

TRANSITWAY CORRIDOR FEASIBILITY STUDY



High Capacity Transit Corridor Work Group
March 15, 2012

Corridor B – Alternatives Review and Recommendation



T&ES



Kimley-Horn
and Associates, Inc.

Meeting Agenda

- Corridor B Discussion
 - Recap of CWG and Public Input from Feb 16 Meeting
 - Bicycle Connectivity Options
 - Preliminary Corridor B Recommendation
 - Summary of Advantages and Disadvantages
- CWG & Public Comment
- Next Steps

RECAP OF FEBRUARY 16 MEETING

Alternatives Considered for Further Investigation

Alternative 1 –	Uses Existing Lanes for Transit
Alternative 2 –	Uses Service ROW
Alternative 3 –	Reversible Lane
Alternative 3 – Variation	Reversible Lane Variation
Alternative 4 –	Median Running

Alternative 1a – Without Duke Street Bike Lanes

Alternative 1b – With Duke Street Bike Lanes

Alternative 3a – Without Duke Street Bike Lanes

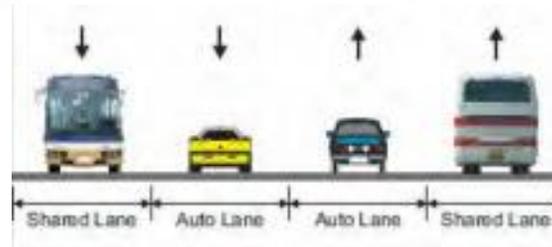
Alternative 3b – With Duke Street Bike Lanes



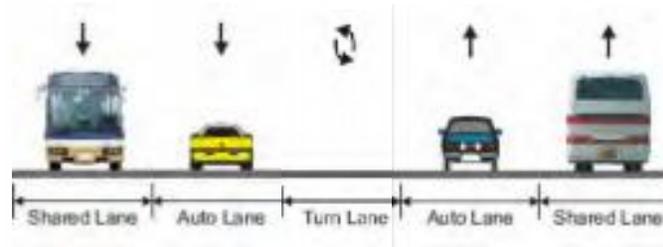
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Alternative 1

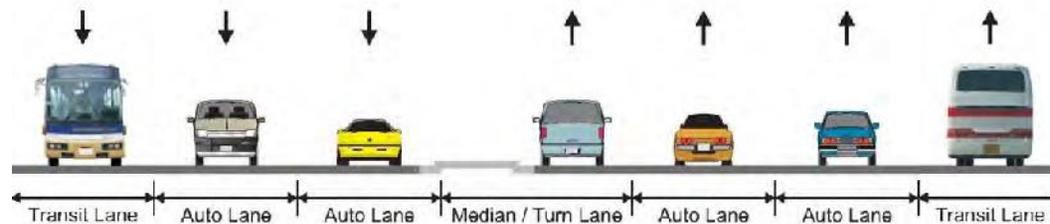
Gordon Street to Wheeler Avenue



Wheeler Avenue to Roth Street



Landmark Mall to Jordan Street,
Roth Street to Taylor Run Parkway, &
Callahan Drive to King Street Metro



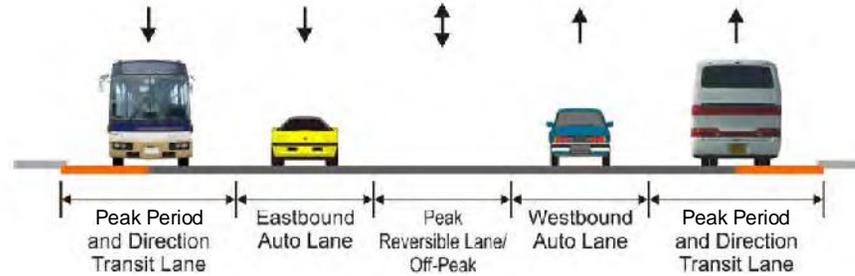
Description

- Transit in mixed flow on existing 4-lane segments and in dedicated lanes on existing 6-lane segments
- Transitway uses queue jumps to avoid congestion and reduce disruption to Duke Street traffic
- Adds a WB lane between Jordan Street and Gordon Street, converting service road from two-way to one-way
- Adds a WB lane between Wheeler Ave and S. Quaker Lane
- Realigns EB on-ramp at Telegraph Road and access to adjacent property

