Purpose of Tonight’s Meeting

- Recap Meeting #8
- Review alternatives
- Provide a project update
- Review additional analysis that was performed after the Draft Corridor Study Report (DCSR)
- Review the County’s recommended alternative
- Review the Prototypical Station Design
- Questions/comments
Meeting #8 Recap (9/14/16)

- Reviewed Draft Corridor Study Report

- Reviewed alternatives comparison matrix for Alternatives 1, 2, 3, and 5B
  - Expected ridership
  - Travel times
  - Cost
  - Traffic operations
  - Environmental impacts

- Previewed materials for Public Meeting on 9/28/16
Review of Alternatives

- Alternative 1: No-build
- Alternative 2: Queue jumps with enhanced bus service
- Alternative 3: Dedicated curb lanes with new BRT service
- Alternative 5B: Dedicated median lanes with new BRT service
Transit/Traffic Modeling Results and Costs

- All build alternatives increased transit ridership in the corridor
- BRT service and amenities (Alt 3 and 5B) attracted more riders than Enhanced Bus (Alt 2)
- All build alternatives improved 2040 transit travel times over the No-build (by as much as 15 minutes along EB in the PM peak hour)
- Among the build alternatives, there were only minor differences in 2040 transit travel times

Capital cost estimates
- Alternative 2: $35M
- Alternative 3: $148M
- Alternative 5B: $289M
Public Meeting Recap (9/28/16)

- Public outreach consisted of flier distribution at metro/bus stops, postcard mailing, social media announcements, printed/online ads, PSAs, and a news release
- Presented alternatives comparison matrix for Alternatives 1, 2, 3, and 5B
- Presented engineering alignments for Alternatives 2, 3, and 5B
- 35 attendees
Public Input

- 33 comments were received from the public on the Draft Corridor Study Report or at the Public Meeting
  - 21 emails
  - 9 comment cards at Public Meeting
  - 2 stenographer-recorded comments at Public Meeting
  - 1 mailed letter

<table>
<thead>
<tr>
<th>For Alt. 2</th>
<th>For Alt. 3</th>
<th>For Alt. 5B</th>
<th>For Alt. 1/2</th>
<th>For Alt. 2/3</th>
<th>For Alt. 3/5B</th>
<th>For BRT</th>
<th>Against BRT</th>
<th>Unclear/Unrelated</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Comments</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>12</td>
<td>8</td>
<td>4</td>
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</table>
Stakeholder Input

- Project team briefed Rockville Mayor and Council (10/10/16 and 11/21/16), Montgomery County Planning Board (11/3/16), and T&E Committee of County Council (12/1/16)

- Rockville, WMATA, and the Montgomery County Planning Board all supported Alternative 3

- Additional comments provided by Mid-County Citizen’s Advisory Board and the Wheaton Urban District Advisory Committee via letter
Briefing to County Council T&E Committee  
(December 2016)

T&E: Transportation, Infrastructure, Energy, and Environment

Conclusion:
- Alt. 5B (median BRT) is not preferred due to the high cost and lack of travel time benefit, as compared to other build alternatives

Follow-Up Questions:
- How would a new scenario that contains the infrastructure improvements of Alternative 2 (queue jumps) and the service improvements of Alternative 3 (BRT) operate? How much would it cost?
New Analysis: Alternative 2.5 (BRT with Queue Jumps)

- Runningway (same as Alt 2): queue jumps at select intersections; use existing lanes with mixed traffic otherwise; no change to service roads

- BRT service (same as Alt 3 – curb BRT):
  - Headways 6 min. in peak, 10 min. in off-peak
  - Transit Signal Priority (TSP)
  - 12 new BRT stations
  - Off-board fare collection
  - 60’ articulated buses

- Assumed Daily BRT Boardings in 2040 (same as Alt. 3 – curb BRT): 6,400
## Transit Service Descriptions

