



# Steering Committee Meeting 1

April 18, 2018

# Presentation Overview

Background

Schedule

Context

Traffic Study Preliminary Findings

Initial Concepts

Next Steps & Discussion

The background features a light green and grey color palette. It includes silhouettes of a person walking on the left, a person riding a bicycle in the center, and a person running on the right. There are also stylized trees with large, rounded canopies and a large tree trunk on the left side. The overall scene is a park or street with active people.

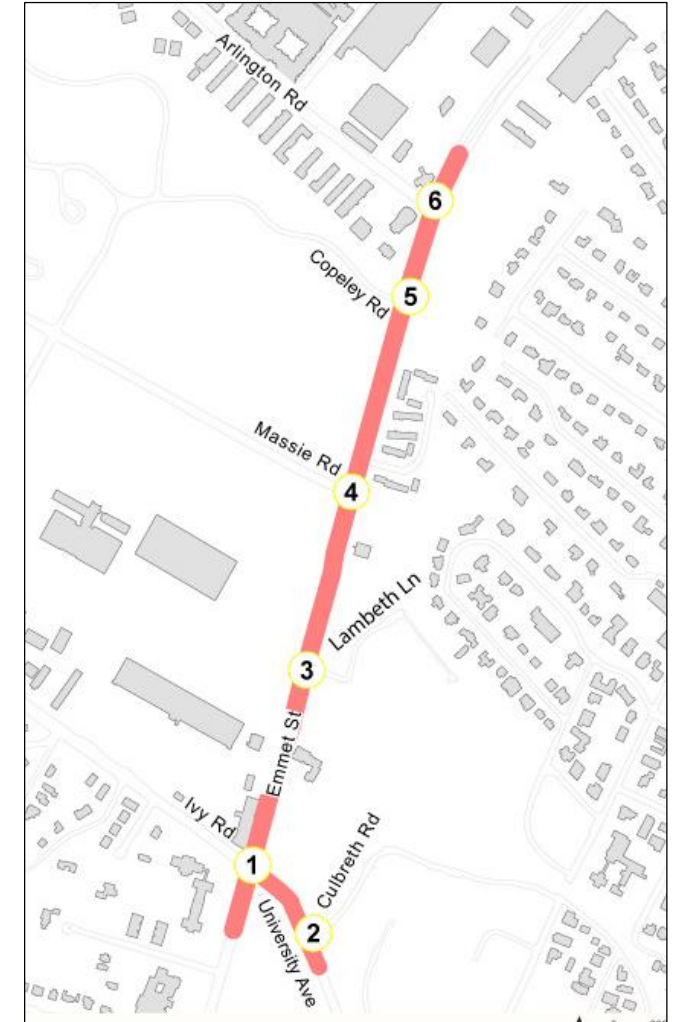
# Background and Schedule

EMMET STREETScape

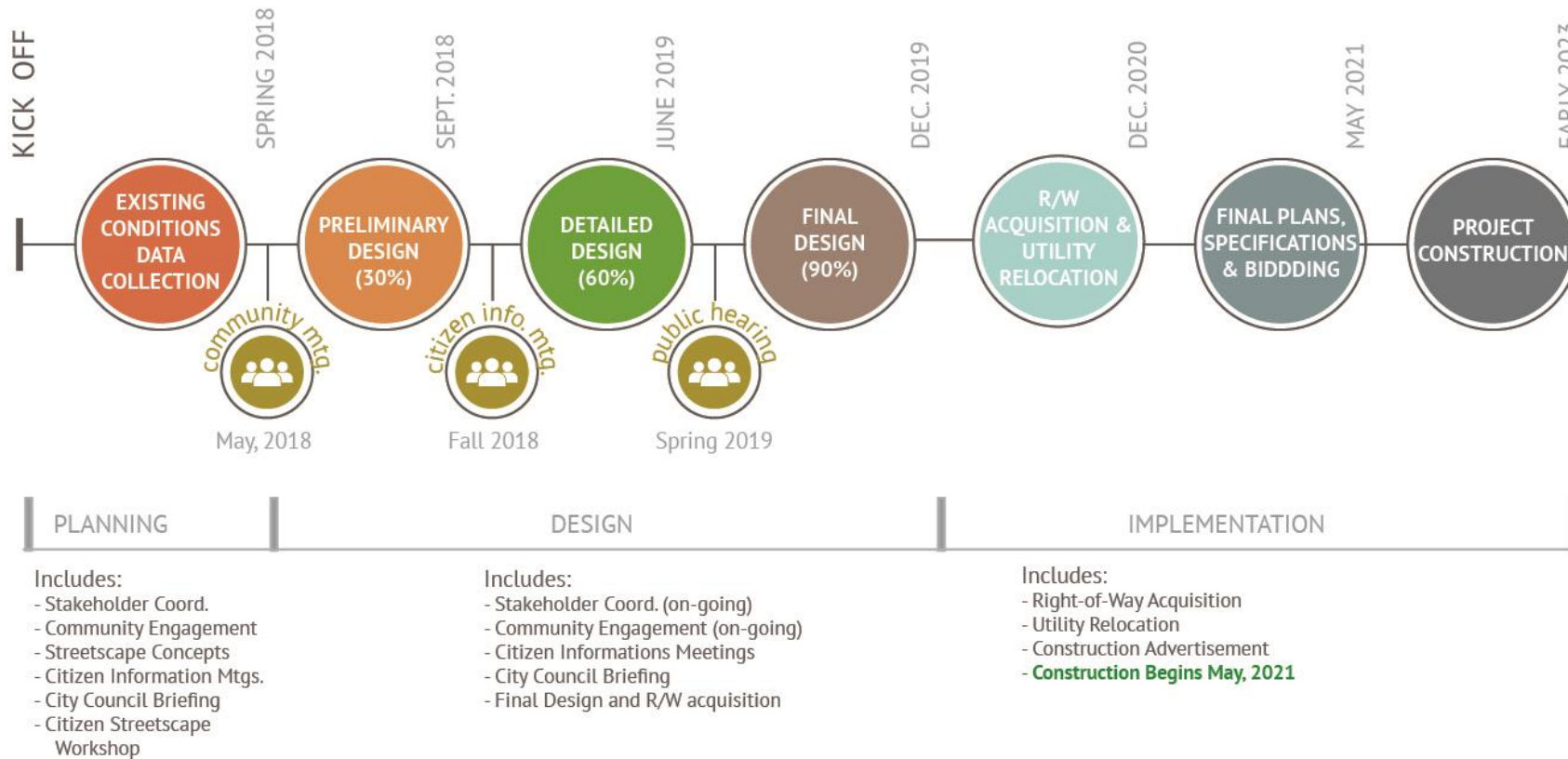
# Smart Scale Project Description



- Traffic signal coordination
- Bike lanes on both sides
- 10-ft asphalt multi-use path on the east side
- Audible pedestrian signals & ADA standard curb ramps
- 5-ft grassy buffer planted with street trees between the multi-use path and Emmet
- Landscaped center median extended to the ped bridge
- Bus shelters and optimize/consolidate bus stops



# General Schedule



## Upcoming Milestones

- April 18 – Steering & Tech Committee
- May 12 – Community Meeting 1

The image features a light green and grey background with silhouettes of three people in motion. On the left, a person is walking. In the center, a person is riding a bicycle. On the right, a person is running. The background includes stylized trees and rolling hills. The word 'Context' is written in a simple, black, sans-serif font on the left side of the image.

Context

EMMET STREETScape





# Draft Design Principles

Based on the City's Bike/Ped Plan, Streets That Work Plan, and Smart Scale application:

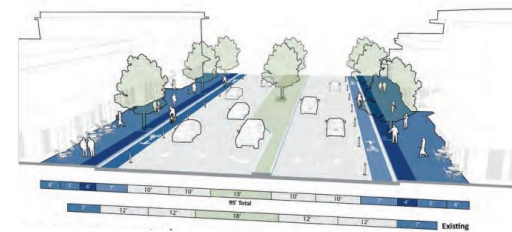
- **Make a Complete Street:**
  - Improve pedestrian, bicycle, and transit accommodations while maintaining vehicle flow
  - Balance the needs of each travel mode
- **Increase Safety and Comfort for Pedestrians and Bicyclists:**
  - Provide a buffer between the roadway and pedestrian and bicycle facilities
  - Where feasible, separate and buffer pedestrian and bicycle facilities
- **Beautify the Corridor as an Appropriate Gateway:**
  - Provide landscaping and hardscape materials that provide shade, comfort, safety, and increases the attractiveness of the gateway

# City Facility Guidance

Element (Mixed Use A)	Guideline
<b>Sidewalk</b>	7' clear zone
<b>Curbside buffer</b>	3' to 6' with trees
<b>Bicycle Facility</b>	<ul style="list-style-type: none"> <li>• 5' to 7' bike lane</li> <li>• 7' separated bike lane</li> <li>• Or 10' shared use path</li> </ul>
