



# PURPOSE OF THE WORKSHOP



**To notify interested persons that the project planning study has resumed, review the project history, list changes in the study area, outline the project purpose and need, and obtain your input regarding the project purpose and need and potential corridor improvement features. Your comments and recommendations will assist SHA as the team develops alternatives for project improvements.**

# WORKSHOP FORMAT

- **Today's workshop is self-paced. No formal presentation will be given.**
- **Maps and other exhibits depicting aspects of the project will be on display, and team members will be available to respond to your project-related questions and comments.**
- **Everyone is encouraged to participate and express their views relating to the aspects of the project.**
- **You may comment by:**
  - speaking with a team representative
  - submitting a comment card at the workshop
  - returning a comment card by mail

## Planning

*(Currently Funded)*

### Planning Steps

Update Inventories of Existing Conditions

----- Spring / Summer 2014

Refine Alternatives for Detailed Studies

----- Fall 2014

Conduct Public Workshop of Refined Alternatives Retained for Detailed Study

----- Winter 2014 / 2015

Conduct Detailed Engineering and Studies

----- Summer / Fall 2015

Conduct Location / Design Public Hearing

- ▶ Evaluate Comments from Hearing
- ▶ Perform Additional Studies, if necessary

----- Winter 2016

Select Preferred Alternative

- ▶ Prepare Final Environmental Document

----- Fall 2017

Obtain Location / Design Approvals

----- Winter 2018

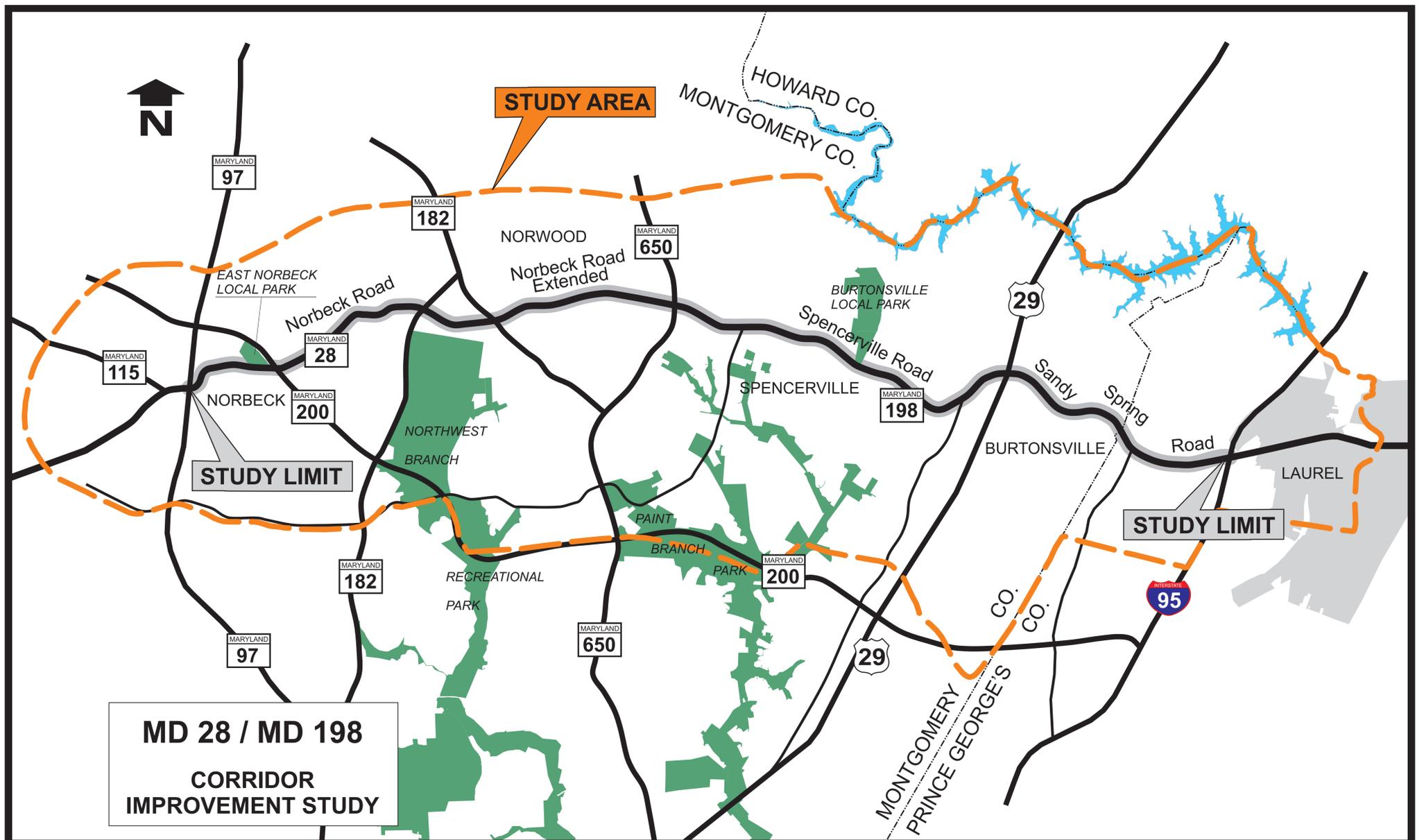
## Design\*

## Right-of-Way Acquisition\*

## Construction\*

\* May include entire corridor or break-out improvements

- 2001 - SHA initiates MD 28/MD 198 Corridor Improvement Study
- 2002 - Montgomery County opens Norbeck Road Extended, decreasing travel time between MD 182 and MD 650
- 2004 - SHA and Maryland Transportation Authority (MDTA) begin Intercounty Connector (MD 200) project
- 2005 - SHA opens US 29 at MD 198 grade-separated interchange
- 2011 - MDTA opens MD 200 between MD 97 and I-95, providing an alternate route for through trips



## Timeline

**Began Initiation and Scoping Process**

*Winter 2000/  
Spring 2001*

**Conducted Alternatives Public Workshop**

*Spring 2002*

**Selected Alternatives for Detailed Study**

*Summer 2003*

**Developed Draft Environmental Document**  
▶ Coordinated with ICC Project Team

*2004 through  
2008*

**Conducted Informational Workshop**  
▶ Updated project information based on  
coordination with ICC team

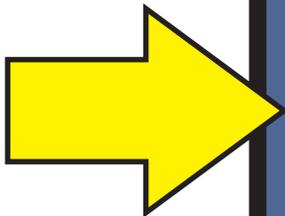
*Fall 2008*

**Project Put on Hold**  
▶ Due to Economic Downturn

*2009*

**Conduct Informational Workshop**  
▶ Provide Project Background  
▶ Review Changes in Study Area  
▶ Obtain public comments

*Spring 2014*





# What is Level of Service (LOS)?

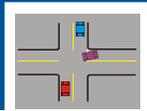


Level of Service is a quantitative measure of traffic operational conditions. Ranges of operation are defined for each type of roadway section (signalized intersections, freeways, ramp junctions and weaving sections) and are related to the amount of traffic demand at a given time as compared to the capacity of that type of roadway section.

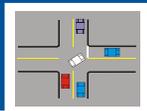
Six levels of service are defined for each type of roadway section and are given letter designations from A to F, with A representing good operating conditions and F representing unsatisfactory operating conditions.

