



Montgomery Planning Shady Grove Minor Master Plan Amendment

Transportation and Land Use Alternatives

June 26, 2019

Town of Washington Grove, McCathran Hall



Tonight's Agenda

- Zoning and Land Use alternatives
- Transportation analysis and context
- Assumptions (CLRP etc.)
- Local Area Transportation Review (LATR) Analysis
- Standards: HCM and Vissim
- Existing and future conditions
- Next Steps



Prior Meetings

- November 14, 2018: Open House
- May 20, 2019: Existing Transportation Conditions



Project Purpose

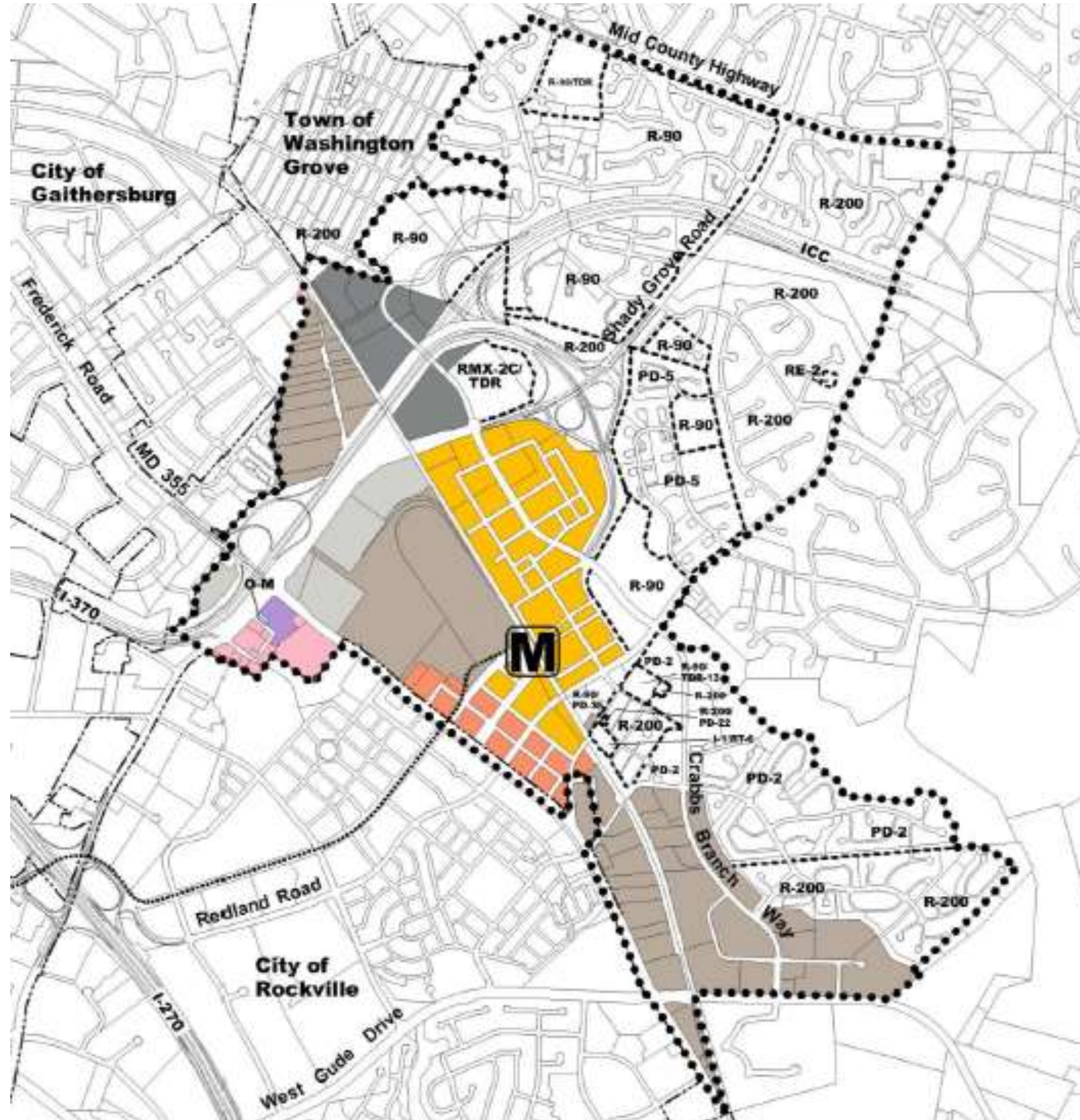
Questions Minor Master Plan Amendment Process Should Answer:

1. Are the proposed staging interchanges necessary, feasible, and realistic?
2. Have the 2006 Plan’s transportation recommendations kept pace with best practices and new policy, such as:
 1. Bus Rapid Transit Planning
 2. Vision Zero
 3. Bicycle Master Plan

Staging Sequence: Relocation of the County Service Park

Stage 1 2,540 dus 40% 1,570 jobs 22%		Stage 2 3,540 dus 55% 2,650 jobs 40%		Stage 3 – Remaining Density 6,340 dus 7,000 jobs	
Before Stage 1		Before Stage 2		Before Stage 3	
<ul style="list-style-type: none">• Adopt zoning and sectional map amendments• Establish TMD		<ul style="list-style-type: none">• Evaluate need for new school and ask MCPS to program accordingly• Fund/dedicate one park• Evaluate TMAgs and intersections for conformance to standards• Fund Metro Access Partial Interchange• Fund MD 355/Gude Drive interchange or other improvements to achieve acceptable service level• Planning Board finding to proceed to Stage 2		<ul style="list-style-type: none">• Fund library• Construct elementary school unless MCPS has alternative means to serve children• Fund construction of second local park• Review all public facilities and determine whether any changes to the Plan are required• Fund Redland Road and Crabbs Branch Way roadway improvements• Fund pedestrian underpass• Fund area-wide pedestrian and bikeways• Planning Board finding to proceed to Stage 3	
				Build-out	

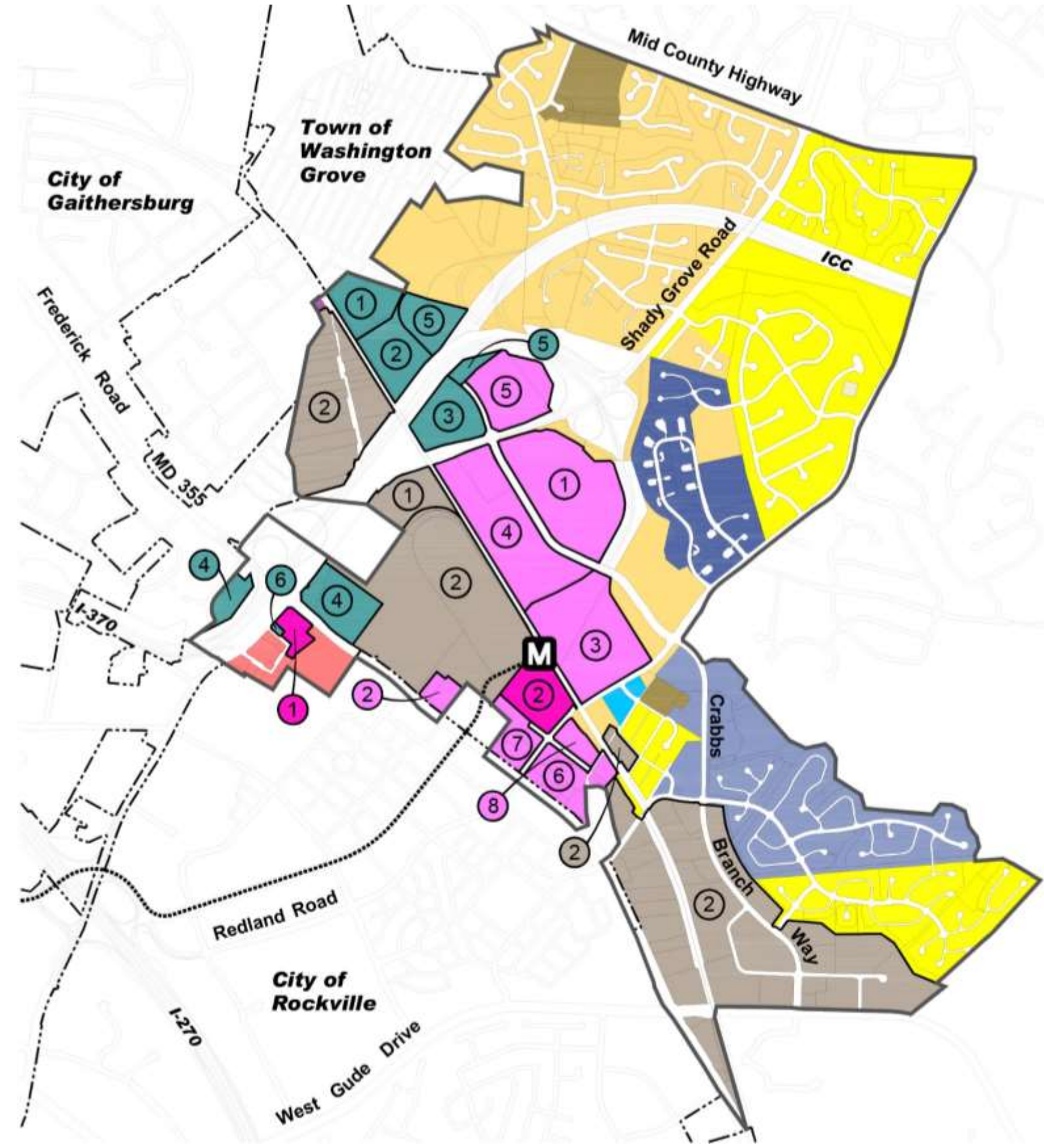
2006 Zoning



- New zones for properties surrounding the Metro Station, including the County Service Park (CSP).
- New zone for the Grove Shopping Center.
- Industrial zones for the Crabbs Branch Way office park, MD 355 automotive corridor, Oakmont industrial and vacant properties west of the Grove Shopping Center.

