SUSTAINABILITY & MULTIMODAL PLANNING WORKSHOP

#APTAsmp19

Building a Case for Data-Driven Bus Stop Accessibility and Standardization

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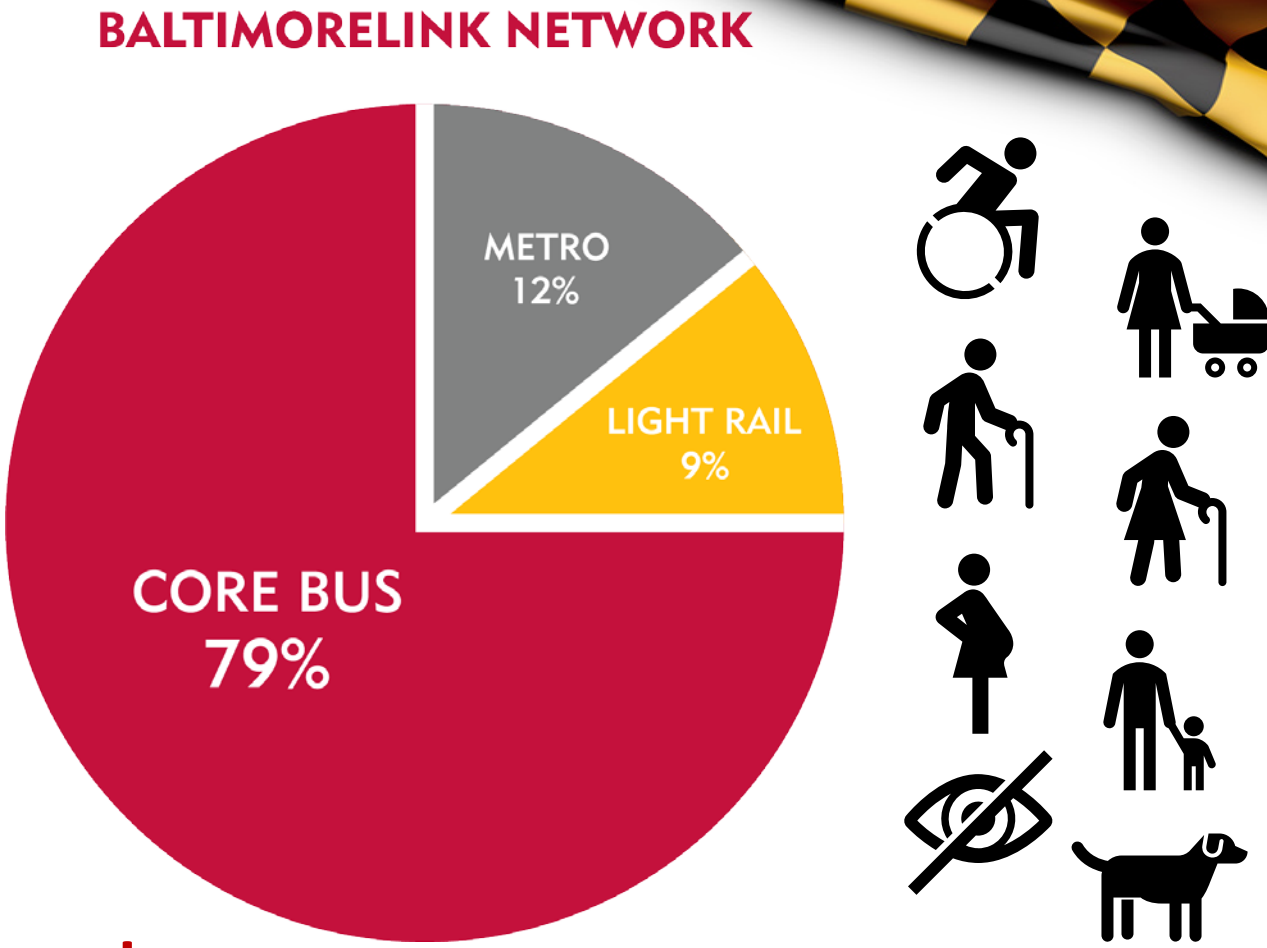
MARYLAND TRANSIT ADMINISTRATION

Discussion Highlights

- BaltimoreLink and Bus Stops
- Bus Stop Optimization (aka Balancing)
- Assessing and Knowing Your Inventory
- Standardization Through Guidelines
- Project Discussion: Feedback, Rightsizing, and Typical Designs
- Coordination and Prioritization

Importance of Bus Stops

- Gateway to bus service
- Impacts a majority of riders
- Access and independence



