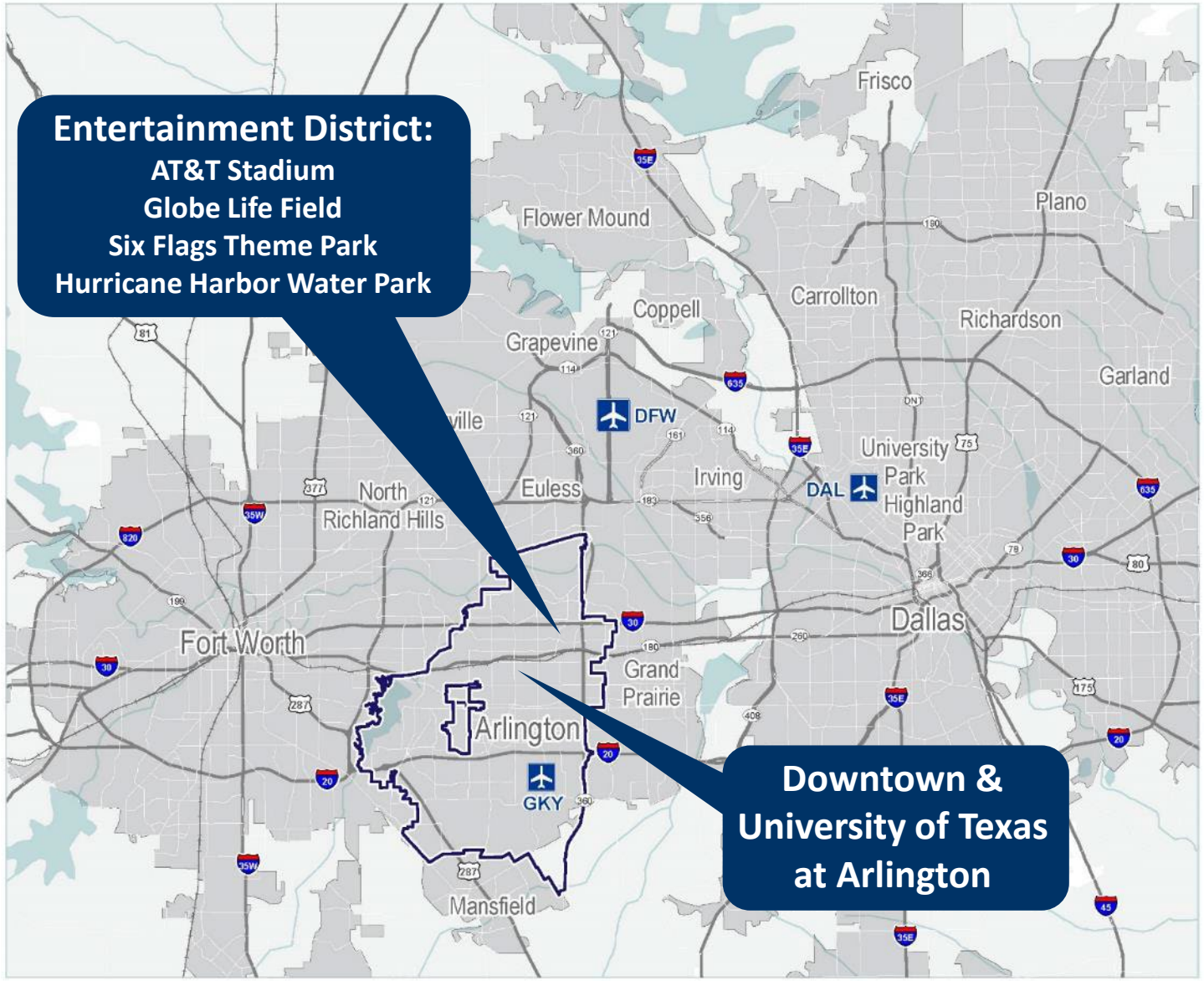
2:00 P.M. **8. ADJOURN**
Stephen Miller, RPTS Chair

The next regular meeting of RPTS is April 22, 2025 and is in-person/hybrid.

Reasonable accommodations are provided upon request, including alternative formats of meeting materials.
Go to www.mwcog.org/accommodations or call (202) 962-3300 | (202) 962-3213 (TDD) for more info.

Arlington RAPID
Autonomous Vehicle Service

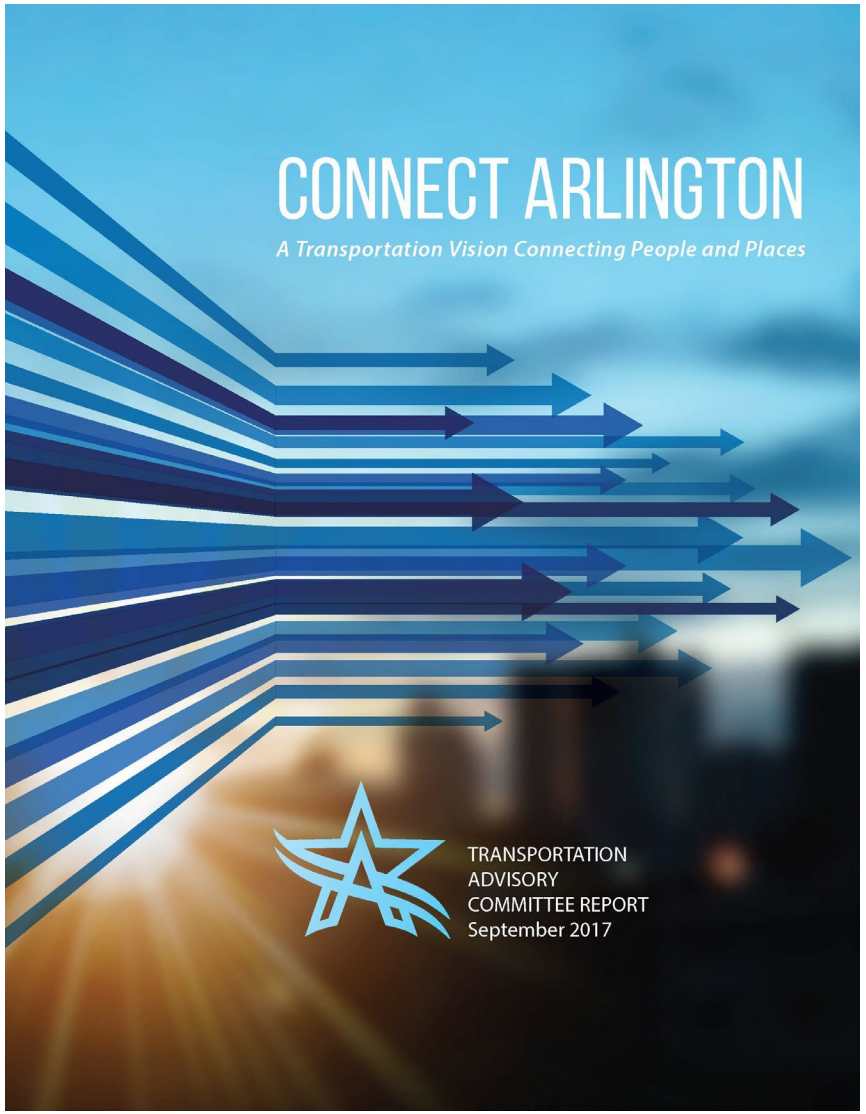
Arlington, Texas Context



- 50th largest city in the US
- 394,000 total population
- 99 square miles
- Located between Dallas and Fort Worth in North Texas
- No traditional public transit

Transportation Planning Framework

- Connect Arlington (2017) – a multimodal transportation plan framework used to guide transportation decisions
- Identified on-demand rideshare and autonomous vehicles as immediate recommendations in Arlington
  - Launched Arlington On-Demand service in Dec. 2017
  - Launched Arlington RAPID in March 2021 (third AV service)
- Autonomous vehicle service goals:
  - Test vehicles in real-world settings
  - Build community understanding and acceptance
- Autonomous vehicle service phasing:
  - Off-street, low speed
  - On-street, circulator route
  - On-demand, integrated with Arlington On-Demand service



On-Demand + Autonomous Transit Evolution

Autonomous

2017
First pilot with 2 EasyMile shuttles on off-street trails.

2018
Second pilot with 3 Drive.ai AVs on public roads.

Microtransit

2017
Microtransit service **launch** with 10 vehicles across 8 square miles.

2020
Continued **service expansion** to 28 vehicles across 40 square miles.

2021
Integration of AVs into the **citywide** microtransit service – 60+ vehicles across 99 square mile zone.

Arlington RAPID AV Service

- Funding from the FTA Integrated Mobility Innovation competitive grant program for 1st year; funding from NCTCOG for 2 additional years
- Partnering with Via, May Mobility, UT Arlington
- Integrate May Mobility autonomous vehicles into On-Demand rideshare service around Arlington's downtown and UTA's campus
- Launched March 23, 2021
- First on-demand AV service integrated into existing public transportation in the United States; longest running on-demand AV service in United States

Federal Transit Administration

North Central Texas Council of Governments

ARLINGTON THE AMERICAN DREAM CITY

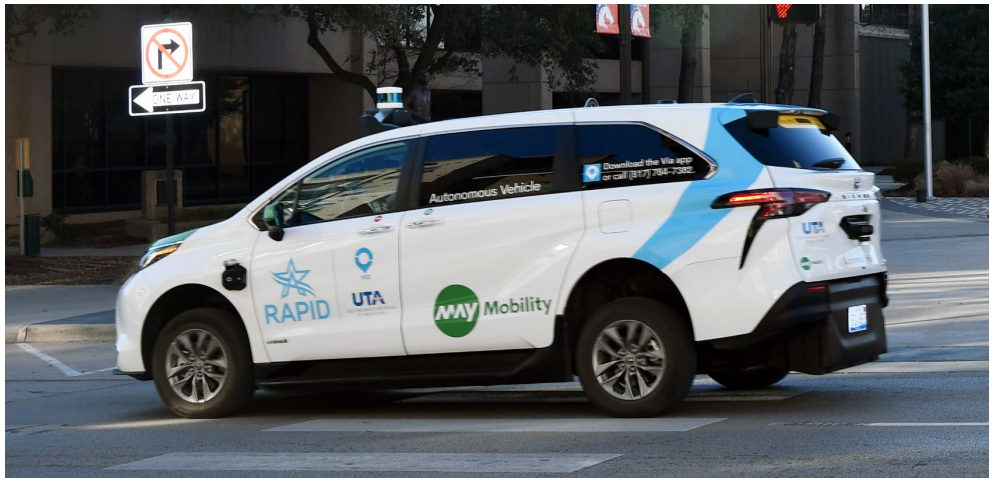
VIA

may mobility

Arlington RAPID: Service Details

Fleet of 4 autonomous vehicles

- Toyota Sienna Autono-MaaS vans, hybrid electric
- 1 wheelchair accessible van
- AV Operator behind the wheel at all times

