








# North Bethesda BRT Planning Study

Corridor Advisory Committee (CAC) Meeting #4

June 12, 2024 | 7:00 p.m.

# Meeting Expectations

-  We're committed to starting on time and ending on time
-  Meeting facilitator will guide discussion
-  We're creating spaces for all voices to be heard
-  Take advantage of the "raise hand" feature
-  Place microphones on mute when not talking

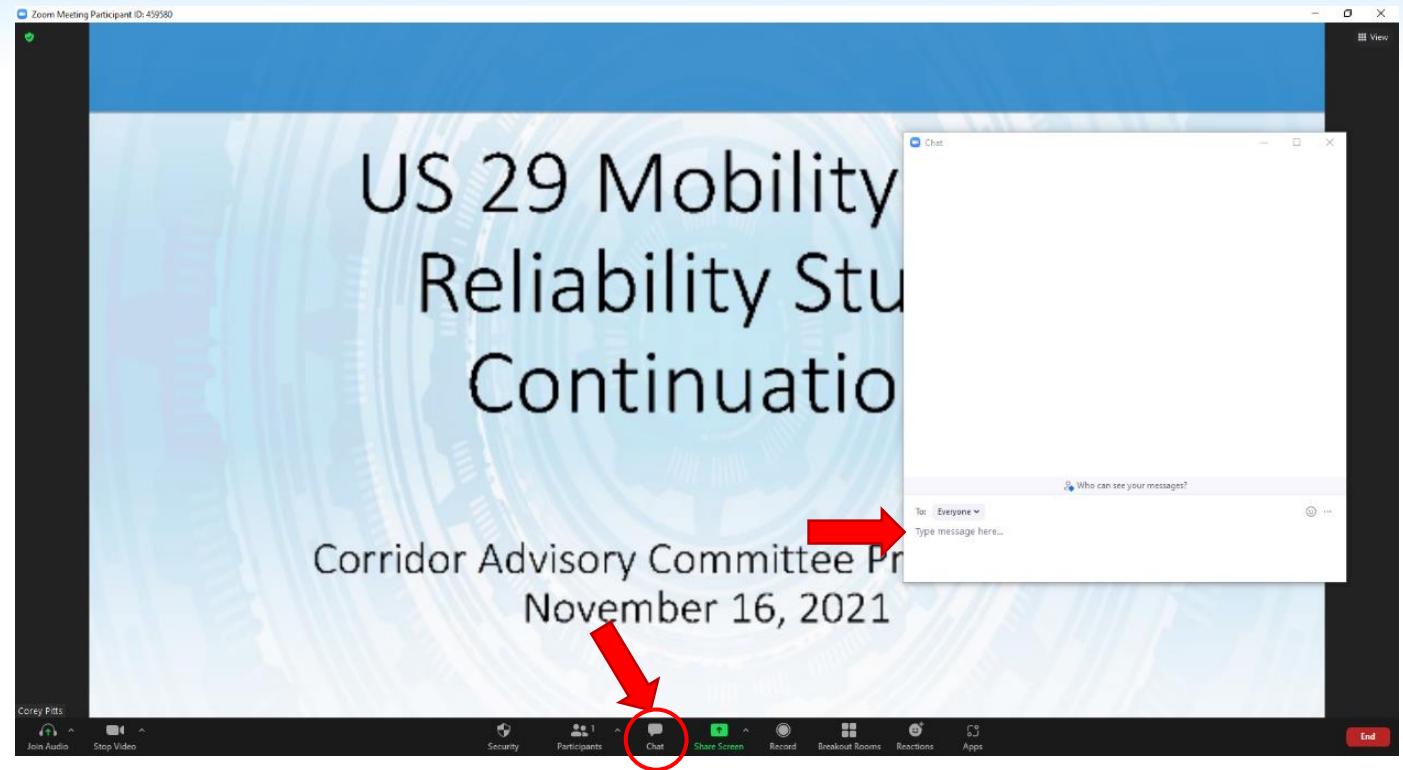
# Using Zoom

## Ask a question (in text):

- If you have a question during the presentation, send it via chat

## To send a chat:

- Click “chat” in the bottom menu
- A new window will appear
- Type your question and send it



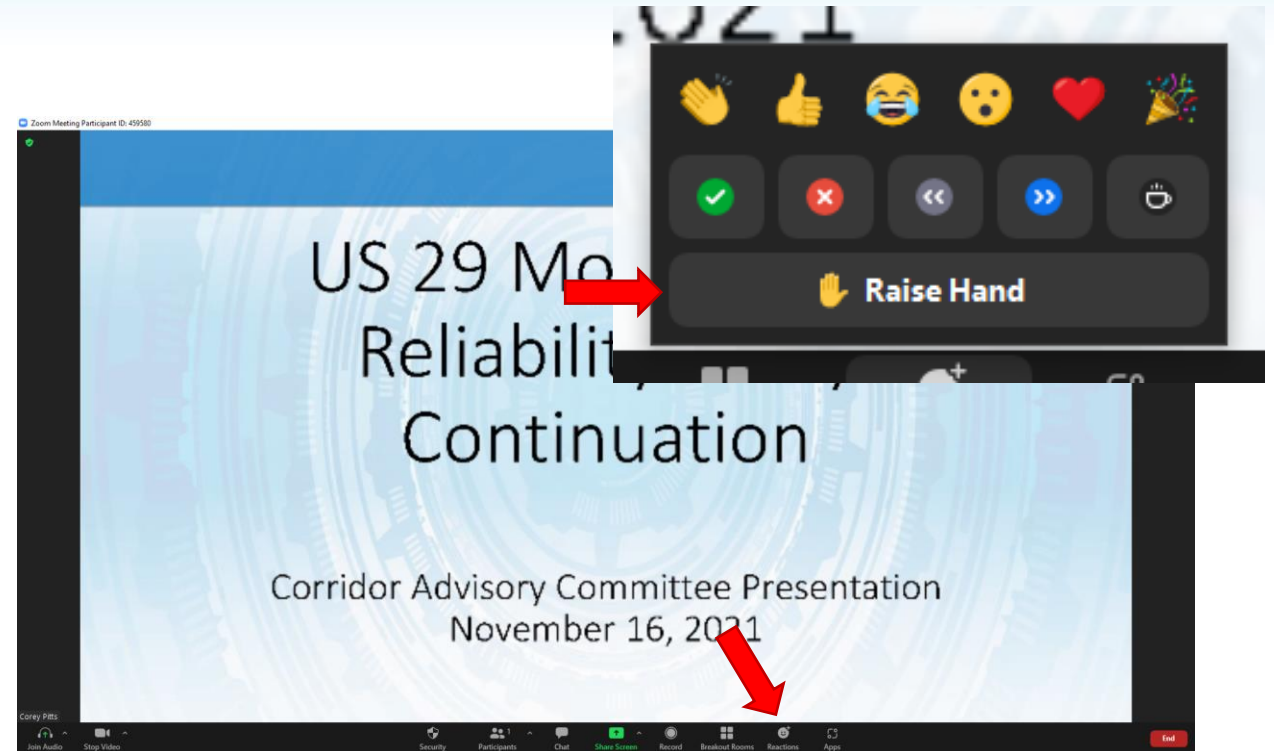
# Using Zoom

## Raise your hand:

- If you'd like to speak to ask a question or make a comment, please **raise your hand**

## To raise your hand:

- Click "Reactions" in the bottom menu
- A new window will appear
- Click the "Raise Hand" button at the bottom
- If you've dialed in by phone, dial \*9



