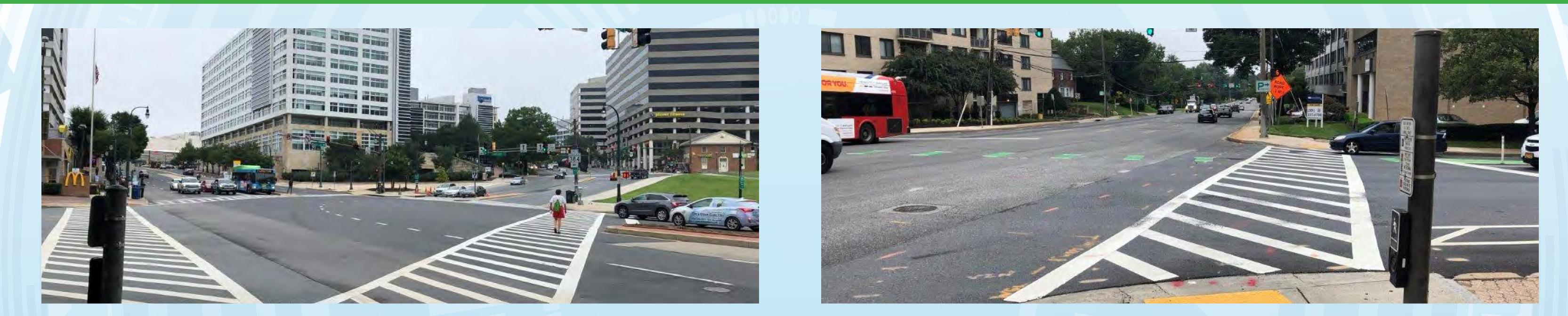
## Purpose & Need

To identify improvement(s) on US 29 to compliment the investment in Bus Rapid Transit (BRT) and improve transit, carpool, or overall corridor travel time and reliability performance, as well as pedestrian and bicycle access from Tech Road to the Silver Spring Transit Center.

Approved modal and land use plans in the corridor recommend the implementation of new pedestrian and bicycle infrastructure and BRT. These elements will be included in the ultimate mobility recommendations developed for this study.

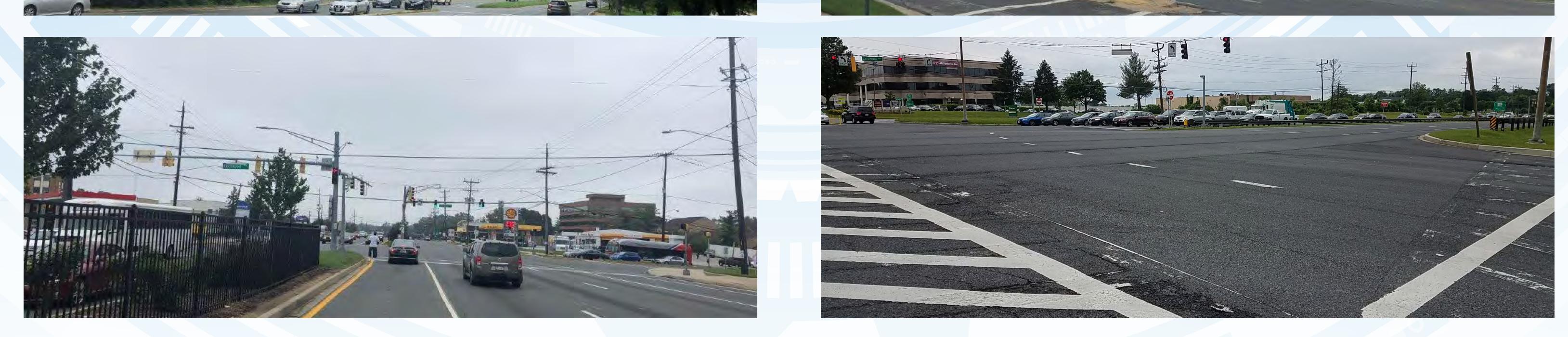








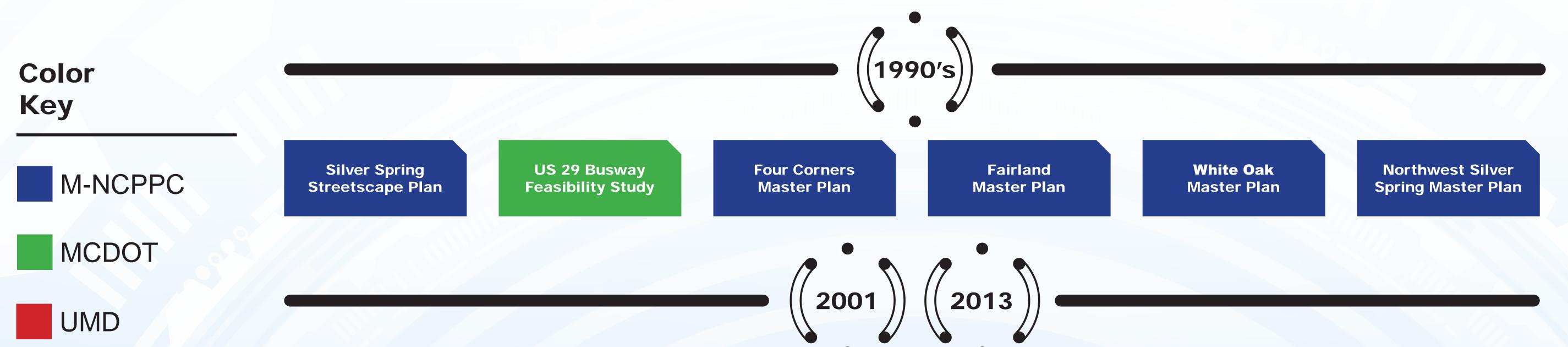




### US 29 Mobility & Reliability Study

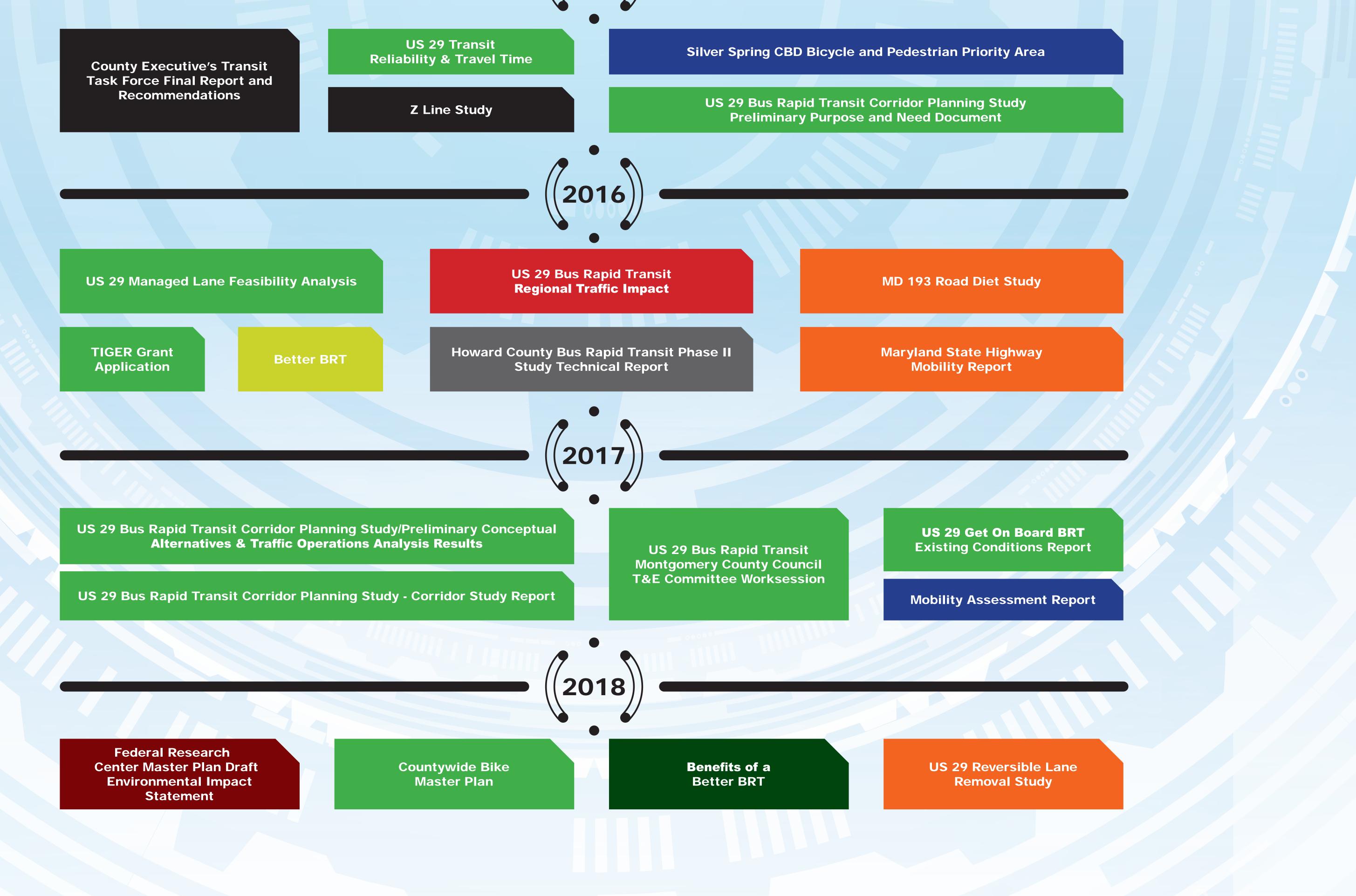


## Master Plans & Previous Studies



UMD
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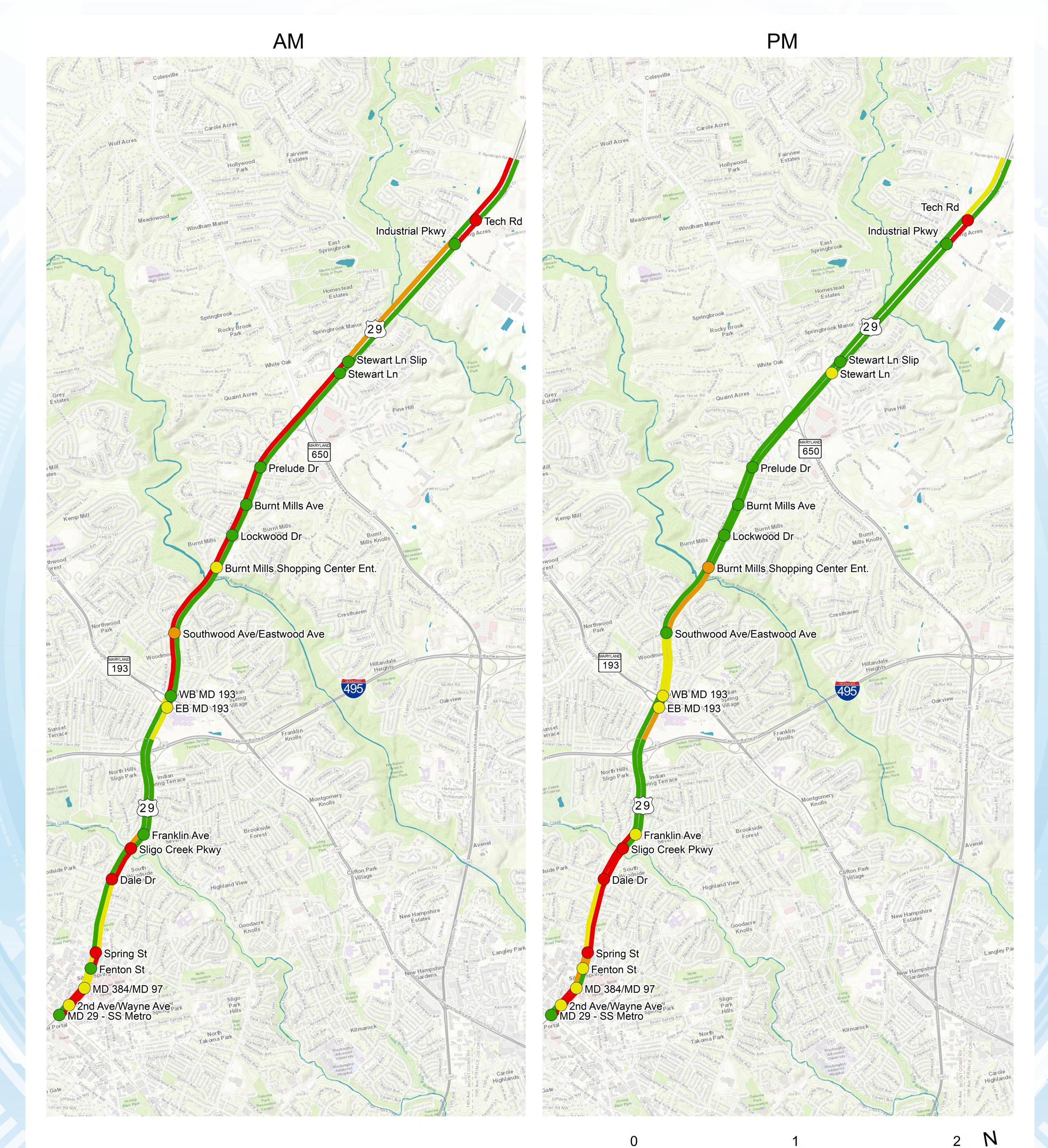
MDOT	US 29 Bus Operations Analysis (Bus on Shoulder Study)	US 29 Before/After Study from MD 198 to MD 193	Purple Line Functional Plan	US 29/Cherry Hill Transit Oriented Development Scenario Planning Report	Countywide Bus Rapid Transi Study Consultant's Report	
Howard County						
Federal	Pedestrian Roadway Safety Audit University Boulevard (MD 193) and Colesville Road (US 29)		Demand and Service Planning Report for the Proposed Montgomery County Maryland BRT System		Burtonsville Crossroads Neighborhood Plan	
Montgomery County	Countywide Transit Corridors Functional Plan Plan					
Corridor Advisory Commitee			(2014)			
			hite Oak Science Gateway Master Plan and Local Area sportation Review (LATR) Intersection Improvement Cost Evaluation Study		US 29 Fairland/Musgrove Interchange Study	
			(2015)			