## Intersection

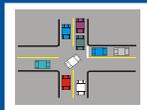
- Highly stable, free-flow condition with little or no congestion
- Delay: <10 seconds/vehicle



- Stable, free-flow condition with little congestion
- Delay: 10 to 20 seconds/vehicle



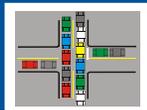
- Free-flow condition with moderate congestion
- Delay: 20 to 35 seconds/vehicle



- Approaching unstable condition with increasing congestion
- Delay: 35 to 55 seconds/vehicle



- Unstable, congested condition
- Delay: 55 to 80 seconds/vehicle



- Stop and go
- Delay: >80 seconds/vehicle



## Roadway

### LOS A



- Free flowing
- Uninterrupted vehicle

### LOS B



- Stable flow
- Other vehicles are more noticeable

### LOS C



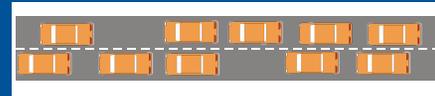
- Stable flow
- Vehicle operations affected by other vehicles

### LOS D



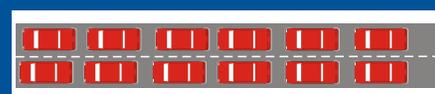
- High density free flow
- Operation of vehicle is affected by other vehicles

### LOS E



- High density traffic flow, nearing capacity
- Operating conditions are extremely poor

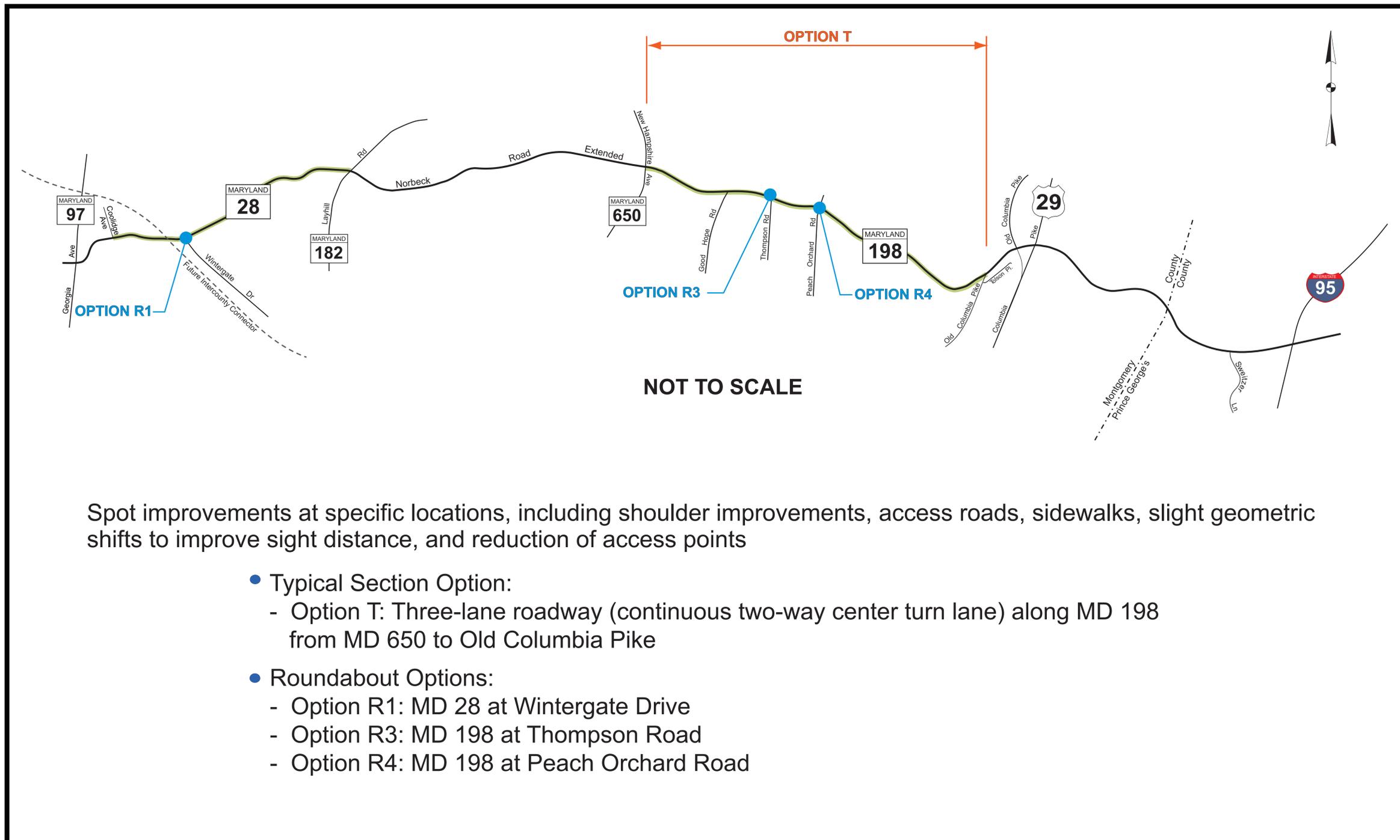
### LOS F



- Forced or breakdown flow
- Amount of traffic exceeds capacity

# PREVIOUS ALTERNATIVE 2 (TSM)

## IMPROVEMENTS EAST OF MD 97 to MD 182 AND MD 650 TO OLD COLUMBIA PIKE

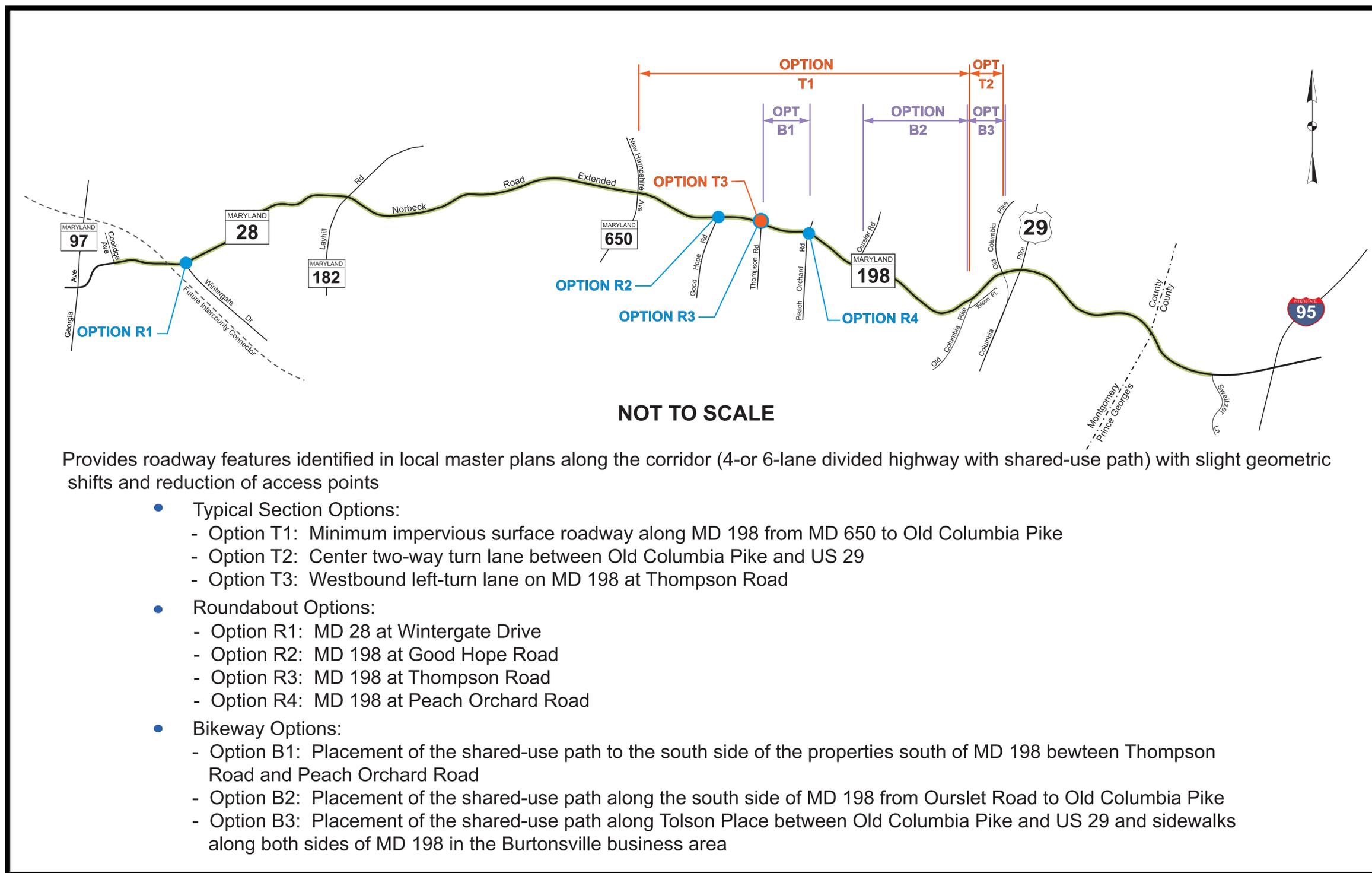


Spot improvements at specific locations, including shoulder improvements, access roads, sidewalks, slight geometric shifts to improve sight distance, and reduction of access points

- Typical Section Option:
  - Option T: Three-lane roadway (continuous two-way center turn lane) along MD 198 from MD 650 to Old Columbia Pike
- Roundabout Options:
  - Option R1: MD 28 at Wintergate Drive
  - Option R3: MD 198 at Thompson Road
  - Option R4: MD 198 at Peach Orchard Road

# PREVIOUS ALTERNATIVE 3 MASTER PLAN FEATURES

## IMPROVEMENTS EAST OF MD 97 to WEST OF I-95



# PROJECT PURPOSE AND NEED

## PROJECT PURPOSE

- Improve local traffic safety and operations for motorists, bicyclists, and pedestrians traveling along the MD 28/MD 198 corridor and across intersecting roads while managing access.
- Preserve the rural and suburban quality of life by addressing localized traffic issues while considering local planning visions and state growth policies for communities along the corridor.