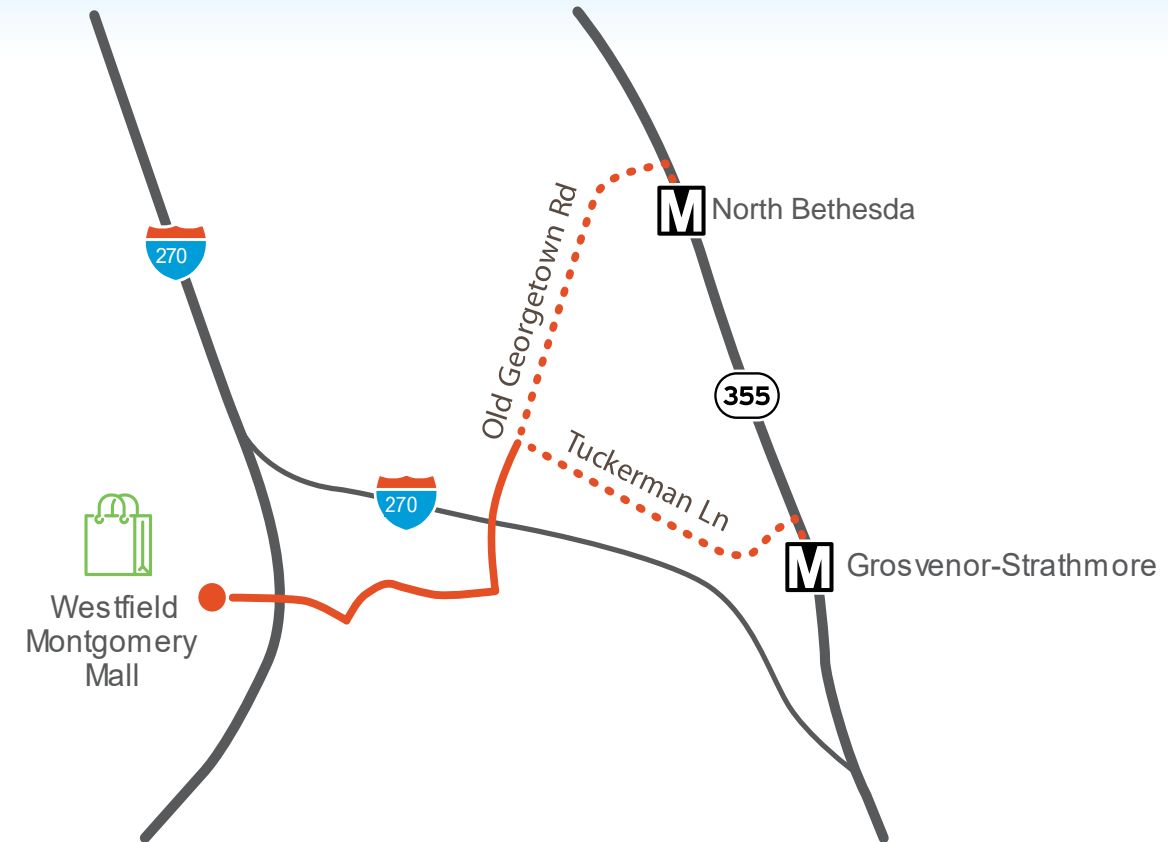
# Meeting Agenda

- Study Overview and Status
  - *Where are we now?*
- Overview of Alternatives
  - *What options are we analyzing?*
- Alternatives Analysis Framework
  - *How are we measuring performance?*
- Alternatives Analysis Preliminary Results
  - *What are the takeaways from analysis?*
- Next Steps

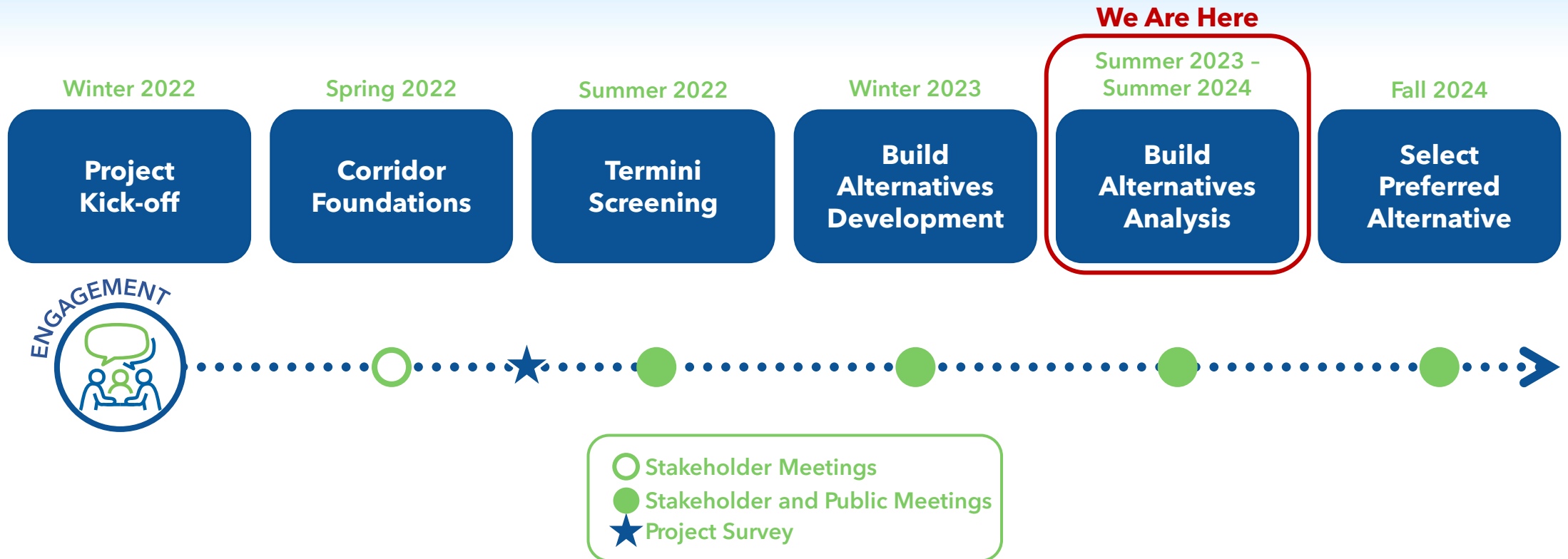
# Study Overview and Status

# North Bethesda Transitway Planning Study

- Corridor Extents from 2013 Master Plan:
  - **Western Terminus:** Westfield Montgomery Mall
  - **Eastern Terminus:** North Bethesda Metrorail station  
OR Grosvenor-Strathmore Metrorail station
- Study Outcomes:
  - Select an eastern terminus
  - Designate alignment types
    - *Dedicated BRT lanes vs. mixed traffic*
    - *Median vs. curb running*
  - Identify stop locations
  - Prepare for next phase: design and environmental



# Study Schedule





# Recent and Ongoing Analysis Tasks

- Completed
  - Determine Eastern Terminus
  - Develop and confirm alternatives to study
  - Identify evaluation metrics and methods
  - Analyze alternatives (except ridership)
- Ongoing
  - Refining ridership analysis
  - Coordination with nearby BRT projects

# Alternatives Overview

# Framework for Alternatives

## No Build Alternative\*

- *Includes all infrastructure and developments that will be built out regardless of if the North Bethesda BRT is implemented*

## Transportation System Management (TSM) Alternative\*

- *Includes increased service levels and potential Transit Signal Priority (TSP)*

## Build Alternative 1 – Maximum Build Out

- *Alignment with 2013 Transit Corridors Master Plan and additional multimodal and land use plan vision*

## Build Alternative 2 – Targeted Investment

- *Strategic alignment with sector plan area growth*

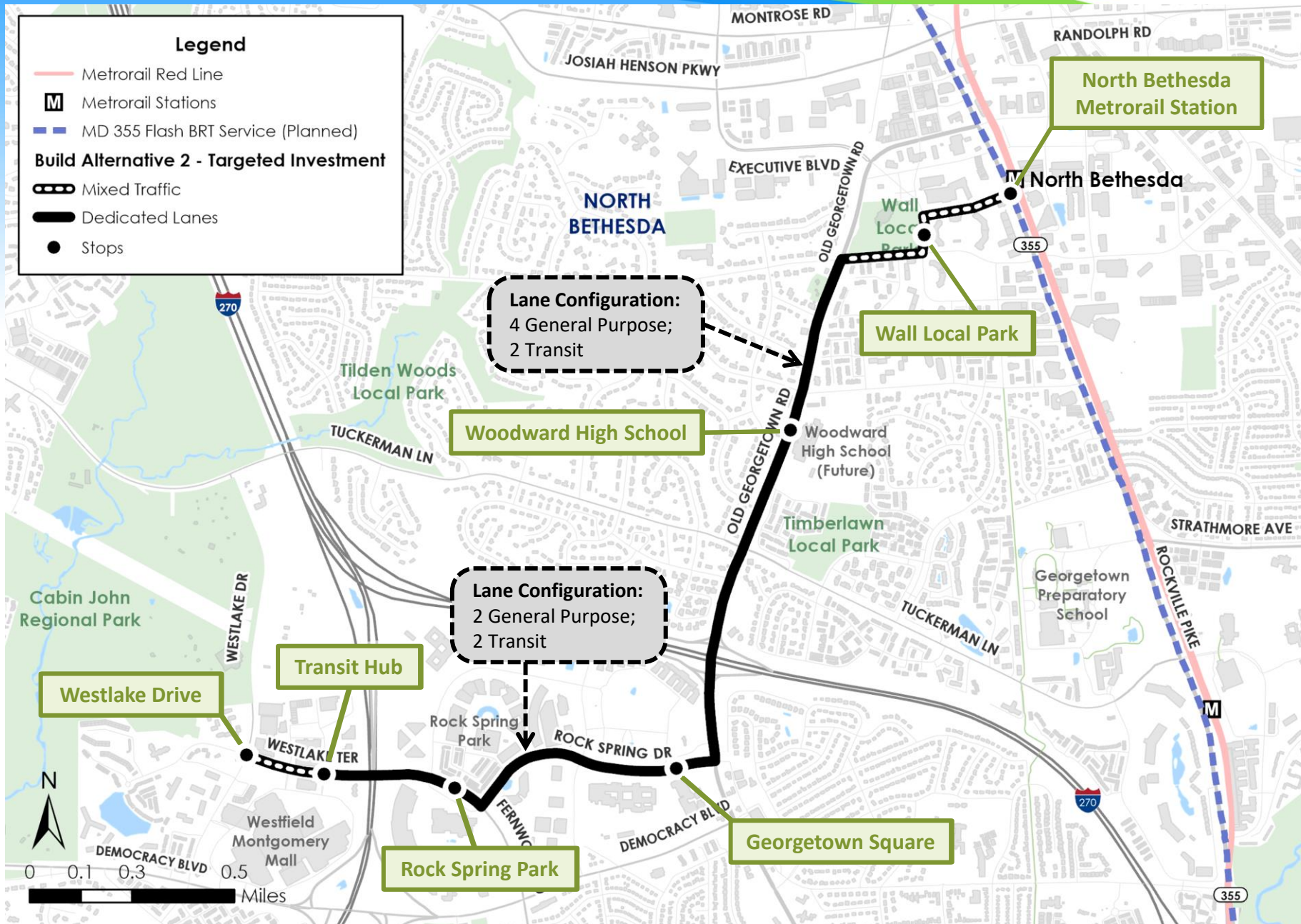
*\*No Build and TSM alternatives include the newly installed protected bike lanes on Old Georgetown Road*