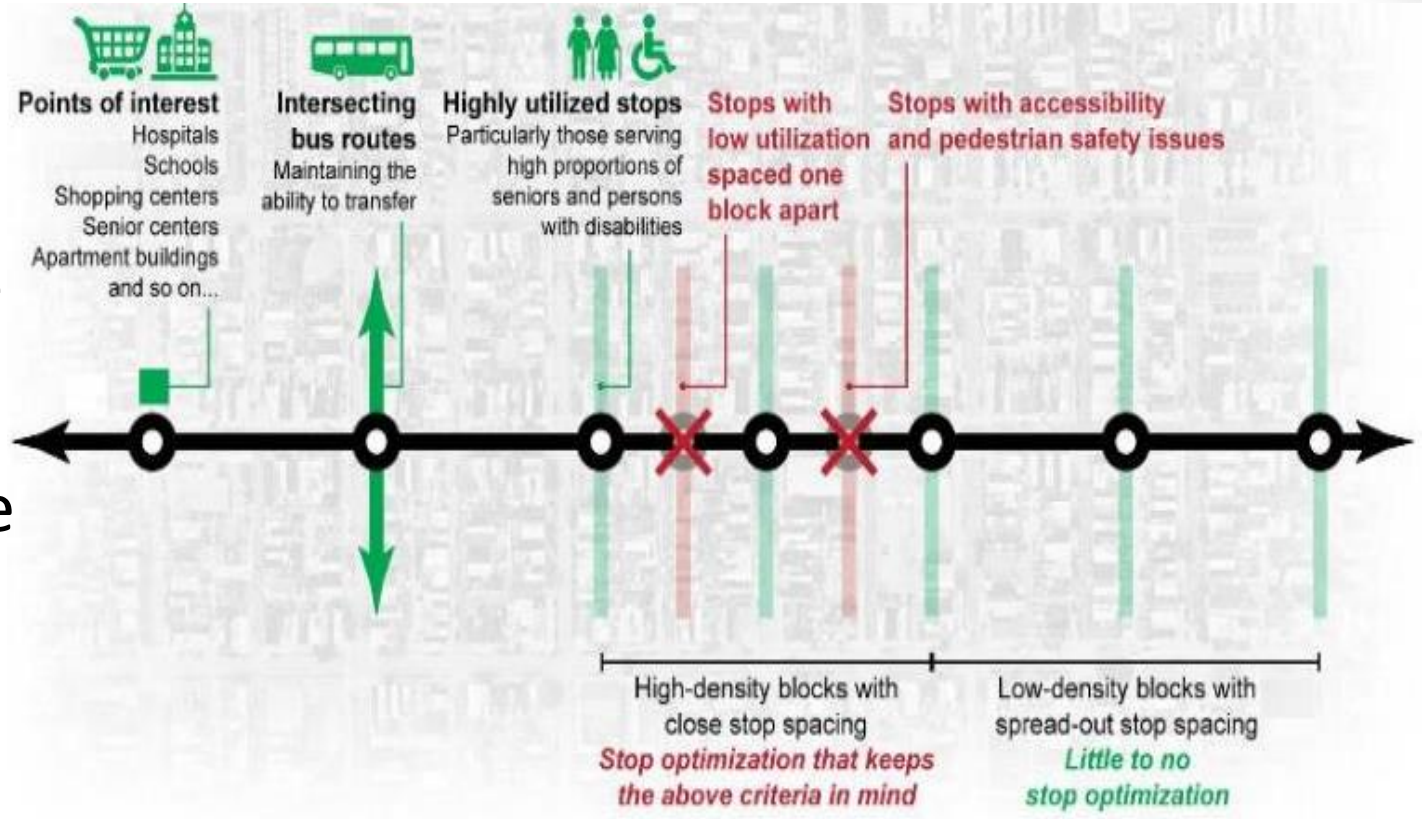
Core bus represents on average 220K weekday passenger trips

BaltimoreLink Network Redesign

- Launched June 2017
- Service Types
  - CityLink
  - LocalLink
  - Express BusLink
- Stop Optimization
  - Pre-Launch
  - With Launch
  - Ongoing

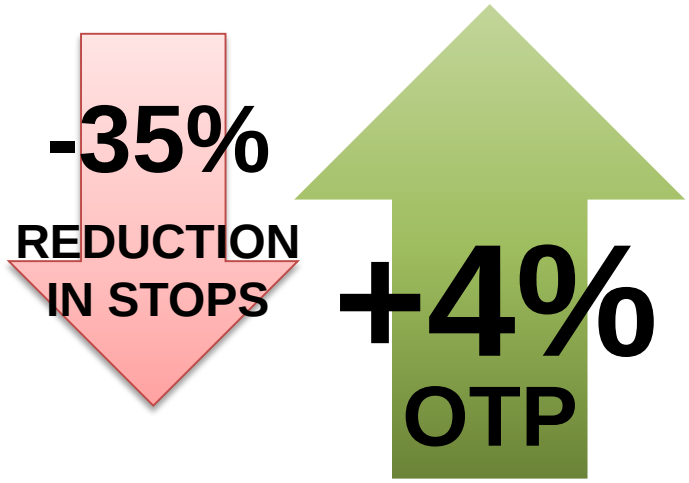
Bus Stops by the Numbers

- Currently, the bus network has approximately 4,300 bus stops
- Systemwide average spacing is 4 stops per mile
  - CityLink = 5 stops per mile
  - LocalLink = 4 stops per mile
  - Express BusLink = 2 stops per mile*