<b>Travel lanes</b>	<ul style="list-style-type: none"> <li>• 10'</li> <li>• 11' outside lane if transit</li> </ul>
<b>Turn lanes</b>	10'
<b>Traffic calming</b>	Roundabouts
<b>Median</b>	Recommended for 3+ travel lanes
<b>Curb radii</b>	20' to 30'



► *Unconstrained*



**Optimal Application**

► *Retrofit*



**Practical Application**

\*Red items are highest priority elements

## Contextual Guidance for Selecting All Ages & Abilities Bikeways

Roadway Context				All Ages & Abilities Bicycle Facility
Target Motor Vehicle Speed*	Target Max. Motor Vehicle Volume (ADT)	Motor Vehicle Lanes	Key Operational Considerations	
Any		Any	Any of the following: high curbside activity, frequent buses, motor vehicle congestion, or turning conflicts <sup>†</sup>	<b>Protected Bicycle Lane</b>
< 10 mph	Less relevant	No centerline, or single lane one-way	Pedestrians share the roadway	<b>Shared Street</b>
≤ 20 mph	≤ 1,000 – 2,000		< 50 motor vehicles per hour in the peak direction at peak hour	<b>Bicycle Boulevard</b>
≤ 25 mph	≤ 500 – 1,500	Single lane each direction, or single lane one-way	Low curbside activity, or low congestion pressure	<b>Conventional or Buffered Bicycle Lane, or Protected Bicycle Lane</b>
	≤ 1,500 – 3,000			<b>Buffered or Protected Bicycle Lane</b>
	≤ 3,000 – 6,000			<b>Protected Bicycle Lane</b>
	Greater than 6,000			<b>Protected Bicycle Lane</b>
	Any	Multiple lanes per direction		<b>Protected Bicycle Lane</b>
Greater than 26 mph <sup>†</sup>	≤ 6,000	Single lane each direction	Low curbside activity, or low congestion pressure	<b>Protected Bicycle Lane, or Reduce Speed</b>
		Multiple lanes per direction		<b>Protected Bicycle Lane, or Reduce to Single Lane &amp; Reduce Speed</b>
	Greater than 6,000	Any	Any	<b>Protected Bicycle Lane, or Bicycle Path</b>
High-speed limited access roadways, natural corridors, or geographic edge conditions with limited conflicts		Any	High pedestrian volume	<b>Bike Path with Separate Walkway or Protected Bicycle Lane</b>
			Low pedestrian volume	<b>Shared-Use Path or Protected Bicycle Lane</b>

Recommendation of **NACTO** for facility type is protected bicycle lane or bicycle path

“Where motor vehicle speeds exceed 35 mph, it is usually impossible to provide safe or comfortable bicycle conditions without full bikeway separation.”



The background features a light green and grey color palette. It includes silhouettes of a pedestrian on the left, a cyclist in the center, and a runner on the right. There are also stylized trees of various shapes and sizes, some in grey and some in light green. A horizontal grey line runs across the middle of the image, separating the silhouettes from the text.

