

Bus Priority TSP Update

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- Background and Goals
- Key Findings
- Improving Performance
- Expanding Footprint and Benefits
- Next Steps for Regional Collaboration

WMATA's Transit Signal Priority (TSP) Program Goal

Goal:

Improve bus competitive standing and cost-effectiveness by reducing bus travel times and increasing schedule reliability

Use TSP to improve priority of buses relative to general-purpose traffic

Reduce costs, improve performance, and increase ridership

Sustain safe operations and minimize operational impacts to other travel modes

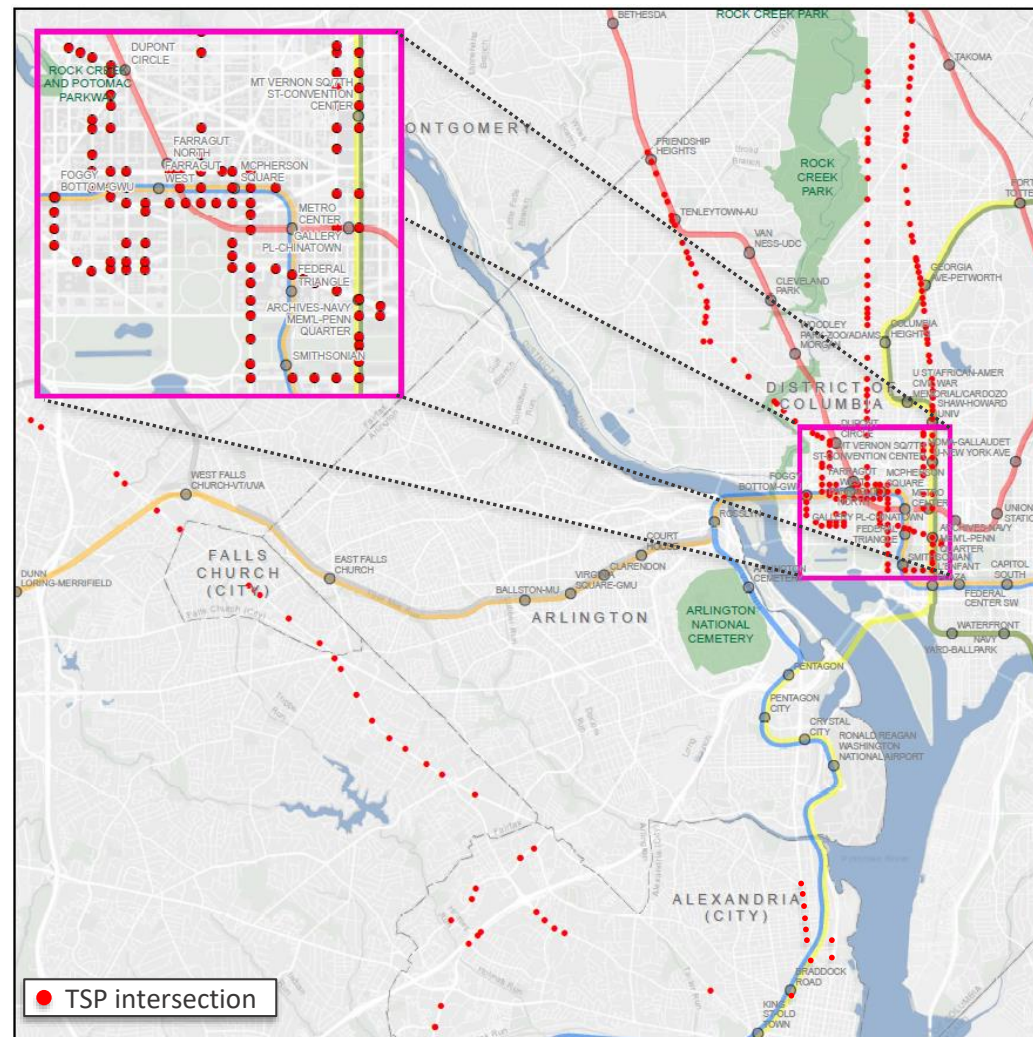
Regional TSP System: Function and Layout

- Initial work began in early 2000s, with current solution in place starting in 2014.