# Infrastructure Assumptions

|                                | Build Alternative 1:<br>Maximum Build-Out  | Build Alternative 2:<br>Targeted Investment  |
|--------------------------------|--|--|
| <b>Runningway</b>              | <ul style="list-style-type: none"> <li>Primarily median running</li> </ul>   | <ul style="list-style-type: none"> <li>Curb running at targeted locations</li> <li>More mixed flow</li> </ul>  |
| <b>Stations</b>                | <ul style="list-style-type: none"> <li>2013 master plan stations</li> </ul>  | <ul style="list-style-type: none"> <li>Fewer stations to prioritize travel time</li> <li>Potential route extension (service only) to the west</li> </ul> |
| <b>Intersection Treatments</b> | <ul style="list-style-type: none"> <li>TSP at key Intersections</li> <li>Detailed intersection design would come during future phases</li> </ul> |  |



# Build Alt. 2: Targeted Investment

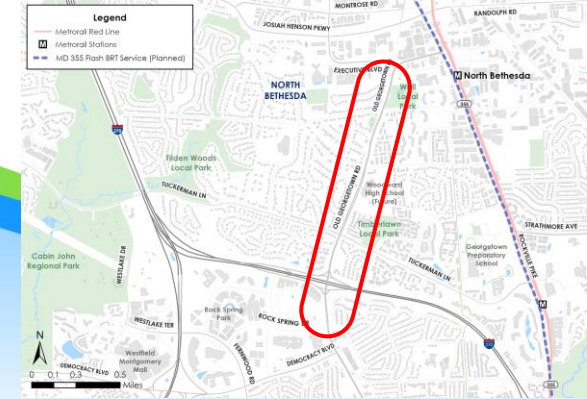
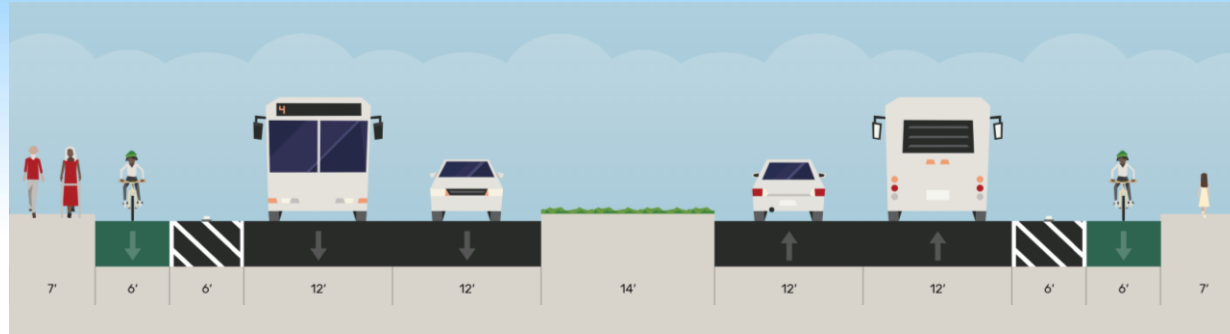


