National Capital Region Federal Parking Study

An Accessibility-Based Approach
for Federal Facilities Parking Policies

Travel Forecasting Committee Presentation

January 20, 2017

Presentation Outline

- Background - NCPC
- Study Organization
- Findings
- Determining Accessibility
- Recommendation Categories
- Recommendation #1 - Data Driven
- Proposed Future Analysis Tool

Mission

The National Capital Planning Commission works with federal agencies as it seeks to preserve and enhance the extraordinary historical, cultural, and natural resources and federal assets of the National Capital Region to support the needs of the federal government and enrich the lives of the region's visitors, workers, and residents.

Authorities

- National Capital Planning Act: review plans and projects for federal property, and prepare the Federal Capital Improvements Program and the Comprehensive Plan.

Comprehensive Plan
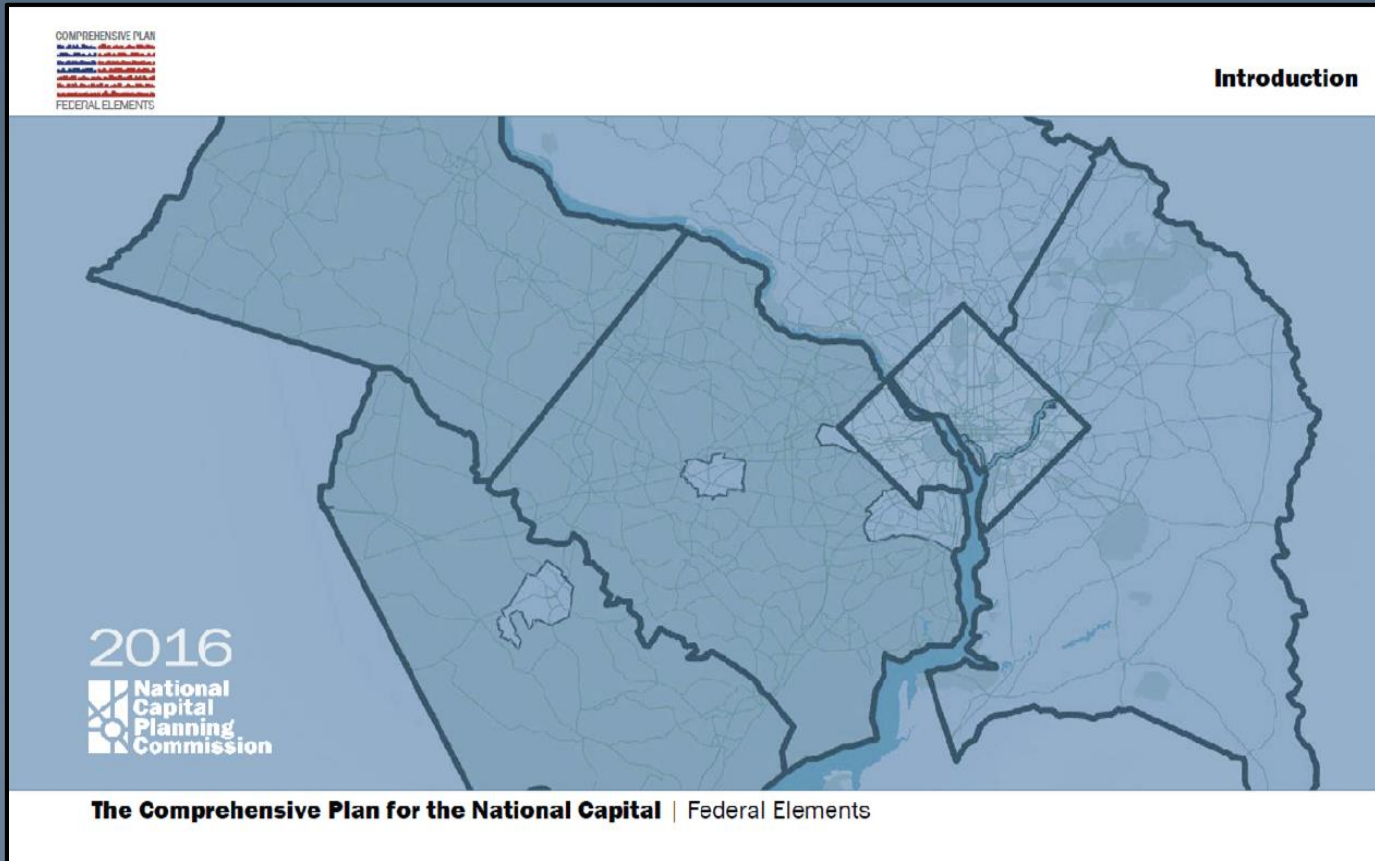
Comprehensive Plan Policies

- Related to Parking Ratio
- Related to Transp. Management Plans
- Related to Transp. Demand Management
- Related to Shuttles and Circulators
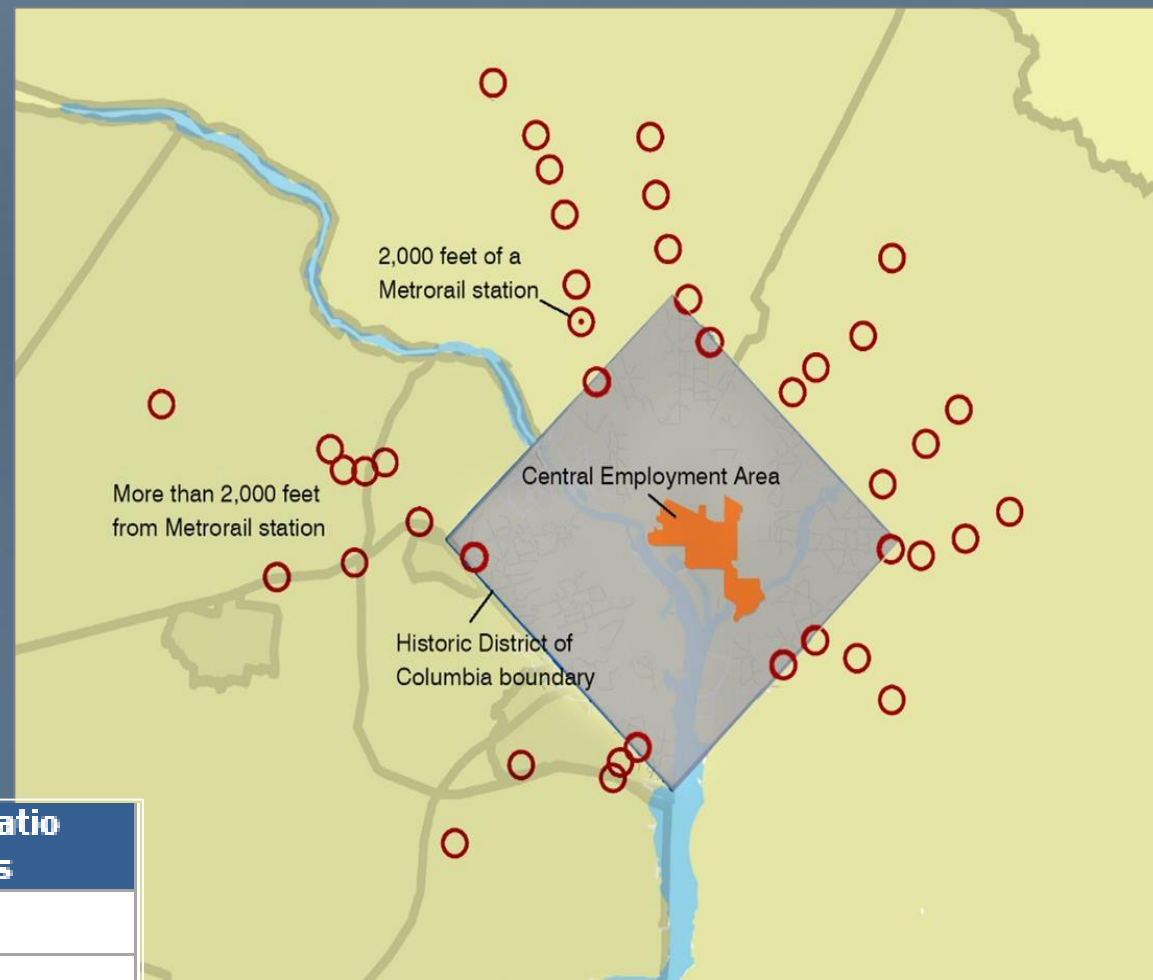
Zone Location	Parking Ratio Policies
Central Employment Area	1:5
Historic District of Columbia Boundary	1:4
Suburban Washington within 2,000 feet of a Metrorail station	1:3
Suburban Washington more than 2,000 feet from a Metrorail station	1:15 - 1:2 (site dependent)

National Capital Planning Commission

Literature Review
Assess the transportation literature and industry best practices

Local Parking Comparison
Consider local approaches to parking policy

Modeling Analysis
Assess NCPC policies in light of the regional transportation model (2016 and 2030)

Literature Review

- New Accessibility Paradigm
- Changing Analytical Tools
- Consider Sustainability Goals

Local Parking Comparison

- Limiting/Eliminating Parking Requirements
- Pricing/Sharing Parking
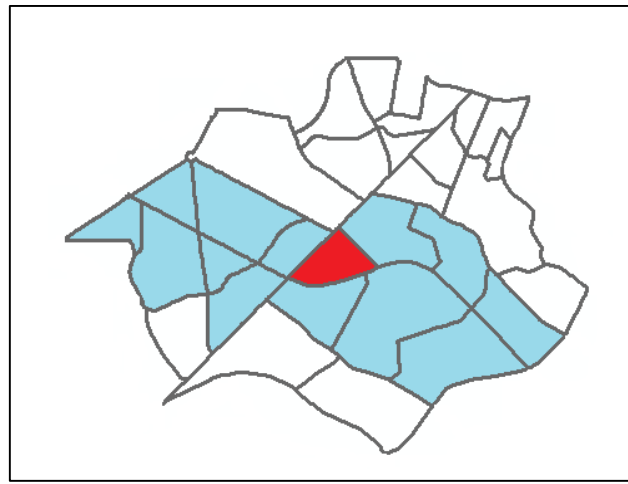- Ongoing Performance Monitoring

Modeling Analysis

- Accessibility Predicts Parking
- Variability within the Historic D.C. Boundary
- A Changing Regional Core

What is Accessibility?