Bus Stop Optimization Efforts

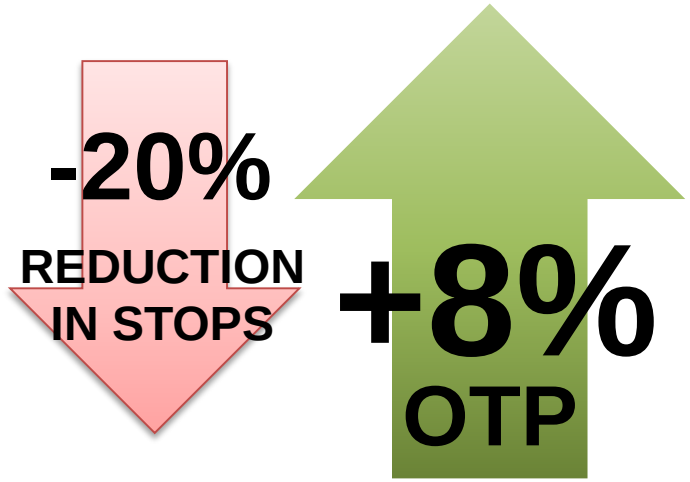
- By Service Type
  - CityLink and LocalLink
  - Express BusLink phases
- By Corridor/Project
- Isolating Improvements
  - Runtime modifications
  - Additional timebands
  - Other impacts



EXPRESS BUS LINK 115

EXPRESS BUS LINK 154

EXPRESS BUS LINK 164



EXPRESS BUS LINK

After applying our process and reducing 20% of our stops, we had our base stop network that could be examined in greater detail.

