DUKE STREET IN MOTION

Transitway Advisory Group Meeting #4

August 18, 2022

alexandriava.gov/DukeInMotion

$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

AGENDA

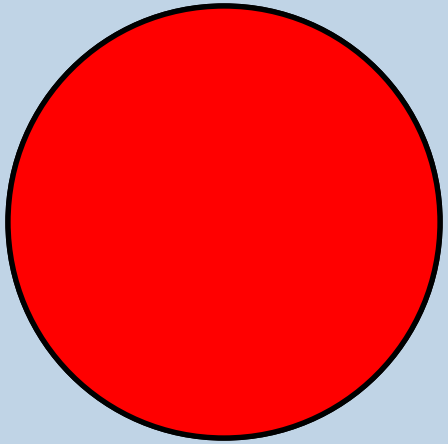
- **Welcome & Agenda Overview** (10 min)
- **Public Comment** (10 min)
- **Meeting Background** (20 min)
- **BRT 101** (30 min)
  - Running Way
  - Edge Features
- **Proposed Alternatives** (70 min)
  - Segment 1 Overview and Discussion
  - Break
  - Segment 3 Overview and Discussion
- **Advisory Group 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

DUKE STREET IN MOTION

- ✓ Relay information
- ✓ Participate
- ✓ Provide feedback
- ✓ Respect each other
- ✓ Represent groups
- ✓ Build on decisions

VISION AND GUIDING PRINCIPLES

DUKE STREET IN MOTION

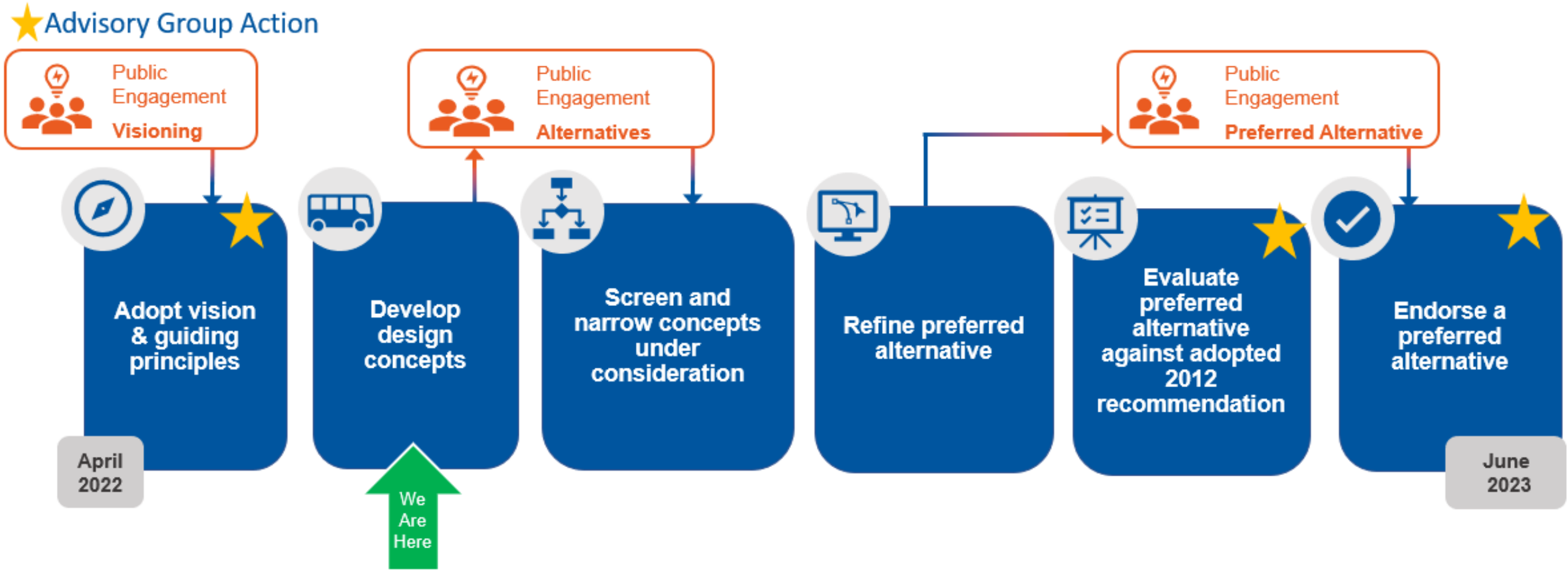
- **Convenient**: Make bus travel more predictable, frequent, and comfortable
- **Efficient**: Improve mobility for all Duke Street travelers
- **Equitable**: Use enhanced bus transit to support equitable access for a diversity of people and places
- **Safe**: Ensure safety and accessibility for those 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

DUKE STREET IN MOTION

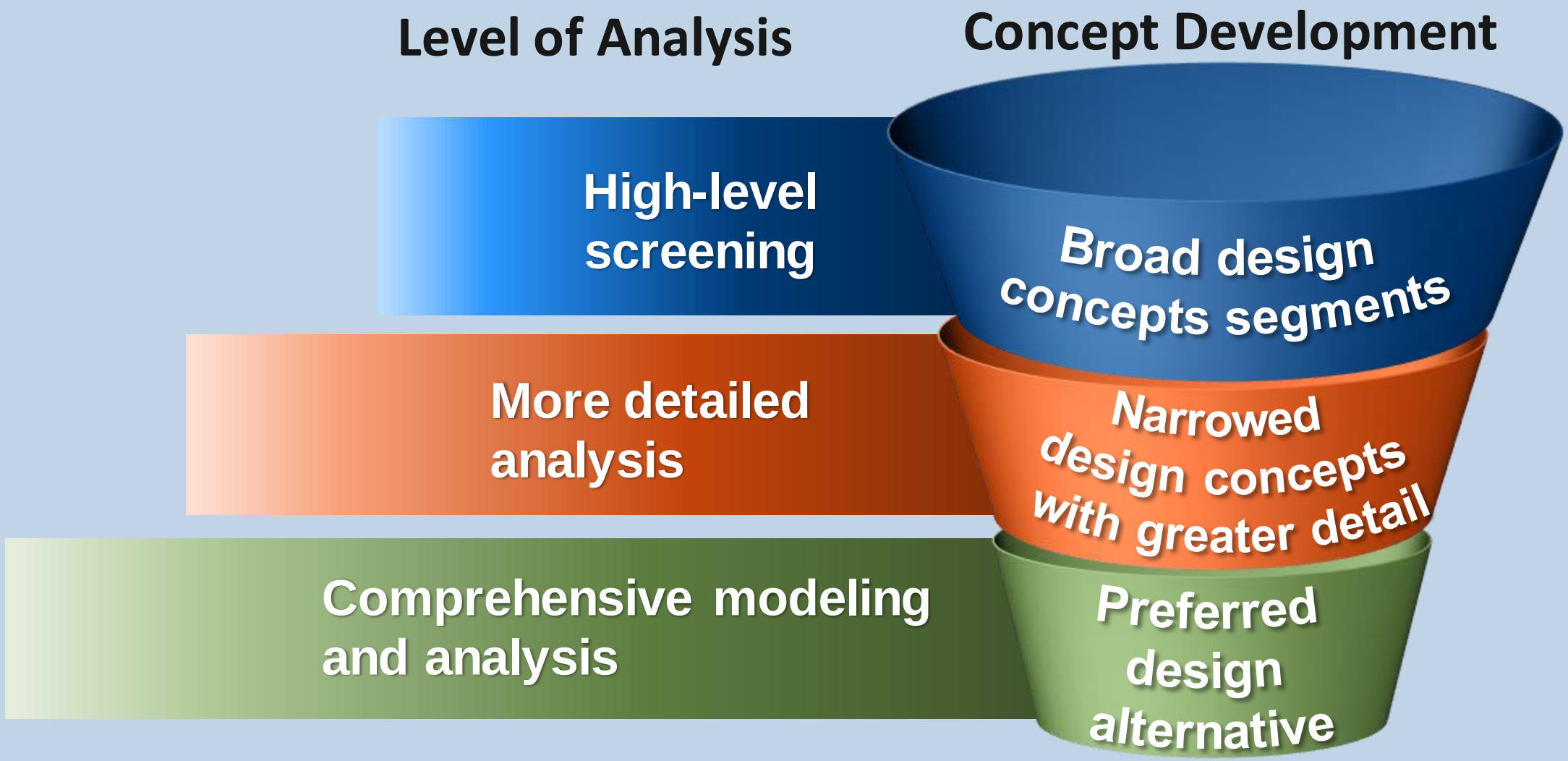
- **Understand**:
  - Duke Street in Motion process – where we are and where we are going
  - General tradeoffs of BRT running way options
  - Features of proposed designs for Duke Street - Tradeoffs & interchangeable elements
- **Provide feedback**:
  - Are the design alternatives the right range of 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
We Are Here
June 2023