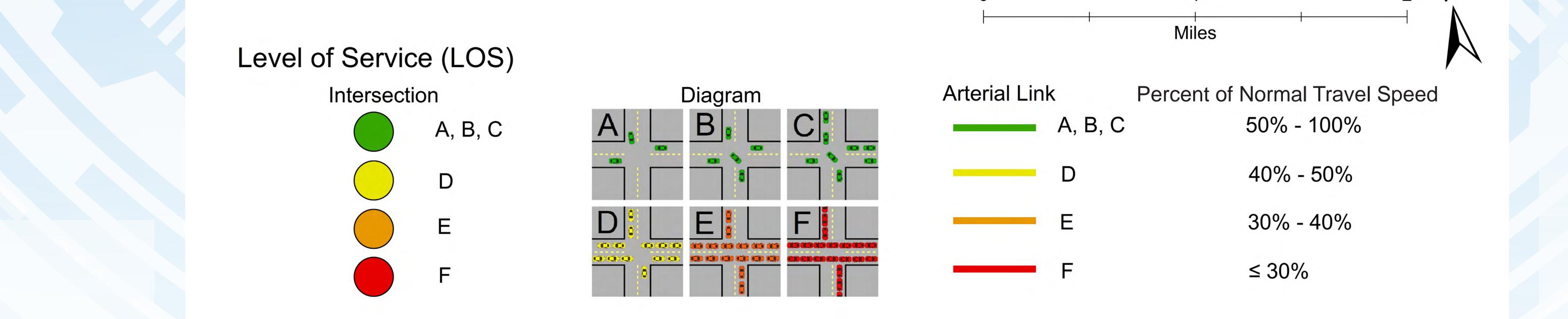


## US 29 Mobility & Reliability Study



## Existing Level of Service

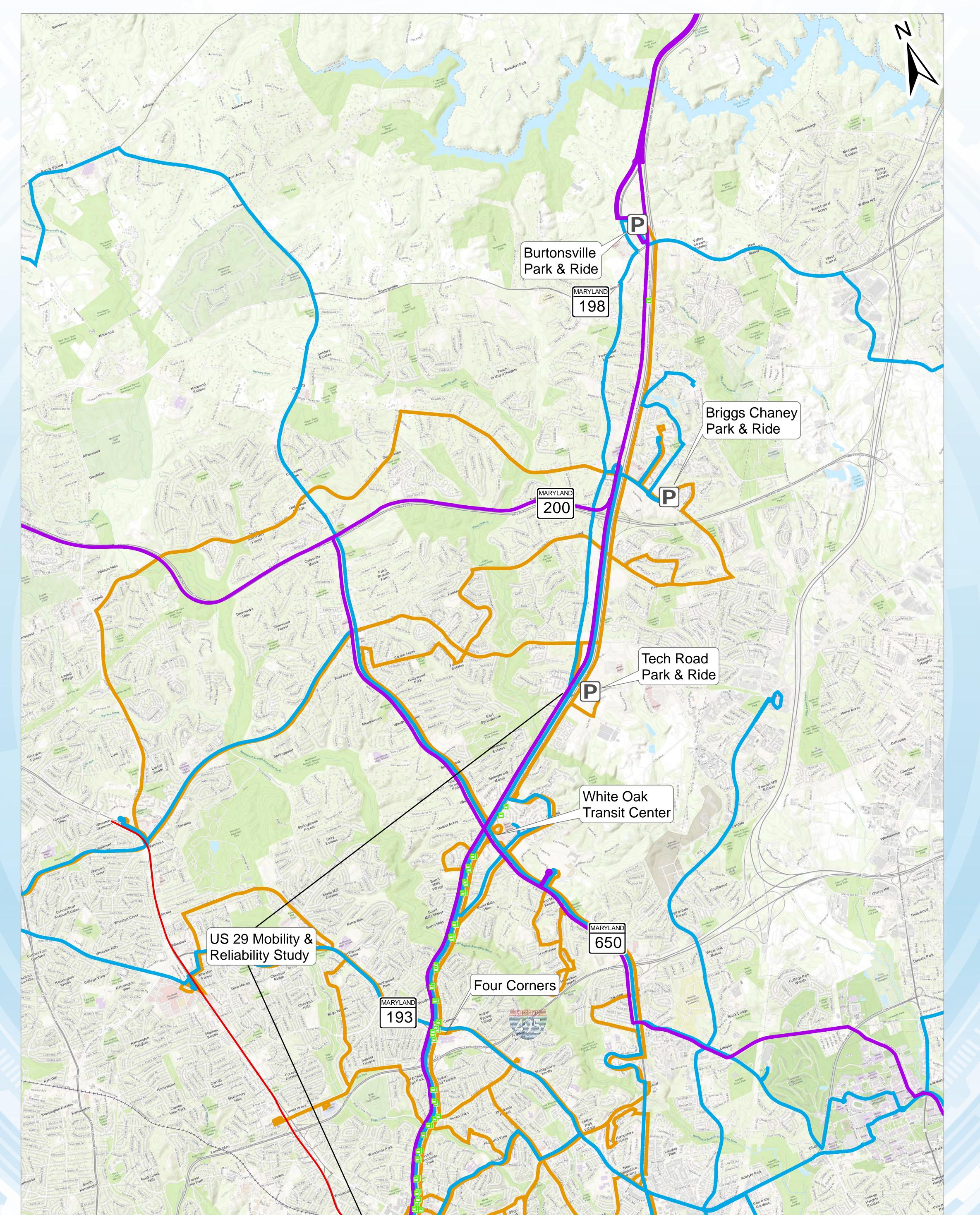




## US 29 Mobility & Reliability Study



## **Existing Transit Routes**







### US 29 Corridor Existing Transit Spring/Summer 2018

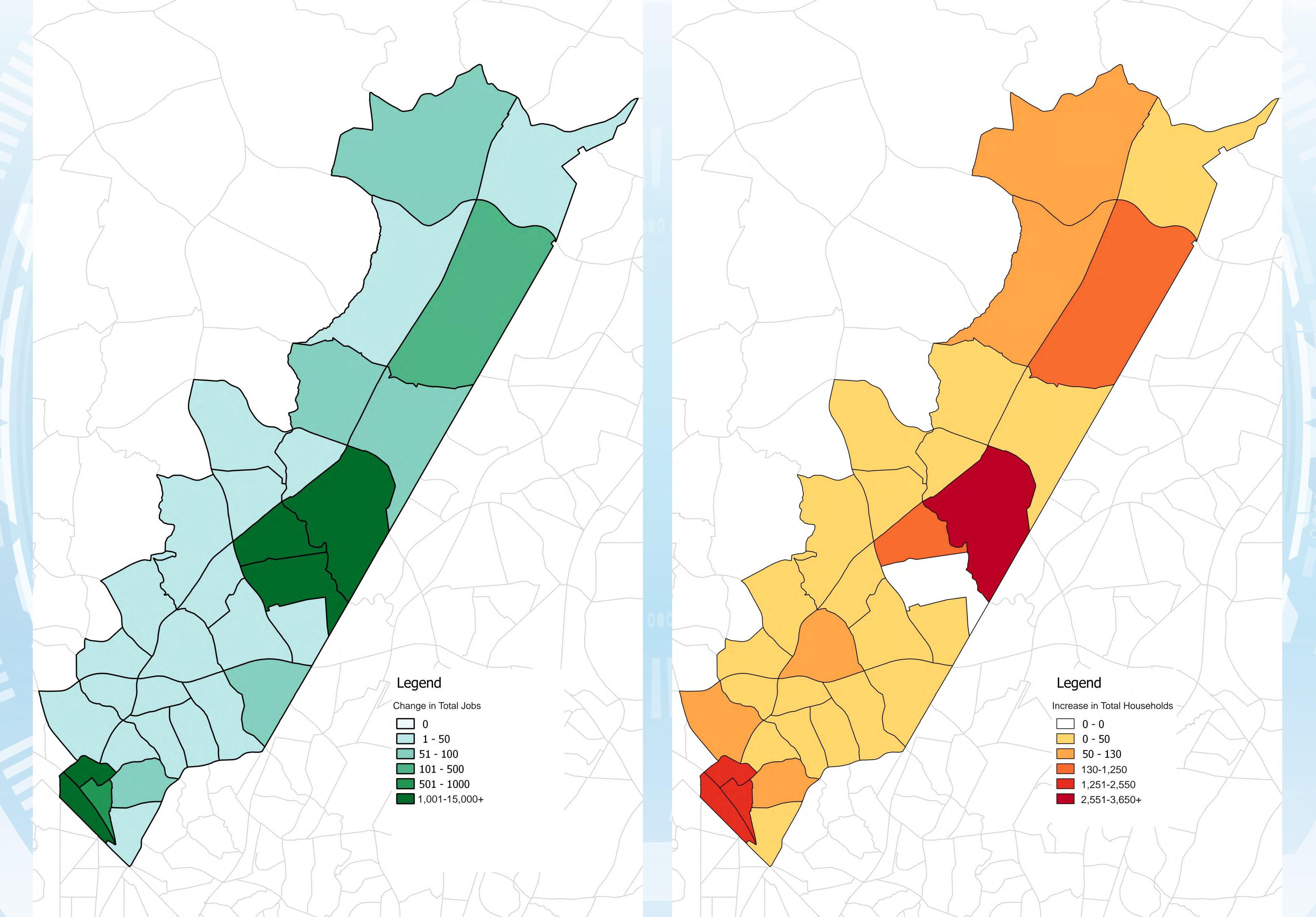
## Legend MARC Train MTA Commuter Bus MCDOT Ride On (Rte 129) Bus Stops WMATA Metrobus Metro Line

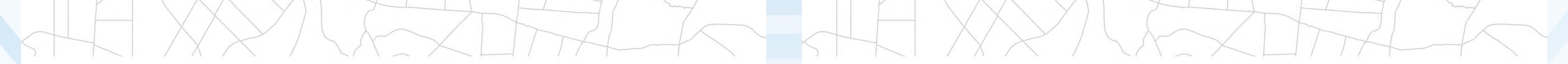
## US 29 Mobility & Reliability Study



# Population & Employment Growth

US 29 Corridor Change in Total Employment 2017 to 2040 US 29 Corridor Change in Households 2017 to 2040





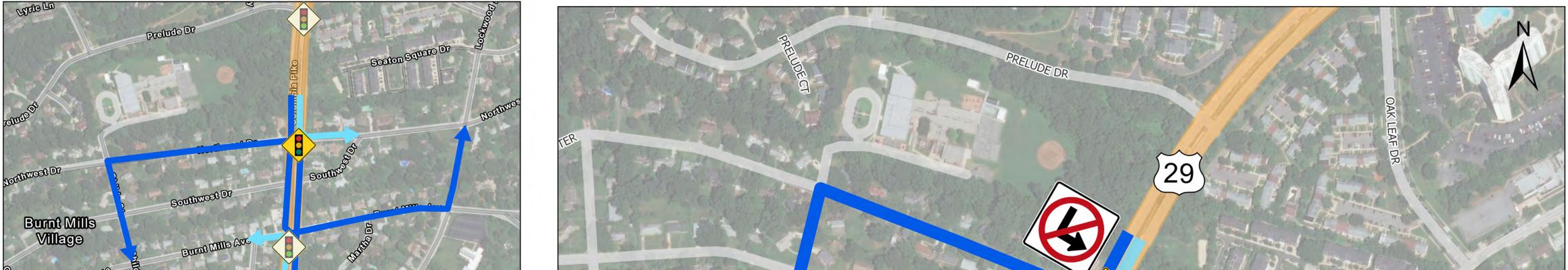
Source: M-NCPPC Montgomery County Submittal to MWCOG for Round 9.1 Cooperative Forecasts (January 2018)

## US 29 Mobility & Reliability Study

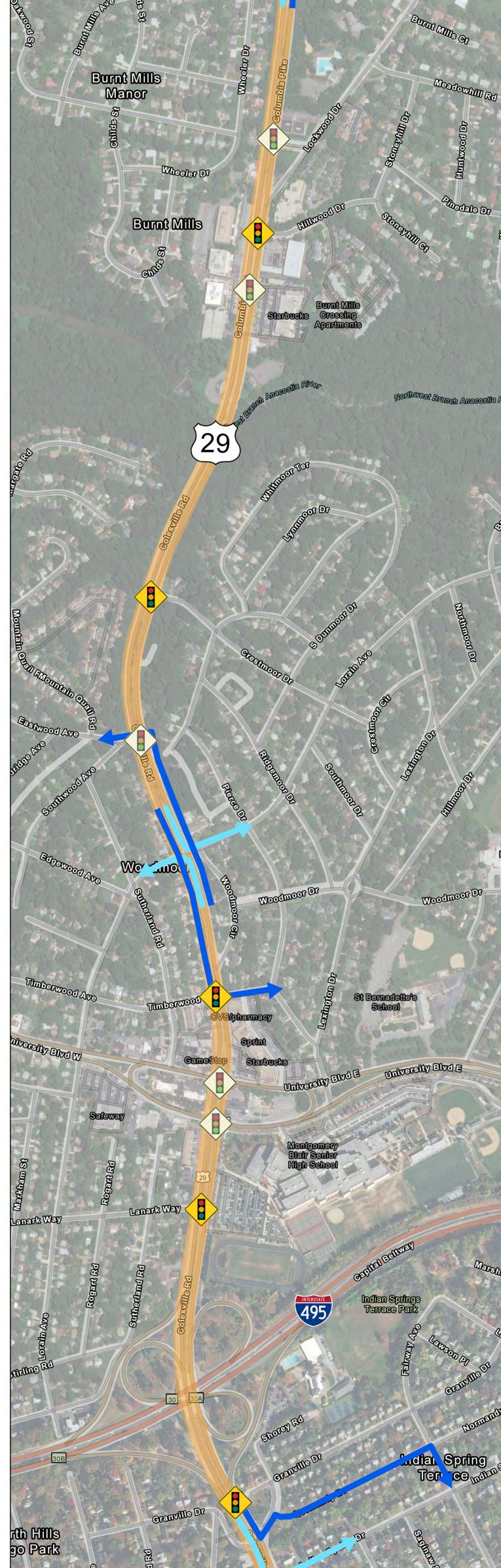


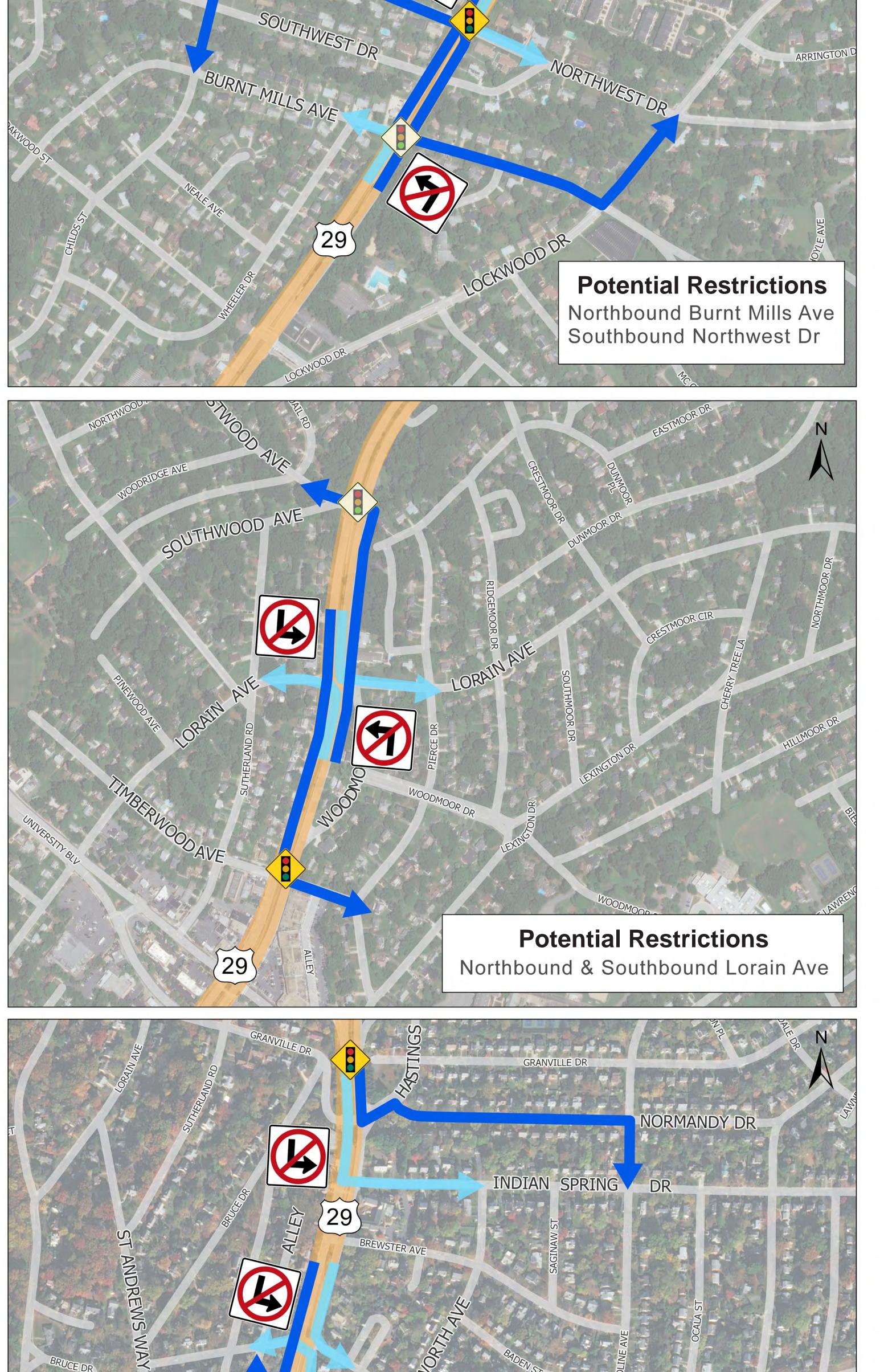
## Concept Ideas **Median Bus** Draft for discussion purposes only **Rapid Transit**

