

# ARTERIAL

PRESERVATION PROGRAM

## **US 360 Arterial Management Plan (AMP) Existing Conditions and Forecasting Meeting**

Thursday, April 30, 2020 | 2:00pm-3:30pm



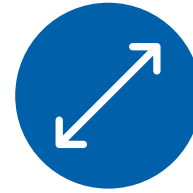
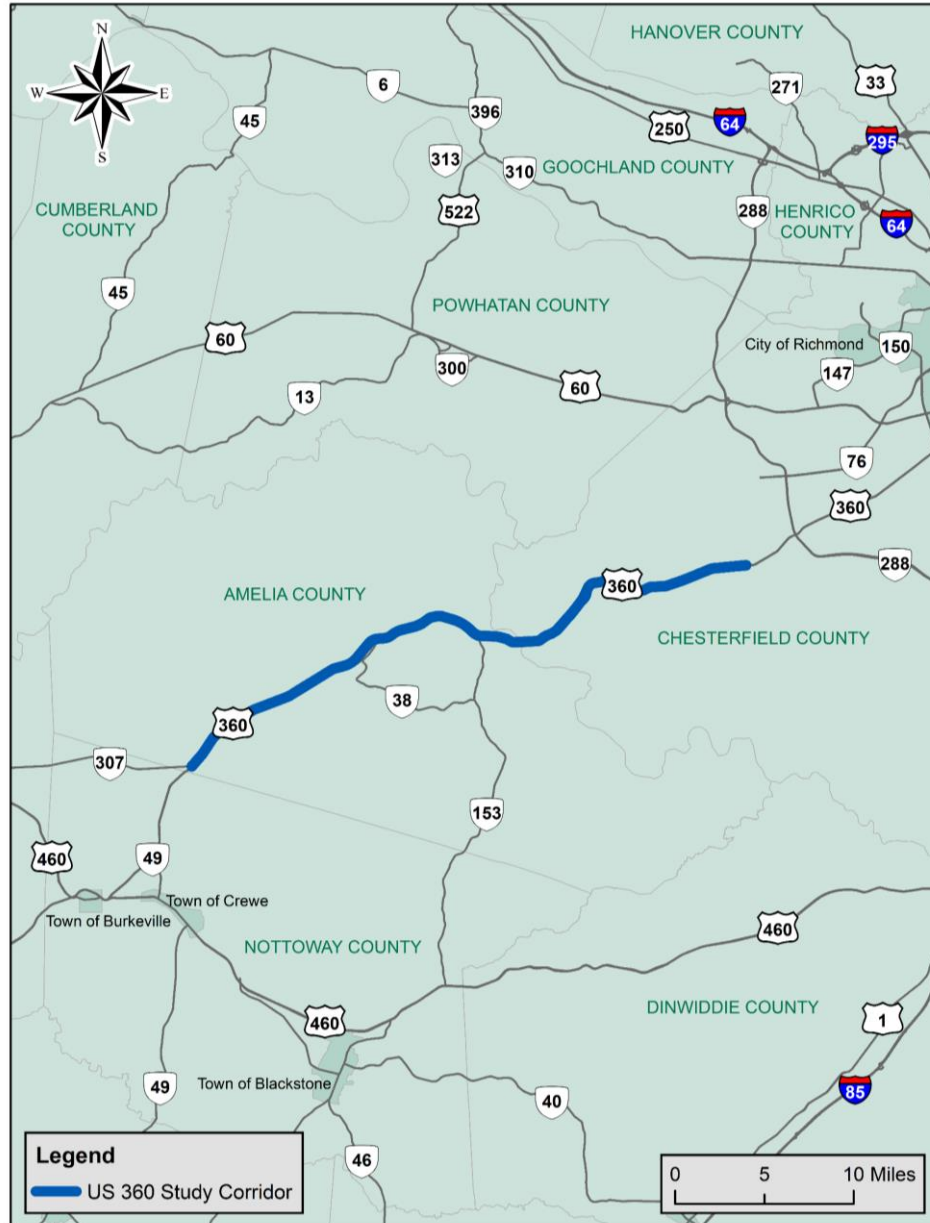
# Agenda

- Data Collection, Field Review, and Access Management
- Community Engagement
- Crash Analysis
- Existing Conditions Traffic Operations Analysis
- Traffic Forecasting
- No-Build Background Improvements
- Next Steps

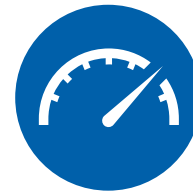
# Data Collection, Field Review, and Access Management

