

## Tuckerman Lane Pedestrian and Bicycle Improvements Project

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Completed: 08/30/2018

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### EXECUTIVE SUMMARY

The Tuckerman Lane Pedestrian and Bicycle Improvement Project would substantially improve walking and bicycling along Tuckerman Lane by adding sidewalks, conventional bike lanes and a sidepath on Tuckerman Lane between Falls Road and Old Georgetown Road. The Montgomery County Department of Transportation (MCDOT) considered five alternatives and recommends proceeding to Phase II Facility Planning with Alternative 3 as the preferred alternative. MCDOT will request direction from the County Council's Transportation, Infrastructure, Energy and Environment (T&E) Committee on the preferred alternative in October 2018. This agenda item provides the Planning Board the opportunity to transmit comments to the T&E Committee.

Applicant: Montgomery County Department of Transportation

### RECOMMENDATION

**Support Alternative 3 as the recommended alternative and prioritize Segment 1 (between Falls Road and Snakeden Branch) for funding, with the following comments to the Montgomery County Department of Transportation.**

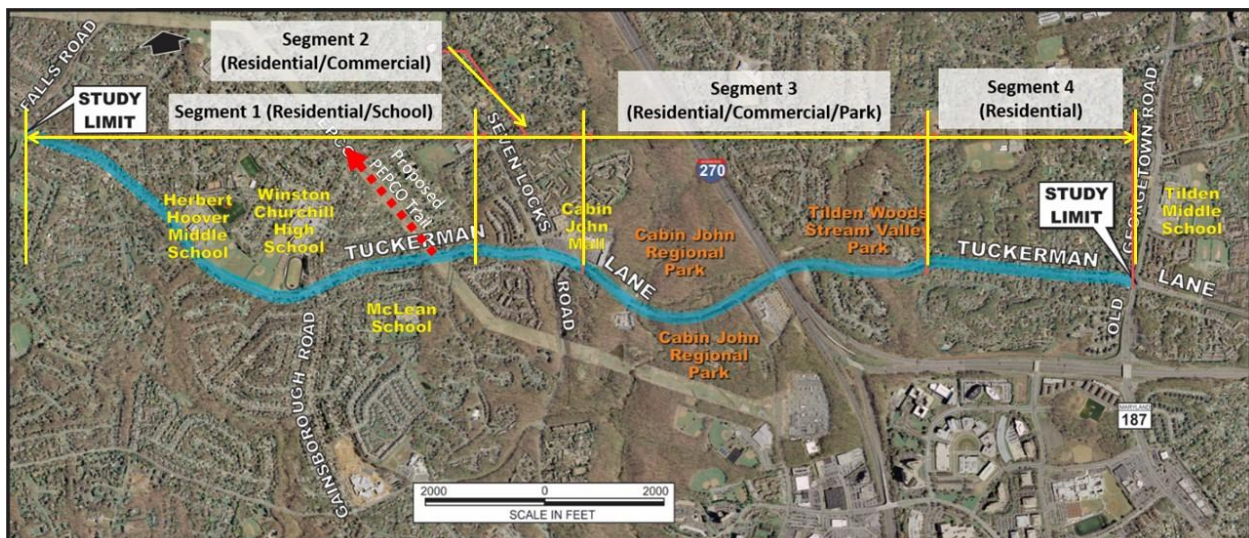
1. Add a sidepath between the entrance to Cabin John Regional Park and Whisperwood Lane so a sidepath is provided for the full length of the project.
2. Reduce the number of crossings for bicyclists and pedestrians using the sidepath by considering one of the following changes to the alignment:
  - o Locate the sidepath on the south side of Tuckerman Lane between Angus Place and Old Georgetown Road, thereby limiting the crossings of Tuckerman Lane from two to one.
  - o Locate the sidepath on the north side of Tuckerman Lane for the entire length of the project with a protected crossing (such as a traffic signal) at the entrance to Cabin John Regional Park, thereby eliminating all crossings of Tuckerman Lane. Upgrade the existing shared use path between Luxmanor Road and Old Georgetown Road to include a buffer from traffic.

3. Widen the sidepath to 10 feet where feasible between Angus Place and the entrance to Cabin John Regional Park.
4. Consider providing a separate sidewalk beneath I-270 if the sidepath is not extended between the entrance to Cabin John Regional Park and Whisperwood Lane.
5. Consider the following items during Phase II of this Facility Planning Study:
  - Widen the conventional bike lanes to conform with MCDOT’s design standards:
    - 6 feet when adjacent to on-street parking (Segment 1).
    - 5.5 feet when adjacent to a curb (Segment 3).
  - Provide a protected crossing (such as a traffic signal) in front of Herbert Hoover Middle School (potentially at Duryea Drive).
  - Add crosswalks at all bus stops on Tuckerman Lane.

## SITE DESCRIPTION

Tuckerman Lane is typically a two-way, two-lane, open section arterial roadway that runs in an east-west direction in the study area from Falls Road to Rockville Pike. The project study area includes the majority of Tuckerman Lane, running from Falls Road to Old Georgetown Road, a distance of nearly four miles (see Figure 1). The roadway widens at various locations to accommodate additional through and/or turn lanes. The posted speed limit is 35 mph but is lowered to 25 mph in school zones during school hours. The average annual daily traffic (AADT) on Tuckerman Lane ranges from approximately 8,300 vehicles per day east of Falls Road to 17,700 vehicles per day west of Old Georgetown Road. The right-of-way varies from 60 feet to 110 feet along the corridor but is predominantly 80 feet. Travel lane widths are typically 11 feet, and the existing shoulder widths vary from three to 16 feet, with a typical width averaging eight feet. The shoulders are used as on-street parking in the residential areas west of Seven Locks Road.

Figure 1: Project Study Area



Sidewalks are intermittent along Tuckerman Lane and exist on the north side of the road in front of Herbert Hoover Middle School and Winston Churchill High School, on both sides of the road to the east and west of Seven Locks Road, along both sides of the road approaching Old Georgetown Road and at

several bus stops. The roadway is heavily used by recreational bicyclists and is signed as a bicycle route in both directions, where bicyclists typically share the roadway or use the shoulder for travel. There are currently no bicycle pavement markings on the roadway along the corridor.

Transit service along the study alignment is provided by Ride On Route 37, with 41 bus stops between Falls Road and Old Georgetown Road, connecting Tuckerman Lane to the Grosvenor-Strathmore Metrorail Station, downtown Kensington and the Wheaton Metrorail Station.

The existing corridor includes traffic signals at six intersections (Falls Road, Gainsborough Road, Seven Locks Road, the Cabin John Center/Angus Place, Westlake Drive and Old Georgetown Road) and continuous street lighting in the eastbound and westbound directions. Marked crosswalks, pedestrian signals and portions of sidewalk are provided at all the signalized intersections except Westlake Drive. A crosswalk is provided at one unsignalized intersection – Postoak Road.

Most of the project area consists of residential communities and forested parkland. There are also two public schools (Herbert Hoover Middle School and Winston Churchill High School) that front Tuckerman Lane on the western end of the study area and commercial businesses at the Cabin John Center. Cabin John Regional Park and Tilden Woods Stream Valley Park are located in the middle of the project corridor and are major recreation destinations under the jurisdiction of M-NCPPC/Montgomery County Department of Parks. The project falls within the Cabin John Creek and Rock Creek watersheds and 100-year floodplains are present associated with Snakeden Branch, Cabin John Creek and Old Farm Creek.

## **PROJECT DESCRIPTION**

The Montgomery County Department of Transportation (MCDOT) is proposing pedestrian and bicycle safety improvements along a 3.8-mile section of Tuckerman Lane between Falls Road (MD 189) and Old Georgetown Road (MD 187). The corridor improvements are divided into four segments (Figure 1) so that projects can be undertaken as funding becomes available. The four segments include:

- Segment 1: Falls Road to Snakeden Branch
- Segment 2: Snakeden Branch to Angus Place
- Segment 3: Angus Place to Whisperwood Lane
- Segment 4: Whisperwood Lane to Old Georgetown Road

The improvements in each alternative differ by segment and were developed to minimize potential impacts by remaining within the existing right-of-way, while optimizing pedestrian and on/off-road bicyclist safety and connectivity along the corridor. Segmentation based on the characteristics of the corridor section was also developed to guide a logical phased implementation of corridor improvements if necessary. A general description of each alternative is provided below and a more detailed description is included in Table 1. A full description of each alternative is shown in Attachment 1 and Attachment 2.

- The No Build Alternative proposes no construction.
- Alternative 1 includes: 1) continuous bike lanes of varying widths on both sides of the road and 2) sidewalks along at least one side of the road except in Segment 3 (between the entrance to

Cabin John Regional Park and Whisperwood Lane). One row of parking is removed in Segment 1 (Falls Road to Snakeden Branch).

- Alternative 1A enhances Alternative 1 by widening the buffered bike lanes, providing sidewalks on both sides of the road in Segment 1 (Falls Road to Snakeden Branch), upgrading the sidewalk to a sidepath on the north side of the road in Segment 2 (Snakeden Branch to Angus Place) and upgrading the sidewalk to a sidepath on the south side of the road in Segment 3 (Angus Place to the entrance to Cabin John Regional Park).
- Alternative 2 includes: 1) continuous separated bike lanes and 2) sidewalks on both sides of the road, except in Segment 3 (Angus Place to Whisperwood Lane), where a sidepath is provided on the south side of the road in lieu of the sidewalk.
- Alternative 3 is the recommended alternative and includes: 1) continuous conventional bike lanes on both sides of the road, 2) a sidepath, except between the entrance to Cabin John Regional Park and Whisperwood Lane and 3) sidewalks on the opposite side of the road from the sidepath in Segment 1 and Segment 2. One row of parking is removed in Segment 1 (Falls Road to Snakeden Branch).

For all build alternatives (Alternative 1, Alternative 1A, Alternative 2 and Alternative 3), the typical section narrows where Tuckerman Lane passes beneath I-270 (see Attachment 2, page 5).

- In Alternative 1, Alternative 1A and Alternative 3 a 6-foot-wide shared space for walking and bicycling is provided on both sides of the road with a 2-foot wide curbed buffer from traffic.
- In Alternative 2, those 6-foot-wide spaces are used as bike lanes and a separate pedestrian sidewalk is provided on the south side of Tuckerman Lane.

Additionally, the project proposes to reduce the posted speed limit from 35 mph to 30 mph between Falls Road and Seven Locks Road (while the school zone speed limit remains at 25 mph) and provide additional crosswalks at five intersections (Deborah Drive, Angus Place, Westland Drive, Whisperwood Lane, and Marcliff Road).

Table 1 includes a summary of the typical section elements that are included in each alternative.



Table 1: Summary of Bicycle and Pedestrian Improvements by Alternative and Segment

Element	No-Build	Alternative 1	Alternative 1a	Alternative 2	Alternative 3
<b>Segment 1: Falls Road (MD 189) to Snakeden Branch - 1.69 mile (residential/school)</b>					
Traffic Lane	12' thru lane / 10' turn lane	11' thru lane / 10' turn lane	11' thru lane / 10' turn lane	11' thru lane / 10' turn lane	11' thru lane / 10' turn lane
Shoulder	6'-10' (both sides)	---	---	---	---
Parking Lane	Both sides	7' north side	8' north side	8' both sides <sup>b</sup>	8' north side
Bike Lane Buffer	---	1.5' both sides (marked <sup>a</sup> )	3' both sides (marked <sup>a</sup> )	3' both sides (green <sup>a</sup> )	---
Bike Lane	---	4' both sides	5' both sides	6.5' both sides	5' both sides
Sidewalk / Shared Use Path	---	5' north side	5' both sides	6' both sides	10' north side, 5' south side
<b>Segment 2: Snakeden Branch to Angus Place - 0.27 mile (residential/commercial)</b>					
Traffic Lane	12'-16' thru lane / 10' turn lane	11' thru lane / 10' turn lane	11' thru lane / 10' turn lane	11' thru lane / 10' turn lane	11' thru lane / 10' turn lane
Shoulder	---	---	---	---	---
Parking Lane	---	---	---	---	---
Bike Lane Buffer	---	---	---	6' both sides (green <sup>a</sup> )	---
Bike Lane	---	5.5' both sides	5.5' both sides	6.5' both sides	5.5' both sides
Sidewalk / Shared Use Path	5' both sides	5' both sides	8' north side, 5' south side	6' both sides	10' north side, 5' south side
<b>Segment 3: Angus Place to Whisperwood Lane - 1.18 mile (residential/commercial/park)</b>					
Traffic Lane	11'-12' thru lane / 11' turn lane	11' thru lane / 10' turn lane	11' thru lane / 10' turn lane	11' thru lane / 10' turn lane	11' thru lane / 10' turn lane
Shoulder	2'-16' both sides	---	---	---	---
Parking Lane	---	---	---	---	---
Bike Lane Buffer	---	---	---	2' both sides (concrete <sup>a</sup> )	5' min. both sides
Bike Lane	---	5' min. both sides	5' min. both sides	6.5' both sides	---
Sidewalk / Shared Use Path	---	--- <sup>c</sup>	--- <sup>d</sup>	8' south side <sup>e</sup>	--- <sup>d</sup>
<b>Segment 4: Whisperwood Lane to Old Georgetown Road (MD 187) - 0.69 mile (residential/commercial)</b>					
Traffic Lane	11' thru lane / 10' turn lane	11' thru lane / 10' turn lane	11' thru lane / 10' turn lane	11' thru lane / 10' turn lane	11' thru lane / 10' turn lane
Center Turn Lane	---	---	---	10'	---
Shoulder	5'-10' (both sides)	---	---	--- <sup>f</sup>	---
Parking Lane	---	7' north side	8' north side	---	8' north side
Bike Lane Buffer	---	1.5' both sides (marked <sup>a</sup> )	3' both sides (marked <sup>a</sup> )	6' both sides (green <sup>a</sup> )	---
Bike Lane	---	4' both sides	5' both sides	6.5' both sides	5' both sides
Sidewalk / Shared Use Path	---	5' north side	5' north side	6' both sides	10' north side

**Notes:**

- a. Type of Bike Lane Buffer (marked: pavement markings on roadway; green: curbed grass or planted space; concrete: raised concrete island).
- b. 20' long planted areas to be provided at 200'+/- intervals along parking lane.
- c. An additional 5' sidewalk on north side from Angus Place to the picnic area, and an additional 5' sidewalk on south side from Angus Place to the entrance of Cabin John Regional Park.
- d. An additional 5' sidewalk on north side from Angus Place to the picnic area, and an additional 8' shared use path on south side from Angus Place to the entrance of Cabin John Regional Park.
- e. An additional 6' sidewalk on north side from Angus Place to the picnic area.
- f. An 8' wide shoulder will be provided on north side between Lux Lane and Rosemont Drive.

Table 2 summarizes the cost and property impacts of each alternative. Alternative 2 has the greatest impacts and highest cost (\$51.1 million) while Alternative 1 has the lowest impacts and lowest cost (\$10 million). Alternative 1a and Alternative 3 have costs that are closer to those of Alternative 1 and impacts that are closer to those of Alternative 2.

Table 2: Cost and Property Impacts

Cost & Property Impacts	No-Build	Alternative 1	Alternative 1a	Alternative 2	Alternative 3
Residential	0	1.65 Acres / 79	3.99 Acres / 175	4.83 Acres / 210	4.14 Acres / 179
School	0	0	0.33 Acres / 2	0.43 Acres / 5	0.61 Acres / 3
Commercial	0	0.19 Acres / 3	0.39 Acres / 4	0.67 Acres / 5	0.39 Acres / 4
Parks	0	0.02 Acres / 2	0.15 Acres / 2	1.64 Acres / 9	0.15 Acres / 2
Land & Construction Cost (millions)	0	\$ 10.0	\$ 16.8	\$ 51.1	\$ 14.3

## MASTER PLAN CONSISTENCY

The following master plan recommendations are relevant for this project:

- The 2018 Master Plan of Highways and Transitways recommends a two-lane arterial road with an 80-foot-wide right-of-way.
- The 2005 Countywide Bikeways Functional Master Plan recommends conventional bike lanes on Tuckerman Lane between Falls Road and Old Georgetown Road.
- The Planning Board Draft of the Bicycle Master Plan recommends one-way separated bike lanes on Tuckerman Lane between Falls Road and Old Georgetown Road.
- The North Bethesda/Garrett Park Master Plan recommends a sidewalk on Tuckerman Lane between Ralston Road and I-270 (the plan boundary).

The No-Build Alternative is inconsistent with the master plan recommendations, since it does not improve pedestrian or bicycle facilities on Tuckerman Lane. The build alternatives are all consistent with the 2005 Bikeways Functional Master Plan. Only Alternative 2 is consistent with the Planning Board Draft of the Bicycle Master Plan and the North Bethesda/Garrett Park Master Plan.

## STAFF ANALYSIS

**Staff concurs with MCDOT's selection of Alternative 3 as the preferred alternative, as it provides substantial improvements for pedestrians, provides designated space for the large number of on-road bicyclists that use Tuckerman Lane and adds an off-road sidepath for people who require separation from traffic to feel comfortable bicycling on an arterial road. Staff also concurs with MCDOT that Segment 1 of the project should receive the highest priority for funding, as it connects the neighboring residential communities to Herbert Hoover Middle School and Winston Churchill High School.**

While Alternative 3 is inconsistent with the Planning Board Draft of the Bicycle Master Plan, staff believes that the recommendation for separated bike lanes on Tuckerman Lane in the draft Bicycle Master Plan is no longer appropriate. The typical approach in the Bicycle Master Plan is to recommend separated bike lanes in areas with high levels of activity<sup>1</sup>. Sidepaths are more appropriate in areas with lower levels of activity, such as Tuckerman Lane. Conventional bike lanes are also appropriate on this road due to the high level of on-road bicycling.

The County Council's Transportation, Infrastructure, Energy and Environment (T&E) Committee will conduct its first worksession for the Bicycle Master Plan on September 17, 2018. A worksession for the Tuckerman Lane project is tentatively scheduled for October 11, 2018, so the Council will have the

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<sup>1</sup> Page 48 of the Planning Board Draft of the Bicycle Master Plan defines high activity areas as "those parts of the county zoned Commercial-Residential (CR), Life Sciences Center (LSC) or their floating zone equivalents, or that are located within 0.5 miles of a rail station. Areas that are zoned R-10, R-20, R-30 (multifamily residential zones) and RT (townhouse zones) are considered higher activity areas if they are adjacent to properties that are zoned CR, LSC or floating zones, or located near rail stations.

opportunity to reconcile their preferred alternative with the bikeway recommendation in the Bicycle Master Plan.