### **Possible Diversion Routes for Rerouted Left-Turn Movements**











## US 29 Mobility & Reliability Study

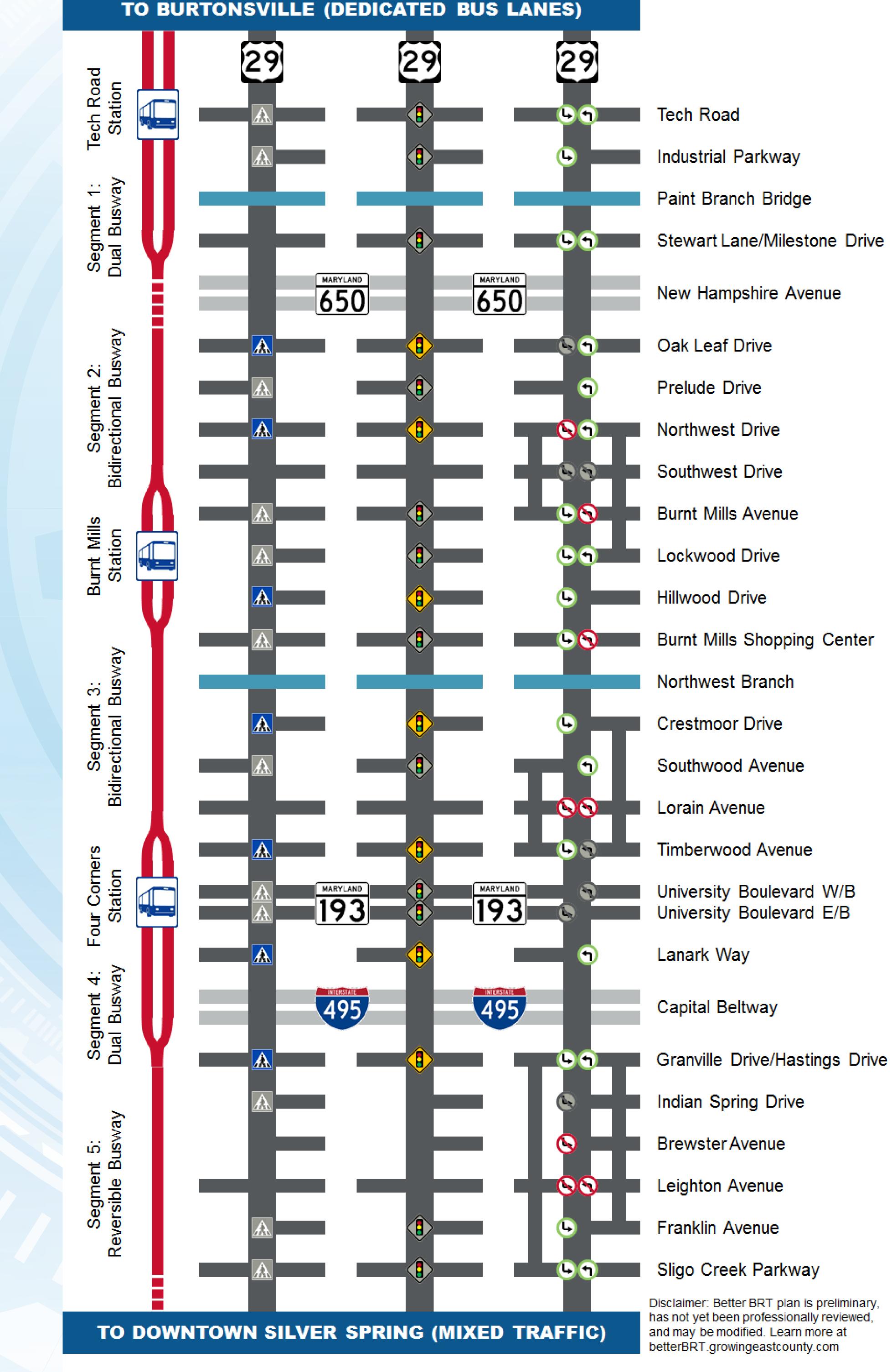


## Concept ldeas Median Bus Rapid Transit

Draft for discussion purposes only







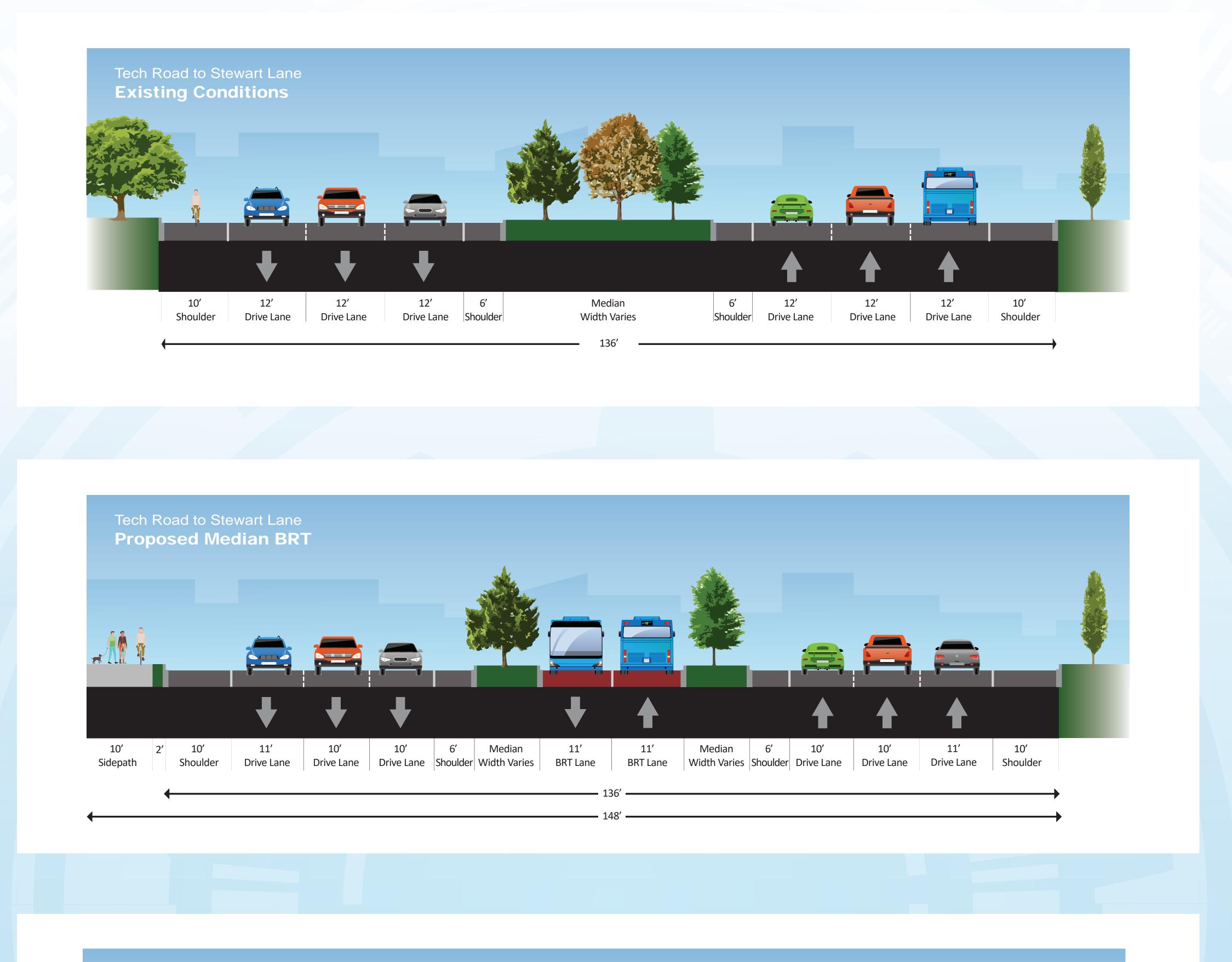
### US 29 Mobility & Reliability Study



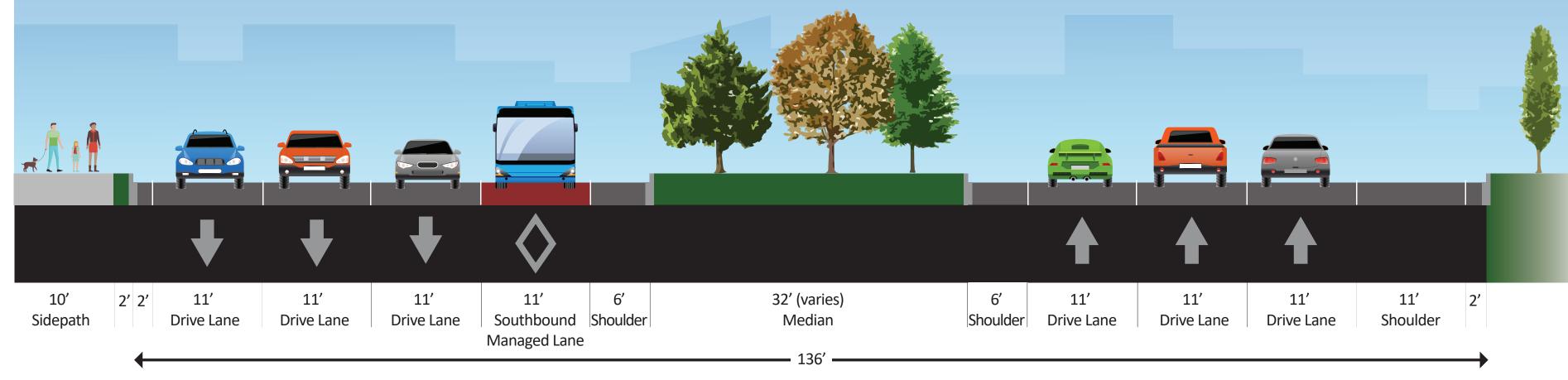
## Concept Ideas Tech Road to Stewart Lane



Draft for discussion purposes only

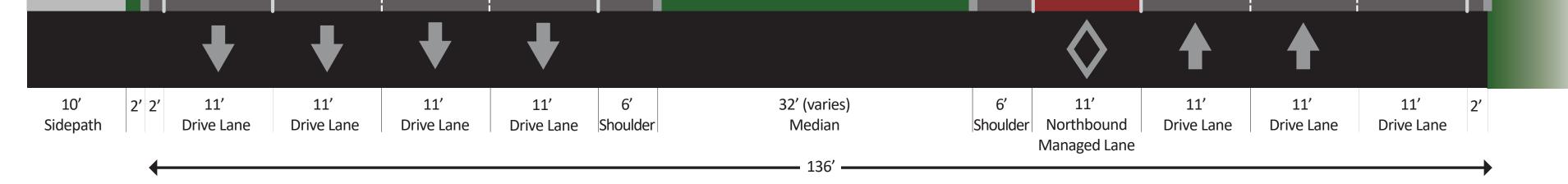








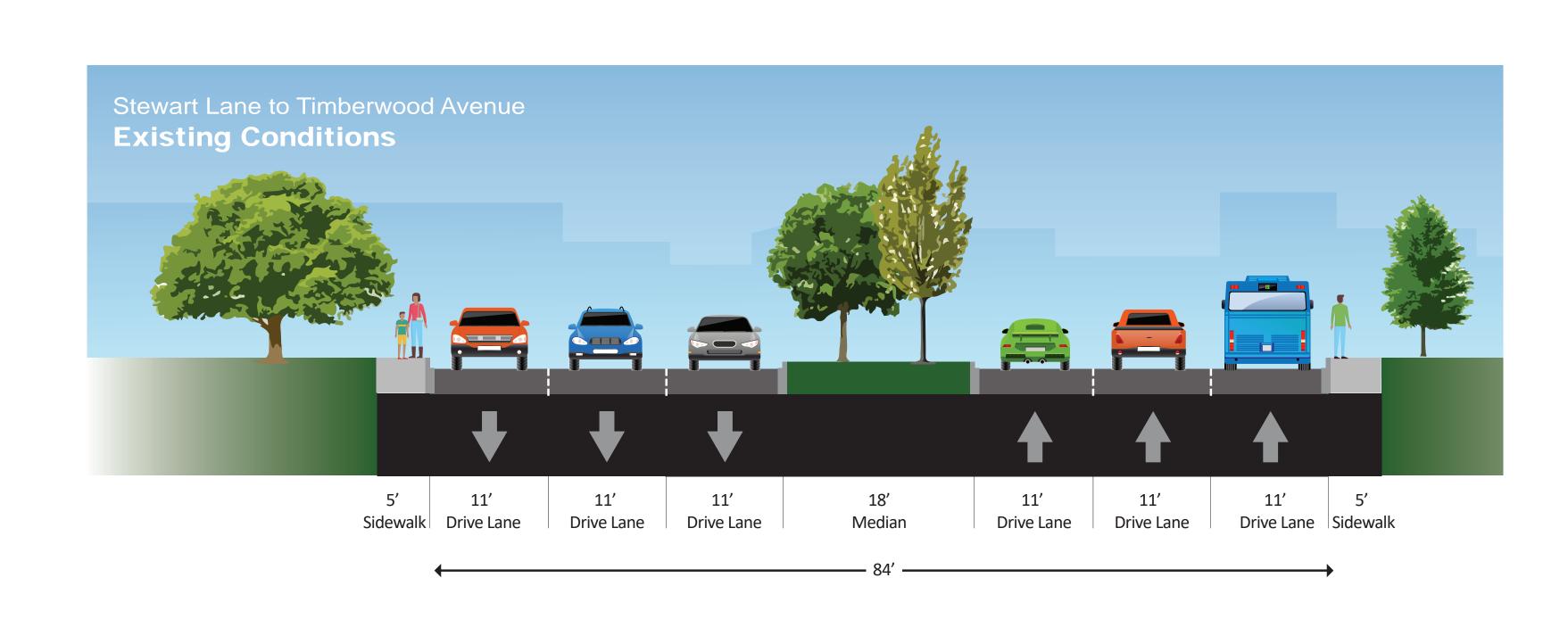




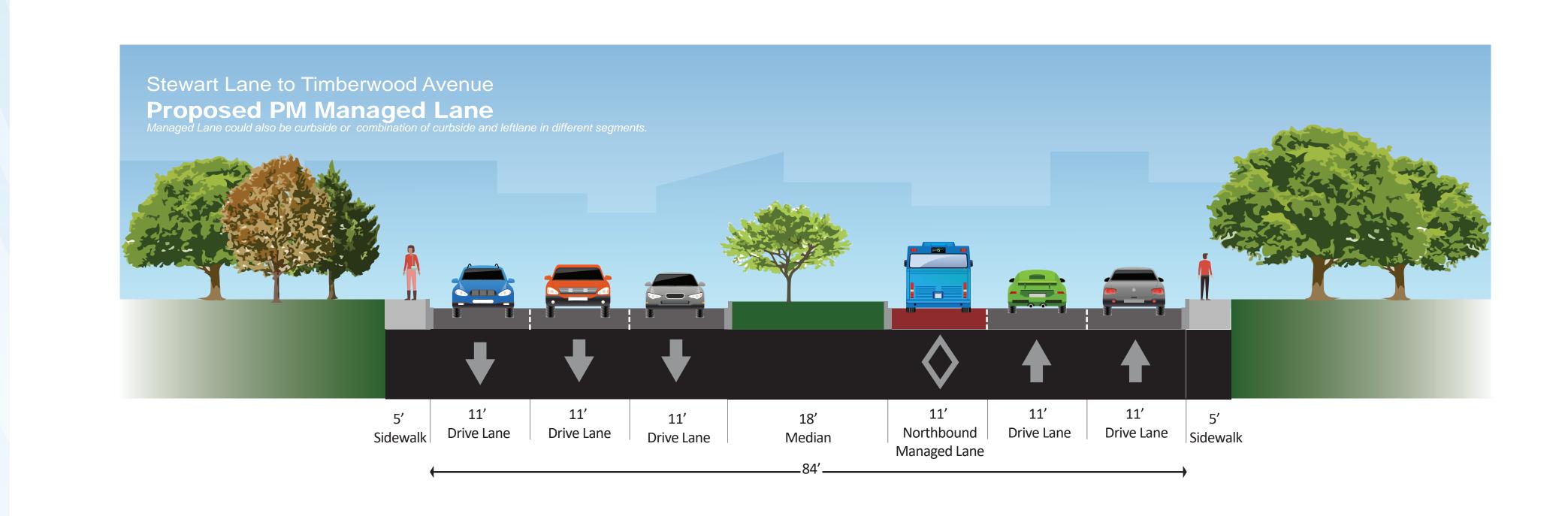
## US 29 Mobility & Reliability Study



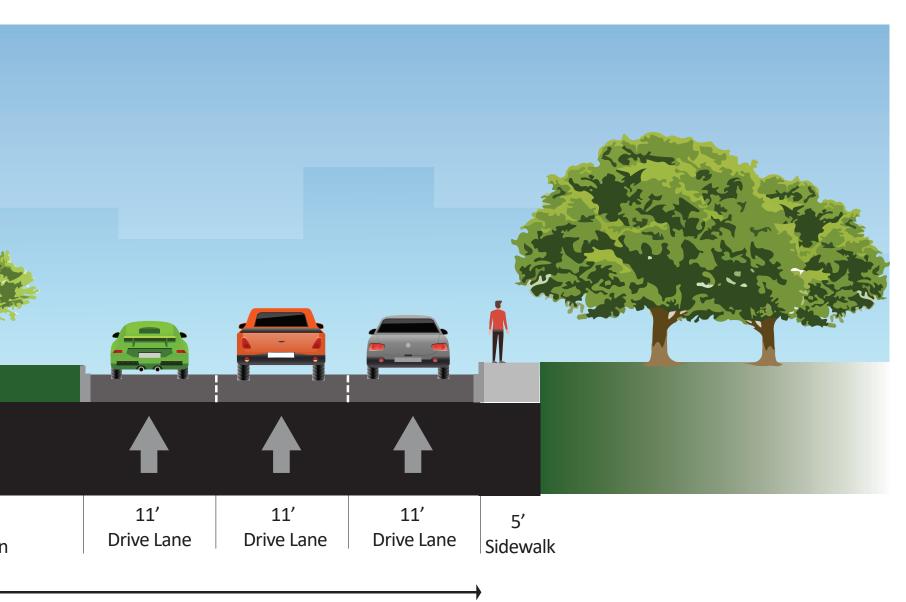
## Concept Ideas Stewart Lane to Timberwood Avenue Draft for discussion purposes only