# Typical Section – Old Georgetown Road

Facing *North*

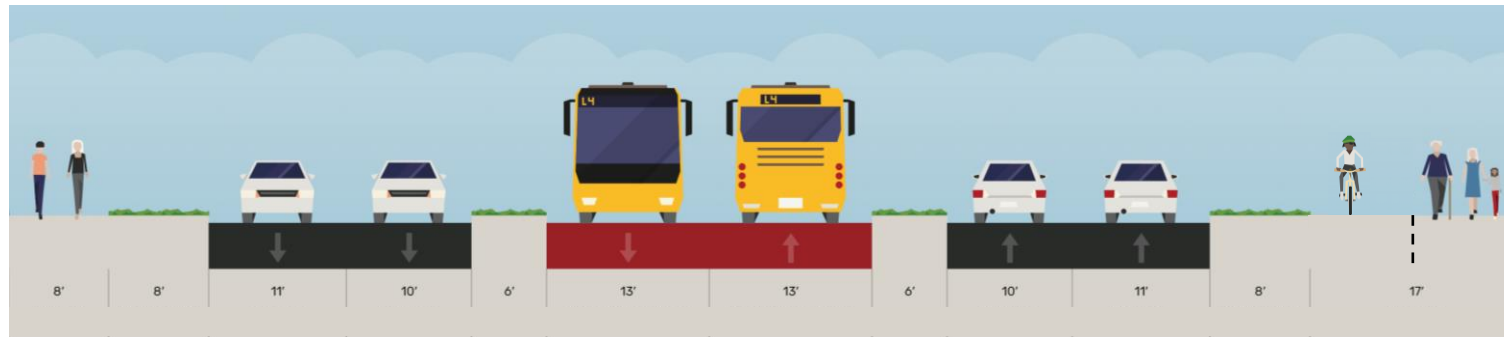
## No Build / TSM

ROW = 100'  
4 GP Lanes



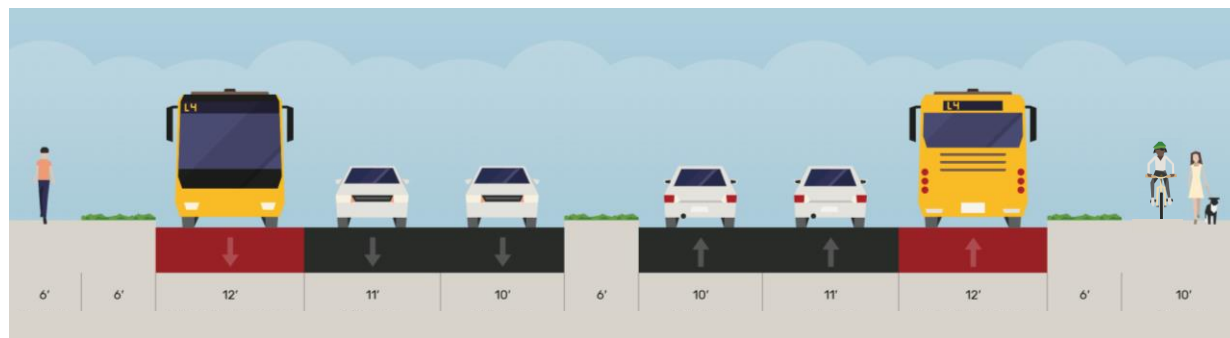
## Alternative 1: Maximum Build-Out

ROW = 121'  
4 GP Lanes, 2 Transit



## Alternative 2: Targeted Investment

ROW = 100'  
4 GP Lanes, 2 Transit

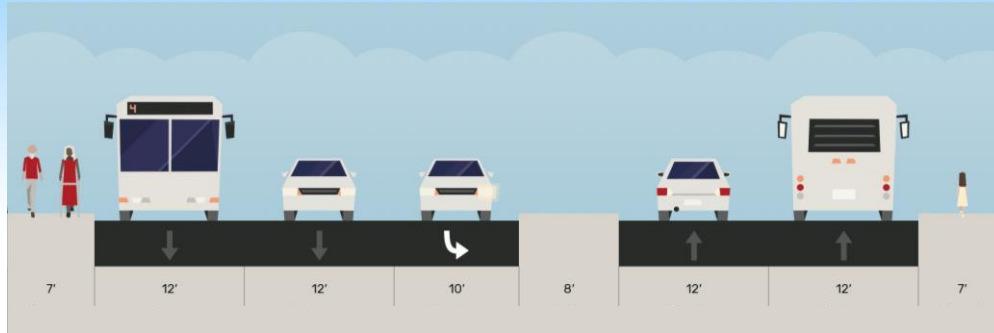


# Typical Section – Rock Spring Drive

Facing *East*

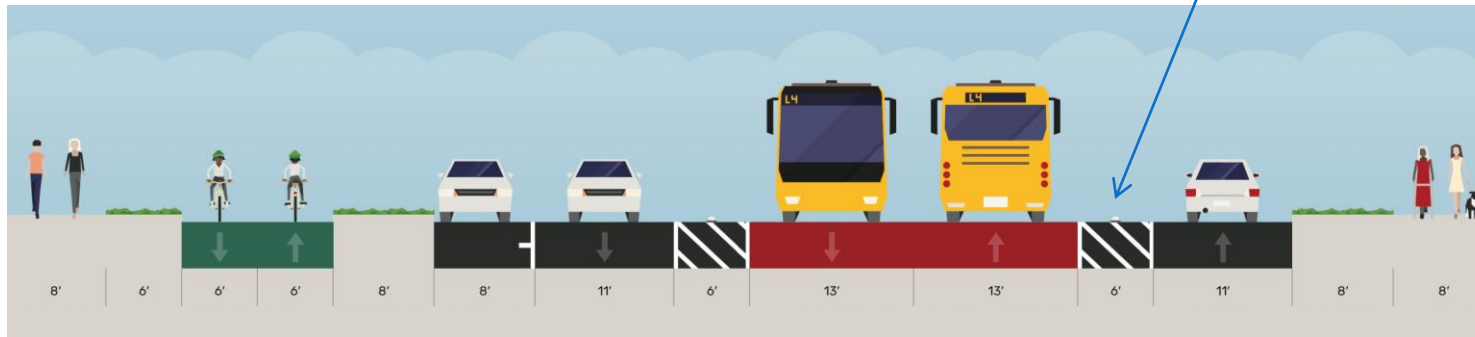
## No Build / TSM

ROW = 80'-90'  
4 GP Lanes



## Alternative 1: Maximum Build-Out

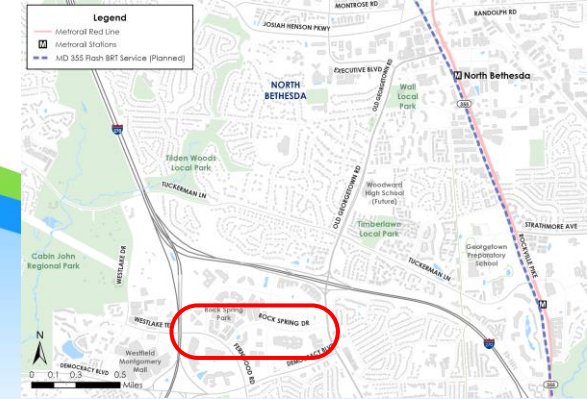
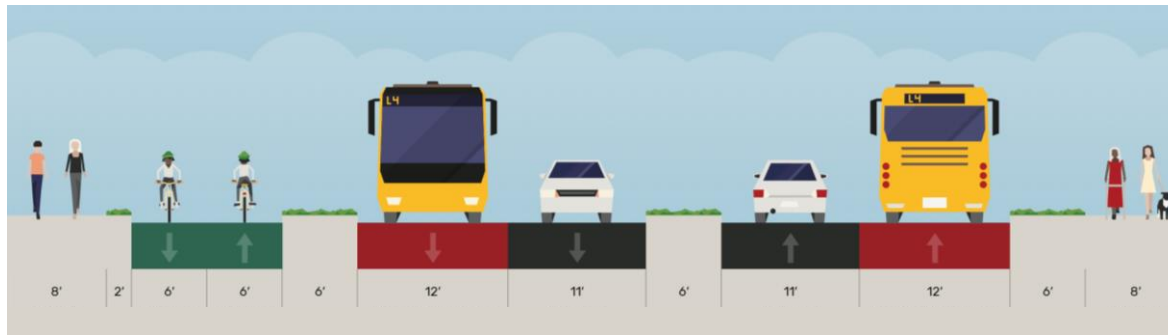
ROW = 118'  
2 GP Lanes, 2 Transit



Mountable bollards to accommodate access for emergency vehicles

## Alternative 2: Targeted Investment

ROW = 94'  
2 GP Lanes, 2 Transit





# Alternatives Analysis Framework

# Goals and Objectives



## Quality Service

*Provide a fast, reliable, efficient, and connected transit service*



## Mobility Choices

*Improve access to jobs, activity centers, and community facilities*



## Sustainable Solutions

*Minimize environmental impacts and utilize cost-effective design*

Adopted as countywide goals and objectives for FLASH BRT system



## Community Equity

*Provide improved and accessible transit service for underserved populations*



## Economic Growth

*Promote economic development with appealing and functional transit*



## Public Safety

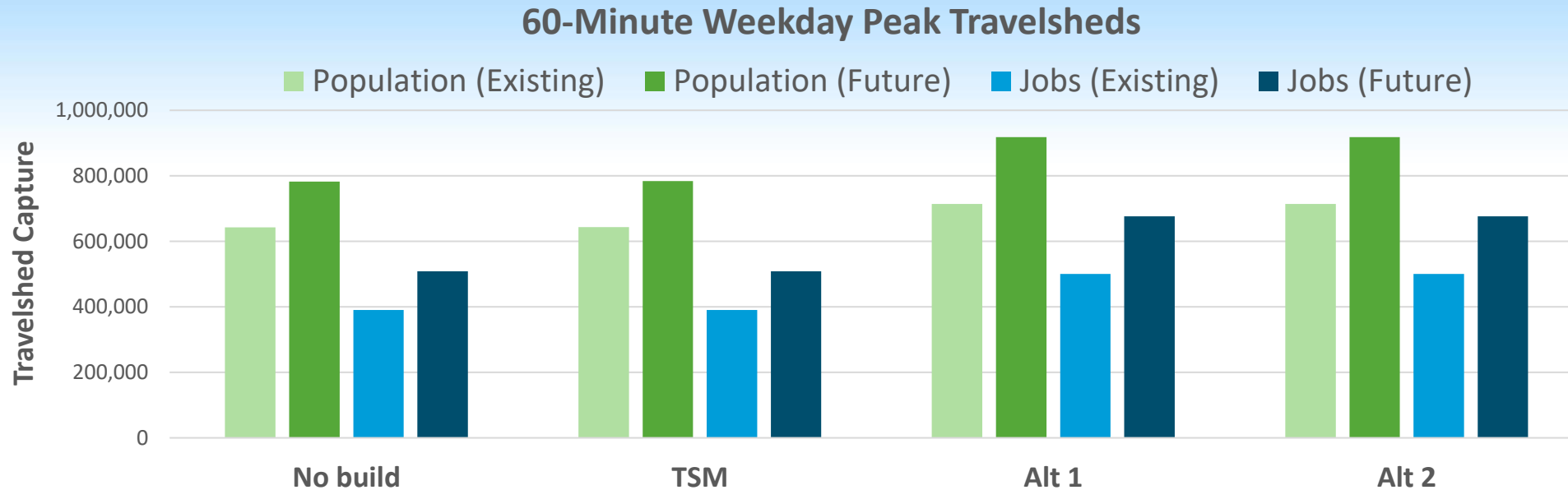
*Improve safety of our streets and the livability and wellness of our communities*

# Build Alternatives Analysis

| Metrics  | Study Goals     |                  |                 |                  |                       |               |
|--|-----------------|------------------|-----------------|------------------|-----------------------|---------------|
|  | Quality Service | Mobility Choices | Economic Growth | Community Equity | Sustainable Solutions | Public Safety |
| Ridership Forecasts - <i>to be discussed at next CAC</i> | ✓               | ✓                | ✓               |                  |                       |               |
| Travelsheds  | ✓               | ✓                | ✓               | ✓                |                       |               |
| Access to Frequent Service                               | ✓               | ✓                | ✓               | ✓                |                       | ✓             |
| Potential Right-of-Way (ROW) Expansion Needed            |                 |                  |                 | ✓                | ✓                     |               |
| Level of Infrastructure Investment                       |                 |                  |                 |                  | ✓                     |               |
| Operational Cost   |                 |                  |                 |                  | ✓                     |               |
| Potential Environmental Impacts                          |                 |                  |                 |                  | ✓                     | ✓             |
| Impacts to Traffic Flow                                  | ✓               |                  |                 |                  | ✓                     |               |
| Transit Travel Time                                      | ✓               | ✓                | ✓               |                  |                       |               |
| <b>Total</b>   | <b>5</b>        | <b>4</b>         | <b>4</b>        | <b>3</b>         | <b>5</b>              | <b>2</b>      |

# Alternatives Analysis Preliminary Results

## 2. Travelsheds



### Key Drivers and Takeaways:

- Alternatives 1 and 2 provide access to 204,000+ more people and 175,000+ more jobs by 2045
- Faster travel times and increased frequency for Build alternatives allow greater reach to population and jobs as compared to No Build and TSM

# 3. Access to Frequent Service

- **Purpose:** Identify tradeoffs between stop location options

## Stops in the study corridor:

- May be served by one or multiple build alternatives
- Have one or two “like” stop pairs for comparison