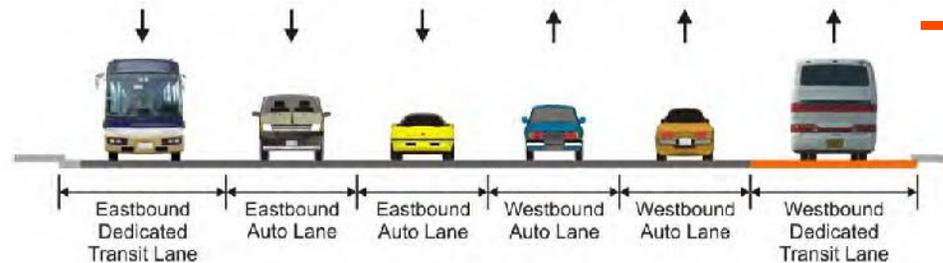
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Alternative 3

Jordan Street to Wheeler Avenue



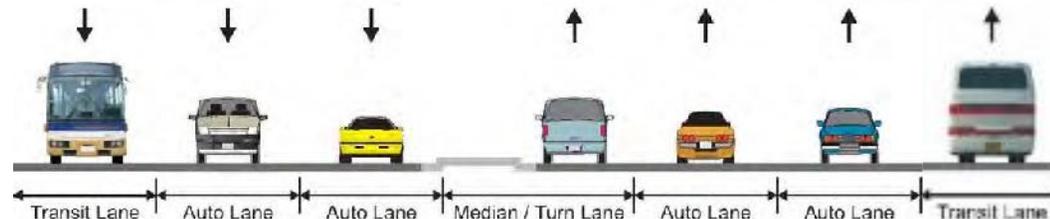
Wheeler Avenue to Roth Street



Legend

— Additional Pavement

Landmark Mall to Jordan Street & Roth Street to King Street Metro



Description

- Identical to Alternative 1 between Landmark Mall and Gordon Street, Roth Street and Taylor Run Parkway, Callahan Drive and King Street Metro
- Travelway widened to approximately 61 feet between Gordon Street and Wheeler Avenue (same width as existing section between Wheeler Avenue and Roth Street)
- Travelway widened to 72 feet from Wheeler Avenue to Roth Street (adds general purpose lane to accommodate heavy traffic flow from Quaker Lane to Telegraph Road)
- No left-turn lane during peak periods between Jordan Street and Roth Street

TRANSITWAY CORRIDOR FEASIBILITY STUDY



Duke Street Station near Sweeley Street (Alexandria Commons)

TRANSITWAY CORRIDOR FEASIBILITY STUDY



Duke Street Station near Sweeley Street (Alexandria Commons)