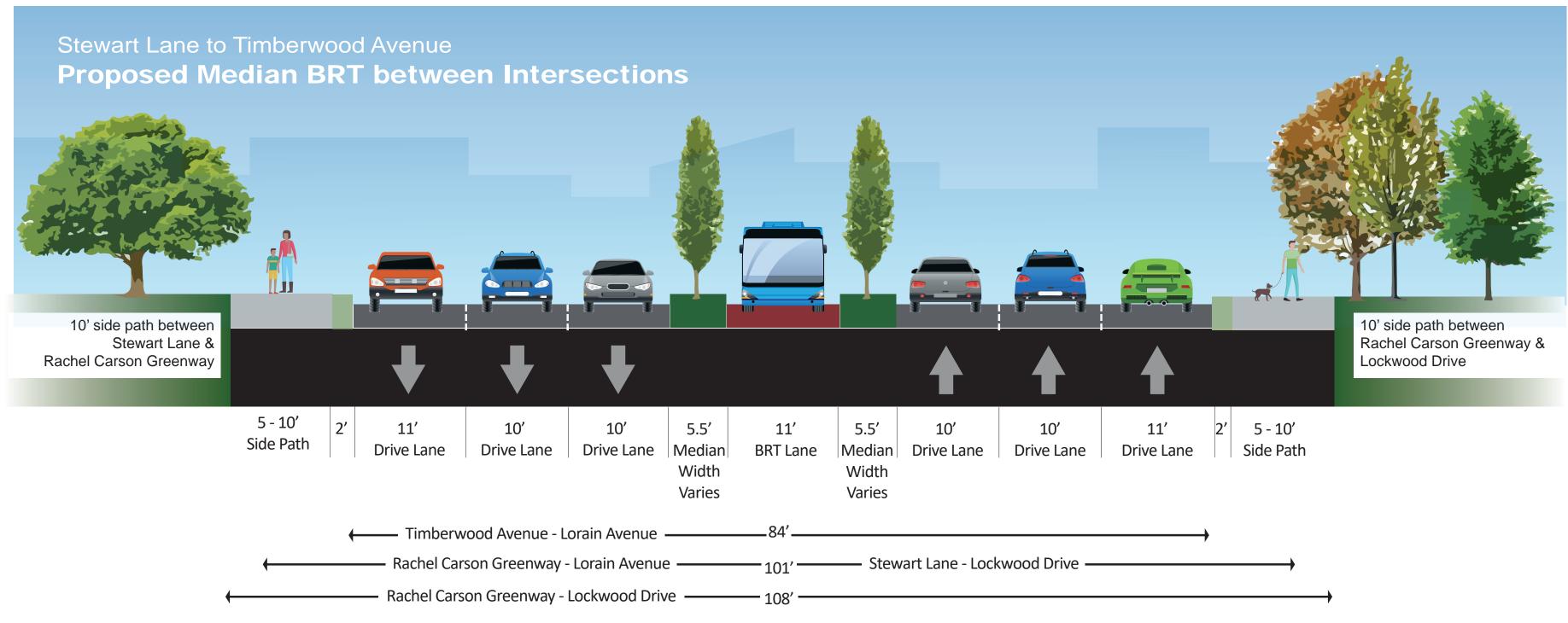
Stewart Lane to Timberwood Avenue Proposed AM Managed Lane 11' 5' Sidewalk Drive Lane Drive Lane Southbound Median Managed Lane

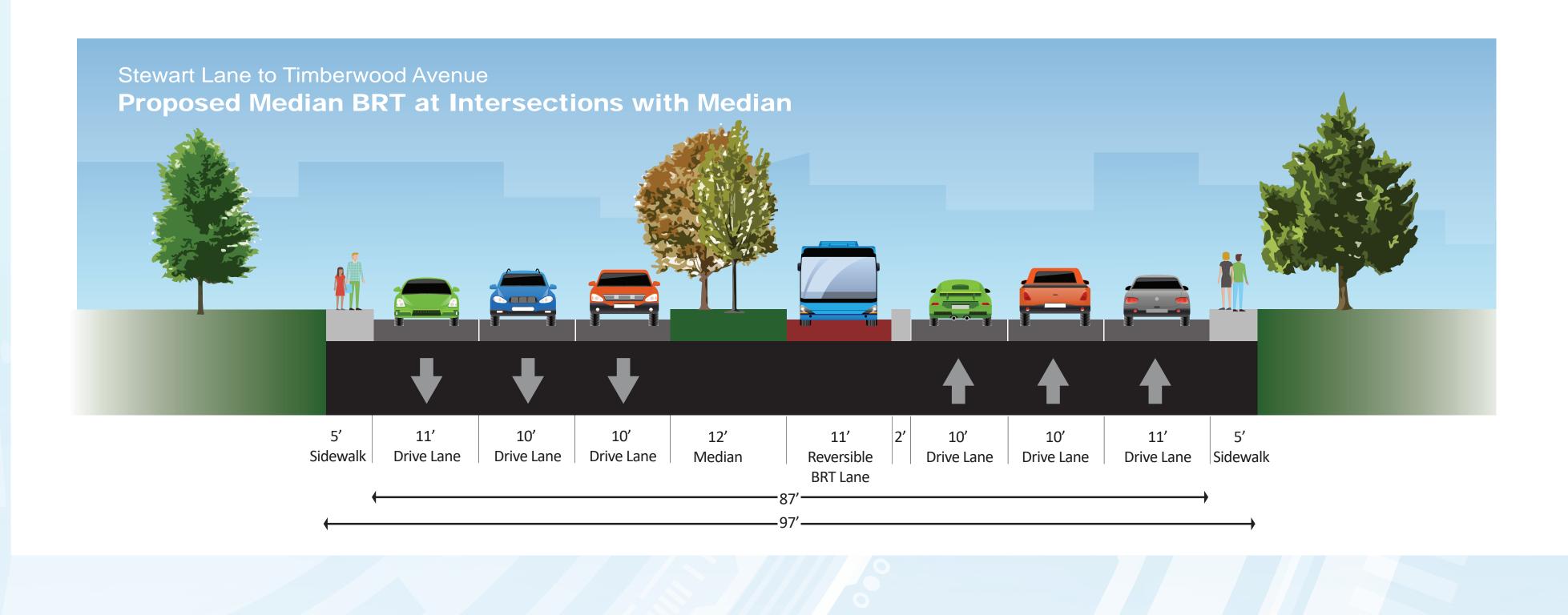


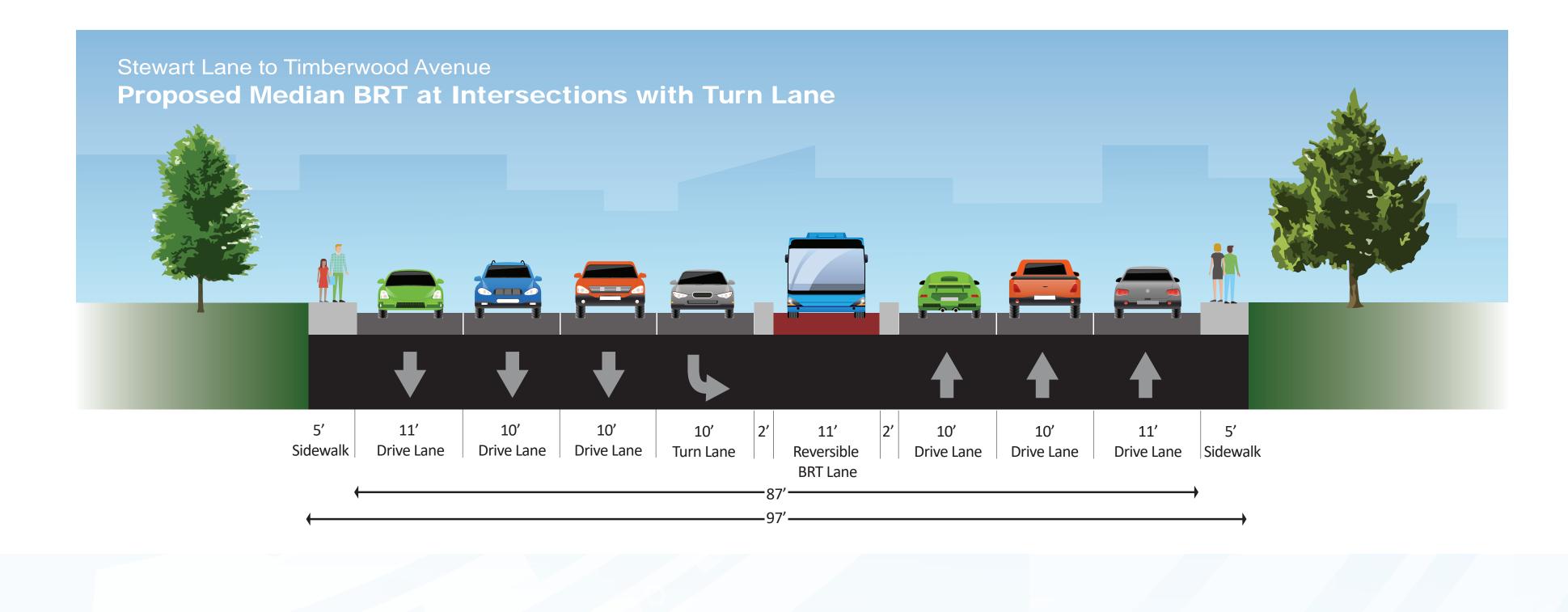
### US 29 Mobility & Reliability Study















## **Concept Ideas** Timberwood Avenue to I-495

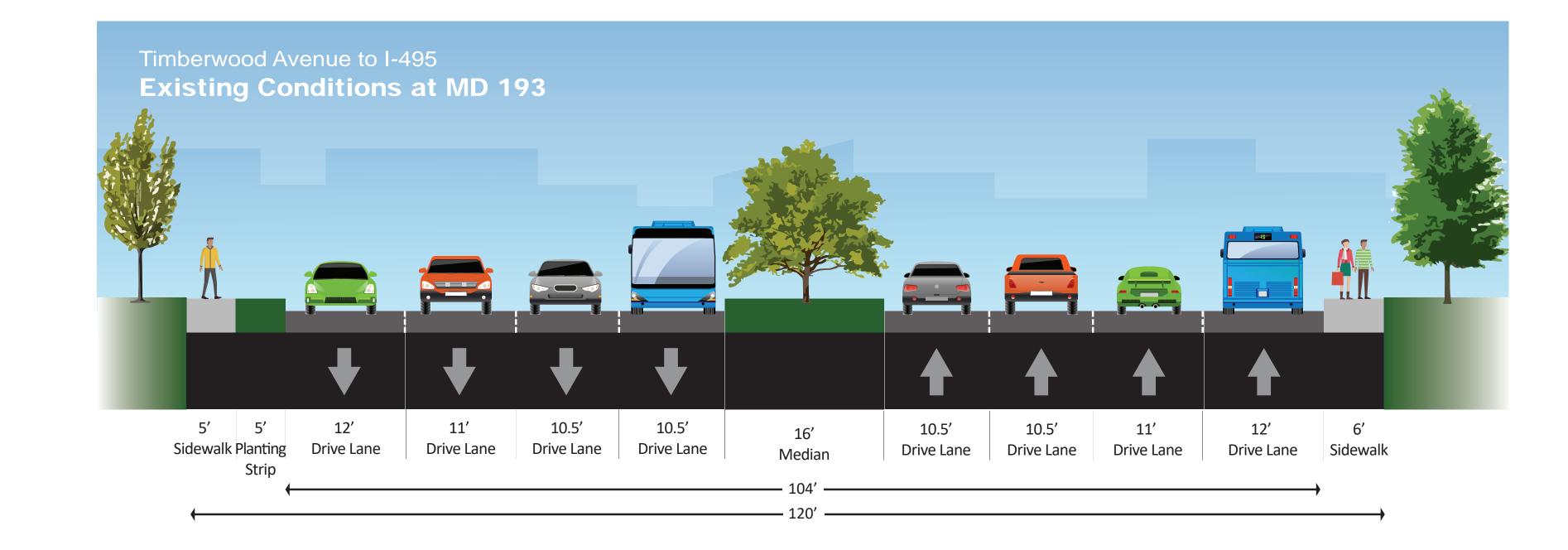
 Tech
 Timberwood
 Sligo Creek

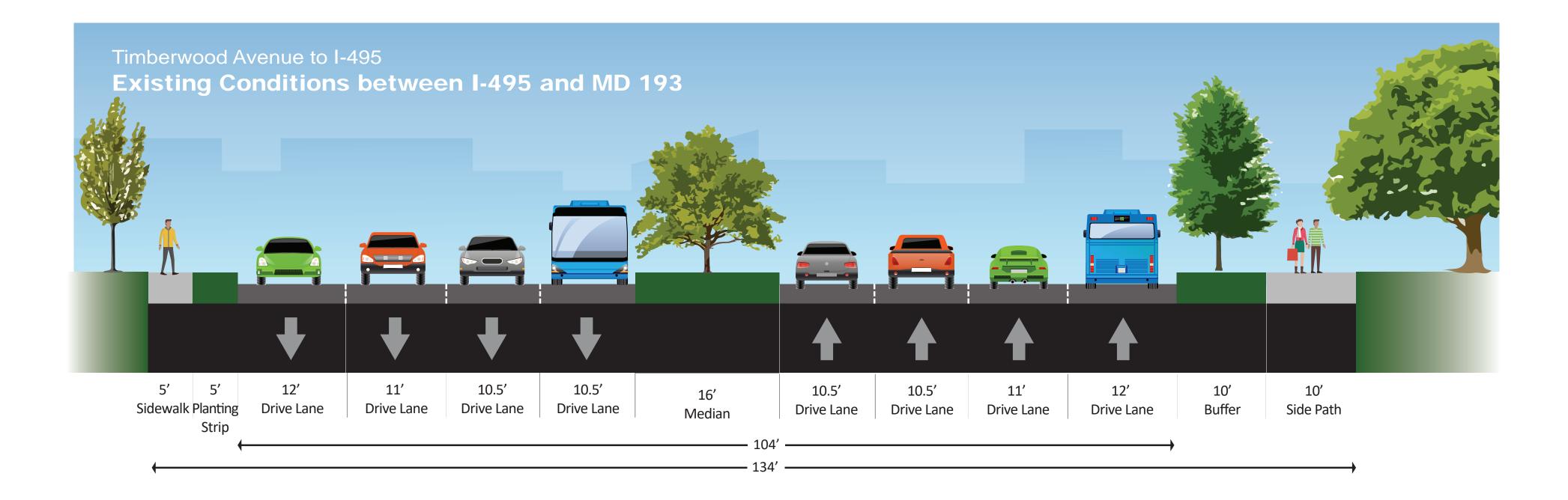
 Road
 Avenue
 Pkwy.