DESIGN CONCEPTS & ANALYSIS

DUKE STREET IN MOTION

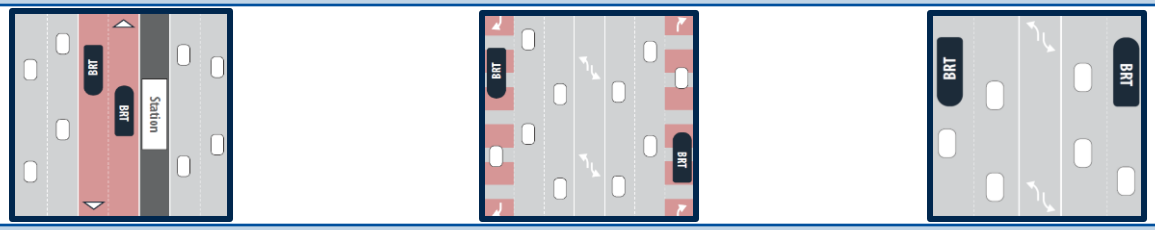


BRT 101:
BRT CORRIDOR TRADEOFFS

CORRIDOR DESIGN CONCEPT DEVELOPMENT

DUKE STREET IN MOTION

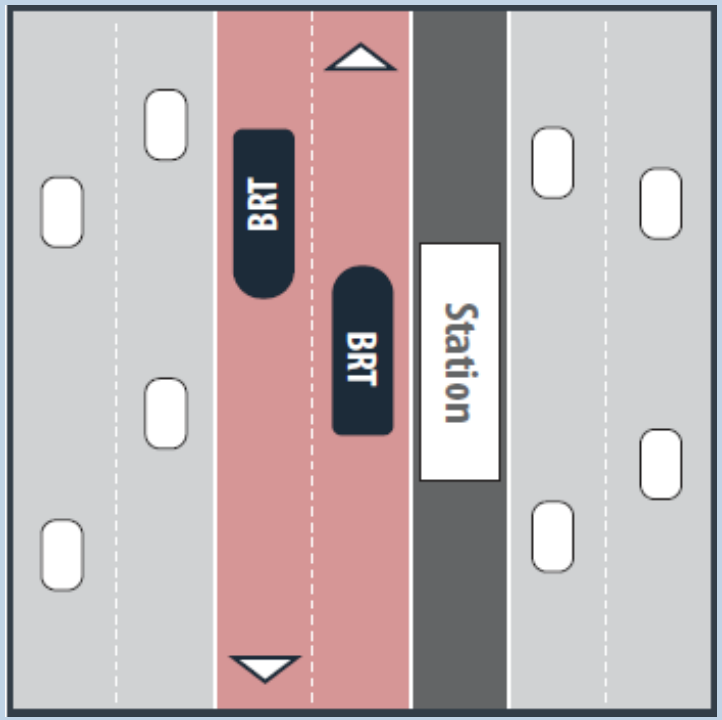
Step 1: Choose a Bus Running Way



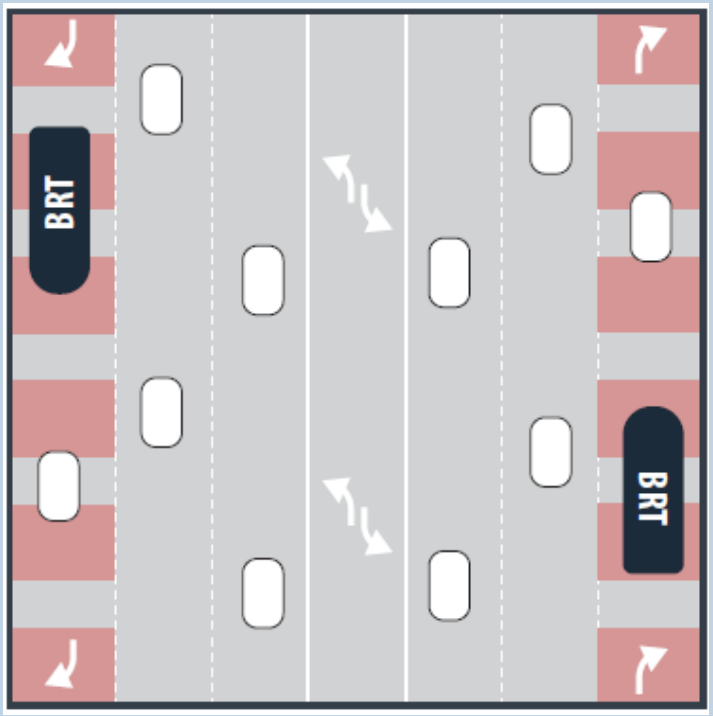
Step 2: Select Edge Features

Step 3: Develop Design Concepts

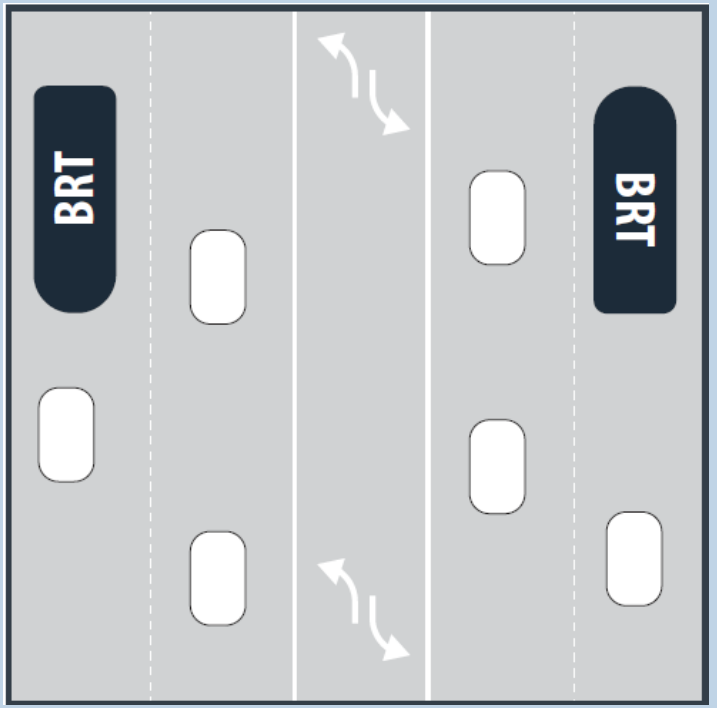
BRT ELEMENTS – RUNNING WAY



Center Running

