$87M in Northern Virginia Transportation Authority regional revenues are being utilized towards this Duke Street Transitway project.
WELCOME

Jen Monaco

Transit Program Manager
Transportation & Environmental Services
City of Alexandria

- 2008 Transportation Master Plan identifies Duke Street as one of three high capacity corridors in Alexandria.
- 2012 Transit Corridors Feasibility Study evaluated transit alternatives for the three high capacity corridors identified in 2008.
- Northern Virginia Transportation Authority (NVTA) awards $12 million for environmental work and design for FY20-22.
- NVTA grants $75 million in the 2020-2022 Six Year Program to help construct the first phase of improvements identified through the Duke Street in Motion process.
- 2020 Alexandria Transit Vision Plan adopted by the DASH board, with Duke Street identified as a key all-day, frequent service transit corridor.
- Duke Street in Motion kicks off with community visioning.
- Development of final design concepts and plan.
AGENDA

- Welcome & Agenda Overview (10 min)
- Public Comment (10 min)
- Meeting Background (20 min)
- BRT 101 (30 min)
  - Running Way
  - Edge Features
- Proposed Alternatives (70 min)
  - Segment 1 Overview and Discussion
  - Break
  - Segment 3 Overview and Discussion
- Advisory Group Schedule (5 min)
  - Next Meeting: September 15
- Approval of Meeting #3 Minutes (5 min)
PUBLIC COMMENT
Virtual attendees can raise hand in Zoom or press *9 on your phone

3 Minute Timer

*Announcement will sound automatically when time is up*
AG ROLES AND RESPONSIBILITIES

✓ Relay information
✓ Participate
✓ Provide feedback
✓ Respect each other
✓ Represent groups
✓ Build on decisions
VISION AND GUIDING PRINCIPLES

**Convenient**: Make bus travel more predictable, frequent, and comfortable

**Efficient**: Improve mobility for all Duke Street travelers

**Equitable**: Use enhanced bus transit to support equitable access for a diversity of people and places

**Safe**: Ensure safety and accessibility for those connecting to and riding the bus, as well as other travelers

**Vibrant**: Create and enhance thriving and future corridor destinations that improve resident quality of life and boost the local economy

**Sustainable**: Contribute positively to the environment, now and in the future
MEETING GOALS

• Understand:
  – Duke Street in Motion process – where we are and where we are going
  – General tradeoffs of BRT running way options
  – Features of proposed designs for Duke Street - Tradeoffs & interchangeable elements

• Provide feedback:
  – Are the design alternatives the right range of options to bring to the community?
  – Have we captured the tradeoffs appropriately?
AG PROCESS

Advisory Group Action

Public Engagement Visioning

Public Engagement Alternatives

Public Engagement Preferred Alternative

Adopt vision & guiding principles

Develop design concepts

Screen and narrow concepts under consideration

Refine preferred alternative

Evaluate preferred alternative against adopted 2012 recommendation

Endorse a preferred alternative

April 2022

June 2023

We Are Here

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DESIGN CONCEPTS & ANALYSIS

Level of Analysis

- High-level screening
- More detailed analysis
- Comprehensive modeling and analysis

Concept Development

- Broad design concepts segments
- Narrowed design concepts with greater detail
- Preferred design alternative
BRT 101: BRT CORRIDOR TRADEOFFS
CORRIDOR DESIGN CONCEPT DEVELOPMENT

Step 1: Choose a Bus Running Way

Step 2: Select Edge Features
- Cycle track
- Shared-use path
- Sidewalks
- Streetscaping
- Frontage Road Access

Step 3: Develop Design Concepts
BRT ELEMENTS – RUNNING WAY

- Center Running
- Curb Running Bus and Turn Lane
- Mixed Traffic
CENTRE RUNNING EXAMPLES

Metroway BRT (Alexandria, VA)  IndyGo BRT (Indianapolis, IN)

Source: BeyondDC  Source: Twitter
RUNNING WAY – CENTER RUNNING

**Benefits**
- Corridor safety
- Transit travel time
- Travel comfort for all users
- Improved landscaping potential at median

**Tradeoffs**
- Requires space
- Impacts vehicle turning movements
CURB RUNNING EXAMPLES

M Street
(Washington, DC)

Heneppin Avenue
(Minneapolis, MN)
RUNNING WAY – CURB RUNNING BUS AND TURN LANE

• Benefits
  – Transit travel time
  – Maintains corridor access

• Tradeoffs
  – Continued conflicts for right turning vehicles and buses
  – May require additional space
MIXED TRAFFIC EXAMPLES

RapidRide Line D
(Seattle, WA)

IndyGo BRT
(Indianapolis, IN)
RUNNING WAY – MIXED TRAFFIC

• Benefits
  – Transit travel time improvements at targeted locations
  – Does not require additional space