TPB Transportation Analysis Zones (TAZ)
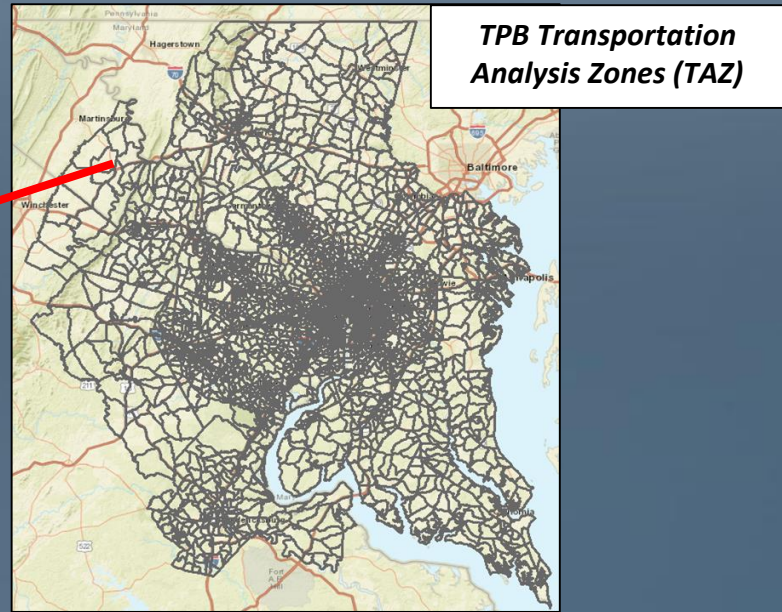
Calculate the transit-shed and drive-shed of a federal facility/TAZ
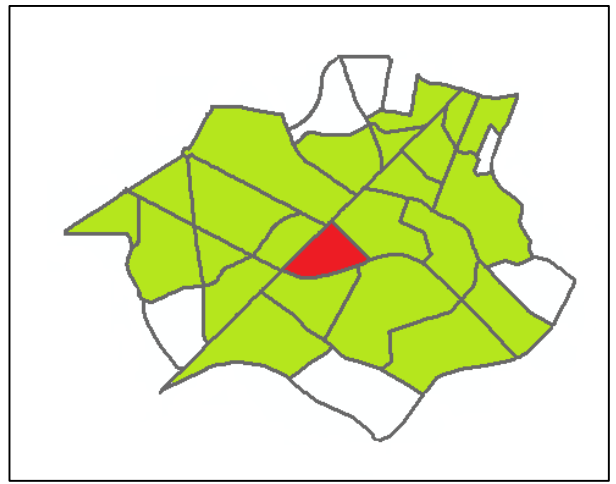

$$\frac{\text{HH accessible by transit}}{\text{HH accessible by car}} = \text{Accessibility Ratio} \longrightarrow$$

- **Ratio under 1:** more homes can reach a particular location by car than by taking transit
- **Ratio over 1:** transit provides access to more homes than driving

Comparing Accessibility

Metro Center

Takoma
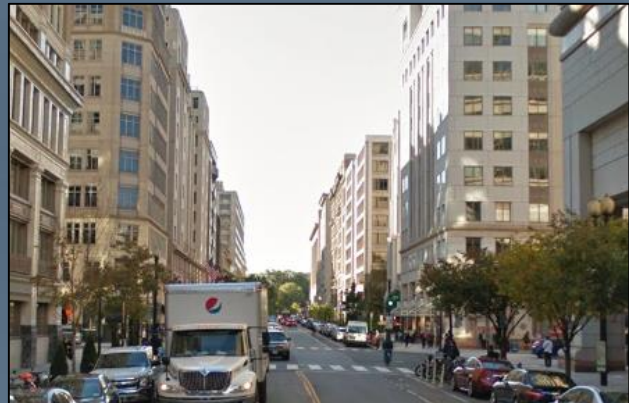
Gaithersburg

$$\frac{956K \text{ Households (Transit)}}{286K \text{ Households (Car)}} = 3.34$$

$$\frac{412K \text{ Households (Transit)}}{473K \text{ Households (Car)}} = 0.87$$

$$\frac{246K \text{ Households (Transit)}}{328K \text{ Households (Car)}} = 0.75$$

$$\frac{HH \text{ accessible by transit}}{HH \text{ accessible by car}} = \text{Accessibility Ratio} \longrightarrow$$

- **Ratio under 1:** more homes can reach a particular location by car than by taking transit
- **Ratio over 1:** transit provides access to more homes than driving