Alternative 1 and 1a are not recommended because they do not provide a continuous low-stress bikeway for people who are uncomfortable bicycling on an arterial road, even when bike lanes are available.

Alternative 2 is not recommended because the high cost (\$51.1 million) is not worth the marginal improvement over the sidepath recommended in Alternative 3, and because the large number of existing recreational bicyclists are unlikely to use them for a variety of reasons.

### **Benefits of Recommended Alternative**

The recommended alternative largely addresses the need for continuous pedestrian and bicycle facilities along Tuckerman Lane. These facilities would greatly increase pedestrian and bicyclist comfort; provide connections to schools, commercial centers, parks and transit stops; and provide connections to the future “Pepco Trail” between Germantown and Tuckerman Lane.

The proposed sidepath would improve walking and bicycling for people who are less tolerant of traffic. The large number of existing recreational bicyclists will benefit from designated space with the proposed conventional bike lanes. Additionally, sidewalks will be provided on the opposite side of the road from the sidepath in most locations and will improve connections to bus stops. Reducing the posted speed limit from 35 mph to 30 mph between Falls Road and Seven Locks Road will improve safety for all road users.

### **Impacts of Recommended Alternative**

All improvements for the recommended alternative are planned to remain within the existing right-of-way, but temporary easements and/or limited right-of-way acquisitions may be needed from individual properties for grading, utility relocation, and/or to satisfy drainage requirements. No buildings are anticipated to be displaced by the build alternative. Overall, the recommended alternative is expected to impact 179 residential properties, three school properties, four commercial properties and two park and recreational facilities. In addition, on-street parking will be removed from the south side of Tuckerman Lane in Segment 1 (Falls Road to Snakeden Branch). Additional minimization of any right-of-way impact will be pursued during final design.

### **Costs of the Recommended Alternative**

The overall planning level construction cost is approximately \$14.3 million, which can be divided into the four buildable segments. The segment costs include:

- Segment 1 (Falls Road to Snakeden Branch): \$6.6 million
- Segment 2 (Snakeden Branch to Angus Place): \$2.5 million
- Segment 3 (Angus Place to Whisperwood Lane): \$3.1 million
- Segment 4 (Whisperwood Lane to Old Georgetown Road): \$2.1 million

## RECOMMENDATIONS

To enhance the proposed project, staff recommends that MCDOT make the following changes:

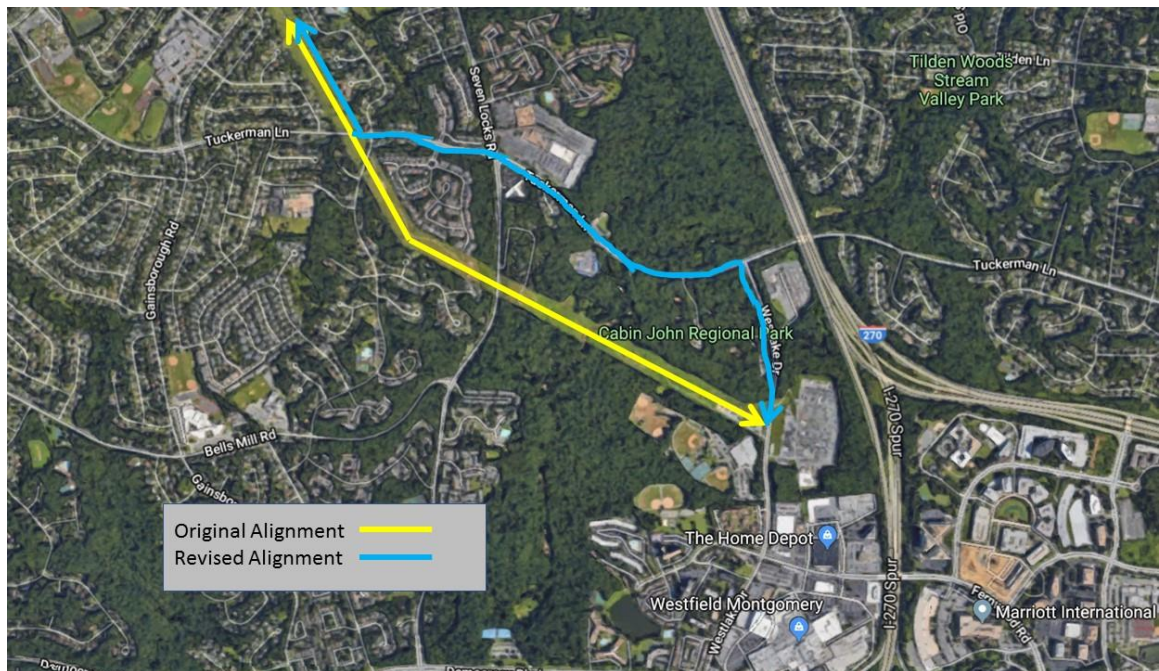
### 1. Add a sidepath between the entrance to Cabin John Regional Park and Whisperwood Lane.

While Alternative 3 includes conventional bike lanes for the entire extent of the project area, there is a gap in the sidepath between the entrance to Cabin John Regional Park and Tilden Woods Stream Valley Park. This project should add a sidepath at this location to enable pedestrians and people who are not comfortable bicycling in the road to access Cabin John Regional Park from the east.

At a minimum, the sidepath should be included between the entrance to Cabin John Regional Park and Westlake Drive to extend the proposed Pepco Trail toward the Rock Spring/Montgomery Mall area. The original proposal for the Pepco Trail was to use the utility right-of-way between Tuckerman Lane and Westlake Drive, however, due to the steep grades in this area it was determined that routing the trail along Tuckerman Lane and Westlake Drive is preferable.

Preferably, the sidepath will be extended all the way to Whisperwood Lane. While the cost of providing a sidepath beneath I-270 will be expensive, it should be included in the project in the event that I-270 is widened to accommodate managed lanes.

Figure 2: Pepco Trail Alignments



### 2. Reduce the number of crossings for bicyclists and pedestrians using the sidepath.

While adding a sidepath between the entrance to Cabin John Regional Park and Whisperwood Lane will create a continuous sidepath between Falls Road and Old Georgetown Road, people who bicycle the entire length will need to cross Tuckerman Lane twice. This is because the sidepath is

on the north side of the road at either end of the study area but shifts to the south side of the road in middle of the project area at Cabin John Regional Park. To reduce the number of crossings and provide safe crossings, consider one of the following changes to the alignment:

- Locate the sidepath on the south side of Tuckerman Lane between Angus Place and Old Georgetown Road.
- Locate the sidepath on the north side of Tuckerman Lane for the entire length of the project with a protected crossing (such as a traffic signal) at the entrance to Cabin John Regional Park. Upgrade the existing shared use path between Luxmanor Road and Old Georgetown Road to include a buffer from traffic.

**3. Widen the sidepath to 10 feet where feasible between Angus Place and Cabin John Regional Park.**

Between Angus Place and the entrance to Cabin John Regional Park the sidepath is proposed to be eight feet wide. Where feasible, this should be widened to 10 feet, with a maximum pavement width of 47 feet to limit impacts to Cabin John Creek and Old Farm Creek. A potential typical section could include two 5-foot-wide bike lanes, two 11-foot-wide travel lanes, a 5-foot-wide buffer between the road and the sidepath and an 8 – 10 foot-wide sidepath.

**4. Consider providing a separate sidewalk beneath I-270 if the sidepath is not extended between the entrance to Cabin John Regional Park and Whisperwood Lane.**

Continuous bike lanes exist for the entire length of the project, except beneath I-270, where walking and bicycling is combined for a short distance. A separated sidewalk is included in Alternative 2.

**5. Consider the following items during Phase II of this Facility Planning Study:**

- Widen the conventional bike lanes to conform with MCDOT's design standards:
  - 6 feet when adjacent to on-street parking (Segment 1).
  - 5.5 feet when adjacent to a curb (Segment 3).
- Provide a protected crossing (such as a traffic signal) in front of Herbert Hoover Middle School (potentially at Duryea Drive).
- Add crosswalks at all bus stops.

## **PUBLIC OUTREACH**

MCDOT mailed project newsletters to adjacent property owners, area homeowners and civic associations in April 2015, October 2015, and May 2017. The newsletters contained project information and served as an invitation to public meetings and workshops held for the Phase I Tuckerman Lane Pedestrian and Bicycle Improvement Facility Planning Study. Mailings included postage paid forms to return comments and provide feedback on the project. Public meetings were held on April 30, 2015 and November 16, 2015, at Winston Churchill High School and June 15, 2017, at Herbert Hoover Middle School.

The initial public meeting was held to present the project scope, anticipated schedule, project funding, existing concerns, and environmental inventories and to obtain community input. The second meeting was held to share the initial concepts that MCDOT developed for short- and long-term pedestrian and



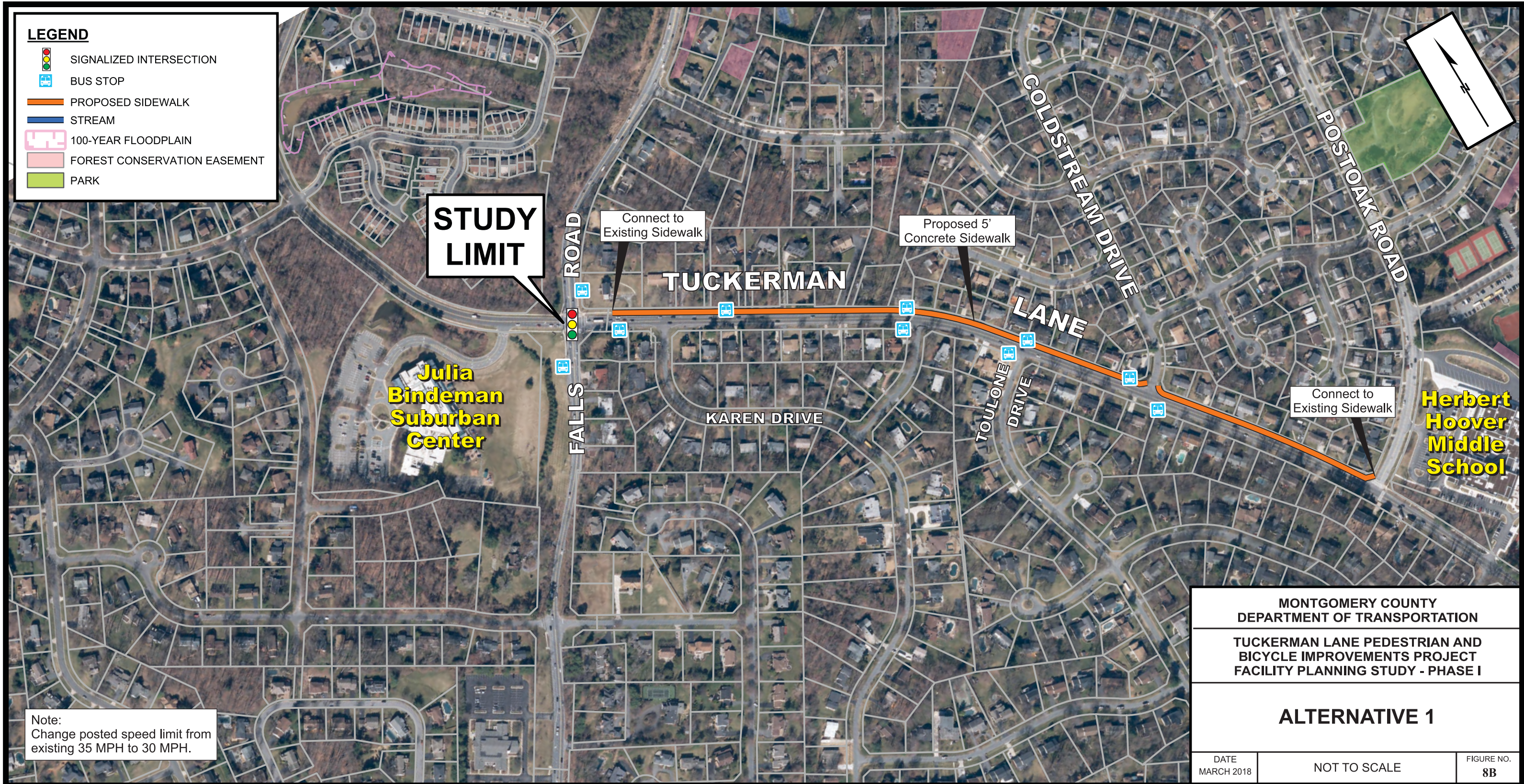
bicycle improvements throughout the corridor. A third meeting was held to present the updated alternatives and concepts in response to the public comments received by MCDOT. Overall, 130 comments were received from the community with the clear majority expressing support for pedestrian and/or bicycle improvements along the corridor. The community's main concerns are the safety of pedestrians and bicyclists and vehicle speeds along the corridor.

#### **ATTACHMENTS**

Attachment 1: Plan Sheets

Attachment 2: Typical Sections
















**LEGEND**

-  SIGNALIZED INTERSECTION
-  BUS STOP
-  PROPOSED SIDEWALK
-  STREAM
-  100-YEAR FLOODPLAIN
-  FOREST CONSERVATION EASEMENT
-  PARK

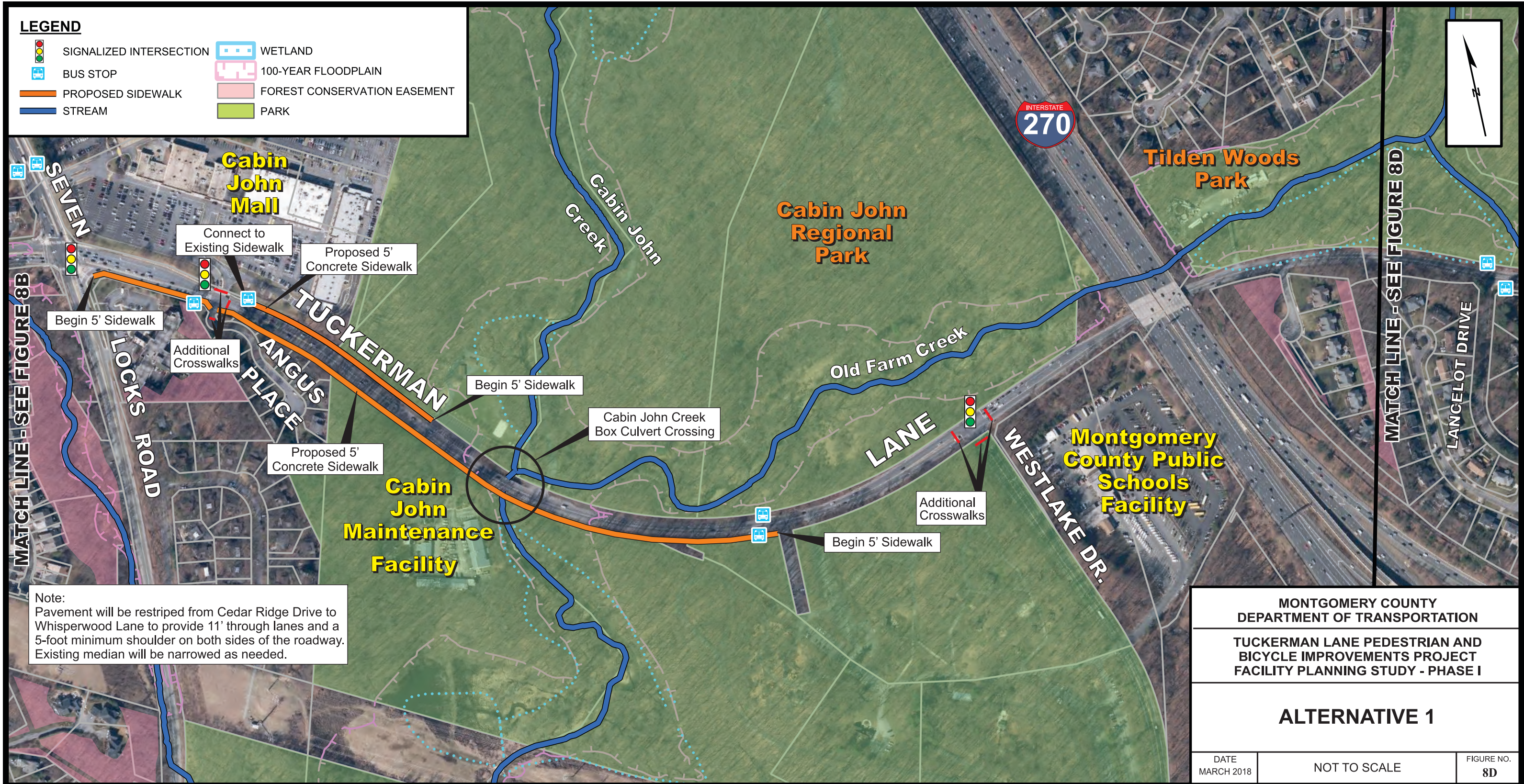


Note:  
Change posted speed limit from existing 35 MPH to 30 MPH.









Note:  
Pavement will be restriped from Cedar Ridge Drive to Whisperwood Lane to provide 11' through lanes and a 5-foot minimum shoulder on both sides of the roadway. Existing median will be narrowed as needed.

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION		
TUCKERMAN LANE PEDESTRIAN AND BICYCLE IMPROVEMENTS PROJECT FACILITY PLANNING STUDY - PHASE I		
<b>ALTERNATIVE 1</b>		
DATE MARCH 2018	NOT TO SCALE	FIGURE NO. <b>8C</b>





**LEGEND**

-  SIGNALIZED INTERSECTION
-  BUS STOP
-  PROPOSED SIDEWALK
-  STREAM
-  WETLAND
-  100-YEAR FLOODPLAIN
-  FOREST CONSERVATION EASEMENT
-  PARK

Note:  
 Pavement will be restriped from Cedar Ridge Drive to Whisperwood Lane to provide 11' through lanes and a 5-foot minimum shoulder on both sides of the roadway. Existing median will be narrowed as needed.