## PROJECT NEED

- Portions of the roadway along the corridor have traffic operational challenges.
- Planned and future development is expected to result in decreased traffic operations.
- Increased traffic volumes are expected to lead to stop-and-go conditions.
- Several intersections are expected to experience failing conditions by the design year (2040).
- Intersection operations are constrained by absence of storage lanes for left- and right-turning vehicles and by limited number of through lanes.
- Several roadway segments between intersections will likely experience peak-hour constraints imposed by projected traffic volumes.
- Total crash rates along portions of the corridor are higher than the statewide average for certain crash types on similar roadways, and conditions are expected to worsen as development occurs and traffic volumes increase.
- Continuous facilities for pedestrians and bicyclists do not exist along the corridor and are not called for in portions of locally adopted master plans.



# PROJECTED GROWTH IN STUDY AREA

MARYLAND

28

MARYLAND

198

	2010	2040	% GROWTH
Households	68,321	80,314	18%
Population	186,214	210,690	13%
Employment	41,151	75,282	83%

# WHAT HAS CHANGED?

- The ICC is now in place.
- The ICC provides a regional transportation connection.

**The MD 28/MD 198 Corridor is part of several neighboring communities. This project will focus on local concerns which include:**

- Improving local traffic safety;
- Enhancing local traffic operations; and
- Accommodating all local roadway users, including pedestrians, motorists, and bicyclists.

## National Environmental Policy Act (NEPA)

Requires that we do everything possible to protect and enhance the natural, cultural and human environment. A complete study of all reasonable alternatives (including measures to avoid and minimize impacts) must be prepared, and the results must be made available to public officials and citizens before decisions are made.

### Natural Environment

- Geology/Groundwater Resources • Soils • Surface Water
- Floodplains • Wetlands • Aquatic Life • Wildlife

#### Section 404 of the Clean Water Act, Nontidal Wetlands Protection Act

Regulates dredge and fill of Waters of the United States. Guidelines published by the Environmental Protection Agency for evaluating alternatives require that the Corps of Engineers evaluate the proposed project for environmental impacts (including historic and rare/threatened/endangered species impacts) and select the least environmentally damaging, practicable alternative.

#### Endangered Species Act

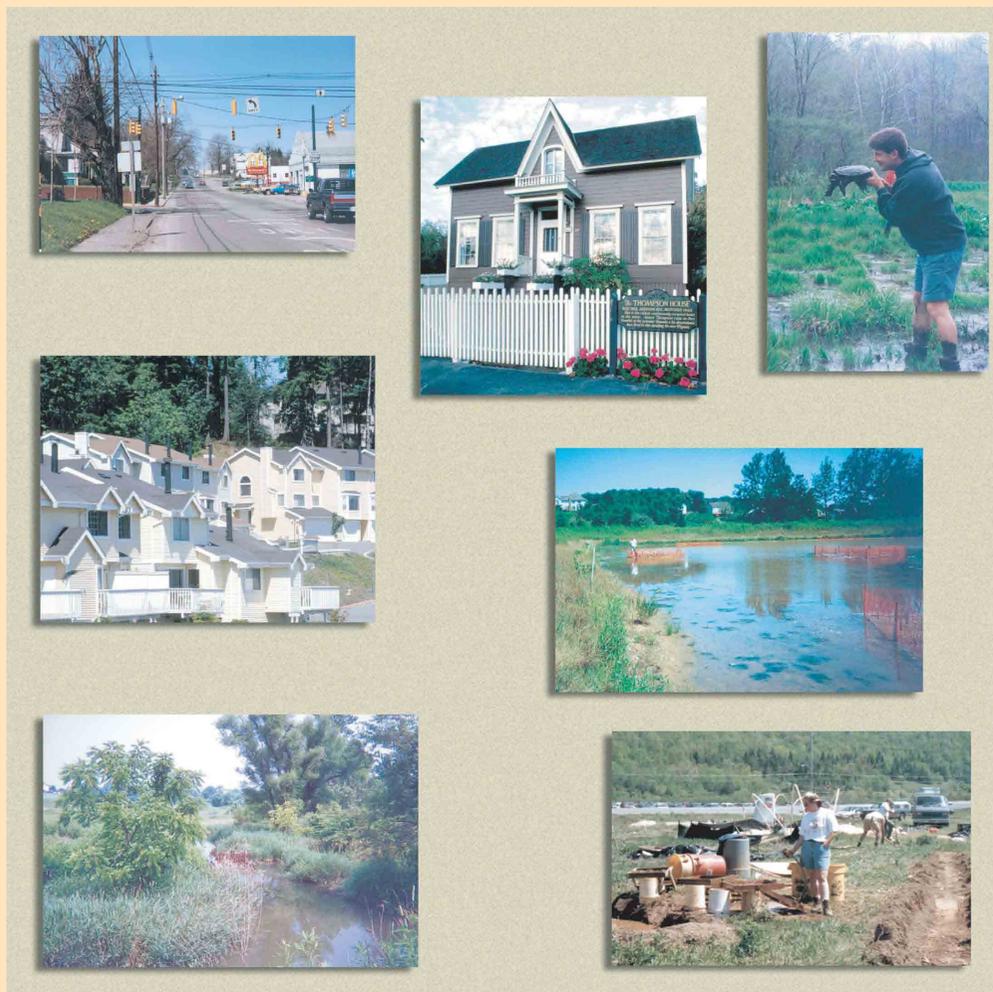
Ensures that actions are not taken to jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of the critical habitat of such species.

### Cultural Environment

- Historic Structures • Archaeological Sites

#### Section 106 of the National Historic Preservation Act

Requires that agencies take into account the effects of a project on properties that are included in or eligible for the National Register of Historic Places.



## Socio-Economic Environment

- Demographics • Community Facilities
- Economic Setting and Land Use • Noise • Air

#### Section 4(f) of the US Department of Transportation Act

Requires that special effort be made to preserve publicly owned public parks and recreation areas, wildlife/waterfowl refuges and historic sites. No project which requires land from these resources may be approved unless 1) there is no feasible and prudent alternative to the use of the land and 2) the action includes all possible planning to minimize harm to the property resulting from such use.

#### Clean Air Act and Clean Air Act Amendments

A microscale air quality analysis must be performed to determine if there are violations of the State or National Ambient Air Quality Standards for carbon monoxide. Also, a conformity analysis must be completed by the Metropolitan Planning Organization to make sure the Transportation Improvement Plan conforms to the State Implementation Plan.