Regional Accessibility Ratio Map

Transit accessibility:
- very high in the core
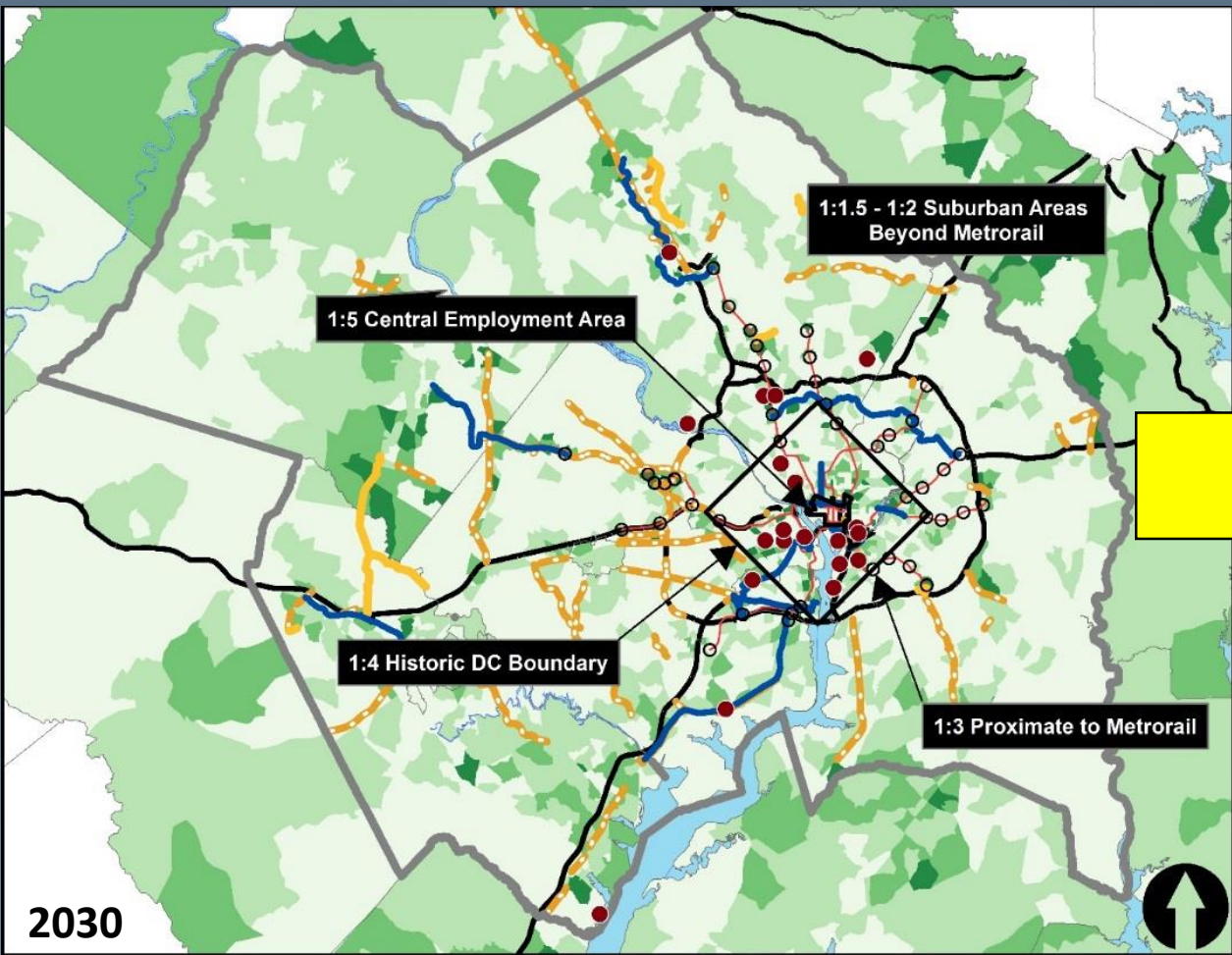- moderate radiating along Metrorail
- relatively limited elsewhere
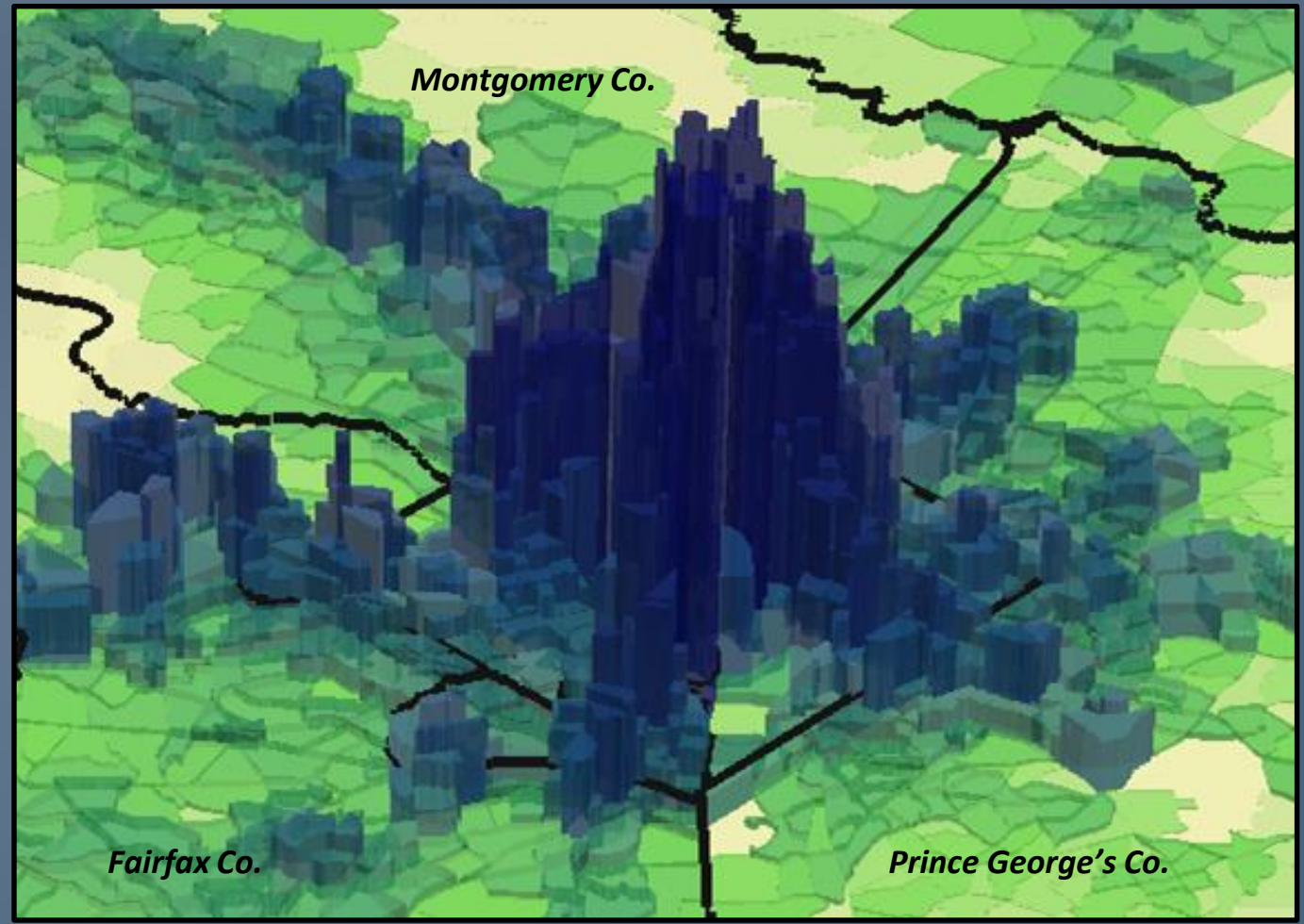
Metrorail Accessibility

Accessibility levels at stations:
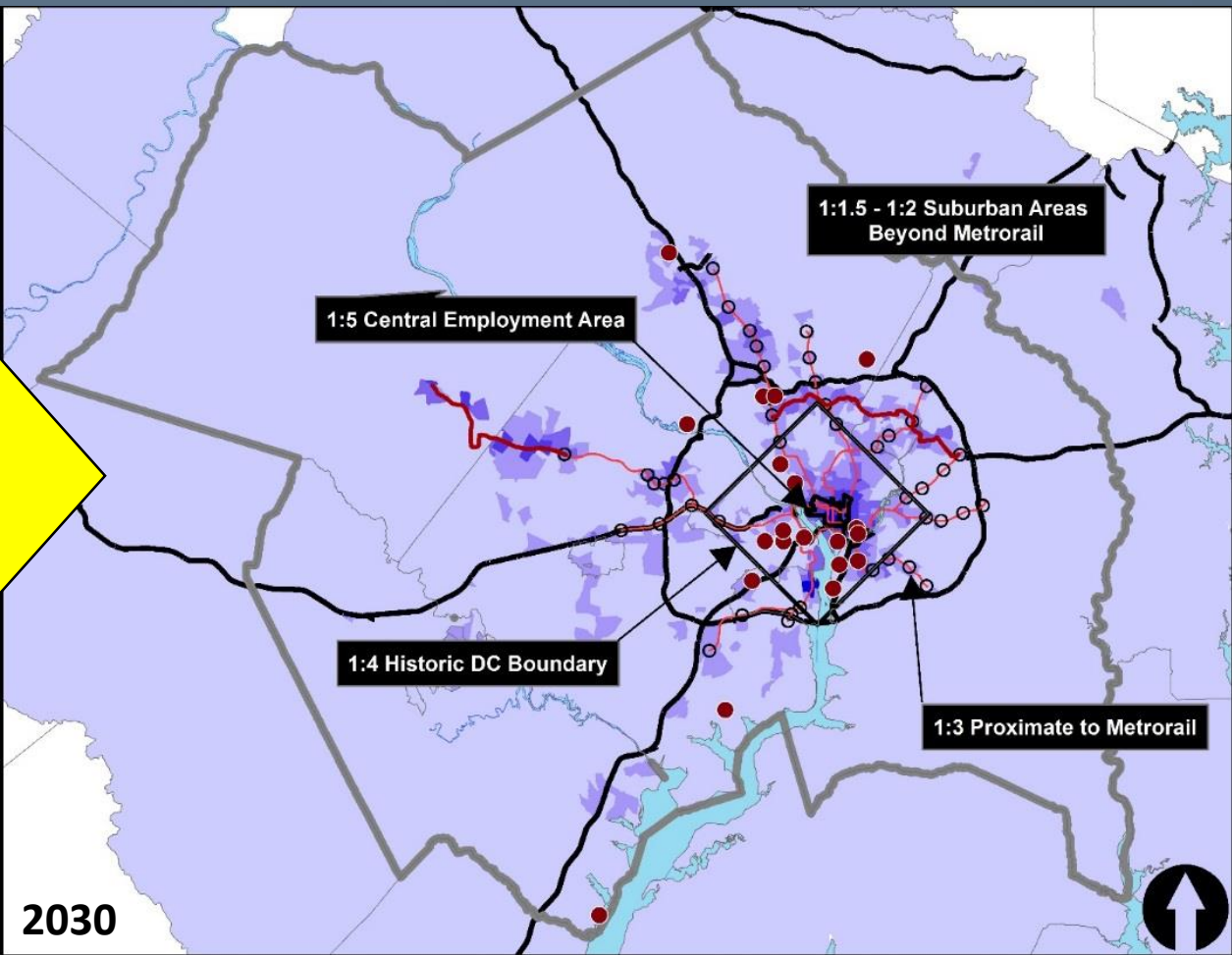- generally decline away from Metro Center/Gallery Place.

Stations along each Metrorail line - NOT to scale.