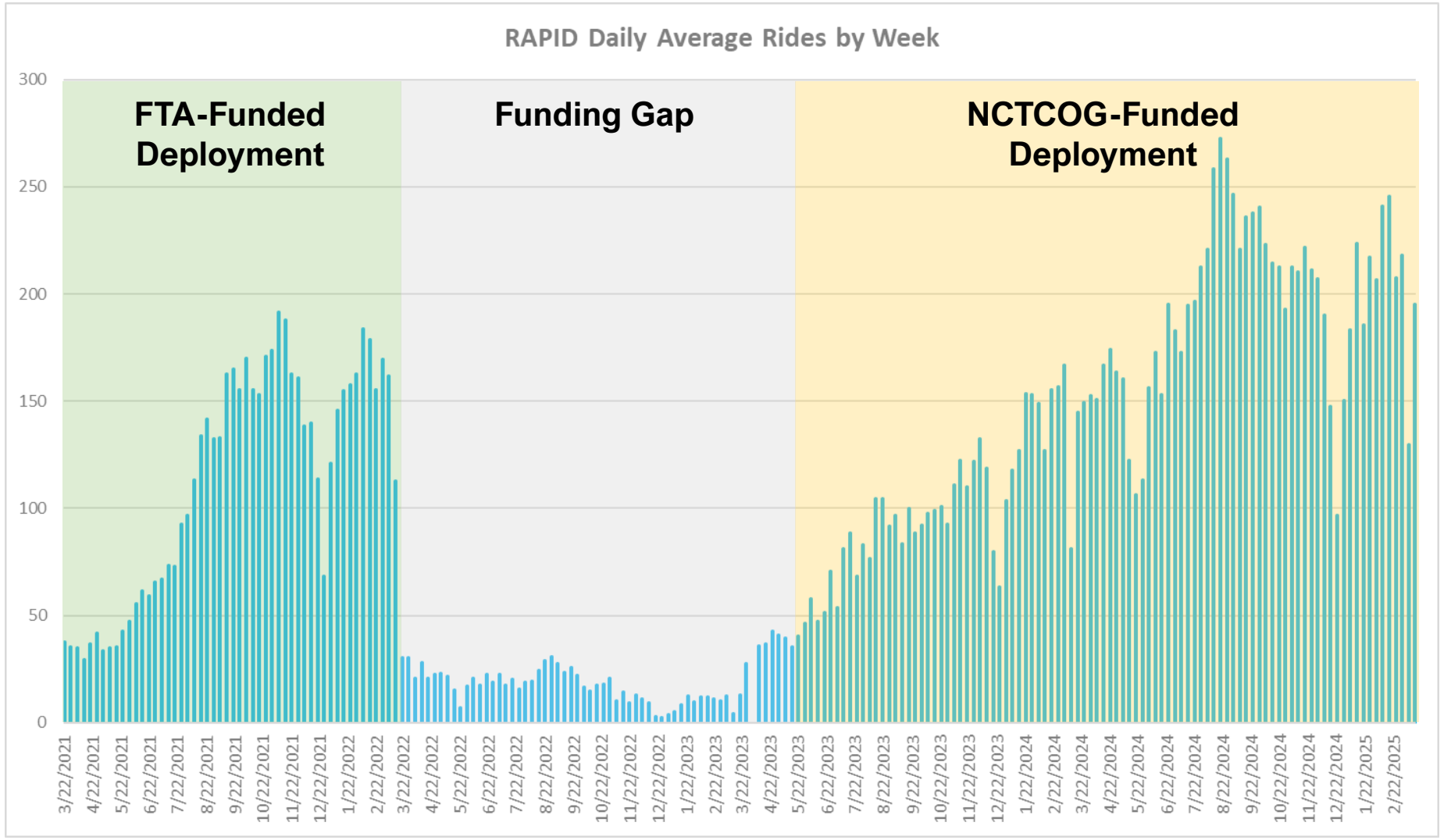


Service

- Area: one square mile in Downtown and UTA campus
- Hours: Monday – Friday, 8m – 8pm
- Booking: through app or call-in number
- On-demand service will pick up and drop off at desired locations

Fares: standard On-Demand fare applies; free for UTA students

Arlington RAPID: Performance Data



Ridership: 108,000+

ETAs: 10-15 minutes

On-time: 99-100%

Acceptance: 75-90%

Sharing: 55-70%

Autonomy: ~90%

No safety incidents

Serves short trips to improve efficiency of citywide service

Arlington RAPID: Rider Feedback

Via app rider satisfaction: 4.9 out of 5

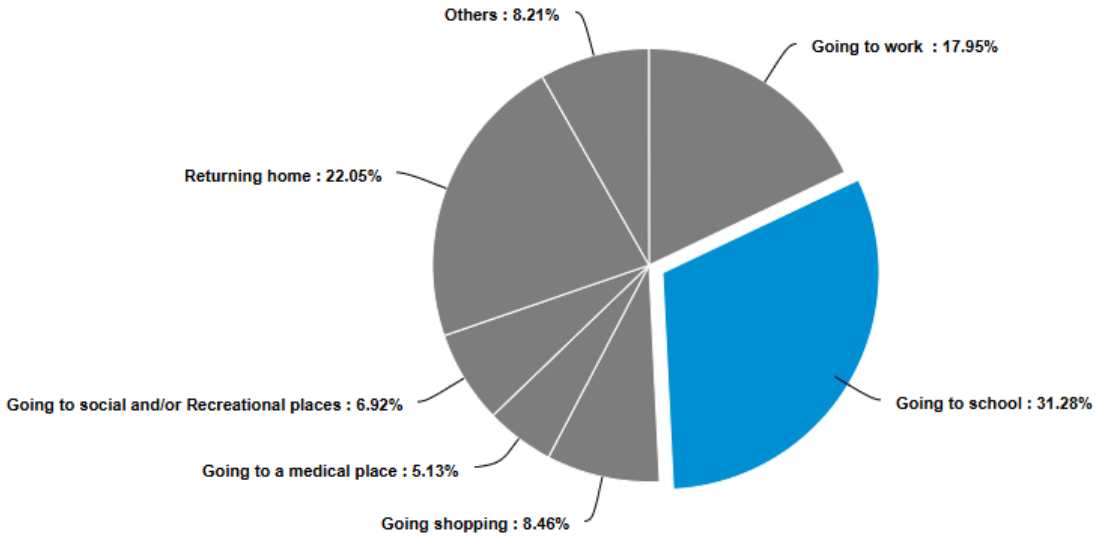
Ridership survey results (n=389):

- 96% of riders report feeling safe
- 97% of riders report wanting to ride again

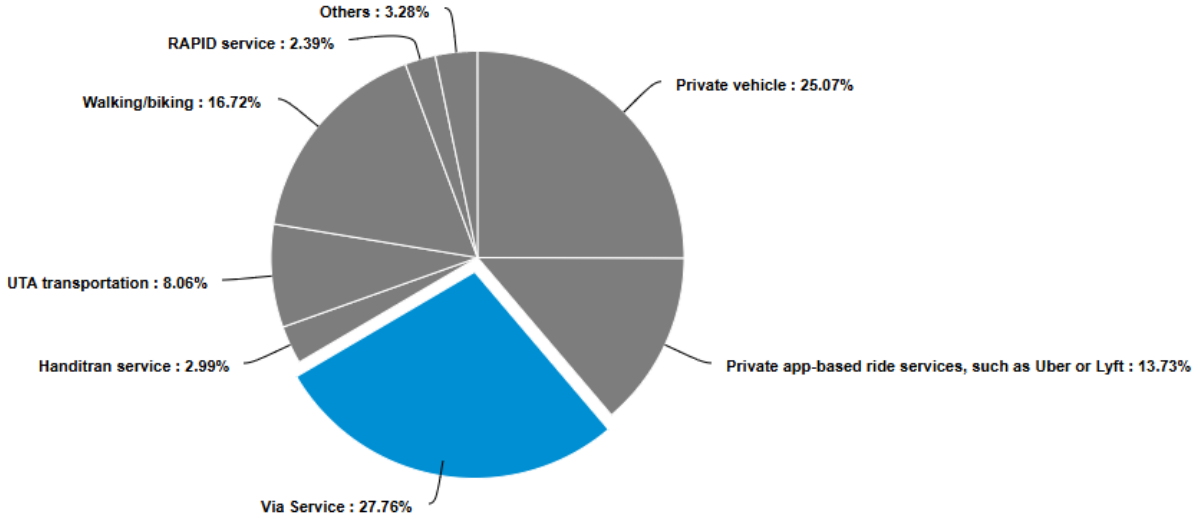
Ridership survey demographics (n=336):

- 78% of riders report being non-white
- 54% of riders report having HH income <$20,000
- 49% of riders report having no personal vehicle
- 68% of riders report being a UTA student
- 47% of riders report being 18-24 years old

Purpose of trip on RAPID?



Usual mode of transportation?



Arlington RAPID: Key Accomplishments

- Over 100,000 rides completed
- Driver-out preparations
- First responder interaction
- Understanding community acceptance for removing the human operator
- Planning to integrate and expand AVs into On-Demand service fleet in the future

Discussion

Ann Foss, Ph.D., AICP
City of Arlington
Ann.Foss@arlingtontx.gov

ARLINGTON
THE AMERICAN DREAM CITY

Washington Metropolitan
Area Transit Authority

April 2025

Next Generation Transit Signal Priority

RD OR SV BL YL GR metrobus metro access

Why do we need Bus Priority?

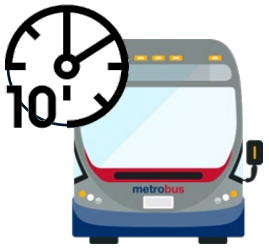
In the last year, **122.5 million trips** (almost 50% of all Metro trips) **were on Metrobus**

- Average Metrobus speed has declined **7%** between FY2010 and FY2024
- Average scheduled speed of the 10 highest ridership routes in FY 2024 was **8.4 mph**
- Traffic congestion delays costs Metro **$70 million** annually
- Slow buses → fewer riders

When congestion makes buses slower, we need more buses to run the same service

To keep buses running every…

10 minutes



On a route that takes…

50 minutes

Metro needs to provide…

5 buses and operators

When that service becomes **10 minutes slower** because of congestion...

60 minutes

+20% time penalty for customers

6 buses and drivers

+1 bus to purchase and maintain, additional bus operator to hire

Priority treatments improve bus speed and reliability

Traffic Congestion

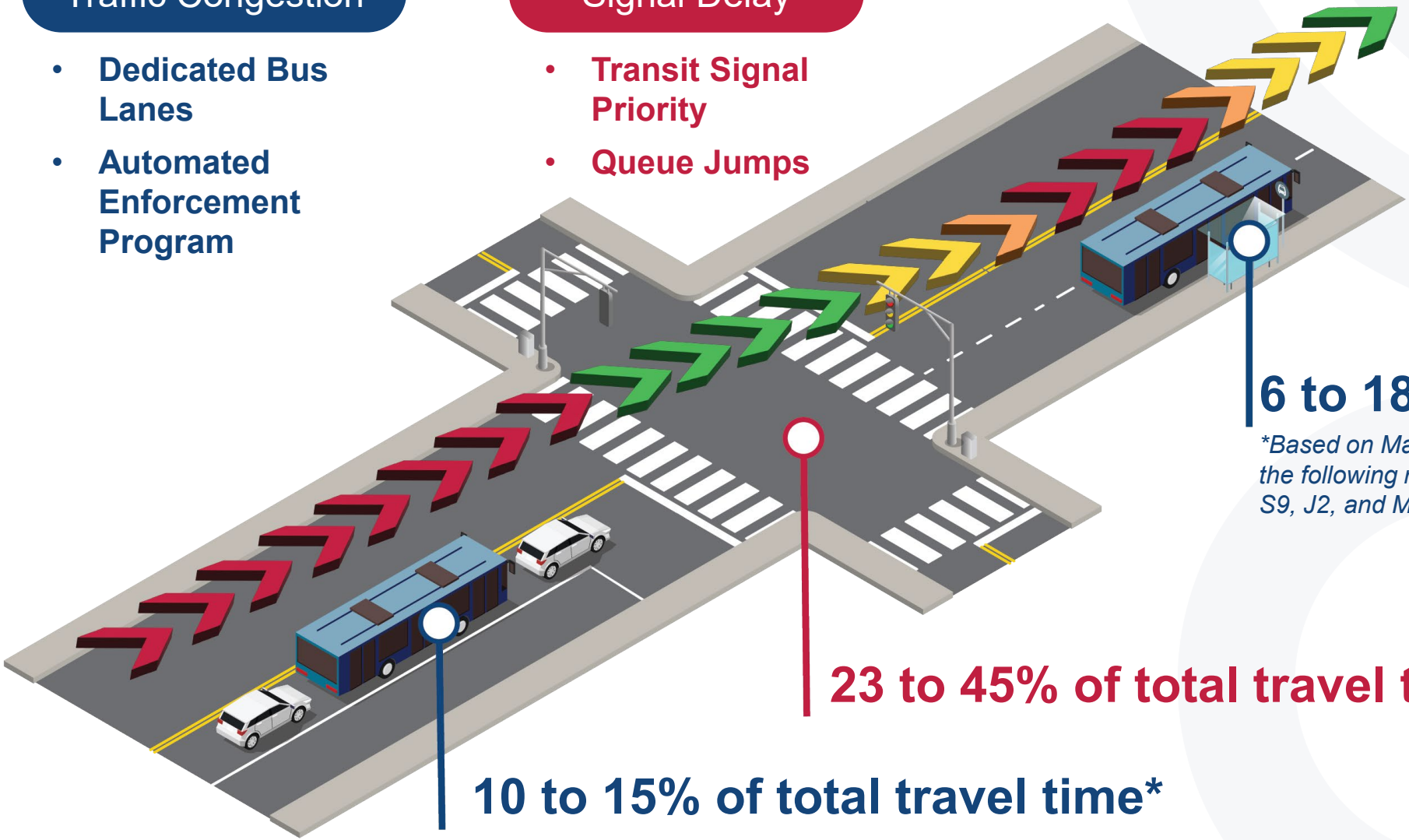
- Dedicated Bus Lanes
- Automated Enforcement Program