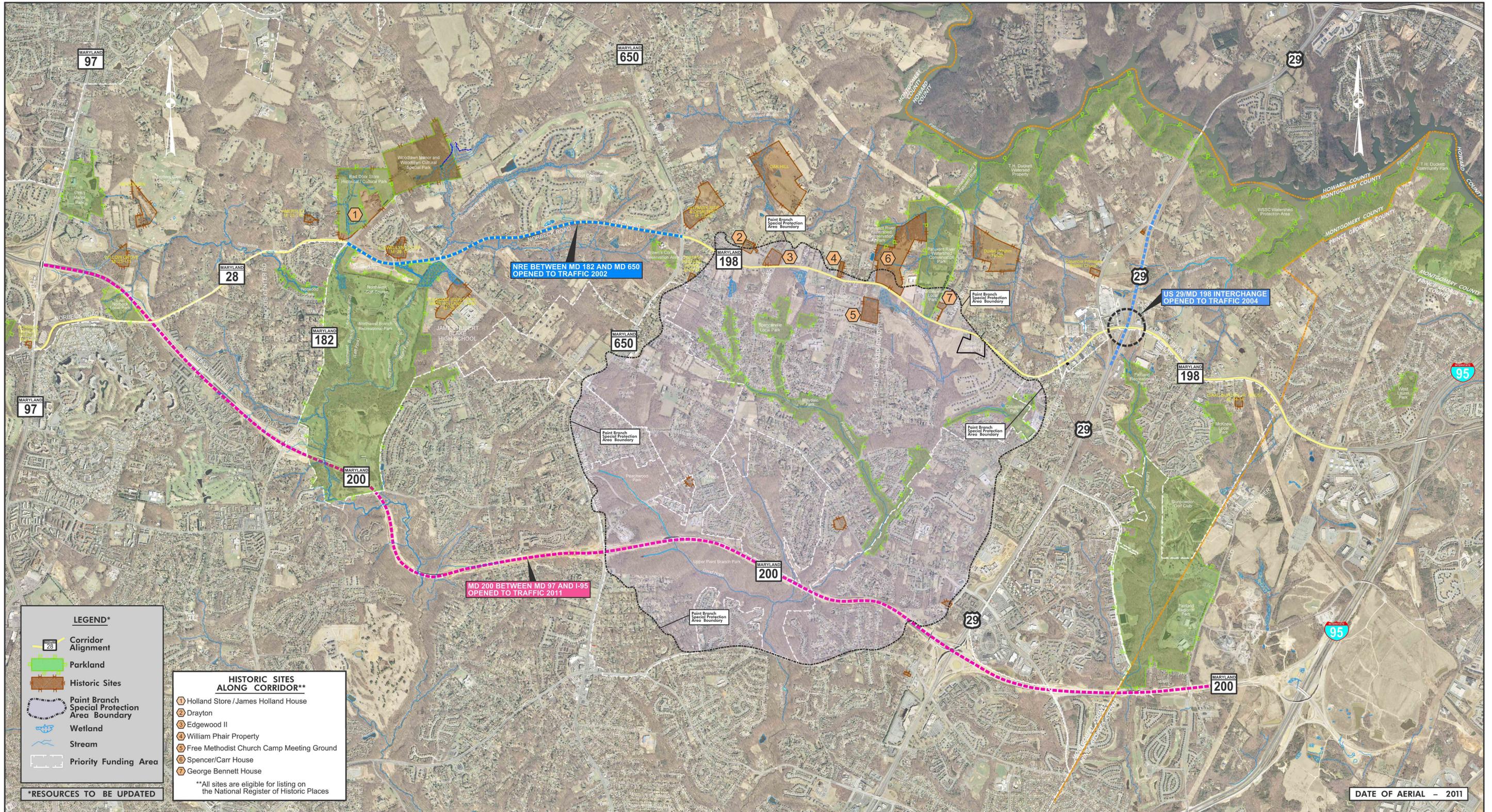
#### Farmland Protection Policy Act

Requires that federal programs minimize conversion of farmland to non-agricultural uses (does not apply to farmland that is zoned or committed (planned) for urban development).

#### Executive Order 12898 (Environmental Justice)

Requires that agencies identify and address disproportionately high and adverse human health or environmental effects on minority or low-income populations.

# STUDY AREA FEATURES



**LEGEND\***

- Corridor Alignment
- Parkland
- Historic Sites
- Point Branch Special Protection Area Boundary
- Wetland
- Stream
- Priority Funding Area

\*RESOURCES TO BE UPDATED

**HISTORIC SITES ALONG CORRIDOR\*\***

- 1 Holland Store / James Holland House
- 2 Drayton
- 3 Edgewood II
- 4 William Phair Property
- 5 Free Methodist Church Camp Meeting Ground
- 6 Spencer/Carr House
- 7 George Bennett House

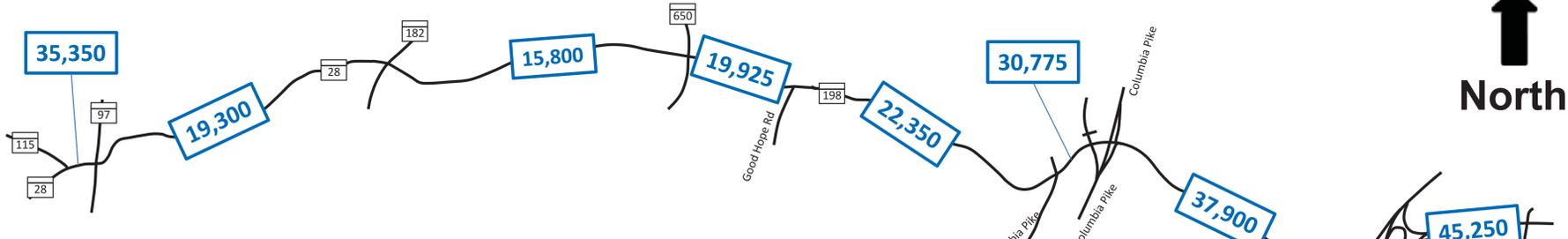
\*\*All sites are eligible for listing on the National Register of Historic Places

# ANNUAL AVERAGE DAILY TRAFFIC / PEAK-HOUR ARTERIAL TRAFFIC OPERATION

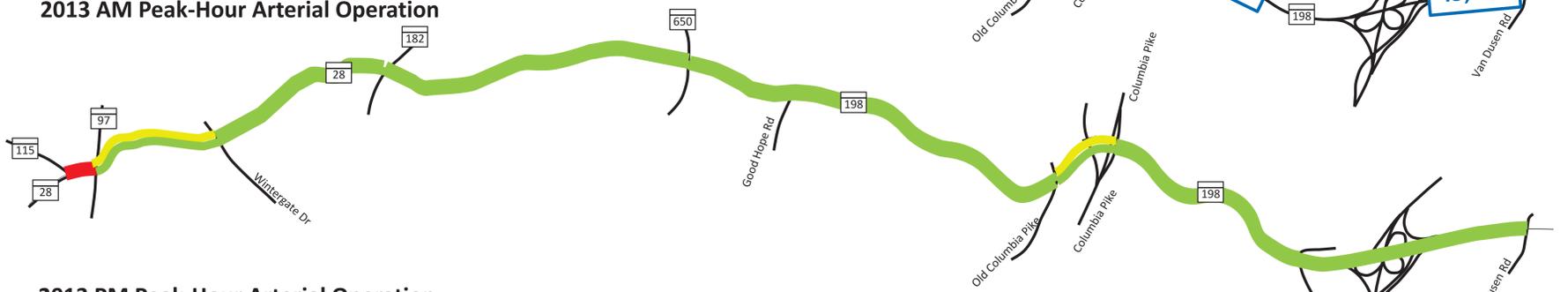
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**28**

MARYLAND  
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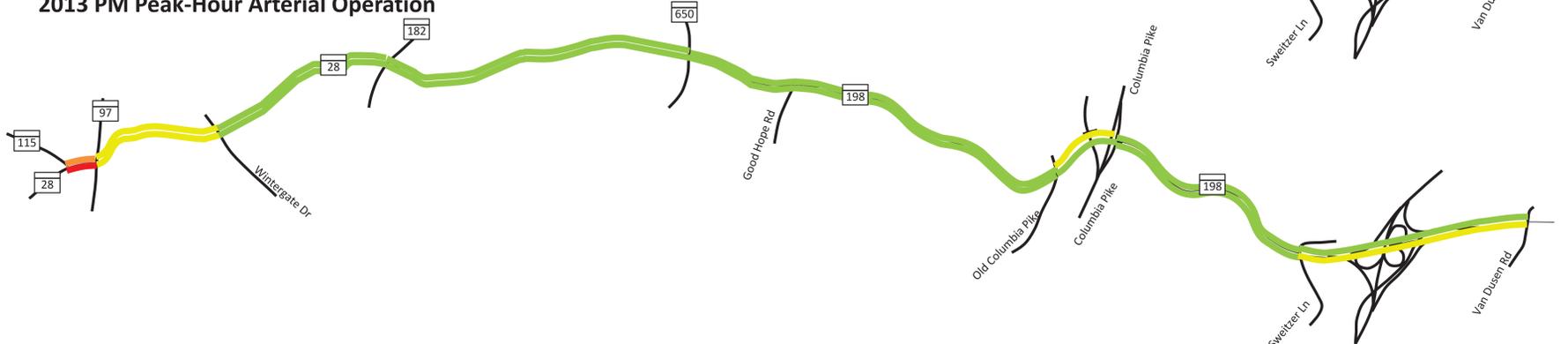
2013 Annual Average Daily Traffic (AADT)