# Project Study Area

US 360 from Holly Farms Road to Winterpock Road



Approximately 30 Miles



Speed 35mph-60mph



12 Signalized Intersections

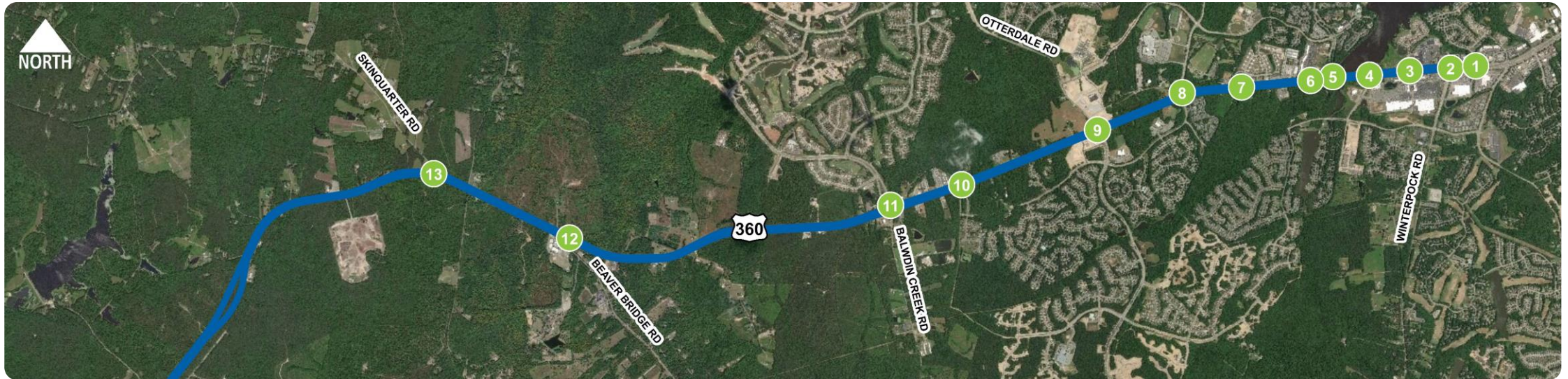


98 Unsignalized Median Openings

# Data Collection Overview

## Chesterfield County

- May 2018
- May 2019
- January 2020



### US 360 at Spring Run Rd (Signalized)

1. US 360 at Southshore Dr (Unsignalized)
2. US 360 at Winterpock Rd (Signalized)
3. US 360 at Hancock Village Pkwy/Duckridge Blvd (Signalized)
4. US 360 at Ashlake Pkwy (Signalized)
5. US 360 at Woodlake Village Pkwy (Signalized)
6. US 360 at Woodlake Commons Rd (Unsignalized)
7. US 360 at Cosby Rd (Unsignalized)
8. US 360 at Fox Club Parkway/Hampton Park Dr (Signalized)
9. US 360 at Otterdale Rd (Signalized)
10. US 360 at Hampton Farms Dr (Unsignalized)
11. US 360 at Magnolia Green Pkwy/Baldwin Creek Rd (Signalized)
12. US 360 at Beaver Bridge Rd (Unsignalized)
13. US 360 at Skinquarter Rd (Unsignalized)

# Data Collection Overview

## Amelia County

- May 2018
- May 2019
- January 2020



- US 360 at Circle Dr (Unsignalized)
- 14. US 360 at Military Dr (Unsignalized)  
US 360 at Redfield Dr (Unsignalized)
- 15. US 360 at Chula Dr (Signalized)
- 16. US 360 at Goodes Bridge Rd (Signalized)

# Field Review

Wednesday, January 15, 2020

- Reviewed roadway and intersection configurations
- Documented safety-related issues
  - Sight distance constraints
  - Roadside features
- Observed traffic operations
  - Signal phasing and splits
  - Unusual driver behavior
  - Queuing