• Tradeoffs
  – Limited opportunities to improve transit travel time
  – Limited/no improvement to corridor safety
MIXED TRAFFIC AND QUEUE JUMPS
BRT 101: EDGE CONDITIONS
CORRIDOR DESIGN CONCEPT DEVELOPMENT

Step 1: Choose a Bus Running Way

Step 2: Select Edge Features
- Cycle track
- Shared-use path
- Sidewalks
- Streetscaping
- Frontage Road Access

Step 3: Develop Design Concepts
EDGE FEATURES: PEDESTRIAN CONSIDERATIONS

- **Widened sidewalks adjacent to curbs**
  - Source: NACTO

- **Sidewalk with buffer from curb**
  - Source: Getting Around SAC

- **Shared-use path with buffer from curb**
  - Source: WSP
EDGE FEATURES: FRONTAGE ROADS

- Functions
  - Access to business
  - Access to residential
  - Separate access traffic from corridor
  - Buffer area with potential greenspace
  - Parking
EDDGE FEATURES: BIKE FACILITIES

- Two-way separated cycle track
- One-way separated cycle track

St. Paul, MN
Cambridge, MA
DUKE STREET CORRIDOR DESIGN CONCEPTS (SEGMENTS 1 & 3)
CORRIDOR SEGMENTS

Segment 2 to be discussed at the next meeting
CORRIDOR DESIGN CONCEPT DEVELOPMENT

Step 1: Choose a Bus Running Way

Step 2: Select Edge Features
- Cycle track
- Shared-use path
- Sidewalks Widened
- Streetscaping
- Frontage Road Access

Step 3: Develop Design Concepts

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FRAMING QUESTIONS FOR TODAY

1. Do you **understand the tradeoffs** present in each design concept?
2. Are we presenting an **appropriate range of design concepts**?
3. Are we **missing anything** the running way?
   - Tradeoffs
   - Design elements to consider
4. Are we **missing anything** from the edge features?
   - Tradeoffs
   - Design elements to consider
SEGMENT 1:
WEST END ALEXANDRIA TO JORDAN STREET
EXISTING CONDITIONS

Duke Street between N Pickett St and N Paxton St (looking west)
SEGMENT 1: EXISTING CONDITIONS
## SEGMENT 1: OVERVIEW OF DESIGN CONCEPTS

<table>
<thead>
<tr>
<th>Running Way</th>
<th>Bike Facility</th>
<th>Sidewalk</th>
<th>Frontage / Service Road</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center Running (1A)</td>
<td>Cycle track</td>
<td>Widened</td>
<td>Modify Paxton-Pickett Frontage Road</td>
</tr>
<tr>
<td>Curb Running (1B)</td>
<td>Shared-use path</td>
<td>Widened</td>
<td>Modify Paxton-Pickett Frontage Road</td>
</tr>
<tr>
<td>Mixed Traffic (1C)</td>
<td>Shared-use path</td>
<td>Widened</td>
<td>Modify Paxton-Pickett Frontage Road</td>
</tr>
</tbody>
</table>
SEGMENT 1: CENTER RUNNING DESIGN CONCEPT
SEGMENT 1: CURB RUNNING DESIGN CONCEPT
SEGMENT 1: MIXED TRAFFIC DESIGN CONCEPT
**SEGMENT 1: DESIGN CONCEPT COMPARISON**

### Benefits

<table>
<thead>
<tr>
<th>Convenient</th>
<th>Bus schedule reliability and user experience</th>
<th><strong>Center Running BRT Design Concept 1A</strong></th>
<th><strong>Curb Running BRT Design Concept 1B</strong></th>
<th><strong>Mixed Traffic BRT Design Concept 1C</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficient</td>
<td>Bus travel time*</td>
<td>☢☢☢</td>
<td>☢☢</td>
<td>☢</td>
</tr>
<tr>
<td>Safe</td>
<td>Pedestrian safety and accessibility features</td>
<td>☢☢</td>
<td>☢☢</td>
<td>☢</td>
</tr>
<tr>
<td></td>
<td>Bicycle facilities and connectivity</td>
<td>☢☢</td>
<td>☢☢</td>
<td>☢</td>
</tr>
<tr>
<td></td>
<td>Corridor and intersection safety features</td>
<td>☢☢☢</td>
<td>☢</td>
<td>☢</td>
</tr>
<tr>
<td>Vibrant</td>
<td>Areas for green space and streetscaping</td>
<td>☢☢</td>
<td>☢</td>
<td>☢</td>
</tr>
<tr>
<td>Sustainable</td>
<td>Areas for tree canopy and stormwater</td>
<td>☢☢</td>
<td>☢</td>
<td>☢</td>
</tr>
<tr>
<td></td>
<td>management</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*High level estimate based on bus running way configuration, signal delay. More detailed corridor end-to-end travel time will be provided once the corridor alternative(s) are determined.*
**SEGMENT 1: DESIGN CONCEPT COMPARISON**