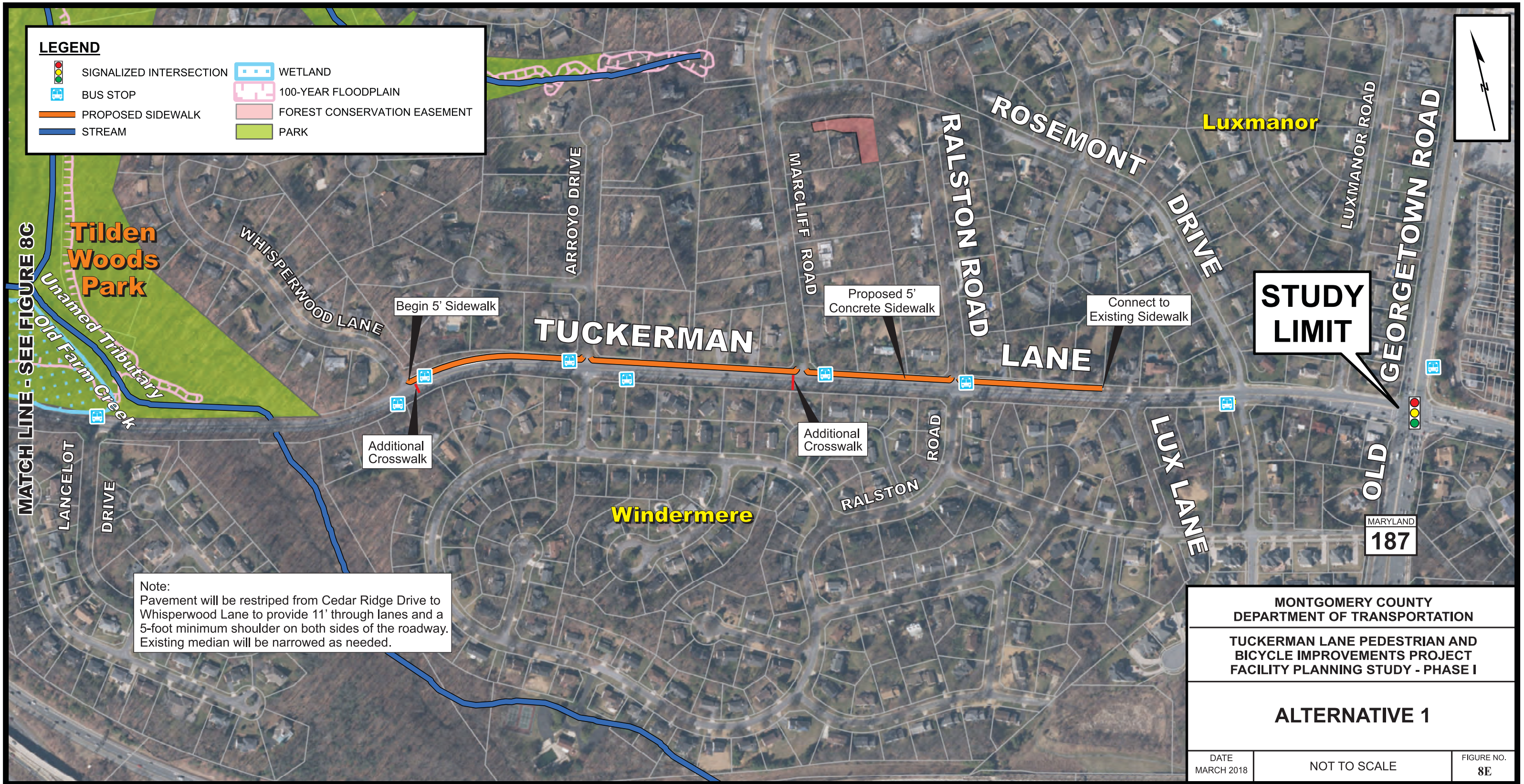
**MONTGOMERY COUNTY  
 DEPARTMENT OF TRANSPORTATION**

**TUCKERMAN LANE PEDESTRIAN AND  
 BICYCLE IMPROVEMENTS PROJECT  
 FACILITY PLANNING STUDY - PHASE I**

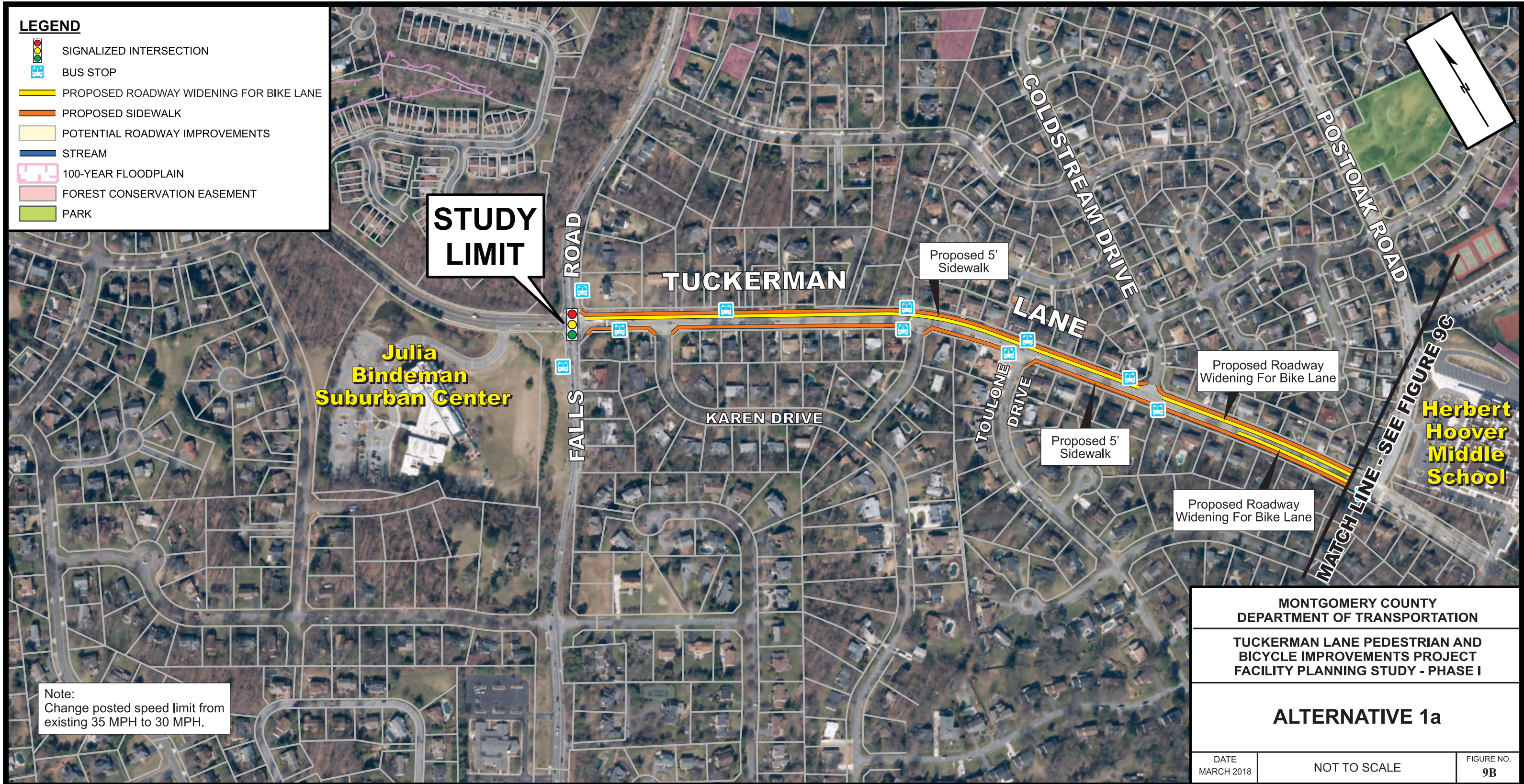
**ALTERNATIVE 1**

DATE MARCH 2018	NOT TO SCALE	FIGURE NO. <b>8D</b>
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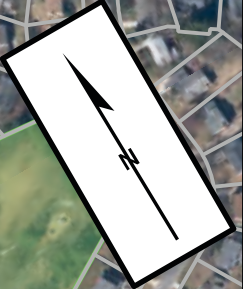




**LEGEND**

-  SIGNALIZED INTERSECTION
-  BUS STOP
-  PROPOSED ROADWAY WIDENING FOR BIKE LANE
-  PROPOSED SIDEWALK
-  POTENTIAL ROADWAY IMPROVEMENTS
-  STREAM
-  100-YEAR FLOODPLAIN
-  FOREST CONSERVATION EASEMENT
-  PARK

**STUDY LIMIT**



Note:  
Change posted speed limit from existing 35 MPH to 30 MPH.

MONTGOMERY COUNTY  
DEPARTMENT OF TRANSPORTATION

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TUCKERMAN LANE PEDESTRIAN AND  
BICYCLE IMPROVEMENTS PROJECT  
FACILITY PLANNING STUDY - PHASE I

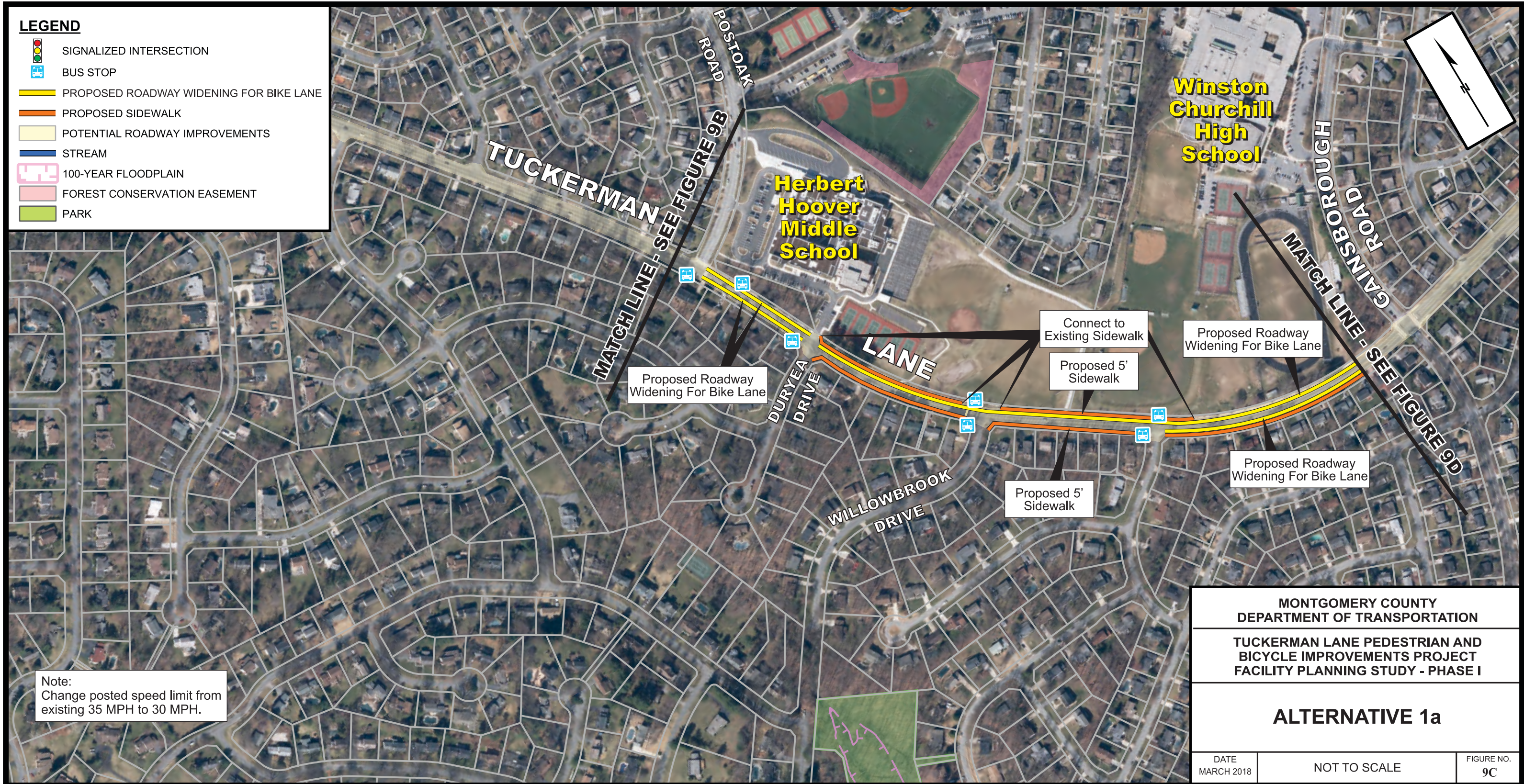
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**ALTERNATIVE 1a**










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DATE MARCH 2018	NOT TO SCALE	FIGURE NO. <b>9B</b>
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**LEGEND**

-  SIGNALIZED INTERSECTION
-  BUS STOP
-  PROPOSED ROADWAY WIDENING FOR BIKE LANE
-  PROPOSED SIDEWALK
-  POTENTIAL ROADWAY IMPROVEMENTS
-  STREAM
-  100-YEAR FLOODPLAIN
-  FOREST CONSERVATION EASEMENT
-  PARK

Note:  
Change posted speed limit from  
existing 35 MPH to 30 MPH.

**MONTGOMERY COUNTY  
DEPARTMENT OF TRANSPORTATION**

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**TUCKERMAN LANE PEDESTRIAN AND  
BICYCLE IMPROVEMENTS PROJECT  
FACILITY PLANNING STUDY - PHASE I**

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**ALTERNATIVE 1a**

DATE MARCH 2018	NOT TO SCALE	FIGURE NO. <b>9C</b>
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**LEGEND**

-  SIGNALIZED INTERSECTION
-  BUS STOP
-  PROPOSED ROADWAY WIDENING FOR BIKE LANE
-  PROPOSED SIDEWALK / SHARED USE PATH
-  POTENTIAL ROADWAY IMPROVEMENTS
-  STREAM
-  100-YEAR FLOODPLAIN
-  FOREST CONSERVATION EASEMENT
-  PARK

Note:  
Change posted speed limit from existing 35 MPH to 30 MPH.

Note:  
Pavement will be restriped from Cedar Ridge Drive to Whisperwood Lane to provide 11' through lanes and a 5-foot minimum shoulder on both sides of the roadway. Existing median will be narrowed as needed.

**MONTGOMERY COUNTY  
DEPARTMENT OF TRANSPORTATION**

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**TUCKERMAN LANE PEDESTRIAN AND  
BICYCLE IMPROVEMENTS PROJECT  
FACILITY PLANNING STUDY - PHASE I**

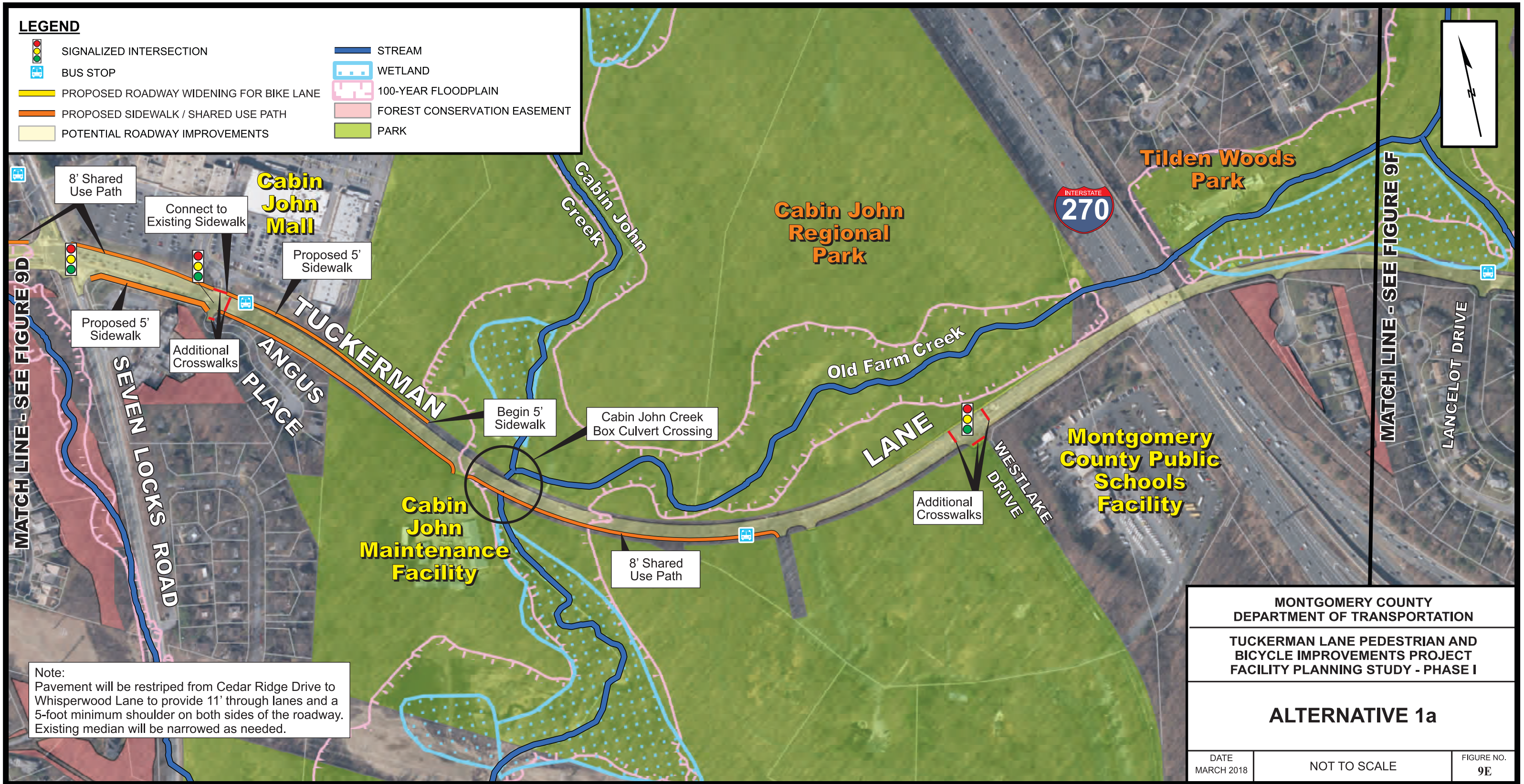
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**ALTERNATIVE 1a**