 O
 O
 O

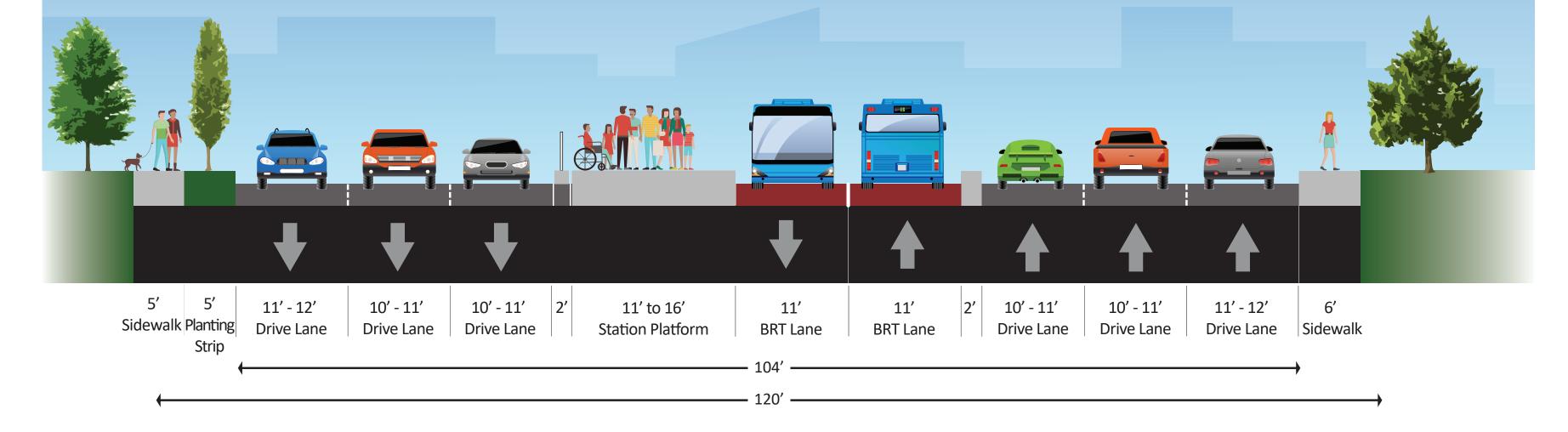
 Stewart
 I-495

Draft for discussion purposes only

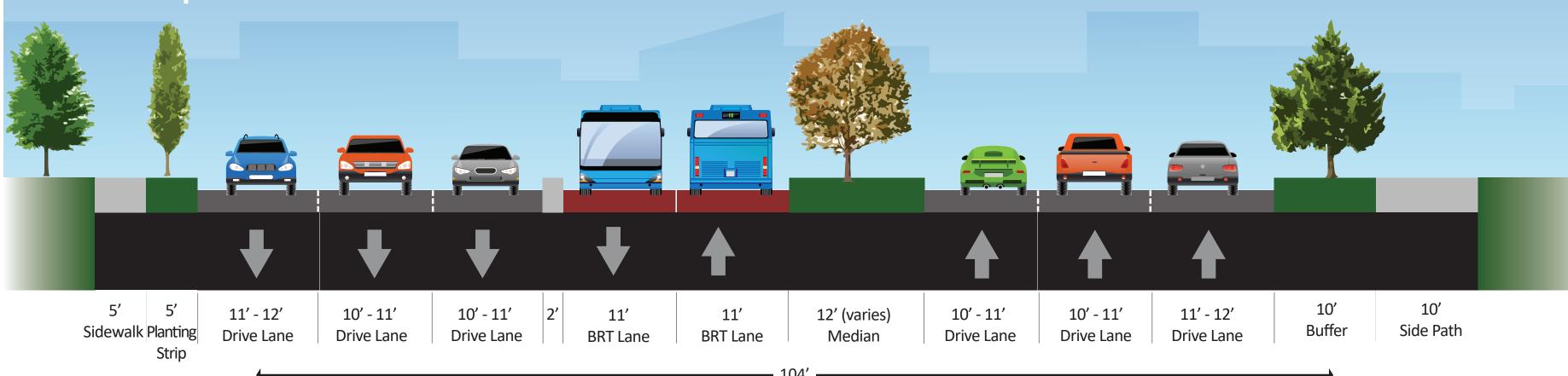


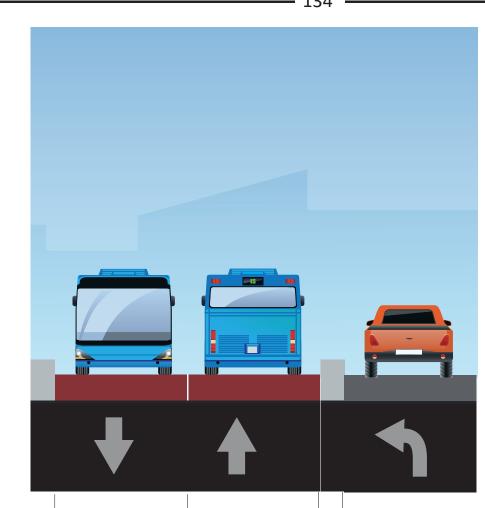


Timberwood Avenue to I-495 Proposed Median BRT at Station



Timberwood Avenue to I-495 **Proposed Median BRT at Intersection with Median Inset: Proposed Median BRT at Intersection with Turn Iane** 





 2'
 11'
 11'
 2'
 10'

 BRT Lane
 BRT Lane
 Turn Lane

## US 29 Mobility & Reliability Study



## Concept Ideas I-495 to Sligo Creek Pkwy.

Draft for discussion purposes only



Tech

Road

Stewart

Lane

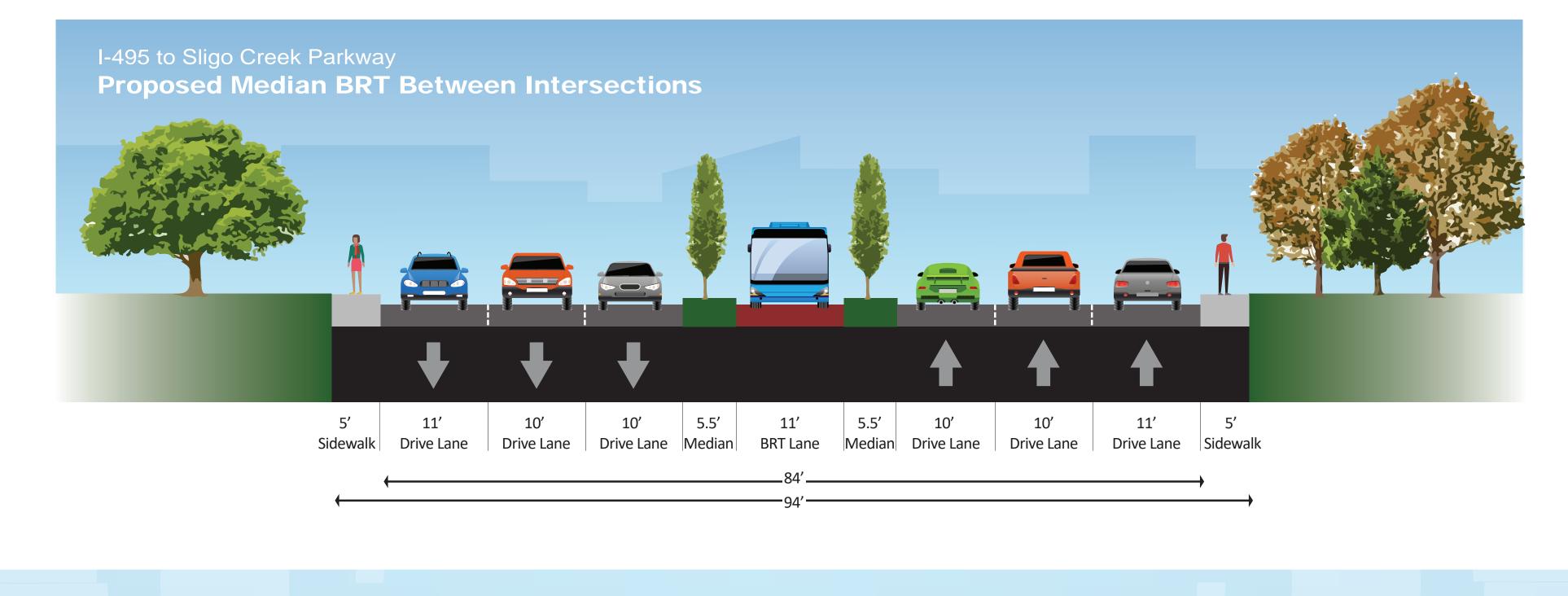
Timberwood

Avenue

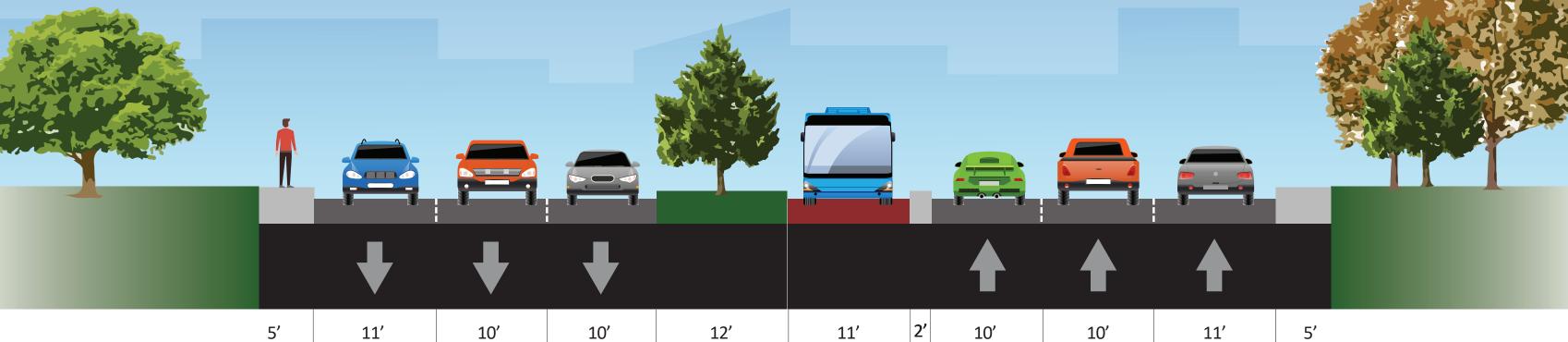
Sligo Creek

Pkwy.

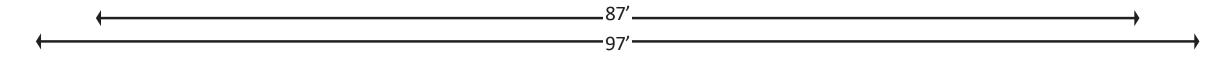


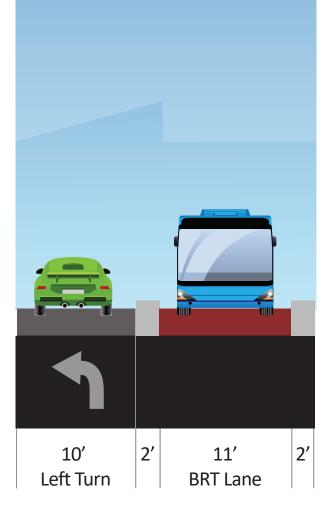


I-495 to Sligo Creek Parkway Proposed Median BRT at Intersection with Median Inset: Proposed Median BRT at Intersection with Turn lane



 Sidewalk
 Drive Lane
 Drive Lane
 Median
 BRT Lane
 Drive Lane
 Drive Lane
 Drive Lane



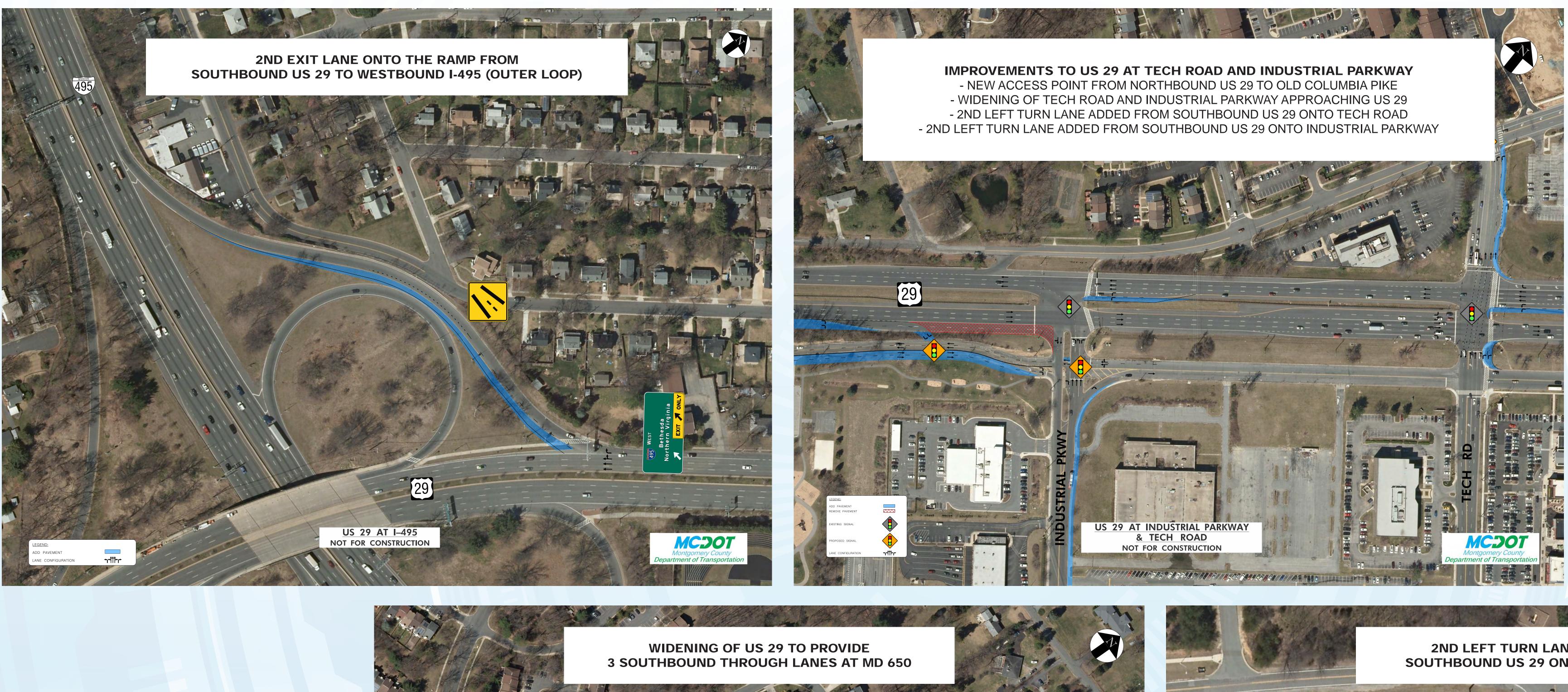




## US 29 Mobility & Reliability Study



## Concept Ideas Spot Improvement Location Concepts Draft for discussion purposes only





### US 29 Mobility & Reliability Study

US 29 AT MD 650 NOT FOR CONSTRUCTION

29







## **Concept Ideas** Pedestrian & Bicycle Access Improvements Draft for discussion purposes only



## US 29 - Station 1 Silver Spring Transit Center

#### BARRIERS TO PEDESTRIAN/ BICYCLE CONNECTIVITY

Columbia Pike NB and SB Lanes between 2nd Avenue and East West Highway

#### Metrorail/MARC tracks

Pedestrian bridge connecting Silver Spring Transit Center, MARC Station and Metrorail station (per Purple Line Functional Plan).

Address sidewalk on northwest side of US 29 between 2nd Avenue and Metrorail tracks, which are not compliant due to obstructions such as lampposts, and the stairs at the underpass.

Sharrow markings, "Bicycle May Use Full Lane" signage, and "Bicycle Route" signage on 2nd Avenue between Fenwick Lane and US 29 (per Bicycle and Pedestrian Priority Area Silver Spring CBD).