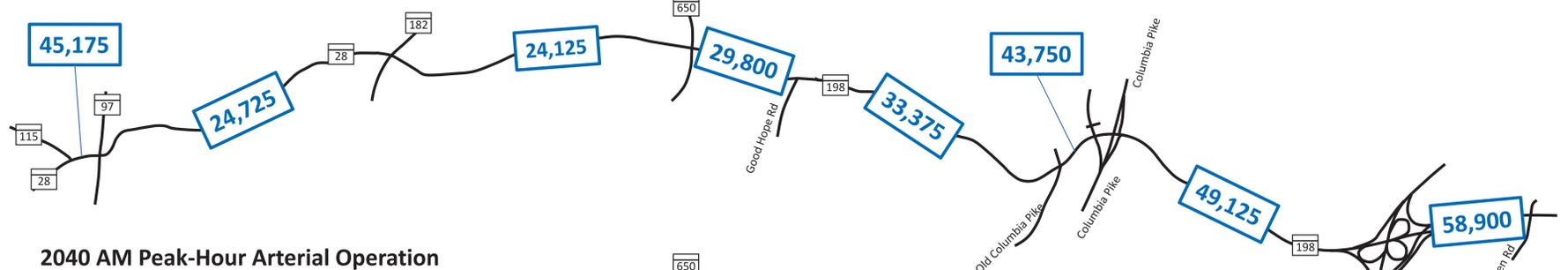
2013 AM Peak-Hour Arterial Operation



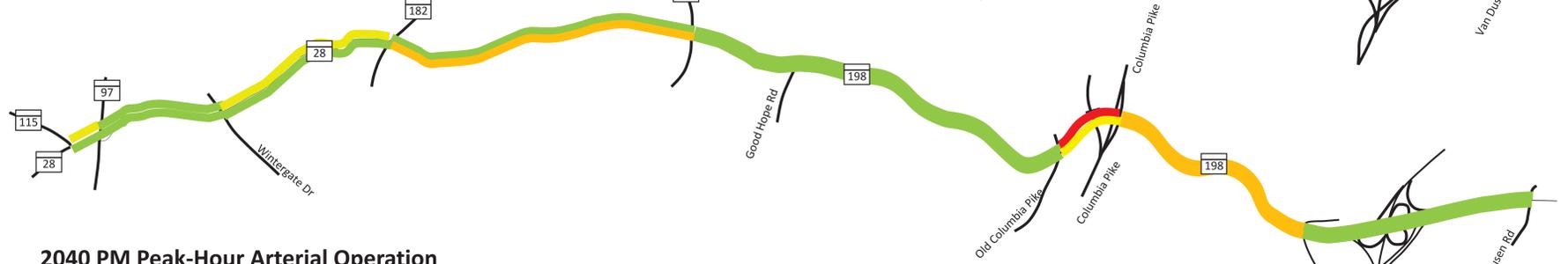
2013 PM Peak-Hour Arterial Operation



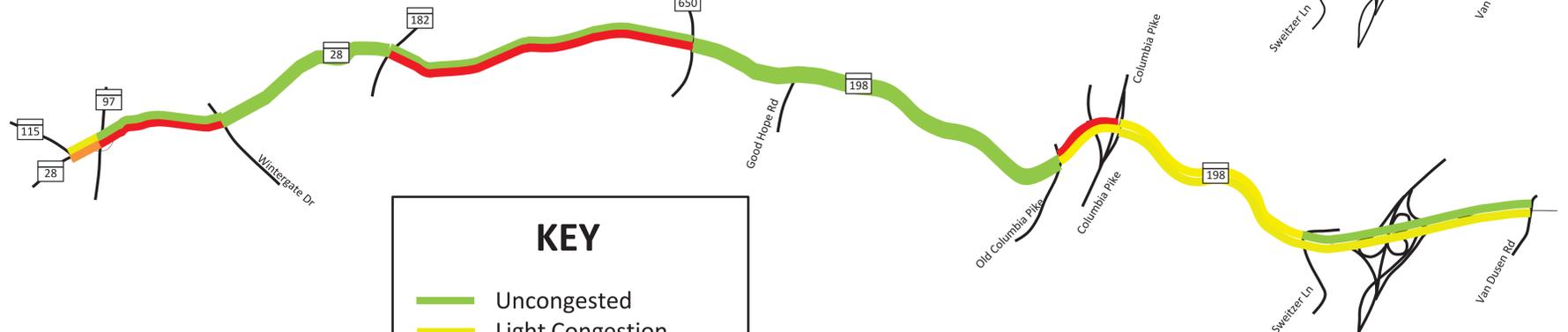
2040 Annual Average Daily Traffic (AADT)



2040 AM Peak-Hour Arterial Operation



2040 PM Peak-Hour Arterial Operation



**KEY**

- Uncongested
- Light Congestion
- Moderate Congestion
- Heavy Congestion

Not Drawn to Scale

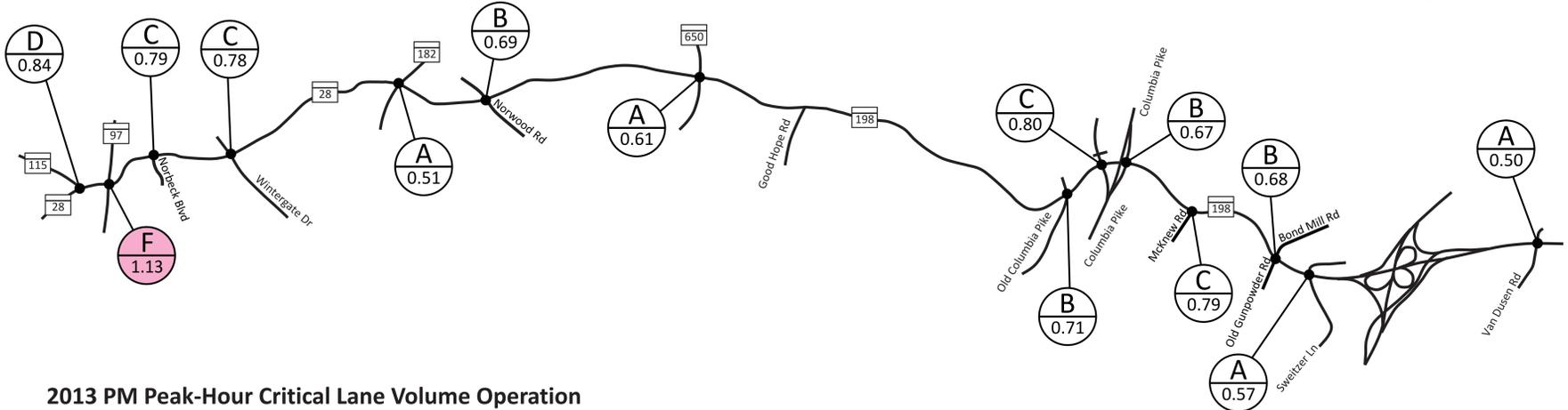
# EXISTING AND PROJECTED CRITICAL LANE VOLUME OPERATION

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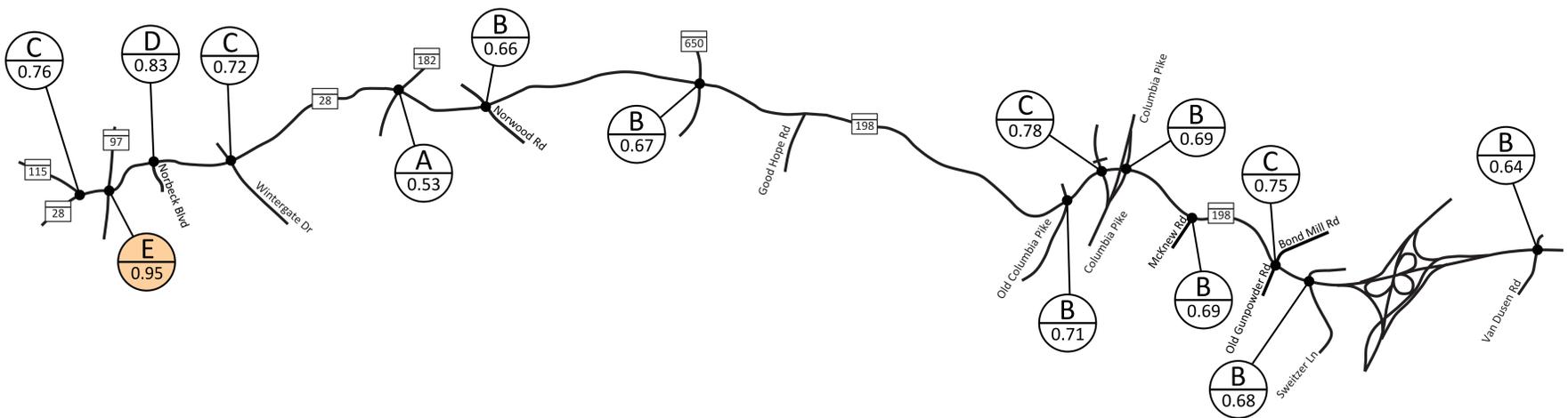
MARYLAND  
**198**