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Enhanced Bus Service</th>
<th>New BRT Service</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Alt. 2 (Queue Jumps)</td>
<td>• Alt. 3 (Curb BRT)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Alt. 2.5 (BRT with Queue Jumps)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Enhanced Bus Service</th>
<th>New BRT Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headway (Peak)</td>
<td>12 minutes</td>
<td>6 minutes</td>
</tr>
<tr>
<td>Headway (Off-Peak)</td>
<td>15 minutes</td>
<td>10 minutes</td>
</tr>
<tr>
<td>Daily Bus Trips</td>
<td>79 express bus trips</td>
<td>136 BRT trips</td>
</tr>
<tr>
<td>Vehicle Length</td>
<td>40’</td>
<td>60’ Articulated</td>
</tr>
<tr>
<td>Stops</td>
<td>Upgrades to the existing bus stops</td>
<td>New BRT stations</td>
</tr>
<tr>
<td>Projected 2040 Daily Boardings</td>
<td>2,600</td>
<td>6,400</td>
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</tbody>
</table>
Projected Transit Travel Times

- Many factors affect transit travel times:
  - Dedicated lanes
  - Transit Signal Priority (TSP)
  - Number of stops
  - Location of stops (near-side v. far-side)
  - Number of passengers
    - Dwell time at stations
    - Pedestrian activity at the intersections
Projected 2040 Peak Hour Transit Travel Times

Travel Time (minutes)

Eastbound AM Peak Hour
Eastbound PM Peak Hour
Westbound AM Peak Hour
Westbound PM Peak Hour

- No-Build (local bus)
- Alternative 2 (Enhanced bus with queue jumps)
- Alternative 2.5 (BRT with Queue Jumps)
- Alternative 3 (Curb BRT)
## Costs (in millions)

<table>
<thead>
<tr>
<th></th>
<th>Alt. 1 (No-Build)</th>
<th>Alt. 2 (Enhanced bus with queue jumps)</th>
<th>Alt. 2.5 (BRT with Queue Jumps)</th>
<th>Alt. 3 (Curb BRT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right-of-Way (ROW)</td>
<td>-</td>
<td>$6</td>
<td>$11</td>
<td>$13</td>
</tr>
<tr>
<td>Engineering and Construction</td>
<td>-</td>
<td>$23</td>
<td>$52</td>
<td>$119</td>
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<tr>
<td>Vehicles</td>
<td>-</td>
<td>$5</td>
<td>$17</td>
<td>$17</td>
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<tr>
<td><strong>Total Capital Cost</strong></td>
<td>-</td>
<td>$35</td>
<td>$80</td>
<td>$148</td>
</tr>
<tr>
<td>Annual Cost to Operate System</td>
<td>-</td>
<td>$3</td>
<td>$5</td>
<td>$5</td>
</tr>
</tbody>
</table>
Findings of New Analysis for Alt. 2.5

- Provides the same travel time savings in the **westbound** direction as dedicated curb lanes (Alt. 3)
- Operates 1 to 2 min slower in the **eastbound** direction than dedicated curb lanes (Alt. 3)
- Has the potential to attract 2.5 times more (6,400 v. 2,600) daily riders than enhanced bus service (Alt. 2 - queue jumps)
- Provides a greater time savings by serving more riders than Alternative 2
- Provides less time savings in the eastbound direction and equal time savings in the westbound direction than Alternative 3
- Costs $80M to design and build, which is $44M more than Alternative 2 and $69M less than Alternative 3
- Veirs Mill Road is a major east-west connection between other planned north-south BRT lines. If the north-south lines are constructed the benefit of BRT along Veirs Mill Road could increase
Recommended Alternative

- T&E Committee of County Council voted to support Alternative 2.5 on 5/3/17

- County Council voted on a resolution to select Alternative 2.5 as the recommended alternative on 6/13/17, with Alternative 3 retained as the long-term Master Plan option

- Dedicated curb lanes are consistent with the Master Plan vision for the County’s BRT network
  - Supported by the Montgomery County Planning Board, WMATA, and the City of Rockville
  - As the full BRT network is built, greater benefits may be achieved with dedicated lanes
  - Queue jumps would not preclude future construction of dedicated curb lanes
  - Keeping curb lane BRT as an option continues to allow for right-of-way dedication
Next Steps