Optimization → **Assessments & Inventory**

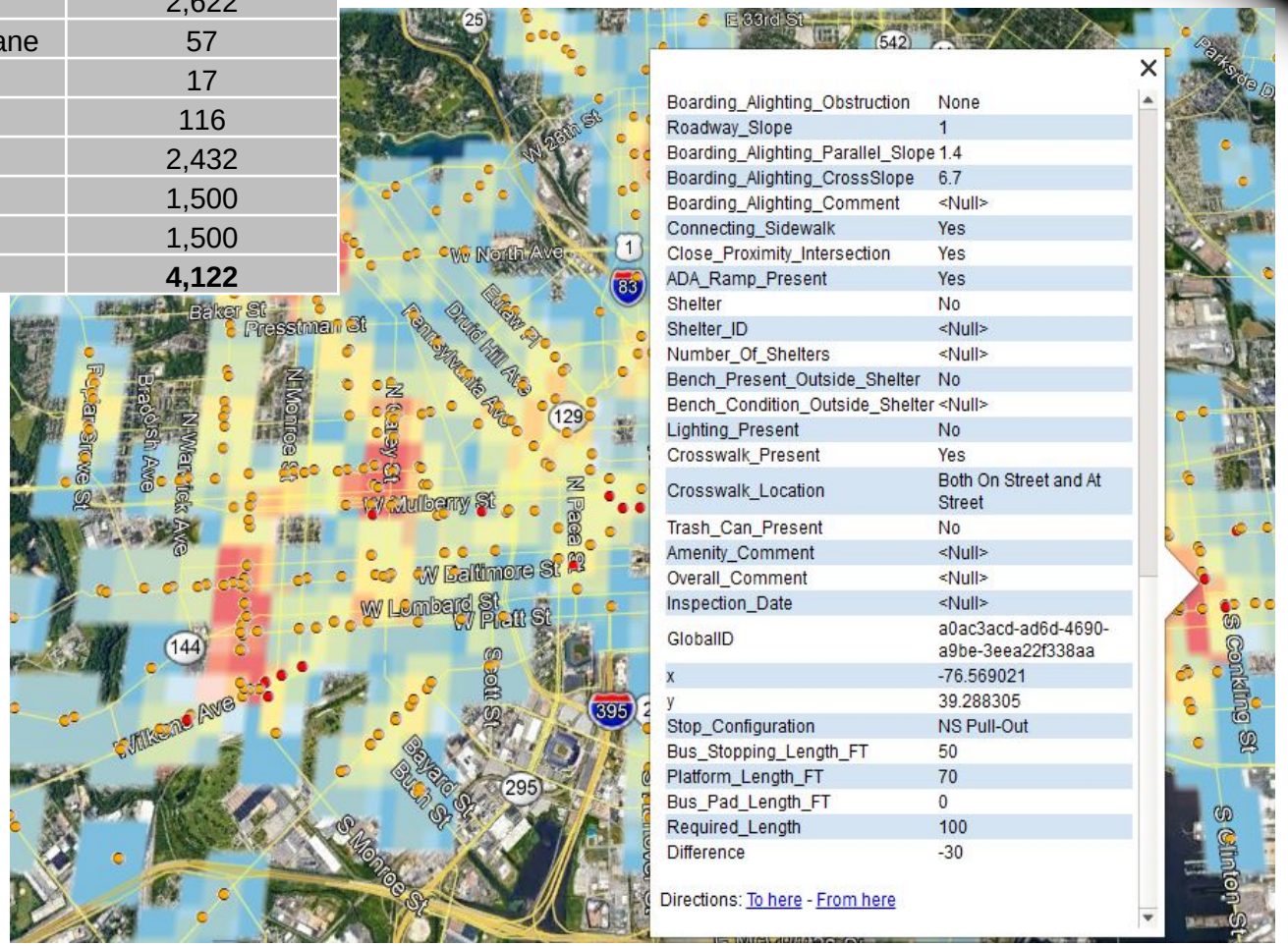
Bus Stop Assessments & Inventory

- Primary focus on ADA accessibility assessments
- Updates to existing fields
- Variety of new operational and asset management fields
- Other agency projects necessitated more data
- Collaboration and partnerships (outside MTA)

Bus Stop Assessments & Inventory

- Effort included:
  - GPS coordinates
  - Images
  - Infrastructure
  - Conditions/comments
- Post-processing indicates level of improvements
- Costing and prioritization

Lane Type	Count
In-Lane	2,622
Dedicated Bus Lane	57
Off Street	17
Shoulder	116
Travel Lane	2,432
Pull-Out	1,500
Parking Lane	1,500
Grand Total	**4,122**

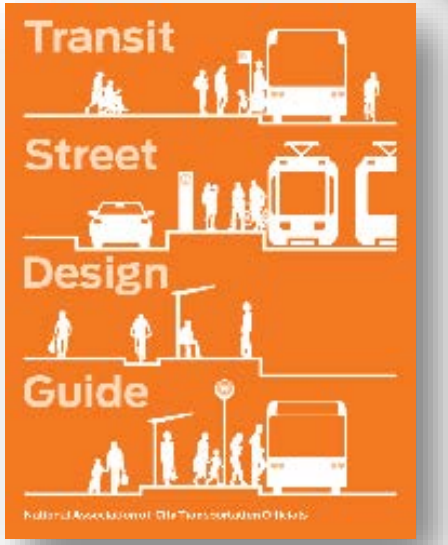


The assessment process and subsequent inventory allowed us to analyze patterns within our stops, so we could standardize our system to improve safety, reliability, and legibility.

Assessments & Inventory → **Standardization & Guidelines**

Bus Stop Design Guide

- Reference document for multiple stakeholders:
  - General Public
  - Elected Officials
  - Neighborhood Associations
  - Developers and Businesses
  - MDOT MTA Staff
- Uses industry best practices applied to the context of the Baltimore region