RE-2	Residential, Single-Family	PD-13	Proposed Planned Development	O-M	Office Building, Moderate Intensity
R-200	Residential, Single-Family	PD-15	Proposed Planned Development	C-3	Convenience Commercial
R-90	Residential, Single-Family	PD-22	Proposed Planned Development	I-1	Light Industrial
R-90/TDR	Residential, Transferable Development Rights	PD-35	Proposed Planned Development	I-3	Proposed Industrial Park
RT-6	Residential, Townhouse	TOMX	Transit Oriented Mixed-Use	R&D	Proposed Research & Development
PD-2	Planned Development	TOMX/TDR	Transit Oriented Mixed-Use		
PD-5	Planned Development	RMX-2C	Mixed-Use, Commercial		
PD-5	Planned Development	TS-M	Transit Station, Mixed-Use		
					----- Zoning Boundary Lines

2014 Zoning



- Approved by the Council in 2014, the District Map Amendment (DMA) changed the prior zoning for properties surrounding the Metro Station as well as Crabbs Branch Way office park; Oakmont Avenue industrial area; as well as the MD 355 automotive corridor.
- Single-family residential zoned areas (R-90 and R-200) were retained.
- Future changes for the Planned Development (PD) zoned areas.

— Shady Grove Sector Plan Boundary	EOF Employment Office	② CRT 0.75, CO-0.75, R-0.25, H-50' T
- - - City of Gaithersburg, City of Rockville, Town of Washington Grove	① EOF 0.5, H-45'	③ CRT 1.0, CO-0.25, R-0.75, H-70' T/ TDR 0.88
..... Proposed Corridor Cities Transitway	② EOF 0.5, H-50'	④ CRT 1.0, CO-0.25, R-0.75, H-90' T/ TDR 0.89
M Shady Grove Metro Station	③ EOF 0.75, H-60' T	⑤ CRT 1.0, CO-0.5, R-0.5, H-65' T
RE-2 Residential, Single-Family	④ EOF 0.75, H-100'	⑥ CRT 1.5, CO-0.5, R-1.25, H-90' T
R-200 Residential, Single-Family	⑤ EOF 0.75, H-100' T	⑦ CRT 1.5, CO-0.5, R-1.25, H-100' T
R-90 Residential, Single-Family	⑥ EOF 1.5, H-60'	⑧ CRT 1.75, CO-0.5, R-1.5, H-90' T/ TDR 1.77
R-90/ TDR Residential, Transferable Development Rights	CR Commercial Residential	GR General Retail
PD-2 Planned Development	① CR 0.75, CO-0.75, R-0.25, H-80' T	GR 1.5, H-45'
PD-5 Planned Development	② CR 1.75, CO-0.5, R-1.5, H-160' T/ TDR 1.77	I-M Industrial Medium
PD-35 Proposed Planned Development	CRN Commercial Residential Neighborhood	① IM 0.5, H-75'
	CRN 0.5, CO-0.5, R-0.25, H-35'	② IM 2.5, H-50'
	CRT Commercial Residential Town	
	① CRT 0.75, CO-0.25, R-0.5, H-60' T/ TDR 0.6	



New Mixed-Use Zones

- **Commercial-Residential Zone (CR):** Intended for larger downtown, mixed-use and pedestrian oriented areas in proximity to transit options such as Metro, light rail and bus.
- **Commercial Residential Town (CRT):** Intended for small downtown, mixed-use, pedestrian-oriented centers and edges of larger, more intense downtowns.
- **Commercial Residential Neighborhood (CRN):** Intended for pedestrian-scale, neighborhood-serving mixed use centers and transitional edges.
- **Employment Office (EOF):** Intended for office and employment activity combined with limited residential and neighborhood commercial uses.

CR Zones

CRT 2.0, C 1.0, R 1.5, H 60

CRT sets the uses and some requirements

2.0 means the building floor ratio (FAR) is a maximum of two times the size of the lot

C 1.0 is the maximum commercial FAR within the total 2.0 FAR

R 1.5 is the maximum residential floor area within the total 2.0 FAR

H 60 is the maximum building height—60 feet

Zoning Types and Procedures

Euclidean/Base Zone: These zones are applied after the Master Plan is approved via the Sectional Map Amendment (SMA) process.

- Existing examples: Single-family residential (R-90, R-200) and mixed-use zones (CR and CRT).

Floating Zone: A flexible zone that is used for a designated purpose, but whose location is to be determined in the future as part of a Local Map Amendment (LMA).

- Examples: Planned Development (PD)
 - Park Overlook and Derwood Station (PD-2)

Methods of Development: Standard and Optional

Standard Method: Specific development

The Optional Method: Must provide public benefits from at least the number of benefit categories and for at least the minimum number of points.



New Mixed-Use Zones: Public Benefits

Major Public Facilities	
Transit Proximity	
Connectivity and Mobility	
Advance Dedication	Transit Access Improvement
Minimum Parking	Streetscape Improvement
Neighborhood Services	Trip Mitigation
Public Parking	Way Finding
Through-Block Connection	
Diversity of Uses and Activities	
Adaptive Buildings	Live/Work
Care Centers	Moderately Priced Dwelling Units
Dwelling Unit Mix	Small Business Opportunities
Enhanced Accessibility for the Disabled	
Quality of Buildings and Site Design	
Architectural Elevations	Public Open Space
Exceptional Design	Structured Parking
Historic Resource Protection	Tower Step-Back
Public Art	
Protection and Enhancement of the Natural Environment	
Building Lot Terminations	Transferable Development Rights
Cool Roof	Tree Canopy
Energy Conservation and Generation	Vegetated Area
Habitat Preservation and Restoration	Vegetated Roof
Recycling Facility Plan	Vegetated Wall
Building Reuse	

Zone	Tract Size or Maximum Total FAR	Public Benefit Points (Min)	Number of Public Benefit Categories
CRT	<10,000 sq.ft. or <1.5 Max FAR	25	2
	>10,000 sq.ft. or >1.5 Max FAR	50	3
CR	<10,000 sq.ft or < 1.5 Max FAR	50	3
	>10,000 sq.ft. or >1.5 FAR	100	4

Land Use Alternatives



Existing	Residential	Non-Residential
	3, 289 dwelling units	4.68 million sq.ft

Scenarios	Residential	Non-Residential
Sector Plan Buildout	5,451 dwelling units	1.69 million sq.ft
Alternative No. 1	6, 269 dwelling units	2.13 million sq.ft.

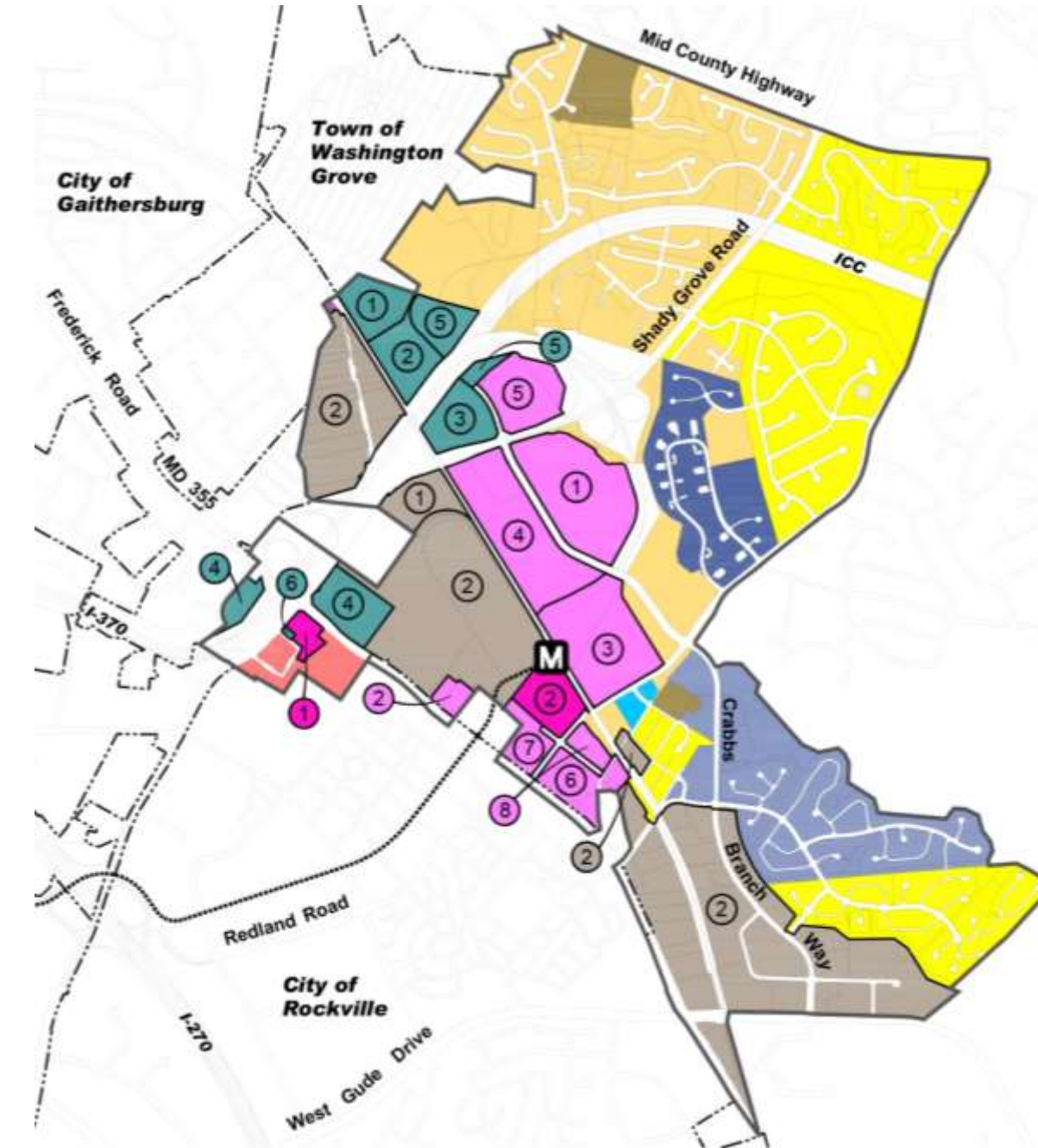
Land Use Alternatives

Purpose: To establish what are the capacities for the transportation network and public schools impact.