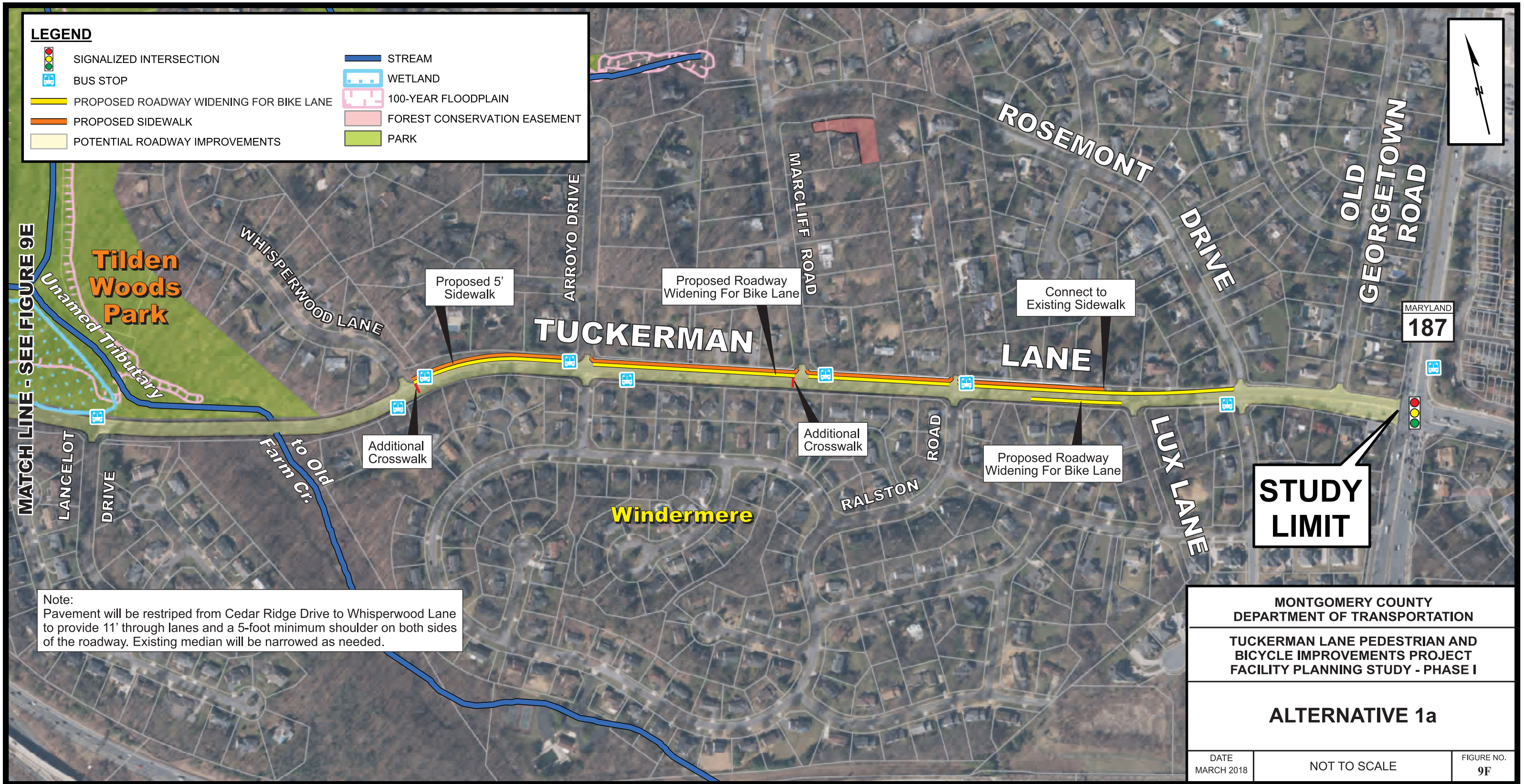
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DATE MARCH 2018	NOT TO SCALE	FIGURE NO. <b>9D</b>
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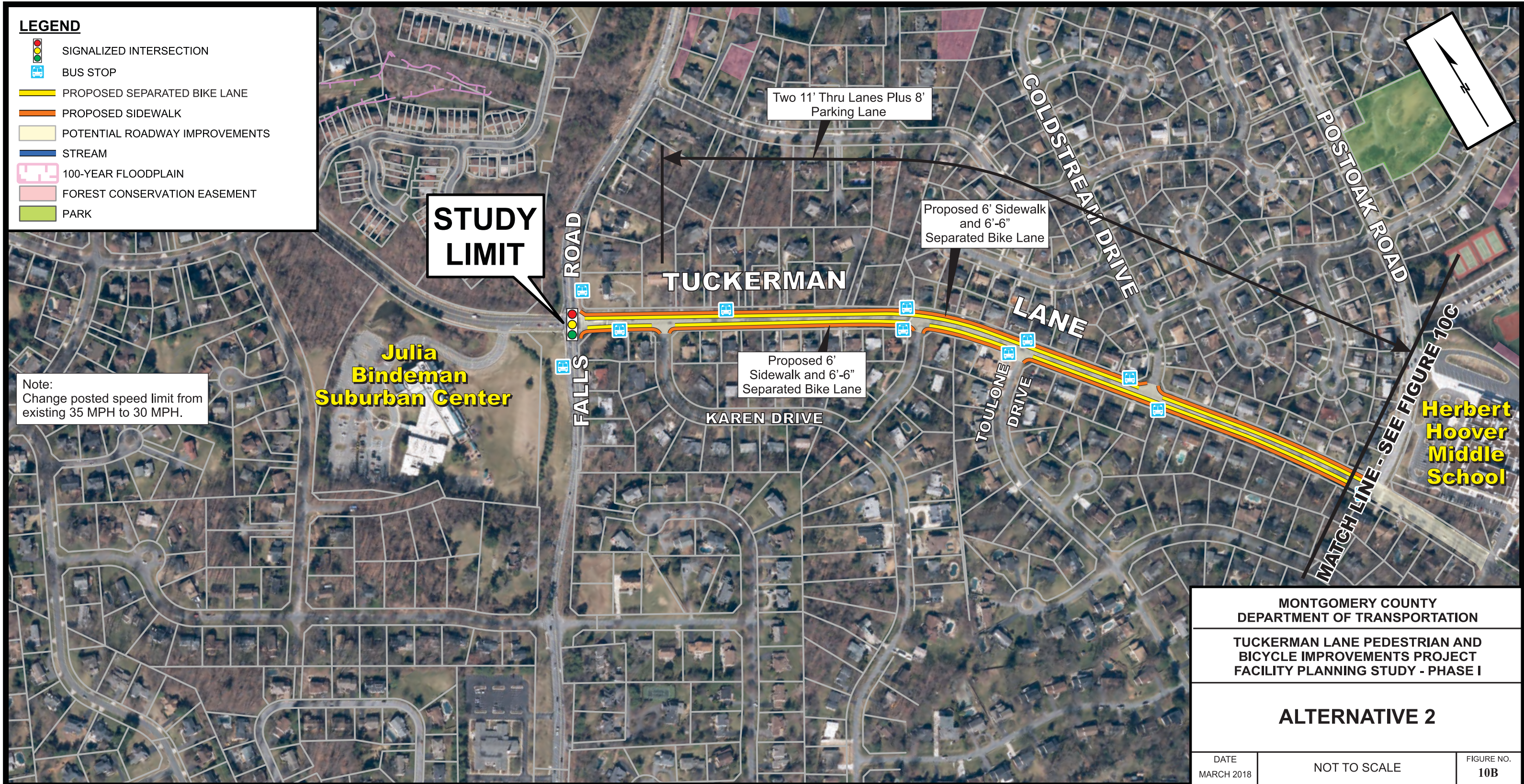





















MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION		
TUCKERMAN LANE PEDESTRIAN AND BICYCLE IMPROVEMENTS PROJECT FACILITY PLANNING STUDY - PHASE I		
<b>ALTERNATIVE 2</b>		
DATE MARCH 2018	NOT TO SCALE	FIGURE NO. <b>10B</b>





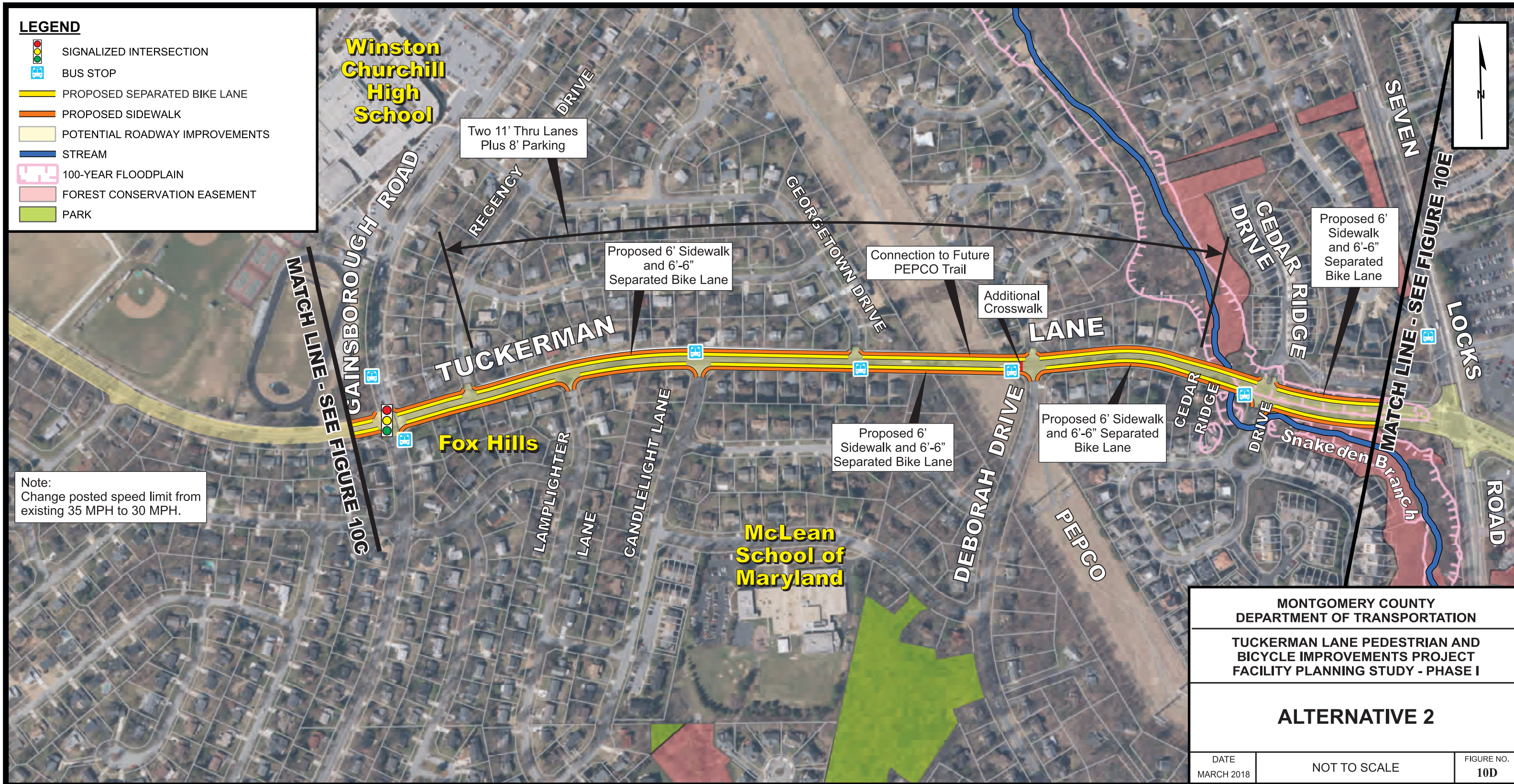
**LEGEND**

-  SIGNALIZED INTERSECTION
-  BUS STOP
-  PROPOSED SEPARATED BIKE LANE
-  PROPOSED SIDEWALK
-  POTENTIAL ROADWAY IMPROVEMENTS
-  STREAM
-  100-YEAR FLOODPLAIN
-  FOREST CONSERVATION EASEMENT
-  PARK










Note:  
Change posted speed limit from  
existing 35 MPH to 30 MPH.

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION		
TUCKERMAN LANE PEDESTRIAN AND BICYCLE IMPROVEMENTS PROJECT FACILITY PLANNING STUDY - PHASE I		
<b>ALTERNATIVE 2</b>		
DATE MARCH 2018	NOT TO SCALE	FIGURE NO. <b>10C</b>





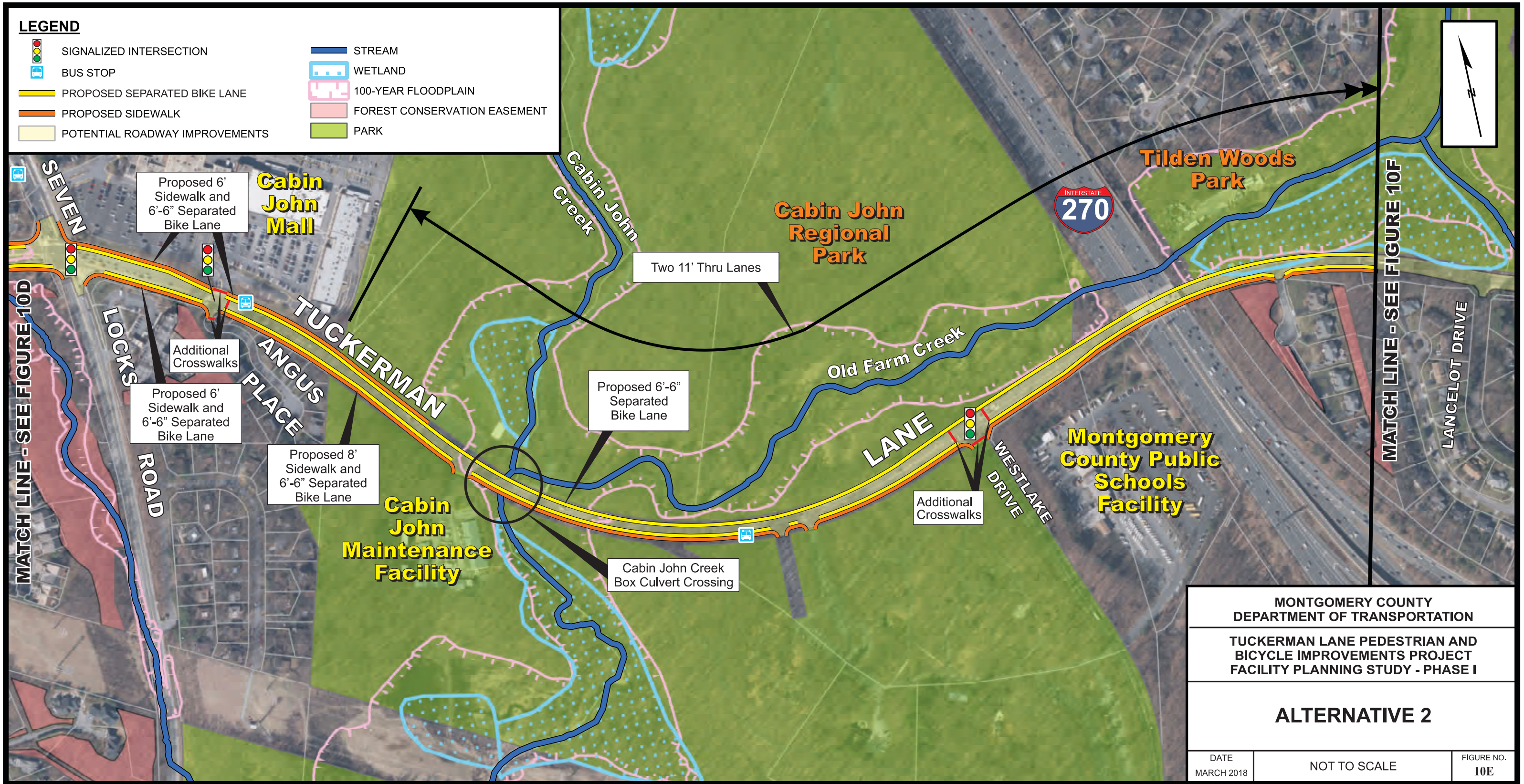
**LEGEND**

-  SIGNALIZED INTERSECTION
-  BUS STOP
-  PROPOSED SEPARATED BIKE LANE
-  PROPOSED SIDEWALK
-  POTENTIAL ROADWAY IMPROVEMENTS
-  STREAM
-  100-YEAR FLOODPLAIN
-  FOREST CONSERVATION EASEMENT
-  PARK

Note:  
Change posted speed limit from  
existing 35 MPH to 30 MPH.