| System | DC | VA |
|---------------|-------------------------------------------------|-------------------------------------------|
| Intersections | 179 | 44 |
| Bus routes | 11 | 15 |
| Locations | 3 radial routes on arterials; 8 routes downtown | Alexandria, Falls Church, and Fairfax Co. |

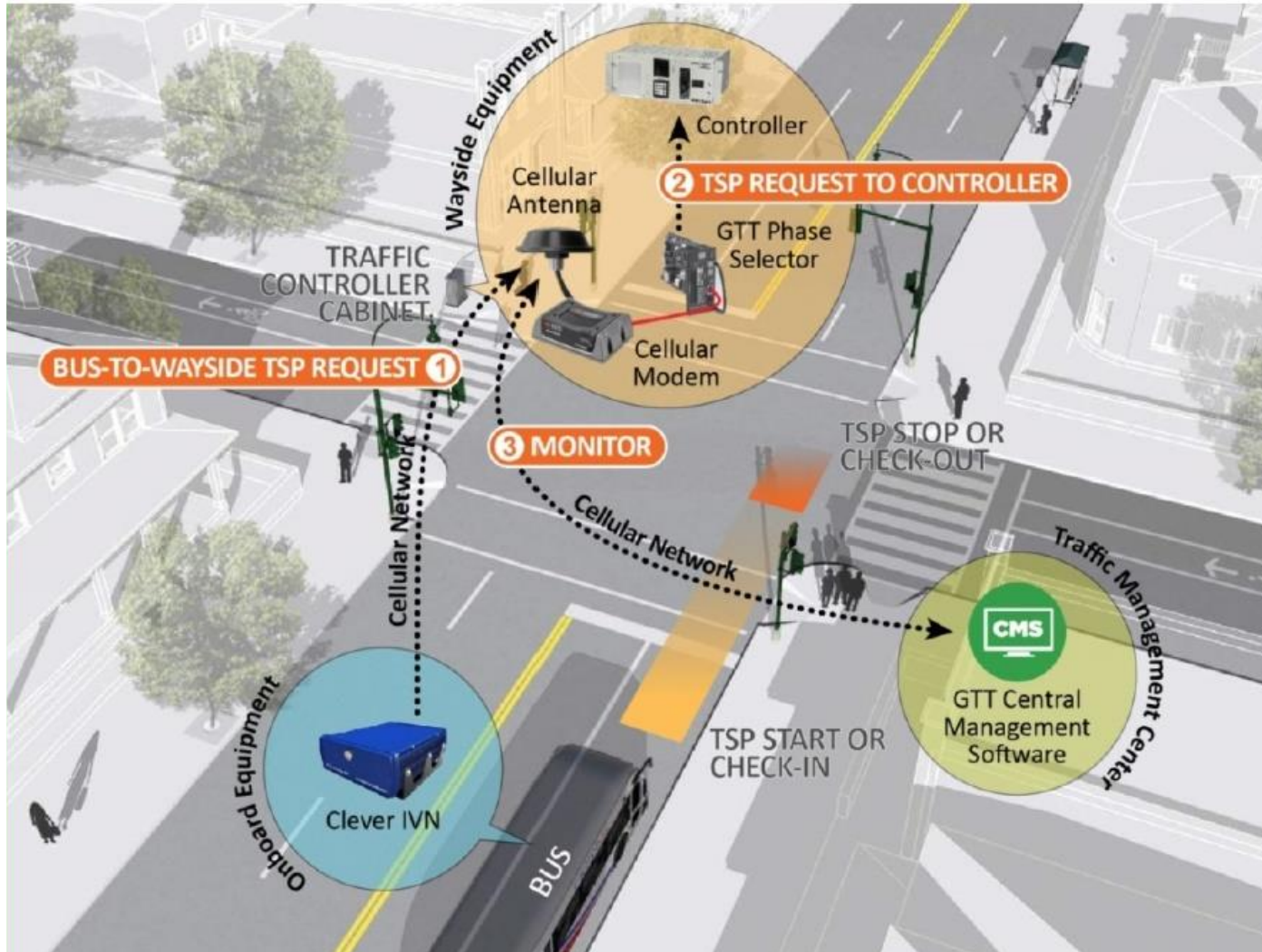
Deployments Today

- Between 2017 and 2019, WMATA conducted research on TSP performance across the District to determine if system was meeting goals