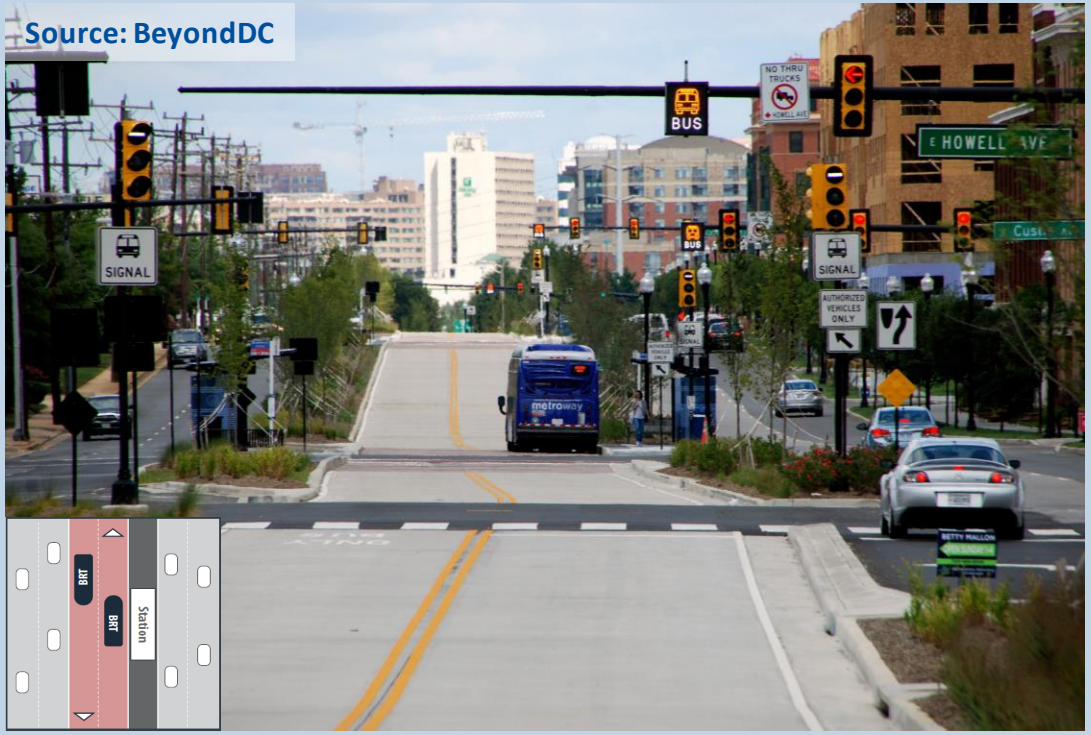


Curb Running Bus and Turn Lane



Mixed Traffic

CENTER RUNNING EXAMPLES



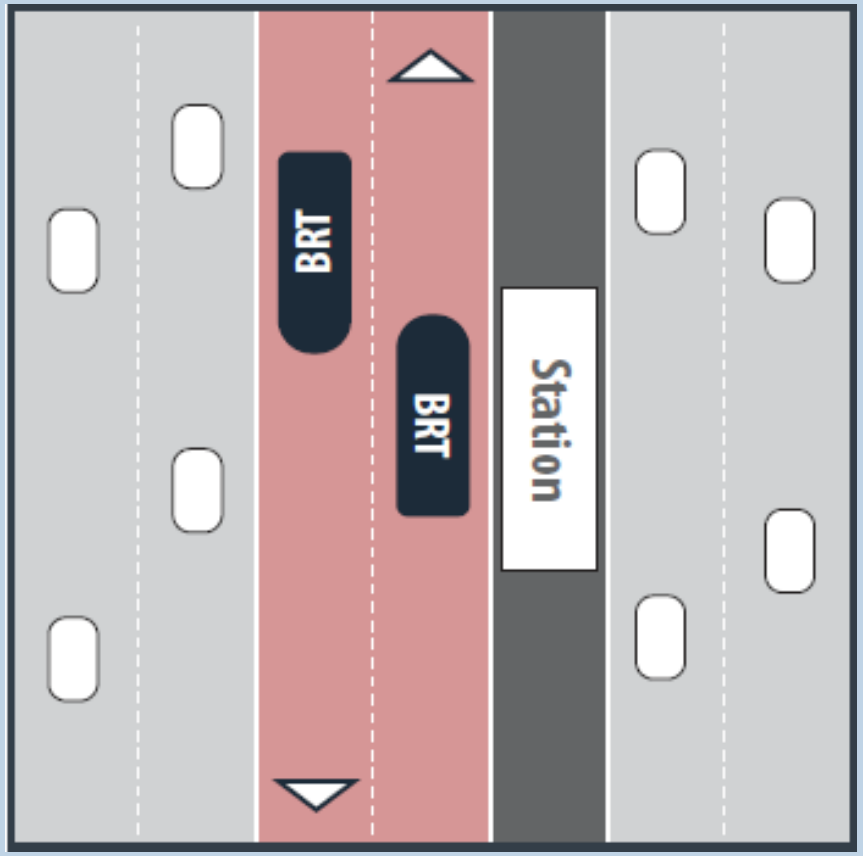
Metroway BRT (Alexandria, VA)

IndyGo BRT (Indianapolis, IN)

RUNNING WAY – CENTER RUNNING

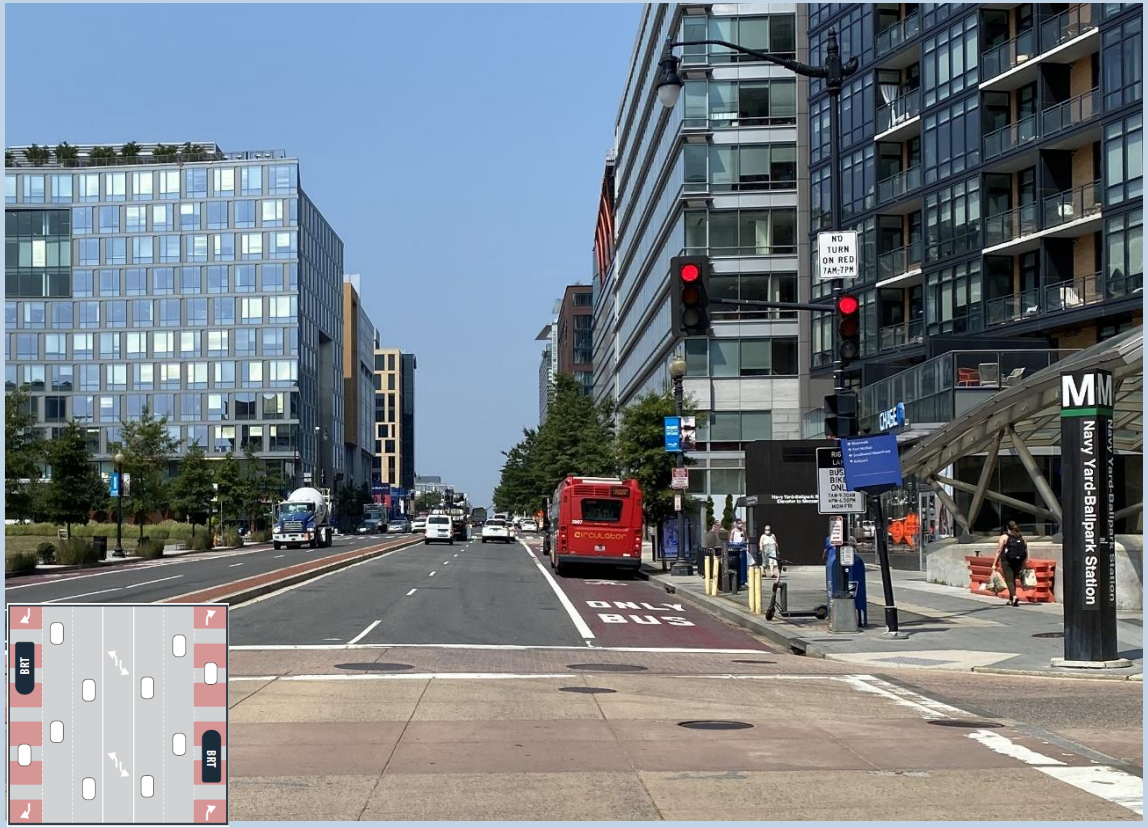
DUKE STREET IN MOTION

- 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



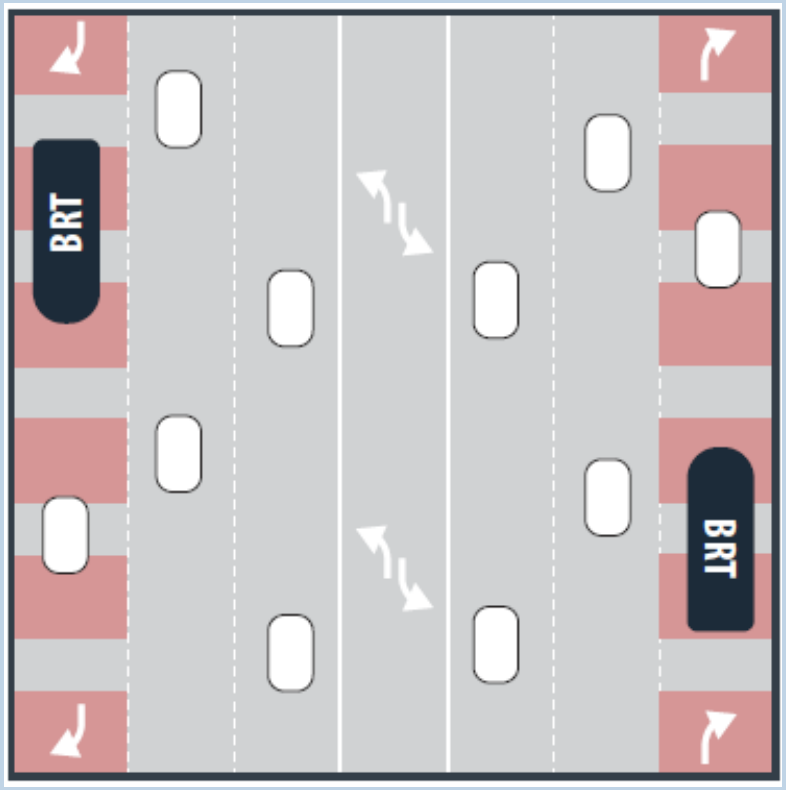
M Street
(Washington, DC)