## Map Key:

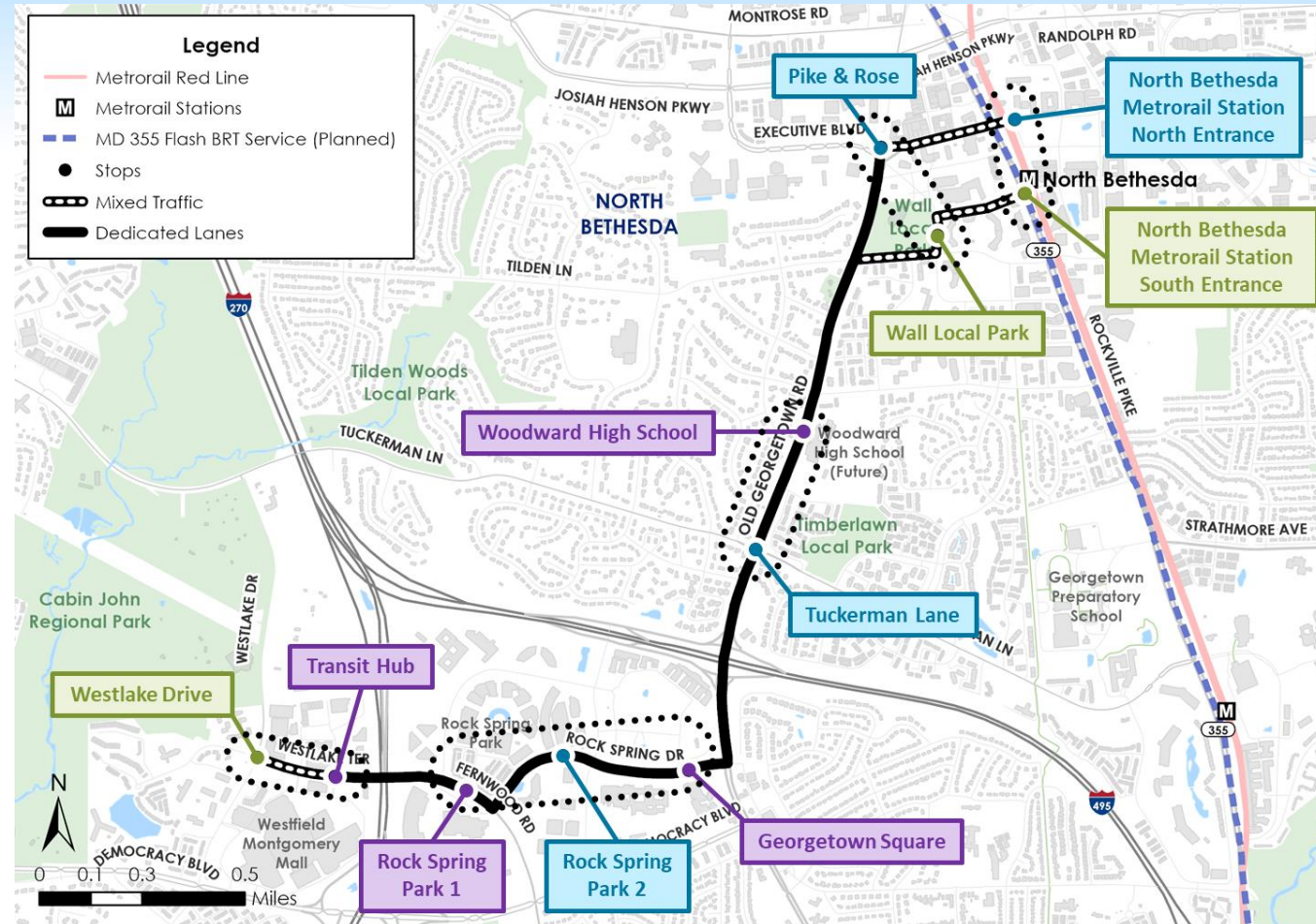
⋯ “Like” Stop Pairs

Alternative 1/TSM

Alternative 2

All Alternatives

} Stops

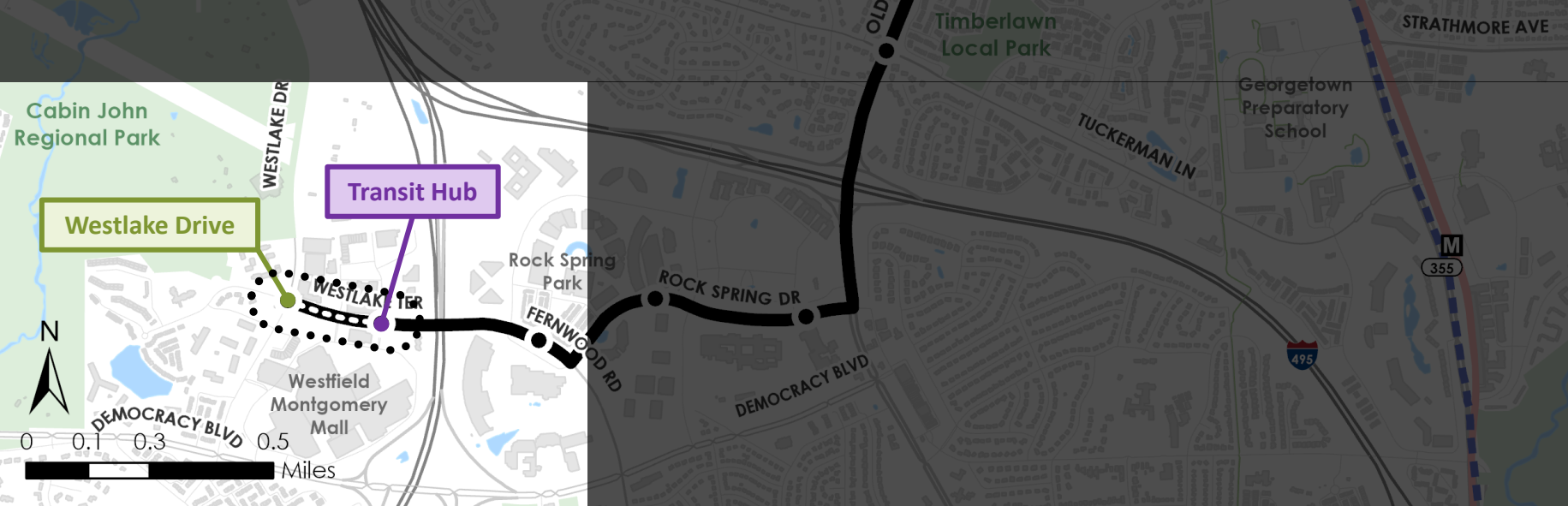


**Legend**

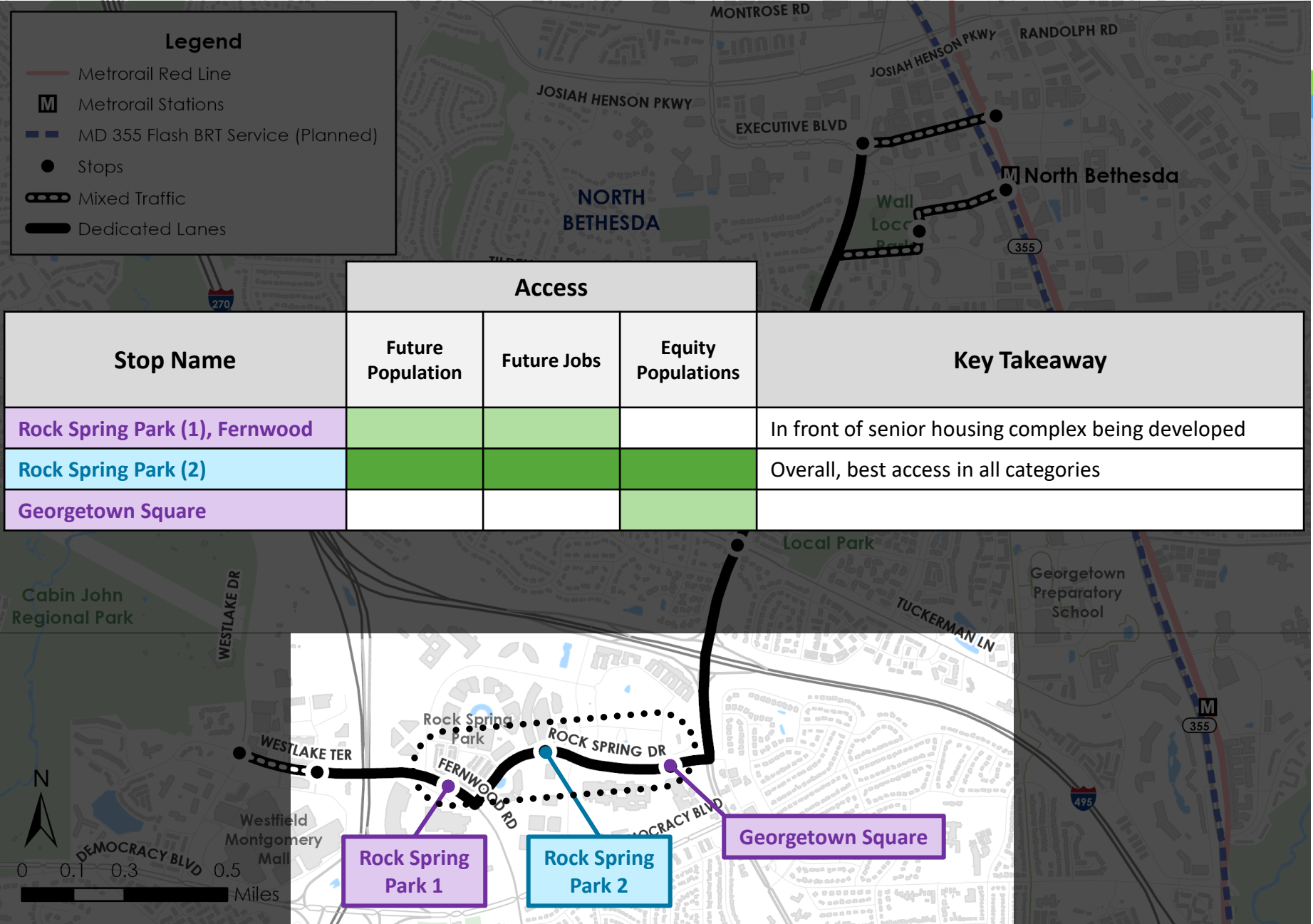
- Metrorail Red Line
- Metrorail Stations
- MD 355 Flash BRT Service (Planned)
- Stops
- Mixed Traffic
- Dedicated Lanes