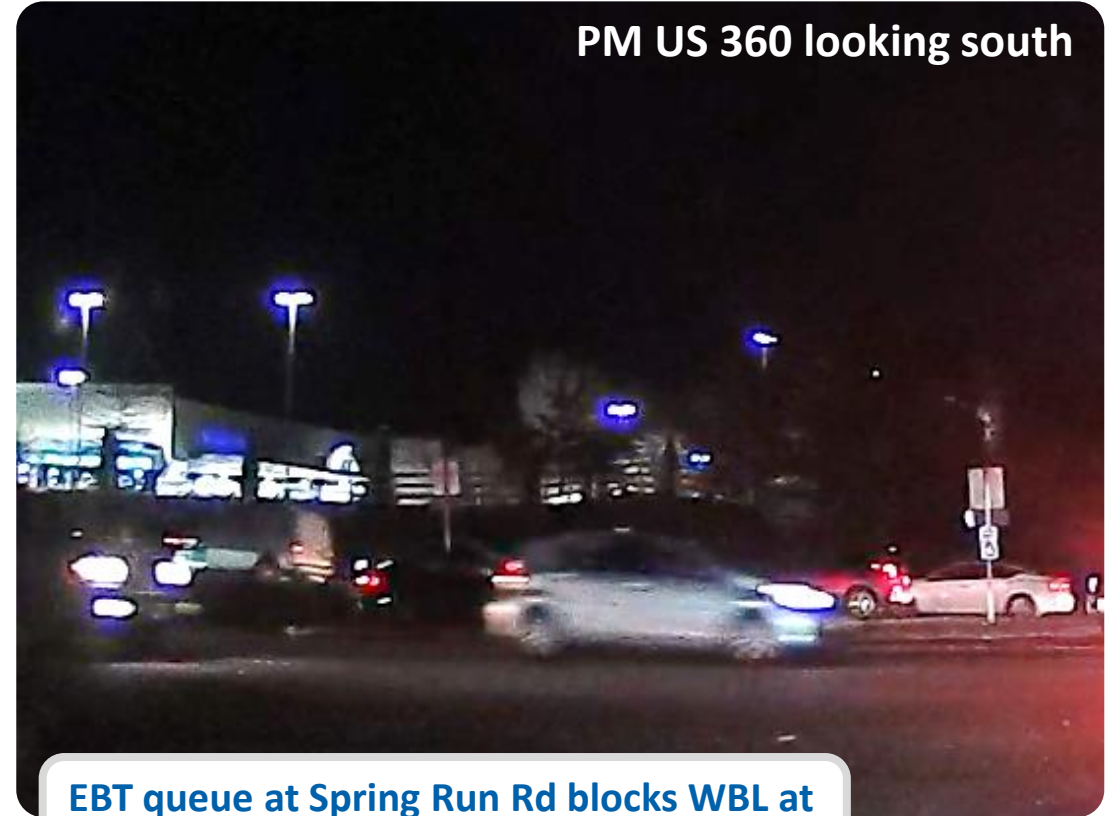
# Traffic Observations

US 360 from Spring Run Rd to Winterpock Rd

AM US 360 looking east



PM US 360 looking south



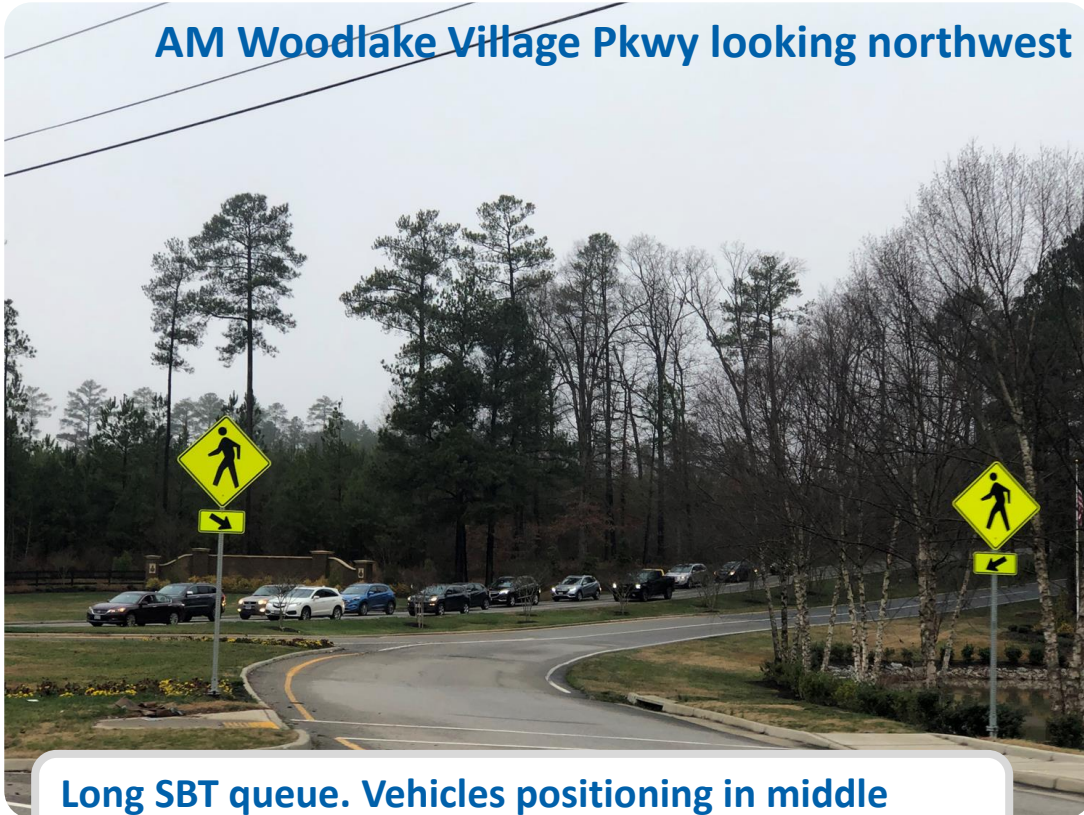
EBT queue at Spring Run Rd blocks WBL at Southshore Dr.



# Traffic Observations

## US 360 at Woodlake Village Pwky

AM Woodlake Village Pkwy looking northwest



Long SBT queue. Vehicles positioning in middle lane.