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION		
TUCKERMAN LANE PEDESTRIAN AND BICYCLE IMPROVEMENTS PROJECT FACILITY PLANNING STUDY - PHASE I		
<b>ALTERNATIVE 2</b>		
DATE MARCH 2018	NOT TO SCALE	FIGURE NO. <b>10D</b>





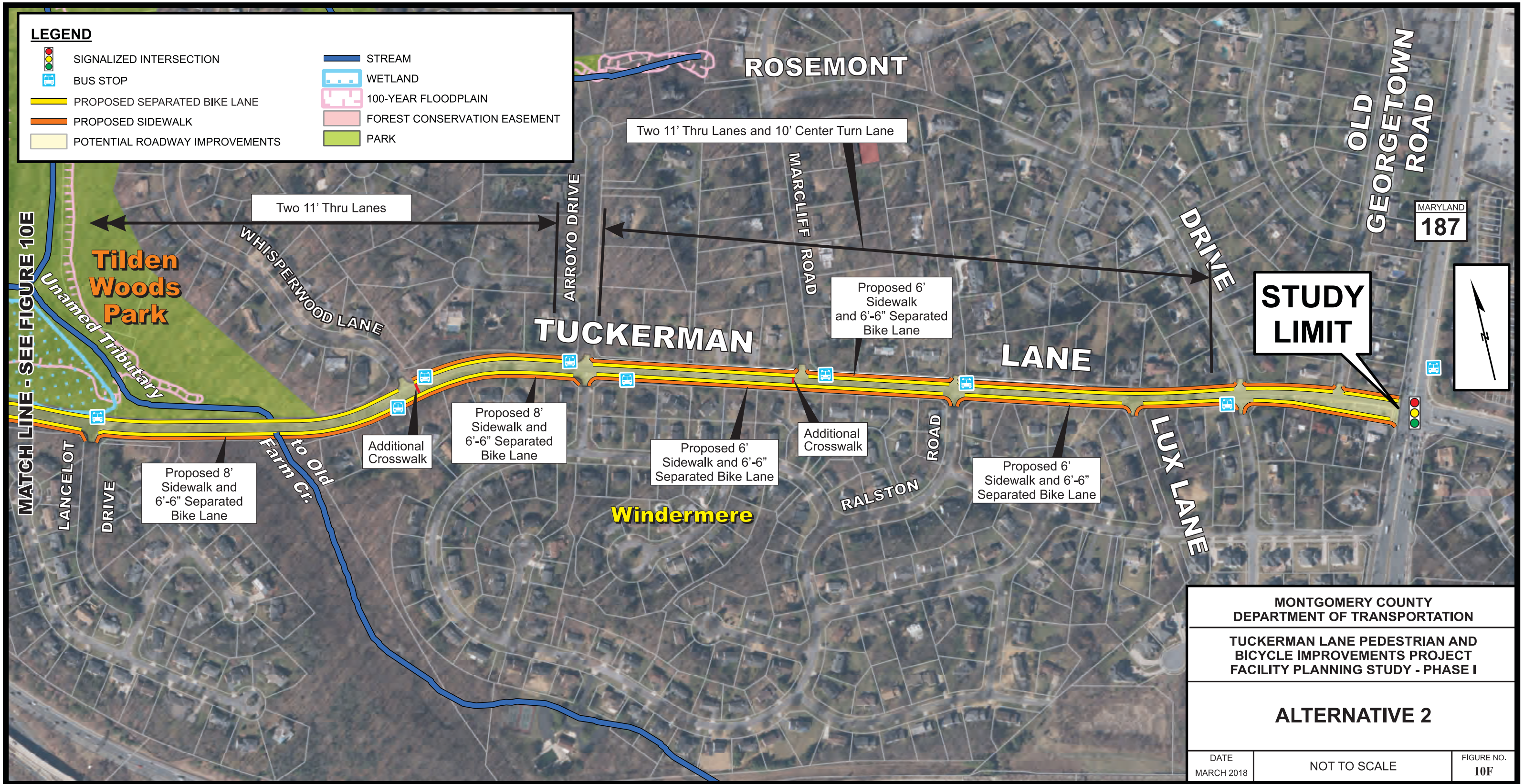
MONTGOMERY COUNTY  
DEPARTMENT OF TRANSPORTATION

TUCKERMAN LANE PEDESTRIAN AND  
BICYCLE IMPROVEMENTS PROJECT  
FACILITY PLANNING STUDY - PHASE I

**ALTERNATIVE 2**

DATE MARCH 2018	NOT TO SCALE	FIGURE NO. <b>10E</b>
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**LEGEND**

-  SIGNALIZED INTERSECTION
-  BUS STOP
-  PROPOSED SIDEWALK / SHARED USE PATH
-  POTENTIAL ROADWAY IMPROVEMENTS
-  STREAM
-  100-YEAR FLOODPLAIN
-  FOREST CONSERVATION EASEMENT
-  PARK

**STUDY LIMIT**

Proposed 10' Shared Use Path

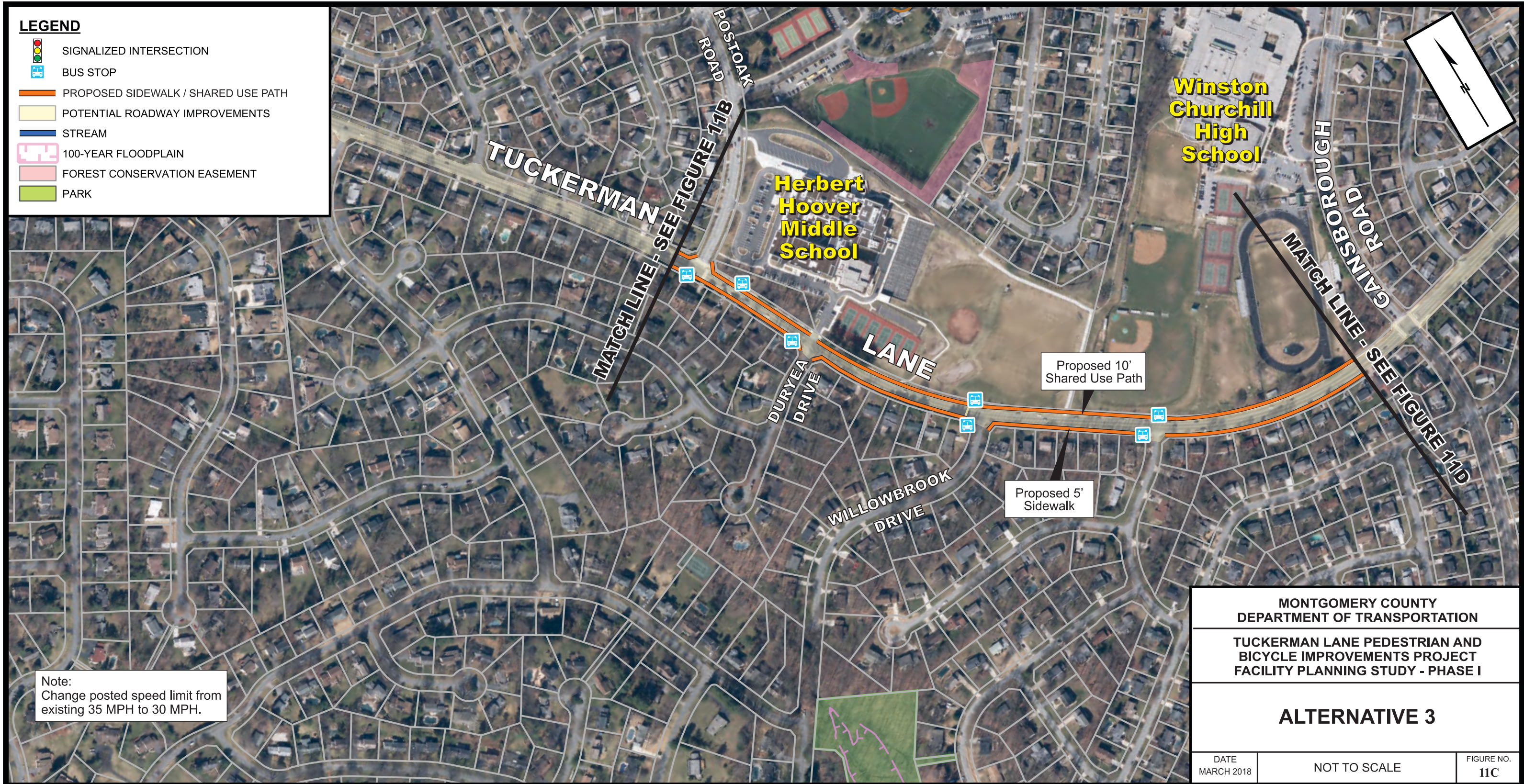
Proposed 5' Sidewalk

MATCH LINE - SEE FIGURE 11C





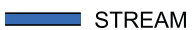



Note:  
Change posted speed limit from existing 35 MPH to 30 MPH.

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION		
TUCKERMAN LANE PEDESTRIAN AND BICYCLE IMPROVEMENTS PROJECT FACILITY PLANNING STUDY - PHASE I		
<b>ALTERNATIVE 3</b>		
DATE MARCH 2018	NOT TO SCALE	FIGURE NO. <b>11B</b>





**LEGEND**

-  SIGNALIZED INTERSECTION
-  BUS STOP
-  PROPOSED SIDEWALK / SHARED USE PATH
-  POTENTIAL ROADWAY IMPROVEMENTS
-  STREAM
-  100-YEAR FLOODPLAIN
-  FOREST CONSERVATION EASEMENT
-  PARK









Note:  
Change posted speed limit from  
existing 35 MPH to 30 MPH.

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION		
TUCKERMAN LANE PEDESTRIAN AND BICYCLE IMPROVEMENTS PROJECT FACILITY PLANNING STUDY - PHASE I		
<b>ALTERNATIVE 3</b>		
DATE MARCH 2018	NOT TO SCALE	FIGURE NO. <b>11C</b>





**LEGEND**

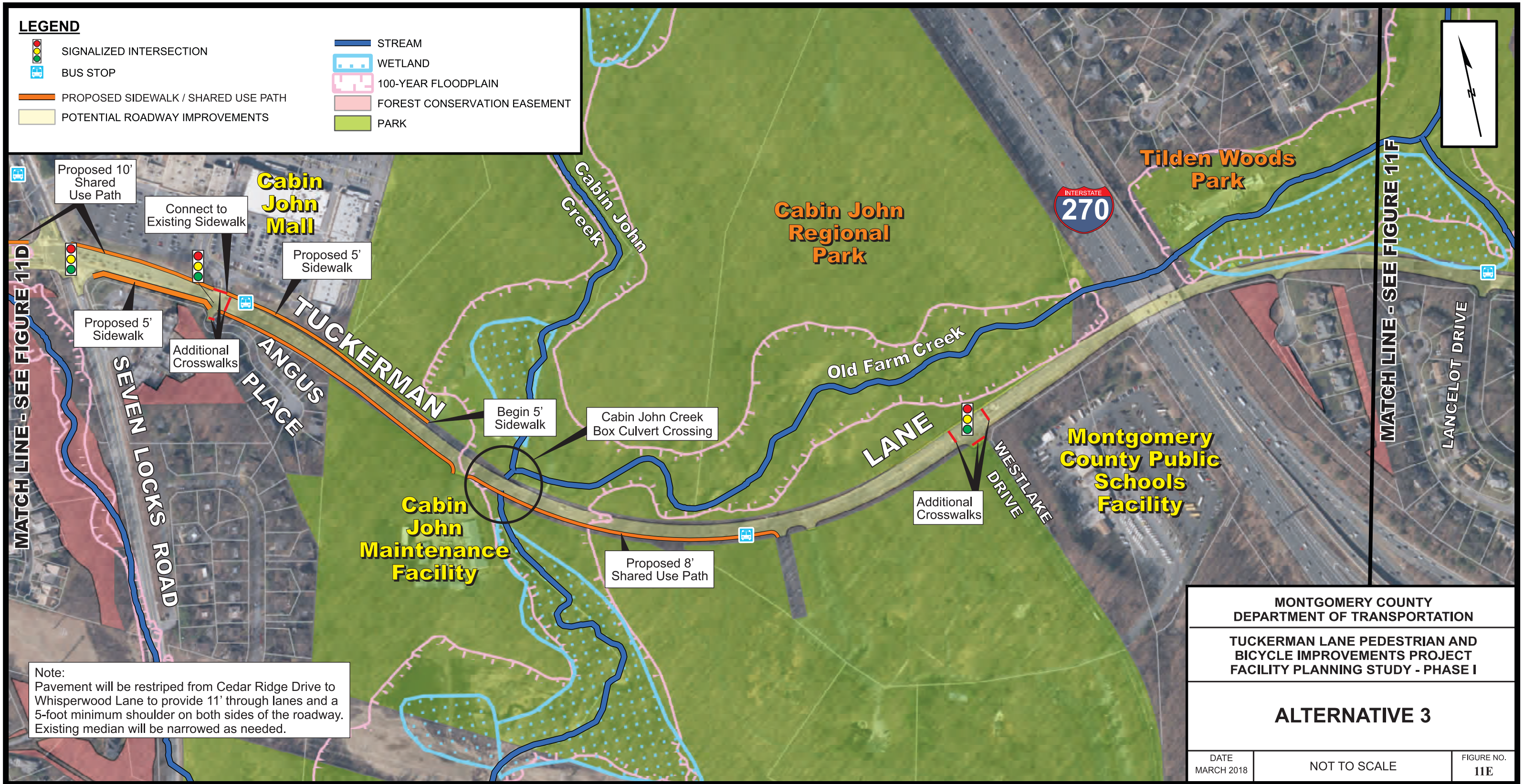
-  SIGNALIZED INTERSECTION
-  BUS STOP
-  PROPOSED SIDEWALK / SHARED USE PATH
-  POTENTIAL ROADWAY IMPROVEMENTS
-  STREAM
-  100-YEAR FLOODPLAIN
-  FOREST CONSERVATION EASEMENT
-  PARK

Note:  
Change posted speed limit from existing 35 MPH to 30 MPH.










Note:  
Pavement will be restriped from Cedar Ridge Drive to Whisperwood Lane to provide 11' through lanes and a 5-foot minimum shoulder on both sides of the roadway. Existing median will be narrowed as needed.

<b>MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION</b>		
<b>TUCKERMAN LANE PEDESTRIAN AND BICYCLE IMPROVEMENTS PROJECT FACILITY PLANNING STUDY - PHASE I</b>		
<b>ALTERNATIVE 3</b>		
DATE MARCH 2018	NOT TO SCALE	FIGURE NO. <b>11D</b>





**LEGEND**

-  SIGNALIZED INTERSECTION
-  BUS STOP
-  PROPOSED SIDEWALK / SHARED USE PATH
-  POTENTIAL ROADWAY IMPROVEMENTS
-  STREAM
-  WETLAND
-  100-YEAR FLOODPLAIN
-  FOREST CONSERVATION EASEMENT
-  PARK

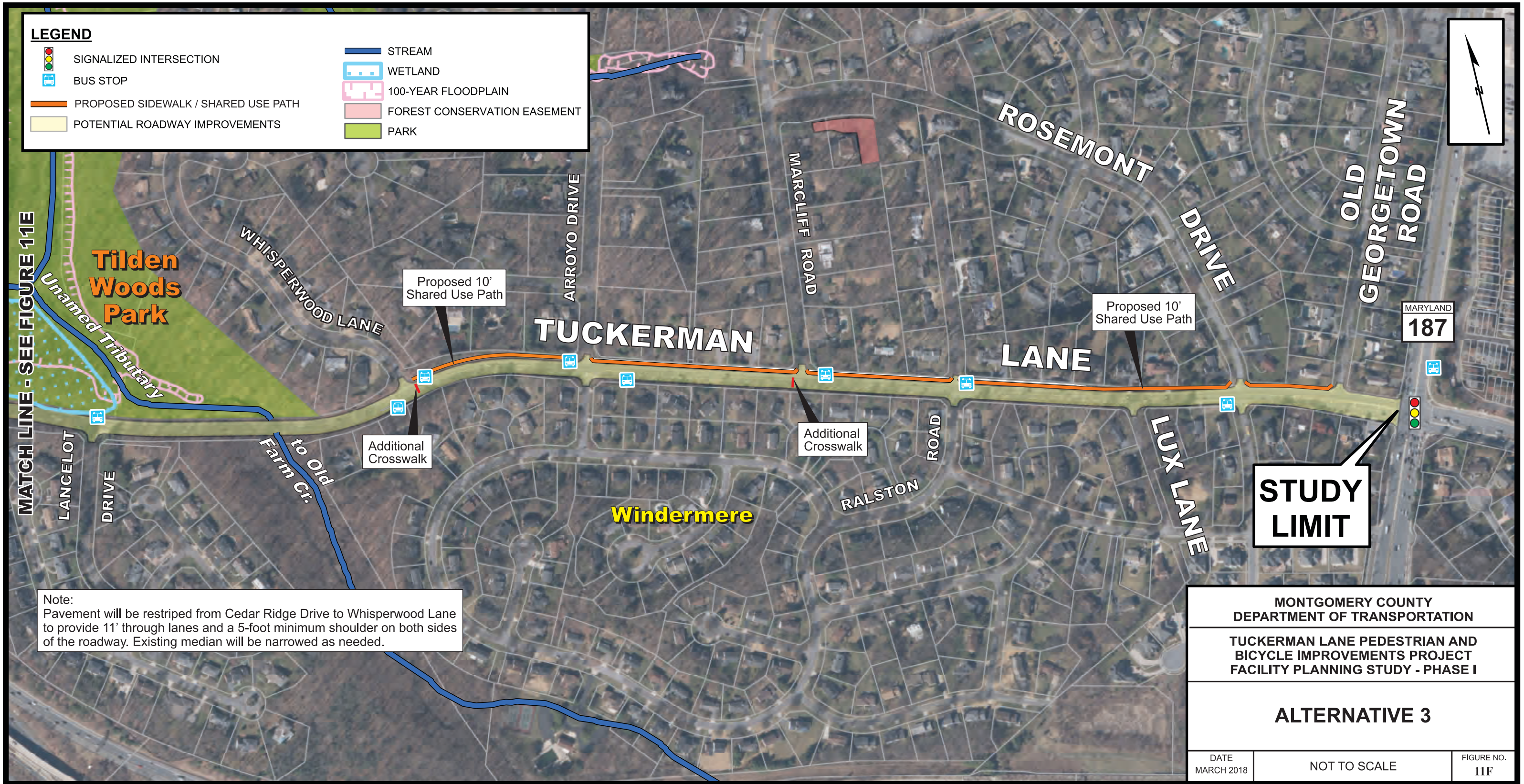
MATCH LINE - SEE FIGURE 11D

MATCH LINE - SEE FIGURE 11F

Note:  
 Pavement will be restriped from Cedar Ridge Drive to Whisperwood Lane to provide 11' through lanes and a 5-foot minimum shoulder on both sides of the roadway. Existing median will be narrowed as needed.

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION		
TUCKERMAN LANE PEDESTRIAN AND BICYCLE IMPROVEMENTS PROJECT FACILITY PLANNING STUDY - PHASE I		
<b>ALTERNATIVE 3</b>		
DATE MARCH 2018	NOT TO SCALE	FIGURE NO. <b>11E</b>





**LEGEND**

	SIGNALIZED INTERSECTION		STREAM
	BUS STOP		WETLAND
	PROPOSED SIDEWALK / SHARED USE PATH		100-YEAR FLOODPLAIN
	POTENTIAL ROADWAY IMPROVEMENTS		FOREST CONSERVATION EASEMENT
			PARK

MATCH LINE - SEE FIGURE 11E

**Tilden Woods Park**

**TUCKERMAN LANE**

**Windermere**

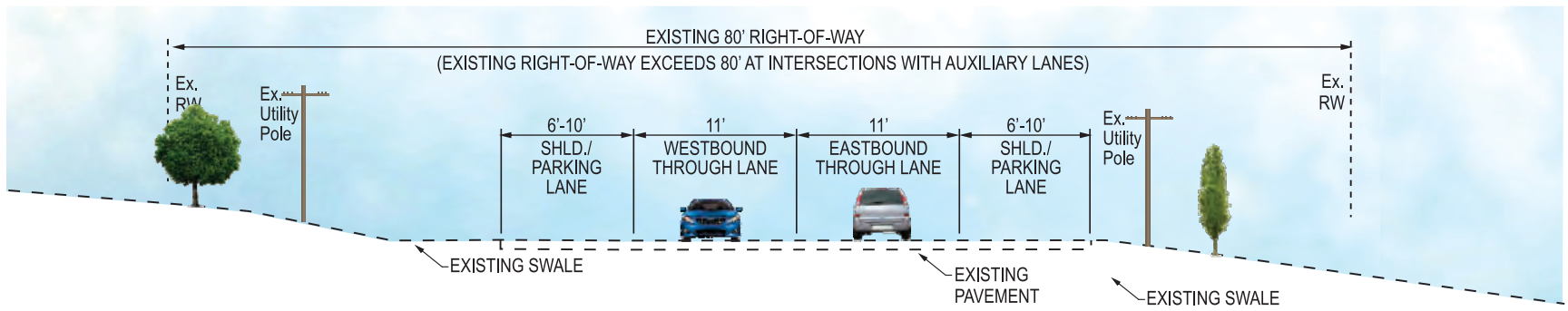
**STUDY LIMIT**

Note:  
Pavement will be restriped from Cedar Ridge Drive to Whisperwood Lane to provide 11' through lanes and a 5-foot minimum shoulder on both sides of the roadway. Existing median will be narrowed as needed.