| Stop Name                   | Access            |             |                    | Key Takeaway                                       |
|-----------------------------|-------------------|-------------|--------------------|--|
|                             | Future Population | Future Jobs | Equity Populations |  |
| Westlake Drive              |                   |             |                    | This extension would serve more equity populations |
| Montgomery Mall Transit Hub |                   |             |                    | Critical connection to future Tysons service       |

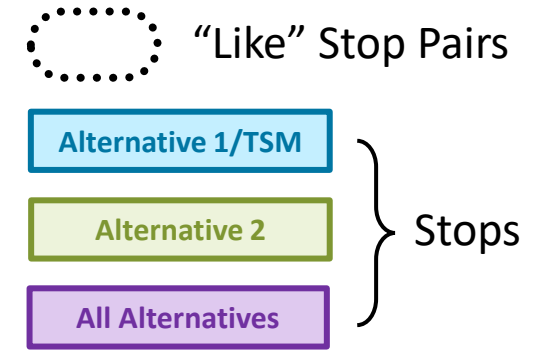
# 3. Access to Frequent Service



- "Like" Stop Pairs
- Alternative 1/TSM } Stops
- Alternative 2 }
- All Alternatives }

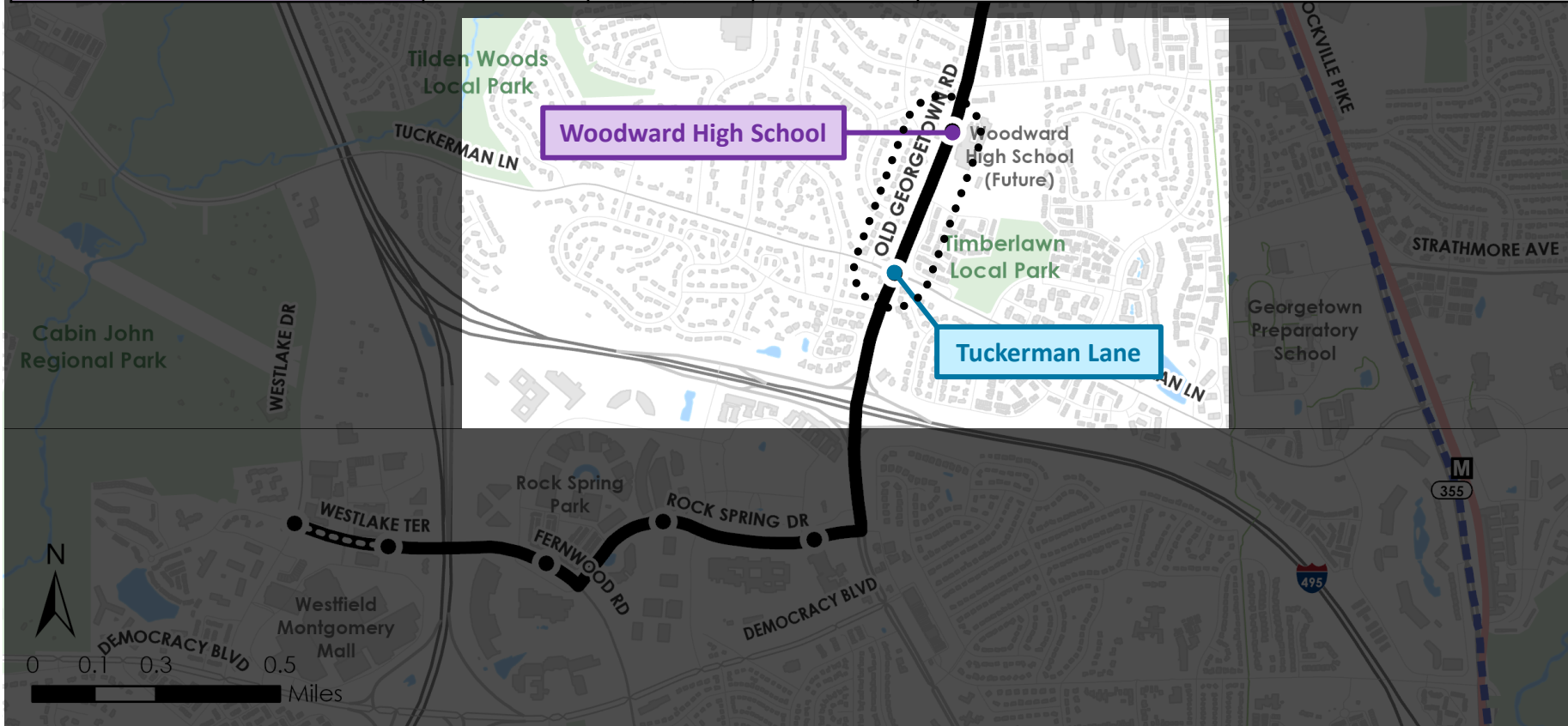


# 3. Access to Frequent Service





| Stop Name      | Access            |             |                    | Key Takeaway  |
|----------------|-------------------|-------------|--------------------|---|
|                | Future Population | Future Jobs | Equity Populations |   |
| Tuckerman Lane |                   |             |                    |   |
| Woodward HS    |                   |             |                    | Assumed station; potential to shift south to better reach the populations and jobs Tuckerman serves |

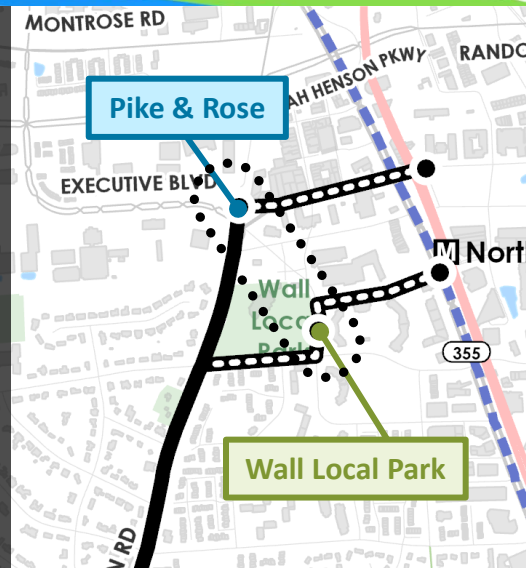


### 3. Access to Frequent Service

- "Like" Stop Pairs
  - Alternative 1/TSM
  - Alternative 2
  - All Alternatives
- } Stops

**Legend**

- Metrorail Red Line
- Metrorail Stations
- MD 355 Flash BRT Service (Planned)
- Stops
- Mixed Traffic
- Dedicated Lanes