- Project team will update Corridor Study Report with public comments, results of additional analysis, and recommended alternative
- If a funding source is determined, Alternative 2.5 could move forward into preliminary engineering
- All redevelopment along Veirs Mill Road will assume the future construction of Alternative 3
- Project is not currently funded to move into the next phase
Transit Project Planning Process

1. **Existing Conditions and Data Collection** (Summer 2012)
2. **Purpose and Need** (Fall 2012)
3. **Preliminary Alternatives Development** (Fall 2012 – Fall 2013)
4. **Public Workshop** (Fall 2013)
5. **Alternatives Retained for Detailed Study (ARDS)** (Spring 2014)
7. **Draft Corridor Study Report**
8. **Public Meeting** (September 28, 2016)
9. **Selection of a Recommended Alternative**
10. **Final Corridor Study Report**

We are here
MD 586
BRT Station Design
MCDOT is designing stations for the County’s future BRT network.

The stations will have **interchangeable, flexible components**, that can be adapted for all corridors.

This work is being done with a grant from the Metropolitan Washington Council of Governments’ Transportation/Land-Use Connections Program, in partnership with architecture firm ZGF.
Station Design - Agenda

- Introduction – Design Goals
- Station Design - Best Practice Examples
- MCDOT BRT Stations – Types and Amenities
- Previous Community Input
- Design Opportunities – Local Materials & Sustainability
- The Station Family – Adaptation to Capacity and Context
- Questions & Comments
Station Design - Goals

1. Easy to Find and Use
2. Accessible
3. Safe and Comfortable
4. Adaptable and Context Sensitive
5. Maintainable
6. Good Life-Cycle Investment

Basic Rider Comfort =
User Information
Weather Protection / Rain and Wind
Seating
Station Design – Best Practices
Station Design - Types

STATION PLATFORM TYPES

There are two station platform types:
- Side-loading - which may be accessed directly from a sidewalk
- Center-loading - which may be located in a roadway median

SIDE-LOADING PLATFORMS

SECTION DIAGRAM

Adjacent Conditions Vary

CENTER-LOADING PLATFORMS

SECTION DIAGRAM
Station Design – Amenities

![Diagram of Station Amenities]

- **Station Capacity**
  - Station Marker
  - Full Shelter Marker
  - Shelter
  - Windscreen
  - Leaning Rail
  - Seating
  - Waste/Recycling
  - Shellock
  - Public Art

- **Station Context**
  - Social Infrastructure
  - Access to Transportation
  - Neighborhood
  - Economic

**Legend**
- Additional Base Condition
- Base Condition
- Optional Specific to Site Conditions
- Additive
- Subtractive

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*GetOnBoard BRT*

*Bus Rapid Transit in Montgomery County*
Station Design – Community Input

February 7
Open House
Germantown

February 8
Open House
Rockville
Design Features – Local Materials

Historically Quarried Stone in Montgomery County

Seneca Red Sandstone (far left)
Sykesville Gneiss (left)
Potomac Marble (above)
Design Features – Sustainability

Energy Production - PV

Stormwater Management & Enhanced Landscape
Station Family

Type 1
Urban Streetfront – Shared Sidewalk
1 Marker +
1 Potential Small Canopy
Station Family

Type 2

1 Marker +
1 Small Canopy & Landscape
Type 3

1 Marker +
1 Large Canopy
& Landscape
Station Family

Type 4
1 Marker +
2 Large Canopies
& Landscape
Type 5

Double Station – High Capacity

2 Markers +
4 Canopies
& Landscape
Station Family

**Type 6**

Center Station

2 Markers +

2 Canopies

& Landscape
GetOnBoard BRT
BUS RAPID TRANSIT IN MONTGOMERY COUNTY

BRT Station Design Questions / Comments?
Conclusion

- This is the last CAC meeting in this phase of the project
- CAC may continue in the next phase of the project (preliminary engineering)
- Thank you!