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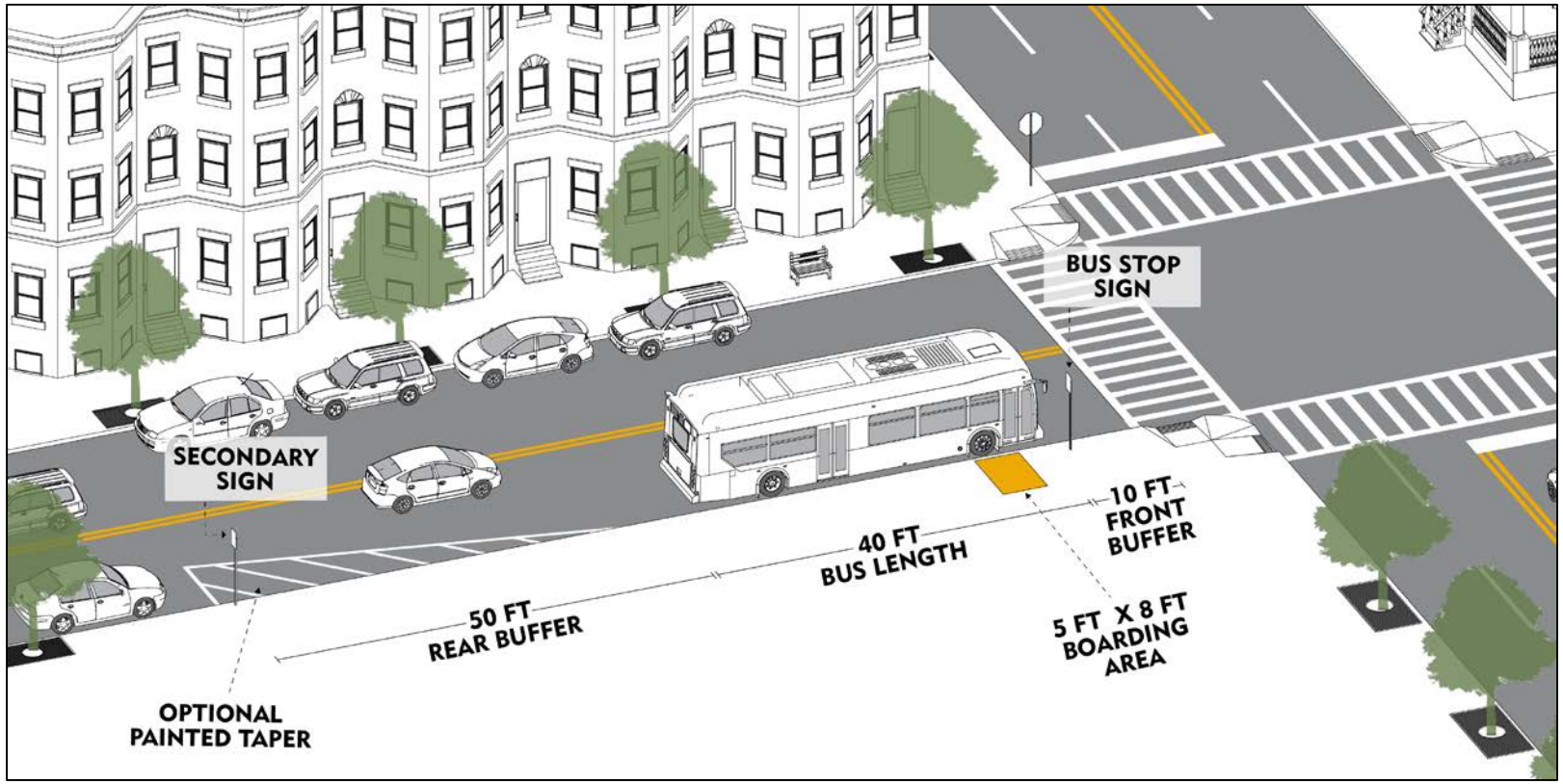
Bus Stop Design Guide

- Sets the foundation for standardization and guidance
- Categorizes stops by a variety of factors
  - Hierarchy
  - Placement
  - Location
  - Legibility
  - Amenities
- Defensible



Bus Stop Design Guide

- Shelter Scoring Criteria
  - Logical, equitable distribution of shelters
  - Expansion to apply other amenities (MDOT MTA and local jurisdictions)

Stop #10579 Linwood Ave & Fayette St SB NS		
Criteria	**Value**	**Points**
Boardings	26 average daily boardings	26
Transfers	LocalLink 21 to CityLink Blue and CityLink Orange	15
Frequency	2 buses per hour	10
Title VI	Both predominantly minority and low-income area	25
Human services facilities	Library within 750 feet	15
Operator relief	Operator relief point	10
Total		**101**

With standardization and a set of guidance to educate and train staff, we are progressing on specific projects to enhance the safety, reliability, and legibility of the network.

Standardization & Guidelines → **Project Development**

Operator Feedback Process

- Input from bus operations staff is crucial
  - Equally important to educate, modify, and apply guidelines
  - Fixing underlying issues rather than bandage approach

2. Issue Description

Check (✔) all that apply:

	Missing Sign / Post		Damaged / Defaced Sign or Post		Stop(s)/Transfers Not Announced		Obstructed View
	Wrong Information on Sign		Stop Obstruction (i.e. parked cars, debris)		Inadequate Curb Space		Stop Too Close to Turn
	Establish New Stop		Relocate Existing Stop		Discontinue Existing Stop		
	Other (please specify):						

Stop ID: _____ **OR** Location: On _____ (Name Street) at _____ (Name Intersecting Street)