Signal Delay

- Transit Signal Priority
- Queue Jumps

Dwell Time

- All-Door Boarding
- Bus Islands
- Stop Consolidation



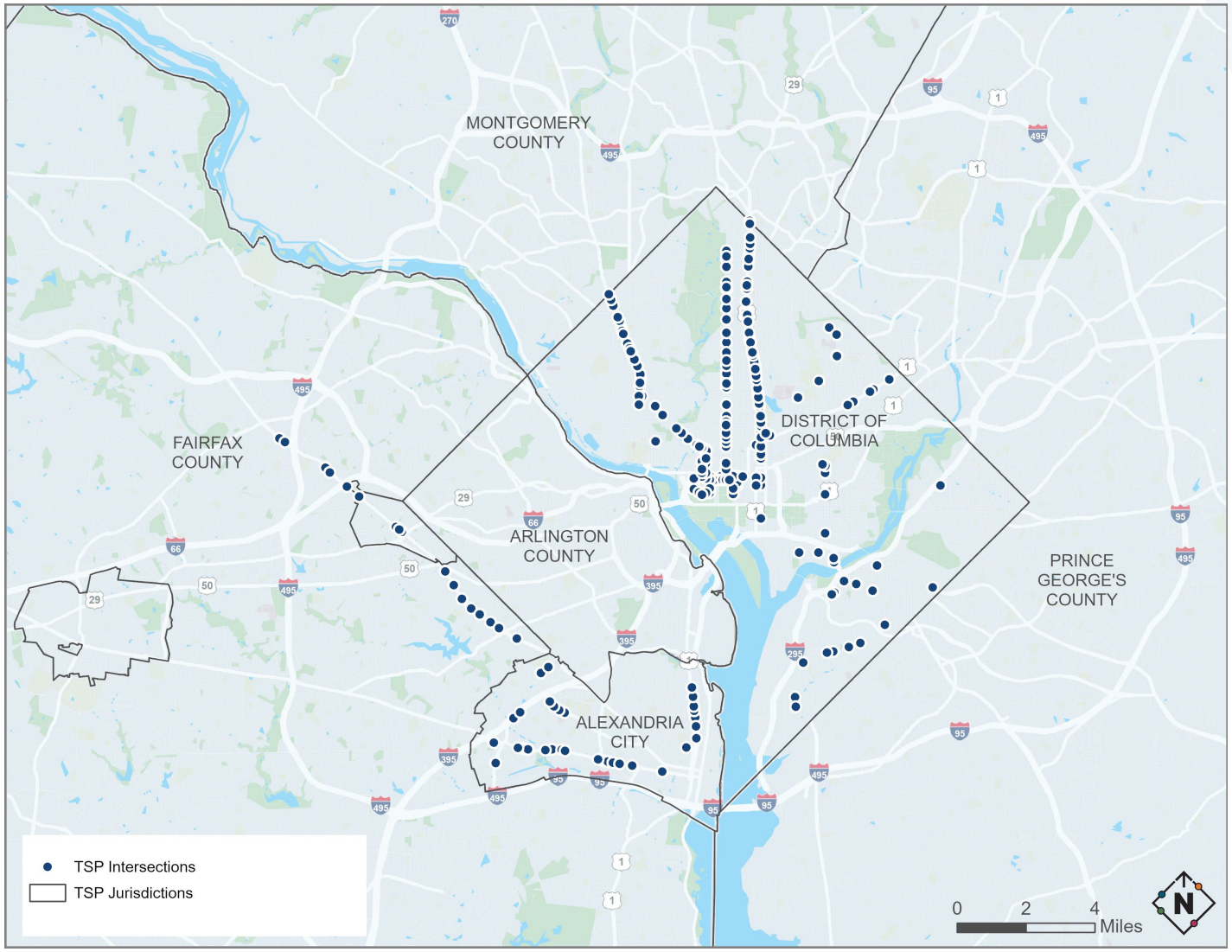
6 to 18% of total travel time*

23 to 45% of total travel time*

10 to 15% of total travel time*

**Based on May 2023 weekday data from the following routes: 70, 79, 52, 54, S2, S9, J2, and MW1.*

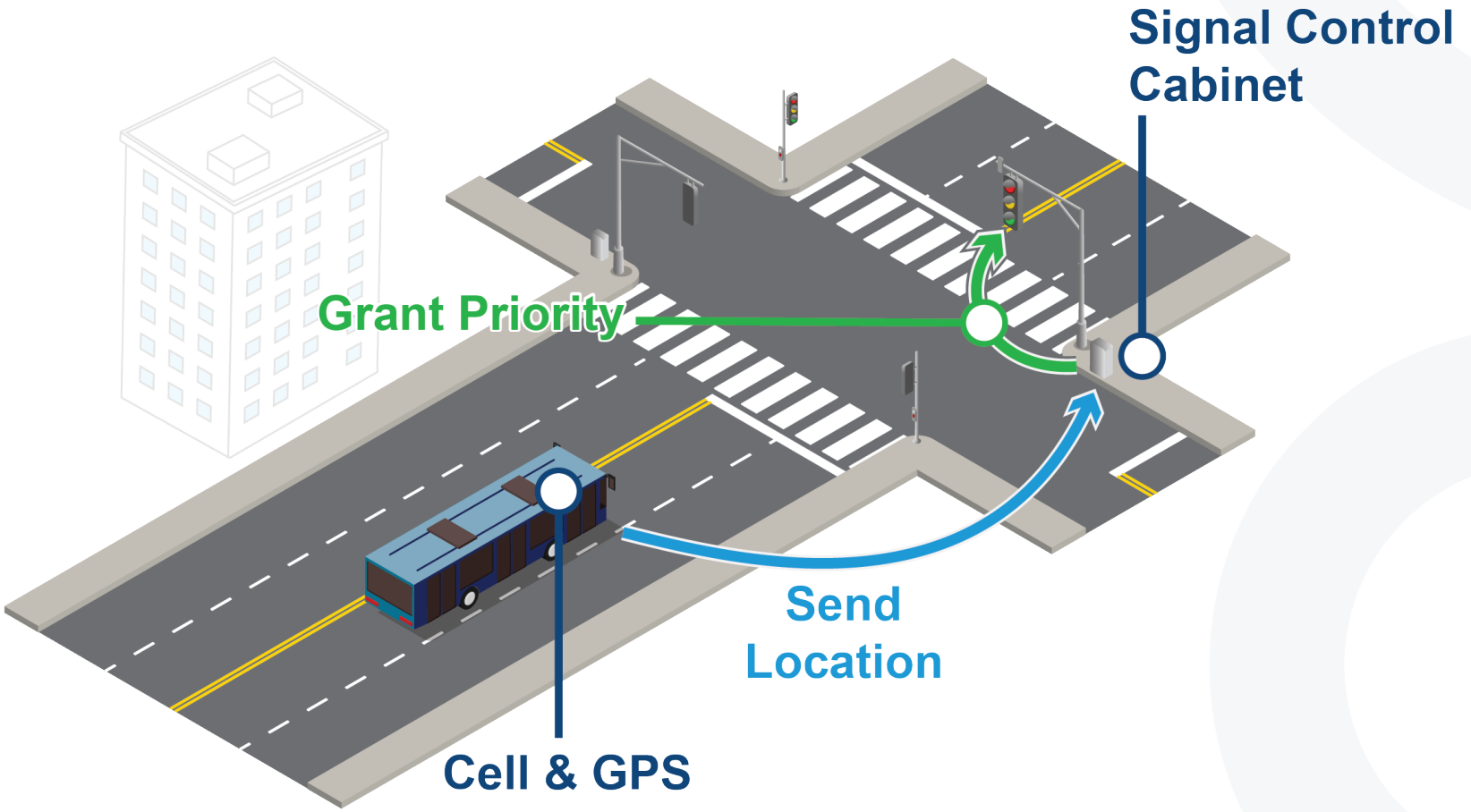
Transit Signal Priority in the Region



- WMATA's TSP technology deployed in 2015 to reduce bus delays and improve reliability.
- Currently, there are approximately 250 signals providing TSP to WMATA buses throughout DC and Virginia.
- Initially best in class, TSP in the region is now outdated due to advancing technology and aging equipment.

Current Transit Signal Priority System

Vehicle-to-Infrastructure Communication



Existing TSP System Challenges and Limitations

Bus Technology Limitations

- Infrequent bus updates
- Inaccurate and static Estimate Time of Arrivals (ETAs)

+

Signal Systems Limitations

- Varying signal systems across jurisdictions limit TSP application
- Aging equipment with limited TSP strategies

=

Resultant Operational and Maintenance Challenges

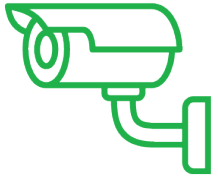
- Rigid TSP business rules
- No performance tracking
- Frequent maintenance needs without a guaranteed outcome

Emerging Trends for Next-Gen TSP

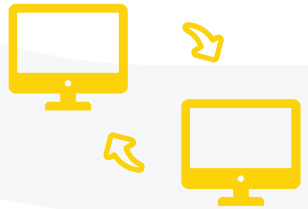
Early and Frequent Notice of Bus Location

Dynamic ETA Estimation Powered by Cloud-Based TSP

Advanced Multimodal Video Detection

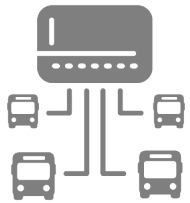


Customized Controller Program with Remote Access



Low-Cost, High-Resolution Data Analysis for Decision-Making

Scalability and Interoperability



Feedback from controllers to bus operators

Cybersecurity

Next Generation Transit Signal Priority

Collaborate with all regional partners to build a scalable and interoperable TSP system that integrates cutting-edge technologies, tracks performances, and supports long-term enhancement and expansion to improve overall transit efficiency.

Goals for the Region's Next-Gen TSP System

Faster, reliable, and cost-effective buses for customers by reducing intersection delays

Flexible, Cloud-Based System

Support **centralized** and **decentralized** architectures with **no extra onboard hardware**

Dynamic Prioritization

Provide **frequent ETA updates** and prioritize based on route, ridership, and schedule adherence

Seamless Integration & Open Architecture

Integrate with any CAD/AVL system and support legacy WMATA TSP equipment and local bus providers

Performance Monitor and Optimization

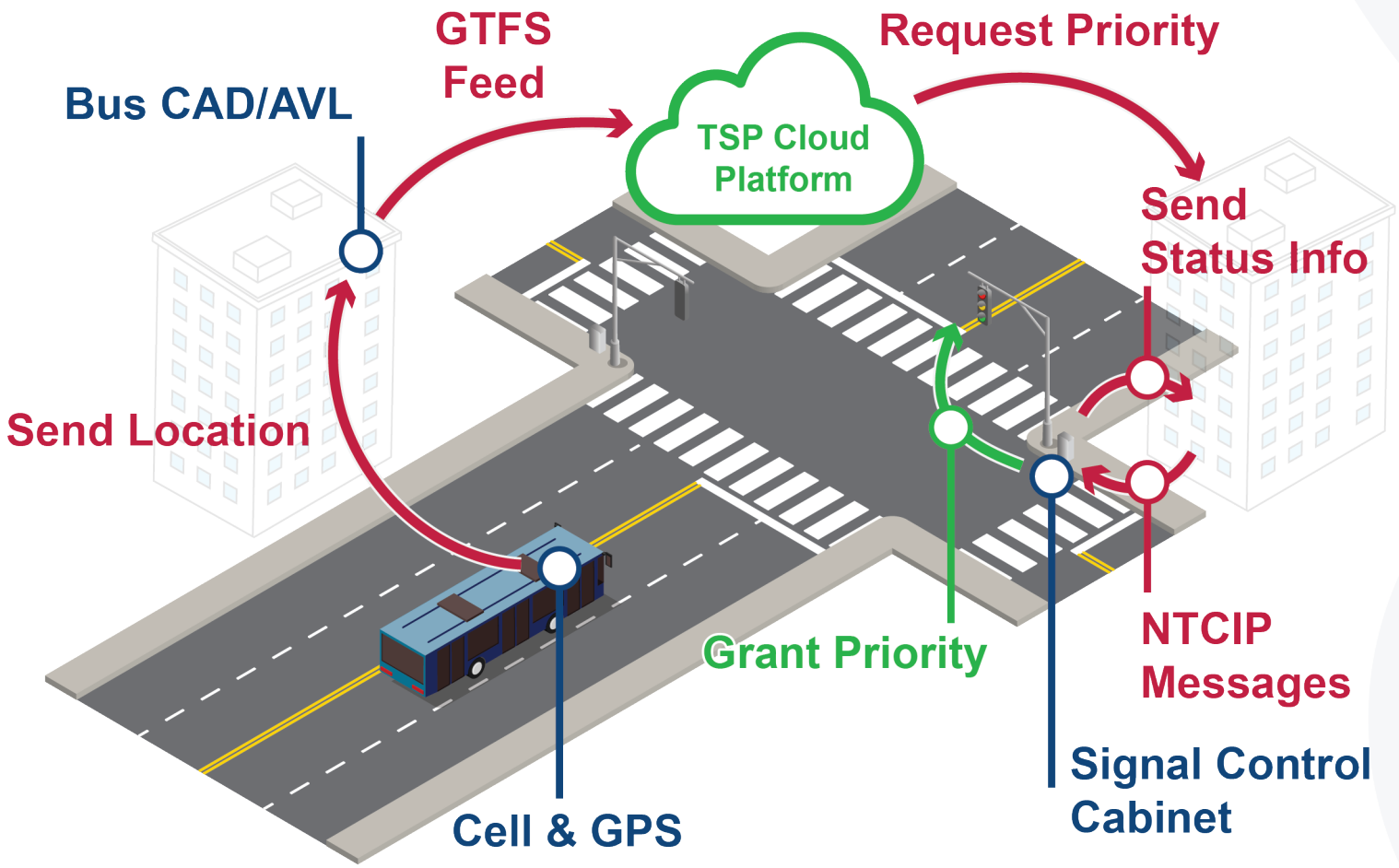
Track system performance *and establish* ***efficient TSP business rules*** *for higher transit benefits*