Blue ─── Green ─── Orange ─── Red ─── Silver ─── Yellow
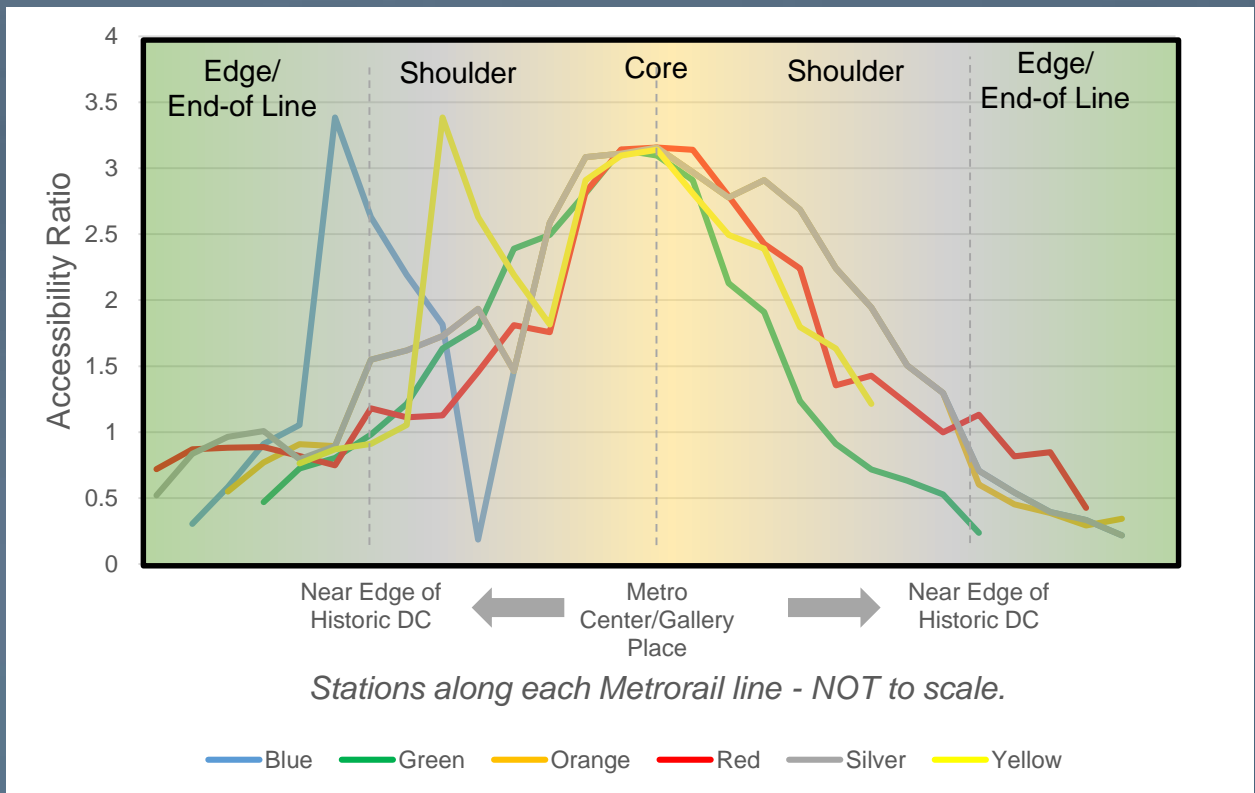
Population and Transportation Impacts

2030

Anticipated regional growth, highway/transit projects, congestion by 2030…

*… will improve accessibility in the Downtown core and near new transit capacity.*

Accessibility at Federal Facilities

- Accessibility ratio predicts 62% of the variation in parking supply at facilities (92% without outliers - NSA-Bethesda, St. Elizabeths, and Naval Observatory)

Observed Parking vs. Accessibility Ratio (2016)
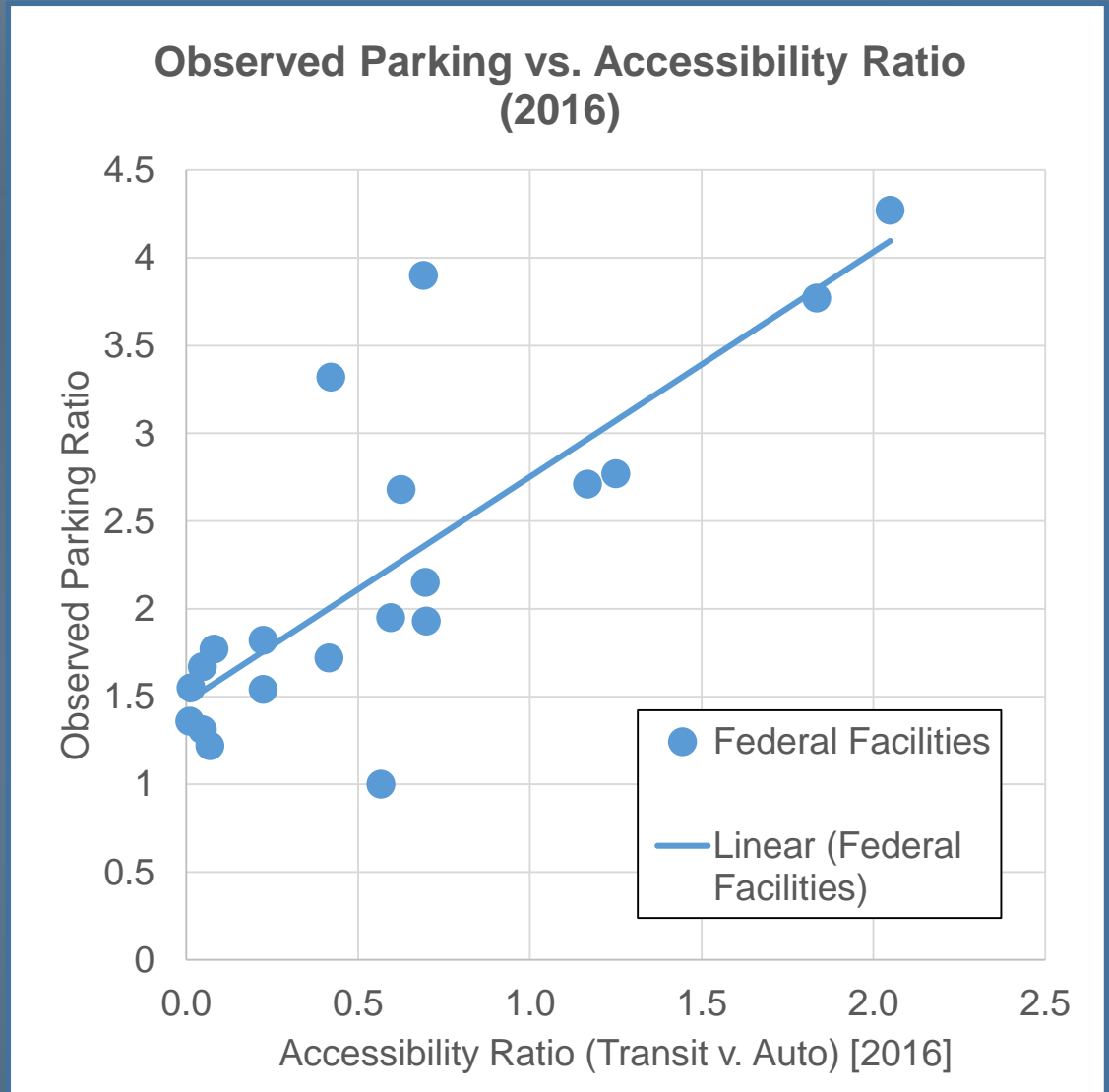
Projected Accessibility Improvements at Federal Facilities

- Significant accessibility increases for centrally located facilities by 2030.
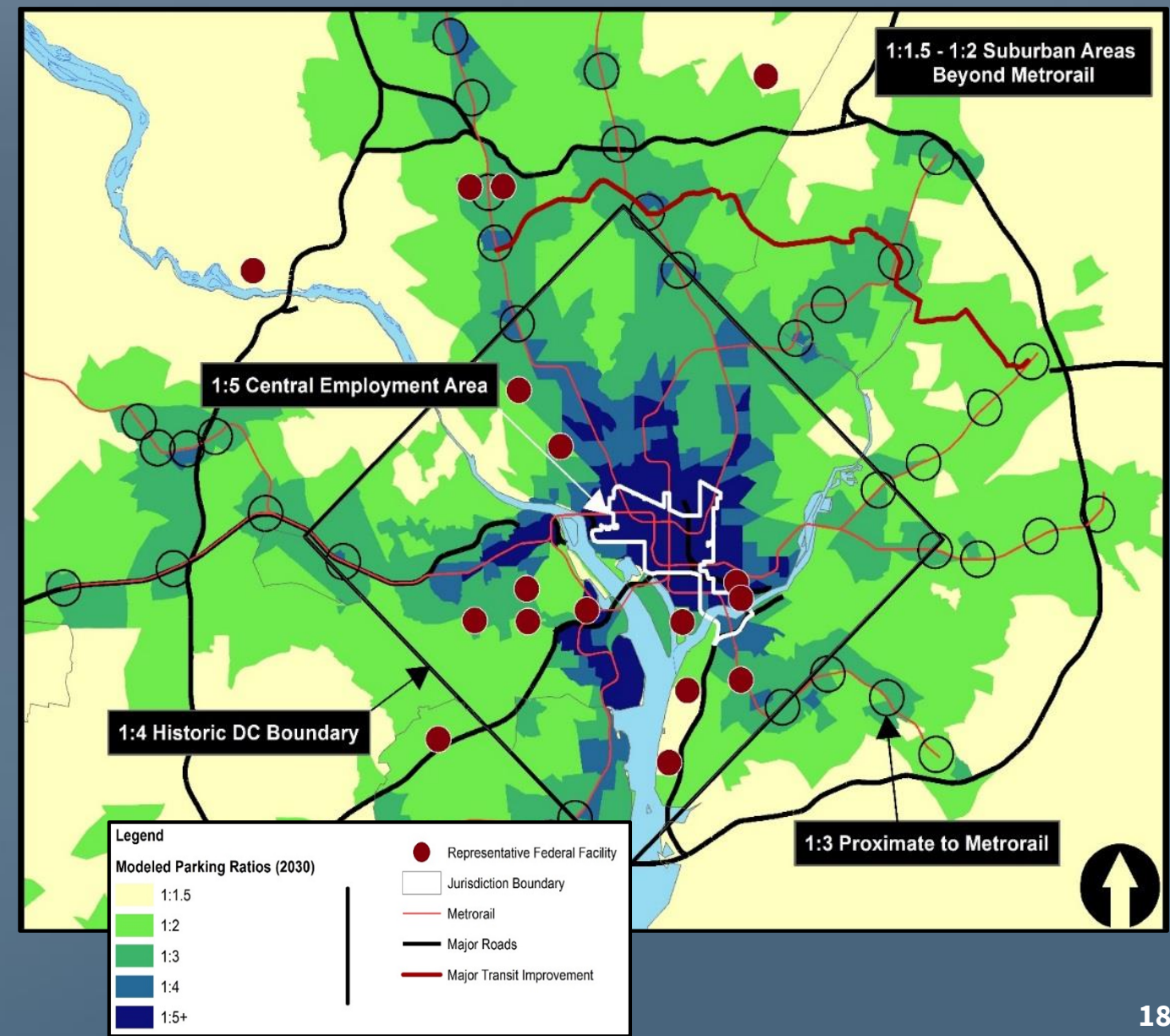
- More modest increases in suburban facilities.