WMATA TSP Installations

TSP System Design



■ Benefits

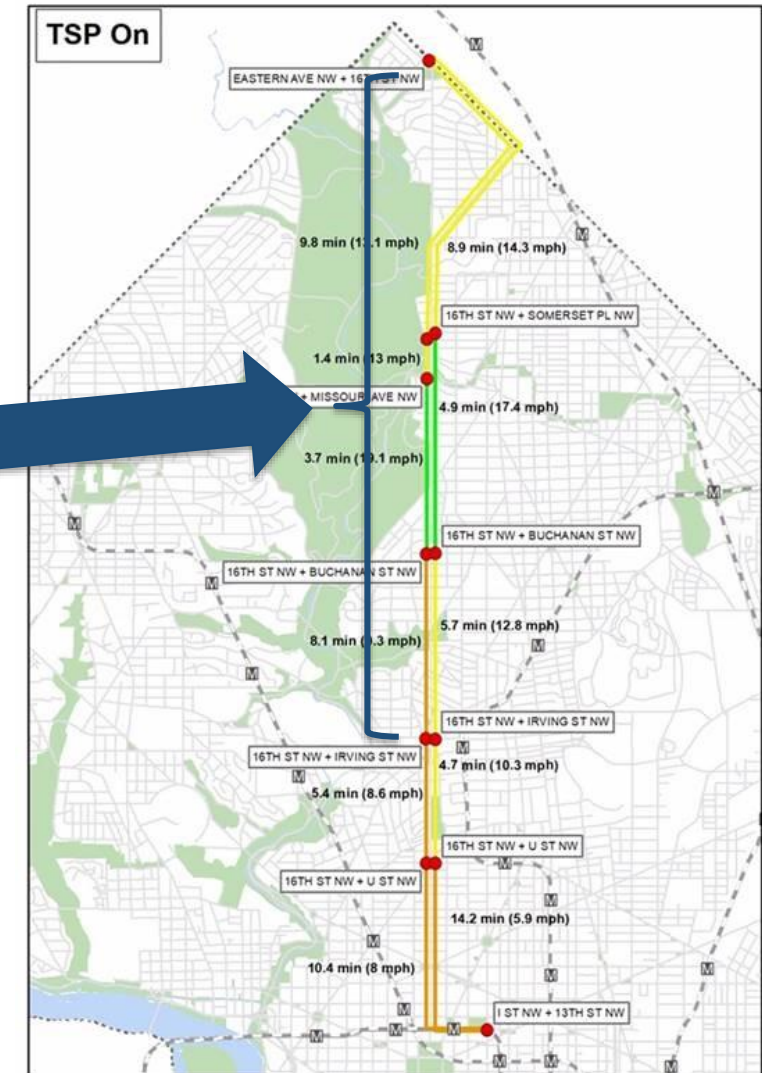
- Proven to reduce runtimes and increase reliability on WMATA's radial, scheduled routes
- Easy to implement compared to intersection redesign

■ Challenges

- Not valuable everywhere: requires thoughtful design
- Current design requires complex maintenance, including aligning settings across multiple systems
- Coordination required to deploy at intersection

Findings point to important benefits

| Finding | Measure compared to Baseline (no TSP) |
|-----------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Average runtimes improved | 1.5 – 3% reduction in runtime across full route |
| Segment-level runtime performance differences show particular promise | 10.5% – 12% reduction in runtime from DC Border to 16th & Irving |
| Schedule reliability improved | 4% – 7% less variability in runtime |
| No adverse impacts on auto or pedestrian | No change in auto travel times, queue lengths, or pedestrian compliance |