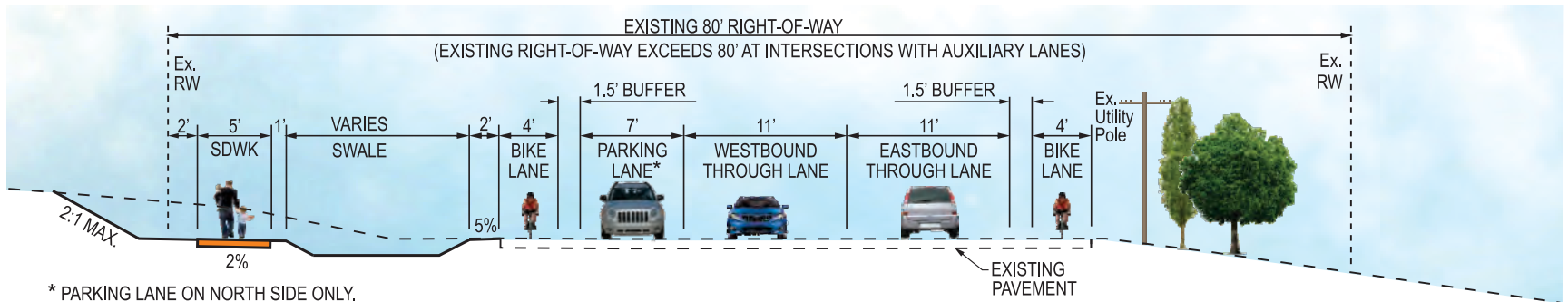
MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION		
TUCKERMAN LANE PEDESTRIAN AND BICYCLE IMPROVEMENTS PROJECT FACILITY PLANNING STUDY - PHASE I		
<b>ALTERNATIVE 3</b>		
DATE MARCH 2018	NOT TO SCALE	FIGURE NO. 11F



# SEGMENT 1 - FALLS ROAD TO SNAKEDEN BRANCH (1.69 MILE)

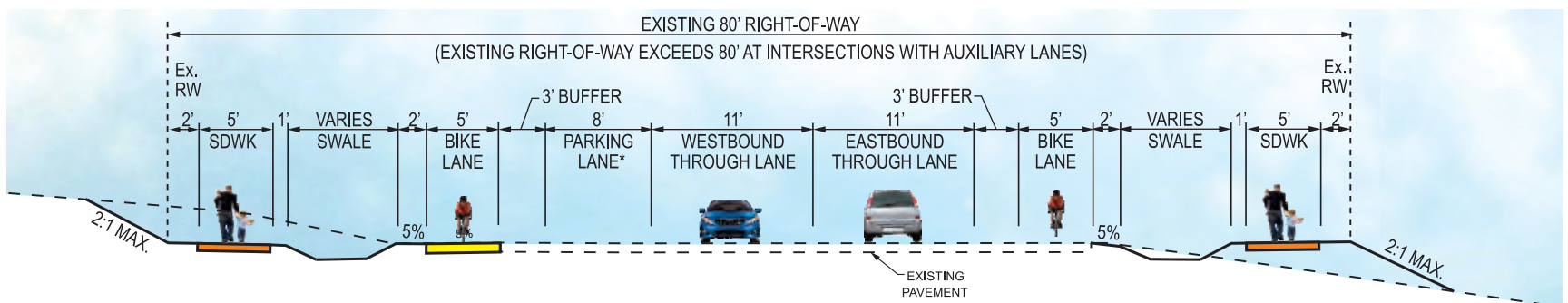


TYPICAL SECTION - NO BUILD



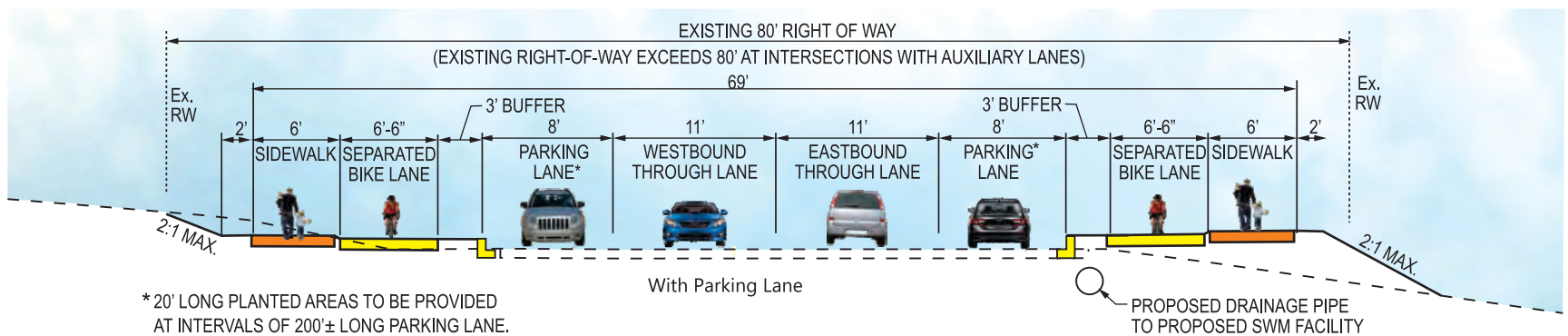
\* PARKING LANE ON NORTH SIDE ONLY.

TYPICAL SECTION - ALT. 1



\* PARKING LANE ON NORTH SIDE ONLY.

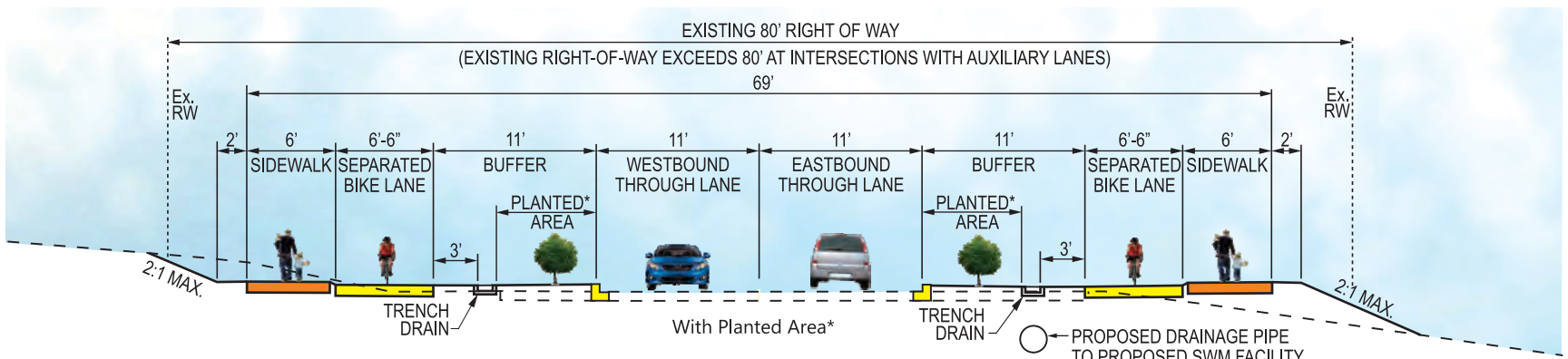
TYPICAL SECTION - ALT. 1a



\* 20' LONG PLANTED AREAS TO BE PROVIDED AT INTERVALS OF 200'± LONG PARKING LANE.

PROPOSED DRAINAGE PIPE TO PROPOSED SWM FACILITY

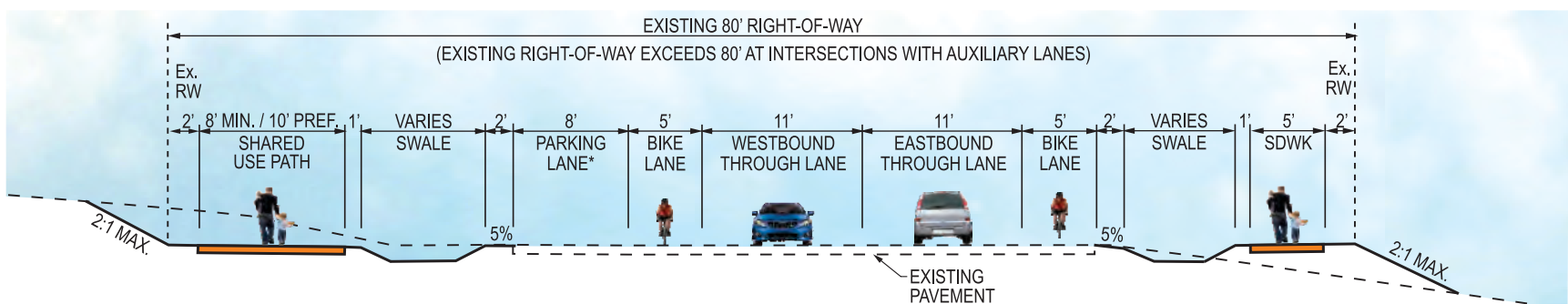
With Parking Lane



With Planted Area\*

PROPOSED DRAINAGE PIPE TO PROPOSED SWM FACILITY

TYPICAL SECTION - ALT. 2



\* PARKING LANE ON NORTH SIDE ONLY.

TYPICAL SECTION - ALT. 3

NOTE: EXISTING UTILITY POLE LOCATIONS VARY IN RELATION TO THE ROADWAY EDGE AND THEREFORE ARE NOT SHOWN ON THE PROPOSED TYPICAL SECTIONS FOR WHICH CONFLICTS COULD OCCUR. MEASURES TO AVOID POTENTIAL RELOCATIONS WILL BE ANALYZED IN MORE DETAIL DURING THE NEXT PHASE OF DESIGN.

TUCKERMAN LANE PEDESTRIAN AND BICYCLE IMPROVEMENTS FACILITY PLANNING, PHASE 1

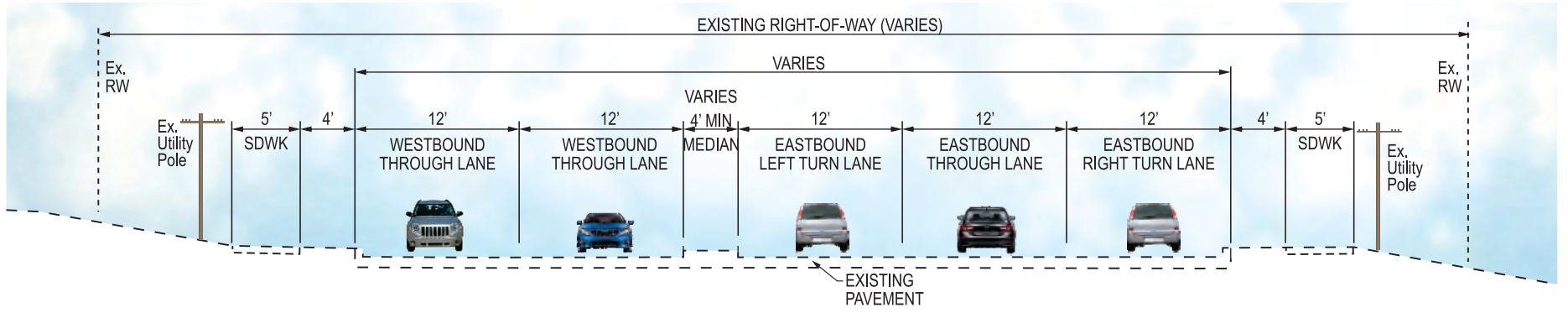
## SEGMENT 1 FALLS ROAD TO SNAKEDEN BRANCH

SCALE: NONE

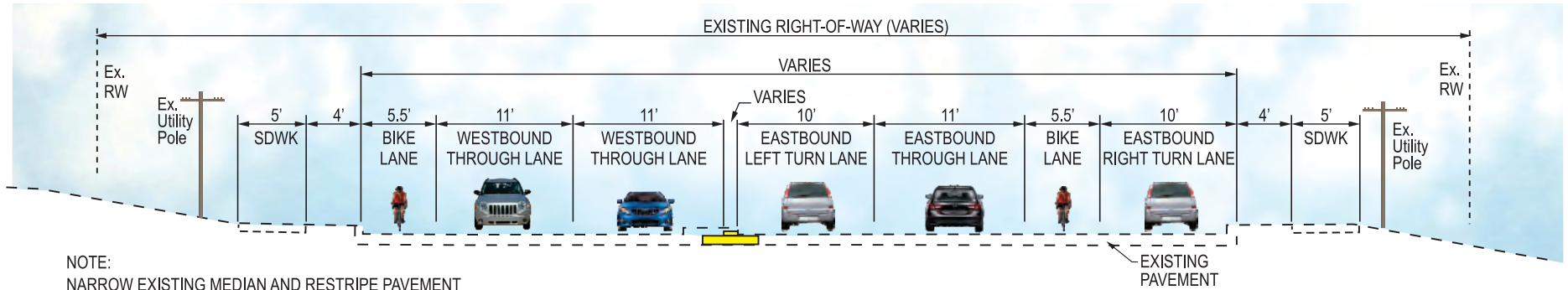


MARCH 2018

# SEGMENT 2 - SNAKEDEN BRANCH TO ANGUS PLACE (0.27 MILE)

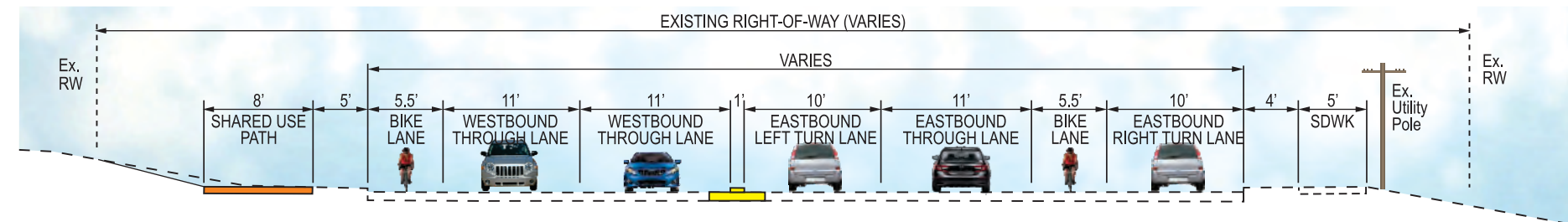


TYPICAL SECTION - NO BUILD



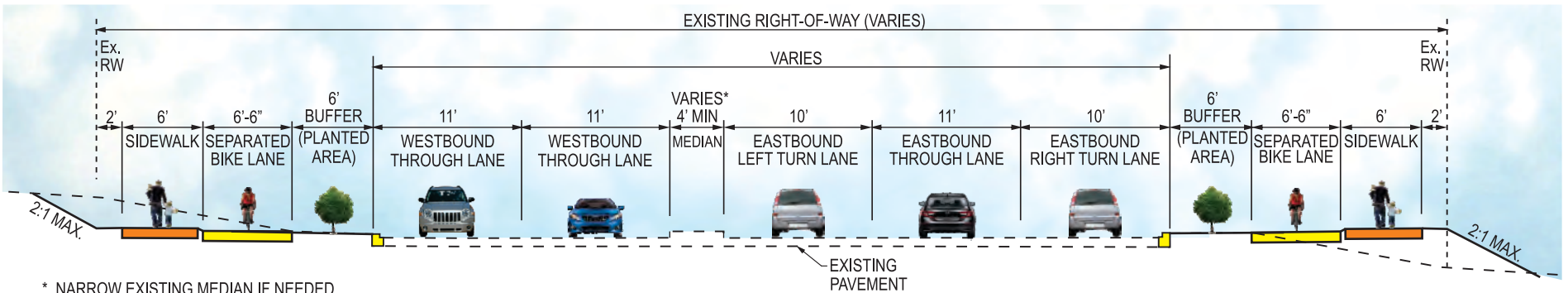
NOTE:  
NARROW EXISTING MEDIAN AND RESTRIPE PAVEMENT MARKINGS TO PROVIDE 11' THRU LANES, 10' TURN LANES, PLUS A 5.5' BIKE LANE ON BOTH SIDES

TYPICAL SECTION - ALT. 1



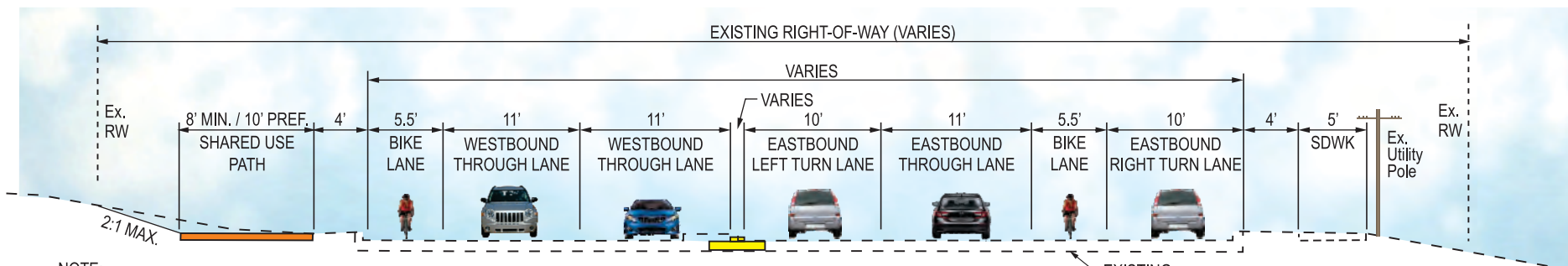
NOTE:  
NARROW EXISTING MEDIAN AND RESTRIPE PAVEMENT MARKINGS TO PROVIDE 11' THRU LANES, 10' TURN LANES, PLUS A 5.5' BIKE LANE ON BOTH SIDES

TYPICAL SECTION - ALT. 1a



\* NARROW EXISTING MEDIAN IF NEEDED

TYPICAL SECTION - ALT. 2



NOTE:  
NARROW EXISTING MEDIAN AND RESTRIPE PAVEMENT MARKINGS TO PROVIDE 11' THRU LANES, 10' TURN LANES, PLUS A 5.5' BIKE LANE ON BOTH SIDES

TYPICAL SECTION - ALT. 3

NOTE: EXISTING UTILITY POLE LOCATIONS VARY IN RELATION TO THE ROADWAY EDGE AND THEREFORE ARE NOT SHOWN ON THE PROPOSED TYPICAL SECTIONS FOR WHICH CONFLICTS COULD OCCUR. MEASURES TO AVOID POTENTIAL RELOCATIONS WILL BE ANALYZED IN MORE DETAIL DURING THE NEXT PHASE OF DESIGN.