Advantages and Disadvantages - Summary

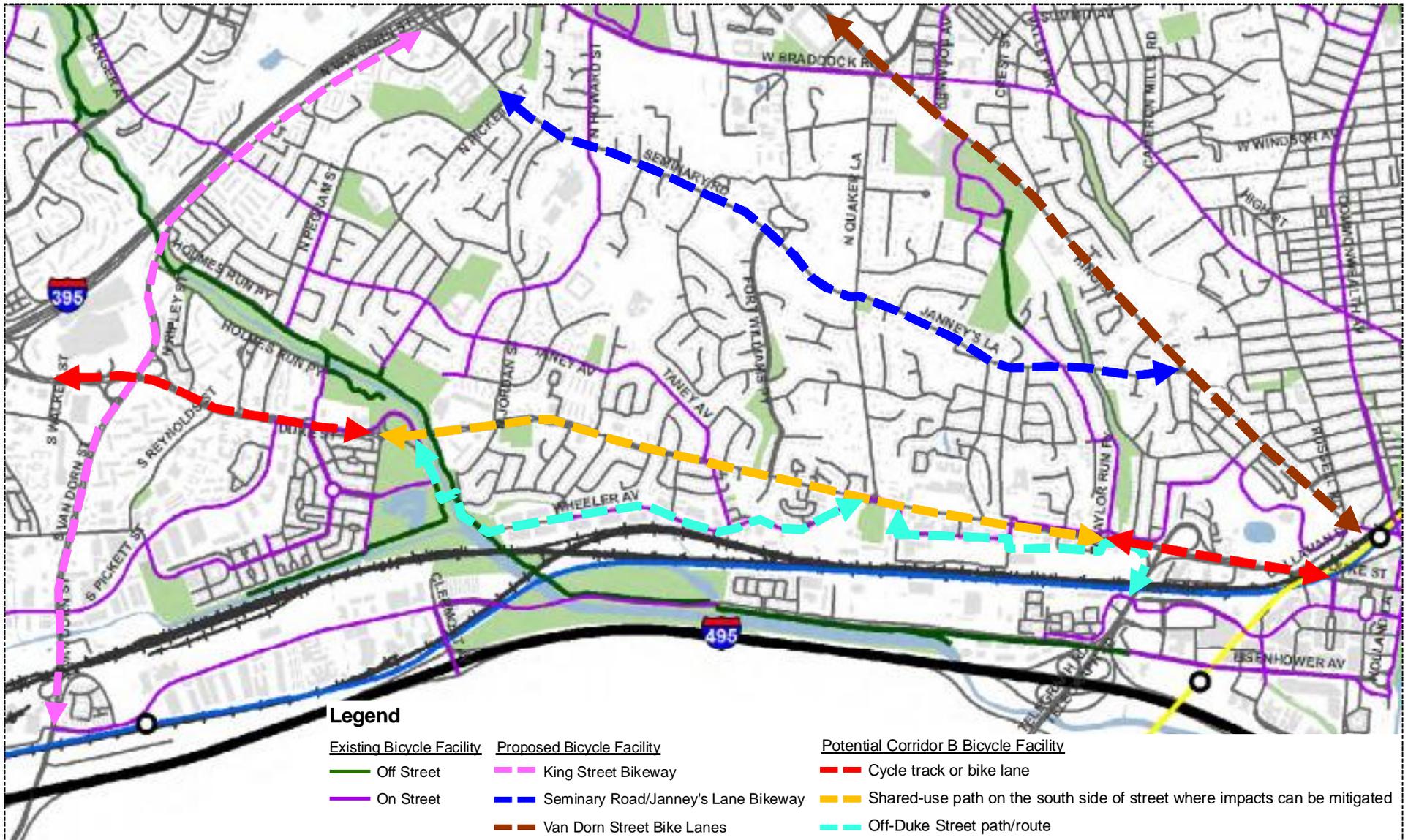
Alternative	Advantages	Disadvantages
Alternative 1a – Use Existing Lanes for Transit	<ul style="list-style-type: none"> •Fewest property impacts •Maintains service roads •Pedestrian improvements 	<ul style="list-style-type: none"> •Worst transit operation due to shared lanes •No Duke Street bicycle facility
Alternative 1b – Use Existing Lanes for Transit with Bike Lanes	<ul style="list-style-type: none"> •Maintains service roads •Provides bike lanes •Pedestrian improvements 	<ul style="list-style-type: none"> •Worst transit operation due to shared lanes •Large property impacts due to bike lanes and streetscape enhancements
Alternative 3a – Reversible Lane	<ul style="list-style-type: none"> •Quality transit operation •Maintains service roads •Pedestrian improvements 	<ul style="list-style-type: none"> •Off-peak auto impact from Gordon to Wheeler •No Duke Street bicycle facility •Lane control gantries •Potentially confusing to drivers
Alternative 3b – Reversible Lane with Bike Lanes	<ul style="list-style-type: none"> •Quality transit operation •Maintains service roads •Provides bike lanes •Pedestrian improvements 	<ul style="list-style-type: none"> •Off-peak auto impact from Gordon to Wheeler •Large property impacts due to bike lanes and streetscape enhancements •Lane control gantries •Potentially confusing to drivers

Summary of CWG and Public Comments from February 16, 2012 Meeting

- Bike lanes on Duke Street are not desired in section between Jordan Street and Telegraph Road due to property impacts
- Bike facility on Duke Street should be included near Landmark Mall to take advantage of planned redevelopment
- Include a bicycle/pedestrian connection to Eisenhower Avenue
- Pedestrian safety and accommodation along and across Duke Street is important
- Consider a phased approach to transit implementation – Alternative 1 to Alternative 3 with a bike facility
- Improved transit on Eisenhower Avenue should be part the overall corridor strategy
- Minimize impacts to residences and small businesses
- Concern with cut-through traffic in adjacent neighborhoods
- Some preference expressed for Alternative 1a and Alternative 3 with a modified approach to bicycle accommodation in the central portion of the corridor where right-of-way is most constrained

BICYCLE FACILITY OPTIONS

Potential Bicycle Connectivity Options



***PRELIMINARY
RECOMMENDATION***

Preliminary Duke Street Recommendation

First Phase Implementation: Alternative 1a – Dedicated lanes only where six-lane sections exist.

Ultimate Implementation: **Alternative “3c”** – Dedicated lanes in six-lane sections, reversible lane in other locations, off-corridor and in-corridor bicycle facility, and pedestrian improvements corridor-wide.