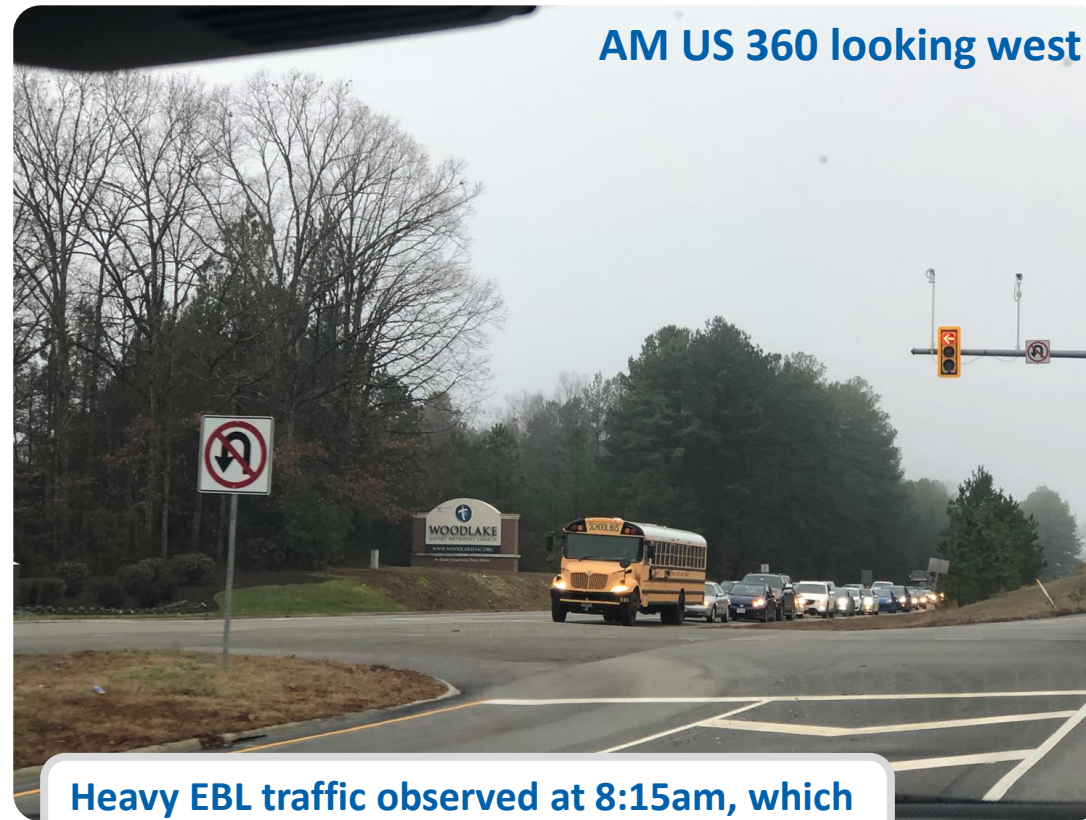
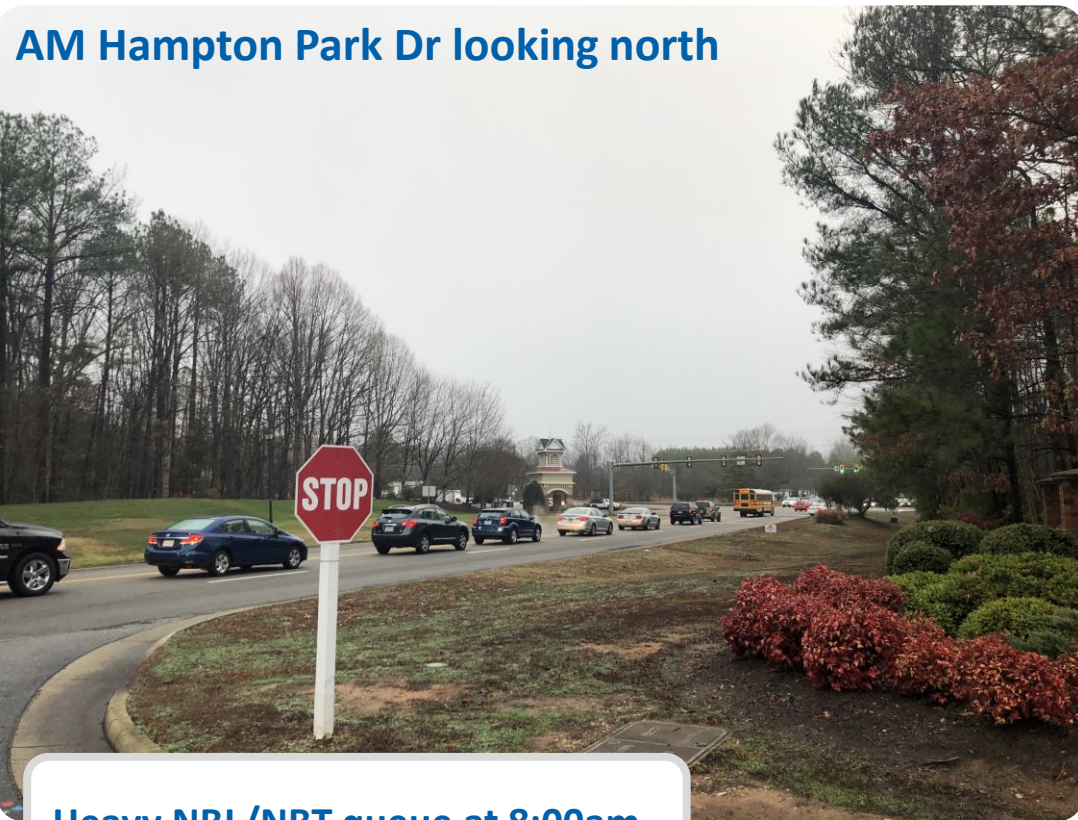
AM US 360 looking west



EBT queue extends to Woodlake Commons Loop.

# Traffic Observations

US 360 at Fox Club Pwky/Hampton Park Dr.



# Traffic Observations

## US 360 at Otterdale Rd

AM US 360 looking east



EBT queue extends beyond Aldi entrance.

PM Otterdale Rd looking north



SBT queue extends to Publix entrance.