TUCKERMAN LANE PEDESTRIAN AND BICYCLE IMPROVEMENTS FACILITY PLANNING, PHASE 1

## SEGMENT 2 SNAKEDEN BRANCH TO ANGUS PLACE

SCALE: NONE

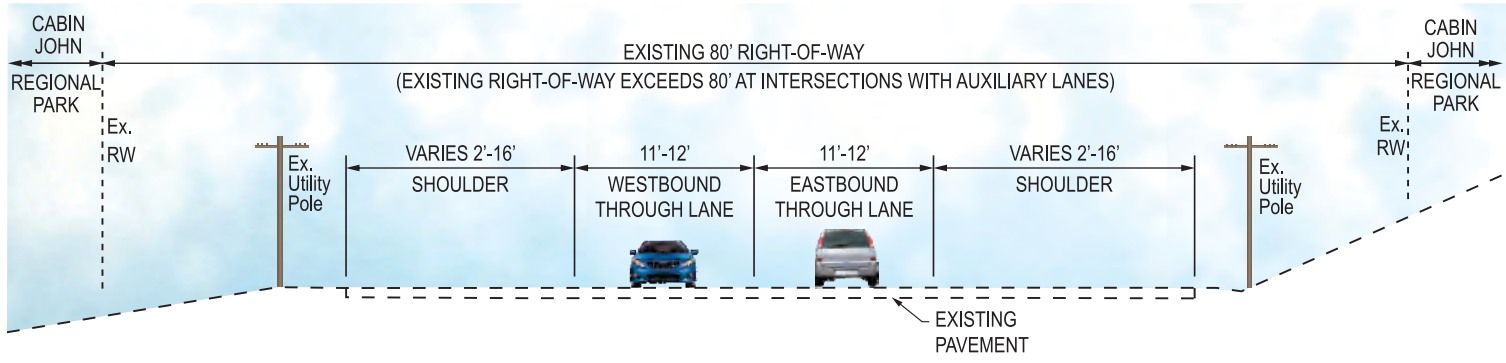


MARCH 2018

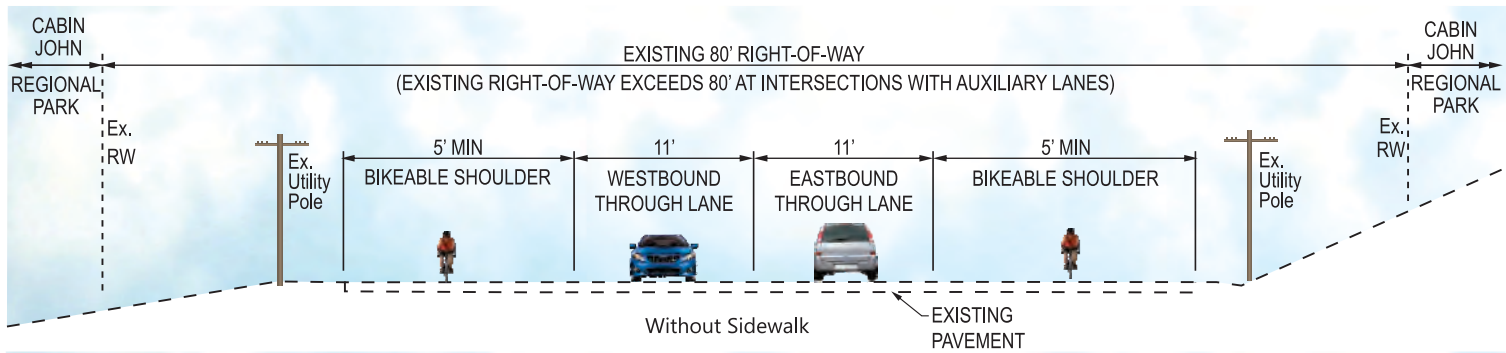


# SEGMENT 3 - ANGUS PLACE TO WHISPERWOOD LANE (1.18 MILE)

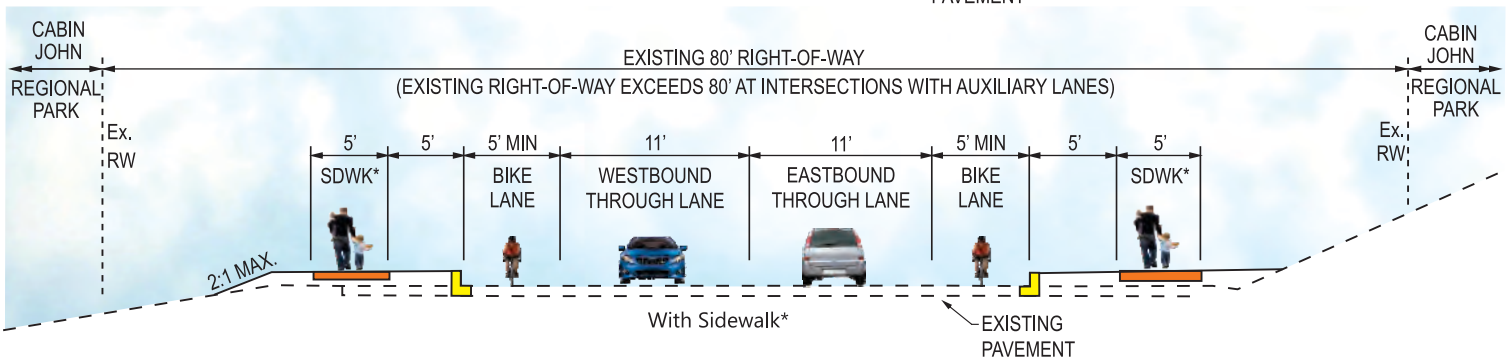
NOTE: PLEASE REFER TO THE TUCKERMAN LANE TYPICAL SECTIONS (AT I-270 OVERPASS & OVER CABIN JOHN CREEK BOX CULVERT) WHICH OCCUR WITHIN SEGMENT 3.



TYPICAL SECTION - NO BUILD

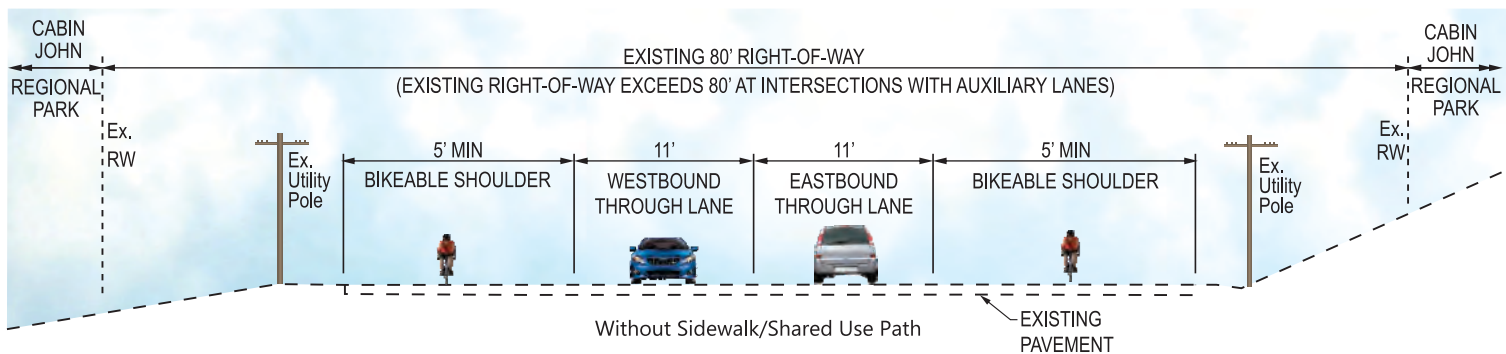


Without Sidewalk

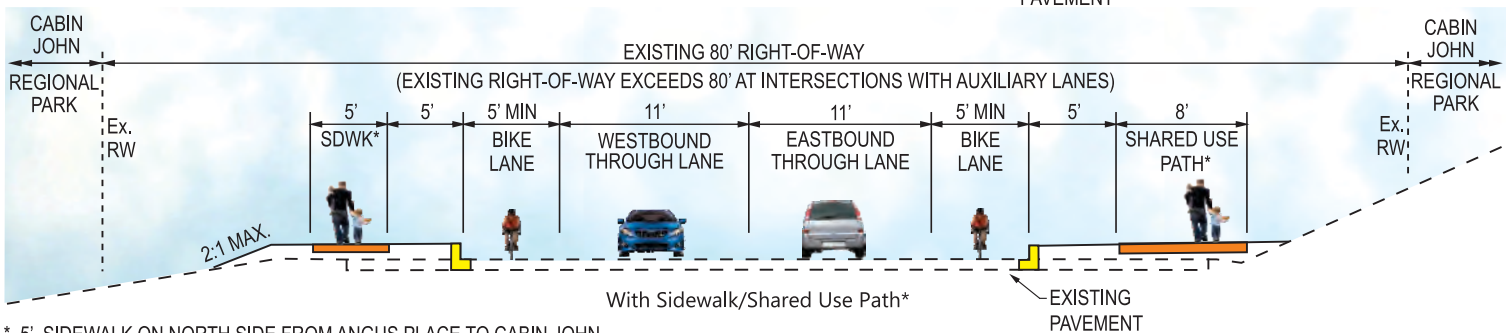


\* 5' SIDEWALK ON NORTH SIDE FROM ANGUS PLACE TO CABIN JOHN PICNIC AREA AND ON SOUTH SIDE FROM ANGUS PLACE TO THE ENTRANCE OF CABIN JOHN REGIONAL PARK.

TYPICAL SECTION - ALT. 1

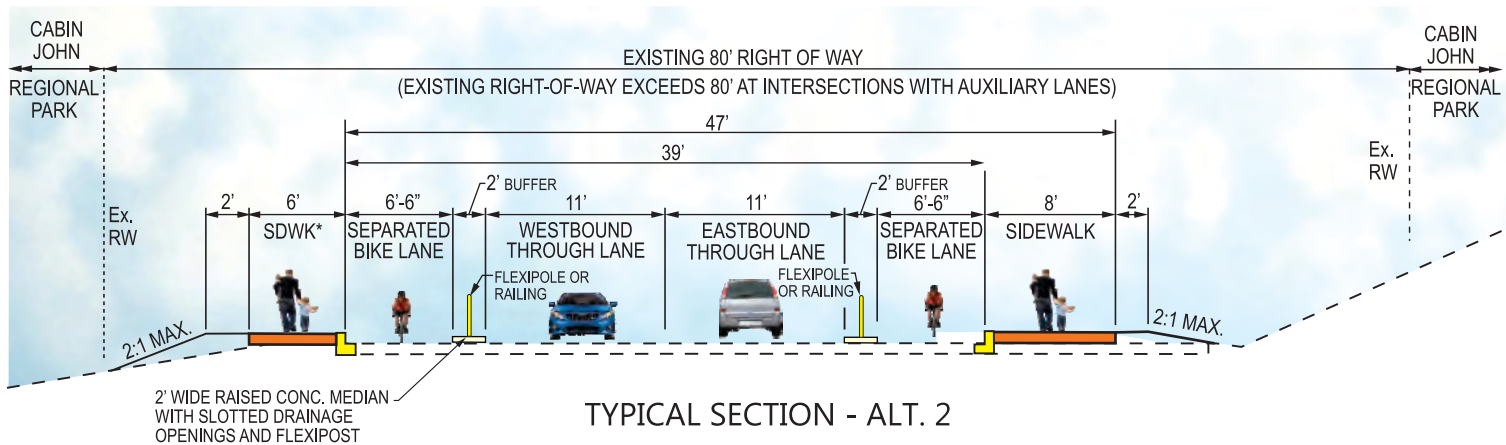


Without Sidewalk/Shared Use Path



\* 5' SIDEWALK ON NORTH SIDE FROM ANGUS PLACE TO CABIN JOHN PICNIC AREA AND 8' SHARED USE PATH ON SOUTH SIDE FROM ANGUS PLACE TO THE ENTRANCE OF CABIN JOHN REGIONAL PARK.

TYPICAL SECTION - ALT. 1a & ALT. 3



TYPICAL SECTION - ALT. 2

\* 6' SIDEWALK WITH CURB AND GUTTER TO BE PROVIDED ON NORTH SIDE ONLY BETWEEN ANGUS PLACE AND CABIN JOHN PICNIC AREA

TUCKERMAN LANE PEDESTRIAN AND BICYCLE IMPROVEMENTS FACILITY PLANNING, PHASE 1

## SEGMENT 3

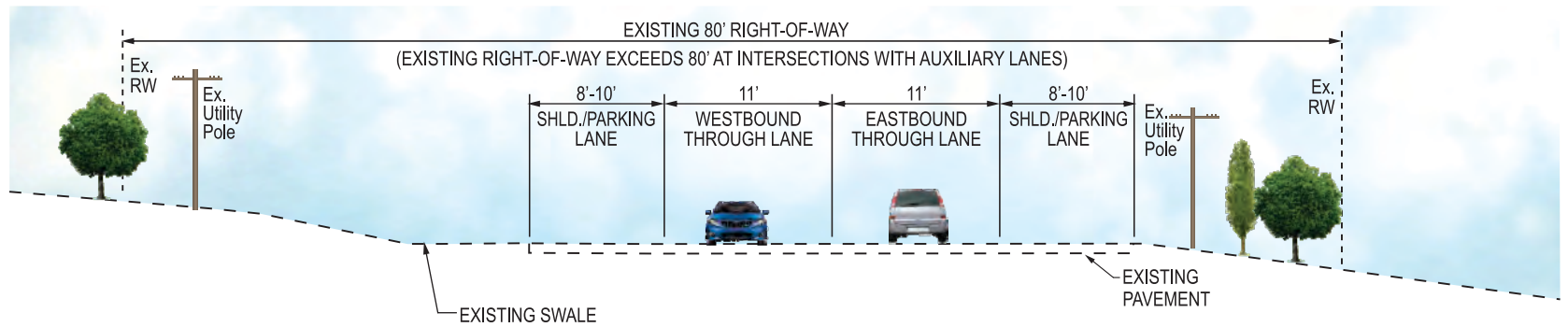
### ANGUS PLACE TO WHISPERWOOD LANE

SCALE: NONE

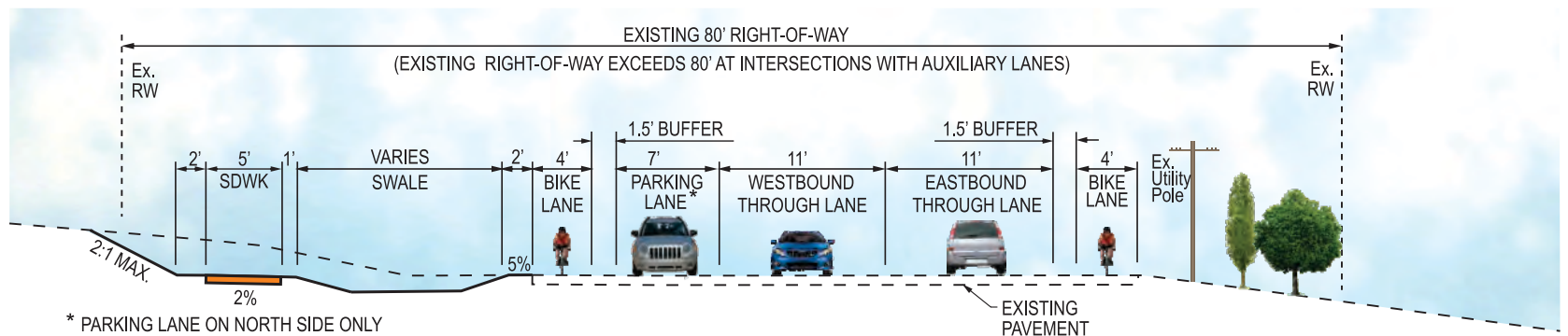
MARCH 2018

NOTE: EXISTING UTILITY POLE LOCATIONS VARY IN RELATION TO THE ROADWAY EDGE AND THEREFORE ARE NOT SHOWN ON THE PROPOSED TYPICAL SECTIONS FOR WHICH CONFLICTS COULD OCCUR. MEASURES TO AVOID POTENTIAL RELOCATIONS WILL BE ANALYZED IN MORE DETAIL DURING THE NEXT PHASE OF DESIGN.