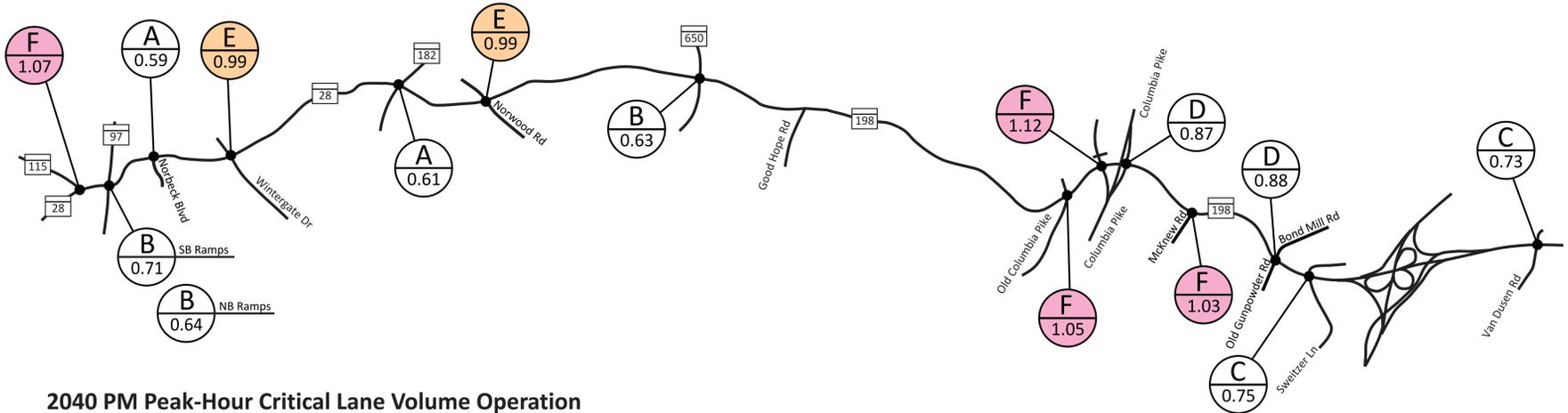
2013 AM Peak-Hour Critical Lane Volume Operation



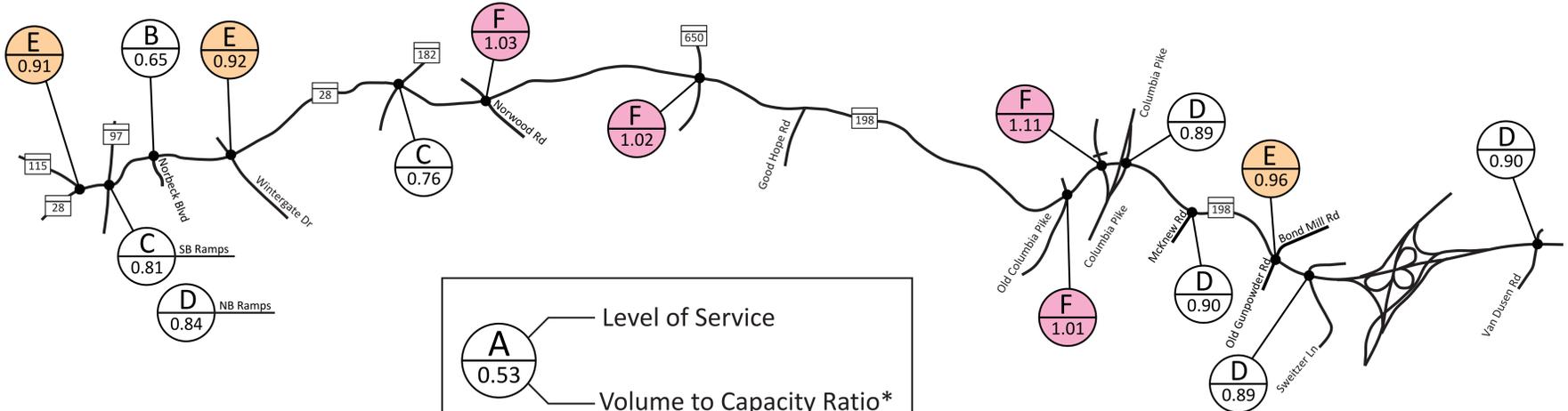
2013 PM Peak-Hour Critical Lane Volume Operation



2040 AM Peak-Hour Critical Lane Volume Operation



2040 PM Peak-Hour Critical Lane Volume Operation



Level of Service

Volume to Capacity Ratio\*

Not Drawn to Scale

\* Volume to Capacity Ratio: A comparison of the number of vehicles on a roadway segment to the maximum number of vehicles that segment can accommodate

# SAFETY SUMMARY

January 1, 2010 through December 31, 2012

Crash Type	MD 97 to MD 182	MD 650 to Santini Road	Santini Road to US 29	US 29 to County Line	County Line to Van Dusen Road
Opposite Direction			Higher than the statewide average crash rate for similar types of highways		
Sideswipe	Higher than the statewide average crash rate for similar types of highways				
Left Turn	Higher than the statewide average crash rate for similar types of highways		Significantly higher than the statewide average crash rate for similar types of highways		
Angle			Significantly higher than the statewide average crash rate for similar types of highways		
Fixed Object			Higher than the statewide average crash rate for similar types of highways		Higher than the statewide average crash rate for similar types of highways
Other Collision	Significantly higher than the statewide average crash rate for similar types of highways	Significantly higher than the statewide average crash rate for similar types of highways		Higher than the statewide average crash rate for similar types of highways	Significantly higher than the statewide average crash rate for similar types of highways
Truck Related	Significantly higher than the statewide average crash rate for similar types of highways		Higher than the statewide average crash rate for similar types of highways		Higher than the statewide average crash rate for similar types of highways

Significantly higher than the statewide average crash rate for similar types of highways

Higher than the statewide average crash rate for similar types of highways

\* The major crash types reported are: opposite direction, rear end, sideswipe, left turn, angle, pedestrian, parked vehicle, fixed object, truck related, and other crashes.

Other is a catchall category that includes crashes not among the major crash types (i.e., u-turns, overturned vehicles, etc.).