Heneppin Avenue
(Minneapolis, MN)

RUNNING WAY – CURB RUNNING BUS AND TURN LANE

DUKE STREET IN MOTION

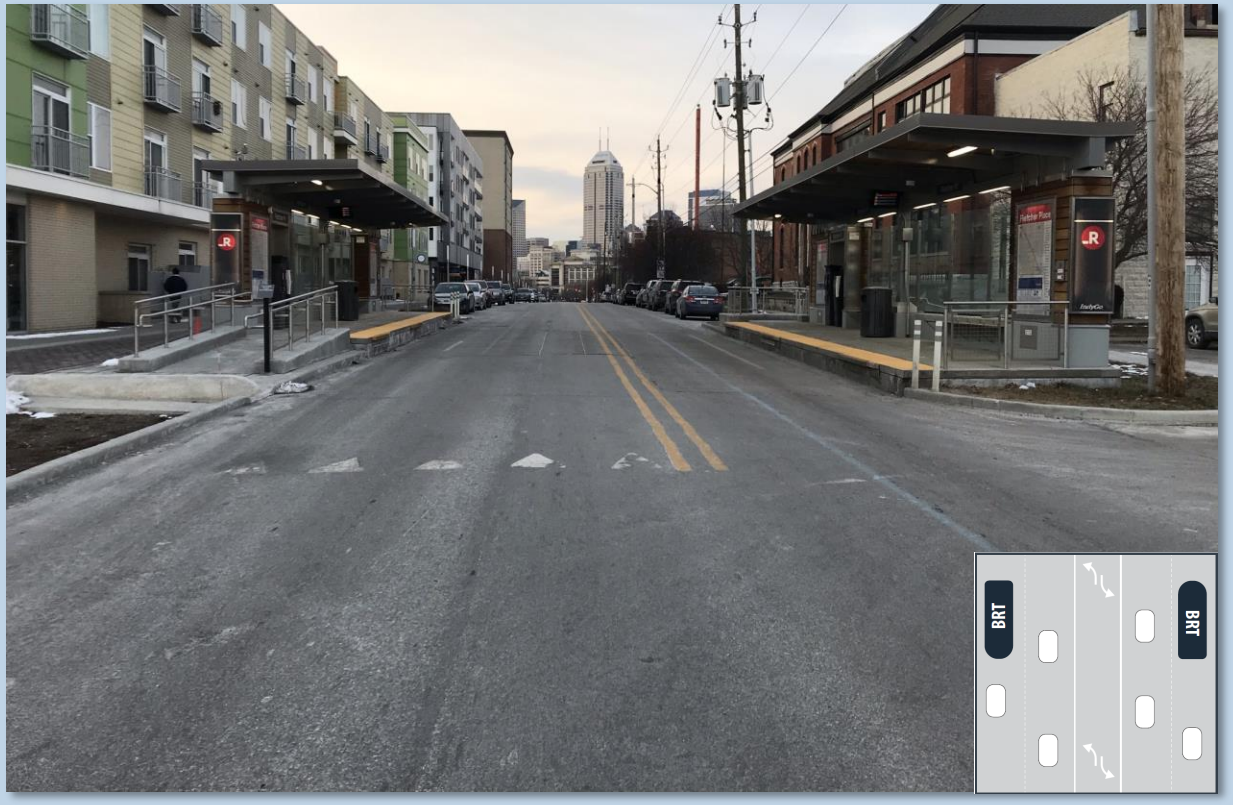
- Benefits
  - Transit travel time
  - Maintains corridor access



- Tradeoffs
  - Continued conflicts for right turning vehicles and buses
  - May require additional space

MIXED TRAFFIC EXAMPLES

RapidRide Line D
(Seattle, WA)

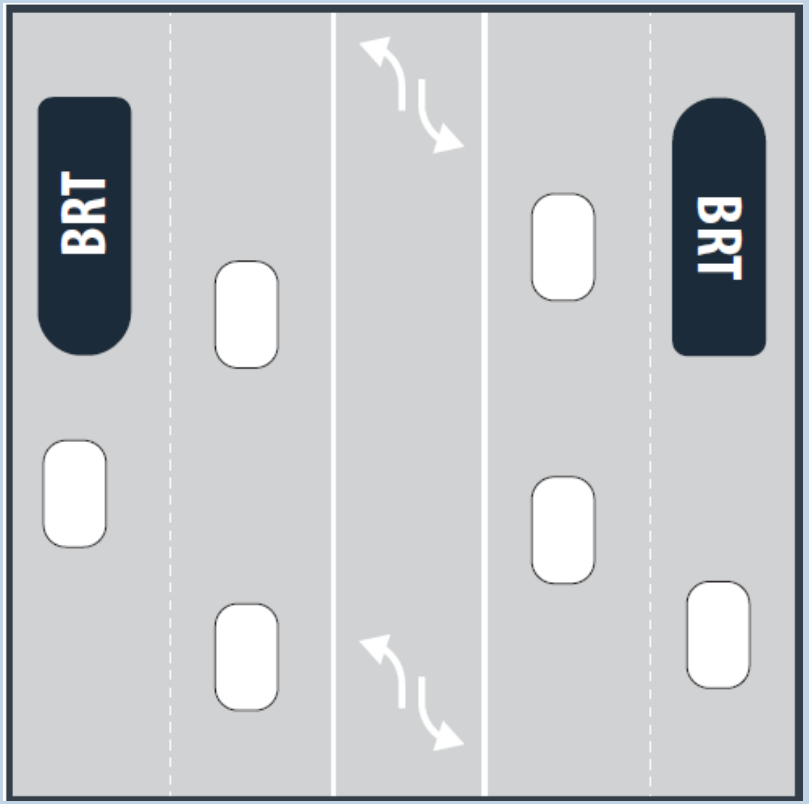


IndyGo BRT
(Indianapolis, IN)