# Traffic Study Preliminary Findings

EMMET STREETScape

# Preliminary Traffic Findings

## General Assumptions & Takeaways

- **Assumptions:** 2045 for future conditions, 0.50% annual growth rate
- **Turn Lanes:** SB right Emmet to Ivy, and change of NB channelized right to standard right turn are the only assumed additions. Supported by existing conditions; elevated need by closure of access road at Villa.
- **Roundabouts:** Potentially works for vehicles at Massie intersection; but has design challenges
- **Road Diet:** Volumes too high; Closest segment to having potential for a road diet is NB Massie to Arlington, which would help with fitting/buffering east-side multi-use path



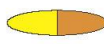
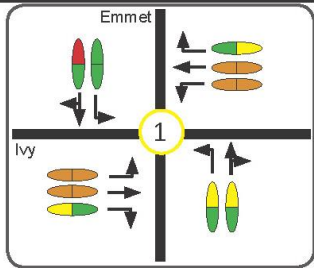
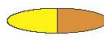
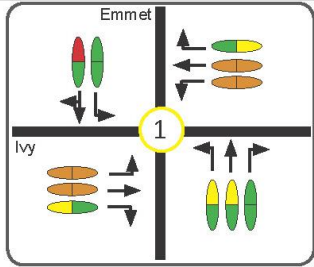
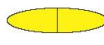
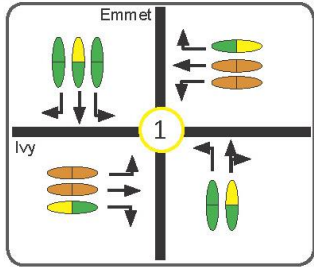
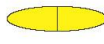
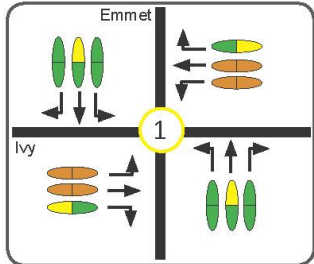
# Preliminary Traffic Findings

## Emmet/Ivy

- Changing the channelized NB right to a standard right turn and storage does not degrade traffic
- Adding a dedicated SB right decreases queuing and delay
- The maximum SB queue passes the RR bridge in every alternative, hindering the ability to do a road diet under the RR bridge

### 2045 No Build Analysis

■ LOS A-C 
 ■ LOS D 
 ■ LOS E 
 ■ LOS F

Scenario	Considering Improvements	Level of Service Results	AM   PM
Base Alt	- 2045 No Build (Maximum southbound queue: 742/881)	Overall:  Overall Delay: 41.0/65.7 Overall W/C Ratio: 0.83/0.99	
Alt A	- Remove right turn channelization and change to standard turn lane (120' full width). (Maximum southbound queue: 721/877)	Overall:  Overall Delay: 40.9/65.7 Overall W/C Ratio: 0.82/0.99	
Alt B	- Add separate southbound right turn lane (Maximum southbound queue: 606/806)	Overall:  Overall Delay: 39.3/45.9 Overall W/C Ratio: 0.82/0.93	
Alt C	- Remove right turn channelization and change to standard turn lane (120' full width). - Add separate southbound right turn lane (Maximum southbound queue: 587/803)	Overall:  Overall Delay: 39.3/45.9 Overall W/C Ratio: 0.78/0.89	

# Preliminary Traffic Findings

## Emmet/Massie

- Appears the intersection could work as either a standard configuration or a roundabout.
- Requires more simulation work to study impacts or roundabout on queueing south of the intersection.
- May also be design challenges for a roundabout relative to site access to the old hotel (near Afghan Kabob).

### 2045 No Build Analysis

■ LOS A-C 
 ■ LOS D 
 ■ LOS E 
 ■ LOS F

Scenario	Considering Improvements	Level of Service Results <span style="background-color: #c8e6c9; border-radius: 10px; padding: 2px;">AM/PM</span>	
Base Alt	- 2045 No Build (Maximum northbound queue: 201/428)	Overall: Overall Delay: 19.6/31.5 Overall V/C Ratio: 0.70/0.76	
Alt A	- Change the northbound approach to LEFT, THROUGH/RIGHT	Overall: Overall Delay: 20.7/60.5 Overall V/C Ratio: 0.70/1.02	
Alt B	- Change the southbound approach to LEFT, THROUGH/RIGHT	Overall: Overall Delay: 103.7/63.5 Overall V/C Ratio: 1.01/1.03	
Alt C	- Change the northbound approach to LEFT, THROUGH/RIGHT - Change the southbound approach to LEFT, THROUGH/RIGHT	Overall: Overall Delay: 104.8/92.5 Overall V/C Ratio: 1.01/1.03	
Alt D	- Change the northbound approach to LEFT, THROUGH, RIGHT (200' storage) - Change the southbound approach to LEFT, THROUGH, RIGHT (200' storage)	Overall: Overall Delay: 32.7/76.6 Overall V/C Ratio: 0.84/1.01	

# Preliminary Traffic Findings

## Emmet/Massie

- Roundabout analysis

### Emmet Street Smart Scale

#4 - Emmet Street/Massie Road

### Comparison between Standard & Roundabout Intersection

4

LOS A-C LOS D LOS E LOS F

Scenario	Considering Improvements	Level of Service Results <span style="background-color: #c8e6c9; border-radius: 50%; padding: 2px;">AM/PM</span>
Base Alt	- 2045 No Build (Maximum northbound queue: 201/428)	Overall: <span style="background-color: #c8e6c9; border-radius: 50%; padding: 2px;">4</span> Overall Delay: 19.6/31.5 Overall W/C Ratio: 0.70/0.76 
Roundabout Alt	- Change to roundabout intersection	Overall: <span style="background-color: #c8e6c9; border-radius: 50%; padding: 2px;">4</span> Overall Delay: 11.7/24.4 Overall W/C Ratio: 0.67/0.89 