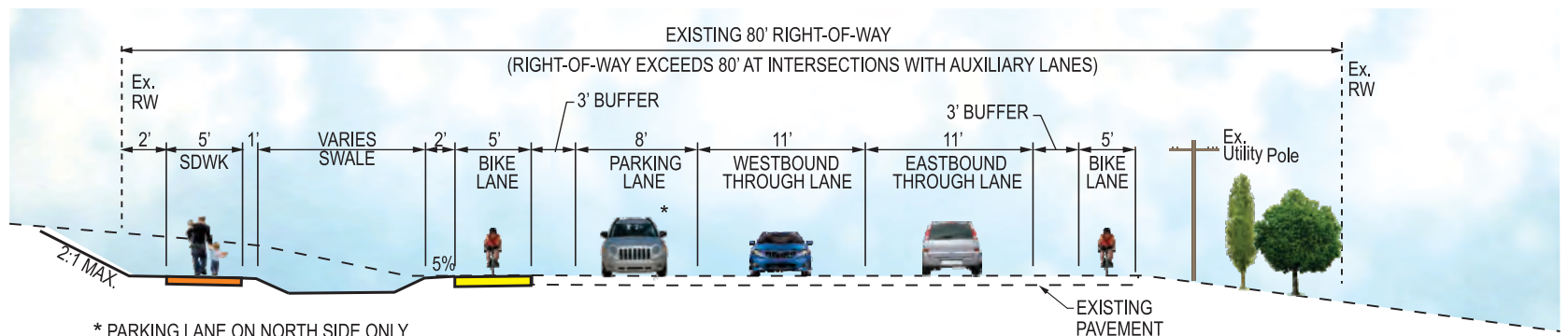
SEGMENT 4 - WHISPERWOOD LANE TO OLD GEORGETOWN ROAD (0.69 MILE)



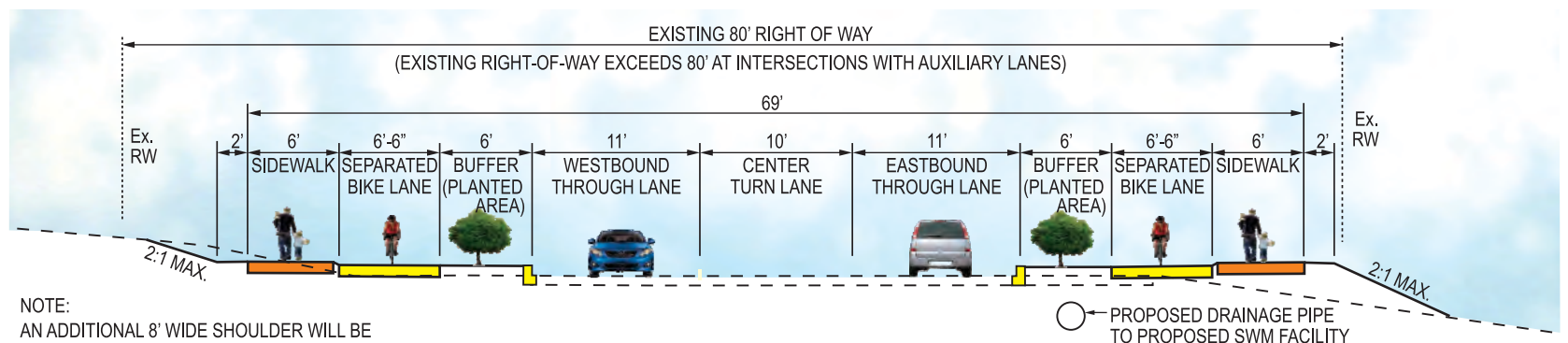
TYPICAL SECTION - NO BUILD



TYPICAL SECTION - ALT. 1

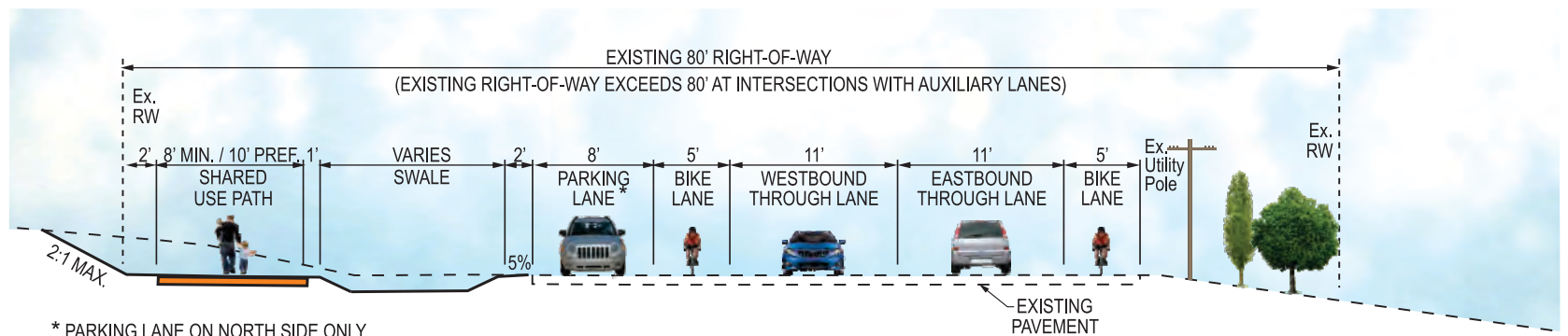


TYPICAL SECTION - ALT. 1A



NOTE:  
AN ADDITIONAL 8' WIDE SHOULDER WILL BE PROVIDED ON NORTH SIDE BETWEEN LUX LANE AND ROSEMONT DRIVE

TYPICAL SECTION - ALT. 2



TYPICAL SECTION - ALT. 3

NOTE: EXISTING UTILITY POLE LOCATIONS VARY IN RELATION TO THE ROADWAY EDGE AND THEREFORE ARE NOT SHOWN ON THE PROPOSED TYPICAL SECTIONS FOR WHICH CONFLICTS COULD OCCUR. MEASURES TO AVOID POTENTIAL RELOCATIONS WILL BE ANALYZED IN MORE DETAIL DURING THE NEXT PHASE OF DESIGN.

TUCKERMAN LANE PEDESTRIAN AND BICYCLE IMPROVEMENTS FACILITY PLANNING, PHASE 1

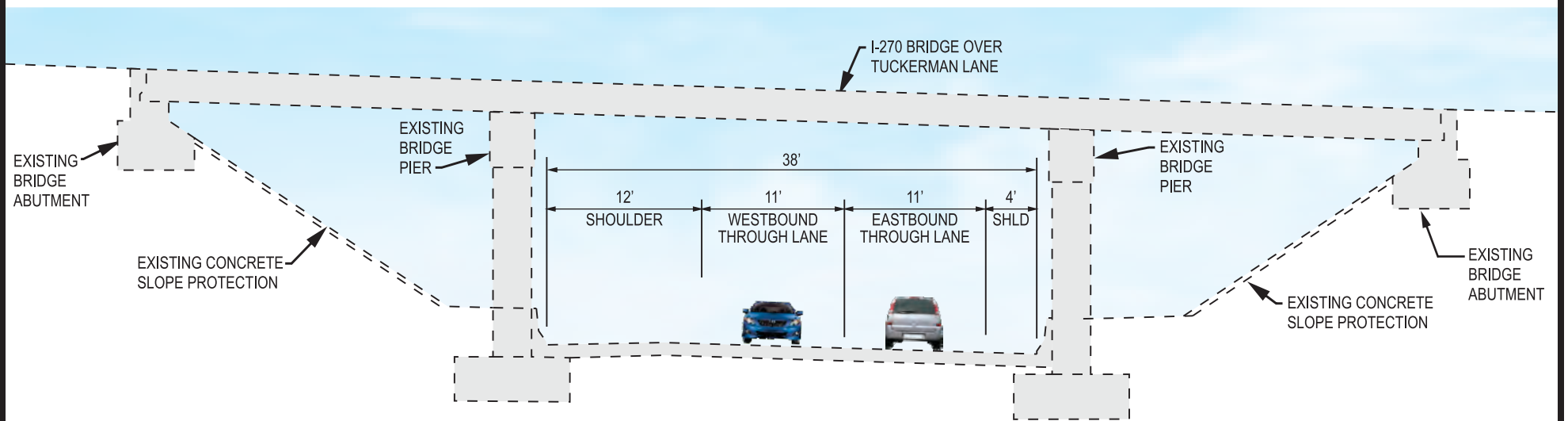
**SEGMENT 4**  
**WHISPERWOOD LANE TO**  
**OLD GEORGETOWN ROAD**

SCALE: NONE

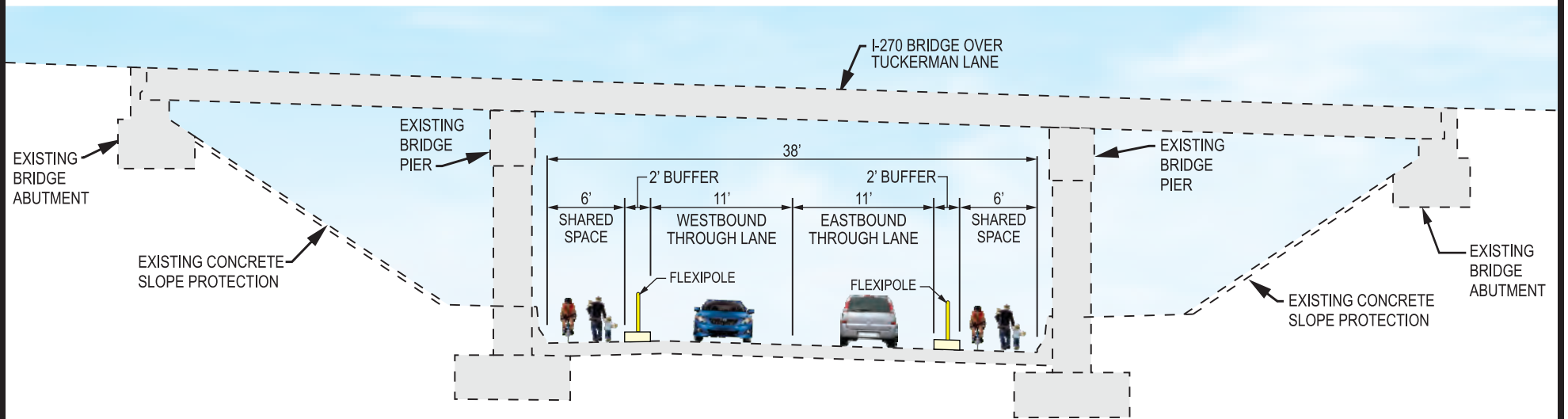


MARCH 2018

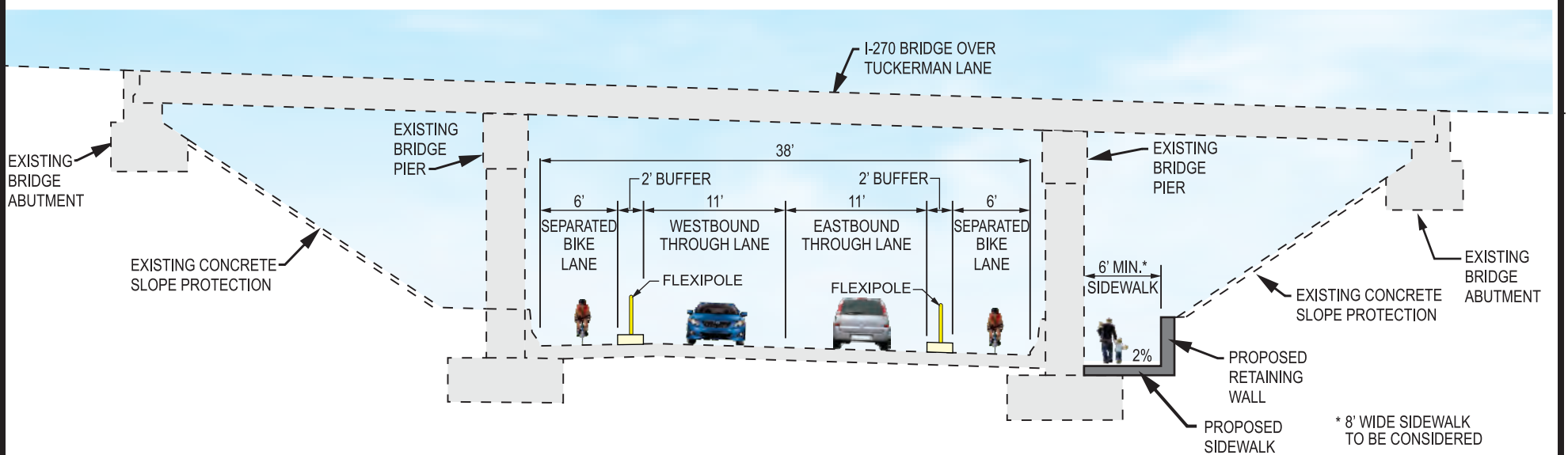
# TUCKERMAN LANE AT I-270 OVERPASS



TYPICAL SECTION- NO BUILD



TYPICAL SECTION - ALT. 1, ALT. 1a & ALT. 3



TYPICAL SECTION - ALT. 2

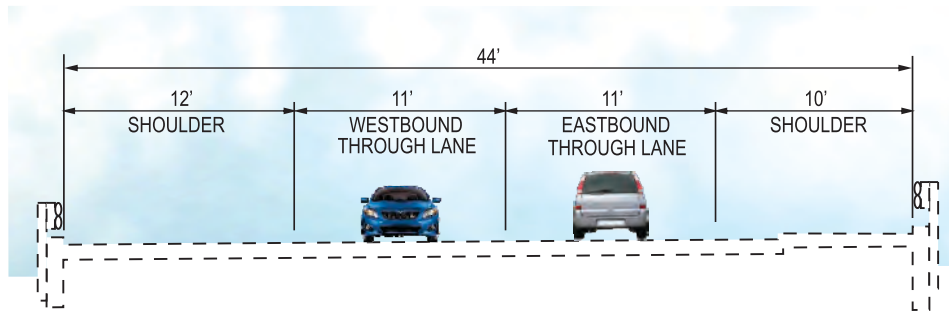
TUCKERMAN LANE PEDESTRIAN AND BICYCLE IMPROVEMENTS FACILITY PLANNING, PHASE 1

**TUCKERMAN LANE AT I-270 OVERPASS**

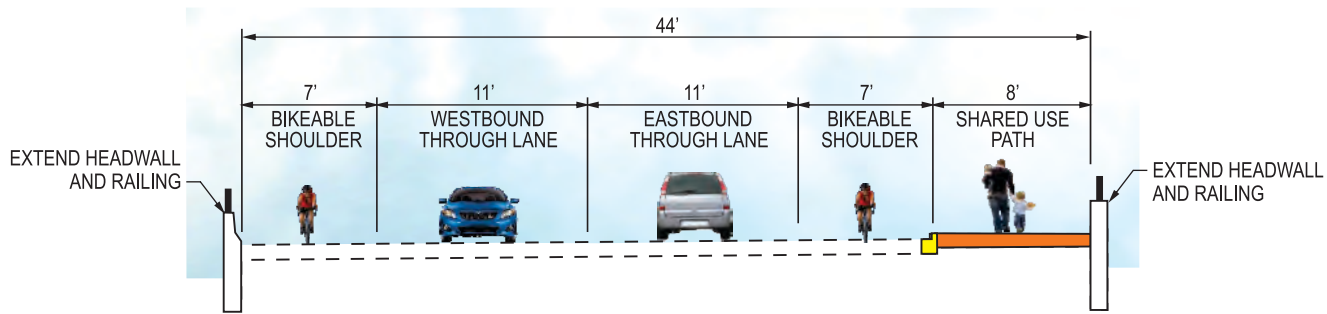
SCALE: NONE		MARCH 2018
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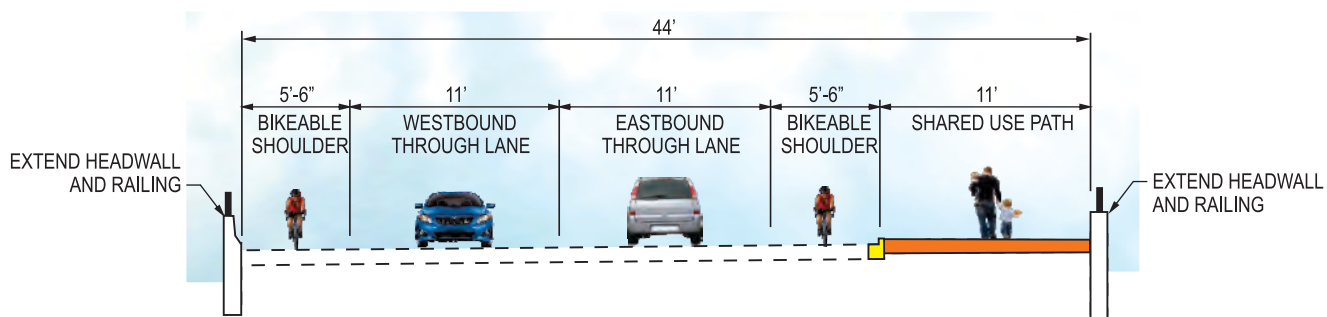
# TUCKERMAN LANE OVER CABIN JOHN CREEK BOX CULVERT



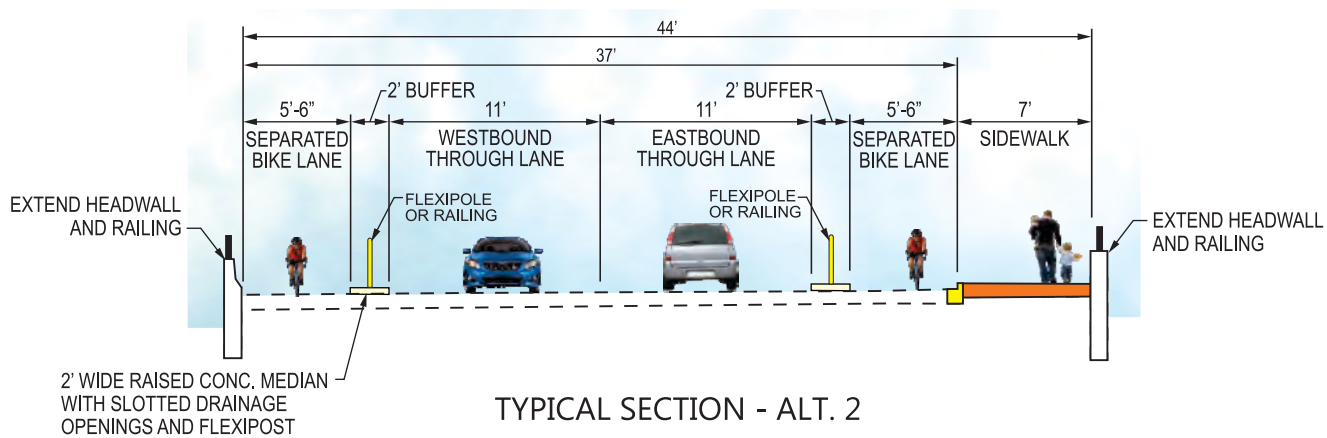
TYPICAL SECTION - NO BUILD



TYPICAL SECTION - ALT. 1



TYPICAL SECTION - ALT. 1a & ALT. 3



TYPICAL SECTION - ALT. 2

TUCKERMAN LANE PEDESTRIAN AND BICYCLE IMPROVEMENTS FACILITY PLANNING, PHASE 1

**TUCKERMAN LANE OVER CABIN JOHN CREEK BOX CULVERT**

SCALE: NONE



MARCH 2018