RUNNING WAY – MIXED TRAFFIC

DUKE STREET IN MOTION

- 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

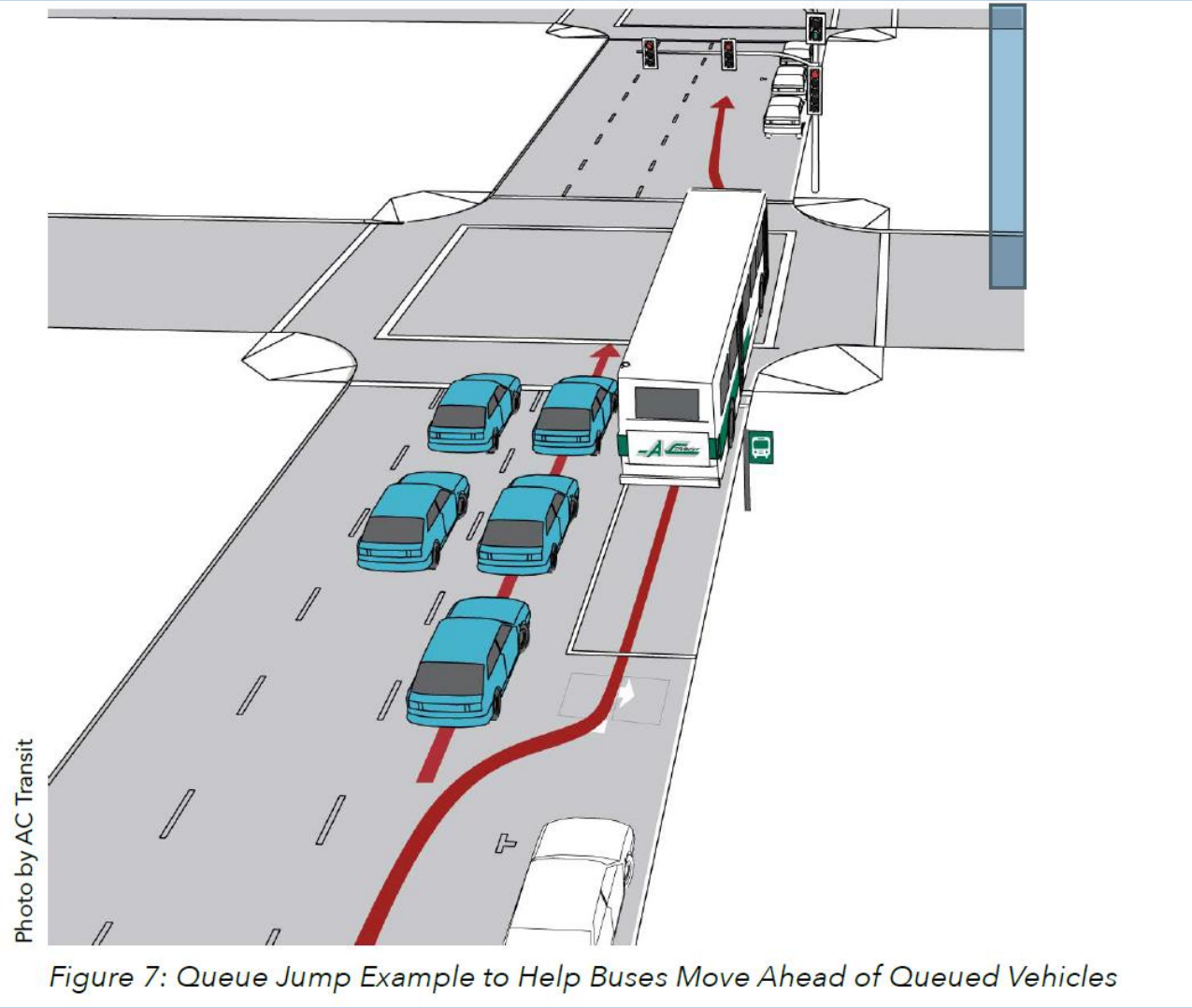


Photo by AC Transit

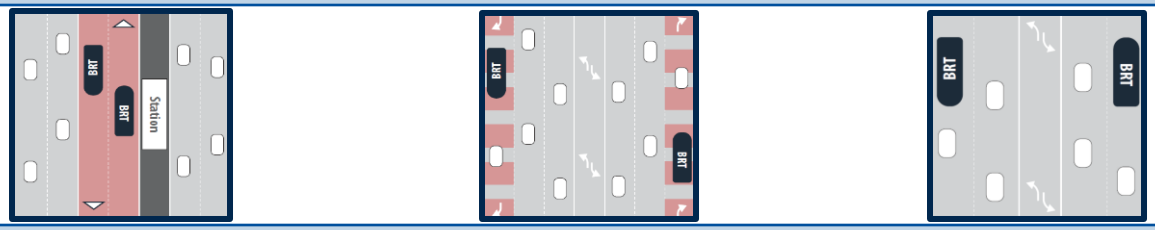
Figure 7: Queue Jump Example to Help Buses Move Ahead of Queued Vehicles

BRT 101:
EDGE CONDITIONS

CORRIDOR DESIGN CONCEPT DEVELOPMENT

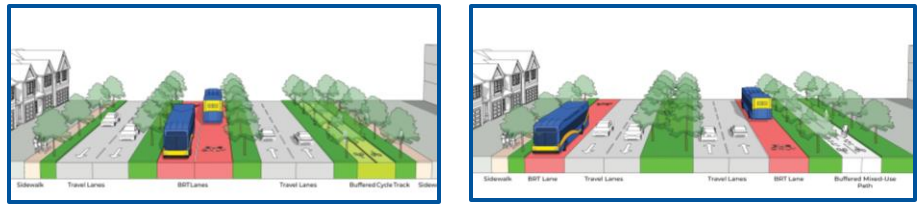
DUKE STREET IN MOTION

Step 1: Choose a Bus Running Way



Step 2: Select Edge Features

Step 3: Develop Design Concepts



EDGE FEATURES: PEDESTRIAN CONSIDERATIONS

DUKE STREET IN MOTION

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

Segment 1

Segment 3


Segment 3

Segment 1

- Functions
  - Access to business
  - Access to residential
  - Separate access traffic from corridor
  - Buffer area with potential greenspace
  - Parking

EDGE FEATURES: BIKE FACILITIES

St. Paul, MN

Two-way separated cycle track

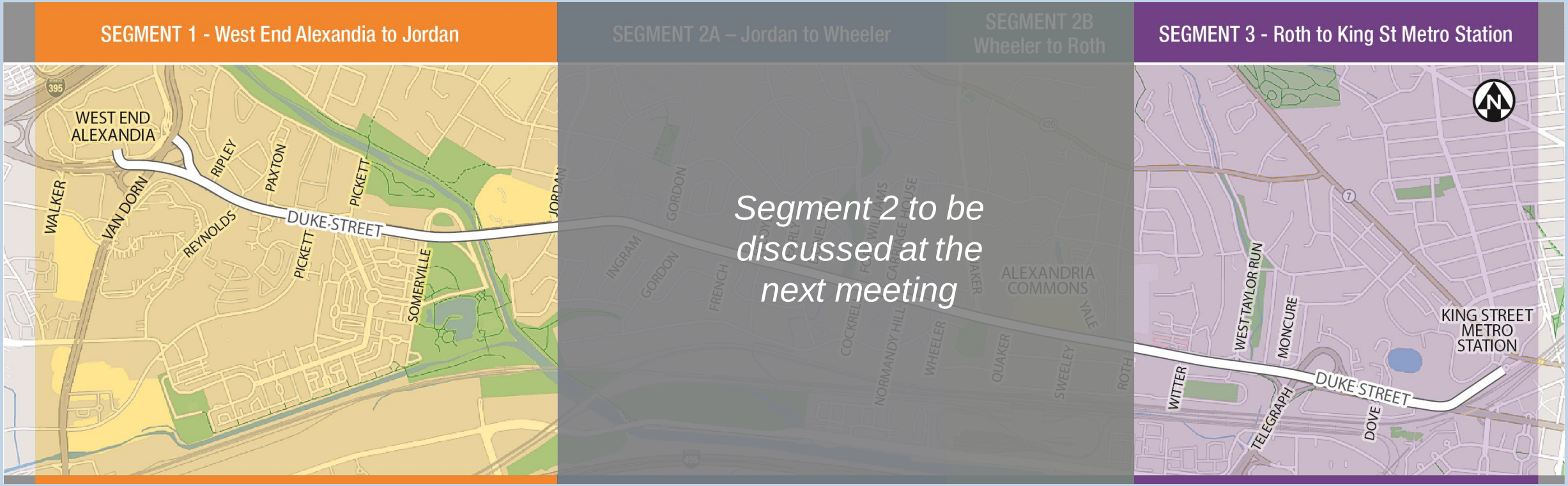
Cambridge, MA

One-way separated cycle track

DUKE STREET CORRIDOR DESIGN CONCEPTS (SEGMENTS 1 & 3)