Performance improved significantly outside of downtown

Actions to Build on Findings

| Finding | WMATA's Actions to Improve Performance |
|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><u>Schedule-based routes:</u></p> <p><i>Can benefit if deployed and configured correctly</i></p> | <p>Continue to tune parameters and bus schedules to improve operational and customer benefit</p> |
| <p><u>Headway-based routes:</u></p> <p><i>Software not optimized for headway management</i></p> | <p>Update software to support headway-based routes (e.g., 79)</p> |
| <p>Downtown – <i>inconclusive</i></p> | <p>Relocate existing equipment to radial parts of routes</p> |
| <p>System difficult to maintain</p> | <ul style="list-style-type: none"> • Update software to improve parameter management (2020) • Explore next-gen, network-based solutions |

Expanding and Improving TSP Deployment

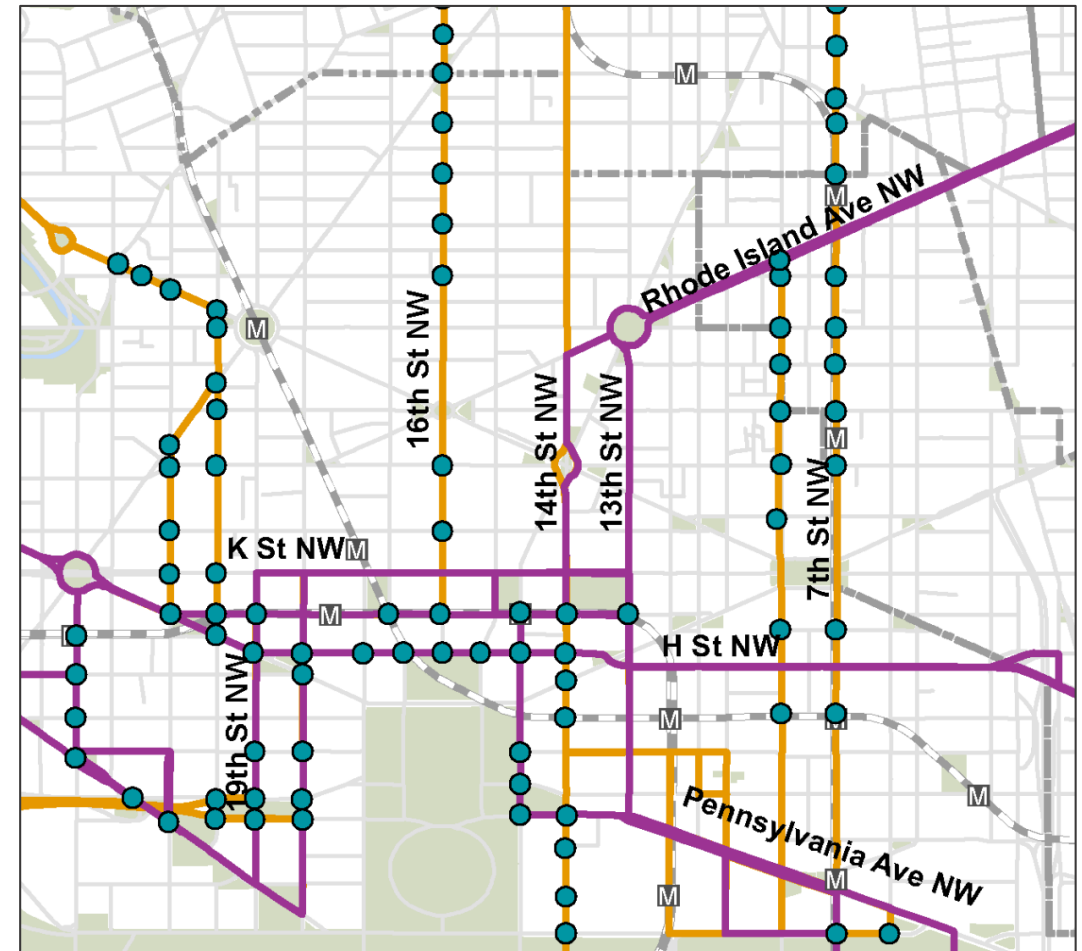
Program Actions

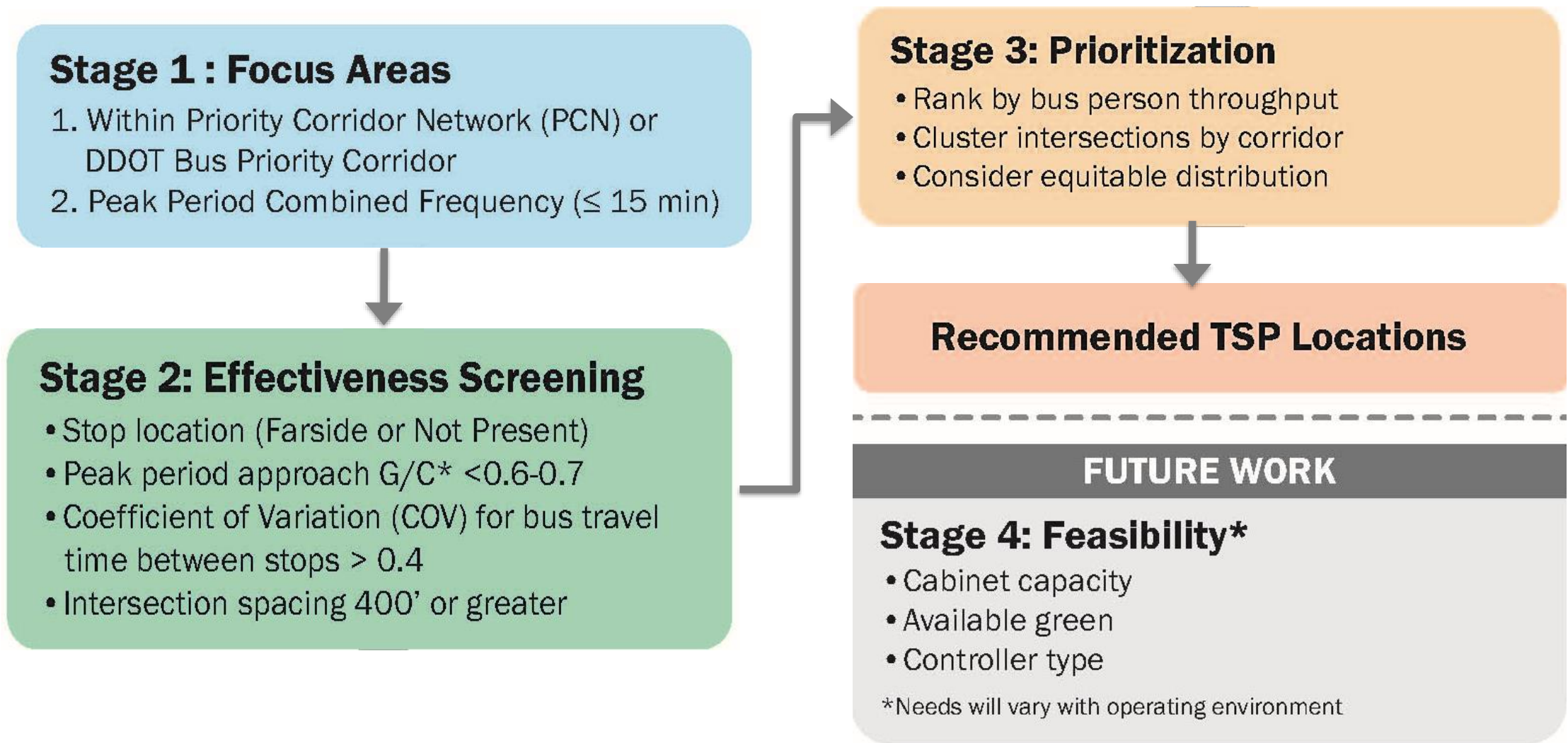
- Develop screening criteria for effective placement of TSP equipment
- Identify new corridors for TSP expansion
- Re-prioritize existing equipment placements
- Explore opportunities for new placements