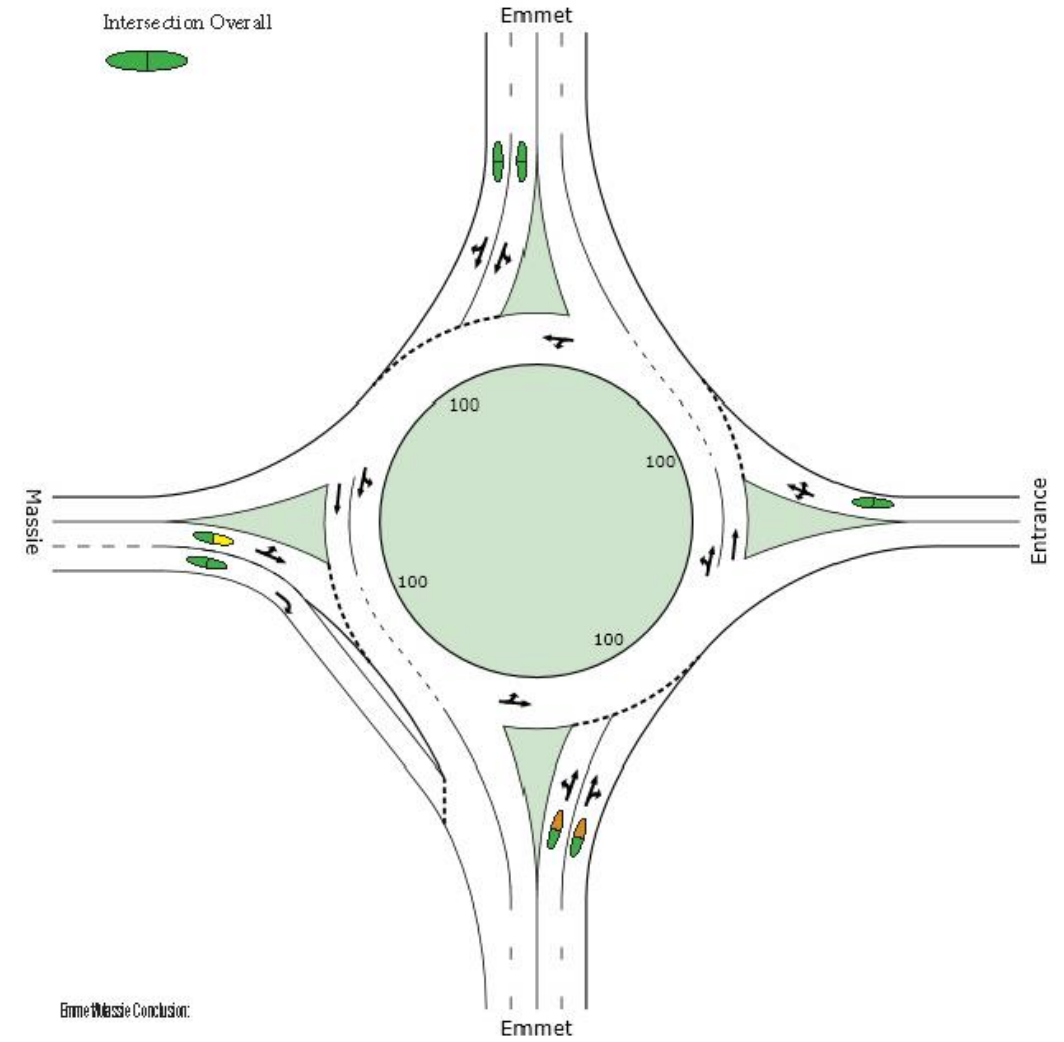
### Emmet Street Smart Scale

#4 - Emmet Street/Massie Road

### 2045 No Build Roundabout Analysis - w/ least footprint & acceptable LOS

LOS A-C LOS D LOS E LOS F

Level of Service Results AM/PM



#### Emmet/Massie Conclusion:

1. The northbound approach cannot be adjusted.
2. The southbound approach cannot be adjusted.
3. Not adjusting the intersection configuration, the maximum northbound queue will be 428'.
4. Above shows the roundabout alternative (see next page for the traffic operation comparison between standard intersection and roundabout intersection).


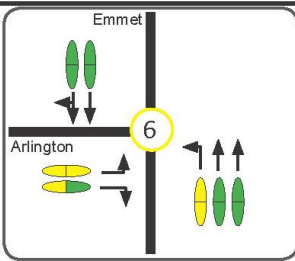

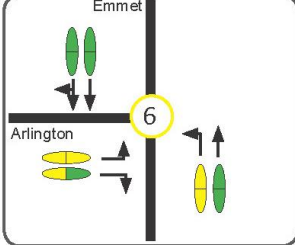

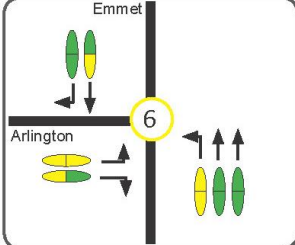

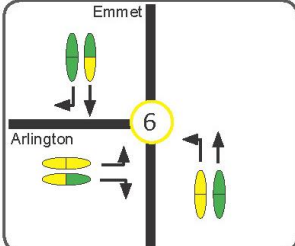
# Preliminary Traffic Findings

## Emmet/Arlington

- No recommended changes, although road diet showed potential for NB direction

### 2045 No Build Analysis

LOS A-C   LOS D   LOS E   LOS F

Scenario	Considering Improvements	Level of Service Results	AM/PM
Base Alt	- 2045 No Build	Overall:  Overall Delay: 17.9/17.9 Overall W/C Ratio: 0.59/0.58	
Alt A	- Change the northbound approach to LEFT, THROUGH	Overall:  Overall Delay: 18.1/23.1 Overall W/C Ratio: 0.59/0.79	
Alt B	- Change the southbound approach to THROUGH, RIGHT (*SimTraffic simulation indicates excessive queue on southbound through)	Overall:  Overall Delay: 29.0/21.8 Overall W/C Ratio: 0.81/0.76	
Alt C	- Change the northbound approach to LEFT, THROUGH - Change the southbound approach to THROUGH, RIGHT (*SimTraffic simulation indicates excessive queue on southbound through)	Overall:  Overall Delay: 29.2/26.9 Overall W/C Ratio: 0.81/0.79	