CORRIDOR SEGMENTS

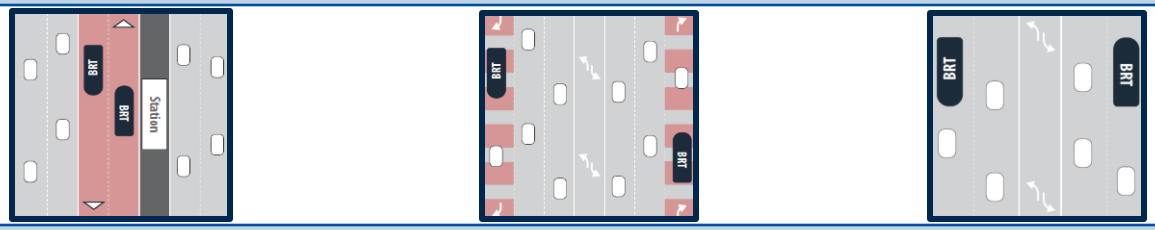
DUKE STREET IN MOTION



CORRIDOR DESIGN CONCEPT DEVELOPMENT

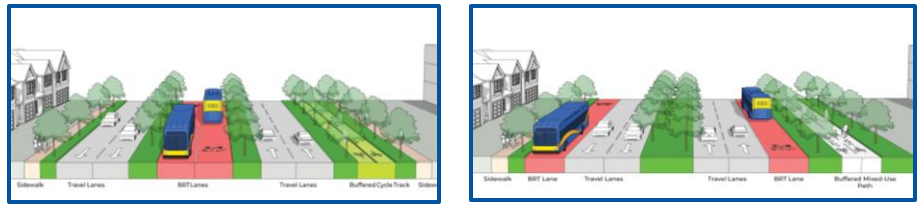
DUKE STREET IN MOTION

Step 1: Choose a Bus Running Way



Step 2: Select Edge Features

Step 3: Develop Design Concepts



FRAMING QUESTIONS FOR TODAY

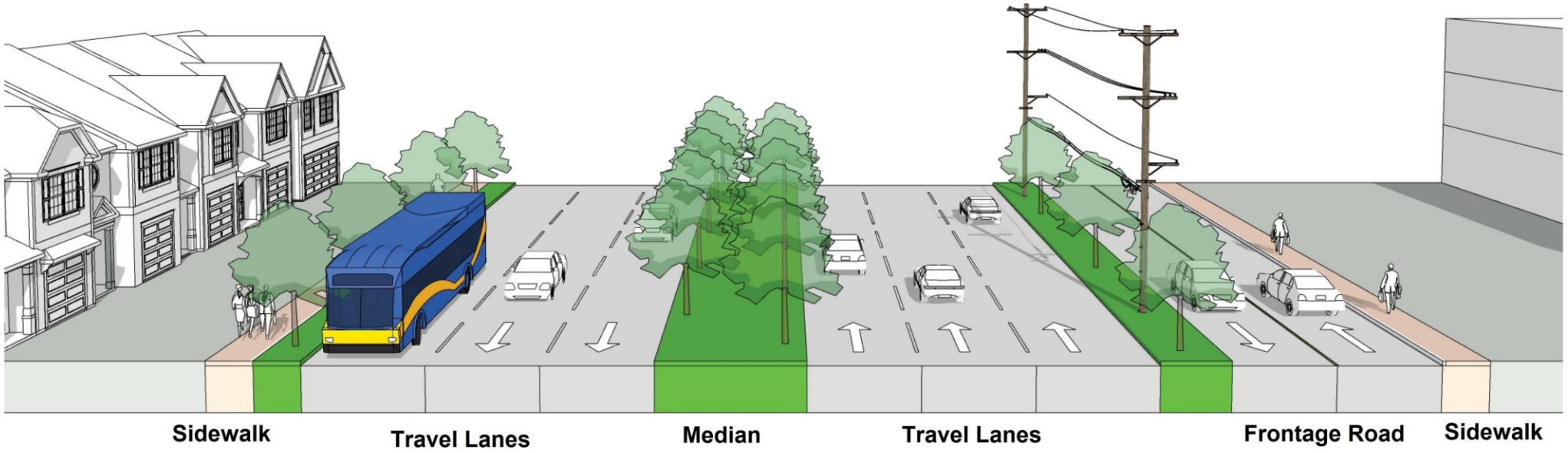
DUKE STREET IN MOTION

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 IN MOTION

Duke Street between N Pickett St and N Paxton St (looking west)

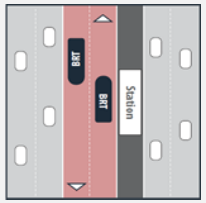
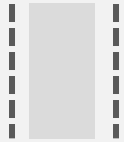
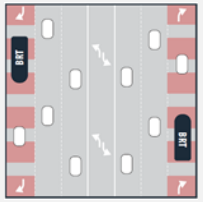
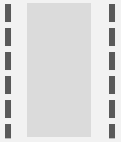
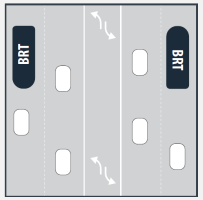
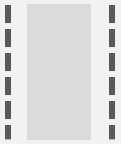


SEGMENT 1: EXISTING CONDITIONS

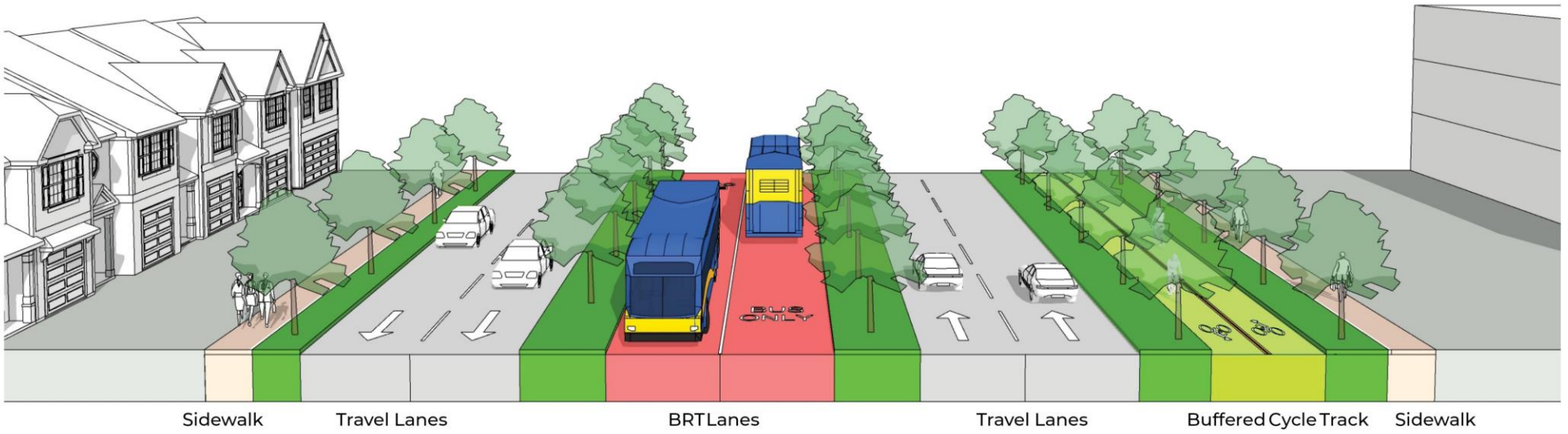
DUKE STREET IN MOTION

SEGMENT 1: OVERVIEW OF DESIGN CONCEPTS

DUKE STREET IN MOTION

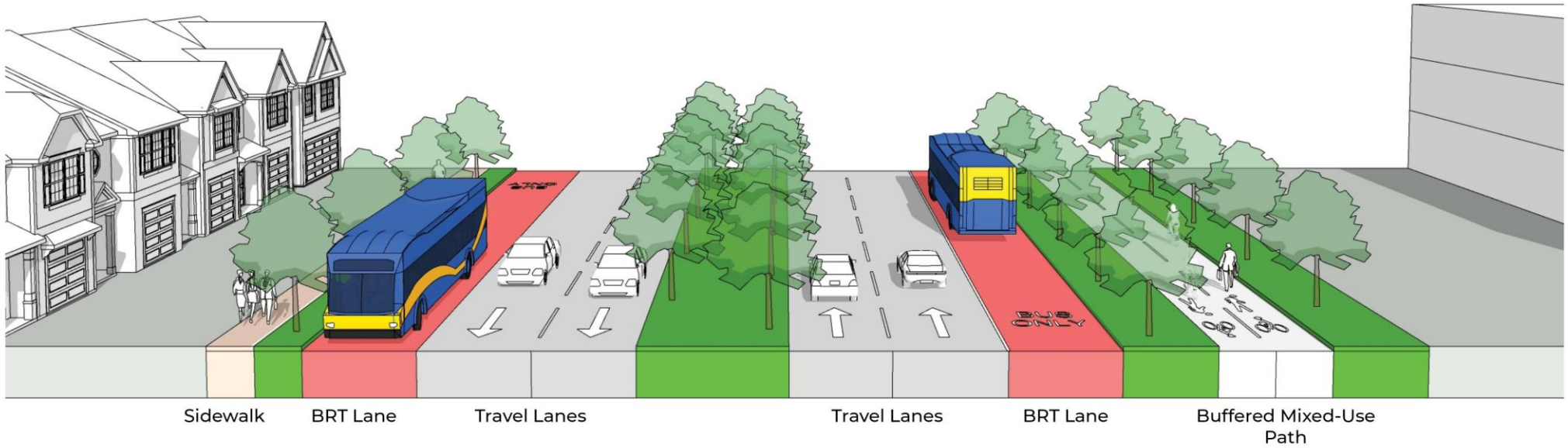
Running Way	Bike Facility	Sidewalk	Frontage / Service Road
 Center Running (1A)	 Cycle track	 Widened	Modify Paxton-Pickett Frontage Road
 Curb Running (1B)	 Shared-use path	 Widened	Modify Paxton-Pickett Frontage Road
 Mixed Traffic (1C)	 Shared-use path	 Widened	Modify Paxton-Pickett Frontage Road