\*\* Norbeck Road Extended is not part of the SHA roadway system

# CONCEPTUAL CORRIDOR IMPROVEMENT FEATURES

## TOWN CENTER



TWO-WAY CENTER TURN LANE



MEDIAN BARRIER

## OPERATIONAL IMPROVEMENTS



ADDITIONAL THROUGH LANES



TURN LANES

## TRANSIT



SHELTERS



PULL-OFFS

# CONCEPTUAL CORRIDOR IMPROVEMENT FEATURES

## ROUNDBABOUTS

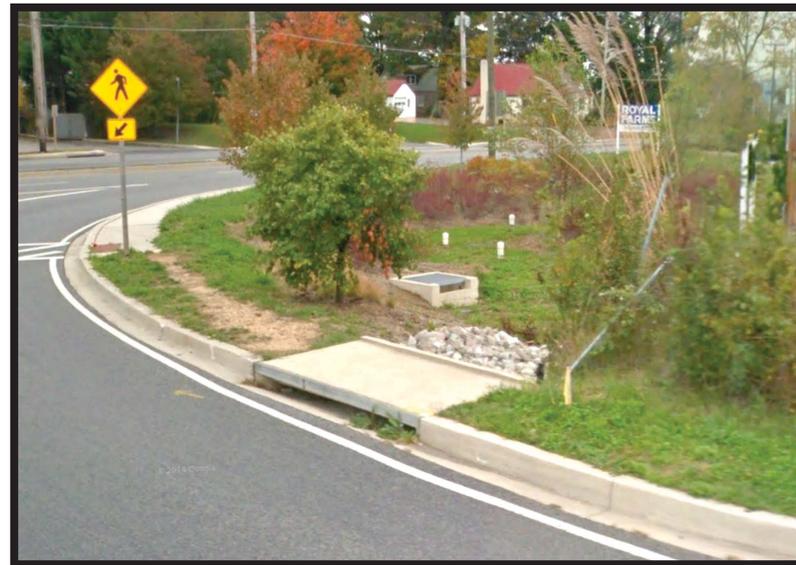


SINGLE LANE



DOUBLE LANE

## STORM RUNOFF TREATMENTS



PASS-THROUGH INLET



BIO SWALE

## MEDIAN TREATMENTS



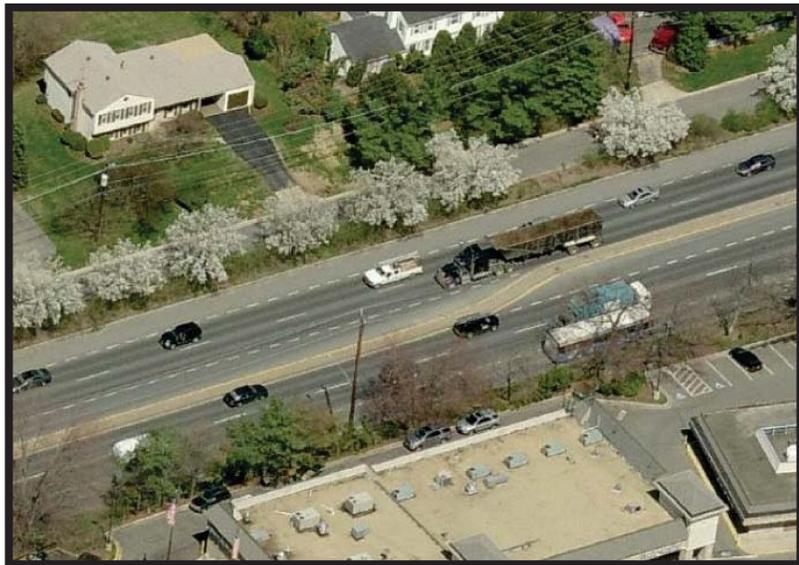
DIVIDED WITH LANDSCAPING



TWO-WAY CENTER TURN LANE

# CONCEPTUAL CORRIDOR IMPROVEMENT FEATURES

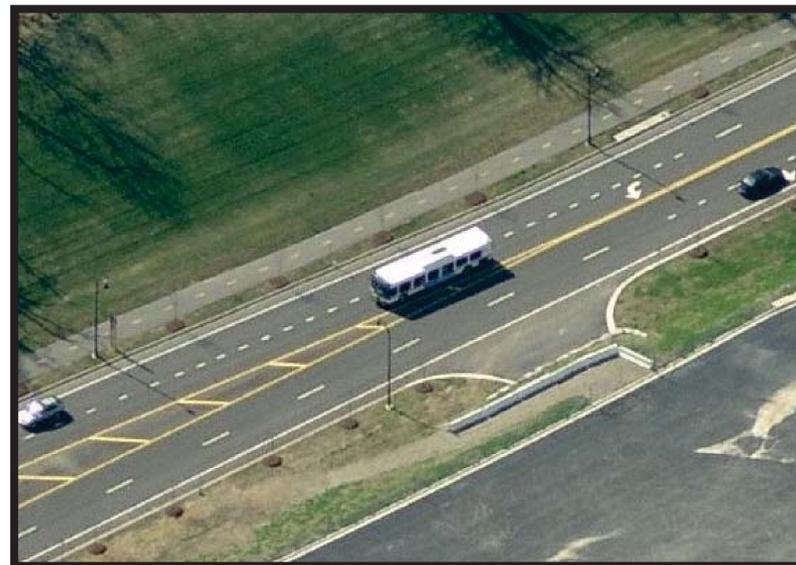
## FRONTAGE ROADS



## SHARED-USE PATHS



TWO-LANE ROADWAY



FOUR-LANE ROADWAY

## ON-ROAD BIKE FACILITIES



TWO-LANE ROADWAY



FOUR-LANE ROADWAY

# AS VEHICLE OPERATORS ON MARYLAND ROADS BICYCLISTS HAVE RIGHTS AND RESPONSIBILITIES

**It's the law:**  
 Section 21-1202 Annotated Code of Maryland

**It's MDOT Policy:**  
 Twenty-Year Bicycle and Pedestrian Access Master Plan

"Vehicle" means any device in, on, or by which any individual or property is or might be transported or towed on a highway.  
*Annotated Code of Maryland*

**As part of roadway construction projects, SHA provides on-road features like these:**



wide outside lane for bicycle compatibility



minimum four-foot-wide shoulder



bicycle lane/pocket  
 bike lane markings



bicycle signage

**And off-road features like:**



shared-use path (hiker/biker trail)



**Bicycles provide a valuable transportation option for many people and will help Maryland meet our state's long-term transportation needs.**

# BICYCLE FAQ

## Why are bicyclists allowed on the road?

Bicyclists are vehicle drivers, too. By law, “vehicle” means “any device in, on, or by which any individual or property is or might be transported or towed on a highway.” (Section 11-176, Annotated Code of Maryland) Every person operating a bicycle in a public area has all the rights granted to and is subject to all the duties required of the driver of a vehicle. (Section 21-1202, Annotated Code of Maryland)

## Why are bicyclists allowed to ride next to cars that are going fast?

Bicyclists are prohibited on roadways with a posted maximum speed greater than 50 mph unless a continuous paved shoulder or bicycle lane is provided. In addition, a person may not ride a bicycle on an expressway or on any controlled-access highway with signs stating that bicycles are prohibited.

## There’s a hiker/biker trail right next to the road. Shouldn’t bicyclists be riding there?:

Maryland law requires SHA to include bicycle accommodations in roadway construction projects whenever appropriate and feasible. That’s because not everyone who rides a bicycle does so for the same purpose. Hiker/biker trails are shared-use paths suitable for joggers, pedestrians, dog-walkers, children, babies in strollers, inexperienced or recreational cyclists, and others who enjoy exercising and spending time outdoors. Individuals who use a bicycle as their primary means of transportation may find that on-road bicycle accommodations better suit their needs. By removing themselves from the “mix” of hiker/biker trail-users, on-road bicyclists can reach their destinations more efficiently and lessen the risk that trail-users will find themselves in the path of bicyclists focused on getting from Point A to Point B as quickly as possible.

## Shouldn’t bicyclists ride on sidewalks?

The law allows bicyclists to ride on sidewalks only in Montgomery County. Not permitting bicycles on sidewalks minimizes conflicts between bicyclists and pedestrians.

## Isn’t it a law that bicyclists have to wear a helmet?

In Maryland, everyone under age 16 is required to wear a helmet when riding a bicycle on public property. Some local jurisdictions have requirements for helmet use that are tougher than State law. Wearing a helmet is a good safety measure for everyone who rides a bike: 85 percent of head and brain injuries resulting from bicycle crashes could be prevented if riders wore bicycle safety helmets.

## Every day as I drive downtown I see bicyclists and motorists behaving in rude and dangerous ways. Whatever happened to common courtesy?

Motorists and bicyclists who share the road—especially in heavily traveled urban and suburban areas—need to look out for one another. Motorists should leave at least three feet between their vehicles and any bicycles they pass, and bicyclists should leave at least three feet between themselves and parked cars. By law, bicycles are vehicles: motorists should treat them as such, and bicyclists should obey all traffic laws, including those that govern left- and right-turns, lights and stop signs, right-of-way, and proper lane position.