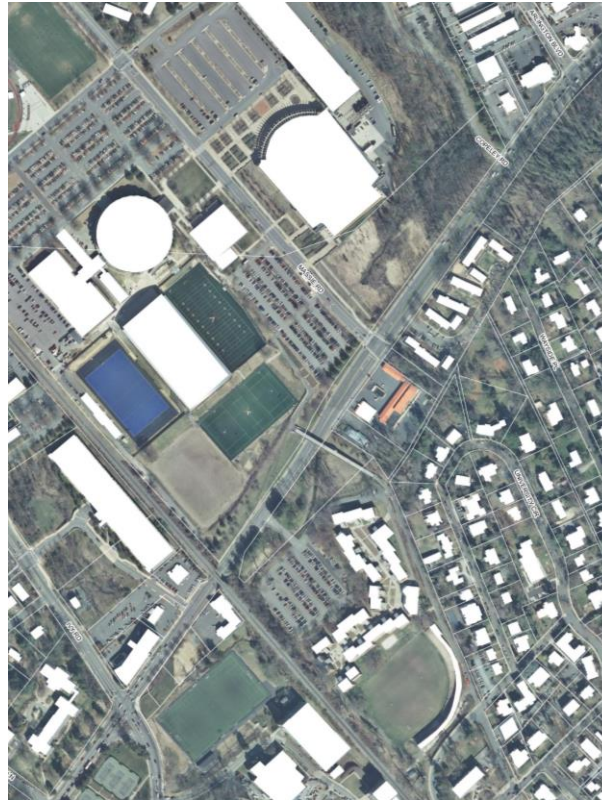
# Preliminary Multimodal Findings

**Background:** Pedestrian counts from September 2016 – January 2017

## West Side

- JPJ, athletic fields, Barracks
- 515 daily average
- 574 class day average
- 509 class day without outliers\*

*\*Days with more than 1,000 (3 for west)*



## East Side

- Apartments, UVa
- 429 daily average
- 604 class day average
- 515 class day without outliers\*

*\*Days with more than 1,000 (4 for east)*

**Takeaways:** Substantial pedestrian volume on both sides of Emmet calls for offering a high level of pedestrian/bicycle facilities on both sides, and underscores the need for safe crossings.

# Existing Pedestrian Crossings

- 4 dedicated crossings (marked or ped bridge)
- Arlington, Massie, Ped/Bike Bridge, Ivy
- 1,200 feet from Ped/Bike Bridge to Ivy
- 1,300 feet Arlington to Massie

Use first community meeting to understand origins/destinations, where people want to cross, where people feel unsafe, etc.



# Bike Counts

- Expected on 4/18



# Initial Decision Points

EMMET STREETSCAPE

# Documentation of Existing Conditions


## Arlington to Massie

**EMMET STREETSCAPE** | Concept Alternatives  
segment: ARLINGTON TO MASSIE

**EXISTING CONDITION**

- 100' ROW
- Wide grassy median
- 2' curbside buffer
- 5' sidewalks on both sides
- No bike accommodation
- 4 travel lanes (2 SB, 2 NB)

Ped. Safety/comfort:   
 Bike Safety/comfort:   
 Vehicular flow:   
 ROW needed:  N/A  
 Cost: \$ N/A




TOTAL ROW 100'

## Massie to Bike/Ped Bridge

**EMMET STREETSCAPE** | Concept Alternatives  
segment: MASSIE TO PED/BIKE BRIDGE

**EXISTING CONDITION**

- ROW: 80'-100'
- 0 or 2' curbside buffer
- 5' sidewalks on both sides
- No bike accommodation
- 3 to 4 travel lanes (2 SB, 1-2 NB)

Ped. Safety/comfort:   
 Bike Safety/comfort:   
 Vehicular flow:   
 ROW needed:  N/A  
 Cost: \$ N/A




TOTAL ROW 80'



## Bike/Ped Bridge to RR Bridge

**EMMET STREETSCAPE** | Concept Alternatives  
segment: PED/BIKE BRIDGE TO RAILROAD BRIDGE

**EXISTING CONDITION**

- 60 to 70' ROW
- 2' to 7' curbside buffer (west)
- 2' to 24' curbside buffer (east)
- 5' sidewalks on both sides
- No bike accommodation
- 3 travel lanes (2 SB, 1 NB)

Ped. Safety/comfort:   
 Bike Safety/comfort:   
 Vehicular flow:   
 ROW needed:  N/A  
 Cost: \$ N/A

TOTAL ROW 60'


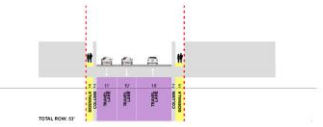
## RR Bridge

**EMMET STREETSCAPE** | Concept Alternatives  
segment: RAILROAD BRIDGE

**EXISTING CONDITION**

- 53' ROW (but only 40' between bridge columns)
- 2' column buffer
- 5' sidewalks on both sides
- No bike accommodation
- 3 travel lanes (2 SB, 1 NB)

Ped. Safety/comfort:   
 Bike Safety/comfort:   
 Vehicular flow:   
 ROW needed:  N/A  
 Cost: \$ N/A

TOTAL ROW 53'



## RR Bridge to Excel Inn

**EMMET STREETSCAPE** | Concept Alternatives  
segment: RAILROAD BRIDGE TO EXCEL INN

**EXISTING CONDITION**

- 75' ROW
- 0 to 4' curbside buffer
- 5' to 6' sidewalks on both sides
- No bike accommodation
- 3 to 4 travel lanes (2 SB, 1-2 NB)

Ped. Safety/comfort:   
 Bike Safety/comfort:   
 Vehicular flow:   
 ROW needed:  N/A  
 Cost: \$ N/A

TOTAL ROW 75'