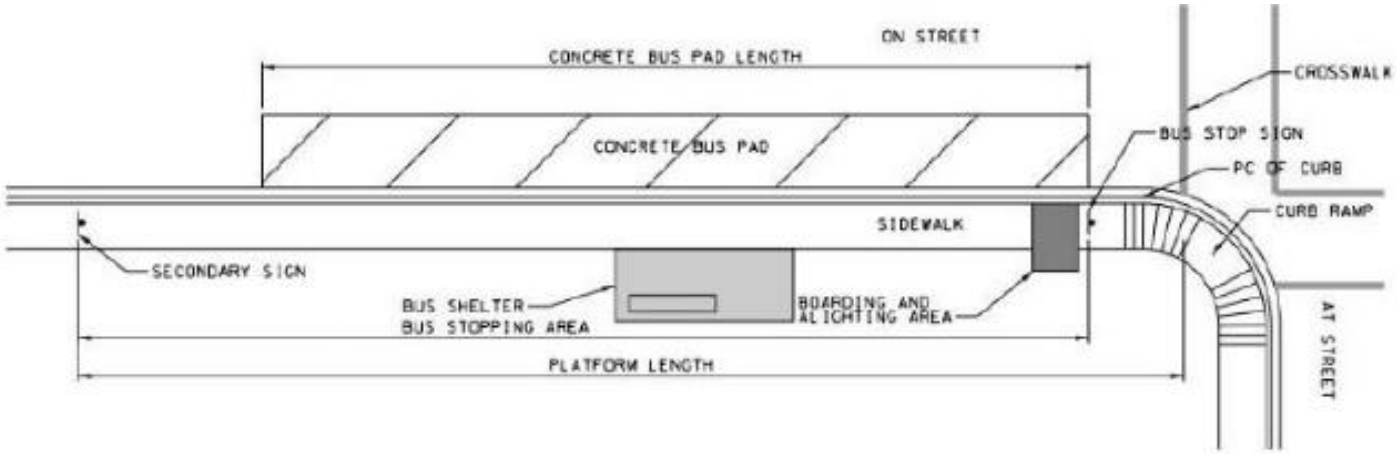
Route Direction: NB SB EB WB Placement: Nearside Farside Midblock

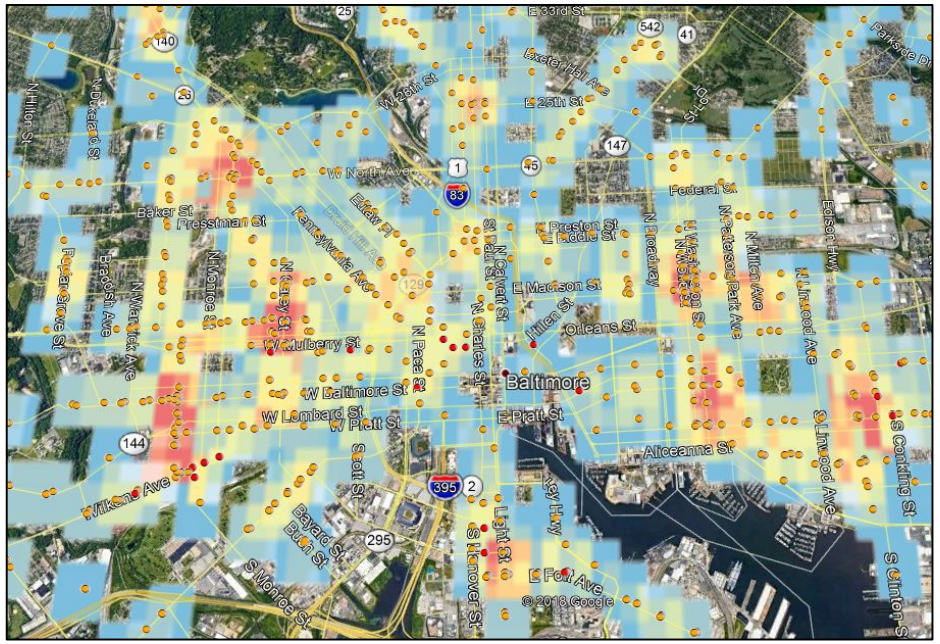
Additional details and justification(please write below, continue on back if necessary):

(Continue on back if necessary)

Bus Stop Rightsizing

- Addressing bus stop curb length
  - Allows operators to align bus parallel with curb
  - Allows riders to board safely from the boarding area/sidewalk
  - Curb length depends on stop placement, location, and frequency of service (i.e. buses per hour)
- 29% of bus stops need to be rightsized