- Long-term in nature (2040)

Analysis:

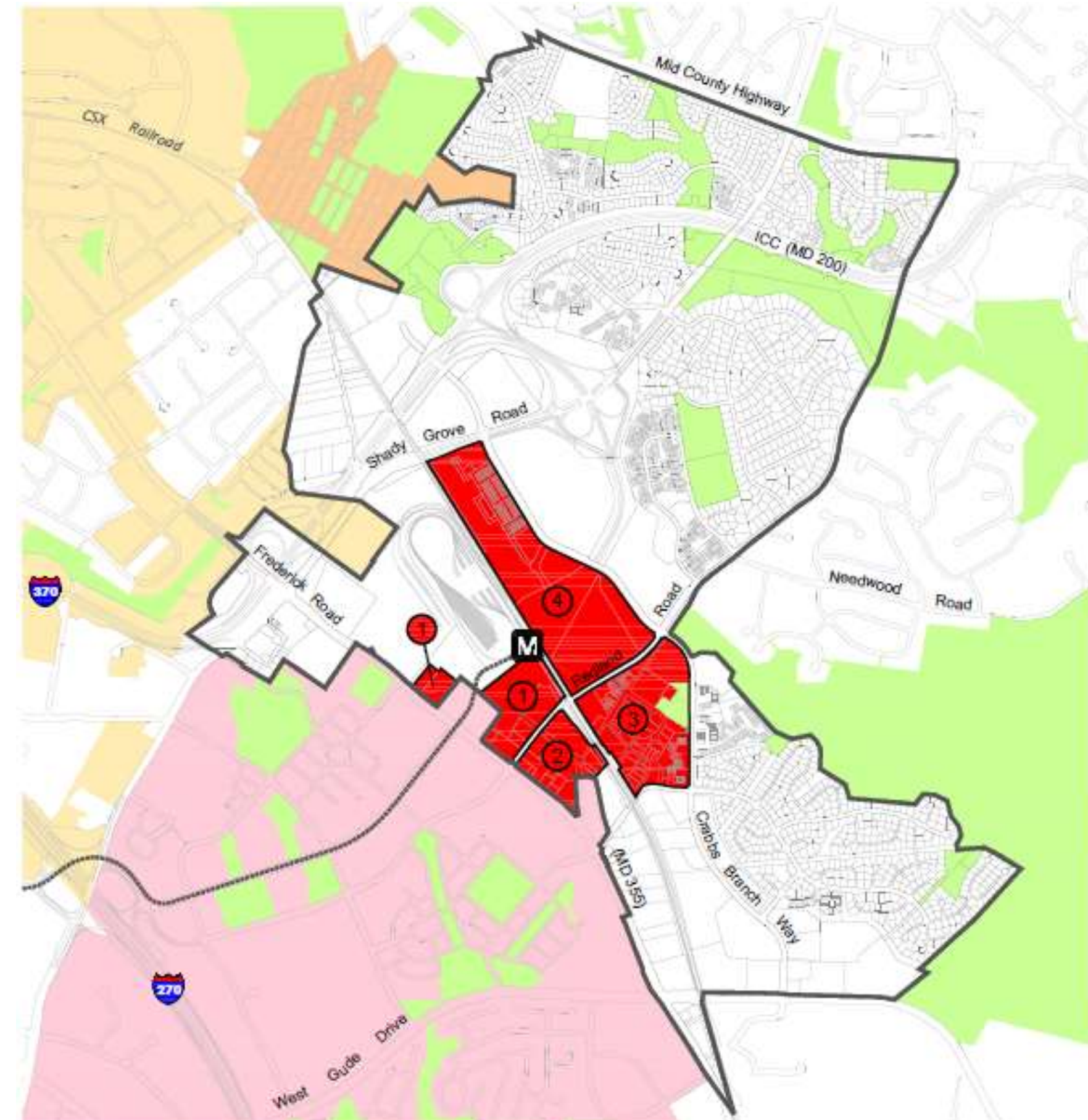
- Neighborhood by neighborhood
- Existing zoning
- New zones, such as the Commercial Residential (CR) and Employment Office (EOF), do add complexity.
- Approved or Pipeline Development
 - Shady Grove Station and Townes at Shady Grove



Results:

- Estimates or forecasts; not recommendations

Land Use Alternatives



Alternative 1

- Increases development, up to 2 FAR for most of the properties in the Metro North and Metro South neighborhoods.
 - 1.5 FAR for the WAMTA East and the Grove Shopping Center
- Land use mix is primarily residential (70%); non-residential is lower.
- Retains Shady Grove Station redevelopment approval.
- Retains existing residential communities; office and industrial parks; and MD 355 automotive corridor.



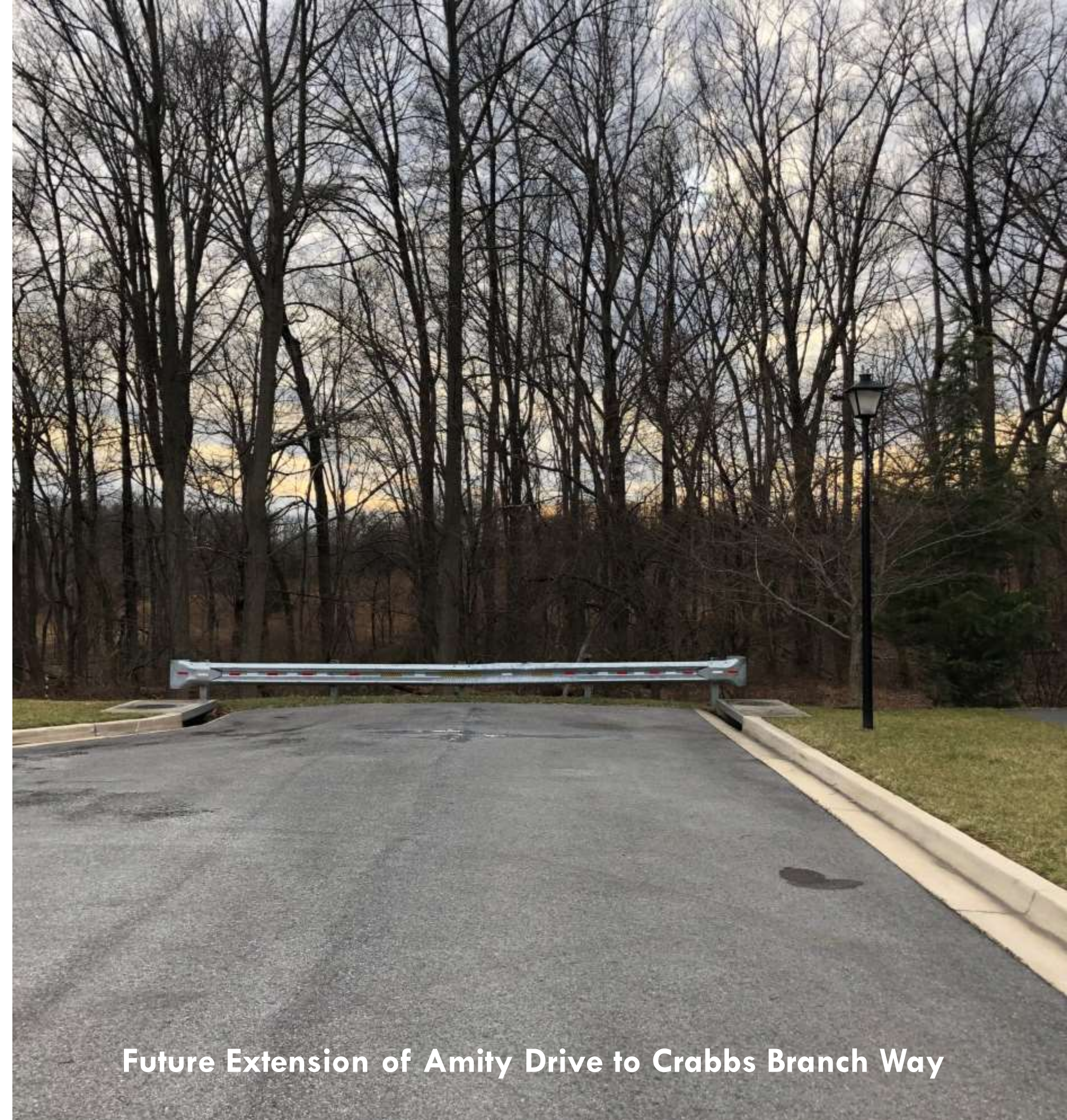
Transportation Review Process for Master Plans

- Build year for Plan Amendment is 2040
- Synchro Delay model generates County assessment “Standard”
- VISSIM not typically used
 - Employed for Plan Amendment to assess BRT operations along MD 355



2040 Modeling Assumptions

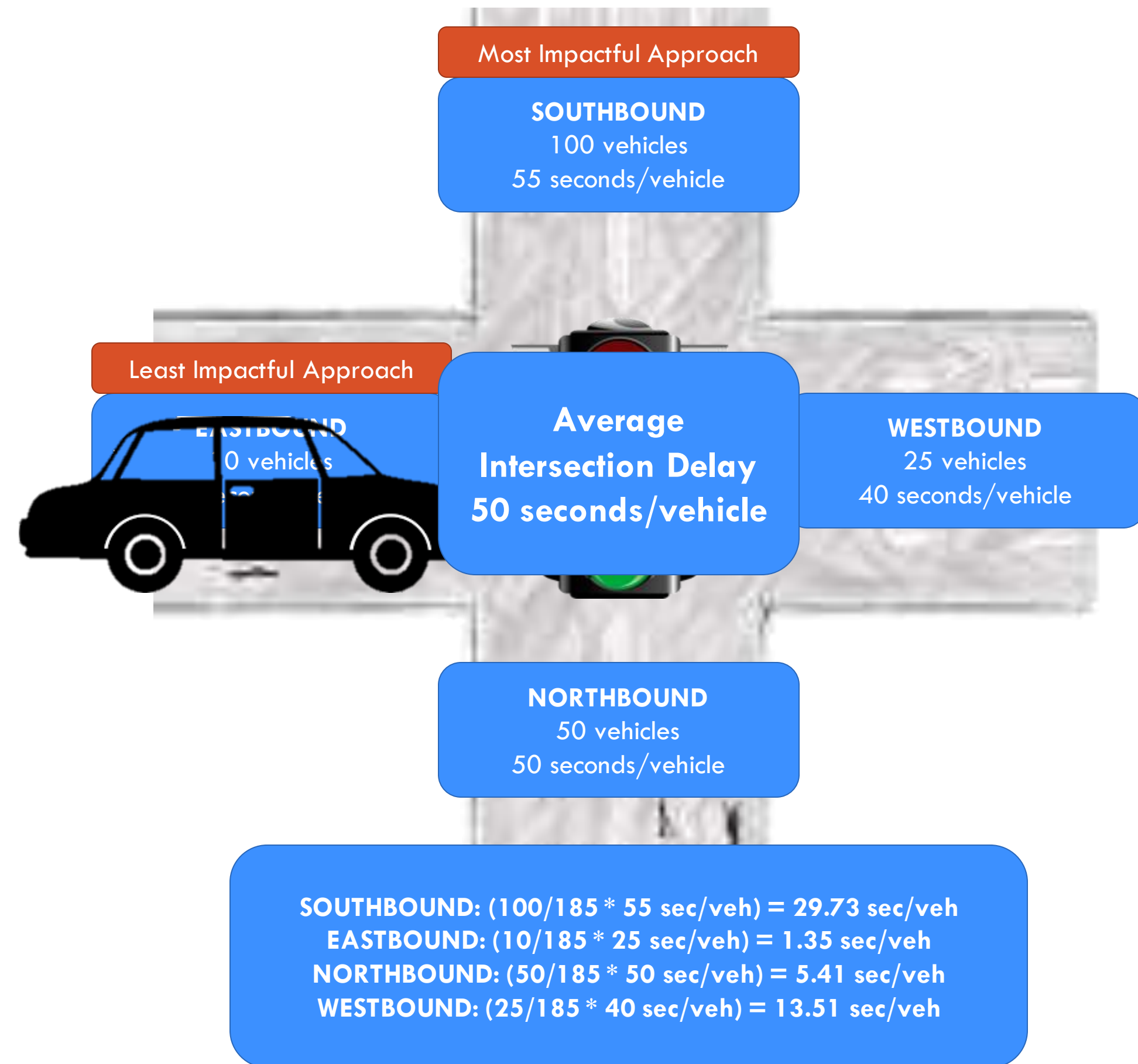
- Growth in all County Planning Areas per Regional Forecast; additional growth in recently approved Planning Areas
- Completion of county projects shown within Regional Constrained Long Range Plan
 - Buildout of all BRT lines
 - I-270 assumes two additional toll lanes (not High-Occupancy Toll lanes)
 - Does not assume I-270/Gude HOT/toll lane interchange
- Does not assume interchange at MD 355 and Gude Drive
- Completion of Crabbs Branch Way – Amity Drive Connection