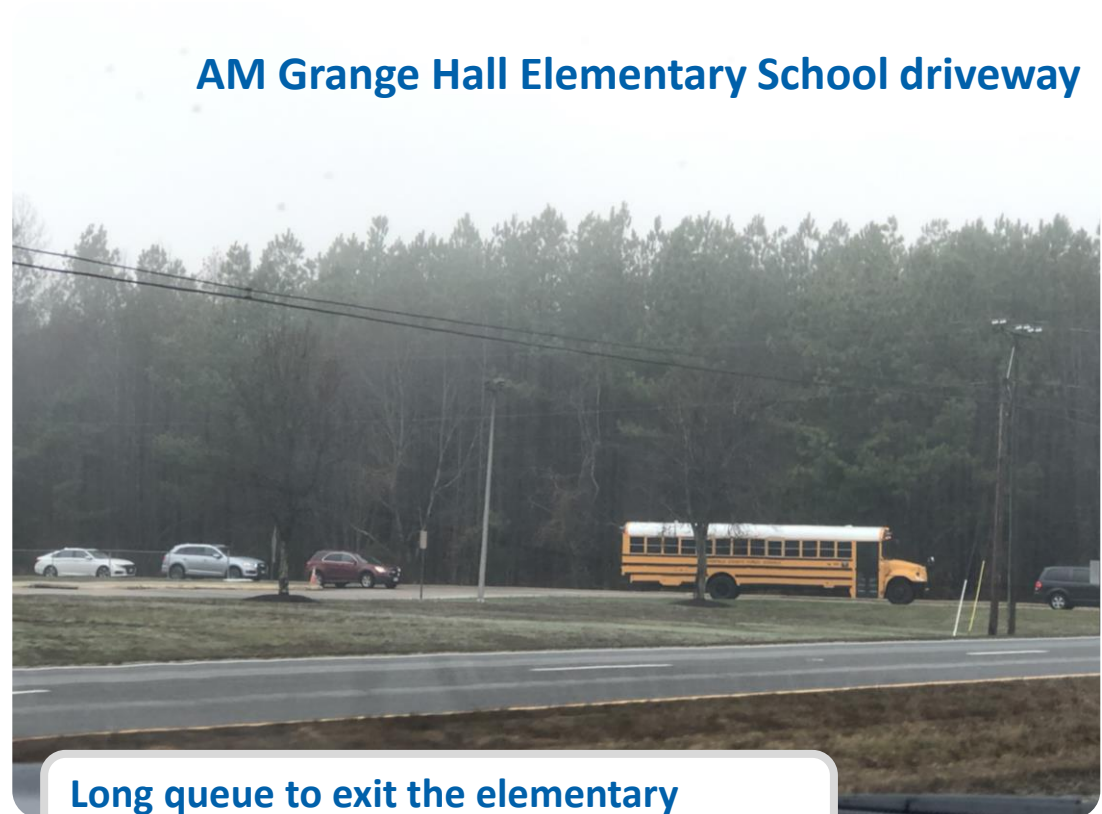
# Traffic Observations

## US 360 at Beaver Bridge Rd



AM Beaver Bridge Rd looking south

NBL queue at Beaver Bridge Rd, east of elementary school.



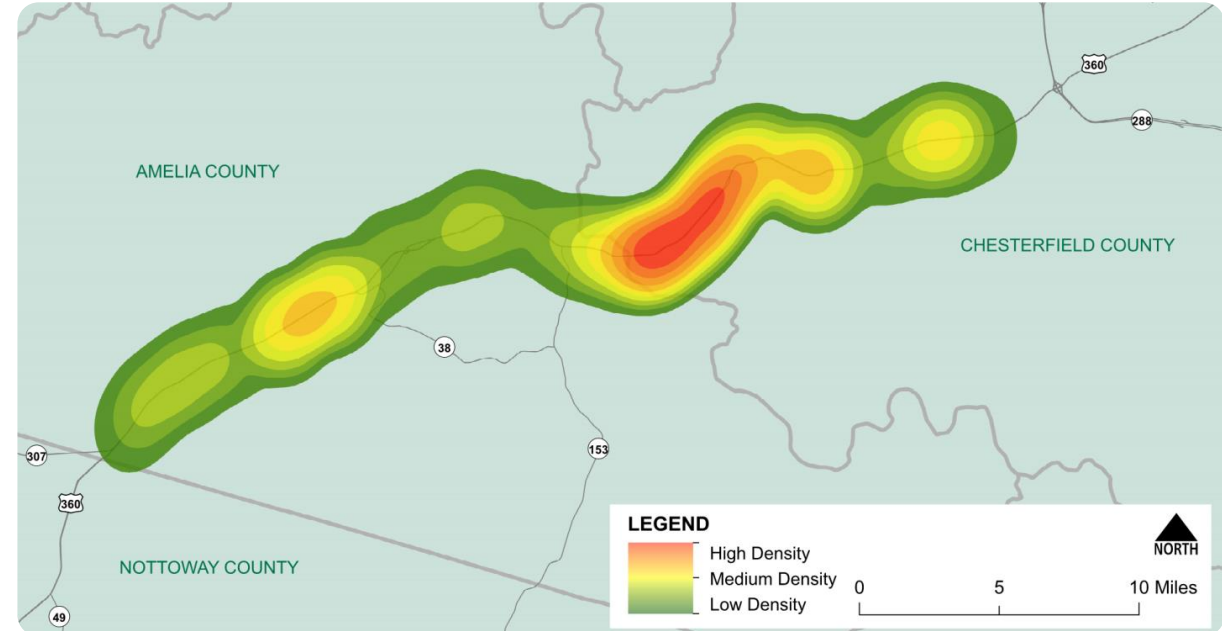
AM Grange Hall Elementary School driveway

Long queue to exit the elementary school.

# Preliminary Crash Data Review

## Roadway Departure Crashes

- 224 roadway departure crashes within the study area
- Roadway departure crash hotspots:
  - US 360 between Mount Zion Rd and Pridesville Rd (approx. 50%)
  - US 360 between Military Rd and Beaver Bridge Rd (approx. 15%)



# Preliminary Crash Data Review

## Angle Crashes at Unsignalized Intersections

Unsignalized intersections with the highest number of angle crashes

- Skinquarter Rd
- Military Rd
- Winterham Rd
- Superior Way
- Amelia Ave
- Goodes Bridge Rd Maplewood
- Drunkard Road
- Holly Farms Road

# Safety Observations



US 360 looking east

Little or no shoulder. Roadside ditch in some areas.