SEGMENT 1: CENTER RUNNING DESIGN CONCEPT

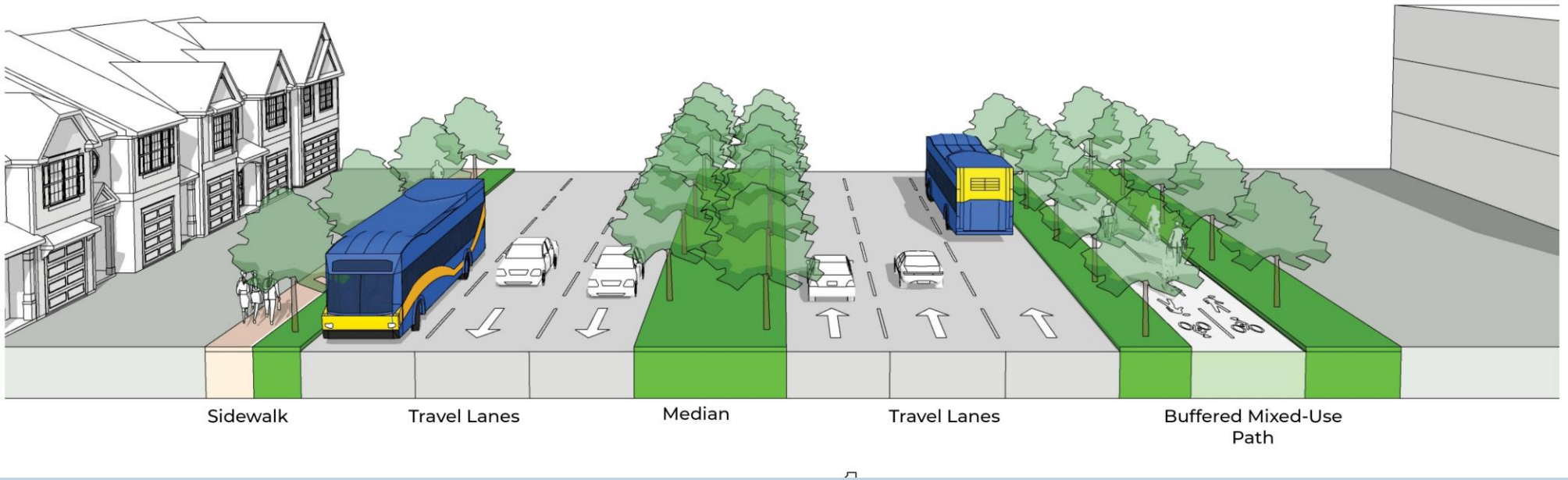


SEGMENT 1: CURB RUNNING DESIGN CONCEPT

DUKE STREET IN MOTION



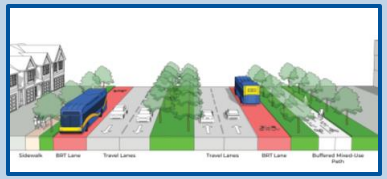
SEGMENT 1: MIXED TRAFFIC DESIGN CONCEPT

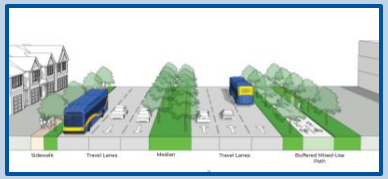


SEGMENT 1: DESIGN CONCEPT COMPARISON

DUKE STREET IN MOTION

Key: No Benefit | Minor Benefit | Moderate Benefit | Large Benefit





Benefits

		Center Running BRT Design Concept 1A	Curb Running BRT Design Concept 1B	Mixed Traffic BRT Design Concept 1C
Convenient	Bus schedule reliability and user experience	●●●	●●	●
Efficient	Bus travel time*	●●●	●●	●
Safe	Pedestrian safety and accessibility features	●●●	●●	●●
	Bicycle facilities and connectivity	●●●	●●●	●●●
	Corridor and intersection safety features	●●●	●	○
Vibrant	Areas for green space and streetscaping	●●●	●●	●●
Sustainable	Areas for tree canopy and stormwater management	●●●	●●	●●

*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.

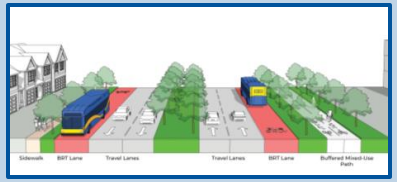
SEGMENT 1: DESIGN CONCEPT COMPARISON

DUKE STREET IN MOTION

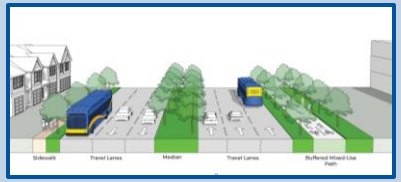
Key

- No Impact
- Minor Impact
- Moderate Impact
- Large Impact

Center Running BRT Design Concept 1A



Curb Running BRT Design Concept 1B



Mixed Traffic BRT Design Concept 1C

Impacts

		Center Running BRT Design Concept 1A	Curb Running BRT Design Concept 1B	Mixed Traffic BRT Design Concept 1C
Efficient	Non-transit vehicle travel time*	●●	●	○
Vibrant	Property impacts	○	○	○
	Service/frontage road	●●●	●●●	●●●
	Intersection access and parking	●	●	●

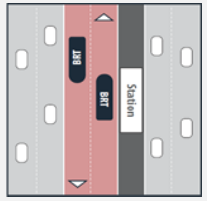
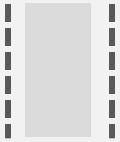
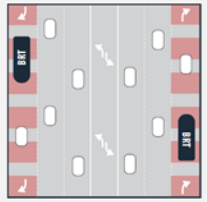
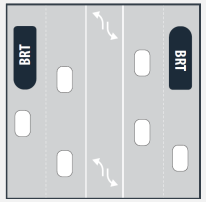
SEGMENT 1 KEY QUESTIONS

DUKE STREET IN MOTION

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

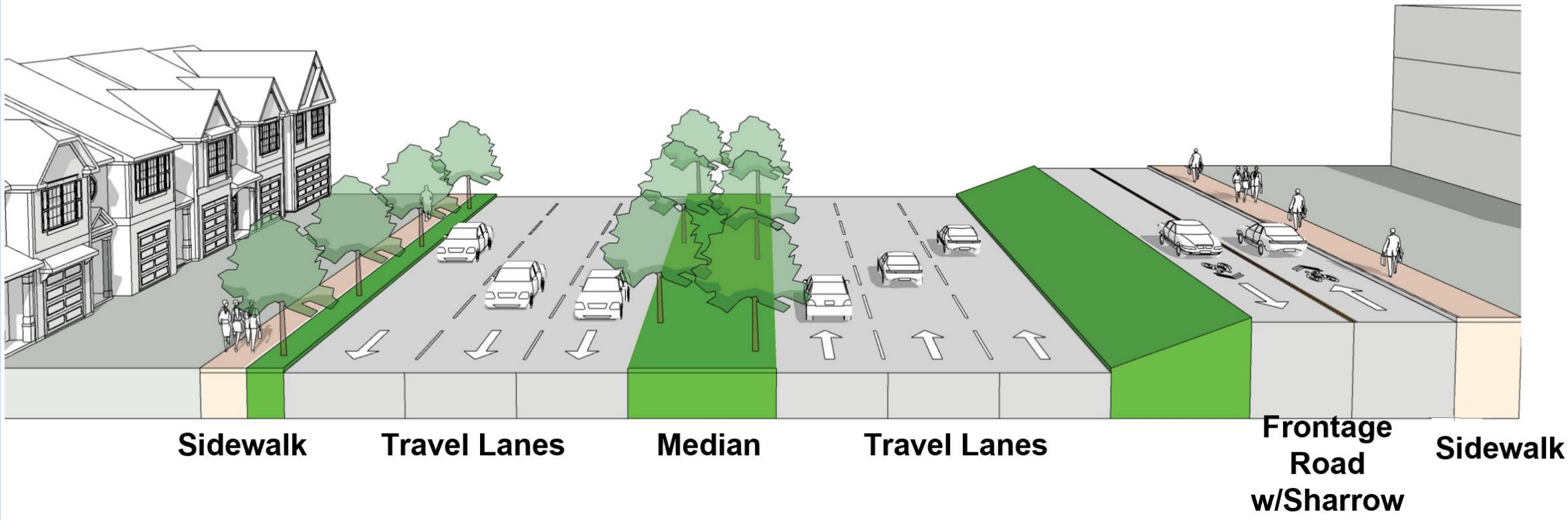
DUKE STREET IN MOTION

Running Way	Bike Lane	Sidewalk	Frontage / Service Road
 Center Running (3A)	 Cycle track	 Widened	Modify Roth-West Taylor Run Frontage Road
 Curb Running (3B)	 Cycle track	No Change	Modify Roth-West Taylor Run Frontage Road
 Mixed Traffic (3C)	 Sharrow	No Change	No Change