Future Extension of Amity Drive to Crabbs Branch Way

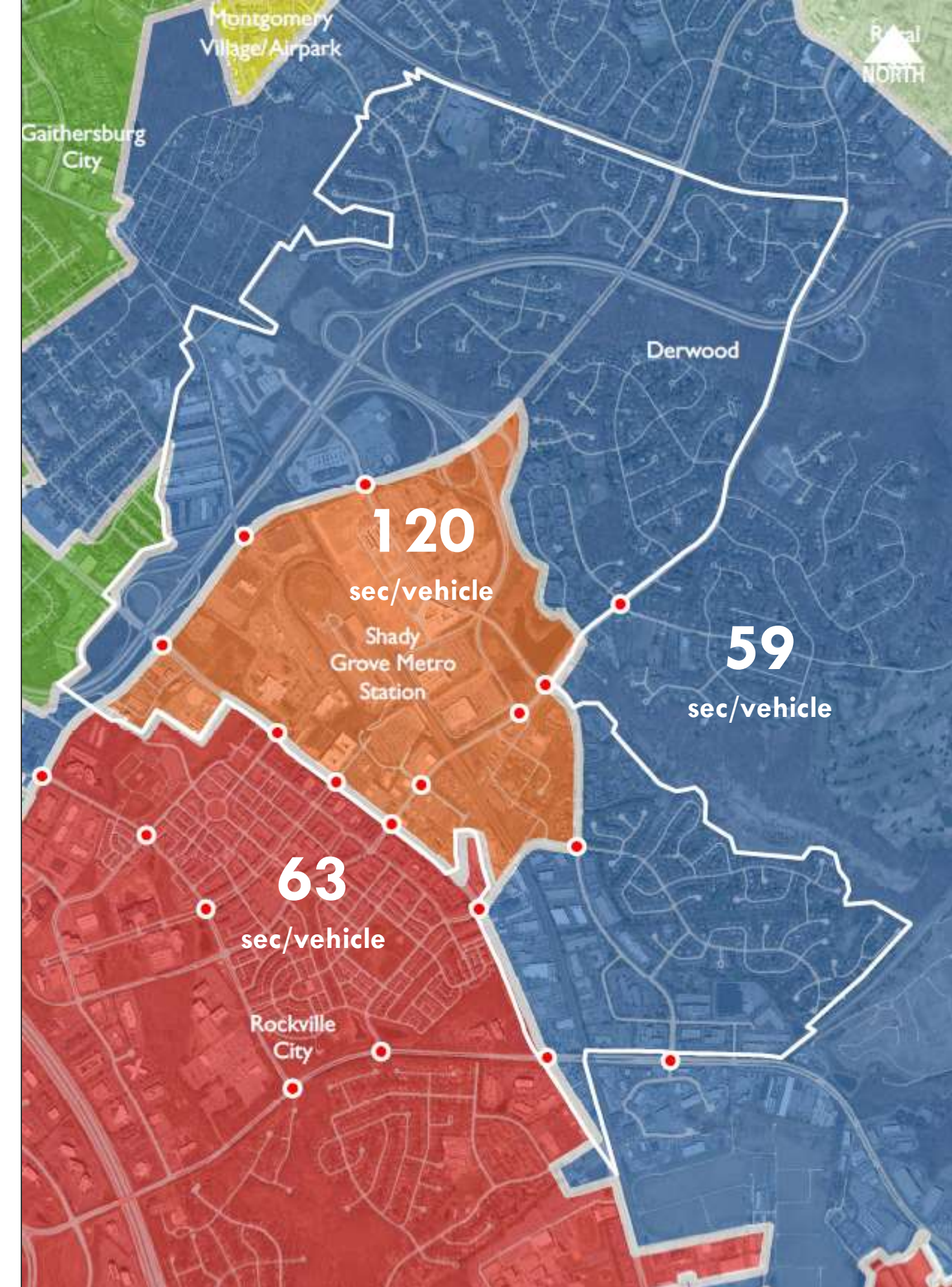
What is delay?

- Each vehicle has to wait a certain period of time during peak hour before moving through an intersection
- Each approach to the intersection has a different amount of delay
- The County uses overall average intersection delay as its modeling standard



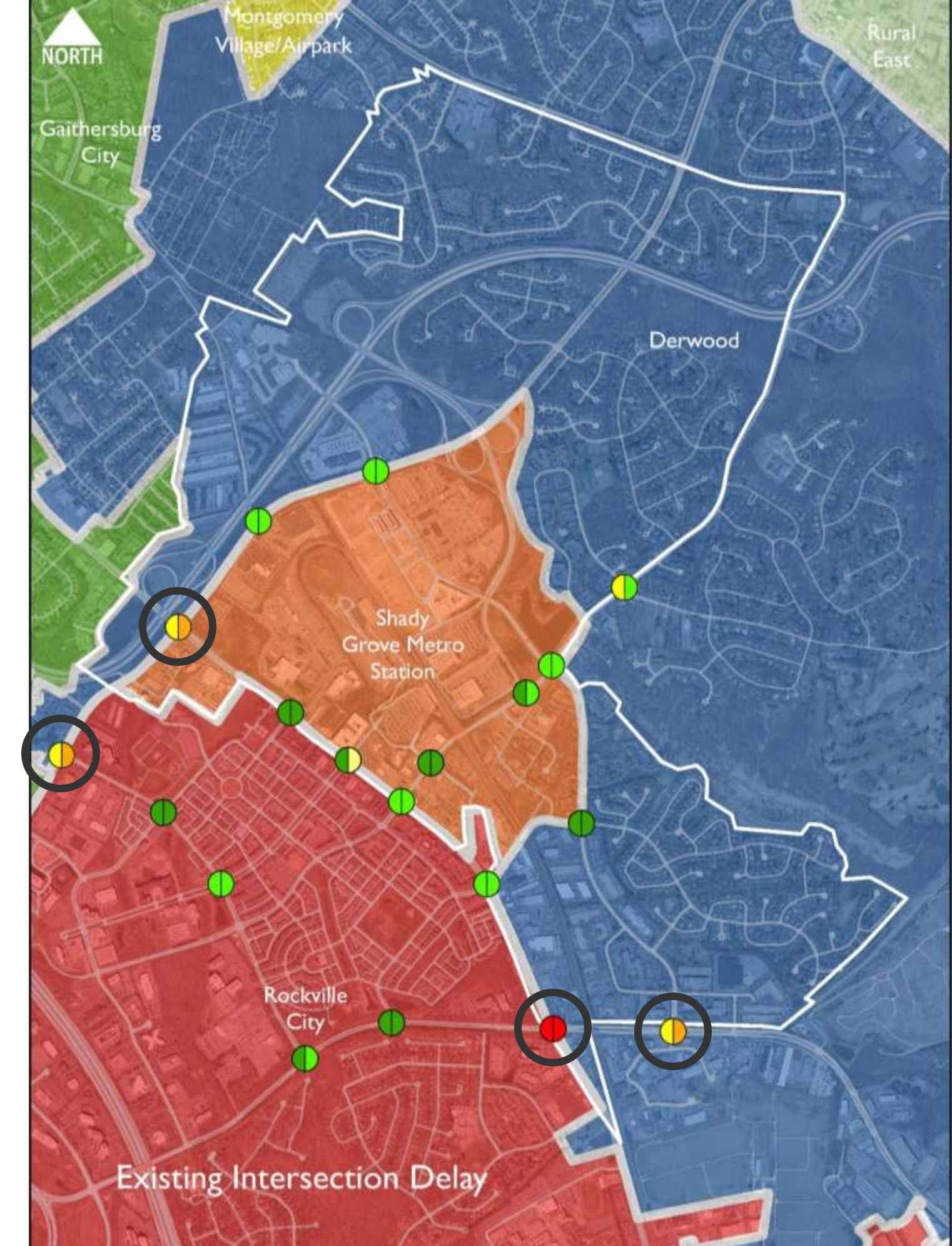
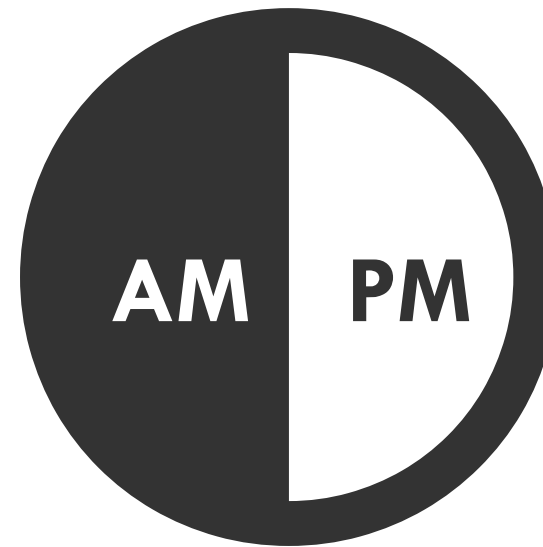
Study Intersections & Policy Area Congestion Standards