Determining an Effective Deployment

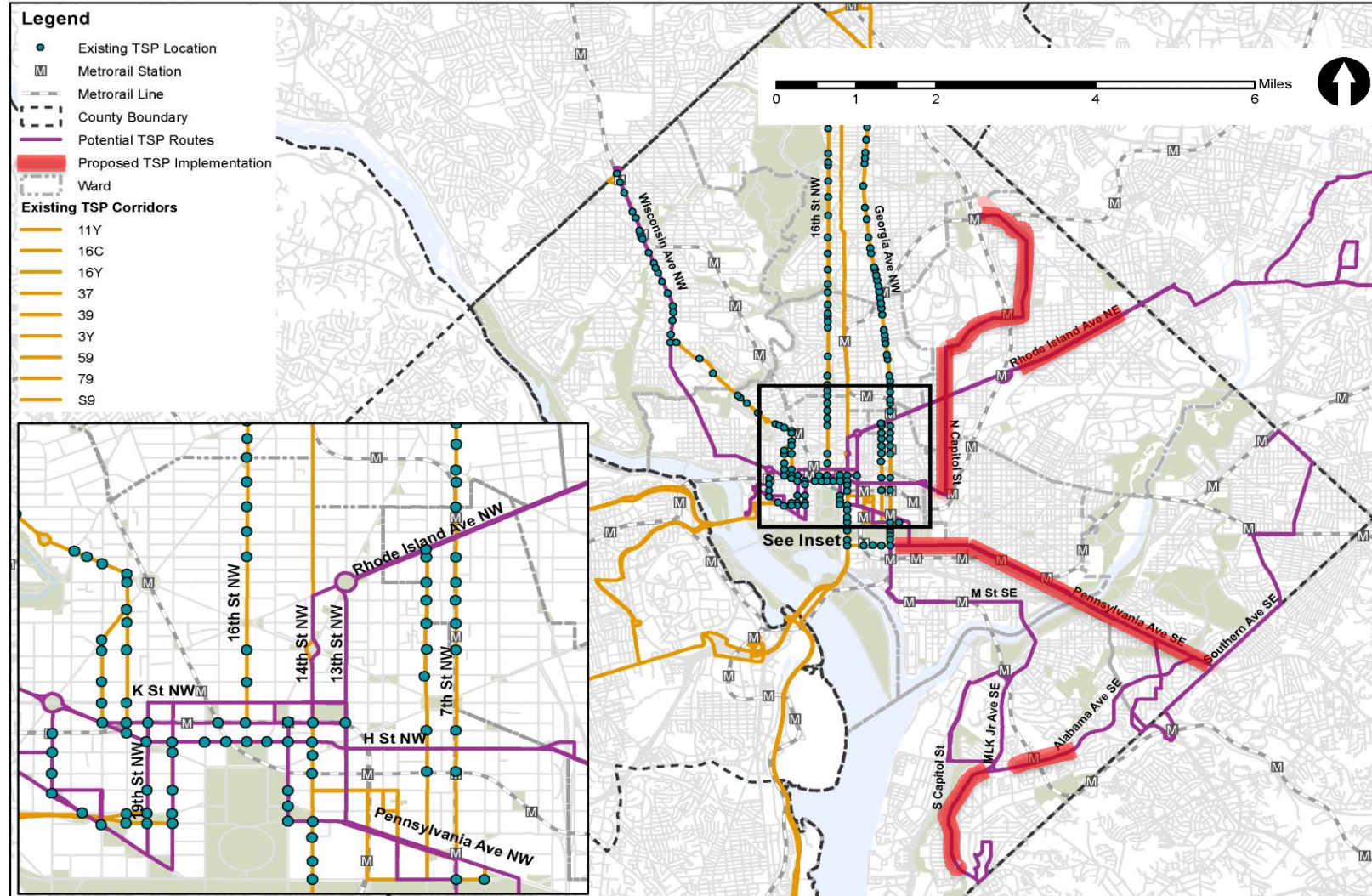
- Prioritize Person Throughput
- Consider Geometric/Route Alignment Screening; e.g., Block Length or TSP Demand on Conflicting Approaches
- Avoid High Right-turning Volumes (that might prevent bus from benefiting from TSP)

Downtown TSP Intersections Under Review





WMATA-DDOT Plan aligns with Proven Effective Characteristics and Broadens Benefits



Next Steps: Regional Workshops to Share Learnings, Expand Collaboration and Benefits

- TSP Regional Overview – October 2020
- Next Gen Solutions for TSP – December 2020
- Queue Jumps – February 2020
- On-Going Regional TSP Meetings - TBD