Transit at the Table – It Works!
Baltimore Region MDOT MTA/LOTS Transfer Points Study

Sept. 24, 2019
Background

• The region has a population of 2.8 million with 116 million transit transfers annually.
• The public has commented to the BRTB that there is a need to do a better at providing seamless transfers.
• Funded through the UPWP, consultant and support to the LOTS
• Purpose: Initiate an ongoing process for coordinating transfers
• Transfer limitations may include:
  – Very limited information online or in printed materials
  – Non-coordinated schedules
  – Stops in close proximity where no transfer information is provided
  – Stops that may be inaccessible or require crossing an unsafe roadway
Regional Transit Centers

Aberdeen MARC Station
Arundel Mills
Broken Land Park-&-Ride
BWI Bus. District Light Rail Station
BWI MARC Station
BWI Terminal
Church Circle
Columbia Mall
Cromwell Light Rail Station
Snowden River Park-&-Ride
Stevensville Park-&-Ride
Truman Park-&-Ride
U.S. 40 & Paul Martin
Westfield Annapolis Mall
## Transfers between Regional Bus Services

<table>
<thead>
<tr>
<th>Provider</th>
<th>Annapolis Transit</th>
<th>Anne Arundel OOT</th>
<th>Harford Transit</th>
<th>MDOT MTA Commuter</th>
<th>MDOT MTA LINK</th>
<th>Queen Anne’s County Ride</th>
<th>RTA</th>
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<td>842</td>
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</table>
Key Tasks

• Documentation of current bus stop planning processes
• Documentation of transfer fares and policies
• Develop Data Dictionary
• Detail transfer stop locations and schedule coordination
  ◦ Collect APC data and other recorded ridership info
  ◦ Supplement ridership data if necessary
• Summary report of stop conditions and individual transfer stop profiles
Getting Started

• Identified approximately 97 potential transfer locations
• “Transfer stops” were defined as stops that are less than ¼ of a mile apart or providing service to the same facility/complex
• Collect service information for those stops
Data Dictionary

- Bus stop inventory and ADA assessment
- Pathway inventory and ADA assessment
- Wayfinding inventory

Draft Data Dictionary

**BUS STOP ASSESSMENT**

**Longitude**
Generated by GPS receiver and manually checked for accuracy.

**Latitude**
Generated by GPS receiver and manually checked for accuracy.

**StopID**
A unique value that is assigned to each bus stop. This value is either taken from the bus stop sign or manually generated.

**OnStreet**
On Street is the name of the street the bus is stopped on when serving the stop.

**Cross Street**
Cross Street is the closest cross street. It may, on occasion, be an address, business name or a descriptor, such as "EAST END OF RAIL OVERPASS" or "WALMART".

**Heading**
Heading is the direction a bus would be facing when stopped at the bus stop (0°=North, 90°=East, 180°=South, 270°=West). Expressed in decimal degrees. Range: 0-360.
Field Survey

• Traveled to each transfer location discovered during spatial analysis
• At each transfer location we geo-located and analyzed Bus Stops, Obstructions, Curb Ramps, Intersections, and Wayfinding Signage
• Survey tool
  – GPS enabled Trimble Device
  – Uploaded and tested the data dictionary
Features Surveyed

- **Bus Stops**
  - **Location**: on street and cross street, orientation, and positioning
  - **Signage**: location, visibility, and route/schedule information
  - **Amenities**: shelters, benches, trash receptacles, etc.
  - **Accessibility**: landing pad and pedestrian connections

- **Pathway Obstructions**
  - **Widths**: continuous clear pathways free of obstructions
  - **Grades**: minimum cross slopes and running slopes
  - **Surface Condition**: firm and stable pathways with flush transitions
  - **Protruding Objects**: encroaching edges (e.g. bus stop signs)

- **Curb Ramps**
  - **Position**: placement, type of ramps, and tactile surfaces
  - **Slopes**: ramps, landing areas, and counter slopes
  - **Connections**: sidewalks, crosswalks, and companion ramps

- **Intersections**
  - **Travel Controls**: traffic signals, crosswalks, and pedestrian controls
  - **Connection**: curb ramps and pedestrian refuge islands

- **Wayfinding Signage**
  - **Location**: orientation and positioning
  - **Information**: wayfinding information
Basis of the Field Survey

- ADA Standards for Transportation Facilities (ADAAG)
- Proposed Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG)
Existing Conditions

- 97 total locations were surveyed
- Compliance was determined for hundreds of features, including:
  - 221 bus stops
  - 204 curb ramps
  - 101 intersections
  - 13 sidewalk barriers
  - 2 wayfinding signs
Existing Conditions

**Bus stops** were split into 3 categories of compliance:

- **Compliant:** A stop meets all ADA guidelines for bus stops and is connected to a paved pathway.
- **ADA Non-Compliant:** A stop does not meet all ADA guidelines for bus stops.
- **No Improvements:** While technically ADA compliant, this stop is not connected to a paved pedestrian pathway.