- 19 study intersections
- Three (3) policy areas with different congestion standards:
 - Shady Grove Metro Station Area (orange): 120 seconds/vehicle
 - Rockville City (red): 63 seconds/vehicle
 - Derwood (blue): 59 seconds/vehicle



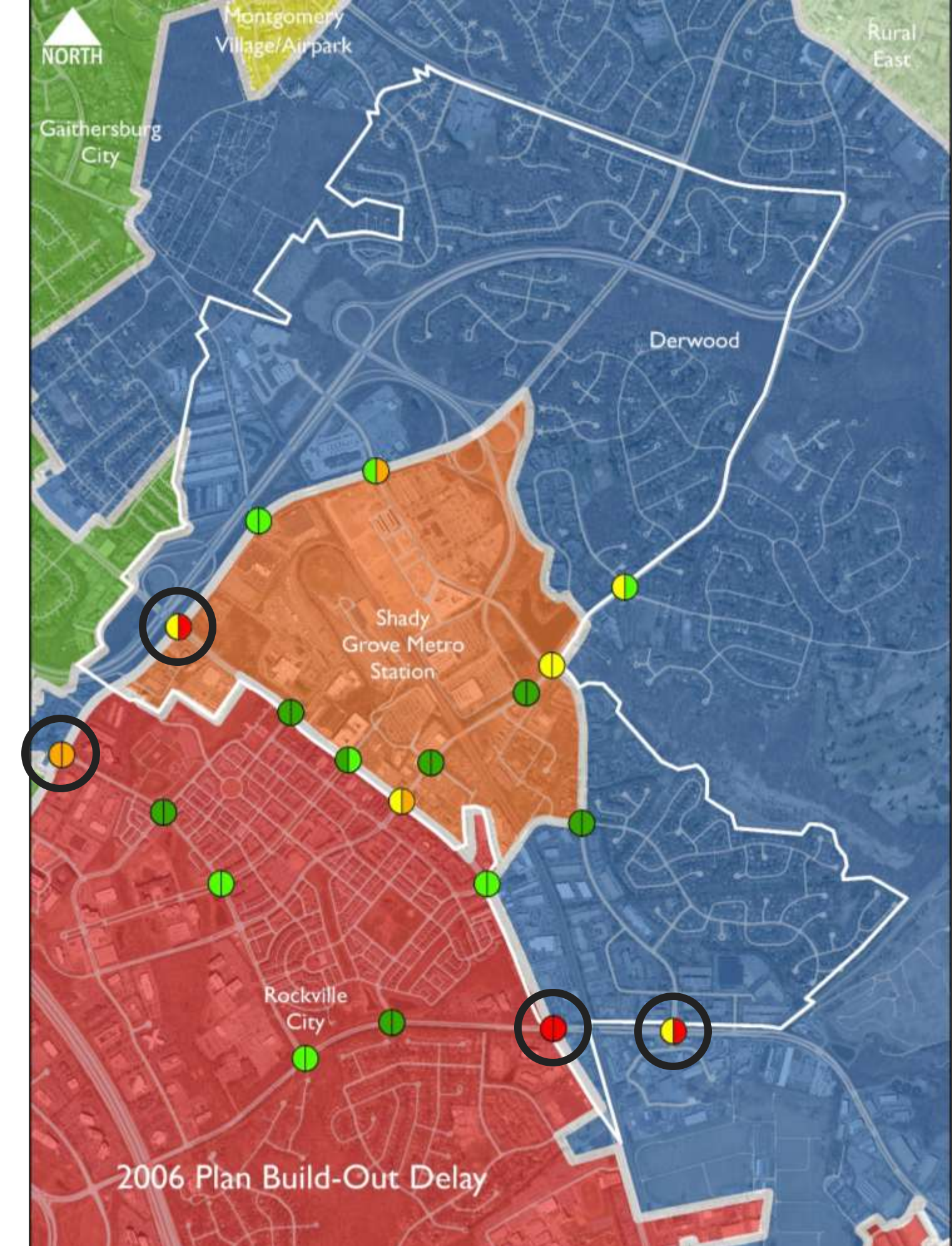
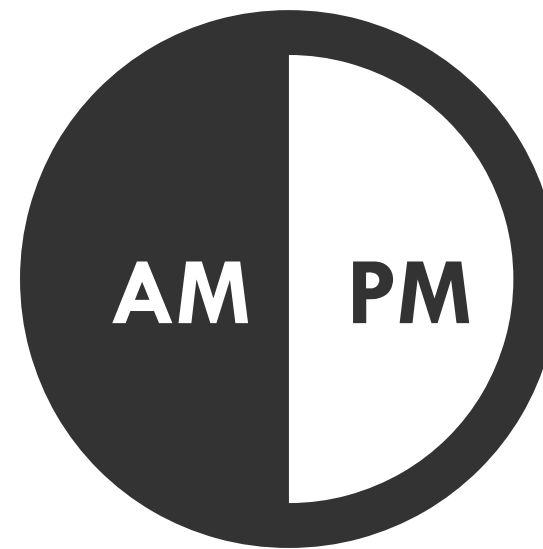
Existing Conditions Delay

- 0%-25% capacity used
- 26%-50% capacity used
- 51%-75% capacity used
- 76%-100% capacity used
- over 100% capacity used



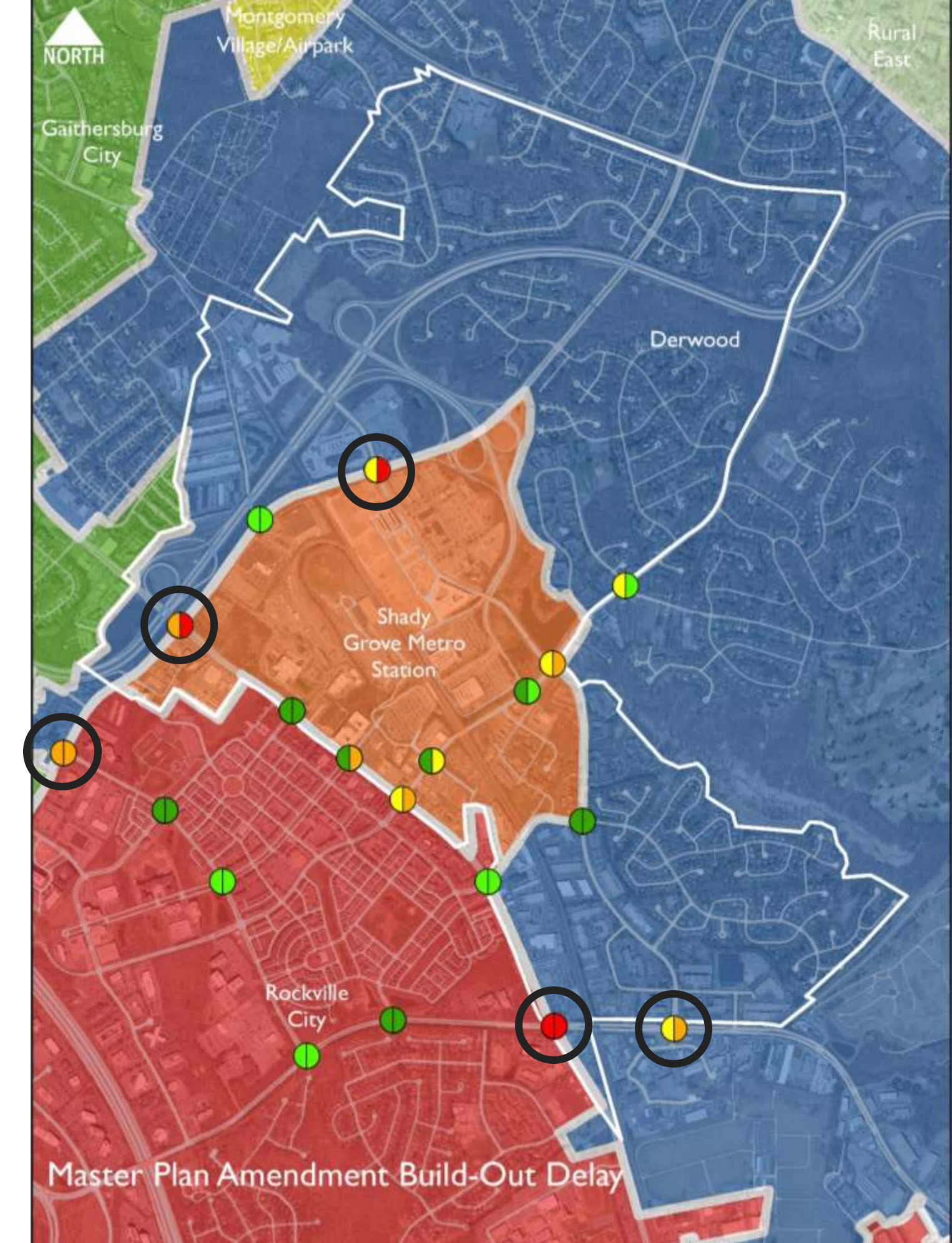
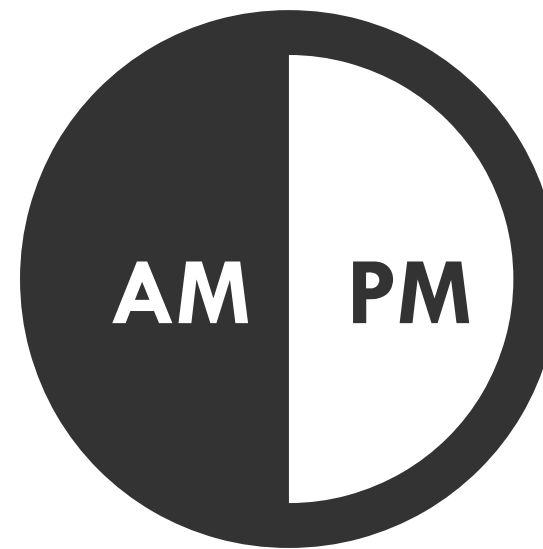
Future Conditions Delay 2006 Plan Build-Out (2040)