# 3. Access to Frequent Service

"Like" Stop Pairs

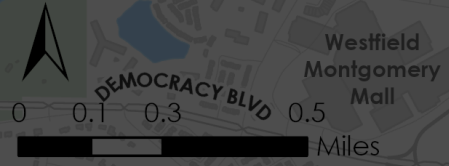
Alternative 1/TSM

Alternative 2

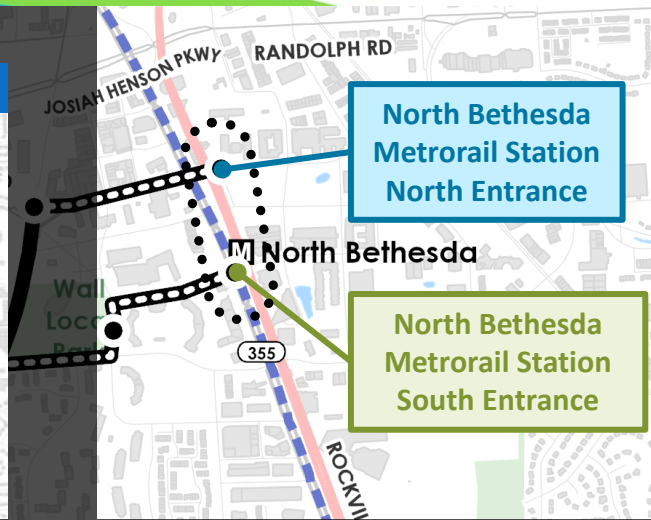
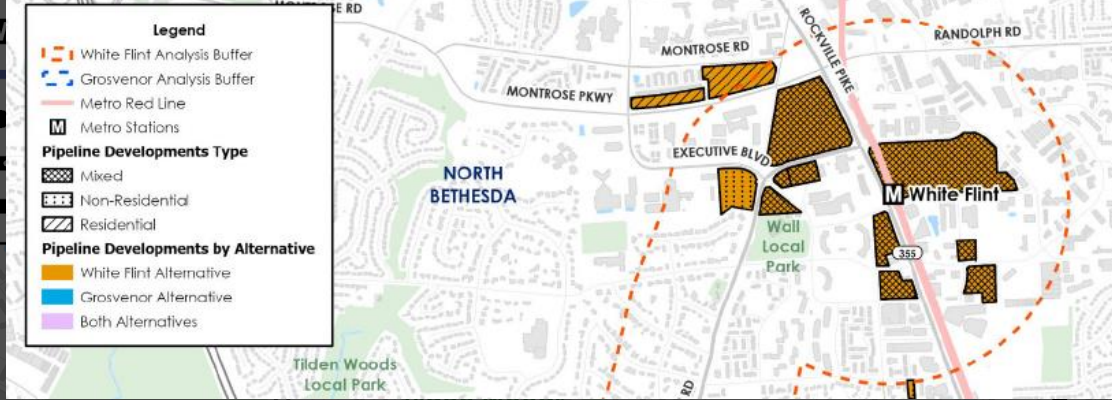
All Alternatives

} Stops

| Stop Name       | Access            |             |                    | Key Takeaway  |
|-----------------|-------------------|-------------|--------------------|---|
|                 | Future Population | Future Jobs | Equity Populations |   |
| Pike & Rose     |                   |             |                    | Better aligns with existing development   |
| Wall Local Park |                   |             |                    | Better serves jobs and equity populations; closer to future development core (based on master plan) |

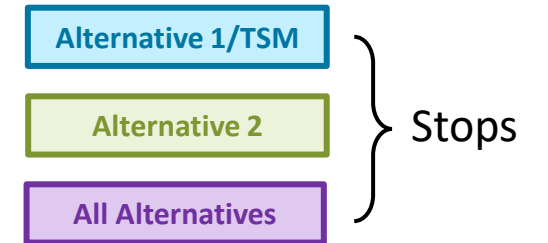


### Snapshot of Planned Development Map from Termini Screening

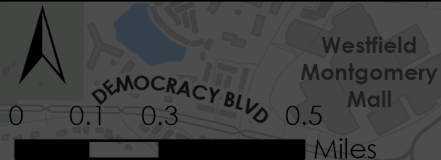


# 3. Access to Frequent Service

"Like" Stop Pairs



| Stop Name                | Access            |             |                    | Key Takeaway  |
|--------------------------|-------------------|-------------|--------------------|---|
|                          | Future Population | Future Jobs | Equity Populations |   |
| Metrorail North Entrance |                   |             |                    | Aligns with planned Northern Entrance to North Bethesda Station and future MD 355 BRT station |
| Metrorail South Entrance |                   |             |                    | Better serves future jobs and population; serves some equity populations better               |

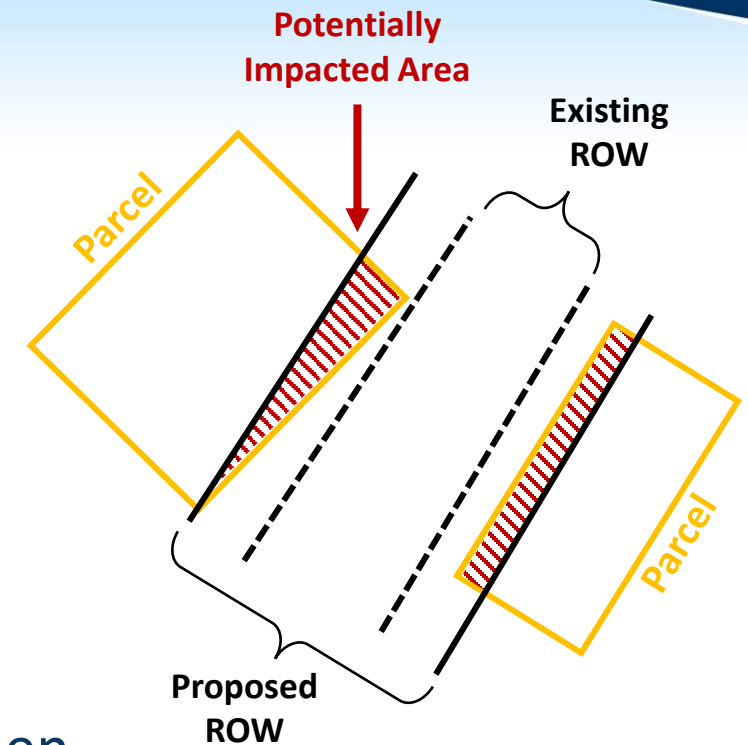


# 4. Potential ROW Expansion Needed

| Measure                                 | Alternative 1<br>Maximum Build-Out | Alternative 2<br>Targeted Investment |
|---|------------------------------------|--------------------------------------|
| Total Potentially Impacted Area (Acres) | 7.8                                | 3.0                                  |

## Key Drivers and Takeaways:

- The center-running guideway and larger bike/pedestrian facilities in Alternative 1 result in more potential parcel impacts due to the wider cross-section
- Results are based on a planning-level desktop analysis; when it comes to design, MCDOT will strive to reduce property impacts as much as possible



# 5. Level of Infrastructure Investment

| Measure  | TSM<br>Mixed-flow; Some TSP | Alternative 1<br>Maximum Build-Out | Alternative 2<br>Targeted Investment |
|--|-----------------------------|------------------------------------|--------------------------------------|
| <b>Preliminary Opinion of Probable Cost (OPC)*</b> | <b>\$ 14 M</b>              | <b>\$ 141 M</b>                    | <b>\$ 91 M</b>                       |
| <i>Vehicle Costs (Included in OPC)</i>             | <i>\$ 5.9 M</i>             | <i>\$ 7.9 M</i>                    | <i>\$ 7.9 M</i>                      |

## Key Drivers and Takeaways:

- Includes capital costs to build the infrastructure
- Preliminary estimate is based on typical sections for comparison purposes
- Categories that cause a significant increase in the Build Alternative 1 OPC:
  - Potential ROW costs
  - Additional roadway width

\*Includes peak vehicle needs; Assumes 60' hydrogen fuel buses for new vehicle needs

# 6. Operational Cost

| Measure                                       | TSM<br>Mixed-flow; Some TSP      | Alternative 1<br>Maximum Build-Out | Alternative 2<br>Targeted Investment |
|---|----------------------------------|------------------------------------|--------------------------------------|
| Estimated Annual Operational Cost             | <b>\$ 1.68 M</b>                 | <b>\$ 1.80 M</b>                   | <b>\$ 1.80 M</b>                     |
| Assumed Peak and Off-Peak Service Frequencies | Peak: 15-min<br>Off-Peak: 15-min | Peak: 7.5-min<br>Off-Peak: 15-min  | Peak: 7.5-min<br>Off-Peak: 15-min    |

## Key Drivers and Takeaways:

- Operational costs are annual recurring costs required to run the service
- Lower TSM costs reflects longer peak headways
- Alternatives 1 and 2 have similar operating costs due to the same frequency of service and having similar stop locations and route length

Assumed no  
impacts from  
TSM alternative

# 7. Potential Impacts to Environmental Resources

## Key Takeaways:

- The environmental resources falling within a ¼-mile buffer for both build alternatives are nearly the same
- Alternative 1 had two more resources flagged for further review due to proximity to the corridor than Alternative 2
- Further assessment of environmental impacts should be conducted prior to NEPA

## Environmental Resources Reviewed:

- Registered historic places
- Recreational resources
- Libraries
- Places of worship
- Commercial centers
- Neighborhoods/subdivisions
- Schools
- Federally owned properties
- Rivers and streams
- Watersheds and wetlands
- Floodplains
- Soils
- Endangered and threatened species

# 8. Development Impacts to Traffic Flow

- Without any changes to infrastructure or transit on this corridor, **travel time along the corridor is projected to increase** due to regional growth and planned development