**Pathways** were also split into compliance categories:

- **Compliant:** A sidewalk or intersection satisfies all ADA guidelines and is accessible.
- **Non-Compliant, Functional:** Sidewalk or intersection is not completely compliant, but still usable (i.e. intersection between two curb ramps without detectable warnings).
- **Non-Compliant, Non-Functional:** A sidewalk or intersection is not ADA compliant or usable (unpaved pathway or intersection without traffic control)
Existing Conditions: Harford Transit LINK

Bus Stops

14 transfer opportunities

34 bus stops were surveyed

- 16 Harford Transit LINK
- 18 MDOT MTA Commuter

6 bus stops were shared

20 were ADA Non-Compliant

- Sign protrusions
- Landing pads

<table>
<thead>
<tr>
<th>Harford Transit LINK Service Area Bus Stops - Reasons for Non-Compliance</th>
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<tbody>
<tr>
<td>Reason</td>
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<tr>
<td>-------------------------------------</td>
</tr>
<tr>
<td>Sign less than 80&quot;</td>
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<tr>
<td>No Landing Pad</td>
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<tr>
<td>Sidewalk as Landing Pad</td>
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<tr>
<td>Landing Pad less than 5'x8'</td>
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<td>Catch Basin Obstruction</td>
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</table>
Existing Conditions: Harford Transit LINK

Pathways
Transfer stops were connected by 2.5 miles of pathways
- 1.6 miles Compliant
- 0.2 Non-Compliant, Functional
- 0.7 Non-Compliant, Non-Functional.

Primary issue: missing sidewalks

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<tr>
<th>Compliance Category</th>
<th>Miles</th>
<th>Percent</th>
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<tbody>
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<td>1.6</td>
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<td>Non-Compliant, Functional</td>
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<tr>
<td>Non-Compliant, Non-Functional</td>
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<td>28.9%</td>
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<tr>
<td>Total</td>
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Existing Conditions: Unsurveyed Locations

• Due to imprecise GIS locations for some stops, locations were visited, but not surveyed

• 12 locations from the pre-survey desk review went unsurveyed

• Reasons for not surveying included:
  – A lack of signage
  – Stop misplaced to the extent that it exceeded the 0.25 mile threshold in reality
Existing Conditions: Invisible Stops

• These are stops where the exact location is impossible to determine due to lack of signage
• Many invisible stops are catalogued in GIS and listed on route schedules, but there is no physical evidence of them at an actual location
Existing Conditions: Damaged Signage

- Several signs were damaged to the extent that they were illegible or invisible to riders
- Damaged signs can cause confusion for potential riders and lead to a loss of confidence in service reliability
Existing Conditions: Inconsistent Design

• Many transit providers had inconsistent branding on their signage
  – MDOT MTA had four different design styles, one of which did not have the provider’s name on it
  – Annapolis Transit also had varying sign designs
Existing Conditions: Locations without Paved Pathways
Existing Conditions: Unpaved Pathway Breaks Connection
Recommended Improvements

- Are based on existing conditions with performance standards and funding constraints in mind
- Promote coordination and efficiency to reduce any potential increase in service or capital improvement costs
- Identified stop location modifications (including necessary routing adjustments)
- Schedule modifications for improved coordination
- New or improved stop amenities
- Accessibility improvements/barrier removal
- Installation of future wayfinding signage
Improvement Costs

• Cost estimates were provided for each recommended improvement
• Summary cost for each transfer location as well as detailed line-item cost estimates
• KFH has developed costing guides for work in the DC Metro area; these were updated as necessary
• Document estimated operating impacts
Schedule Coordination

- Virtually non-existent
- RTA is only regional provider to promote transfer locations on their schedules
- Specific inter-agency transfer information is only available through third-party trip planning tools
- Larger transit centers benefit from high-frequency service and the visibility of head signs and information cases, but transfer information / wayfinding is limited
Fare Coordination

Regional Fare Collection Partnership

- Limited fare coordination in the Baltimore region despite regional partnership
- RTA provides free transfers to riders with CharmCard or SmarTrip at select transfer locations
- No fare reciprocity between other Baltimore regional providers
- Day passes are replacing intra-agency transfer fares
Prioritization Methodology

Step #1
Classify Each Transfer Location

Step #2
Rank Total Daily Trips to Each Transfer Location

Step #3
Assign Prioritization Rank

Transit Center
Enhanced Stop
Basic Stop

Priority Order

Sort Higher to Lower
Sort Higher to Lower
Sort Higher to Lower
# Aberdeen MARC Station

## Aberdeen MARC Station

### Harford County

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<th>Required Improvements</th>
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### Enhanced Improvements

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<th>Stop</th>
<th>Primary Owner:</th>
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<tbody>
<tr>
<td>1</td>
<td>MTA Commuter Bus</td>
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#### Stop 1

- New Compliant Landing Pad: 1, $4,000.00
- New Sign: 1, $200.00
- New Information Case: 1, $500.00

#### Stop 2

- New Information Case: 1, $500.00
- Digital Display: 1, $1,000.00
- New Sign: 1, $200.00

#### Location Cost: $200.00

#### Stop 1 Cost: $4,700.00

#### Stop 2 Cost: $1,700.00

#### Total Cost: $6,600.00

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### Transfer Opportunities

- AMTRAK
- LINK
- MDOT
- MARC

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![Bus Bays at the Aberdeen MARC Station (left); MTA Commuter Bus Stop Across from the Aberdeen MARC Station (right)](image-url)
## Jurisdictions

<table>
<thead>
<tr>
<th>Improvement Type</th>
<th>Annapolis Transit</th>
<th>AA County Transit</th>
<th>Harford Transit LINK</th>
<th>MDOT MTA</th>
<th>RTA</th>
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<tr>
<td></td>
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Next Steps

• Added a task to develop bus stop guidelines for consideration of the Baltimore region LOTS
• Locate potential funding sources and apply
• Continue to coordinate around schedule changes

• Consider additional activities that support/strengthen regional planning and the delivery of customer focused transit service

• Join us at the table!
For More Information

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410-732-9572 | rairs@baltometro.org | www.baltometro.org