Scalable & Cost-Effective

Easily redeploy TSP assets and **expand deployment affordably**

Next Generation TSP

Vehicle and Infrastructure both communicate with the server (Cloud)



Up to 20% Travel Time Reduction

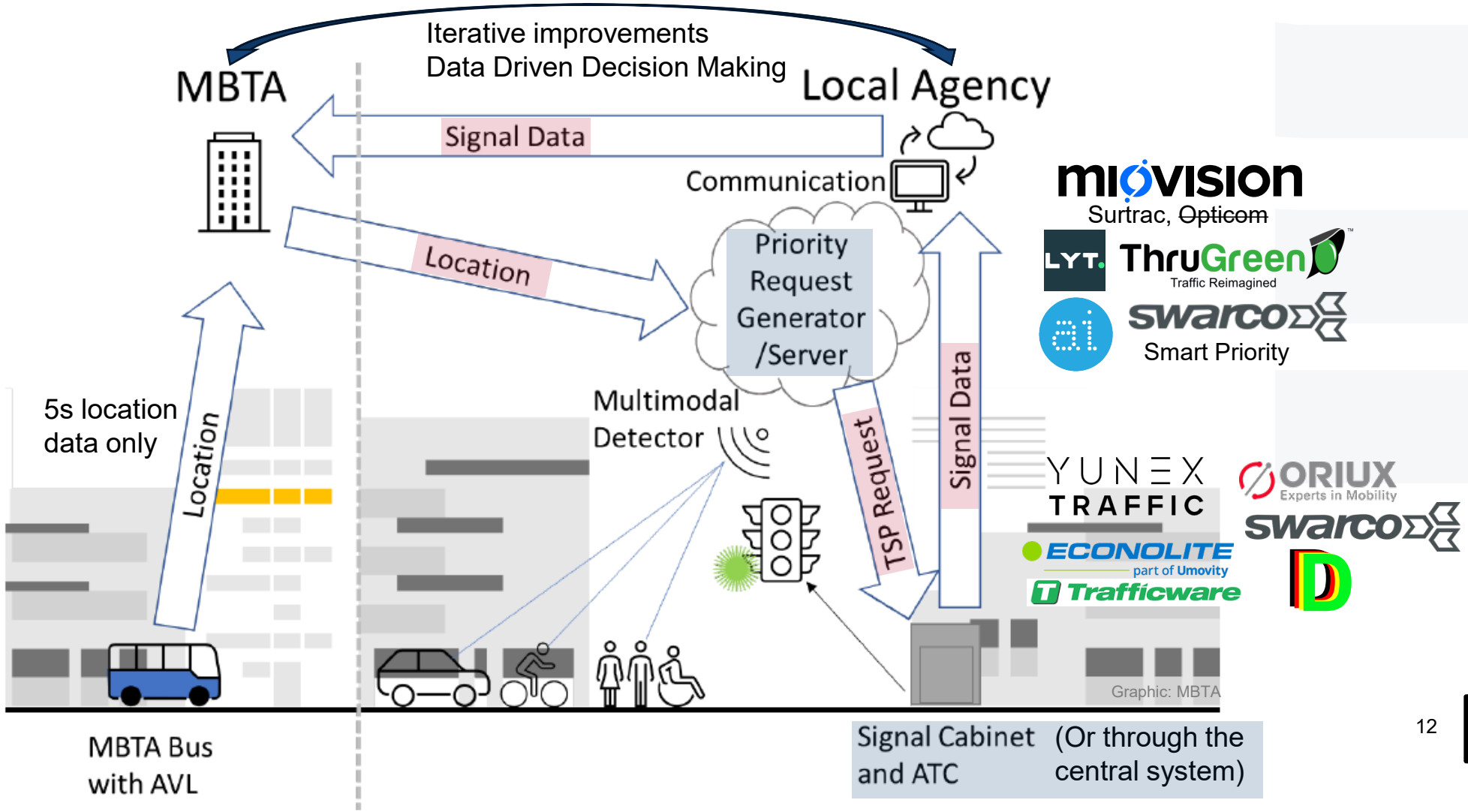
Boston, Los Angeles, Portland, Seattle.

Up to 70% Arrival on Green Increase

Atlanta, Portland, Boston, Seattle.

MBTA - Massachusetts

Unconditional TSP with vendor-agonistic open architecture



MBTA - Massachusetts

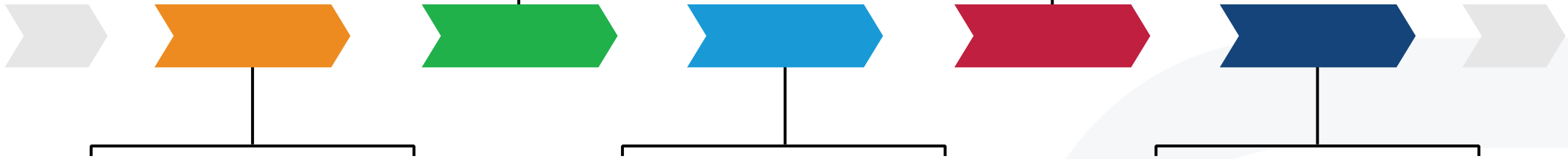
Quick-build with immediate feedback loop, continuous monitoring and improvements

Determine TSP rules

- Standard TSP rules: Unconditional 24/7 TSP with green extension & early return to green that maintain min green time and pedestrian phases.
- Additional preferential treatments: phase skipping and rotation.

Tweak Parameters

- Refine TSP treatments and signal timing based on real time information from vendor dashboard portal, camera feed, and citizen complaints.



Define Scope

- Select corridors based on frequency, bus delays, demographics, and planned bus and signal improvements.
- Signal IQ for existing delay

Implement TSP

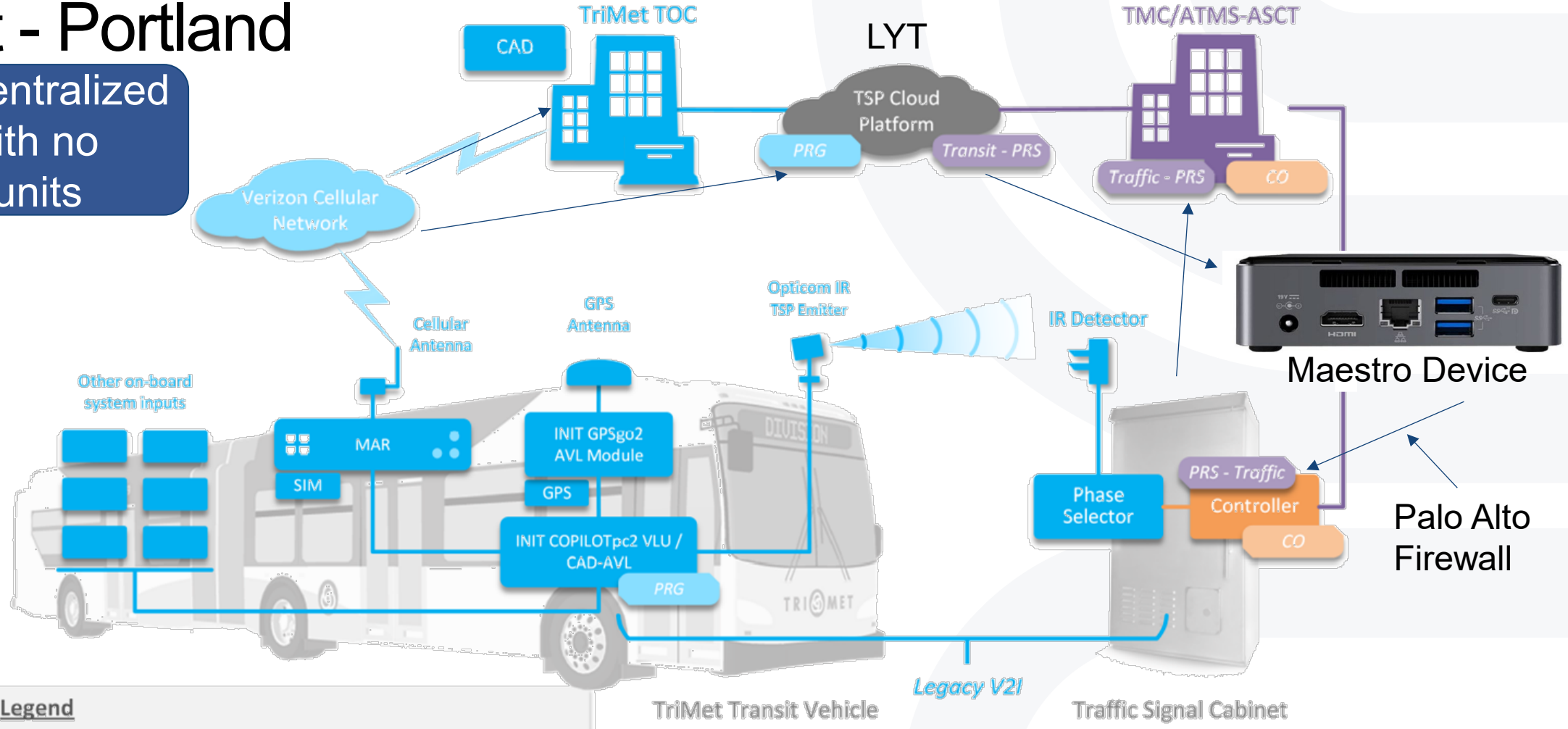
- Upgrade cabinet, controller (firmware), video detections to meet MBTA specs
- Implement TSP and send ATSPM data (with bus locations) to MBTA hourly.

Monitor Long Term

- MBTA and the jurisdictions decided the TSP metrics and track them through the dashboard that updates based on the ATSPM data hourly.

TriMet - Portland

Secure centralized system with no roadside units



Legend

CAD/AVL	Computer-Aided Dispatch/Automatic Vehicle Location
MAR	Mobile Access Router
CO	Coordinator (*priority implementer*)
PRG	Priority Request Generator *(priority requesting logic)*
PRS	Priority Request Server *(priority granting logic)*
SIM	Subscriber Identity Module