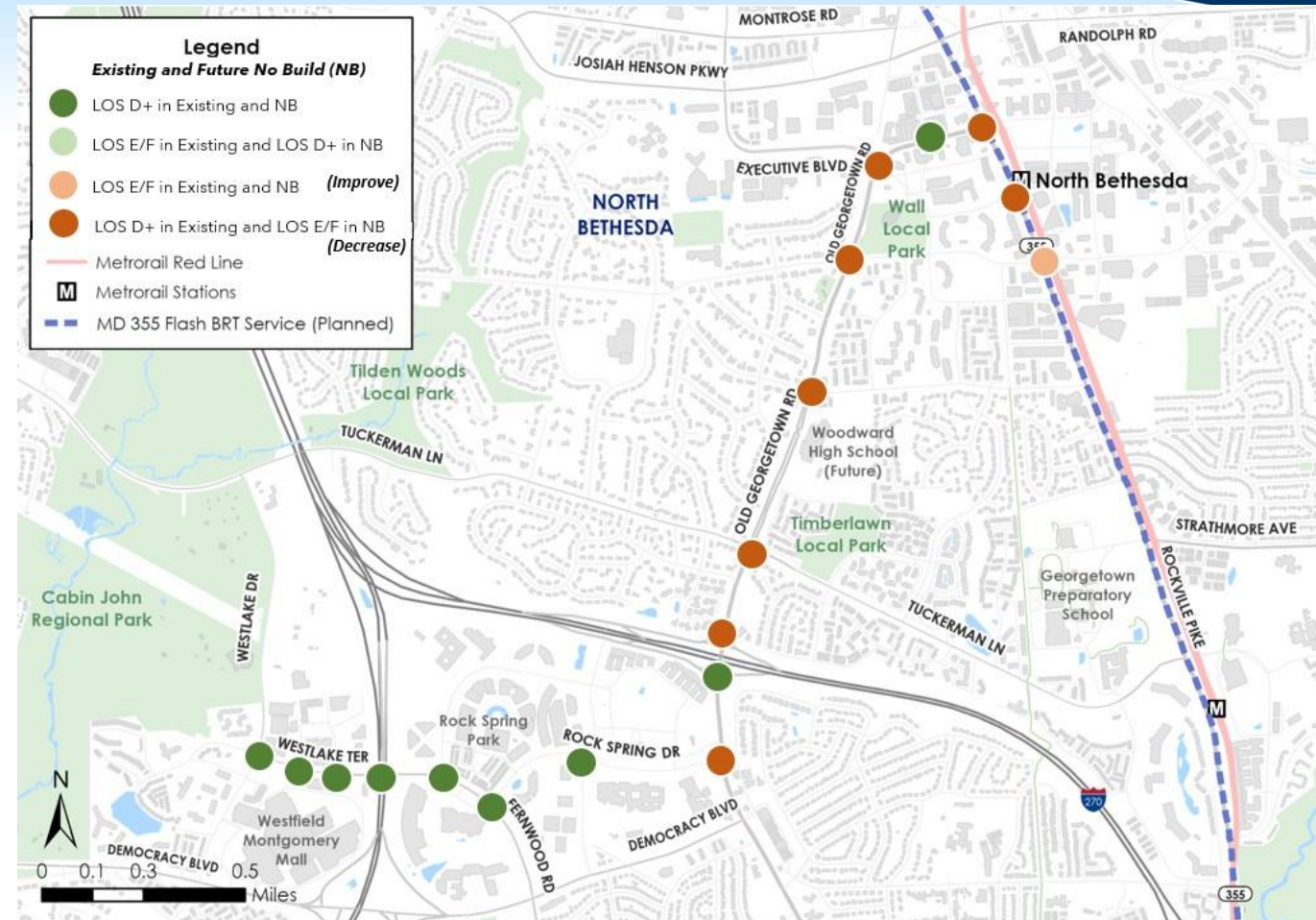
| <b><u>Average Transit Travel Time (in minutes)</u></b>   |                      |                         |                             |
|--|----------------------|-------------------------|-----------------------------|
| Montgomery Mall – North Bethesda Metrorail (Out and Back) via Westlake Terrace, Rock Spring Drive, and Old Georgetown Road |                      |                         |                             |
|  | <b>Existing 2022</b> | <b>Percent Increase</b> | <b>Future No Build 2045</b> |
| <b>AM Peak</b>   | 26 min               | 20%                     | 31 min                      |
| <b>PM Peak</b>   | 26 min               | 55%                     | 40 min                      |



# 8. Developing Future Traffic Volumes

## Existing and No-Build Comparison

- PM period experiences more operational challenges than AM
- Assessing future conditions (2045) based on currently-available data and projected growth
- Most intersections along Old Georgetown Road have Level of Service (LOS) E/F for vehicles



# 8. Impacts to Traffic Flow – Build Alternatives

## Number of Intersections with LOS E or Worse:

| Segment                                 | No Build | Build Alternative 1 | Build Alternative 2 |
|---|----------|---------------------|---------------------|
| Westlake Terrace                        | 0        | 2                   | 0                   |
| Rock Spring Drive                       | 1        | 1                   | 1                   |
| Old Georgetown Road                     | 6        | 6                   | 5                   |
| Executive Boulevard/Old Georgetown Road | 2        | 2                   | 2                   |
| Marinelli Road                          | 1        | 1                   | 1                   |
| Rockville Pike                          | 3        | 3                   | 3                   |

## 8. Summary of Traffic Takeaways

- No Build results (without any transit improvements) show significantly increased congestion compared with existing (2022)
- Either Build Alternative makes vehicle congestion worse than the No Build
- Alt 2 general purpose lanes operate better in comparison to Alt 1
- Important traffic factors to consider in more detailed design:
  - Center Running
    - Left-turns across dedicated transit lanes
    - Signal timing for buses to enter/exit dedicated lanes
  - Curb-Running
    - Transitions from the curb to left-turn lanes
    - Sharing right-turn lanes with vehicles

# 9. Transit Travel Time

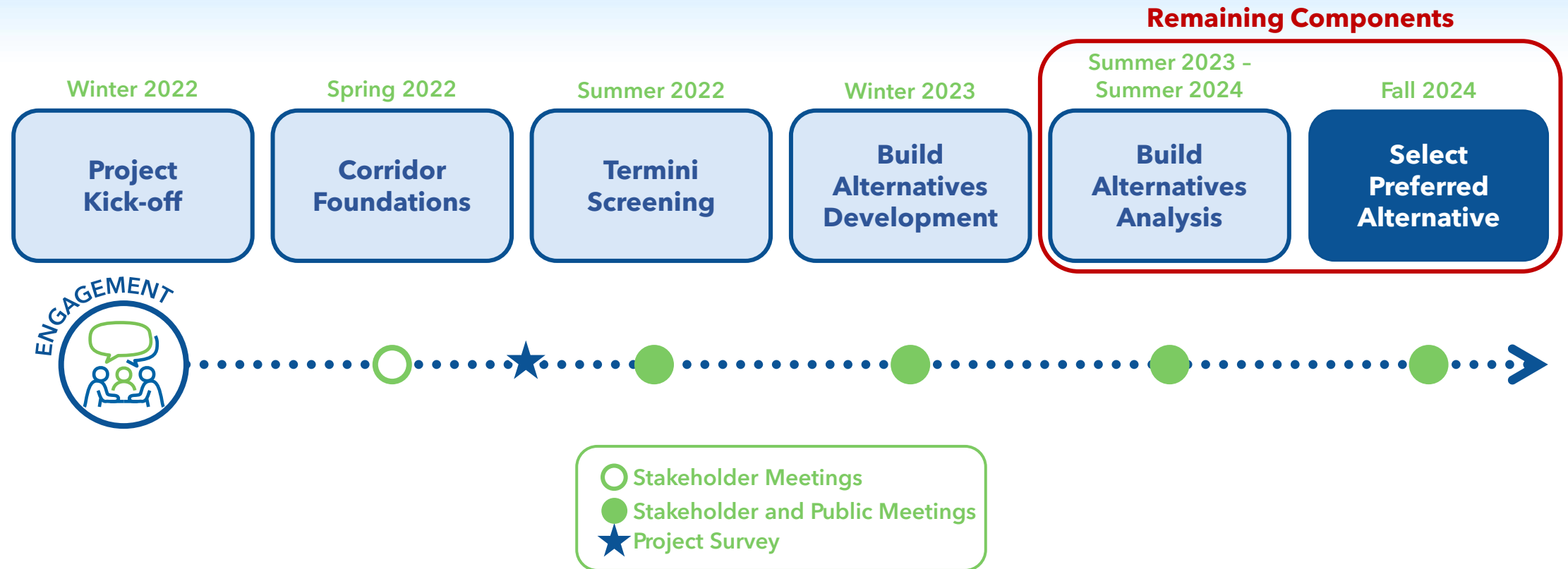
| Measure  | No Build          | TSM<br>Mixed-flow; Some TSP | Alternative 1<br>Maximum Build-Out | Alternative 2<br>Targeted Investment |
|--|-------------------|-----------------------------|------------------------------------|--------------------------------------|
| <b>Transit Travel Time*</b><br>(Round Trip Between Montgomery Mall and North Bethesda Metrorail Station) | <b>40 minutes</b> | <b>39 minutes</b>           | <b>24 minutes</b>                  | <b>24 minutes</b>                    |

## Key Drivers and Takeaways:

- Background traffic growth significantly slows No Build and TSM service compared to existing
- The dedicated lanes on Alternative 1 and 2 provide significant travel time savings over No Build and TSM

# Next Steps

# Next Steps



# Thank you!

# Questions?

## Project Contact Information

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