D Add crosswalk and pedestrian signal at US 29 and North Noyes Drive.

E Add crosswalk and pedestrian signal on north side of US 29 and Spring Street intersection.

F Add pedestrian refuge medians on southwest and northwest legs of US 29 and Georgia Avenue intersection. G Add crosswalk to northeast leg of US 29 and Silver Spring Transit Center Entrance. H Continue bi-directional bike lane to Grubb Road. Add 5 ft minimum sidewalks to Fairview Road between Spring Street and Noyes Drive. J Add 5 ft minimum sidewalks to Alton Parkway between Noyes Drive and Spring Woodland Drive. K Add 5 ft minimum sidewalks on Noyes Drive between Alton Parkway and US 29. Below recommendations are from the Montgomery County Bicycle Master Plan: L Separated bike lanes (both sides) on US 29 from 16th St to Wayne Ave M Separated Bike Lanes (Two-Way, East Side) on US 29 from Wayne Ave to Georgia Avenue N Separated Bike Lanes (Two-Way, North Side) on East West Highway from 16th St to Georgia Ave O Separated Bike Lanes (Two-Way, East Side) on 16th Street from DC to Georgia Avenue P Off-Street Trail (Metropolitan Branch Trail) on elevated structure from Fenton Street to S Springwood Drive **Q** Neighborhood Greenway / Shared Roadway on 2nd Ave from Spring St to 16th Street **R** Separated Bike Lanes (Side TBD) on 2nd Ave/ Wayne from Cedar Street to Spring Street Neighborhood Greenway / Shared Roadway on Woodland Drive from Spring Street to Columbia Boulevard and Alton Parkway from Spring Street to Highland Drive T Separated Bike Lanes (Two-Way, West Side) on Fenton Street from King Street to Spring Street U Separated Bike Lanes (Side TBD) on Cameron Street from Spring Street to 2nd Avenue V Shared Street on Ellsworth Dr from Fenton Street to Georgia Avenue W Separated bike lanes (two-way, east side) on Ellsworth Drive from Spring Street to Fenton Drive X Neighborhood Greenway / Shared Roadway on Ellsworth Drive from Spring Street to Bennington Road Y Neighborhood Greenway / Shared Roadway on Cedar Street from Wayne Street to Bonifant Street Z Neighborhood Greenway / Shared Roadway on Bonifant Street from Cedar Street to Grove Street AA Neighborhood Greenway / Shared Roadway on Grove Street from Bonifant Street to Sligo Avenue AB Enclosed Bicycle Parking Station at Silver Spring Transit Center AC Separated Bike Lanes (Side TBD) on 13th Ave/ Burlington Avenue from DC to Fenton Street AD Priority Shared Lane Markings / Shared Roadway on Philadelphia Ave / Gist Ave from Selim Road to Takoma Ave AE Neighborhood Greenway / Shared Roadway on Woodbury Drive (Dead end south of Sligo Ave) to Sligo Avenue AF Separated bike lanes (both sides) on Dixon Avenue from Wayne Avenue to Georgia Avenue AG Priority Shared Lane Markings/ Shared Roadway on Silver Spring Avenue from Georgia Avenue to Fenton Street Legend

- **Half Mile Station Buffer**
- Half Mile Walkshed
- Proposed BRT Platform
- Proposed Improvements from the Montgomery County Bicycle Master Plan
- Recommended Pedestrian/Linear Improvements
- Recommended Area Improvements
- Barriers to Bicycle and Pedestrian Connectivity
- Existing Sidewalk



## US 29 - Station 2 Fenton Street

#### **BARRIERS TO PEDESTRIAN/ BICYCLE CONNECTIVITY**

Columbia Pike NB and SB Lanes north of Dale Drive and between 2nd Avenue and East West Highway

#### Metrorail/MARC tracks

KEY RECOMMENDATION

10 ft wide pedestrian bridge connecting Silver Spring Transit Center, MARC Station and Metrorail station (per Purple Line Functional Plan).

Address sidewalk on northwest side of US 29 between 2nd Avenue and Metrorail tracks, which are not compliant due to obstructions such as lampposts, and the stairs at the underpass.

Sharrow markings, "Bicycle May Use Full Lane" signage, and "Bicycle Route" signage on 2nd Avenue between Fenwick Lane and US 29 (per Bicycle and Pedestrian Priority Area Silver Spring CBD).

Improve pedestrian space and adding bus stop amenities such as shelter and bus arrival information (NB already has shelter at location).

E Remove parking in order to accommodate BRT Platform.

F Include bike racks at BRT Station.

G Add pedestrian refuge medians on southwest and northwest legs of US 29 and Georgia Avenue intersection.

H Add crosswalk and pedestrian signal on north side of US 29 and Spring Street intersection.

I Add crosswalk and pedestrian signal at US 29 and North Noyes Drive.

J Extend sidewalks on Dale Drive further to the West to connect to Georgia Avenue.

**κ** Widen sidewalks on both sides of US 29 for a minimum of 6 ft between Spring Street and Dale Drive. Add ADA compliant crossings of side streets.

L Add 5 ft minimum sidewalks on Noyes Drive between Alton Parkway and US 29.

M Add 5 ft minimum sidewalks to Fairview Road between Spring Street and Noyes Drive.

Add 5 ft minimum sidewalks to sections of Alton Parkway that are open to traffic. Widen shared-use path sections (south of Noyes Drive, north of Highland Drive) to 10 ft.

Below recommendations are from the Montgomery County Bicycle Master Plan:

O Separated bike lanes (both sides) on US 29 from 16th St to Wayne Ave

P Separated Bike Lanes (Two-Way, East Side) on US 29 from Wayne Ave to Georgia Avenue

**Q** Separated Bike Lanes (Two-Way, North Side) on East West Highway from 16th St to Georgia Ave

R Separated Bike Lanes (Two-Way, East Side) on 16th Street from DC to Georgia Avenue

S Off-Street Trail (Metropolitan Branch Trail) on elevated structure from Fenton Street to S Springwood Drive

T Neighborhood Greenway / Shared Roadway on 2nd Ave from Spring St to 16th St

U Separated Bike Lanes (Side TBD) on 2nd Ave/ Wayne from Cedar Street to Spring Street

Neighborhood Greenway / Shared Roadway on Woodland Drive from Spring Street to Columbia Boulevard and Alton Parkway from Spring Street to Highland Drive

W Separated Bike Lanes (Two-Way, West Side) on Fenton Street from King Street to Spring Street
X Separated Bike Lanes (Side TBD) on Cameron Street from Spring Street to 2nd Avenue
Y Shared Street on Ellsworth Dr from Fenton Street to Georgia Avenue
Z Separated bike lanes (two-way, east side) on Ellsworth Drive from Spring Street to Fenton Drive
AA Neighborhood Greenway / Shared Roadway on Ellsworth Drive from Wayne Street to Bennington Road
AB Neighborhood Greenway / Shared Roadway on Cedar Street from Wayne Street to Bonifant Street
AC Neighborhood Greenway / Shared Roadway on Bonifant Street from Cedar Street to Grove Street
AD Neighborhood Greenway / Shared Roadway on Grove Street from Bonifant Street to Sligo Avenue
AE Separated bike lanes (both sides) on Dixon Avenue from Wayne Avenue to Georgia Avenue to Fenton Street
AF Priority Shared Lane Markings / Shared Roadway on Silver Spring Avenue from Georgia Avenue to Fenton Street

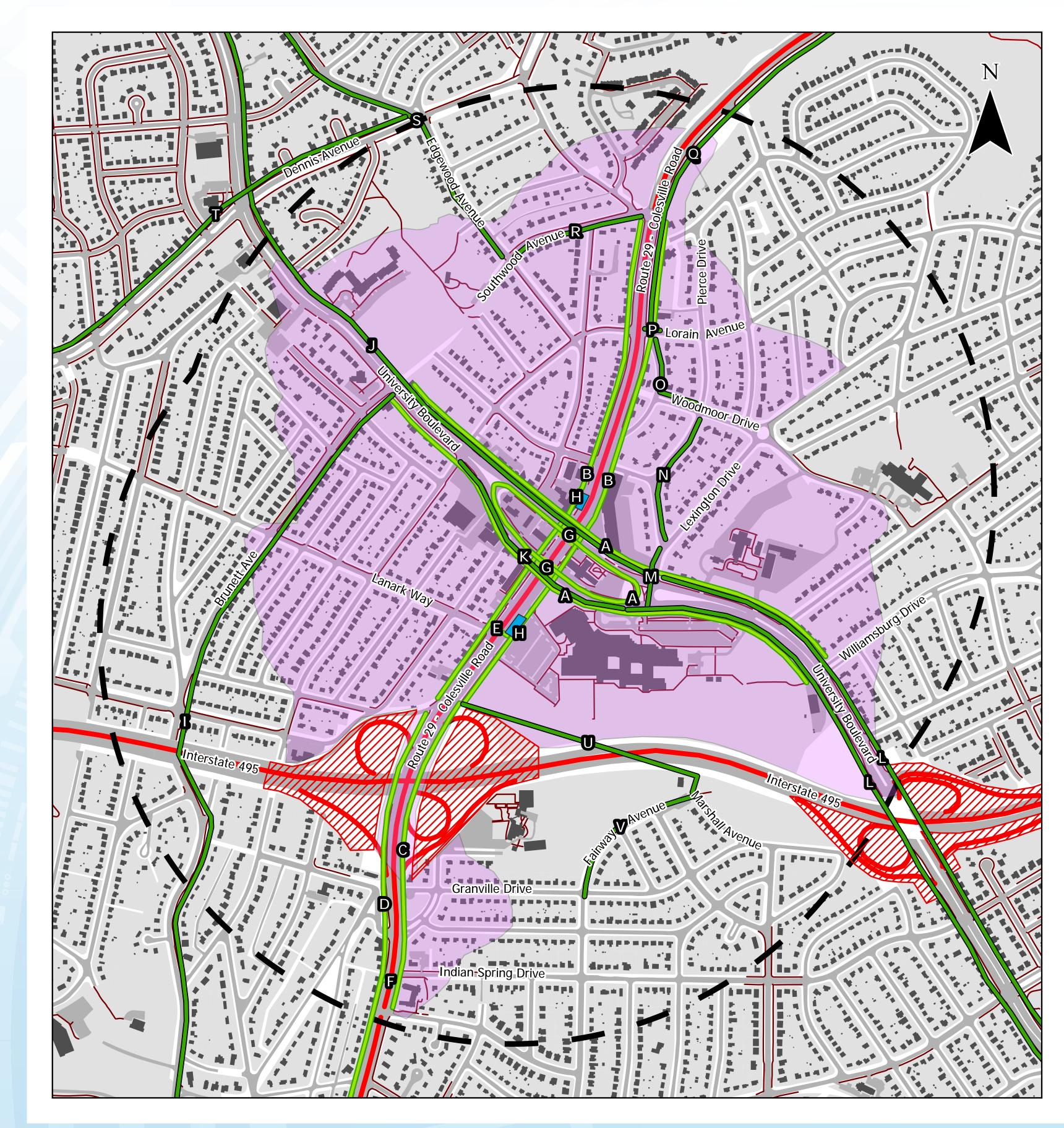
- Half Mile Station Buffer
- Half Mile Walkshed
- Proposed BRT Platform
- Proposed Improvements from the Montgomery County Bicycle Master Plan
- Recommended Pedestrian/Linear Improvements
- Recommended Area Improvements
- Barriers to Bicycle and Pedestrian Connectivity
- ----- Existing Sidewalk

## US 29 Mobility & Reliability Study



## Concept deas Pedestrian & Bicycle Access Improvements

Draft for discussion purposes only



## US 29 - Station 3 University Boulevard

#### **BARRIERS TO PEDESTRIAN/ BICYCLE CONNECTIVITY**

Columbia Pike NB and SB Lanes

All I-495 Ramps

I-495 EB and WB Lanes

#### EY RECOMMENDATION

- A Widen sidewalks on University Boulevard to a minimum of 6 ft from Brunett Avenue to Williamsburg Drive.
- Widen sidewalks on US 29 to a minimum of 6 ft from I-495 ramps to Southwood Avenue (per Four Corners Master Plan and Countywide Transit Corridors Functional Master Plan).
- C Install new bike bridge over I-495 on US 29.

Widen sidewalks on west side of US 29 to a minimum of 5 ft from I-495 to Sligo Creek Parkway (per Four Corners Master D Plan).

- Accommodate a pedestrian refuge median for safe road crossing at BRT Station (US 29 and Lanark Way) and add pedestrian-activated signal (HAWK or RRFB).
- <sup>F</sup> Add pedestrian-activated signal (HAWK or RRFB) at existing crosswalk at US 29 and Indian Spring Drive. Consider deployment of Capital Bikeshare in Four Corners and White Oak, due to proximity to existing stations in Silver Spring and Wheaton.

H Include bike racks at BRT station platforms.

Below recommendations are from the Montgomery County Bicycle Master Plan:

I Neighborhood Greenway / Shared Roadway on Brunett Avenue from University Boulevard to Sligo Creek Parkway

J Separated Bikeways (Sidepath, East Side) on University Boulevard from Lexington Drive to Reedie Drive

K Separated Bikeways (Sidepath, West Side) on University Boulevard from Lexington Drive to Lorain Avenue

L Separated bike lanes (both sides) on University Boulevard from Lexington Drive to Langley Drive

M Separated Bikeways (Sidepath, West Side) on Lexington Drive from Pierce Drive to University Boulevard

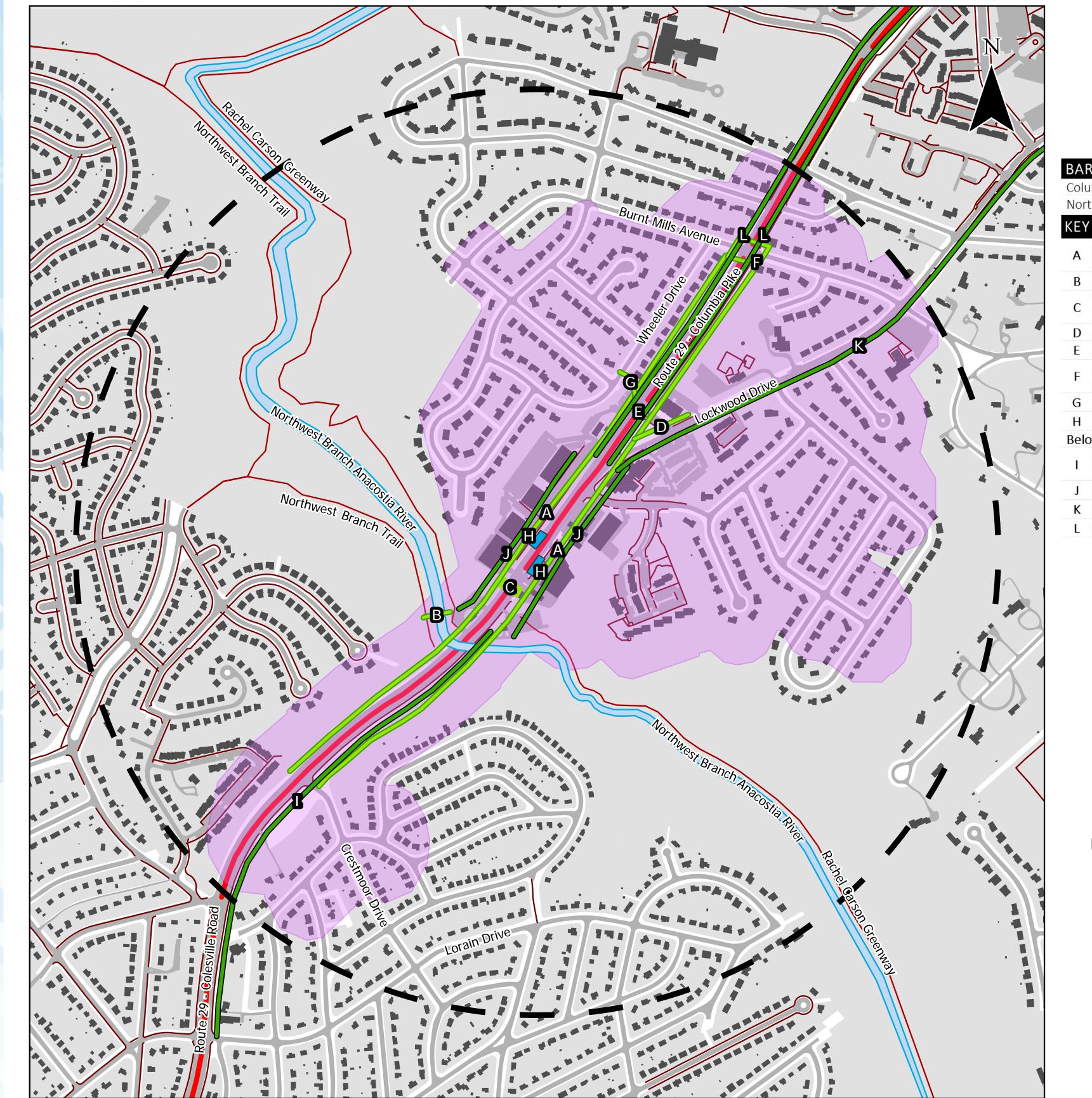
**N** Neighborhood Greenway / Shared Roadway on Pierce Drive from Lexington Drive to Woodmoor Drive