Key

PRG Component

PRS Component

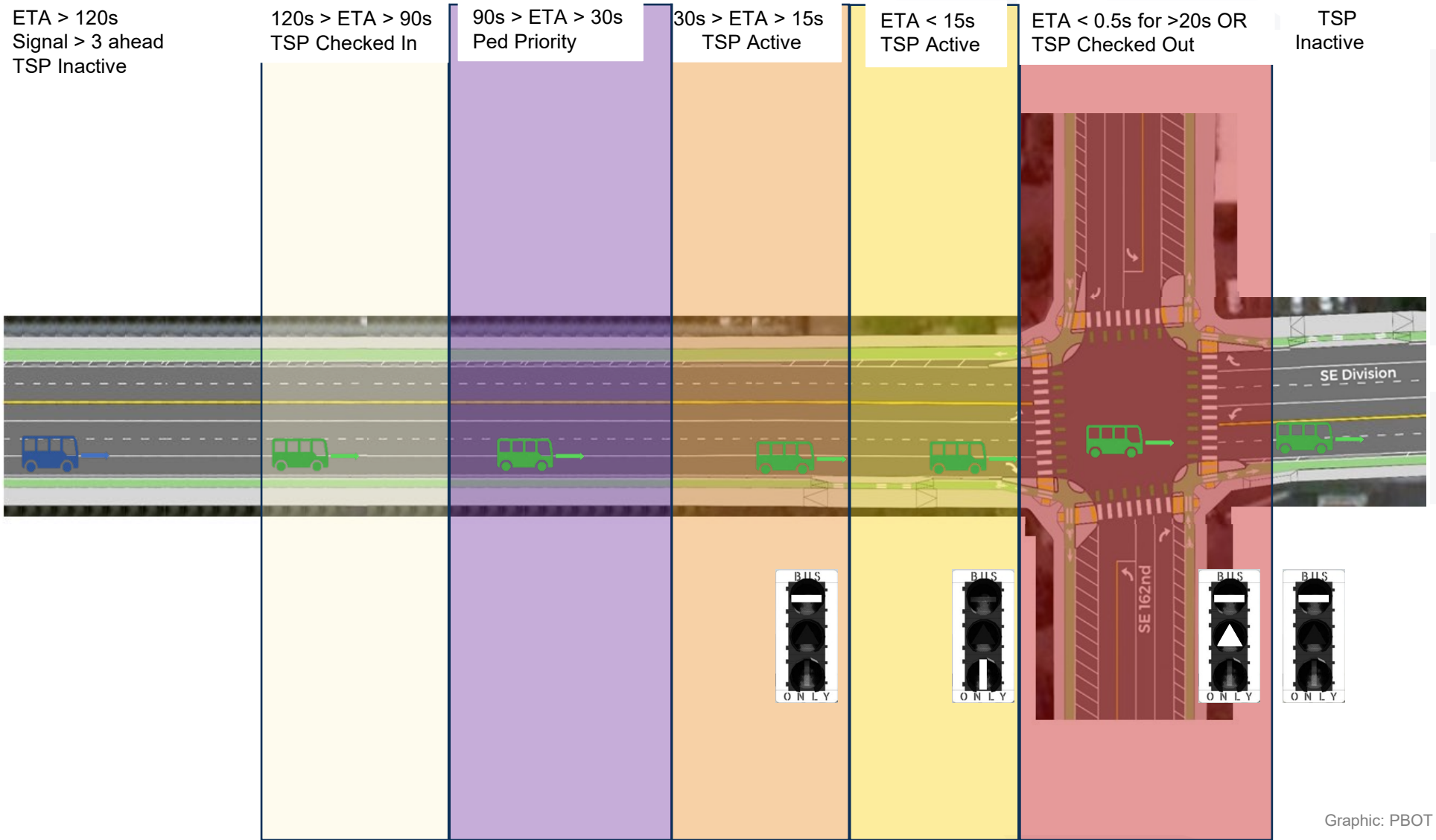
CO Component

PRG Logical Object

Graphic: PBOT

TriMet - Portland

Innovative TSP strategies possible due to partnership with Portland Bureau of Transportation



Graphic: PBOT

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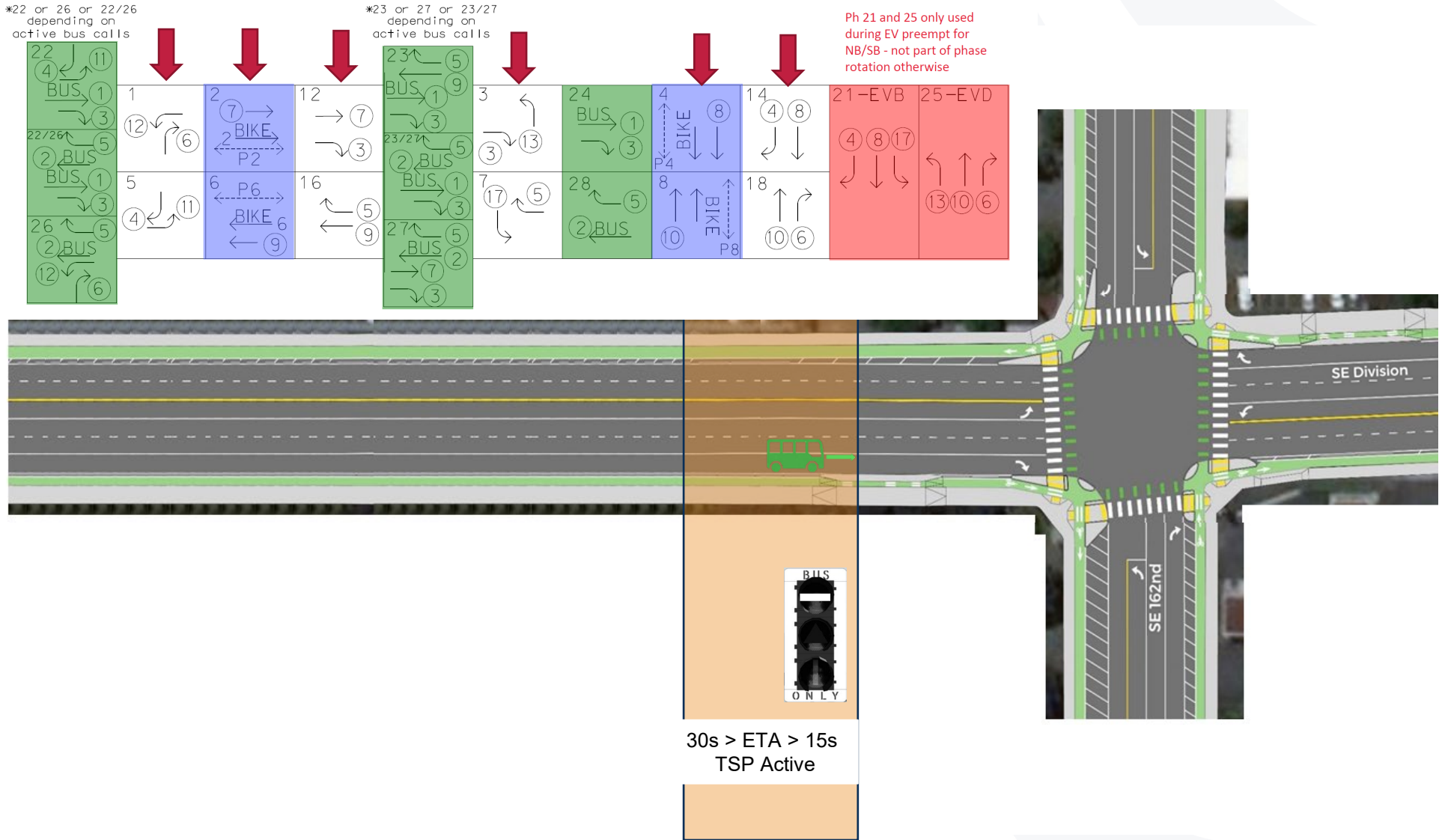

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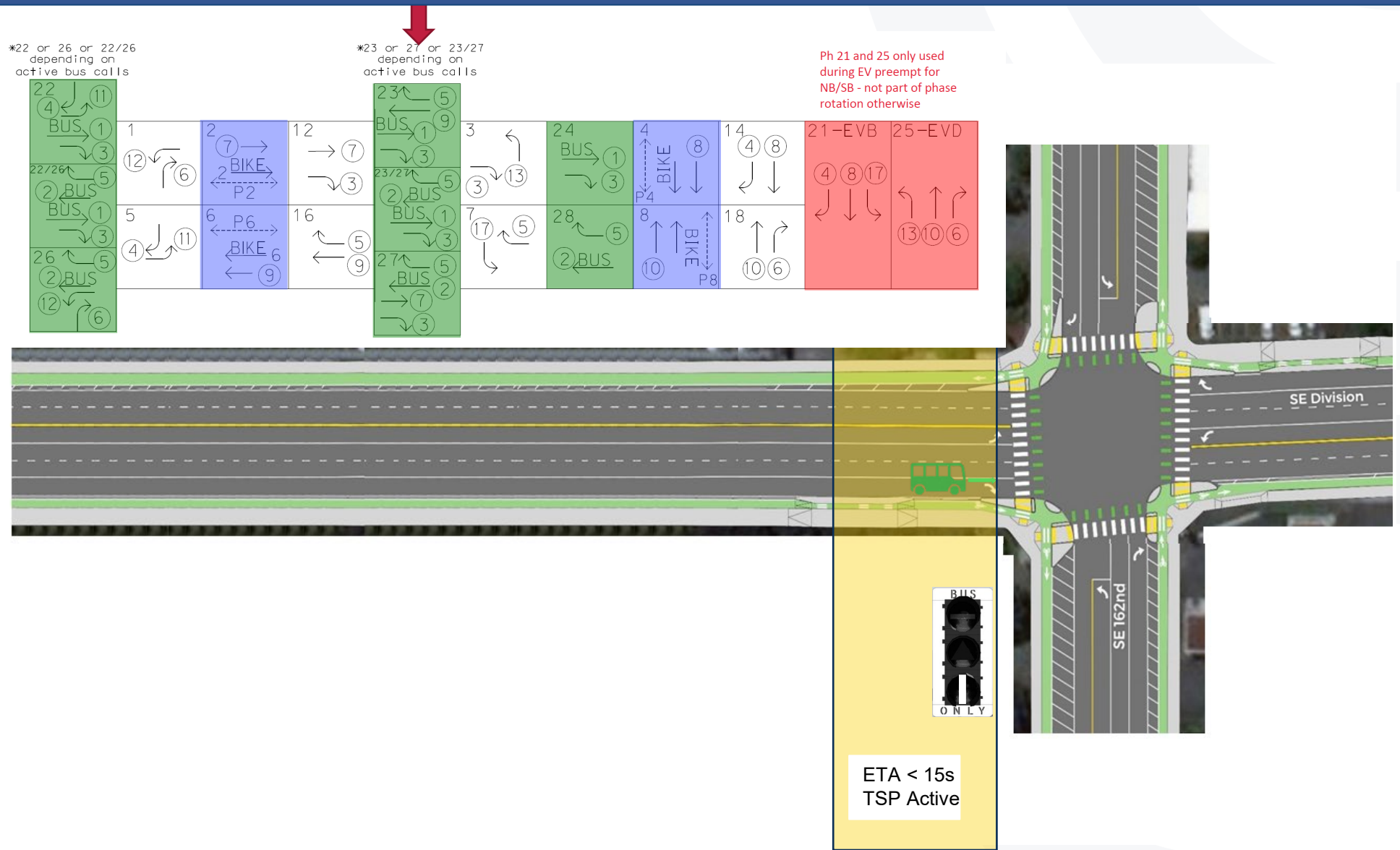
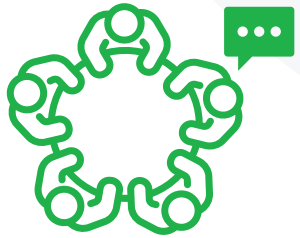


Strategies to Deliver Next-Gen TSP

Improve Bus Polling Rate

Upgrade to Cloud-Based TSP

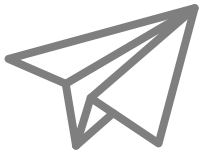
Engage Internal and External Stakeholders Regularly



Monitor TSP Performance

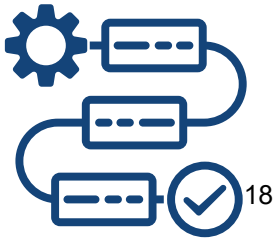
Identify Corridors for Funding Sources Proactively