## Excel Inn to Ivy

**EMMET STREETSCAPE** | Concept Alternatives  
segment: EXCEL INN TO IVY

**EXISTING CONDITION**

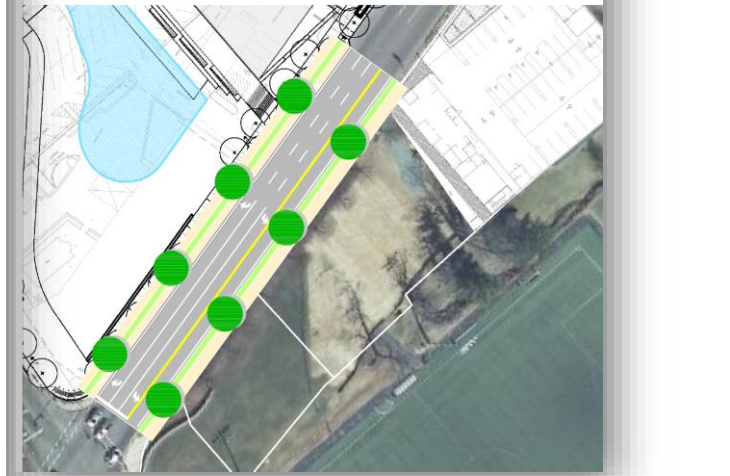
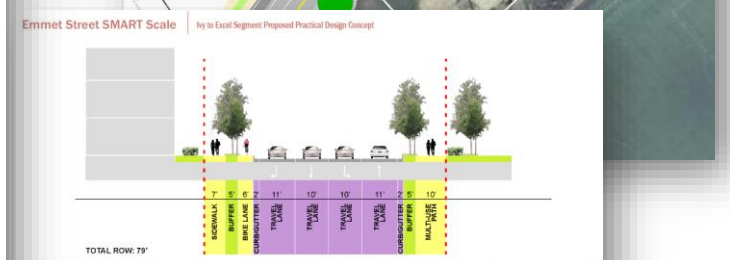
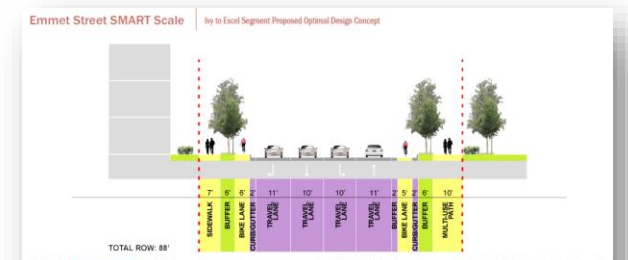
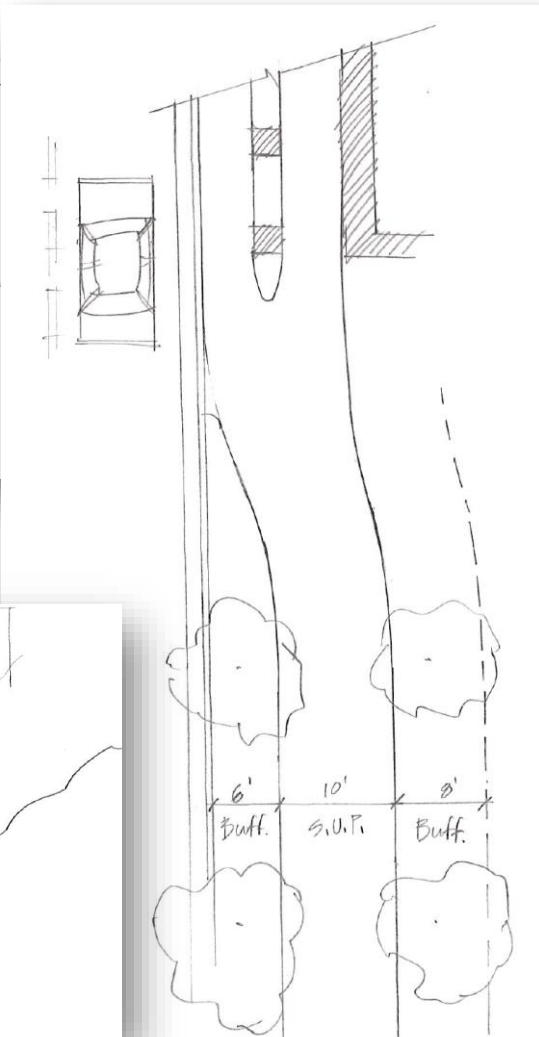
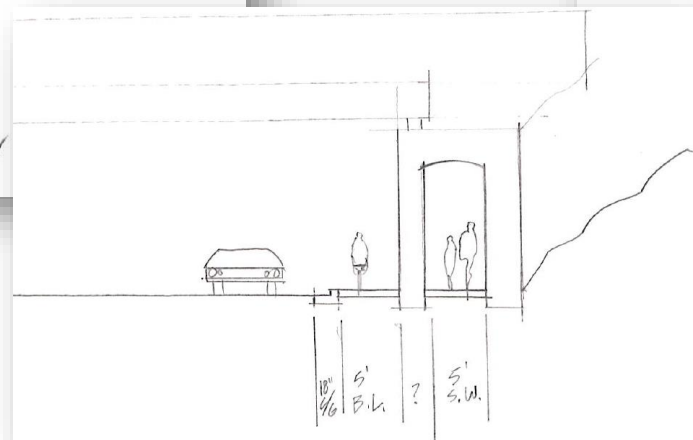
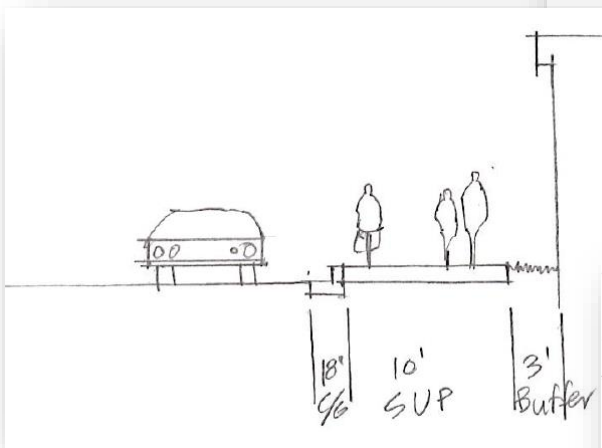
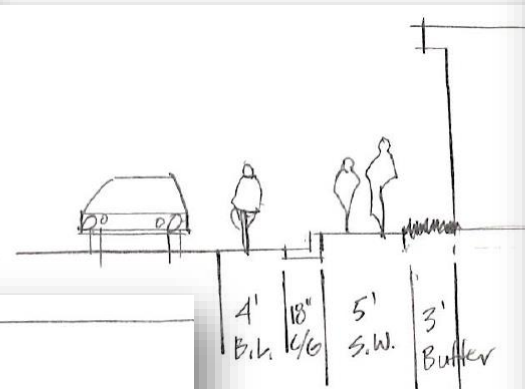
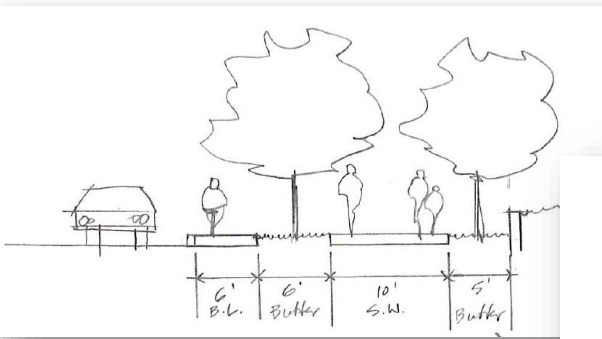
- 60' ROW
- 0 to 3' curbside buffer
- 5' sidewalks on both sides
- No bike accommodation\*
- 3 to 4 travel lanes (2 SB, 1-2 NB)