Individual Section Configurations – Alternative 3c

- Landmark Mall to Jordan Street
 - Convert outermost lane (six-lane section) to dedicated transit lane in each direction
 - Bicycle facility in Duke Street right-of-way
- Jordan Street to Wheeler Avenue
 - Widen Duke Street by one lane to provide a reversible lane peak period reversible lane for general purpose traffic
 - Accommodate bikes in a parallel off-corridor route
 - Provide a shared-use path on the south side of Duke Street in locations where property impacts can be minimized

Preliminary Recommendation (continued)

- Wheeler Avenue to S. Quaker Lane
 - Dedicated transit lane in each direction
 - Accommodate bikes in a parallel off-corridor route
 - Provide a shared-use path on the south side of Duke Street in locations where property impacts are manageable
- S. Quaker Lane to Roth Street
 - Widen Duke Street by one lane to provide a peak period reversible lane for general purpose traffic
 - Accommodate bikes in a parallel off-corridor route
 - Provide a shared-use path on the south side of Duke Street in locations where property impacts are manageable
- Roth Street to Diagonal Road
 - Convert outermost lane (six-lane section) to dedicated transit lane in each direction
 - Bicycle facility in Duke Street right-of-way

Alternative 3c - Planning-Level Impacts and Costs

Potential Impacts	
Park Impact	0.20 acres
Property Impact	2.0 acres 89 parcels
Commercial Parking Impact	75 spaces
Residential Parking Impact	6 spaces

Property Impact Note: All properties and parking spaces impacted were quantified regardless of whether a large or small area was affected.

Planning-Level Cost Estimates	
Capital Cost Estimate ¹ <small>(exclusive of vehicles, based on cost per-mile within the City)</small>	\$39 M
25-year Fleet Cost Estimate ²	\$16 M
Right-of-Way Cost Estimate	\$4 M
25-year Operating Cost	\$60 M
Planning-Level Cost Estimate¹	\$119 M

Cost Estimate Note: Planning level cost estimates are shown in year 2012 dollars and do not include additional contingency or escalation to a future year mid-point of construction. Totals listed do not include costs for major utility relocations/new service, or the capital costs for roadway/streetscape improvements that may be implemented concurrently, but are not required for the transit project.

Advantages and Disadvantages – Alternative 3c

Advantages

- Quality transit operation
- Maintains service roads and residential parking
- Reduces vehicular conflicts at some locations
- Provides bicycle facility opportunities
- Minimizes property impacts
- Implementable in phases
- Improves streetscape
- Improves pedestrian conditions

Disadvantages

- Some property and parking impacts
- Off-peak auto impact from Gordon Street to Wheeler Avenue
- Lane control gantries may create visual clutter
- Reversible lane condition may be confusing to drivers
- Indirect off-corridor bicycle route

Alternative 3c – Landmark Mall to Van Dorn Street



Features

- Station off-corridor at mall
- Dedicated transit lanes
- Bike facility in Duke Street right-of-way

Legend

- ▨ Bike lane
- ▨ Reversible Lane
- ▨ Transit lane
- Potential right-of-way
- STATION Potential station location