Implement Next-Gen TSP Pilot



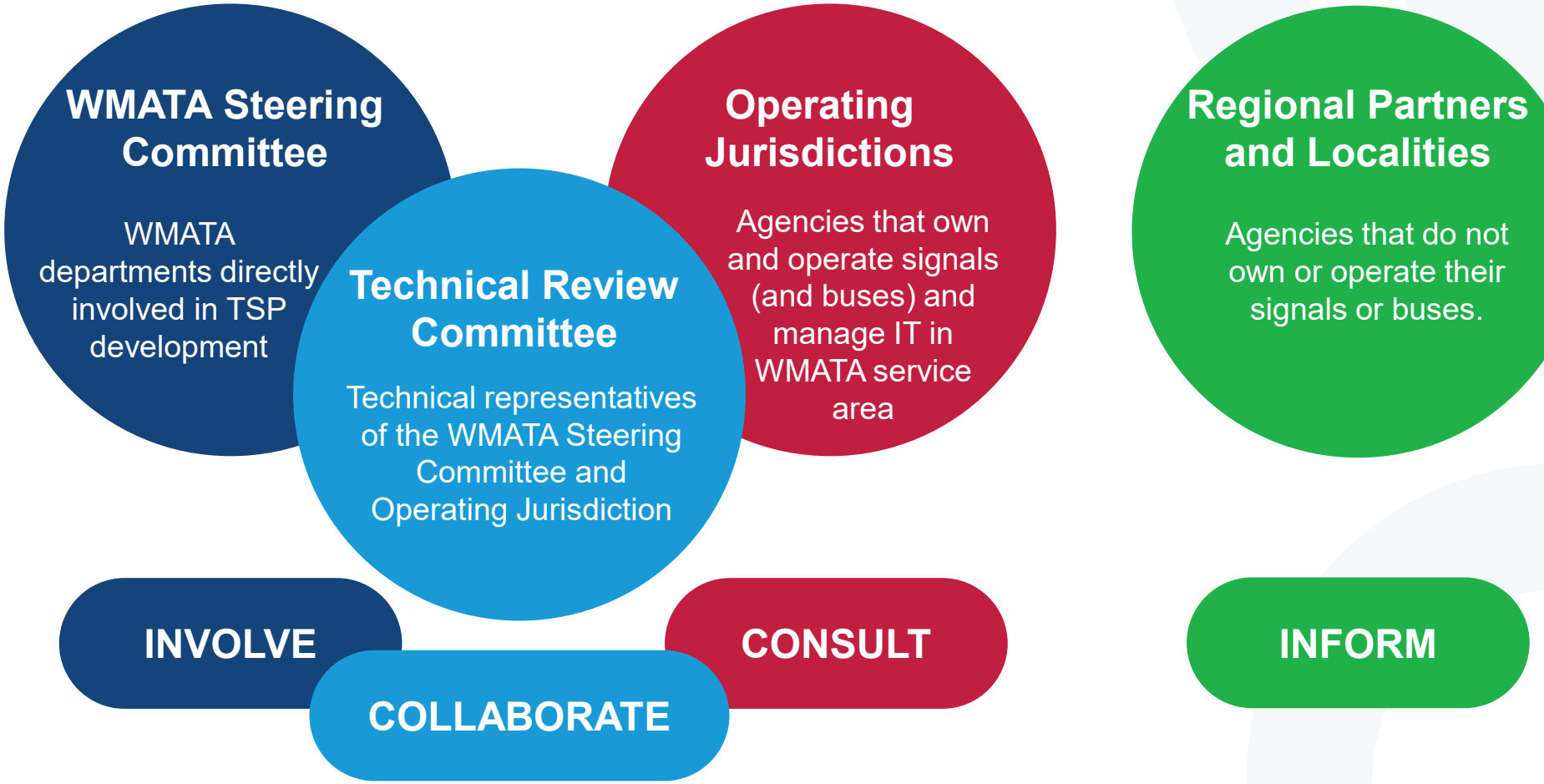
Create Better Visibility for Internal and External Partners

Establish Workflow for Improvements and Maintenance



Regional Partnership is Key to Success

Next-Gen TSP Engagement Overview



Next-Gen TSP Engagement Activities

WMATA Steering Committee

- ***Interviews***
- ***Monthly meetings***
- *Involvement in developing the* ***concept of operations****,* ***technical requirements****,* ***scope of work,*** *and* ***vendor selection****.*

Technical Review Committee

- ***Project status updates***
- ***Bi-monthly meetings***
- *Involvement in developing* ***concept of operations****,* ***technical requirements****,* ***scope of work,*** *and* ***vendor selection****.*

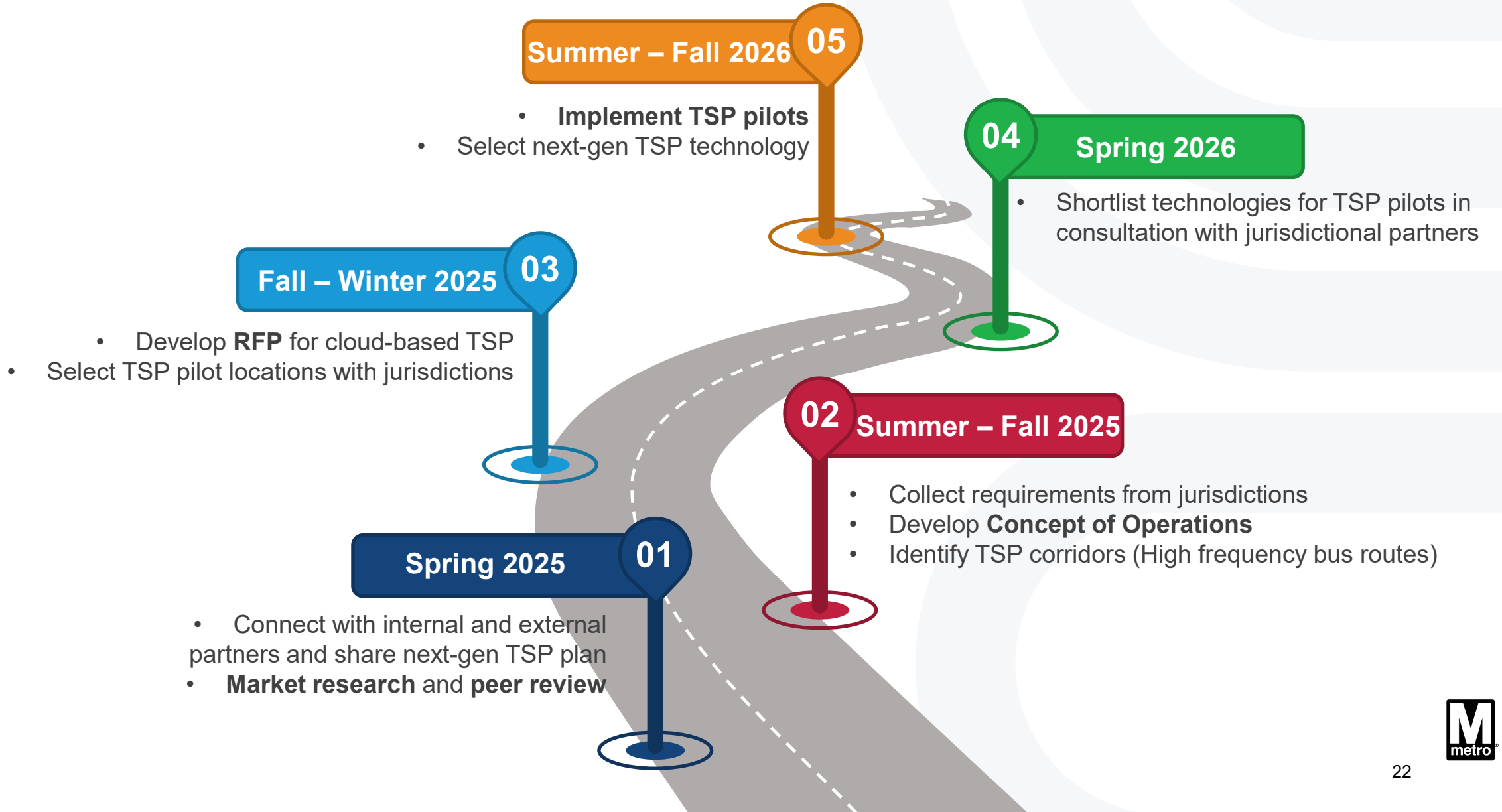
Operating Jurisdictions

- ***One-on-one Interviews*** *to collect background information and requirements.*

Regional Partners

- ***Policy guidance*** *in developing* ***concept of operations****.*
- ***Periodic presentations*** *at key points of the project*

Next Steps for Next Gen TSP Implementation



Thank you!

Ruochang Huang, PMP, AICP, PTP
Program Manager, Transit Signal Priority

RHuang@wmata.com
571-460-8726

COMMUTERCASH OVERVIEW

Stacey King
Commuter Connections Program Manager

TPB Regional Public Transportation Subcommittee
April 22, 2025

Agenda Item #5

COMMUTER CONNECTIONS® | A SMARTER WAY TO WORK

Commuter Connections Introduction & Context

COMMUTER CONNECTIONS | A SMARTER WAY TO WORK

Program Background

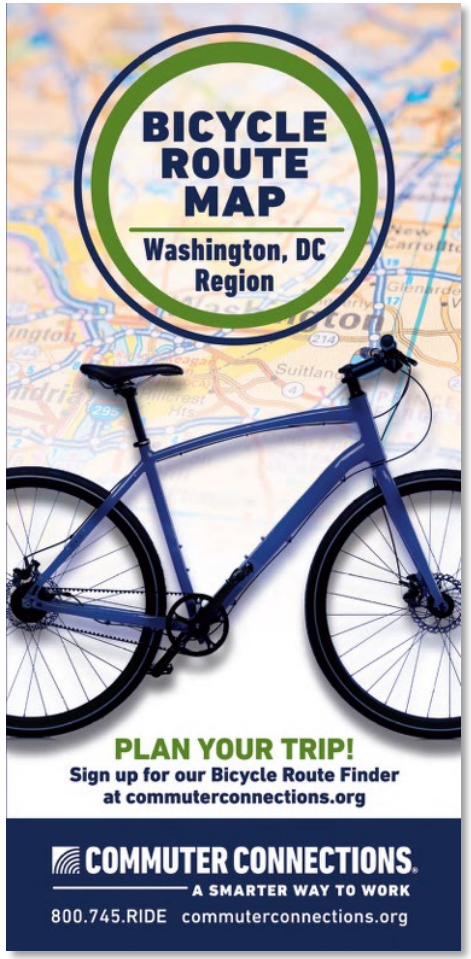
Mission: Encourage commuters in the National Capital Region to try and adopt the use of alternatives to the single-occupant automobile.

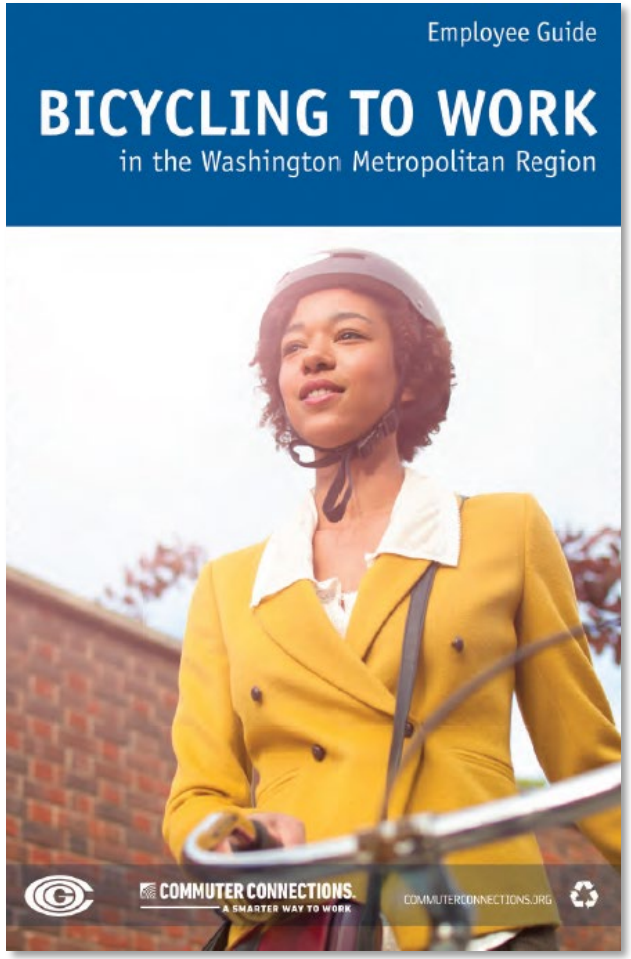
Structure: A network of nearly 30 transportation organizations - including COG, local governments, state DOTs (i.e., program funders), and federal agencies – working to achieve the mission.

Strategy: Transportation Demand Management (TDM) implementation through various programs and services.

- Consistent with Congestion Management Process (CMP) federal requirements and TPB's Visualize 2045 long-range transportation planning goals.

Achieving Our Mission: Commuter Resources





Calculate Your Cost of Commuting

Fill out this form to figure out your monthly commute cost!