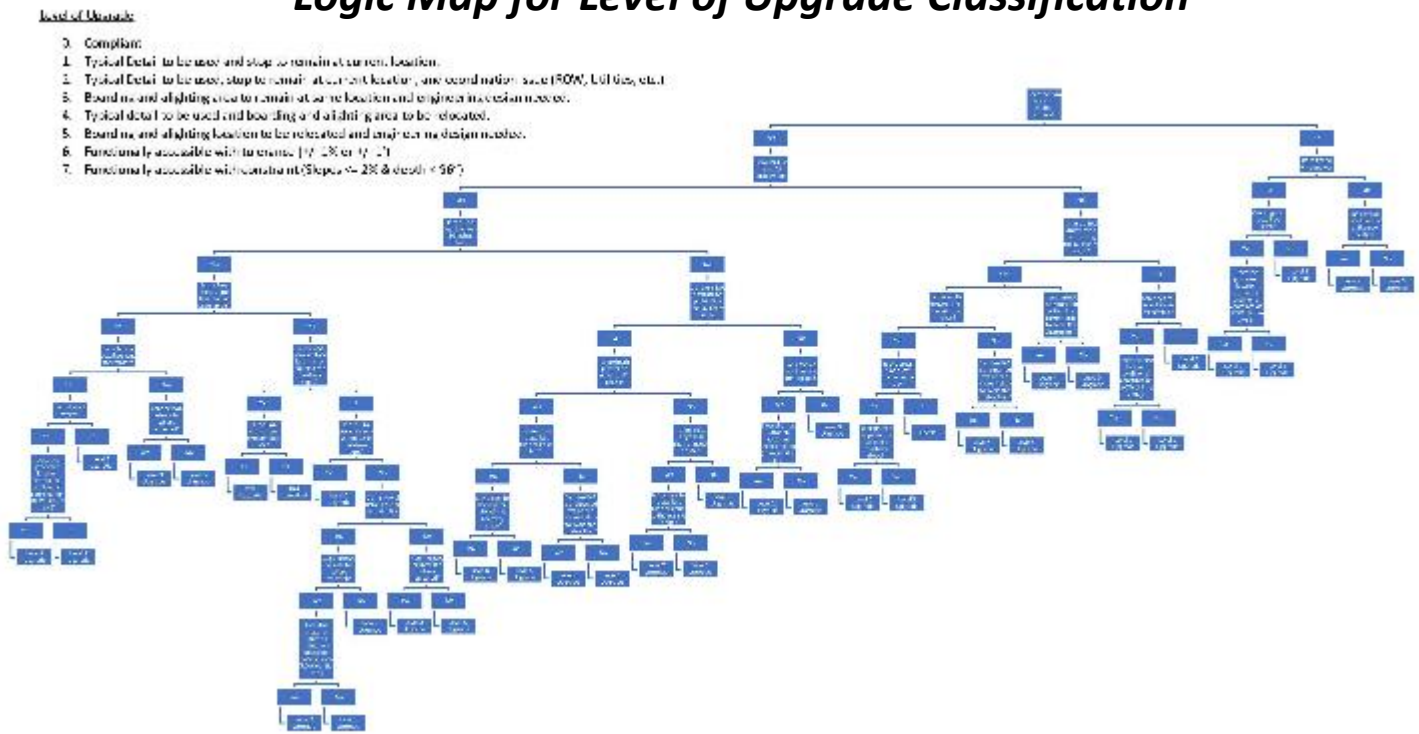




Bus Stop Typical Designs

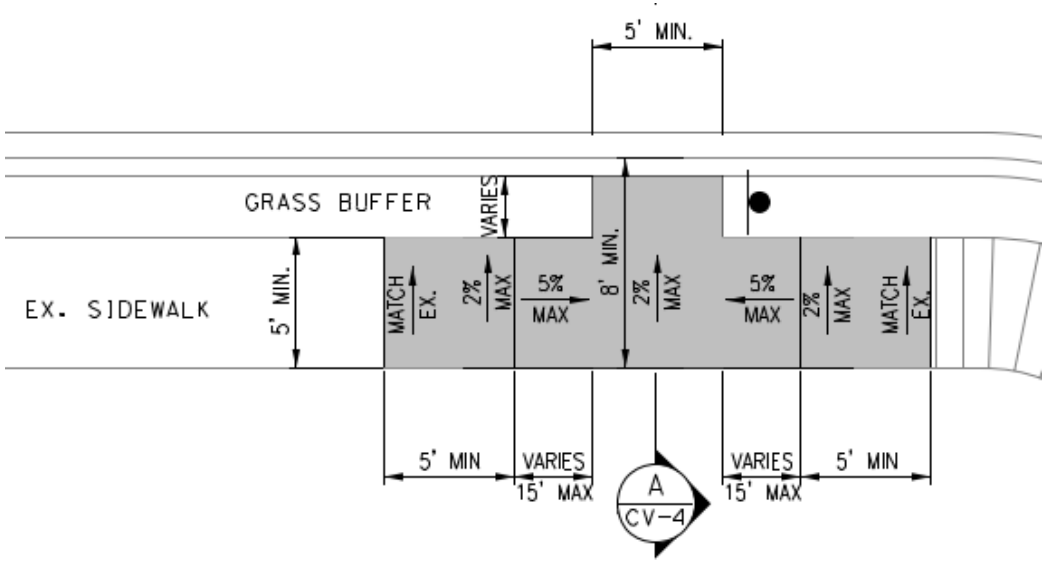
- Common situations and deficiencies at bus stops
- Means to expedite permitting process
- Reduction in capital cost (less design work)
- Need to have trusted contractors who know the ADA