Existing Conditions vs Projected Future (2030 Accessibility Levels)
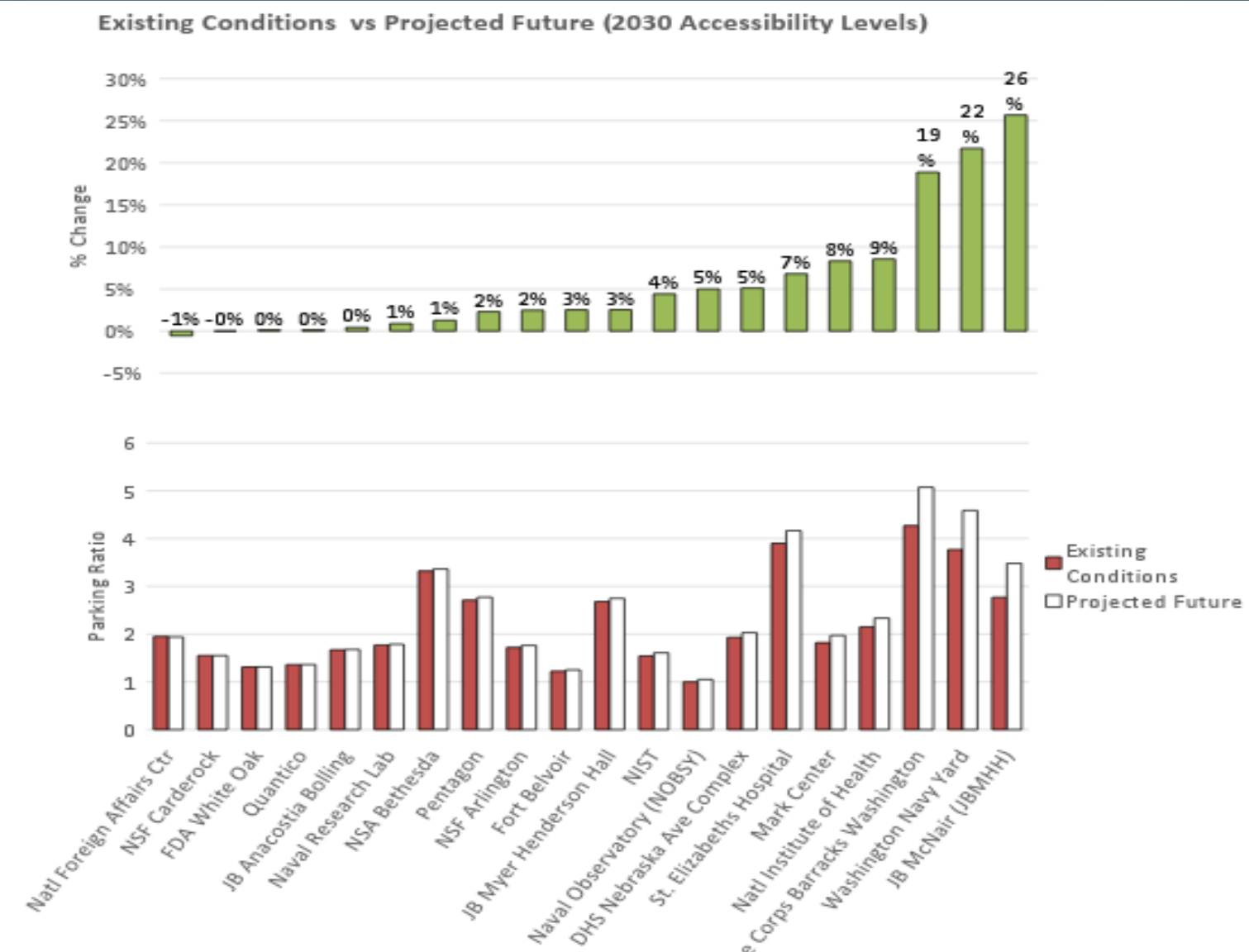
1. Data Driven
2. Standardize Modification Process
3. Performance-based Monitoring

Category #1- Data Driven

Align parking policies with regional accessibility (current and projected)

- Ratios should be both aspirational and realistically achievable.

- Majority of facilities in the Historic D.C. Boundary (1:4) are achieving half of their target.

- Targets *could* be achieved with aggressive TDM strategies.

- Parts of 1:4 zone should be "broken off" and combined with suburban zones.

1:1.5 - 1:2 Suburban Areas Beyond Metrorail

1:5 Central Employment Area

1:4 Historic DC Boundary

1:3 Proximate to Metrorail

Legend
Modeled Parking Ratios (2030)
- 1:1.5
- 1:2
- 1:3
- 1:4
- 1:5+

- Representative Federal Facility
- Jurisdiction Boundary
- Metrorail
- Major Roads
- Major Transit Improvement

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Category #2 - Standardize Modification Process

Develop a more transparent and equitable parking ratio variance process.

- Revised boundaries will help but not eliminate the need for case-by-case considerations.

- Needs and missions of federal facilities are as unique and varied as their locations.

- For variance - conduct lifecycle cost, accessibility, and mission analyses.

Category #3 - Performance-Based Monitoring

Strengthen TDM program with more continuous monitoring and reporting.

- TDM programs locally and nationally typically depend upon annual or biennial monitoring.

- Federal TMPs only triggered when master plans or projects increase employment by at least 500 people.

- More continual follow-up is a significant opportunity to meet NCPC's Comp Plan goals.

Implement TDM Strategies → Monitor Progress → Develop and Refine Policy → Set Mode Share Targets →
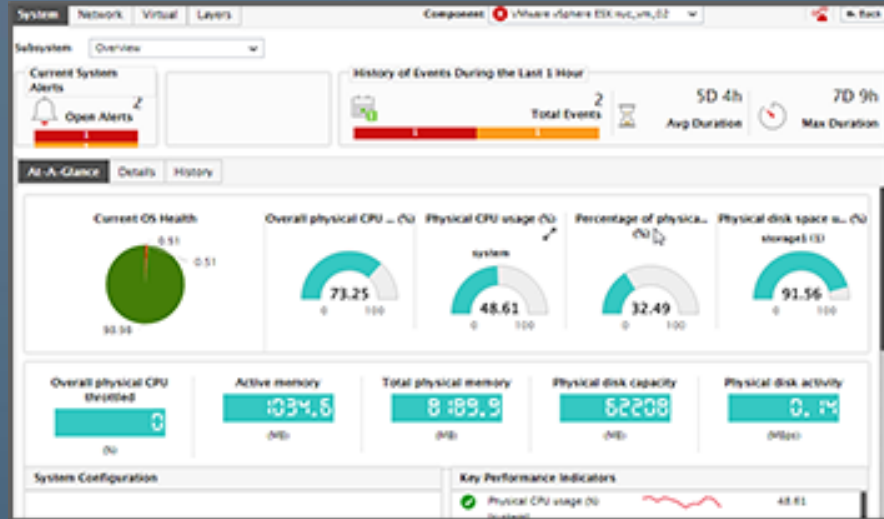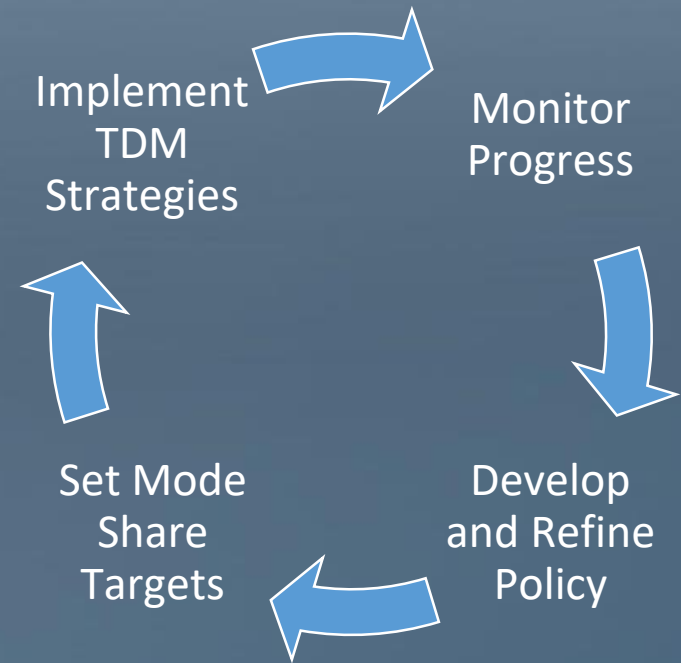
(Example dashboard)

Ratios should better align with regional accessibility (2016 and 2030).