(Press TAB to move to the next field and SHIFT-TAB to move back o

A. What is your daily round trip commute distance from home to work (in miles)?	10
B. How many days per month do you normally work?	15
C. Cost per mile of owning and operating a vehicle: *	.81
D. How much do you pay for monthly parking and/or tolls?	150
Your estimated Monthly cost of commuting is	---------- *$271.50*
Your estimated Yearly cost of commuting is	*$3258.00*

COMMUTER CONNECTIONS | A SMARTER WAY TO WORK

Achieving Our Mission: Marketing, Outreach, Events

bike to work day

goDMV Commuter Competition

COMMUTER CONNECTIONS | A SMARTER WAY TO WORK

Achieving Our Mission: Commuter Programs

Free Ridematching Program

Free Guaranteed Ride Home

Financial Incentives for Commuters

COMMUTER CONNECTIONS | A SMARTER WAY TO WORK

Next Chapter: CommuterCash

Download on the App Store

GET IT ON Google Play

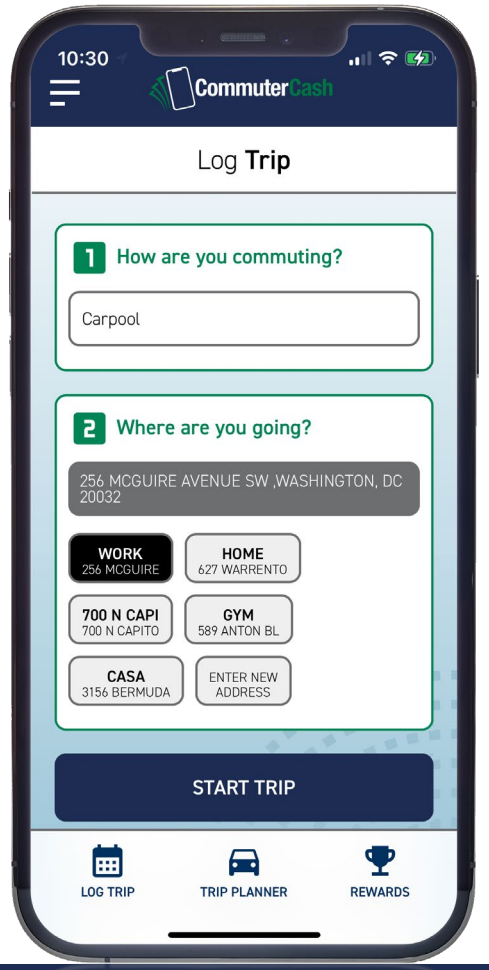
https://www.youtube.com/shorts/MiZ1_yQqh1U

COMMUTER CONNECTIONS | A SMARTER WAY TO WORK

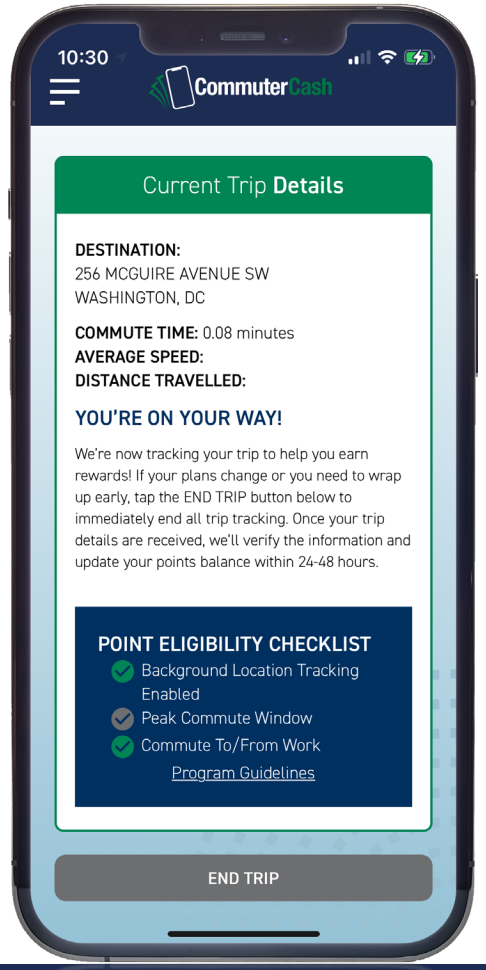
CommuterCash – Overview

- Smartphone based incentive program
- Originally developed by University of Maryland with FHWA grant and collaboration with Commuter Connections
- Commuters track commute trips to accumulate points
- Number of points awarded varies by travel mode and past travel behavior
- Points can be redeemed for a variety of incentives, including cash, SmarTrip fare, and E-ZPass credits
- Maximum incentive of **$600** per calendar year

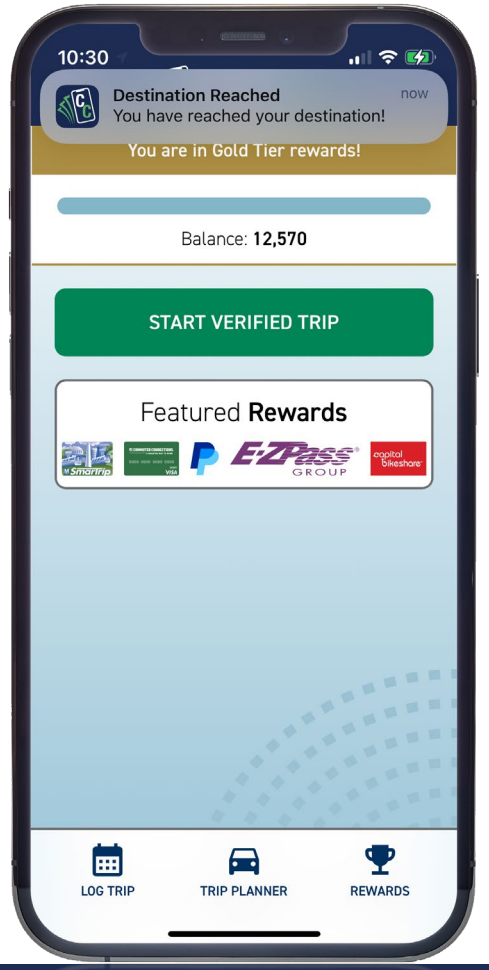
Start a trip



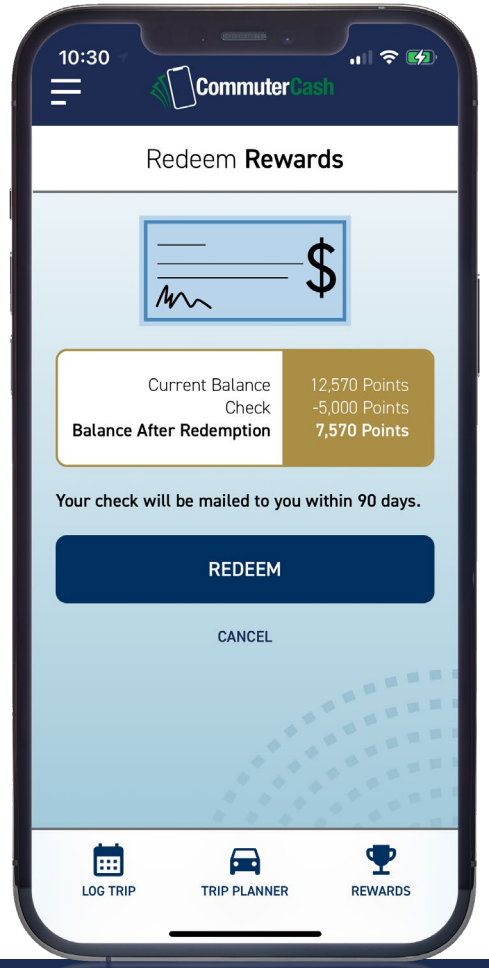
Travel monitoring



Trip completed

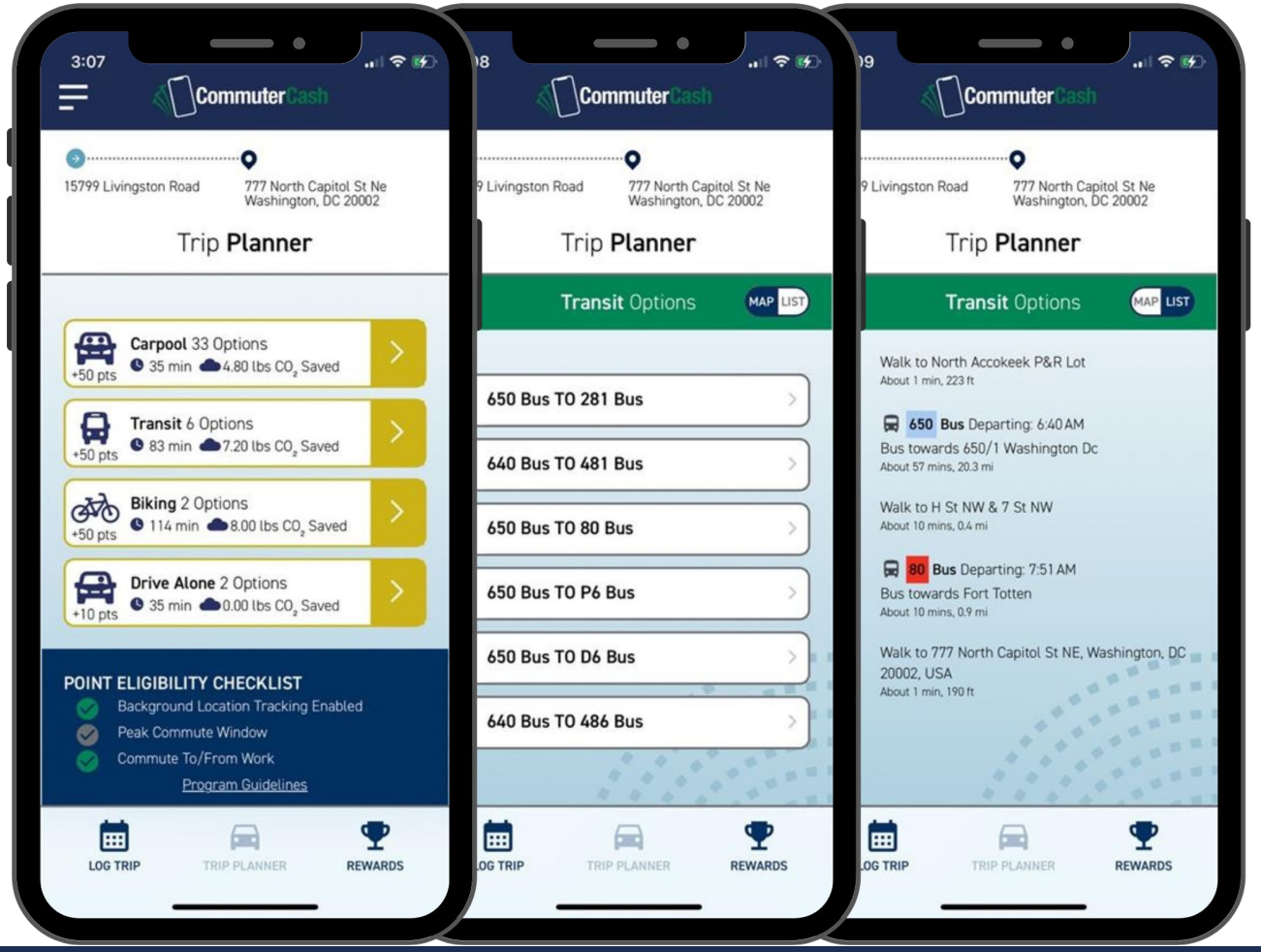


Rewards redemption



CommuterCash – Trip Planner

- Explore travel options
- Compare travel time, emissions reduction, and points (sustainable trips earn more points)
- Map or List view provides more detailed trip planning support
- Transit trip planning based on Google API



Powering the goDMV Commuter Competition

- Regional competition for commuters and employers
- March 3 – May 31
- 6 sustainable trips per day are counted towards leaderboard totals (commute or non-commute)
- Monthly and Grand prizes

goDMV Commuter Competition

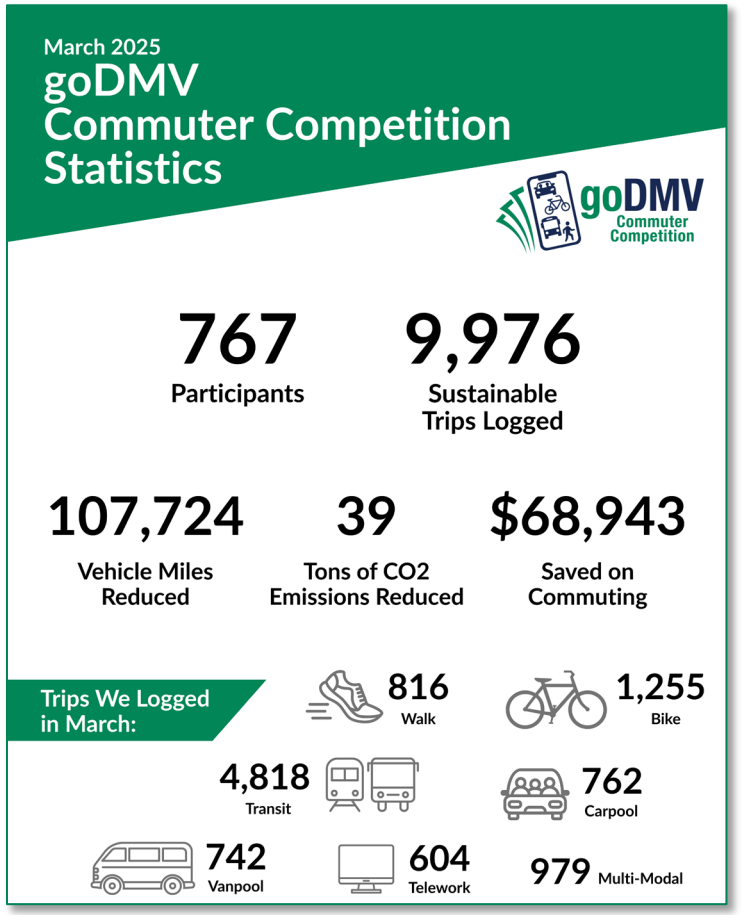
Top **Employers**

Ranking	Employer	Trips
1	WORLD BANK	2232
2	DISTRICT DEPARTMENT OF TRANSPORTATION (DDOT)	930
3	GEORGETOWN UNIVERSITY	696

Top **Commuters**

Ranking	Commuter	Trips
1	777589	125
2	780828	121
3	778121	116
4	781336	114
5	780743	102
6	781293	101
7	781117	99
8	780473	98
9	781042	98
10	780569	95
11	STACEY K	58