Ped. Safety/comfort:   
 Bike Safety/comfort:   
 Vehicular flow:   
 ROW needed:  N/A  
 Cost: \$ N/A

TOTAL ROW 60'

# Initial Explorations & Analysis



# Developing Alternatives

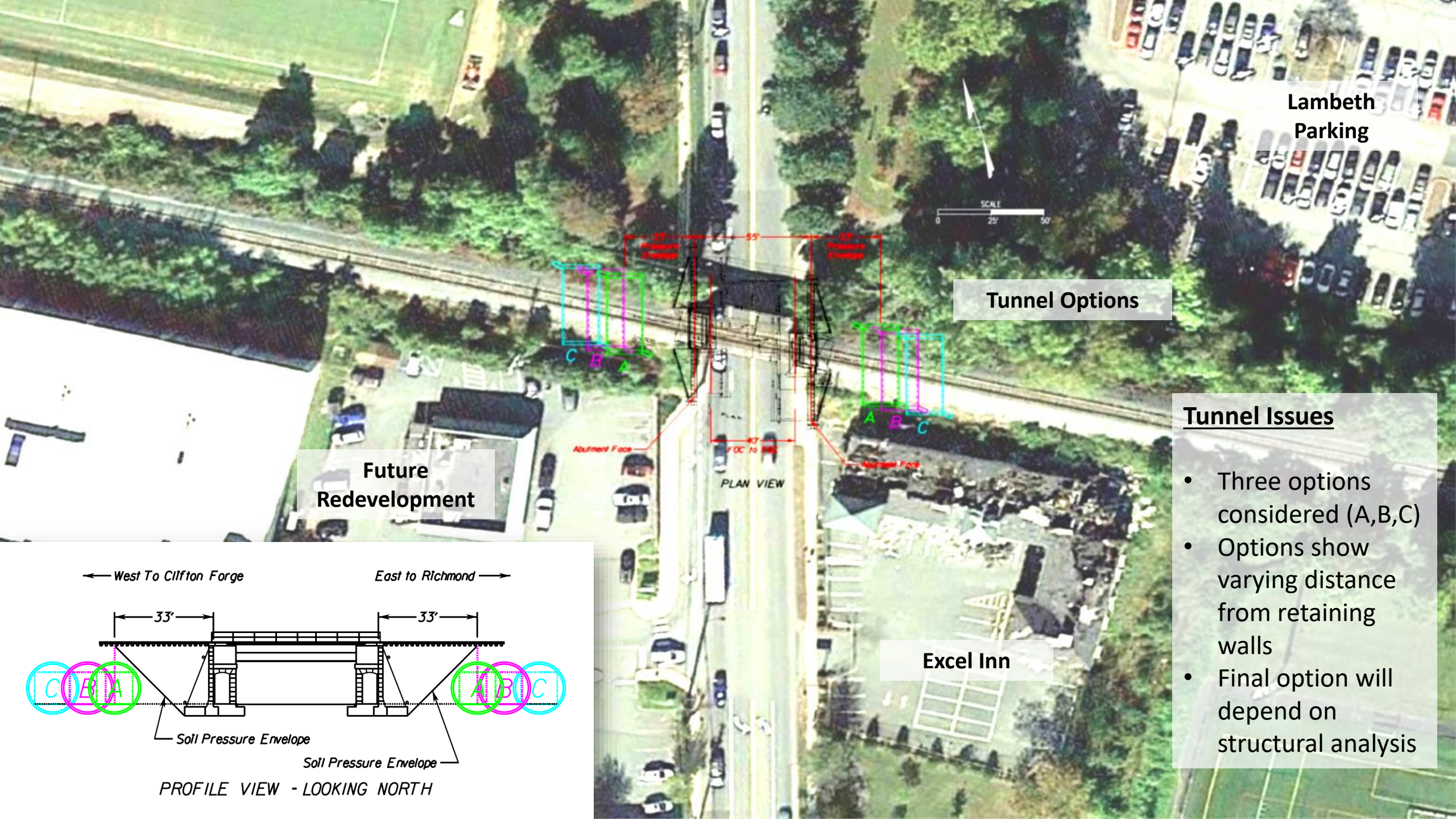
- Preferred design **concept** is the key deliverable from the planning phase.
- The railroad bridge and development proposals south of the railroad bridge are key considerations that will influence the design.
- A key early decision point is how to connect the shared-use path on the north and south sides of the railroad tracks.