No rumble strips

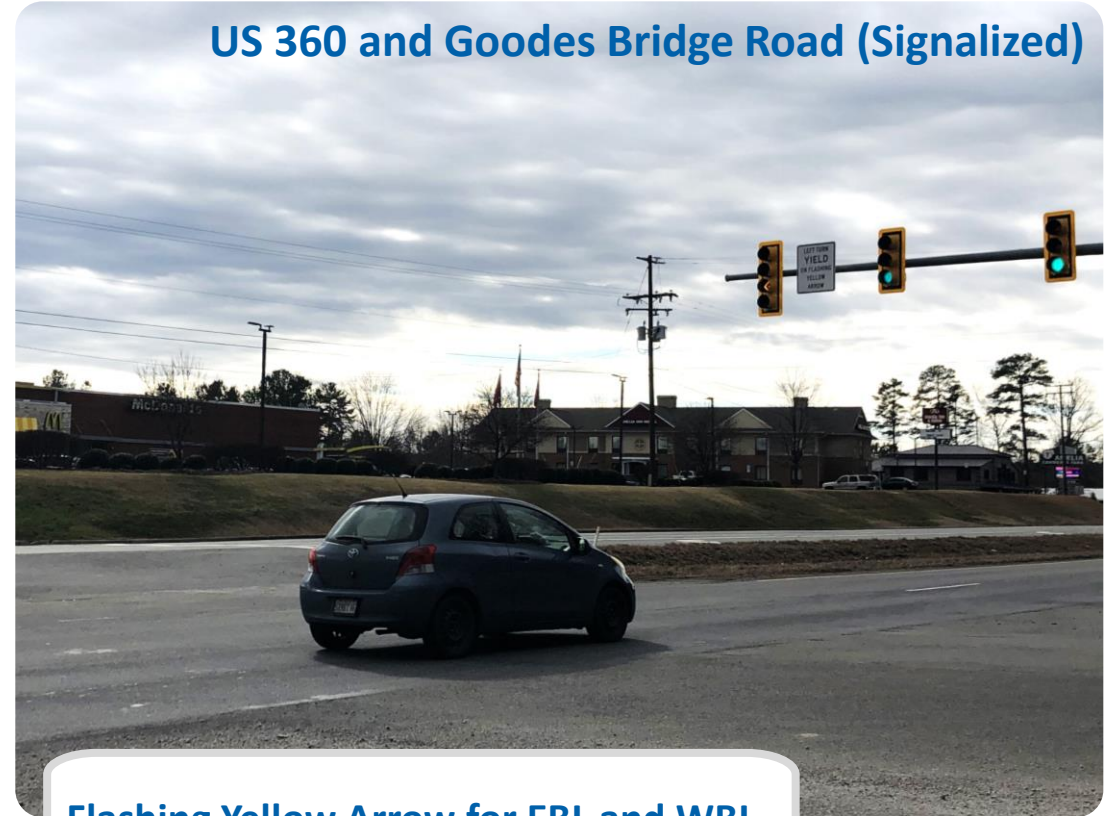
# Safety Observations

US 360 and Superior Way (Unsignalized)



Brush limits sight distance for SB vehicles.

US 360 and Goodes Bridge Road (Signalized)



Flashing Yellow Arrow for EBL and WBL.



# Safety Observations

US 360 and Chula Rd



Multiple driveways east and west of intersection.

US 360 and Skinquarter Rd

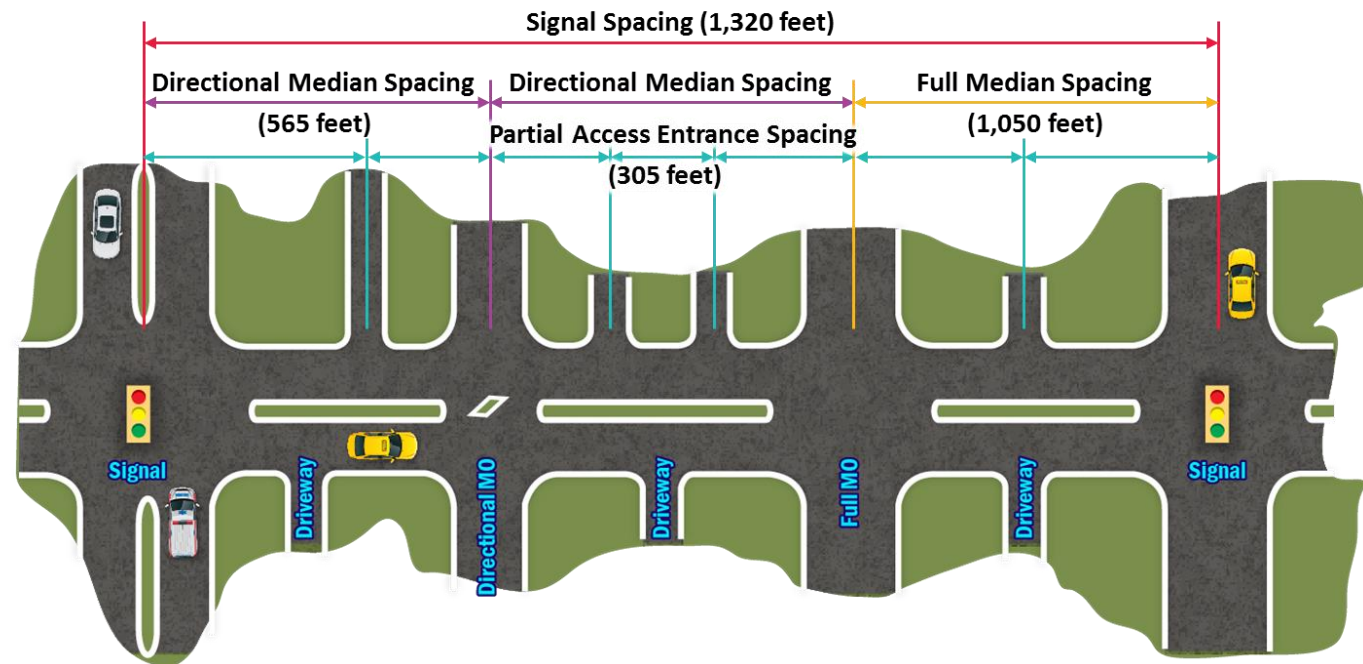


Wide driveway west of intersection.

# Access Management Review

## Access Management Criteria

- Speed limits within the study area range from 45-60 mph
- Refer to VDOT Road Design Manual Appendix F spacing standards
- Amelia County US 360 Overlay District criteria for commercial entrances = 1,000 ft.