- 0%-25% capacity used
- 26%-50% capacity used
- 51%-75% capacity used
- 76%-100% capacity used
- over 100% capacity used



Future Conditions Delay Plan Amendment Build-Out (2040)

- 0%-25% capacity used
- 26%-50% capacity used
- 51%-75% capacity used
- 76%-100% capacity used
- over 100% capacity used

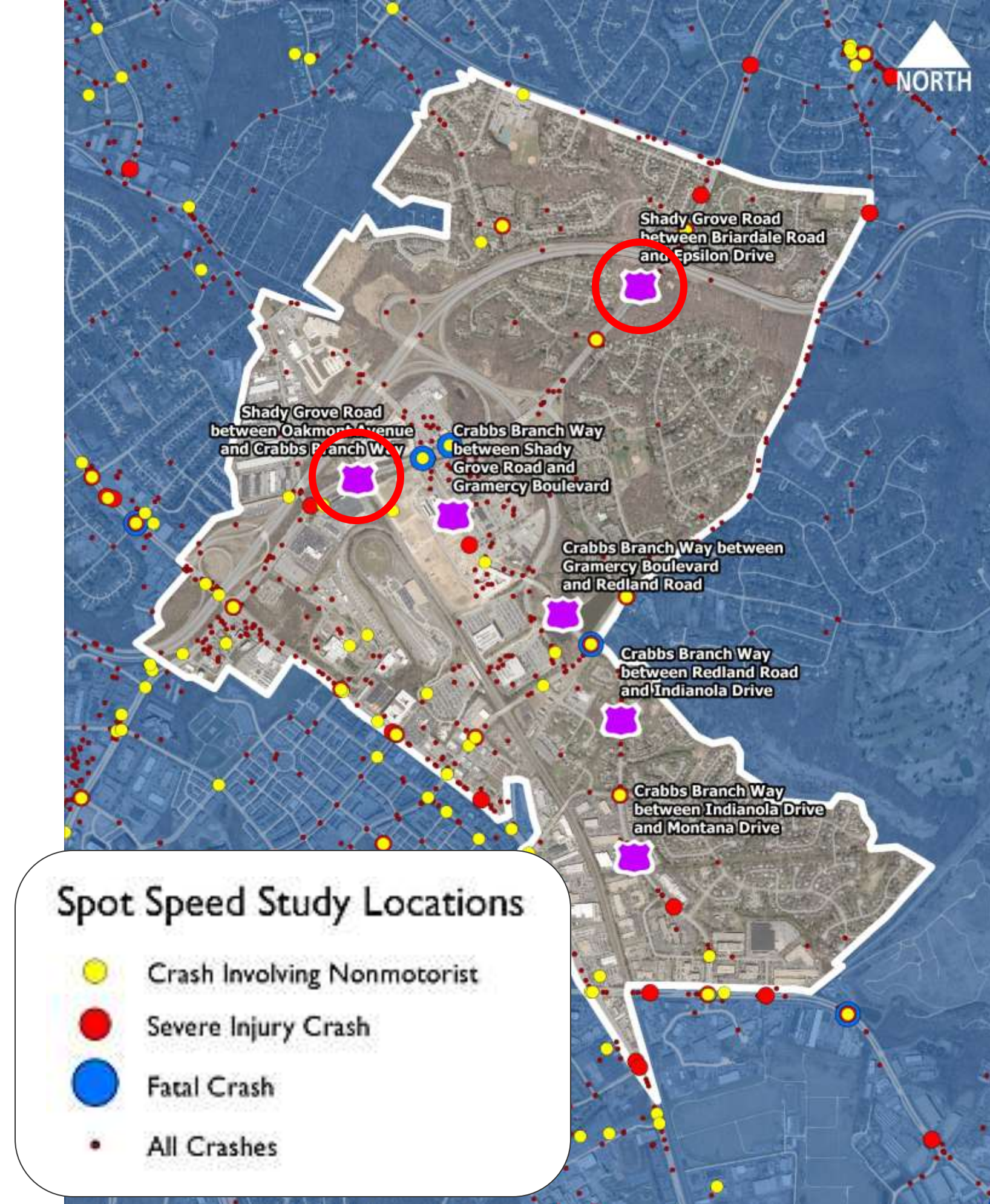


Top 10 Crossing Locations and Existing Pedestrian Delay	Approach Crossings	Morning Pedestrian Delay (seconds)	Afternoon Pedestrian Delay (seconds)
1. Crossing MD-355 at King Farm Boulevard (north side)	211	63.9	63.9
2. Crossing MD-355 at King Farm Boulevard (south side)	117	63.9	63.9
3. Crossing Redland Road at Somerville Drive (west side)	82	42.9	42.9
4. Crossing Somerville Drive at Redland Road (north side)	77	12.4	12.4
5. Crossing MD-355 at Redland Road (north side)	71	63.9	63.9
6. Crossing Shady Grove Road at MD-355 (west side)	70	53.5	63.9
7. Crossing Crabbs Branch Way at Redland Road (north side)	68	33.7	40
8. Crossing MD-355 at Redland Road (south side)	64	63.9	63.9
9. Crossing Gaither Road at King Farm Boulevard (south side)	64	32.2	32.2
10. Crossing Shady Grove Road at Gaither Road (east side)	58	38.9	43.3

Existing Speeds Shady Grove Road

- 13 hour studies, from 6:00am to 7:00pm

Location	Posted Speed	Percent Speeding
Shady Grove Road between Briardale Road and Epsilon Drive	45 miles per hour	48% northbound 48% southbound
Shady Grove Road between Oakmont and Crabbs Branch Way	40 miles per hour	56% northbound 42% southbound



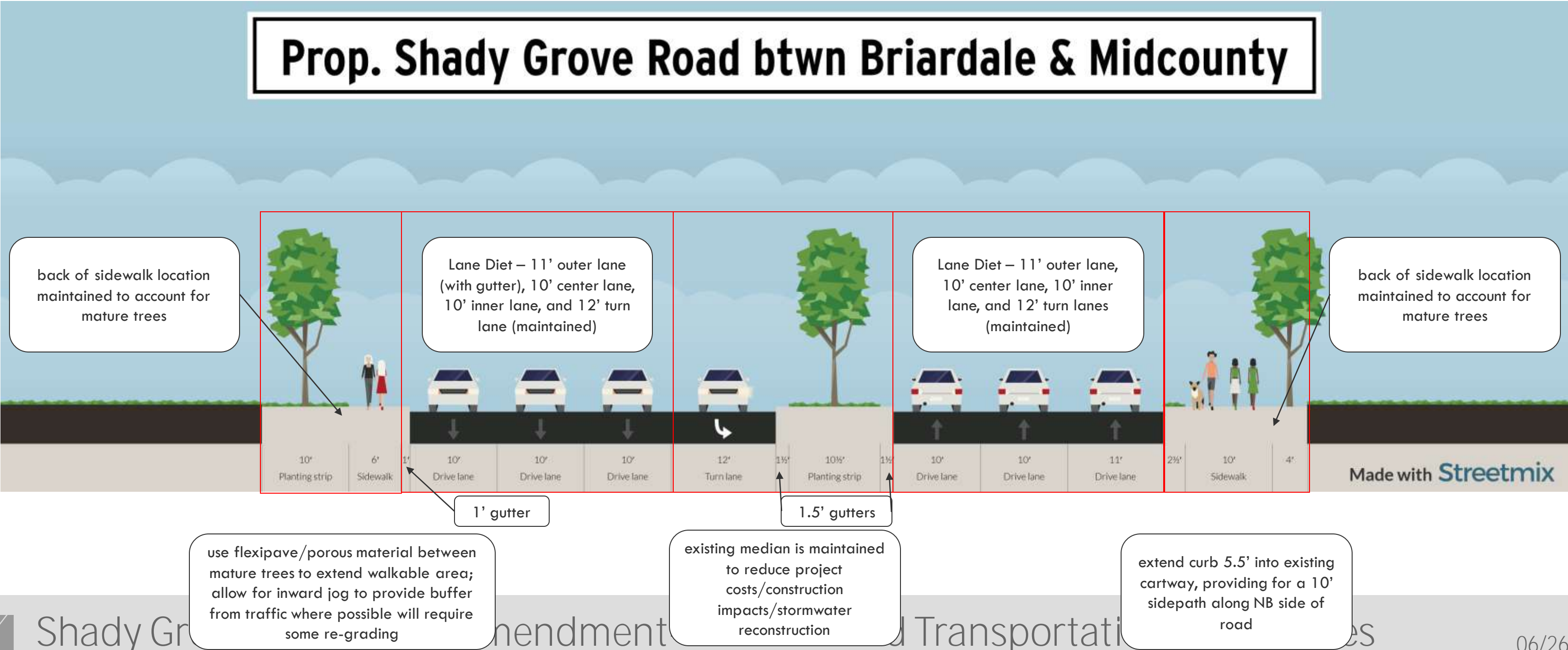
Shady Grove Road – Existing

120' Right-of-Way (100' cartway) to remain
Existing Posted Speed: 45 miles per hour