Alternative 3c – Van Dorn Street to N. Paxton Street



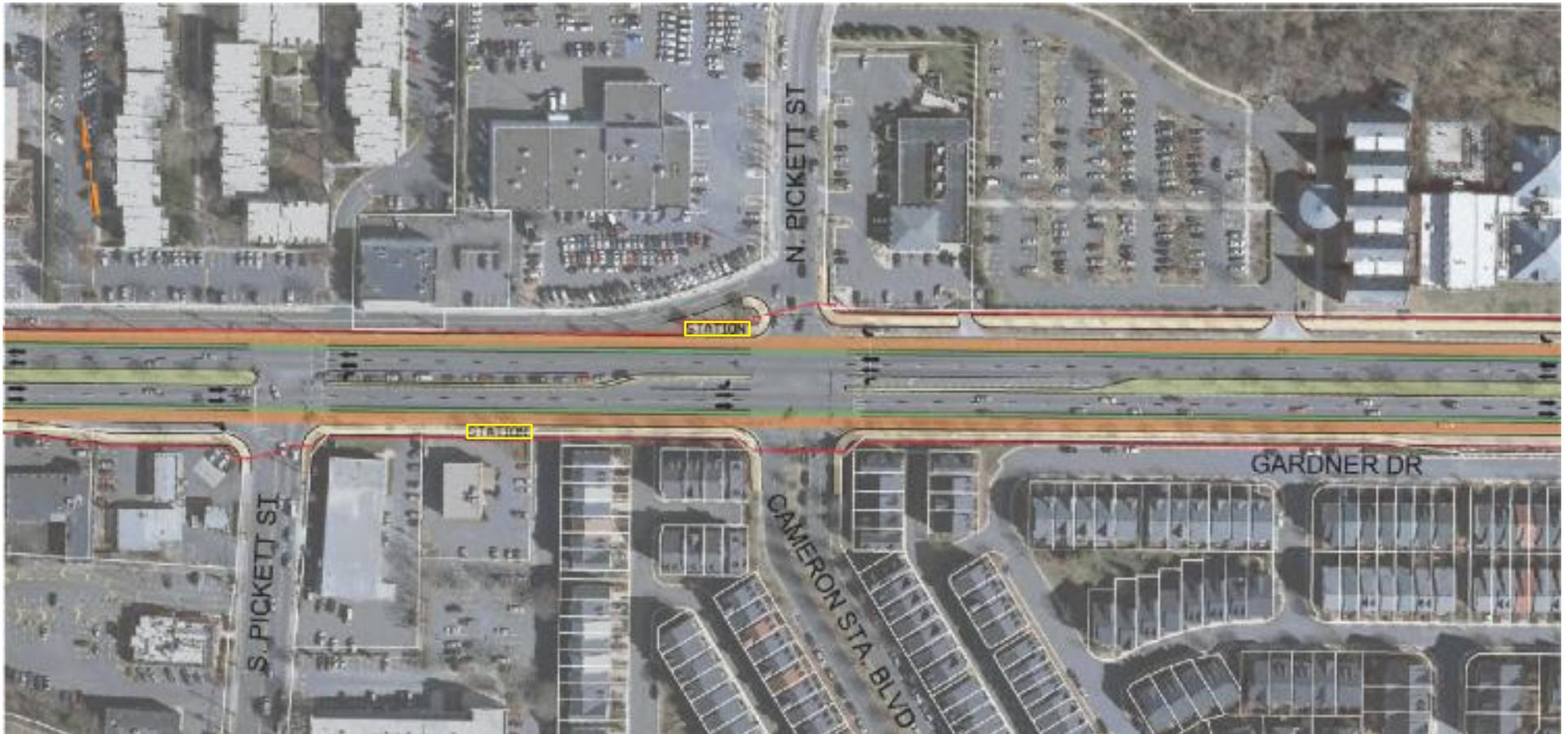
Features

- Station at Reynolds Street
- Dedicated transit lanes
- Bike facility in Duke Street right-of-way

Legend

- ▨ Bike lane
- ▨ Reversible Lane
- ▨ Transit lane
- Potential right-of-way
- STATION Potential station location

Alternative 3c – N. Paxton Street to Cameron Station



Features

- Station at N. and S. Pickett Street
- Dedicated transit lanes
- Bike facility in Duke Street right-of-way

Legend

-  Bike lane
-  Reversible Lane
-  Transit lane
-  Potential right-of-way
-  Potential station location