<table>
<thead>
<tr>
<th>Key</th>
<th>No Impact</th>
<th>Minor Impact</th>
<th>Moderate Impact</th>
<th>Large Impact</th>
</tr>
</thead>
</table>

### Impacts

#### Efficient

<table>
<thead>
<tr>
<th>Impact</th>
<th>Center Running BRT Design Concept 1A</th>
<th>Curb Running BRT Design Concept 1B</th>
<th>Mixed Traffic BRT Design Concept 1C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-transit vehicle travel time*</td>
<td>●●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Property impacts</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Vibrant

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Service/frontage road</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Intersection access and parking</td>
<td></td>
<td></td>
<td></td>
</tr>
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SEGMENT 1 KEY QUESTIONS

1. Do you **understand the features and tradeoffs** presented in the Segment 1 design concepts?
2. Are we **presenting an appropriate range** of Segment 1 design concepts?
3. Are we **missing key elements** from Segment 1 running way?
4. Are we **missing key elements** from the Segment 1 edge conditions?
### SEGMENT 3: OVERVIEW OF DESIGN CONCEPTS

<table>
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<th>Running Way</th>
<th>Bike Lane</th>
<th>Sidewalk</th>
<th>Frontage / Service Road</th>
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<tbody>
<tr>
<td>Center Running (3A)</td>
<td>Cycle track</td>
<td>Widened</td>
<td>Modify Roth-West Taylor Run Frontage Road</td>
</tr>
<tr>
<td>Curb Running (3B)</td>
<td>Cycle track</td>
<td>No Change</td>
<td>Modify Roth-West Taylor Run Frontage Road</td>
</tr>
<tr>
<td>Mixed Traffic (3C)</td>
<td>Sharrow</td>
<td>No Change</td>
<td>No Change</td>
</tr>
</tbody>
</table>
SEGMENT 3: ROTH STREET TO KING STREET METRO STATION EXISTING CONDITIONS

Duke Street between W. Taylor Run and Witter Drive (looking west)
SEGMENT 3: EXISTING CONDITIONS
SEGMENT 3: CENTER RUNNING DESIGN CONCEPT
SEGMENT 3: CURB RUNNING
DESIGN CONCEPT
SEGMENT 3: MIXED TRAFFIC DESIGN CONCEPT
**SEGMENT 3: DESIGN CONCEPT COMPARISON**

**Key**

- **No Benefit**
- **Minor Benefit**
- **Moderate Benefit**
- **Large Benefit**

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Center Running BRT Design Concept 3A</th>
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SEGMENT 3: DESIGN CONCEPT COMPARISON

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</thead>
</table>

### Impacts

**Efficient**

- **Non-transit vehicle travel time***
  - Center Running BRT Design Concept 3A: ⚫⚫
  - Curb Running BRT Design Concept 3B: ⚫
  - Mixed Traffic BRT Design Concept 3C: ⚫

- **Property impacts**
  - Center Running BRT Design Concept 3A: ⚫
  - Curb Running BRT Design Concept 3B: ⚫
  - Mixed Traffic BRT Design Concept 3C: ⚫

**Vibrant**

- **Service/frontage road**
  - Center Running BRT Design Concept 3A: ⚫⚫⚫
  - Curb Running BRT Design Concept 3B: ⚫⚫
  - Mixed Traffic BRT Design Concept 3C: ⚫

- **Intersection access and parking**
  - Center Running BRT Design Concept 3A: ⚫⚫⚫
  - Curb Running BRT Design Concept 3B: ⚫⚫
  - Mixed Traffic BRT Design Concept 3C: ⚫

*High level estimate based on bus running way configuration, signal delay. More detailed corridor end-to-end travel time will be provided once the corridor alternative(s) are determined.*
SEGMENT 3 KEY QUESTIONS

1. Do you understand the features and tradeoffs presented in the Segment 3 design concepts?

2. Are we presenting an appropriate range of Segment 3 design concepts?

3. Are we missing key elements from Segment 3 running way?

4. Are we missing key elements from Segment 3 edge features?
SCHEDULE AND MILESTONES
NEXT STEPS

• **Next Meeting:** September 15
• **Optional Metroway Tour:** Date TBD

**Advisory Group Action**

- **Public Engagement Visioning**
- **Public Engagement Alternatives**
- **Preferred Alternative**

- **Adopt vision & guiding principles**
  - April 2022
  - We Are Here

- **Develop design concepts**

- **Screen and narrow concepts under consideration**

- **Refine preferred alternative**
  - Evaluate preferred alternative against adopted 2012 recommendation

- **Endorse a preferred alternative**
  - June 2023
APPROVAL OF MEETING #3 MINUTES
ADJOURN