◀ VDOT Spacing Standard  
35-45 mph  
Principal arterial



Legend	
	Signalized Intersection
	Unsignalized Intersection/Full Median Crossover
	Directional Median Crossover/Full Access Entrance
	Study Intersection
	Meets VDOT and Amelia County spacing requirements
	Meets VDOT spacing requirements, does not meet Amelia County spacing requirements
	Does not meet VDOT or Amelia County spacing requirements

**US 360 Existing Access Management Spacing**  
 From Holly Farms Rd to Jetersville Rd, Amelia County

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# Access Management Review

## Access Management Criteria

Access Point Type	Meets Spacing		Total
	Yes	No	
Signalized Intersection	3	5	8
Full Median Crossover	21	27	48
Unsignalized Intersection	19	28	47
<b>Grand Total</b>	<b>43</b>	<b>50</b>	<b>93</b>

# Community Engagement

MetroQuest Survey Update

# Community Engagement Schedule



# MetroQuest Survey

April 22, 2020 – May 15, 2020

## Preliminary Results as of April 27

- Almost half of participants learned about the survey from Facebook
- 527 total participants
  - 51% live within 3 miles
  - 19% work within 3 miles
- Top destination zip codes:
  - 23112 (Midlothian)
  - 23832 (Chesterfield)
  - 23002 (Amelia County)
  - 23219 (Richmond)

Thank You

**Final Questions (Optional)**

Do you live near the corridor?  
Select...

Do you work near the corridor?  
Select...

Home zip code  
Type...

Typical destination zip code  
Type...

How did you find out about this survey? Mark all that apply

VDOT project website  Other website  
 Public meeting  Family, friend, or colleague  
 Facebook  Twitter  Instagram  
 Other social media  Television  Radio  
 Newspaper  Other

Sign-up for updates. Provide an email address  
Type...

Submit Final Questions Skip

**Additional Information**

Thank you for your time and input. For additional information contact:  
Chris Detmer, VDOT Highway Programs Manager  
[chris.detmer@vdot.virginia.gov](mailto:chris.detmer@vdot.virginia.gov)

ARTERIALO PRESERVATION PROGRAM

VDOT Virginia Department of Transportation

# Preliminary Results as of April 27, 2020

## Traveler Survey

### Frequency and Purpose

- **43%** travel within the study area daily.
- Participants travel within the study area to:
  - Shop (**23%**)
  - Access Route 288 (**20%**)
  - Travel to/from home (**20%**)

### Congestion

- **67%** experience congestion in both directions.
- **Over 60%** experience congestion at some point during the week. **28%** experience congestion during weekday mornings.



# Preliminary Results as of April 27, 2020

## Traveler Survey

### Mobility and Accessibility

- **22%** typically experience congestion and long delays.
- **13%** experience unreliable travel times.
- **12%** experience frequent accidents that restrict travel lanes.

### Mode Choice

- **82%** use a personal vehicle to travel within the study area. **10%** use a truck or commercial vehicle to travel within the study area.
- **20%** feel sidewalks are needed along the corridor. **18%** feel crosswalks are needed along the corridor. **14%** feel bicycle lanes are needed along the corridor.

# Preliminary Results as of April 27, 2020

## Traveler Survey

### Safety

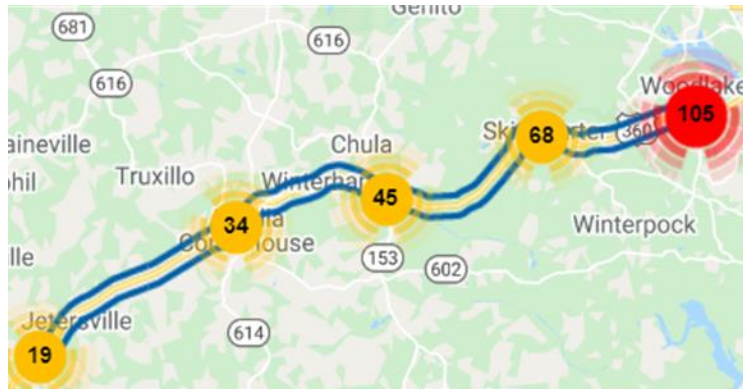
- **19%** experience sudden stops from congestion.
- **16%** experience aggressive or distracted driving within the study area.
- **16%** experience speeding.
- **16%** experience a high number of weaving and merging crashes.