Alternative 3c – Cameron Station to Foxchase



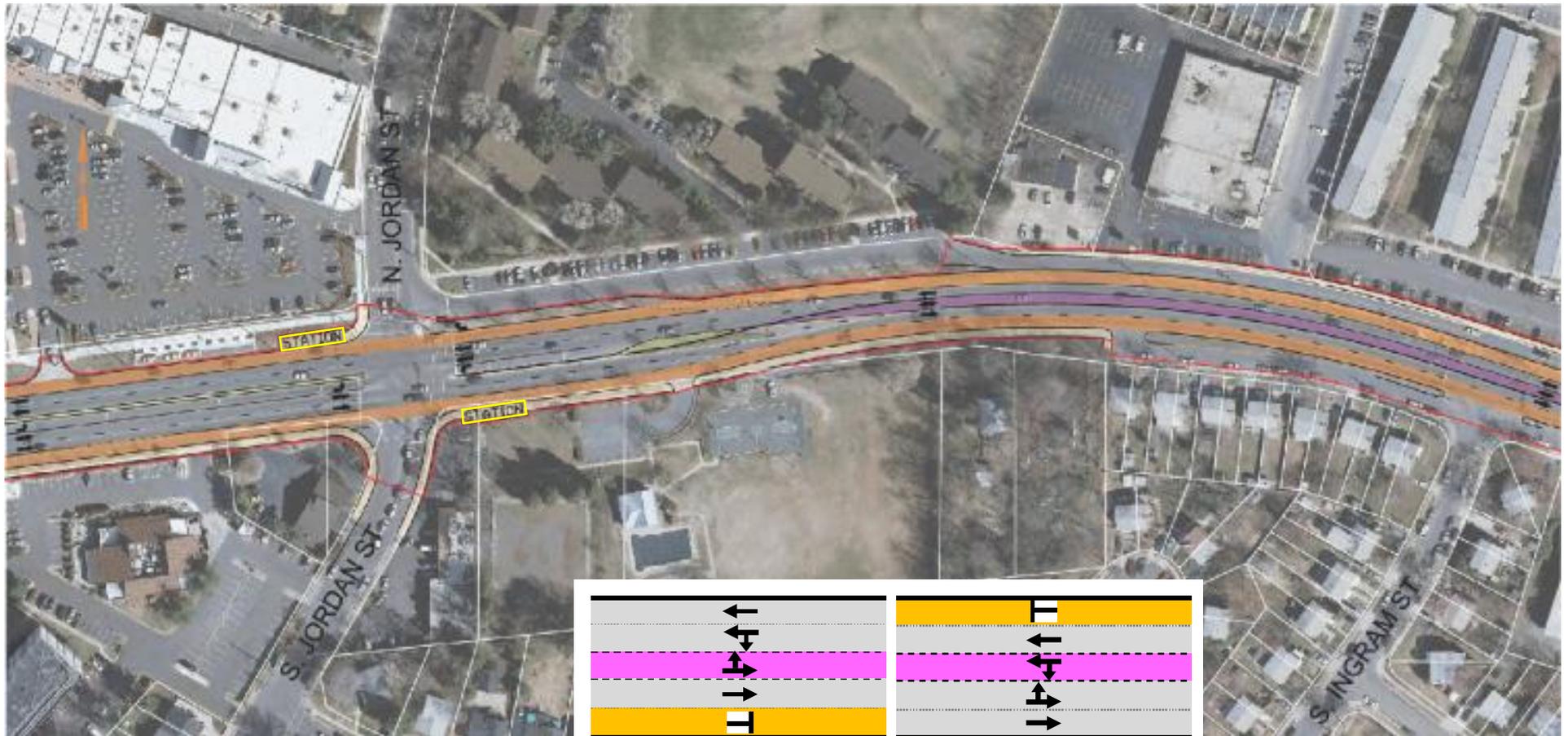
Features

- Off-corridor bicycle connection at Ben Brenman Park
- Dedicated transit lanes
- Shared-use path on the south side of street

Legend

- ▨ Bike lane
- ▨ Reversible Lane
- ▨ Transit lane
- Potential right-of-way
- STATION Potential station location

Alternative 3c – Foxchase to S. Ingram Street



Features

- Dedicated transit lanes to Jordan Street
- Transition to reversible lane section
- Station at Jordan Street
- Off-corridor bicycle route and shared-use path on the south side of street

AM Peak Period

PM Peak Period

Legend

- ▨ Bike lane
- ▨ Reversible Lane
- ▨ Transit lane
- Potential right-of-way
- STATION Potential station location

Alternative 3c – S. Ingram Street to N. Floyd Street



Features

- Reversible lane section
- Station at Gordon Street
- Off-corridor bicycle route and shared-use path on the south side of street

Legend

- ▨ Bike lane
- ▨ Reversible Lane
- ▨ Transit lane
- Potential right-of-way
- STATION Potential station location

Alternative 3c – N. Floyd Street to Ft. Williams Parkway



Features

- Reversible lane section
- Station at Early Street
- Off-corridor bicycle route and shared-use path on the south side of street

Legend

- ▨ Bike lane
- ▨ Reversible Lane
- ▨ Transit lane
- Potential right-of-way
- STATION Potential station location