Shady Grove Road – Proposed

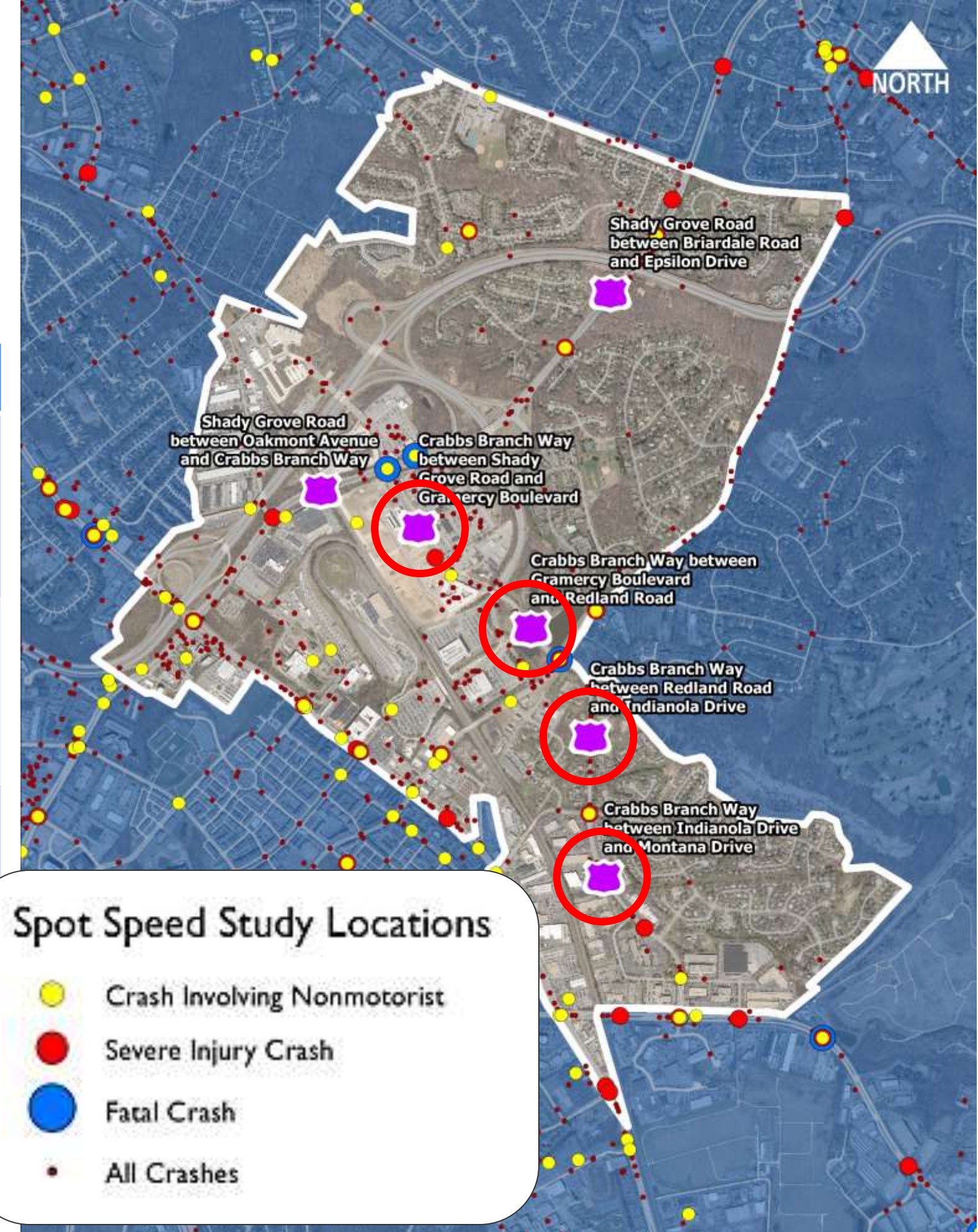
120' Right-of-Way (100' cartway) to remain
Target Speed 35 mph: potential downgrade from major highway to arterial



Existing Speeds Crabbs Branch Way

- 13 hour studies, from 6:00am to 7:00pm

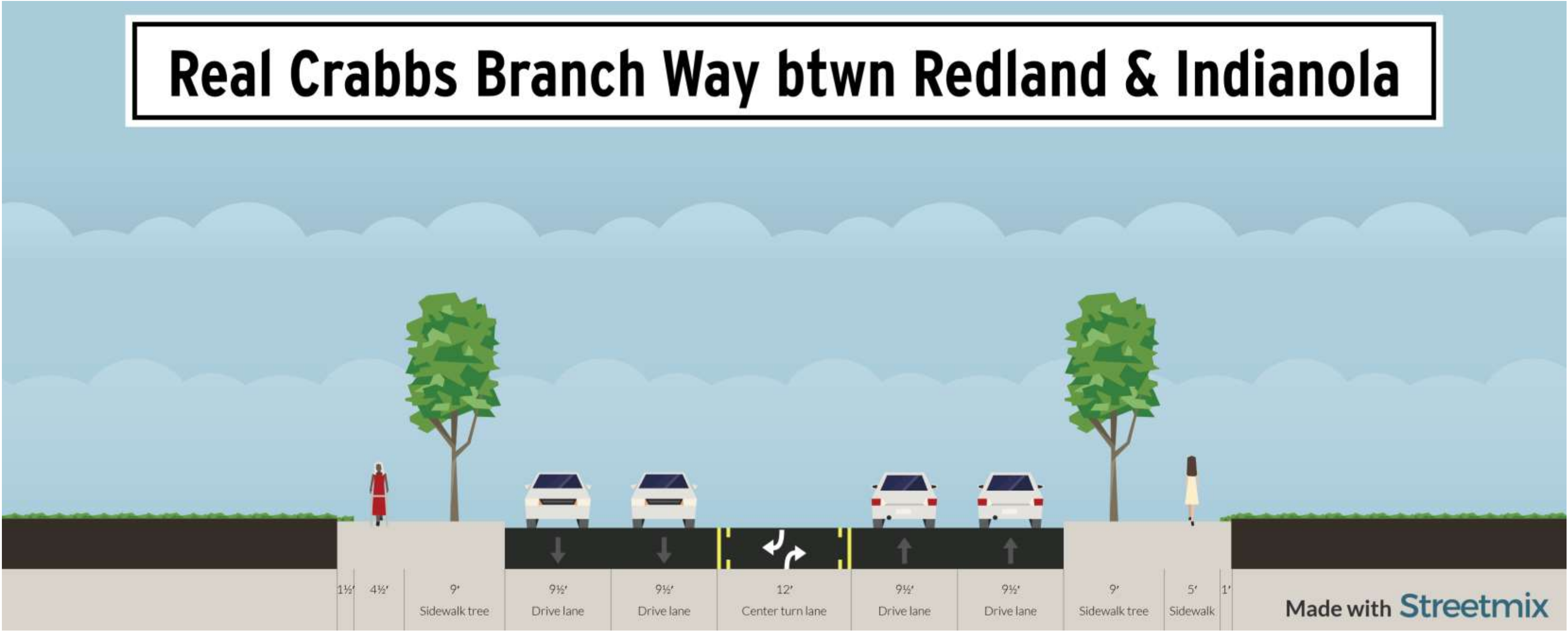
Location	Posted Speed	Percent Speeding
Crabbs Branch Way between Shady Grove Road and Gramercy Boulevard	35 miles per hour	52% northbound 58% southbound
Crabbs Branch Way between Gramercy Boulevard and Redland Road	35 miles per hour	62% northbound 84% southbound
Crabbs Branch Way between Redland Road and Indianola Drive	35 miles per hour	58% northbound 64% southbound
Crabbs Branch Way between Indianola Drive and Montana Drive	35 miles per hour	46% northbound 60% southbound



Crabbs Branch Way – Per Existing Striping

80' Right-of-Way (50' cartway) to remain
Existing posted speed: 35 miles per hour

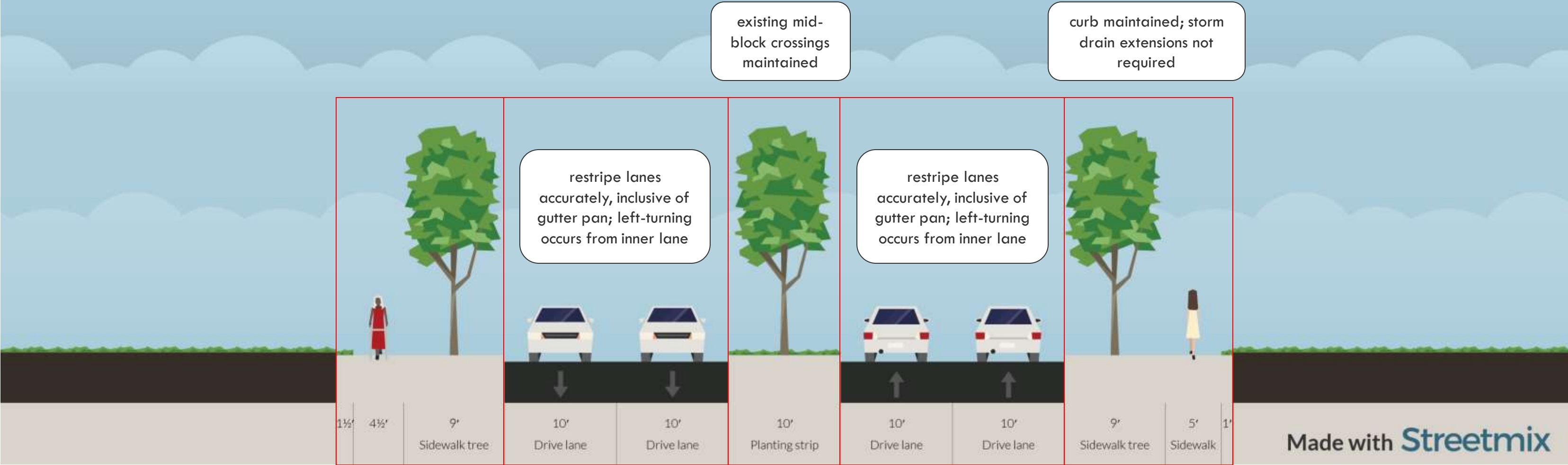
Real Crabbs Branch Way btwn Redland & Indianola



Crabbs Branch Way – Option 1

80' Right-of-Way (50' cartway) to remain
25 mph target speed consistent with County Urban Road Code for arterial; only 5 access points for 2,400' segment