- 40' roadway (b/t columns)
- 2' columns, 5' sidewalks
- 3 lanes (2 SB, 1 NB)



- Curb to hotel pinch point



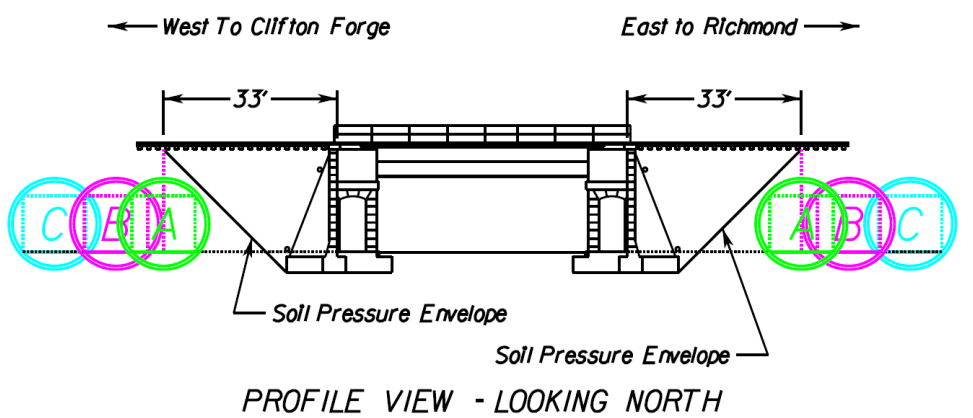
Lambeth  
Parking

Tunnel Options

Future  
Redevelopment

Excel Inn

- Tunnel Issues**
- Three options considered (A,B,C)
  - Options show varying distance from retaining walls
  - Final option will depend on structural analysis



# Developing Alternatives

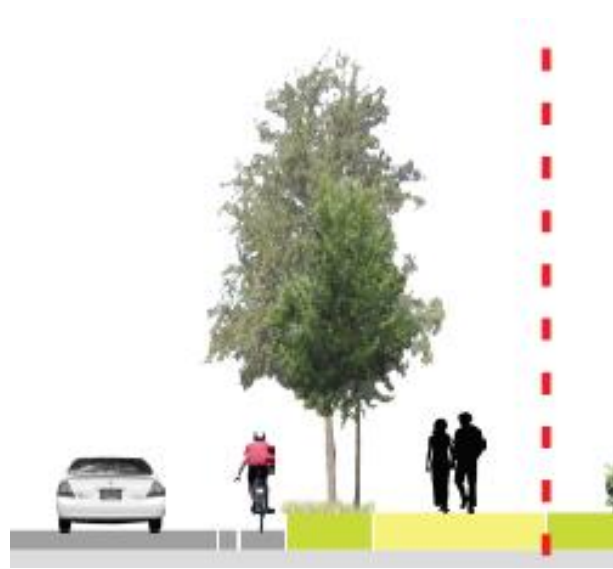
## Industry guidance suggests:

- Separation of bicycle and pedestrian modes (with a buffer) where possible
- Protecting bicycle facilities wherever possible





- 10' shared-use path + 5' raised bicycle lane
- Strong bicycle protection & bicycle/ped separation



- 10' shared-use path + 5' Buffered on-street bicycle lane
- Strong bicycle/ped separation, Less optimal bicycle protection



- 10' shared-use path only
- Strong protection, bicycles & pedestrians mixed

# Preferred Facility Separation/Protection?

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**Emmet Streetscape**  
Discussion Point: Bicycle Accommodation

**Key Issues:**

- Do Bikes and Pedestrians need to be on separate facilities?
- Does the bike facility need to be on- or off-road or both?

Additional Comments:

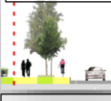
WEST SIDE



WEST SIDE / Your Comments:



WEST SIDE / Your Comments:



WEST SIDE / Your Comments:

EAST SIDE



EAST SIDE / Your Comments:



EAST SIDE / Your Comments:



EAST SIDE / Your Comments:

**Option 1:**

Bikes and pedestrians off road on 10' Shared Use Path

**Option 2:**

Bikes and pedestrians on 10' off road Shared Use Path plus 5' buffered bike lane

**Option 3:**

Bikes and pedestrians on 10' off road Shared Use Path plus 5-6' protected (raised) bike lane

# Potential Exercises for Public Meeting



**Emmet Streetscape**  
Discussion Point: Design Principles

**Key Issues:**


- What should be added to the proposed design principles?
- What principles do you think are important and are not captured here?

Suggest Additional Principles Below

**Please comment on the proposed design principles:**

- Tell us which principle is most important and why
- Suggest additions or amendments to the design principles

Principles	Comments
<b>1. Make a Complete Street:</b> <ul style="list-style-type: none"> <li>• Improve pedestrian, bicycle, and transit accommodations while maintaining vehicle flow</li> <li>• Balance the needs of each travel mode</li> </ul>	
<b>2. Increase Safety and Comfort for Pedestrians and Bicyclists</b> <ul style="list-style-type: none"> <li>• Provide a buffer between the roadway and pedestrian and bicycle facilities</li> <li>• Where feasible, separate and buffer pedestrian and bicycle facilities</li> </ul>	
<b>3. Beautify the Corridor as an Appropriate Gateway:</b> <ul style="list-style-type: none"> <li>• Provide landscaping and hardscape materials that provide shade, comfort, safety, and increases the attractiveness of the gateway</li> </ul>	

The background features a light green and white color palette. It includes stylized silhouettes of a pedestrian on the left, a cyclist in the center, and a runner on the right. There are also several trees of varying shapes and sizes, some with green foliage and others as simple outlines. The overall scene suggests an active, outdoor environment.

# Next Steps & Discussion

EMMET STREETScape

# Next Step: Community Meeting

- **Date/Location:** 9:00 – 11:00 AM, May 12, 2018 at the Cavalier Inn
- **Purpose:** Obtain information on origins/destinations, barriers, needs, and trade offs in the face of constraints. Use information to inform the development of design alternatives.
- **Format:** Brief presentation & open house style with stations for activities and input; potential walking tour at the conclusion.

# Discussion & Activities

- General observations on issues and opportunities.
  - Use the Base Map to identify issues and opportunities this design could address
    - **Green Dots** – Spot issues/opportunities
    - **Markers** – Linear issues/opportunities
    - **Flip Chart** – Number your dots and lines; create a legend
- Use boards to share your ideas regarding the:
  - Desired degree of separation and protection for bicycles and pedestrians
  - Design principles