Alternative 3c – Ft. Williams Parkway to N. Quaker Lane



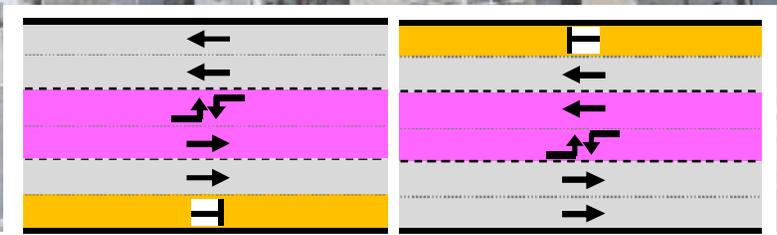
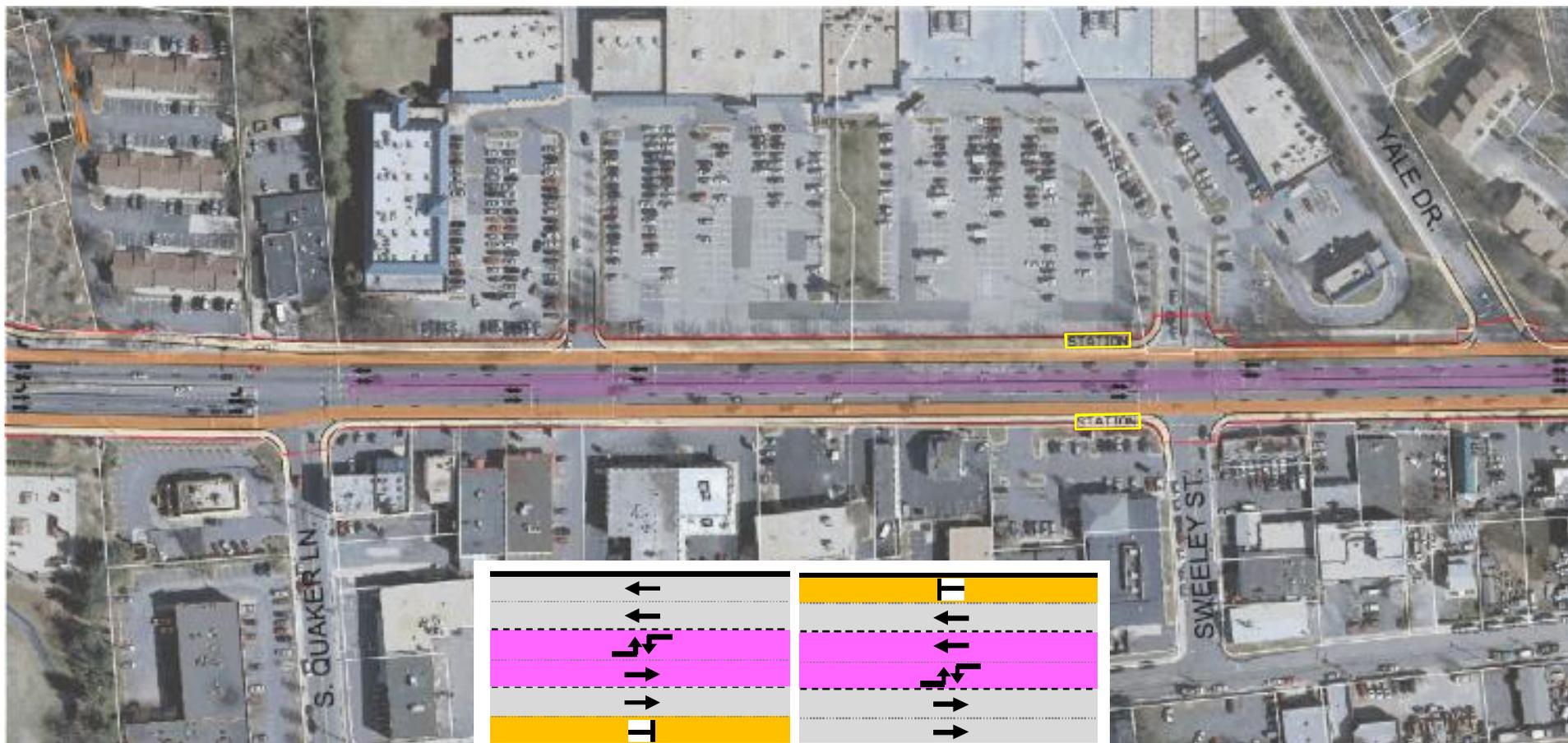
Features

- Reversible lane section
- Transition to dedicated lanes
- Station at Wheeler Ave/Quaker Ln
- Off-corridor bicycle route and shared-use path on the south side of street

Legend

- ▨ Bike lane
- ▨ Reversible Lane
- ▨ Transit lane
- Potential right-of-way
- STATION Potential station location

Alternative 3c – N. Quaker Lane to Yale Drive



AM Peak Period

PM Peak Period

Features

- Reversible lane section
- Station at Sweeley Street
- Off-corridor bicycle route and shared-use path on the south side of street

Legend

- ▨ Bike lane
- ▨ Reversible Lane
- ▨ Transit lane
- Potential right-of-way
- STATION Potential station location