Neighborhood Greenway / Shared Roadway on Woodmoor Drive and Woodmoor Circle from Pierce Drive to Lorain O Avenue

P Neighborhood Greenway / Shared Roadway on Lorain Avenue from Woodmoor Circle to US 29 **Q** Separated Bikeways (Sidepath, East Side) on US 29 from Lorain Avenue to Rachel Carson Greenway R Neighborhood Greenway / Shared Roadway on Southwood Avenue from US 29 to Edgewood Avenue S Neighborhood Greenway / Shared Roadway on Edgewood Avenue from Southwood Avenue to Eisner Street T Separated Bikeways (Sidepath, North Side) on Dennis Avenue from Edgewood Avenue to Douglas Avenue U Pedestrian/Bike bridge over I-495 from US 29 to Indian Spring Terrace Park V Neighborhood Greenway / Shared Roadway on Fairway Avenue from Marshall Avenue to Granville Drive

#### Legend

- **Half Mile Station Buffer**
- Half Mile Walkshed
- Proposed BRT Platform
- Proposed Improvements from the Montgomery County Bicycle Master Plan
- **—** Recommended Pedestrian/Linear Improvements
- Recommended Area Improvements
- Barriers to Bicycle and Pedestrian Connectivity
- Existing Sidewalk



## US 29 - Station 4 Burnt Mills

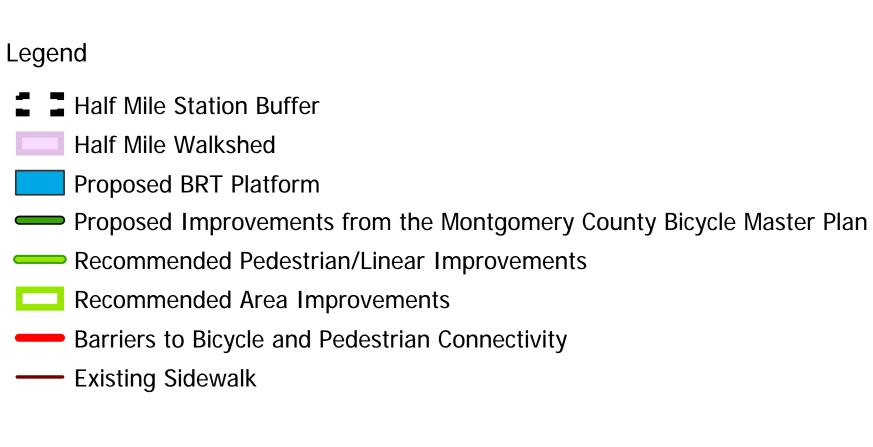
#### **BARRIERS TO PEDESTRIAN/ BICYCLE CONNECTIVITY**

#### Columbia Pike NB and SB Lanes

#### Northwest Branch

#### KEY RECOMMENDATION

- Add 6 ft wide minimum sidewalks on both sides of US 29 from Crestmoor Drive to Burnt Mills Avenue (per Four Corners Master Plan and Countywide Transit Corridors Functional Master Plan).
- **B** Add pedestrian bridge over Northwest branch connecting Burnt Mills West Special Park to Northwest Branch Trail. Widen median to accommodate pedestrian refuge for safe road crossing on north leg of US 29 and Holy Cross Health Entrance (per Countywide Bike Master Plan).
- D Add minimum 6 ft sidewalks to west side of northbound Lockwood Drive.
- Add crosswalk and pedestrian signal to south leg of US 29 and southbound Lockwood Drive intersection.
- Add ADA compliant crosswalks to all four legs of US 29 and Burnt Mills Avenue intersection. Add refuge medians to north and south legs. Add pedestrian signal to south leg.
- G Improve pedestrian path between Wheeler Drive and US 29 to make it ADA compliant.
- H Include bike racks at BRT station platforms.
- Below recommendations are from the Montgomery County Bicycle Master Plan:
- Separated Bikeways (Sidepath, East Side) on US 29 from Lorain Avenue to Rachel Carson Greenway including new bike bridge over Northwest Branch.
- Separated Bikeways (Sidepath, both sides of Road) on US 29 from Rachel Carson Greenway to Lockwood Drive
- K Separated Bikeway (Sidepath, east side) on Lockwood Drive from New Hampshire Avenue to Columbia Pike
- Separated Bikeway (Sidepath, west side) on US 29 from Lockwood Drive to Tech Road



### US 29 Mobility & Reliability Study



## Concept deas Pedestrian & Bicycle Access Improvements

Draft for discussion purposes only



### US 29 - Station 5 Oak Leaf Drive

#### BARRIERS TO PEDESTRIAN/BICYCLE CONNECTIVITY

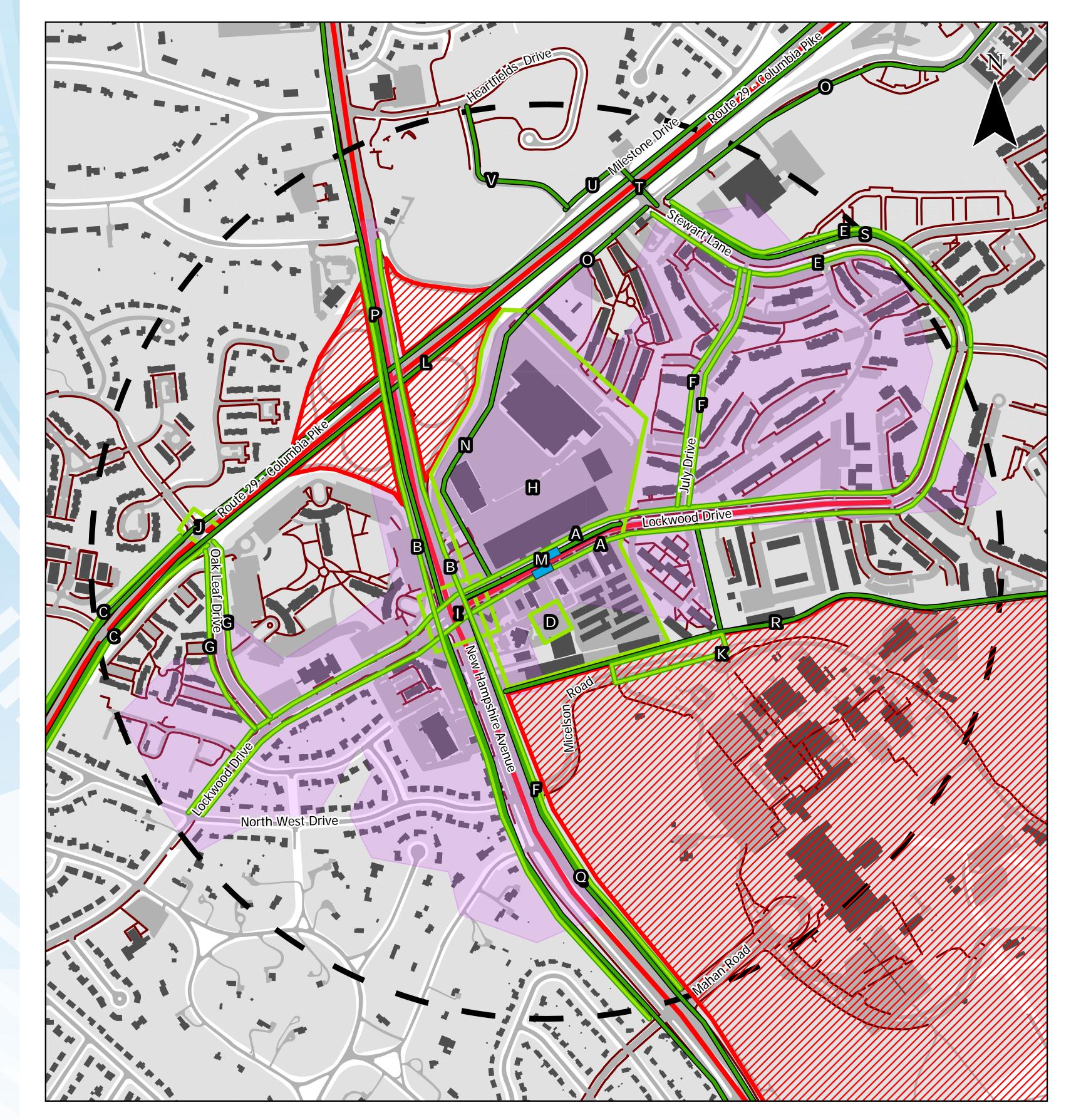
- Columbia Pike NB and SB Lanes
- All four ramps between Columbia Pike and New Hampshire Avenue
- Perimeter of White Oak Federal Research Facility (Accessible only for authorized persons)

#### KEY RECOMMENDATION

- Add 6 ft wide minimum sidewalks on both sides of US 29 from Crestmoor Drive to Burnt Mills Avenue (per Four Corners Master Plan and Countywide Transit Corridors Functional Master Plan)
- Add 6 ft wide minimum sidewalks on both sides of Lockwood drive from US 29 to New Hampshire Avenue (per
- Countywide Transit Corridors Functional Master Plan
- C Add 5 ft wide minimum sidewalks on both sides of North West Drive from Childs Street to New Hampshire Avenue.
- Add ADA compliant crosswalks to all four legs of Lockwood Drive and North West Drive intersection. Reduce corner curb radii to slow turning vehicles and shorten crossing distances.
- Improve pedestrian crossing of New Hampshire Avenue and Lockwood Drive, with a focus on reducing curb radii to slow turning traffic and increasing size of pedestrian refuge medians.
- F Enable pedestrian crossing at Oak Leaf Drive and US 29 through a redesign of the intersection.
- Improve pedestrian crossings at US 29 and Burnt Mills Drive. Add pedestrian signal to southern leg of intersection and add pedestrian refuge island to north and south legs of intersection. Add crosswalks to east and west legs.
- H Add 5 ft wide minimum sidewalks on both sides of Burnt Mills Drive between US 29 and Lockwood Drive.
- Add bike storage at BRT station location.
- J Add 5 ft wide minimum sidewalks on both sides of Oak Leaf Drive from US 29 to Lockwood Drive.
- Below recommendations are from the Montgomery County Bicycle Master Plan:
- K Separated bikeways (Sidepath, both sides) on US 29 from Rachel Carson Greenway to Lockwood Drive
- Separated Bikeway (Sidepath, west side) on US 29 from Lockwood Drive to Tech Road which would require new bridge over New Hampshire Avenue.
- M Separated Bike Lanes (Two-Way, East Side) on Old Columbia Pike through White Oak Shopping Center
- N Separated bikeway (Sidepath, west side) on New Hampshire Avenue from Lockwood Drive to Jackson Road
- O Separated bikeway (Sidepath, both sides) on New Hampshire Avenue from Lockwood Drive to Oaklawn Drive
- **P** Off-street Trail connecting Lockwood Drive and New Hampshire Avenue.
- **Q** Separated Bikeway (Sidepath, east side) on Old Columbia Pike from White Oak Shopping Center to Stewart Lane
- **R** Separated Bikeway (sidepath, east side) on Lockwood Drive from White Oak Park Drwy to New Hampshire Avenue

#### Legend

- **Half Mile Station Buffer**
- Half Mile Walkshed
- Proposed BRT Platform
- Proposed Improvements from the Montgomery County Bicycle Master Plan
- **—** Recommended Pedestrian/Linear Improvements
- Recommended Area Improvements
- Barriers to Bicycle and Pedestrian Connectivity
- Existing Sidewalk



### US 29 - Station 6 White Oak Transit Center

#### **BARRIERS TO PEDESTRIAN/ BICYCLE CONNECTIVITY**

#### Columbia Pike NB and SB Lanes

- All four ramps between Columbia Pike and New Hampshire Avenue
- Perimeter of White Oak Federal Research Facility (Accessible only for authorized persons)

#### KEY RECOMMENDATION

- Add 6 ft wide minimum sidewalk on both sides of Lockwood Drive from North West Drive to Stewart Lane (per Countywide Transit Corridors Functional Master Plan).
- **B** Add 6 ft minimum sidewalks on both sides of New Hampshire Avenue from Milestone Drive to Mahan Drive.
- C Add 6 ft minimum sidewalks on both sides of US 29 from North West Drive to Oak Leaf Drive.
- D Accommodate bike storage by providing bike corrals at nearby parking lots.
- E Add 6 ft minimum sidewalk on both sides of Stewart Lane from US 29 to Lockwood Drive.
- F Add 5 ft minimum sidewalks on both sides of July Drive.
- G Add 5 ft minimum sidewalks on both sides of Oak Leaf Drive from US 29 to Lockwood Drive.
- Implement redevelopment of shopping centers north and south of Lockwood Drive as envisioned in the White Oak Science Gateway Master Plan, featuring mixed-use development with street grid pattern.
- Improve pedestrian crossing of New Hampshire Avenue and Lockwood Drive, with a focus on reducing curb radii to slow turning traffic and increasing size of pedestrian refuge medians.
- J Enable pedestrian crossing of US 29 at Oak Leaf Drive through redesign of the intersection.
- Pedestrian/ bike access gate for White Oak Research Facility employees along fence line between Lockwood Drive and K New Hampshire Avenue. Move to appropriate location once area between Lockwood Drive, New Hampshire Avenue and Michelson Road is redeveloped.