**I bike—where can I get more information on bicycling in Maryland?**

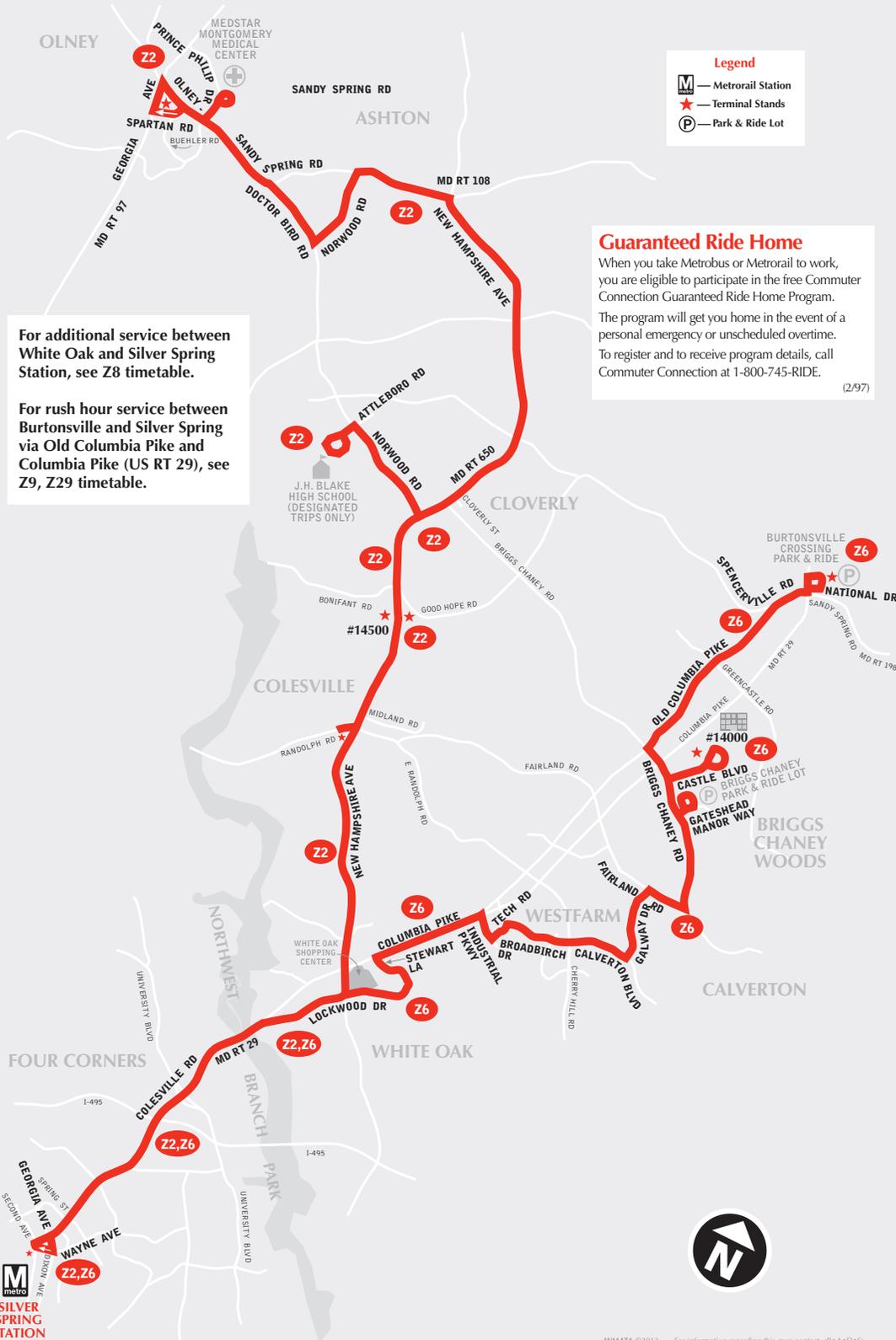
Additional information is available on SHA’s website at [www.marylandroads.com](http://www.marylandroads.com), click on Bicycling under EXPLORE MD, or by telephone at 1-888-204-4828.

Handout materials are also available at the bicycling station during today’s meeting.

# Z2 Colesville-Ashton Line

# Z6 Calverton-Westfarm Line

For route and schedule information  
**Call 202-637-7000**  
[www.wmata.com](http://www.wmata.com)



WMATA 02013 For information regarding this map contact <R+A+D+S>

# Z9, Z29

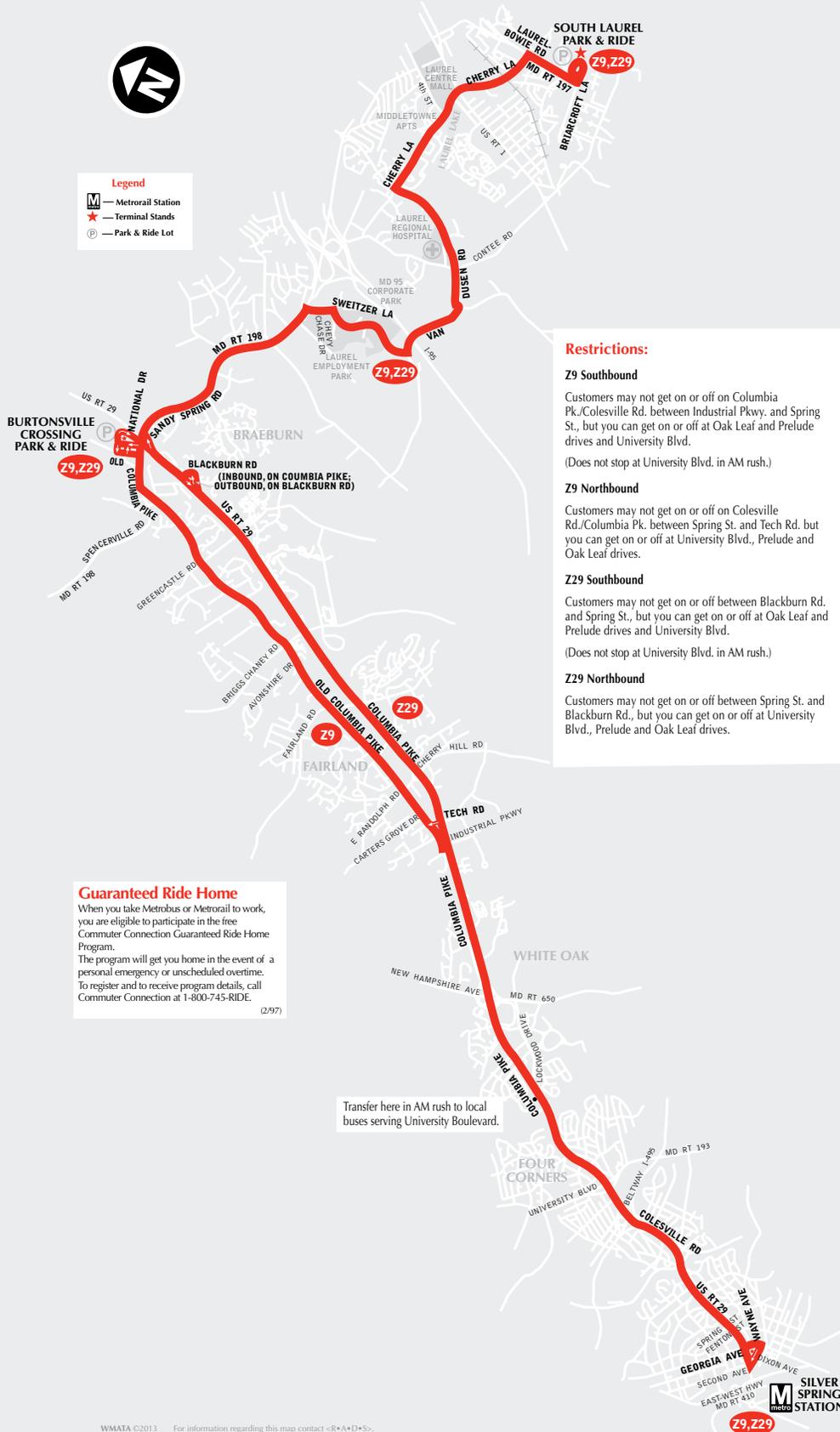
## Laurel - Burtonsville Express Line

For route and schedule information  
 Call 202-637-7000  
 www.wmata.com



**Legend**

- Metrorail Station
- Terminal Stands
- Park & Ride Lot



**Restrictions:**

**Z9 Southbound**

Customers may not get on or off on Columbia Pk./Colesville Rd. between Industrial Pkwy. and Spring St., but you can get on or off at Oak Leaf and Prelude drives and University Blvd.  
 (Does not stop at University Blvd. in AM rush.)

**Z9 Northbound**

Customers may not get on or off on Colesville Rd./Columbia Pk. between Spring St. and Tech Rd. but you can get on or off at University Blvd., Prelude and Oak Leaf drives.

**Z29 Southbound**

Customers may not get on or off between Blackburn Rd. and Spring St., but you can get on or off at Oak Leaf and Prelude drives and University Blvd.  
 (Does not stop at University Blvd. in AM rush.)

**Z29 Northbound**

Customers may not get on or off between Spring St. and Blackburn Rd., but you can get on or off at University Blvd., Prelude and Oak Leaf drives.

**Guaranteed Ride Home**

When you take Metrobus or Metrorail to work, you are eligible to participate in the free Commuter Connection Guaranteed Ride Home Program. The program will get you home in the event of a personal emergency or unscheduled overtime. To register and to receive program details, call Commuter Connection at 1-800-745-RIDE. (2/97)

Transfer here in AM rush to local buses serving University Boulevard.

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