Alternative 3c – Sweeley Street to Taylor Run Parkway



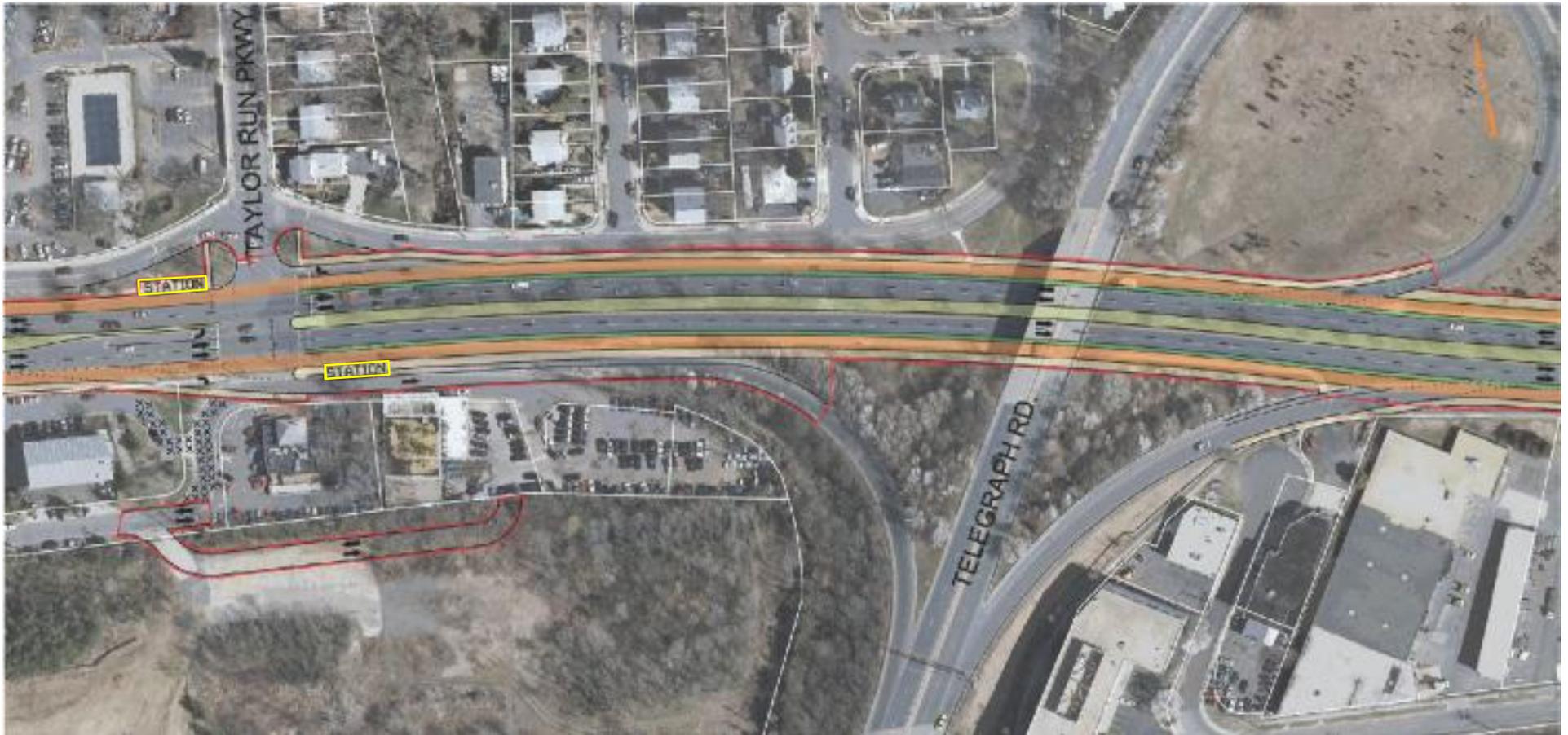
Features

- Transition to dedicated lanes
- Off-corridor bicycle route and shared-use path on the south side of street

Legend

-  Bike lane
-  Reversible Lane
-  Transit lane
-  Potential right-of-way
-  **STATION** Potential station location

Alternative 3c – Taylor Run Parkway to Telegraph Road



Features

- Dedicated transit lanes
- Station at Taylor Run Parkway
- Off-corridor bicycle route and Bike facility in Duke Street right-of-way

Legend

- ▨ Bike lane
- ▨ Reversible Lane
- ▨ Transit lane
- Potential right-of-way
- STATION Potential station location

Alternative 3c – Telegraph Road to Callahan Drive



Features

- Dedicated transit lanes
- Bike facility in Duke Street right-of-way

Legend

-  Bike lane
-  Reversible Lane
-  Transit lane
-  Potential right-of-way
-  Potential station location

Recommendation Re-cap

First Phase: Alternative 1a

- Dedicated lanes only where six-lane sections currently exist
- Off-corridor bicycle accommodation

Ultimate Implementation: Alternative 3c

- Dedicated lanes in existing six-lane sections
 - Landmark Mall to Jordan Street
 - Roth Street to Diagonal Road
- Widen to create a reversible lane in other locations
 - Jordan Street to Roth Street
- Off-corridor and in-corridor bicycle facilities
- Pedestrian improvements corridor-wide
 - Intersections
 - Linearly along Duke Street

DISCUSSION & COMMENTS

Thank you for your attention!

For access to the information that was presented tonight, as well as other study information, please visit the project website at:

- <http://alexandriava.gov/HighCapacityTransit>

Once there, follow the link for the “[High Capacity Transit Corridor Work Group](#)”