- Policies should be both aspirational *and* realistically achievable.
- The majority of facilities in the Historic DC Boundary Zone (1:4) provide twice as much parking as the underlying policy.
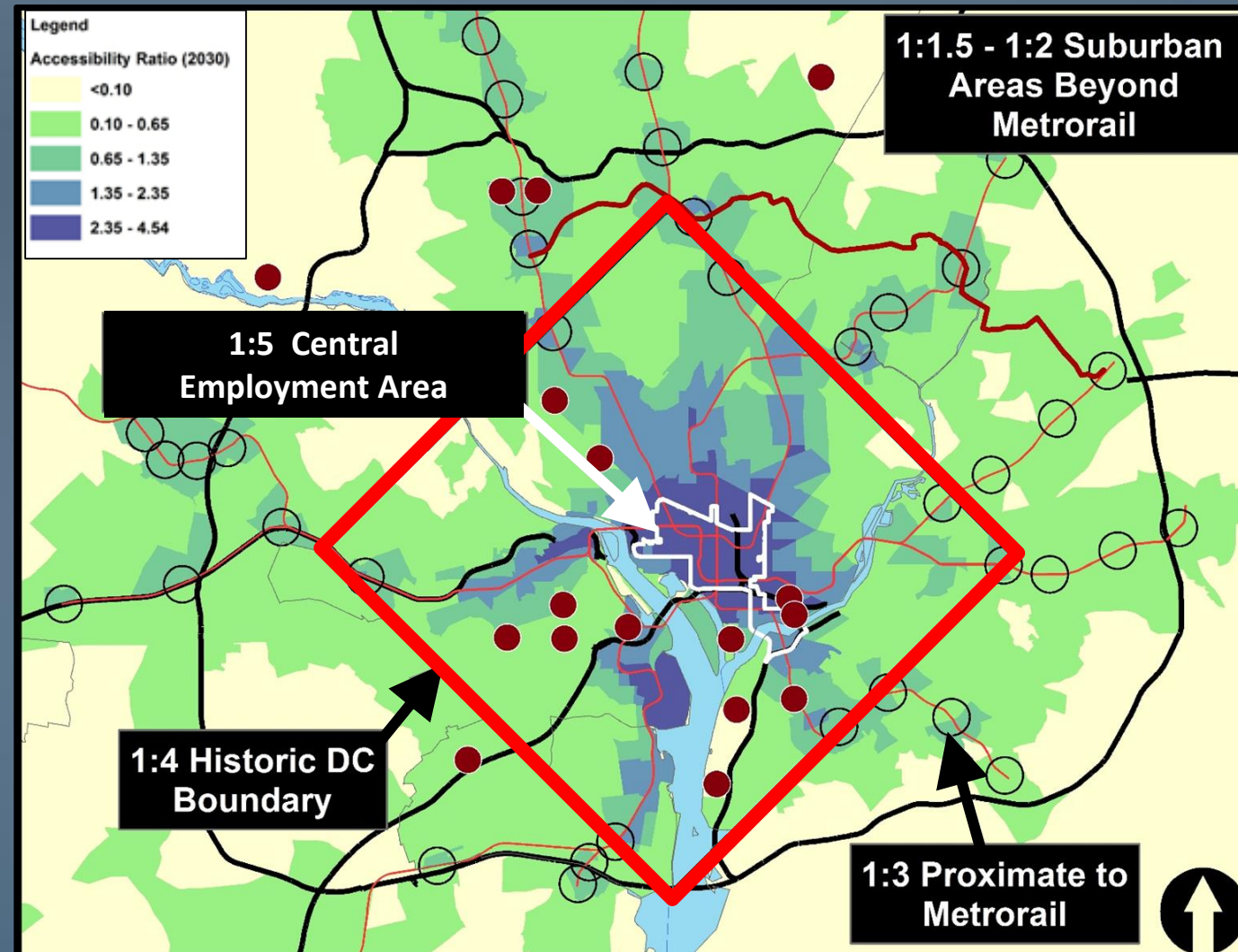
1:4 Zone (Historic DC Boundary) Variability

1:5 Central Employment Area

1:4 Historic DC Boundary

Comparison of Current and Comprehensive Plan Parking Ratios

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Comparison of Current and Comprehensive Plan Parking Ratios

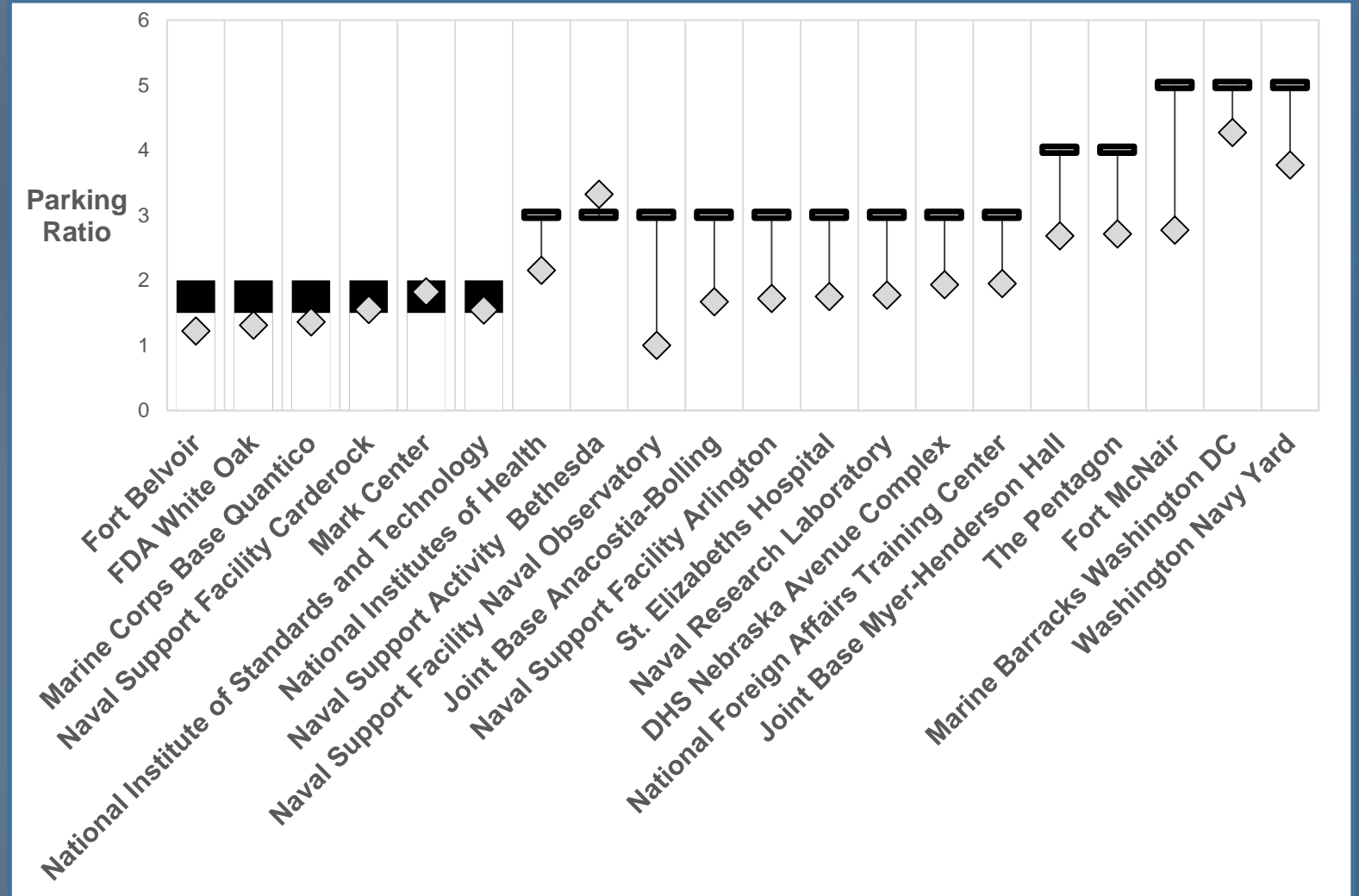# Comparison of Current and Comprehensive Plan Parking Ratios

Proposed Ratio Zones

Reduce the 1:4 zone to transit-rich corridors and expand the 1:5 zone:

- 1:5+ – Regional Core
- 1:4 – Transit-Rich Corridors
- 1:3 – Transit-Accessible
- 1:1.5-2 – Suburban Areas Beyond Metrorail
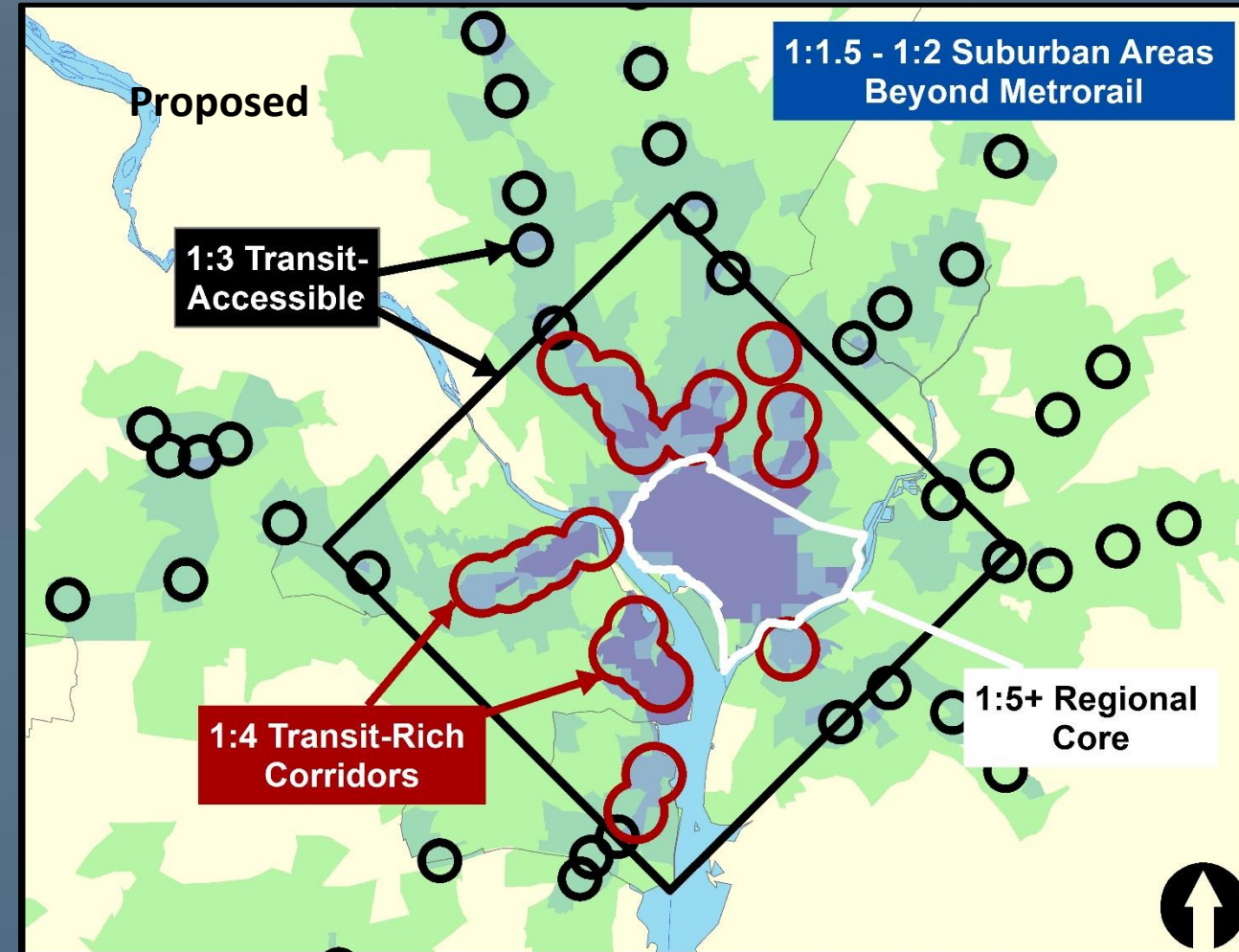
Comparison of Current and Proposed Parking Ratios

- Data-driven zones encompass similarly-situated facilities.
- Policies remain aspirational but more possible with additional TDM strategies.
- Anticipate accessibility improvements at core facilities.

Comparison of Current and Proposed Parking Ratios

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National Capital Planning Commission
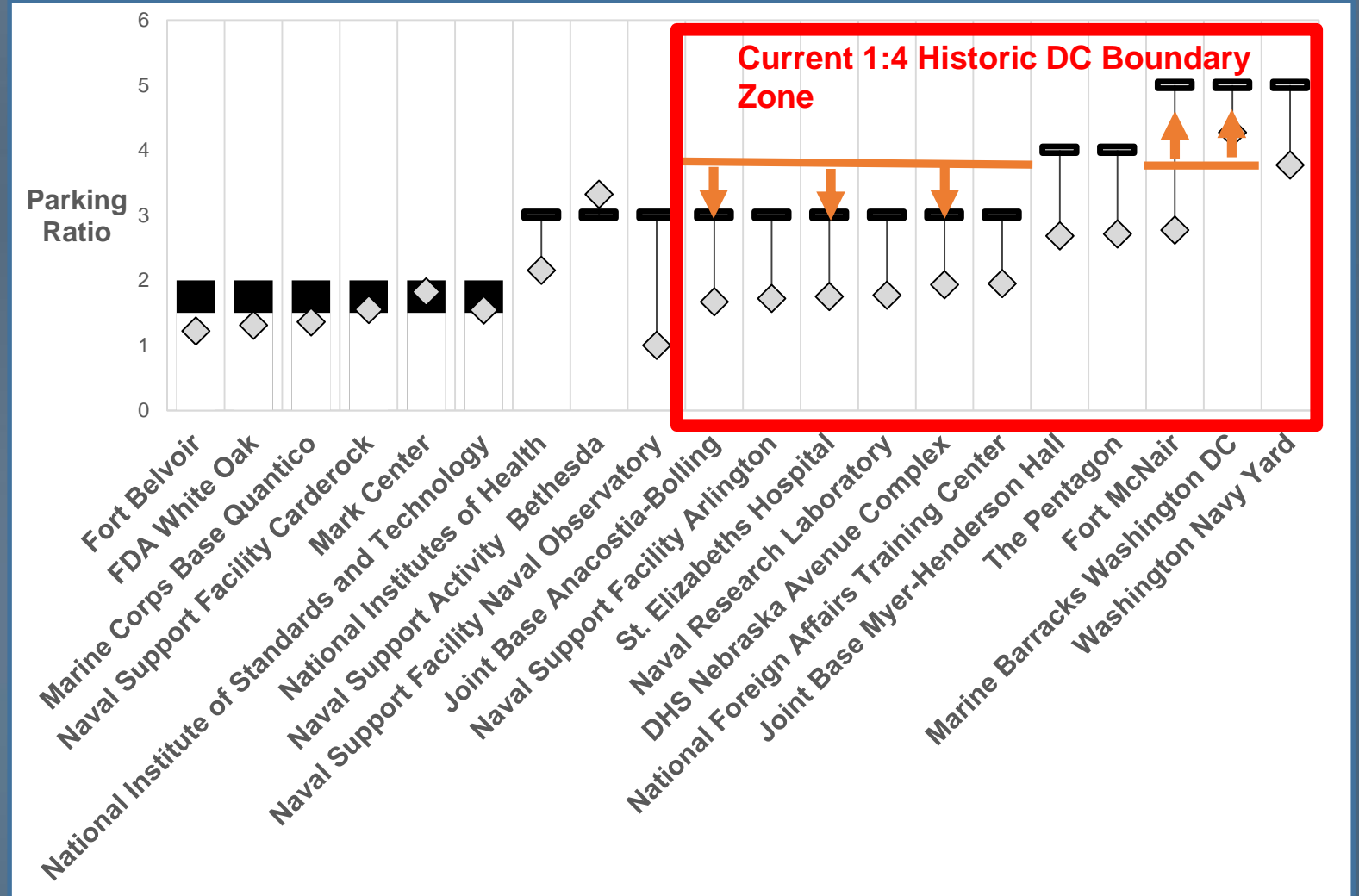
INPUT

Step 1: Select a Master Planned Facility
Click on the cell to the right and choose from the drop down menu that appears. If you want to assess a facility not on the list, select CUSTOM.

Step 1B: Provide CUSTOM TAZ Breakdown
If you selected CUSTOM from the drop down, specify facility TAZs and the weights for each TAZ. These should correspond to how much of the facility is located within each TAZ. Up to 6 custom TAZs can be specified.

TAZ	Weight (Percentage)

Step 2: Select Shuttle Services
To assess the impact of potential shuttles on facility behavior, select up to three shuttle connections by:
(a) selecting a Metrorail station from the dropdown menu
(b) adding an estimated shuttle travel time between the Metrorail station you have selected and the facility (This can be taken from Google Maps "Depart At", etc.)

Metrorail Station	Shuttle Travel Time [min]

Step 3: Add Facility Specific Details
Input data (if available) to account for current and/or forecasted conditions at the facility. If no parameters are specified, no adjustment to facility performance will be added.