#### Below recommendations are from the Montgomery County Bicycle Master Plan:

- L Separated Bikeway (sidepath, west side) on US 29 from Lockwood Drive to Tech Road
- M Separated Bikeway (sidepath, east side) on Lockwood Drive from White Oak Park Drwy to New Hampshire Avenue
- N Separated Bike Lanes (Two-Way, East Side) on Old Columbia Pike through White Oak Shopping Center
- O Separated Bikeway (sidepath, east side) on Old Columbia Pike from White Oak Shopping Center to Tech Road
- P Separated bikeway (sidepath on west side) on New Hampshire Avenue from Lockwood Drive to Jackson Road
- **Q** Separated bikeway (sidepath on both sides of street) on New Hampshire Avenue from Lockwood Drive to Oaklawn Drive
- R Off-street Trail from New Hampshire Avenue to FDA Boulevard, with spur connecting to Lockwood Drive
- S Extend bike lanes on Stewart Lane to Old Columbia Pike
- Create pedestrian/ bike crossing of US 29 on Stewart Lane in the form of a sidepath from Old Columbia Pike to Milestone Drive
- U Separated Bikeway (sidepath, west side) on Milestone Drive from Sherbrooke Woods Lane to Stewart Lane
- V Neighborhood Greenway / Shared Roadway on Sherbrooke Woods Lane from Milestone Drive to Heartfields Drive

#### Legend

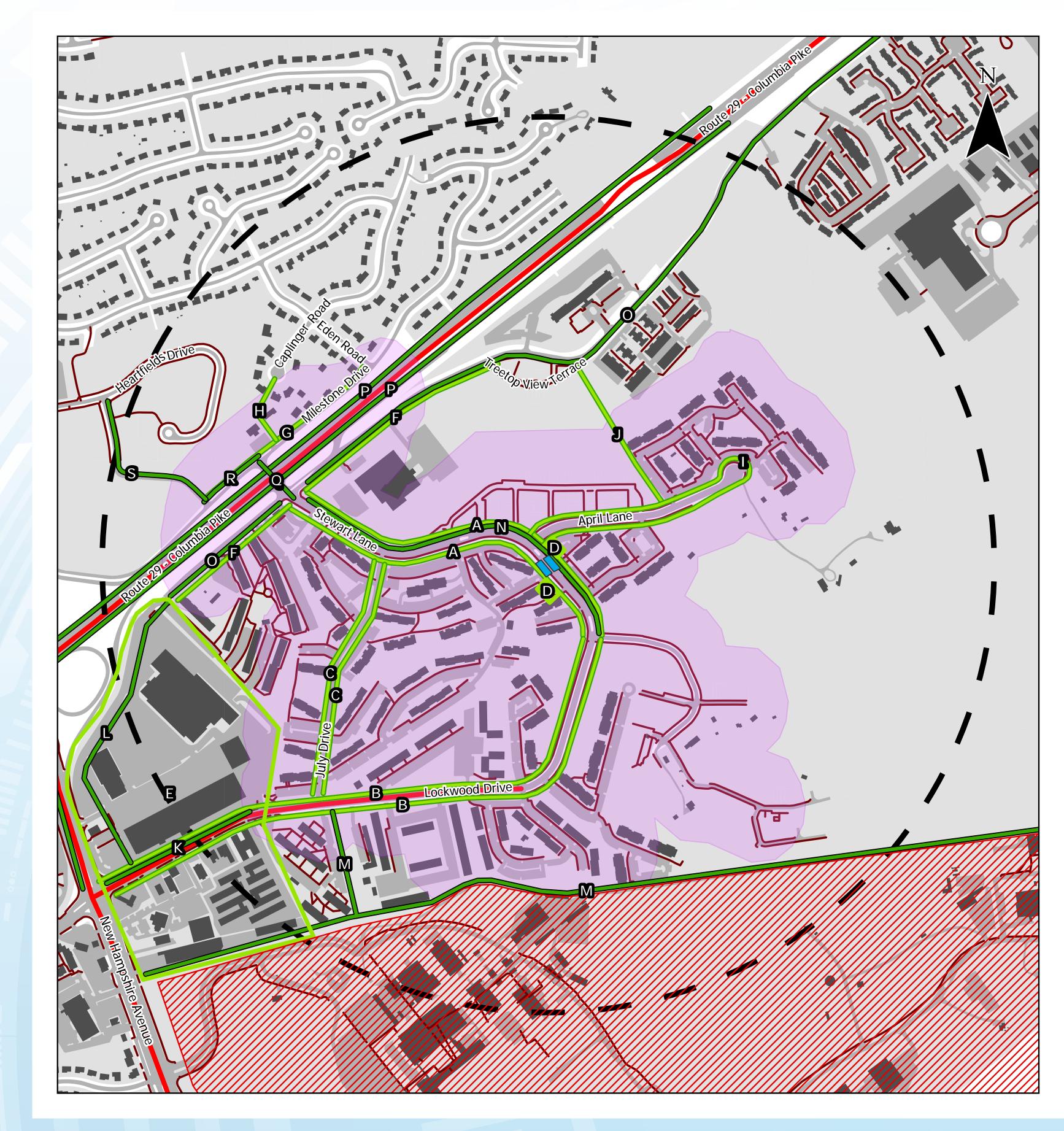
- **Half Mile Station Buffer** 
  - Half Mile Walkshed
  - Proposed BRT Platform
- Proposed Improvements from the Montgomery County Bicycle Master Plan
- **—** Recommended Pedestrian/Linear Improvements
- Recommended Area Improvements
- Barriers to Bicycle and Pedestrian Connectivity
- Existing Sidewalk

### US 29 Mobility & Reliability Study



## Concept deas Pedestrian & Bicycle Access Improvements

Draft for discussion purposes only



### US 29 - Station 7 Stewart Lane

#### BARRIERS TO PEDESTRIAN/BICYCLE CONNECTIVITY

Columbia Pike NB and SB Lanes

White Oak Federal Research Facility (Accessible only for authorized persons)

#### RECOMMENDATION

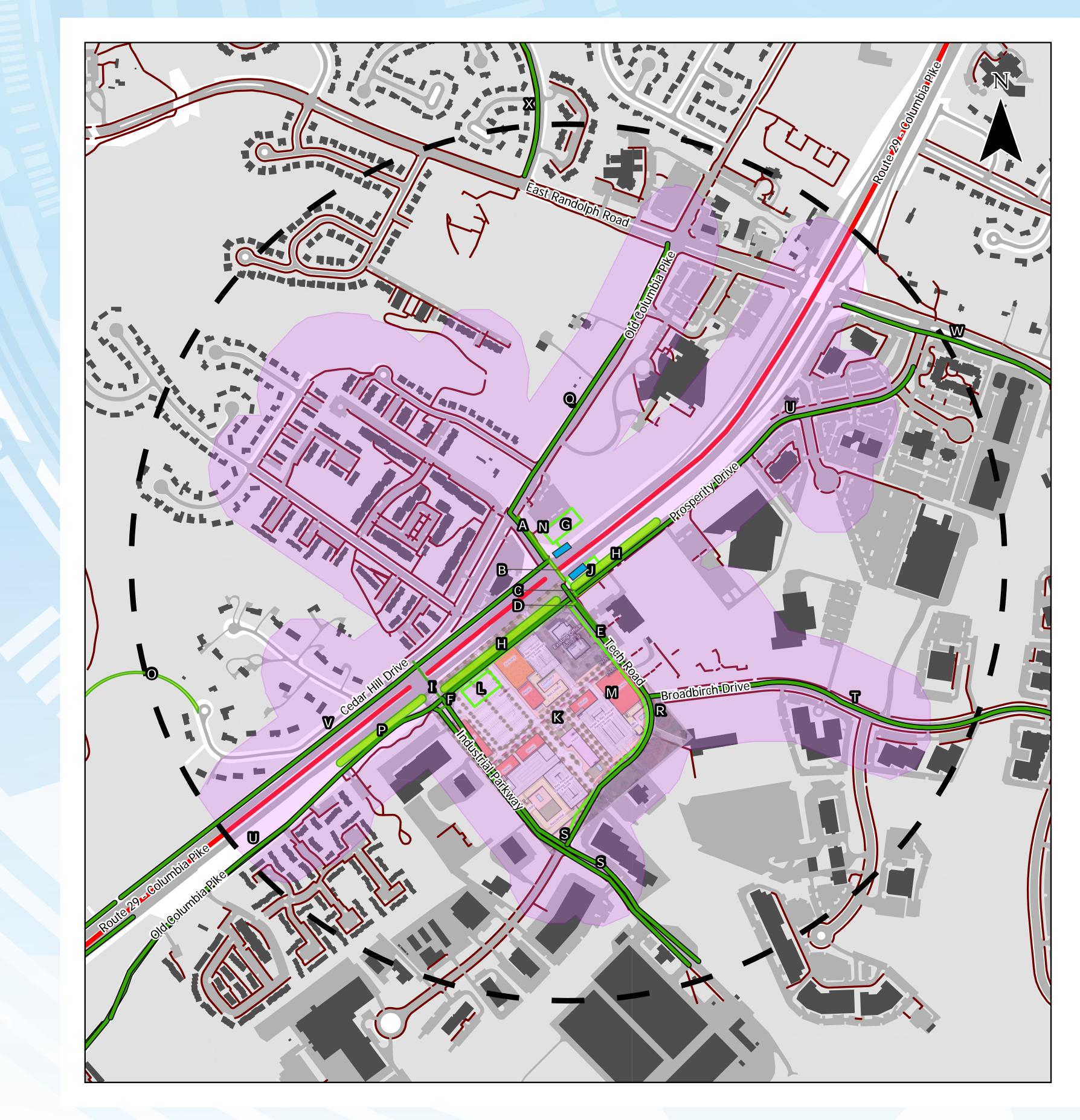
- mum sidewalk on both sides of Stewart Lane from US 29 to Lockwood Drive (per the Countywide Transit
- Add 6 ft wide minimum sidewalk on both sides of Lockwood Drive from New Hampshire Avenue to Stewart Lane.

С	Add 5 ft minimum sidewalks on both sides of July Drive.
D	Include bike racks at BRT Station.
E	Implement redevelopment of shopping centers north and south of Lockwood Drive as envisioned in the White Oak Science Gateway Master Plan, featuring mixed-use development with street grid pattern.
F	Add 5 ft minimum sidewalk on east side of Old Columbia Pike from White Oak Shopping Center to Tree Top View Terrace.
G	Improve sidewalk on west side of Milestone Drive from Eden Road to Sherbrooke Woods Lane.
Н	Create pedestrian path from Milestone Drive to Caplinger Road.
1	Add 5 ft minimum sidewalk on April Lane.
J	Create pedestrian path from Old Columbia Pike to April Lane.
Bel	ow recommendations are from the Montgomery County Bicycle Master Plan:
K	Separated Bikeway (sidepath, east side) on Lockwood Drive from White Oak Park Drwy to New Hampshire Avenue
L	Separated Bike Lanes (Two-Way, East Side) on Old Columbia Pike through White Oak Shopping Center
М	Off-street Trail from New Hampshire Avenue to FDA Boulevard, with spur connecting to Lockwood Drive
Ν	Extend bike lanes on Stewart Lane to Old Columbia Pike
0	Separated Bikeway (sidepath, east side) on Old Columbia Pike from White Oak Shopping Center to Tech Road
Р	Separated Bikeway (sidepath, west side) on US 29 from Lockwood Drive to Tech Road
Q	Create pedestrian/ bike crossing of US 29 on Stewart Lane in the form of a sidepath from Old Columbia Pike to Milestone Drive
R	Separated Bikeway (sidepath, west side) on Milestone Drive from Sherbrooke Woods Lane to Stewart Lane

S Neighborhood Greenway / Shared Roadway on Sherbrooke Woods Lane from Milestone Drive to Heartfields Drive

#### Legend

- **Half Mile Station Buffer**
- Half Mile Walkshed
- Proposed BRT Platform
- Proposed Improvements from the Montgomery County Bicycle Master Plan
- **—** Recommended Pedestrian/Linear Improvements
- Recommended Area Improvements
- Barriers to Bicycle and Pedestrian Connectivity
- Existing Sidewalk



## US 29 - Station 8 Tech Road

#### **BARRIERS TO PEDESTRIAN/ BICYCLE CONNECTIVITY**

- Columbia Pike NB and SB Lanes
- Tech Road westbound approach and Columbia Pike Intersection
- Industrial Parkway westbound approach and Columbia Pike Intersection

#### KEY RECOMMENDATION

- Improve pedestrian space by widening sidewalk and adding bus stop amenities such as shelter and bus arrival information (per the Countywide Transit Corridors Functional Master Plan).
- Improved pedestrian and bicycle accommodations on Columbia Pike crossing at Tech Road (pedestrian signals, crosswalks
- and raised refuge medians) (per the Countywide Transit Corridors Functional Master Plan).
- **C** Improve pedestrian crossing of Prosperity Drive, potentially combined with narrowing down Prosperity Drive.
- **D** Improve pedestrian crossing of Tech Road by adding a Pedestrian Signal.
- Improve pedestrian space by widening sidewalk and adding bus stop amenities such as shelter and bus arrival information (potentially combining both stops).
- Create safe pedestrian crossing on Prosperity Drive and Industrial Parkway (pedestrian signal, refuge median and improved crosswalks).
- **G** Expand Park and Ride, bringing the parking closer to BRT station by having a direct pedestrian connection to platform. Narrow Prosperity Drive/Old Columbia Pike between Industrial Parkway and Public Storage by converting SB lanes to
- H pedestrian space and converting NB lanes to two 10' lanes (Would not be implemented with Recommendation J) (per the White Oak Science Gateway Master Plan).
  - Improved pedestrian and bicycle accommodations on Columbia Pike and Old Columbia Road crossing at Industrial Parkway (pedestrian signals, crosswalks and raised refuge medians) (per the Countywide Bike Master Plan).
- Close Prosperity Drive north of Tech Road for 225' to create a large transit plaza between the NB platform to the shopping center (Would not be implemented with Recommendation H).
- **K** Implement street grid in White Oak Town Center plan with mixed use development (as shown in KLNB Development Plan).
- Designate a portion of retail parking for transit users during weekday commute times.
- **M** Coordinate with KLNB to install bike corral with repair services amenities in planned fitness area.
- **N** Add bicycle storage at Park and Ride.
- **O** Add trail connection between Cedar Hill Drive and Paint Branch Road.
- **P** Add sidewalk to Old Columbia Pike between Industrial Parkway and Stonehedge Park.
- Below recommendations are from the Montgomery County Bicycle Master Plan:
- Construct separated bikeway from Randolph Road on Old Columbia Pike (sidepath on west side) and Tech Road (one-way on Q both sides of street) to Columbia Pike.
- Construct separated bikeway (one-way on both sides of street) on Tech Road from Columbia Pike to Industrial Parkway (per

the Montgomery County Bicycle Master Plan and the White Oak Science Gateway Master Plan).

S Construct separated bikeway (two-way on both sides of street) on Industrial Parkway from Columbia Pike to FDA Boulevard. Construct separated bikeway (two-way, south side) on Broadbirch Drive from Tech Road to Cherry Hill (per the Montgomery T County Bicycle Master Plan) OR add shared use path and signed shared roadway (per the White Oak Science Gateway Master Plan).

U Construct separated bikeway on Old Columbia Pike/ Prosperity Drive (sidepath) from Randolph Road to Stewart Lane. V Construct separated bikeway (sidepath, west side) on Columbia Pike from Tech Road to Lockwood Drive. W Construct separated bikeway (two-way, south side) on Cherry Hill Road from Columbia Pike to Gracefield Road. X Construct separated bikeway (sidepath, west side) on Serpentine Way from Randolph Road to Fairland Road.

Legend

- **Half Mile Station Buffer**
- Half Mile Walkshed
- Proposed BRT Platform
- Proposed Improvements from the Montgomery County Bicycle Master Plan
- **—** Recommended Pedestrian/Linear Improvements
- Recommended Area Improvements
- Barriers to Bicycle and Pedestrian Connectivity
- Existing Sidewalk

### US 29 Mobility & Reliability Study



## Schedule & Next Steps



### **US 29 BRT Corridor Advisory Committee input**

Feedback on recommendations retained for operational & geometric feasibilities, analysis, forecasts and modeing

Public Open House

Agency & Stakeholder **Review**  Mobility & Safety Analysis on retained recommendations.

2018/

Spring Public Workshop, Draft Mobility Improvement Package 201



May

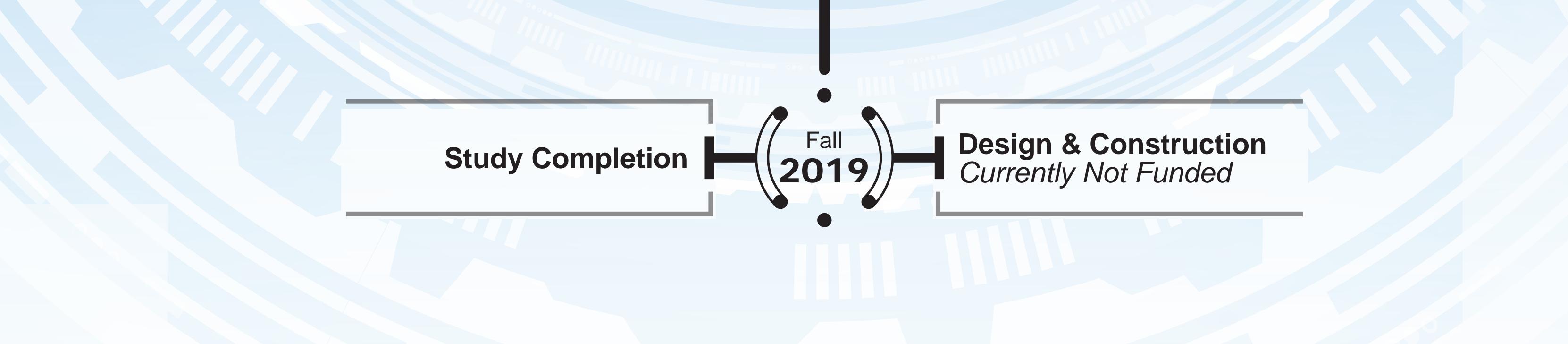
2018

Fall

2018

Winter

Conceptual Design & Cost Analysis for Mobility Improvement Recommendations



### US 29 Mobility & Reliability Study