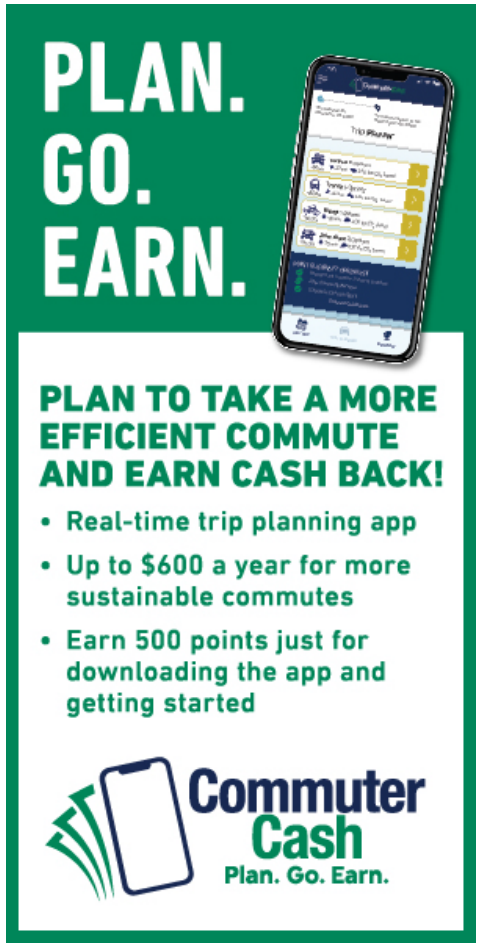
☐ I'd like to share my name Save



COMMUTER CONNECTIONS | A SMARTER WAY TO WORK

Resources to Support Your Transportation Programs

- Visual assets including logos and social media content
- Incorporate in transit screen and bus shelter ads, car cards, newsletters, webpages, or other media



Commuter Cash
Plan. Go. Earn.

CommuterCash
Plan. Go. Earn.

COMMUTER CONNECTIONS | A SMARTER WAY TO WORK

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COMMUTER CONNECTIONS | A SMARTER WAY TO WORK

VISUALIZE 2050

National Capital Region Transportation Plan

PLAN AND PROGRAM DEVELOPMENT UPDATES

Visualize 2050 & FY 2026-2029 TIP

Sergio Ritacco
TPB Transportation Planner

Regional Public Transportation Subcommittee Meeting
April 22, 2025

Agenda Item #XX

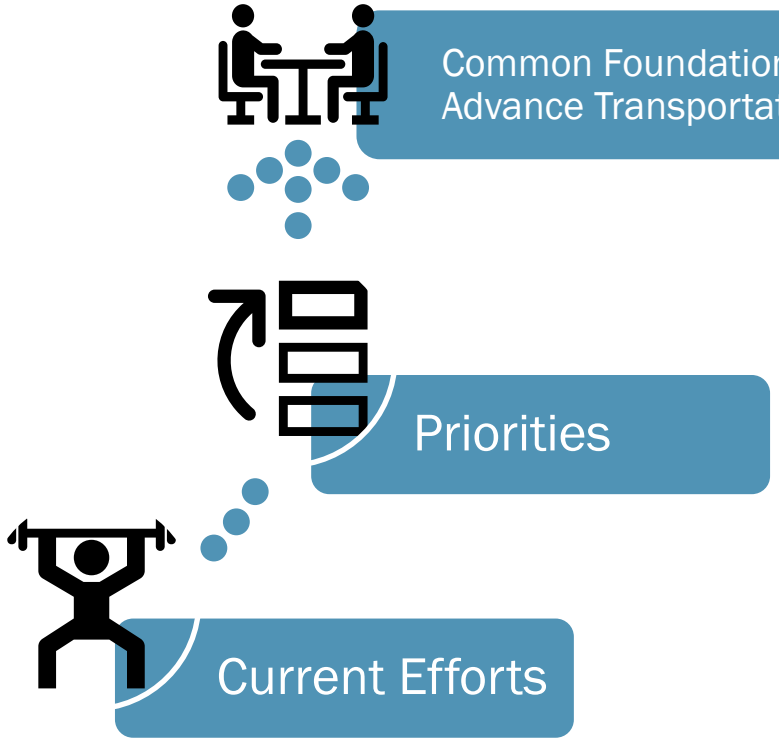
National Capital Region
Transportation Planning Board

Overview

- Development of the National Capital Region Transportation Plan
- Overview of the Visualize 2050 Plan Contents
- Remaining Schedule
- New Visualize 2050 website

VISUALIZE 2050
National Capital Region Transportation Plan

Goal for National Capital Region Transportation Plan



To communicate current efforts and priorities to provide stakeholders with a common foundation for advancing transportation.

VISUALIZE 2050
National Capital Region Transportation Plan

NCR Transportation Planning Process

Setting Vision, Goals, and Targets

Planning at Multiple Levels

Transportation Planning Board
- Bicycle & Pedestrian Plan
- Freight Plan
- Congestion Management Process
- Intercity Travel Study
- Regional Travel Survey
- Safety Study & Others

State Agencies
- *moveDC, The Playbook, VTrans*
- Mode-Specific Statewide Plans
- Topic, Corridor, Area Plans/Studies

Local/Regional/Transit Agencies
- Comprehensive Plans
- General Transportation Plans
- Mode-Specific Plans
- Topic, Corridor, Area Plans/Studies

Funding Availability + Project Selection

VISUALIZE 2050

VISUALIZE 2050
National Capital Region Transportation Plan

What is the Transportation Plan?

- Transportation System Today
  - Current System Performance
    - Impacts / Interaction With Societal Topics
      - Financial Plan – Capital & Operations
        - 2050 System and Performance
          - Challenges Beyond the Plan
            - Moving Forward

VISUALIZE 2050
National Capital Region Transportation Plan

Public Transportation in Visualize 2050

- Public Transportation has a critical role in the region's multimodal transportation system connecting the region's communities and is reported on throughout many parts of the plan:
  - Current Transit Trends & Ridership
  - Access to Transit
  - Transit Reliability & Congestion
  - Safety & Security
  - Transit Asset Management
  - Transit, Housing & Land Use
  - Emerging Technologies
  - Financial Plan
  - Future Transit Projects
  - Beyond the Budget
- Example: Existing Transportation in the National Capital Region Multimodal System (2023)

VISUALIZE 2050
National Capital Region Transportation Plan

Key Takeaways for Regional Public Transportation

- Public Transit is both an input into the plan and an important driver of responsive regional planning towards desired outcomes of the TPB's policy framework:
  - More affordable housing within proximity to jobs.
  - More options for transit, bicycling, and walking.
  - Shorter trips, reduced travel times and improved reliability.
  - More efficient movement of freight and commercial goods.
  - Improved economic competitiveness.
  - Vibrant, mixed-use communities with equitable, accessible, safe choices.
  - Less time commuting: more time for family and friends.
  - Improved environmental health and a better climate

VISUALIZE 2050
National Capital Region Transportation Plan

Final Products

- Plan — National Capital Region Transportation Plan (Transportation Plan), Visualize 2050, a point in time snapshot of the region's planning activities to deliver a better transportation system
- Program — Transportation Improvement Program (TIP) lists planned financial obligations for the first four years of the Transportation Plan
- Process — Ongoing work to improve transportation as shared in the plan & program
- Conformity — Ensuring the region's planned activities meet air quality standards, both now and in the future

Planning Together Today for Better Travel Tomorrow

VISUALIZE 2050
National Capital Region Transportation Plan

Remaining Schedule: January - July

January – April 2025	• TPB staff and agencies complete zero-based budgeting exercise. • TPB releases updated Technical Input Solicitation for TIP financial details on funding amounts by fiscal years between FY 2026-2029. • TPB receives a briefing at the April meeting from VDOT on the I-495/95 Southside Express Lanes (SEL) project.
May 2025	• **All remaining ZBB activities including detailed FY 2026-2029 TIP financial inputs due Friday, May 9, 2025.** • TPB staff draft financial analysis for the plan and TIP.
June 2025	• TPB staff draft AQC and performance analysis for the plan and TIP.
July 2025	• TPB work session: Detailed presentation of the Air Quality Conformity Results, Financial Plan, and System Performance Assessment for both options – with and without the I-495/95 SEL project; VDOT SEL project update. • TPB meeting: Briefing on draft results of the Air Quality Conformity, financial plan and system performance analyses for both options; VDOT SEL project update. TPB to pick one option at its September meeting. TPB briefed on the draft system level key challenges beyond the current transportation plan.

VISUALIZE 2050
National Capital Region Transportation Plan

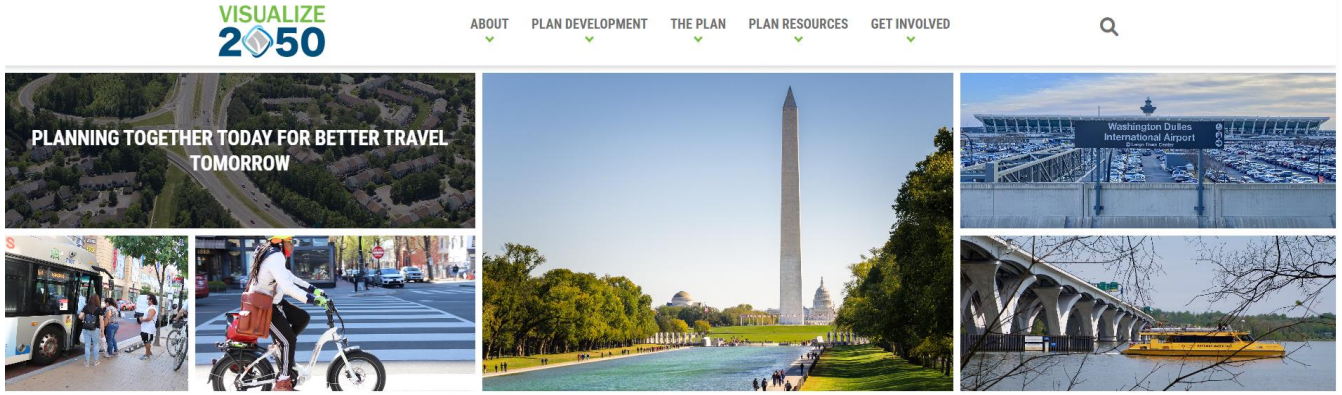
Remaining Schedule: September–December

September 2025	• **TPB votes to move forward with or without the I-495 Southside Express Lanes project for continuation in the plan development and air quality conformity processes.** • Metropolitan Washington Air Quality Committee (MWAQC) and MWAQC Technical Advisory Committee (MWAQC-TAC) reviews draft results of AQC analysis for the updated plan and FY 2026–2029 TIP. • Staff finalize the draft plan, TIP, and AQC documents, website, and advertise the comment period.
October 2025	• **Public comment period on the draft plan, TIP, and the results of AQC analysis for the updated plan and FY 2026-2029 TIP (tentative dates: Saturday, October 4 – Sunday, November 2, 2025).** • TPB, TPB Technical Committee review the draft Visualize 2050 plan, FY 2026-2029 TIP, and Air Quality Conformity Analysis Report.
November 2025	• TPB and Technical Committee receive a summary of the comments received on the analysis, plan and TIP; the agencies sponsoring the projects will have the opportunity to provide responses to comments.
December 2025	• **TPB will be asked to approve the results of the AQC analysis and adopt the Visualize 2050 plan and the FY 2026-2029 TIP.**

VISUALIZE 2050
National Capital Region Transportation Plan

Visualize 2050 Website

- Website link: www.visualize2050.org
- Explains the National Capital Region Transportation Plan development process
- Brings the printed plan to life through interactive maps and chapters
- Highlights recent developments
- Supports TPB members and community members through resources
- Serves as the gateway for public participation



VISUALIZE 2050
National Capital Region Transportation Plan

Share the Website

Ahead of the comment period:

- Share on your websites, in newsletters, on social posts
- Share at public meetings and with community organizations

During the comment period:

- Point to the draft plan, TIP, and Air Quality Conformity report
- Use the Ambassador Toolkit
- Use hashtag #Visualize2050
- Encourage comments!

Think regionally.
Act locally.

VISUALIZE 2050
National Capital Region Transportation Plan

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