NOTE: Telework, AWS, and Hoteling adjustments rely on both Employee Population and Current Parking Supply. If one or both are missing, no adjustment will be made.
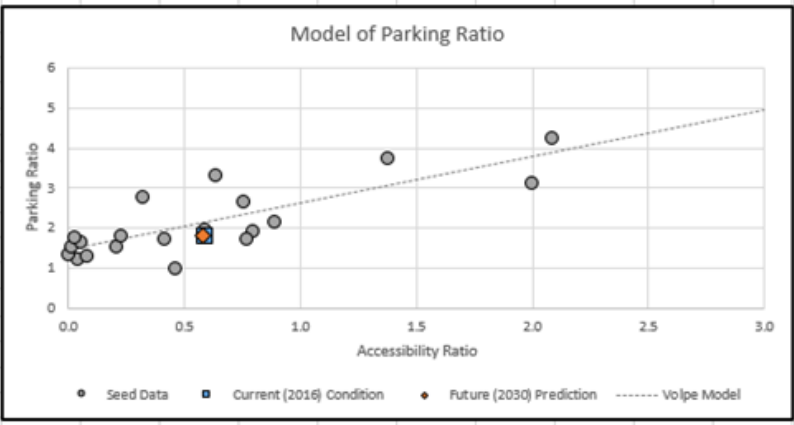
Observed (Current) Parking Ratio	
Employee Population	
Observed (Current) Parking Supply	
Current Telework Percentage	
Target Telework Percentage	
Current Alternate Work Schedule Percentage	
Target Alternate Work Schedule Percentage	
Current Average Hoteling	
Target Average Hoteling	

Telework: Percent of Employee population who telework at least once per week
Alternate Work Schedule: Percent of employee population who use AWS
Hoteling: Average daily number of visiting hoteling staff

OUTPUT

Selected Facility	National Foreign Affairs Training Center	
Parking Ratio	Current (2016)	1.82
	Current with Adjustments	2.23
	Future (2030)	1.82
	Future with Adjustments	1.82
Modified Ratio Policy	2	
Comp Plan Ratio Policy	1.5 - 2.0	
Proposed Policy	1.5 - 2.0	

Model of Parking Ratio

TAZ Weightings		1537	83.3%
		1538	9.2%
		1529	7.1%
		1530	0.3%

Shuttle Services			
Metrorail Station		*Lines Served*	*Travel Time*

Current Telework Percentage	
Target Telework Percentage	
Current Alternate Work Schedule Percentage	
Target Alternate Work Schedule Percentage	
Current Average Hoteling	
Target Average Hoteling	

Accessibility Ratio	Current	0.59
	Future	0.58

Parking Tool | Volpe Model | Accessibility Data | Facility Data | Shuttle Services | Other Adjustments | About

Input Side

INPUT

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Observed (Current) Parking Ratio	
Employee Population	
Observed (Current) Parking Supply	
Current Telework Percentage	
Target Telework Percentage	
Current Alternate Work Schedule Percentage	
Target Alternate Work Schedule Percentage	
Current Average Hoteling	
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Telework: Percent of Employee population who telework at least once per week
Alternate Work Schedule: Percent of employee population who use AWS
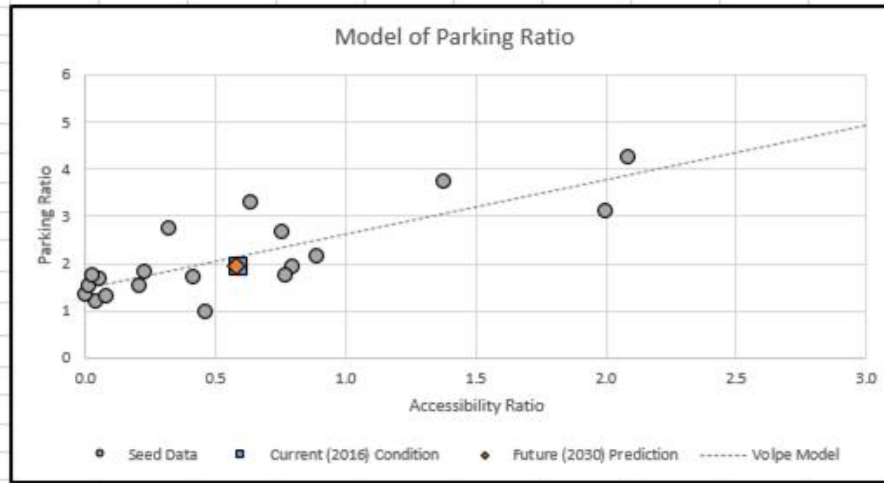*Hoteling: Average daily number of visiting hoteling staff*

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INPUT

Input Side

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National Foreign Affairs Training Center

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Metrorail Station	Shuttle Travel Time [min]

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Observed (Current) Parking Ratio
Employee Population
Observed (Current) Parking Supply
Current Telework Percentage
Target Telework Percentage
Current Alternate Work Schedule Percentage
Target Alternate Work Schedule Percentage
Current Average Hoteling
Target Average Hoteling

Telework: Percent of Employee population who telework at least once per week
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Output Side

Shuttle Alternative

INPUT

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	Employee Population
	Observed (Current) Parking Supply
	Current Telework Percentage
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	Target Alternate Work Schedule Percentage
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Telework: Percent of Employee population who telework at least once per week

Alternate Work Schedule: Percent of employee population who use AWS

*Hoteling: Average daily number of visiting hoteling staff*

Shuttle Alternative

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National Foreign Affairs Training Center

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Metrorail Station	Shuttle Travel Time [min]
Ballston-MU	5

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Observed (Current) Parking Ratio	
Employee Population	
Observed (Current) Parking Supply	
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Target Telework Percentage	
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Current Average Hoteling	
Target Average Hoteling	

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Hoteling: Average daily number of visiting hoteling staff

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Shuttle Alternative

Shuttle Alternative

OUTPUT

Selected Facility	National Foreign Affairs Training Center	
Parking Ratio[1]	Current (2016)	1.95
	Current with Adjustments	2.55
	Future (2030)	1.95
	Future with Adjustments	2.54
Modified Ratio Policy[2]	N/A	
Comp Plan Ratio Policy[3]	4	
Proposed Policy[4]	3	
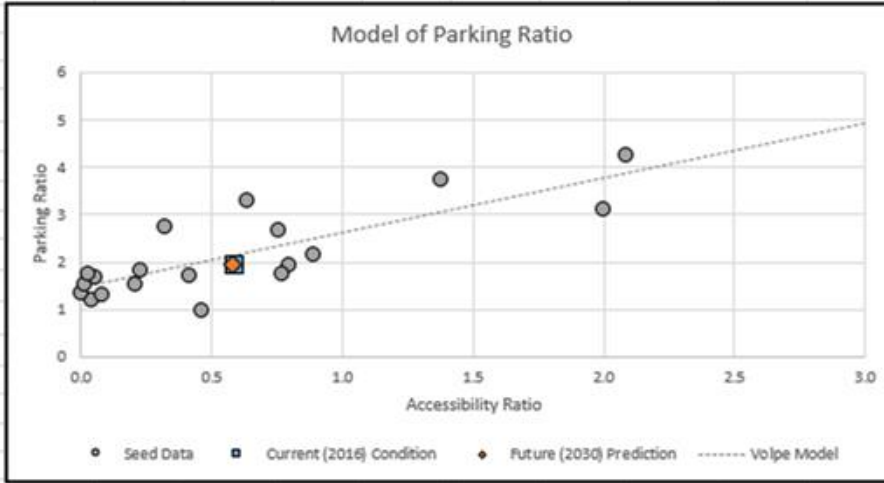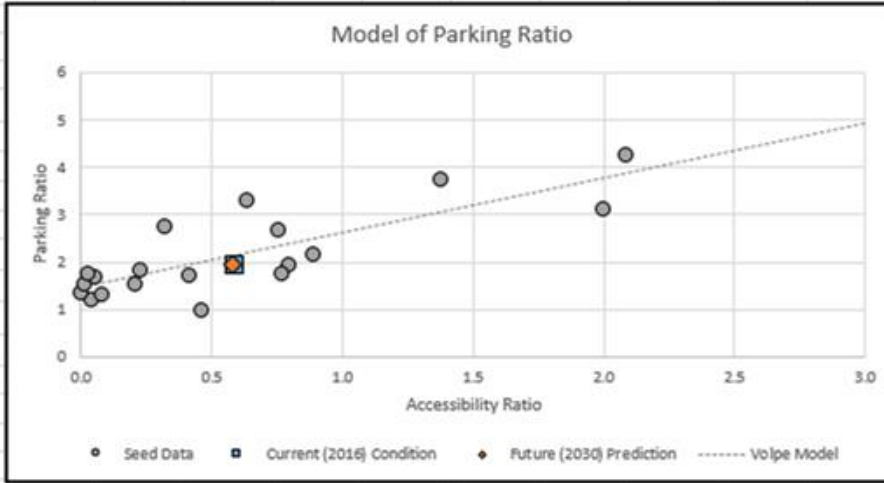
Model of Parking Ratio

TAZ Weightings	1537	83.3%
	1538	9.2%
	1529	7.1%
	1530	0.3%

Shuttle Services		
Metrorail Station	Lines Served	Travel Time
Ballston-MU	O, S	5

Current Telework Percentage	
Target Telework Percentage	
Current Alternate Work Schedule Percentage	
Target Alternate Work Schedule Percentage	
Current Average Hoteling	
Target Average Hoteling	

Accessibility Ratio	Current	0.59
	Future	0.58

[1] - 4 possible parking ratio values can be presented
  Current: Either observed based on TMP for a known facility, an input value from the left pane, or the modeled value given input TAZs
  Current with Adjustments: The "Current" value modified by shuttle, telework, alternate work schedule, and/or hoteling parameters.
  Future: Modeled value for 2030
  Future with Adjustments: Modeled value for 2030 modified by shuttle, telework, alternate work schedule, and/or hoteling parameters.
[2] - Modified Ratio Policy: Intermediate policy set by NCPC for certain facilities.
[3] - Comp Plan Ratio Policy: Policy ratio for a facility according to location, defined by current NCPC zones.
[4] - Proposed Policy: Policy ratio for a facility according to location, defined by zones defined in Parking Study.