SEGMENT 3: ROTH STREET TO KING STREET METRO STATION EXISTING CONDITIONS

DUKE STREET IN MOTION

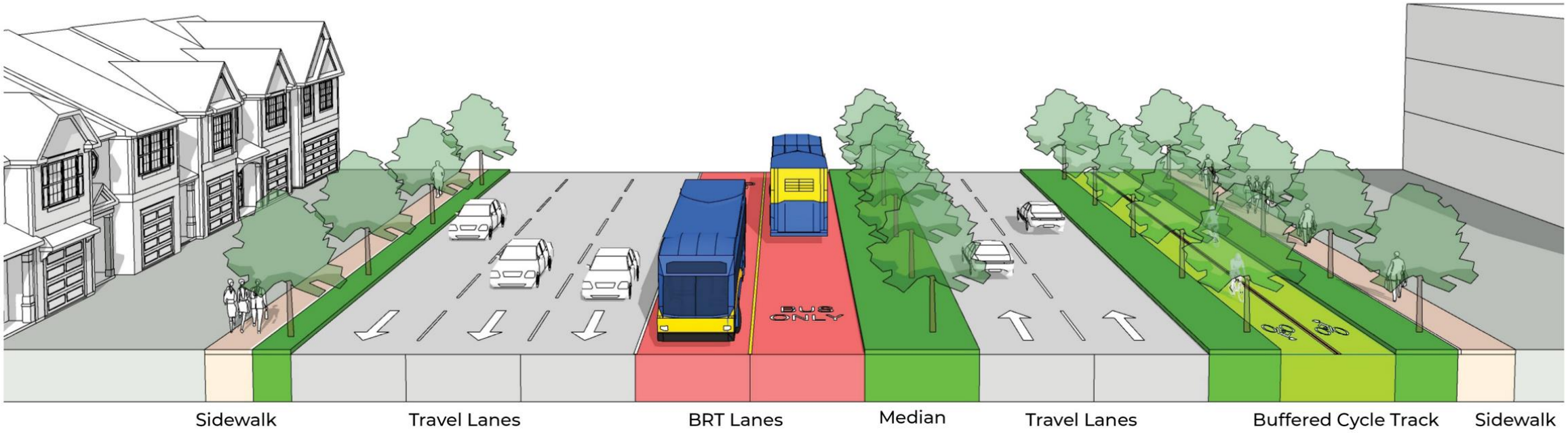
Duke Street between W. Taylor Run and Witter Drive (looking west)



SEGMENT 3: EXISTING CONDITIONS

SEGMENT 3: CENTER RUNNING DESIGN CONCEPT

DUKE STREET IN MOTION



SEGMENT 3: CURB RUNNING DESIGN CONCEPT

DUKE STREET IN MOTION

SEGMENT 3: MIXED TRAFFIC DESIGN CONCEPT

DUKE STREET IN MOTION

SEGMENT 3: DESIGN CONCEPT COMPARISON

DUKE STREET IN MOTION

Key: No Benefit | Minor Benefit | Moderate Benefit | Large Benefit

Benefits

		Center Running BRT Design Concept 3A	Curb Running BRT Design Concept 3B	Mixed Traffic BRT Design Concept 3C
Convenient	Bus schedule reliability and user experience	●●●	●	●
Efficient	Bus travel time*	●●●	●●	●
Safe	Pedestrian safety and accessibility features	●●●	●	●
	Bicycle facilities and connectivity	●●●	●●	●
	Corridor and intersection safety features	●●●	●	●
Vibrant	Areas for green space and streetscaping	●●●	●	●
Sustainable	Areas for tree canopy and stormwater management features	●●●	●	●

*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: DESIGN CONCEPT COMPARISON

DUKE STREET IN MOTION

Key

- No Impact
- Minor Impact
- Moderate Impact
- Large Impact

Impacts

		Center Running BRT Design Concept 3A	Curb Running BRT Design Concept 3B	Mixed Traffic BRT Design Concept 3C
Efficient	Non-transit vehicle travel time*	●●	●	●
Vibrant	Property impacts	●	○	○
	Service/frontage road	●●●	●●	●
	Intersection access and parking	●●●	●●	●

*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

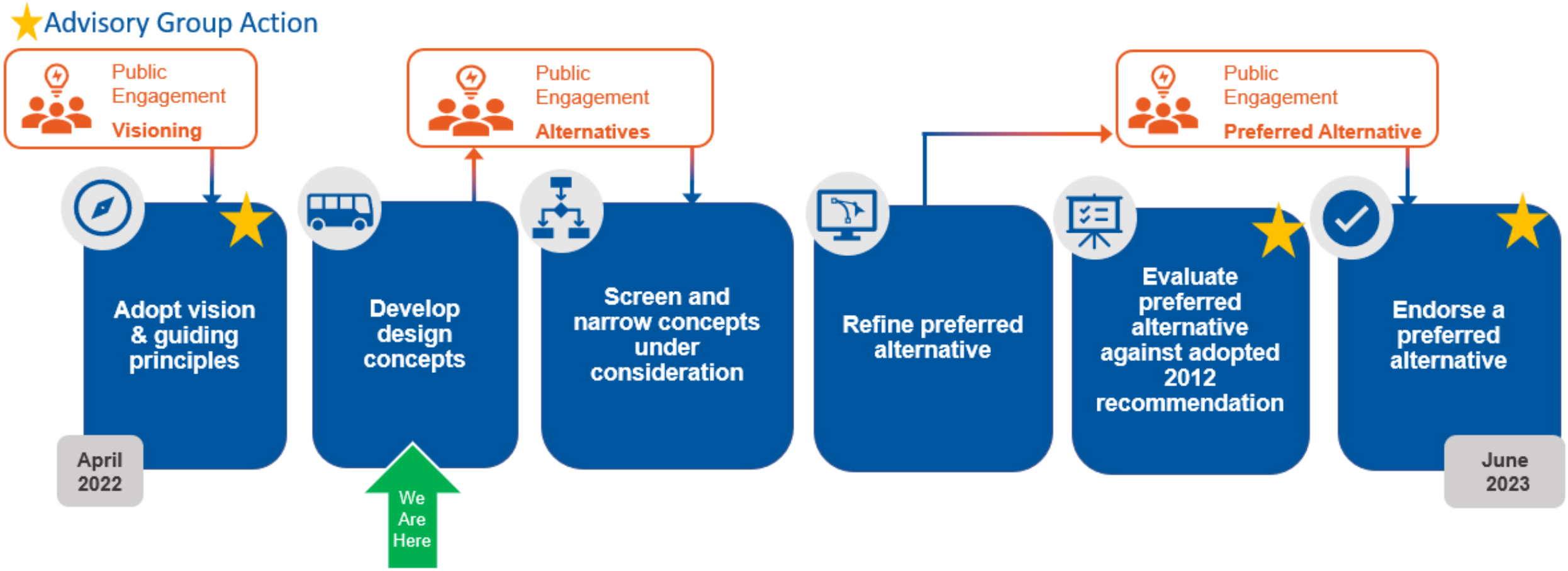
DUKE STREET IN MOTION

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



APPROVAL OF MEETING #3 MINUTES

ADJOURN