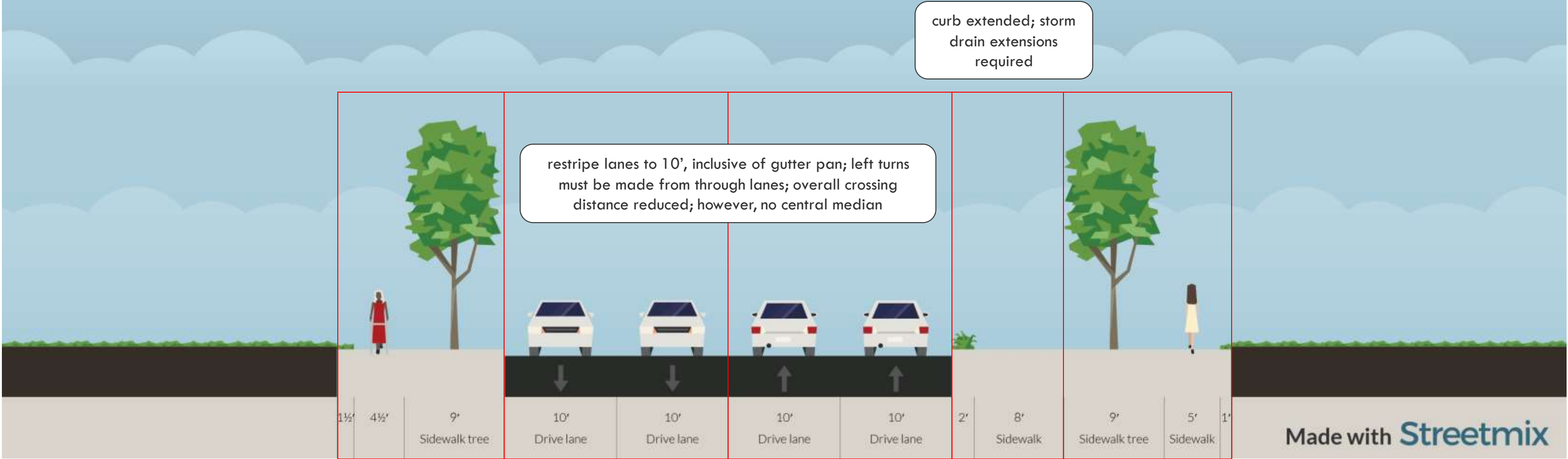
Prop. 1 Crabbs Branch Way btwn Redland & Indianola



Crabbs Branch Way – Option 2

80' Right-of-Way (50' cartway) to remain
25 mph target speed consistent with County Urban Road Code for arterial; only 5 access points for 2,400' segment

Prop. 2 Crabbs Branch Way btwn Redland & Indianola



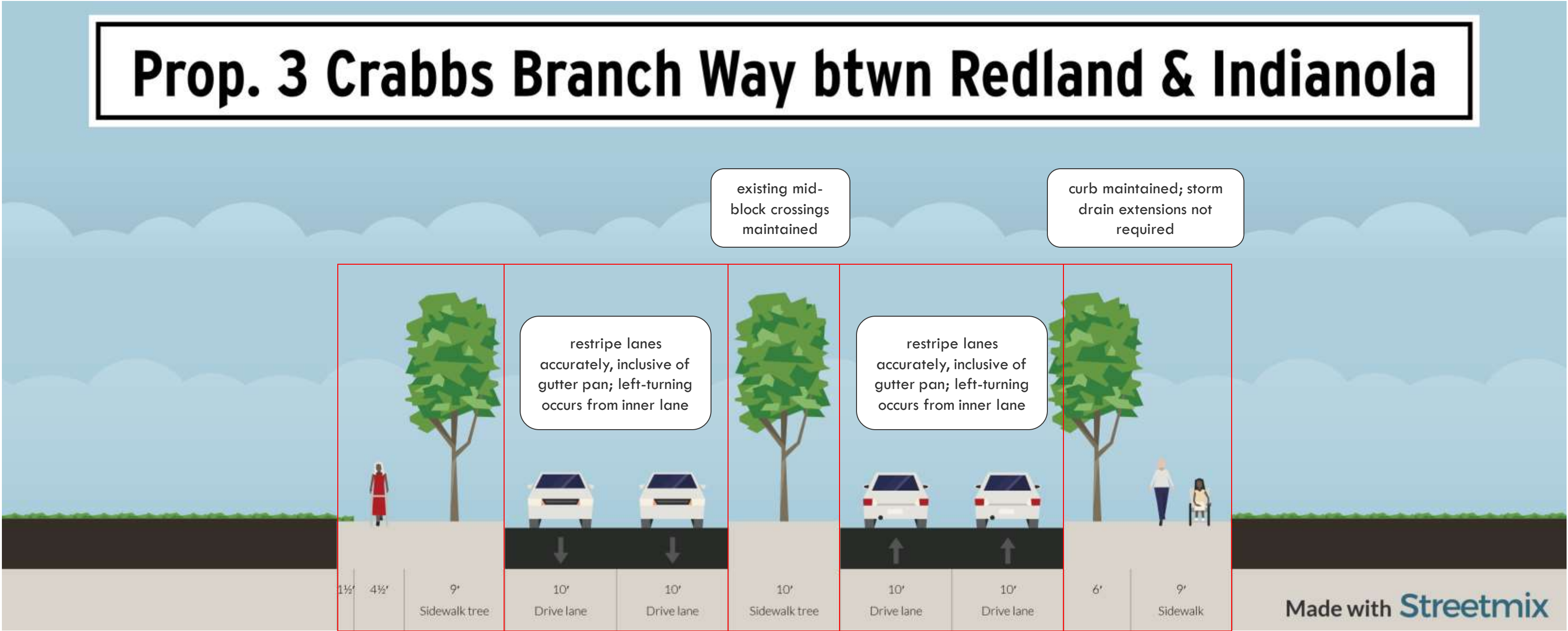
add flexipave btwn trees to widen existing sidewalk

prop. 8' sidepath with 2' buffer; add flexipave btwn ex. trees to widen sidepath where available

Crabbs Branch Way – Option 3

80' Right-of-Way (50' cartway) to remain
25 mph target speed consistent with County Urban Road Code for arterial; only 5 access points for 2,400' segment

Prop. 3 Crabbs Branch Way btwn Redland & Indianola



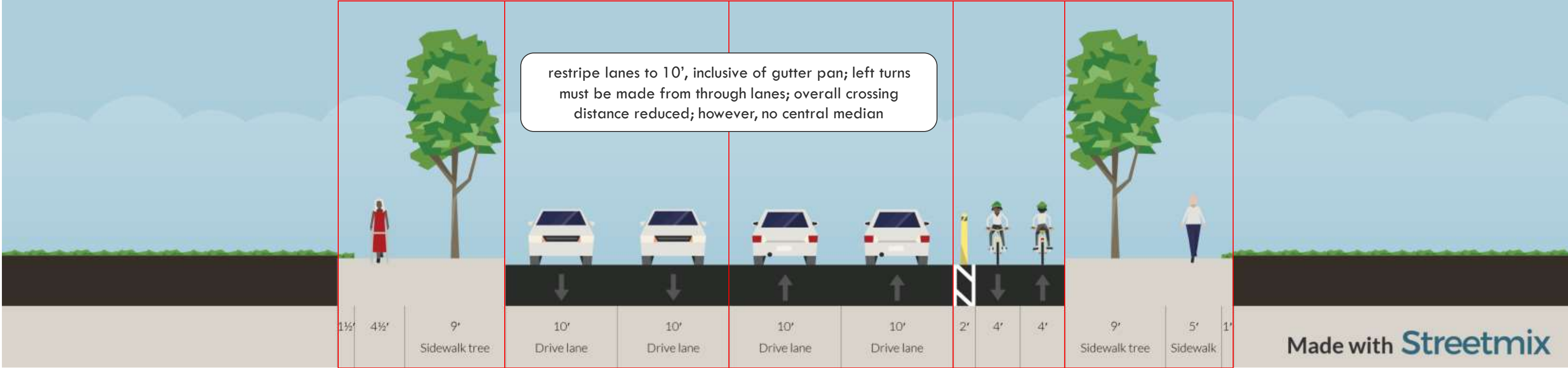
Crabbs Branch Way – Option 4

80' Right-of-Way (50' cartway) to remain
25 mph target speed consistent with County Urban Road Code for arterial; only 5 access points for 2,400' segment

Prop. 4 Crabbs Branch Way btwn Redland & Indianola

maintain existing curb location; on-street facility contraflow facility provided with substandard widths

restripe lanes to 10', inclusive of gutter pan; left turns must be made from through lanes; overall crossing distance reduced; however, no central median

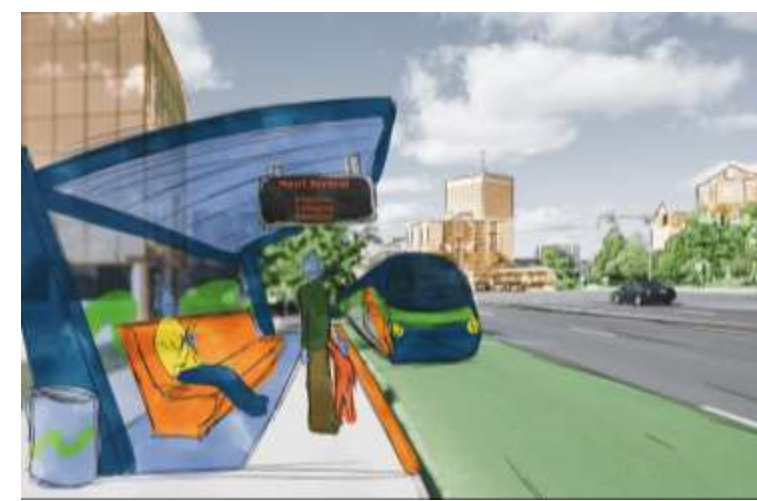


add flexipave btwn ex. trees to widen existing sidewalk

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Bus Rapid Transit VISSIM Modeling

- Modeled four different BRT scenarios along MD 355 and Gaither Road & King Farm Boulevard (CCT):
 - 2006 Plan Buildout – Curb Running & Median Running
 - Plan Amendment – Curb Running & Median Running
- Used signal timing from State/MCDOT BRT study
- Roughly comparable delay results for curb running and median running alternatives
- Modeling suggests vehicle delay **MD 355 and Gude Drive** and **MD 355 and Shady Grove Road** spill back, impacting other intersections along corridor



Bus Rapid Transit Shady Grove Metrorail Station Interface

- MD 355 BRT
- Corridor Cities Transitway
- Off-Peak Parking
- Metered Parking

Next Modeling Scenario

- Will test potential network changes, including:
 - Increased Non-Auto Drive Mode Split to 50%
 - Changes to free flow speed on Shady Grove Road and Crabbs Branch Way
 - Lane reduction at Crabbs Branch Way between Redland Road and Indianola Drive
 - Changes to accommodate BRT access around station area through provision of dedicated lane
 - Mitigation at MD 355 and Shady Grove Road, MD 355 and Gude Drive, and other locations, as necessary

Next Steps

September 2019

- Community Feedback on Draft Recommendations
- Briefing to the Planning Board



Q&A

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<https://montgomeryplanning.org/planning/communities/area-2/shady-grove/shady-grove-minor-master-plan-amendment>