Logic Map for Level of Upgrade Classification



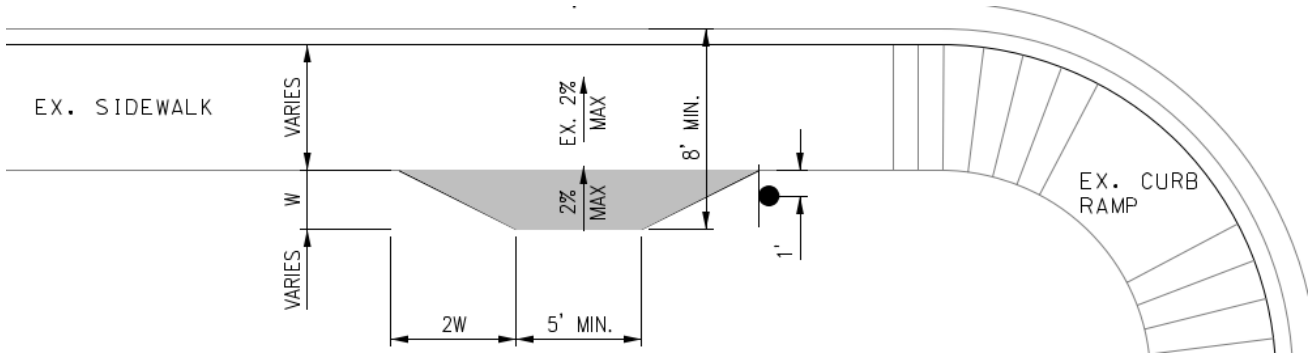
Bus Stop Typical Designs

- Scenario:
  - No firm, stable boarding area adjacent to curb
  - Non-accessible, non-compliant



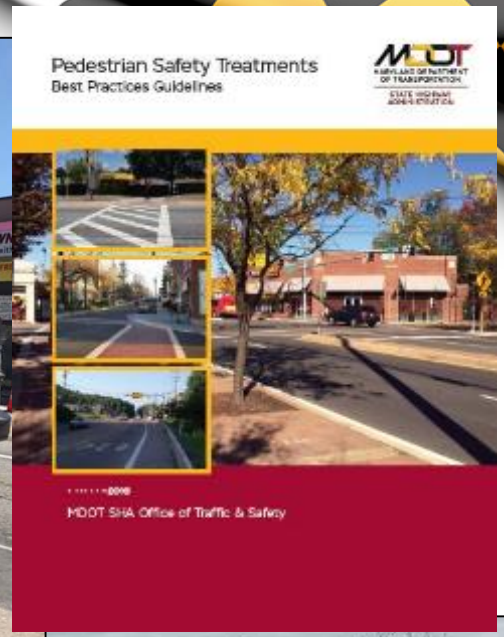
Bus Stop Typical Designs

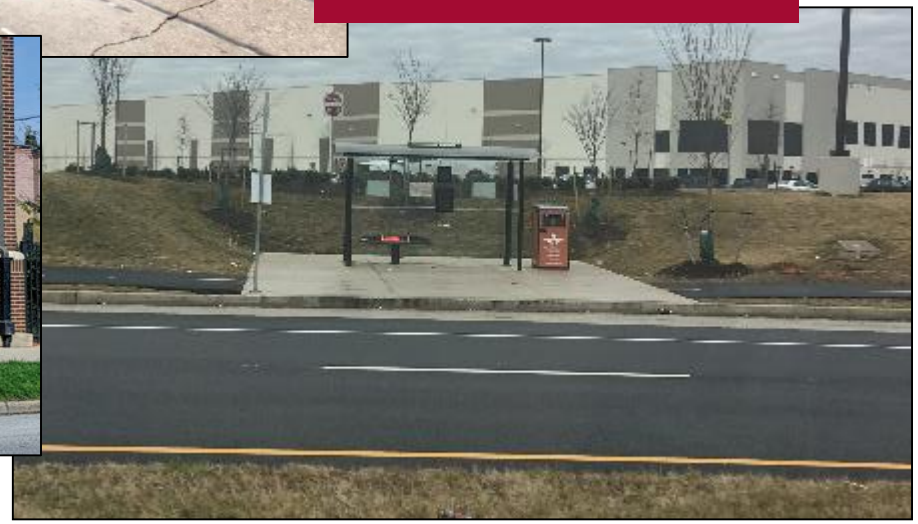
- Scenario:
  - Boarding area present but length perpendicular to curb is inadequate
  - Functionally accessible, non-compliant



Coordination is Key

- Other State Agencies
  - State Highway Administration
- Local Jurisdictions
  - Baltimore City Department of Transportation
- Community & Business Representation
  - Elected Officials
  - Neighborhood Organizations
  - Developers





Prioritizing Improvements

- Next steps:
  - Analyze core bus origin/destination survey (inc. transfers locations)
  - Review Mobility O/D trips
  - Analyze vehicle data (i.e. boardings/alightings, wheelchair ramp deployment locations)
  - Determine prioritization and phasing
  - Identify top bus stops for improvements
  - Allocate costs for improvements and funding sources
- MDOT MTA's bus stop design guide and inventory of bus stop assessments will set the foundation for improvements

Thank You!

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