# Preliminary Results as of April 27, 2020

## Mark the Map!



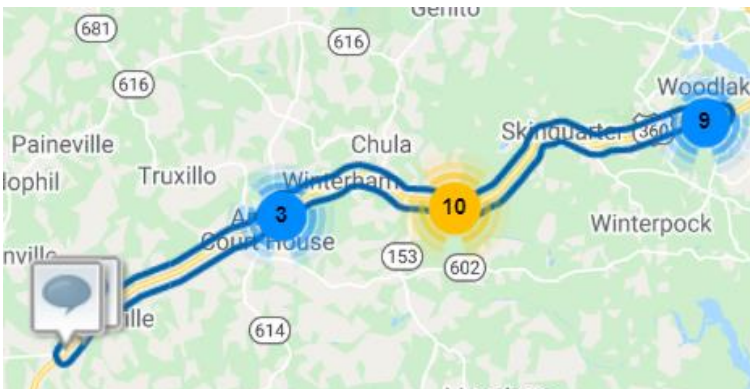
**Congestion | 911 Markers**



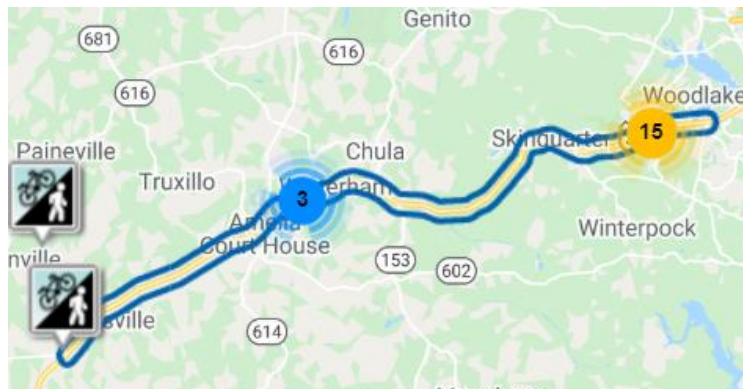
**Safety | 307 Markers**



**Mobility | 65 Markers**



**Other Issues | 27 Markers**



**Multimodal | 20 Markers**

# Potential Solutions



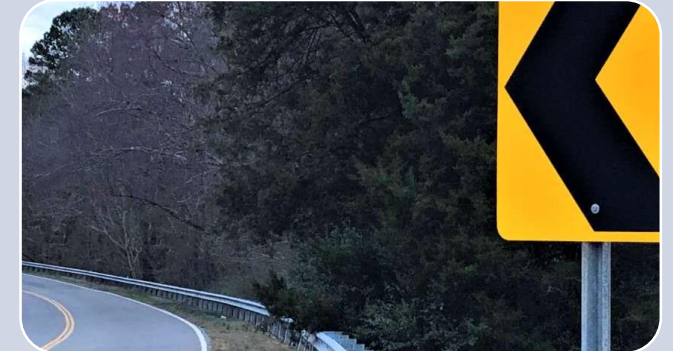
## Conventional and Innovative Intersections

Alleviate congestion, and improve mobility and safety



## Access Management

Improve management of location, spacing, and design of entrances, street intersections, median openings, and traffic signals.



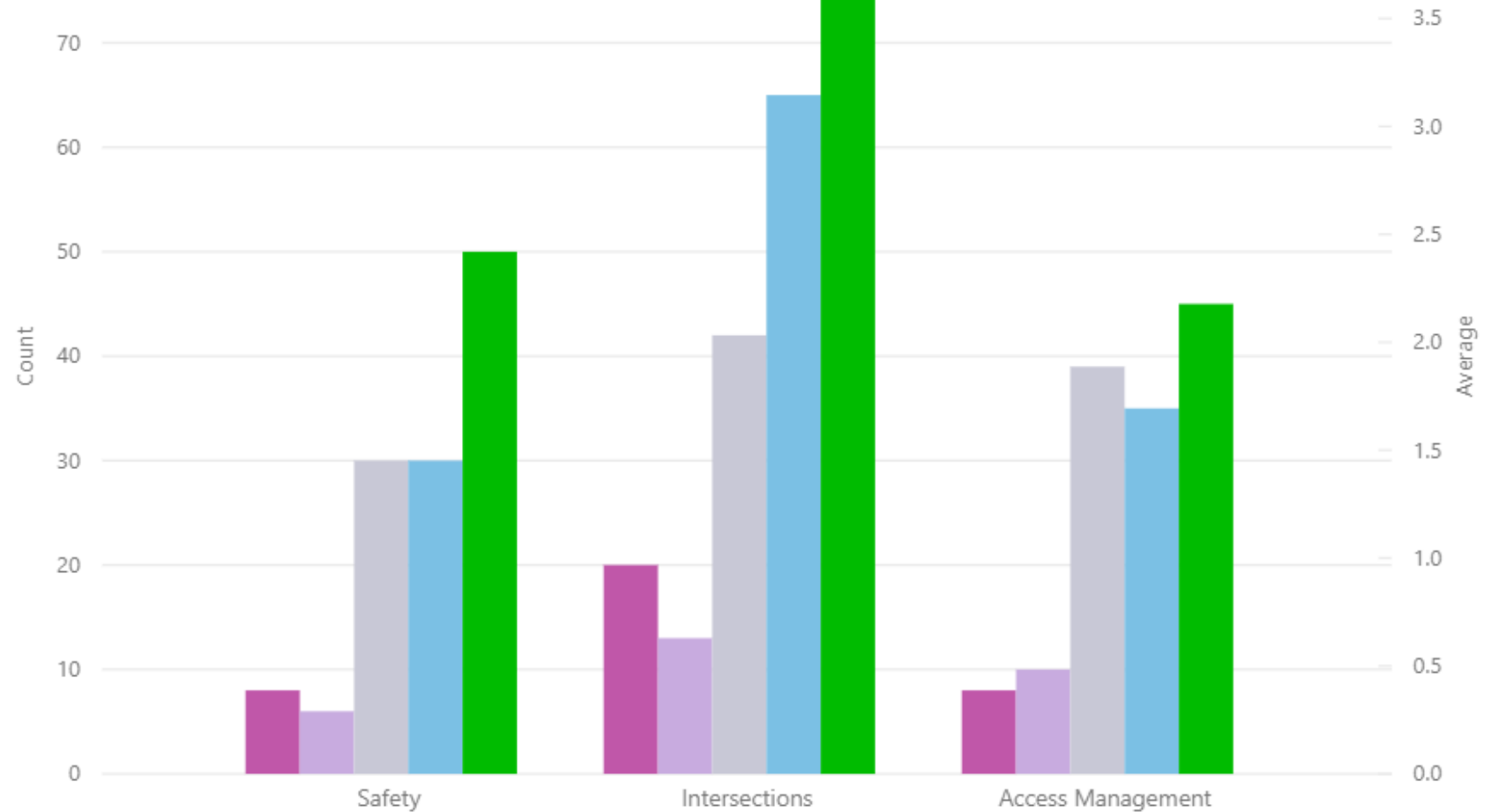
## Safety

Improve sight distance, driver awareness, and compliance with traffic control devices

# Preliminary Results as of April 27, 2020

## Potential Solutions Rating

### Star Rating



# Existing Conditions

Safety and Traffic Operations Analysis

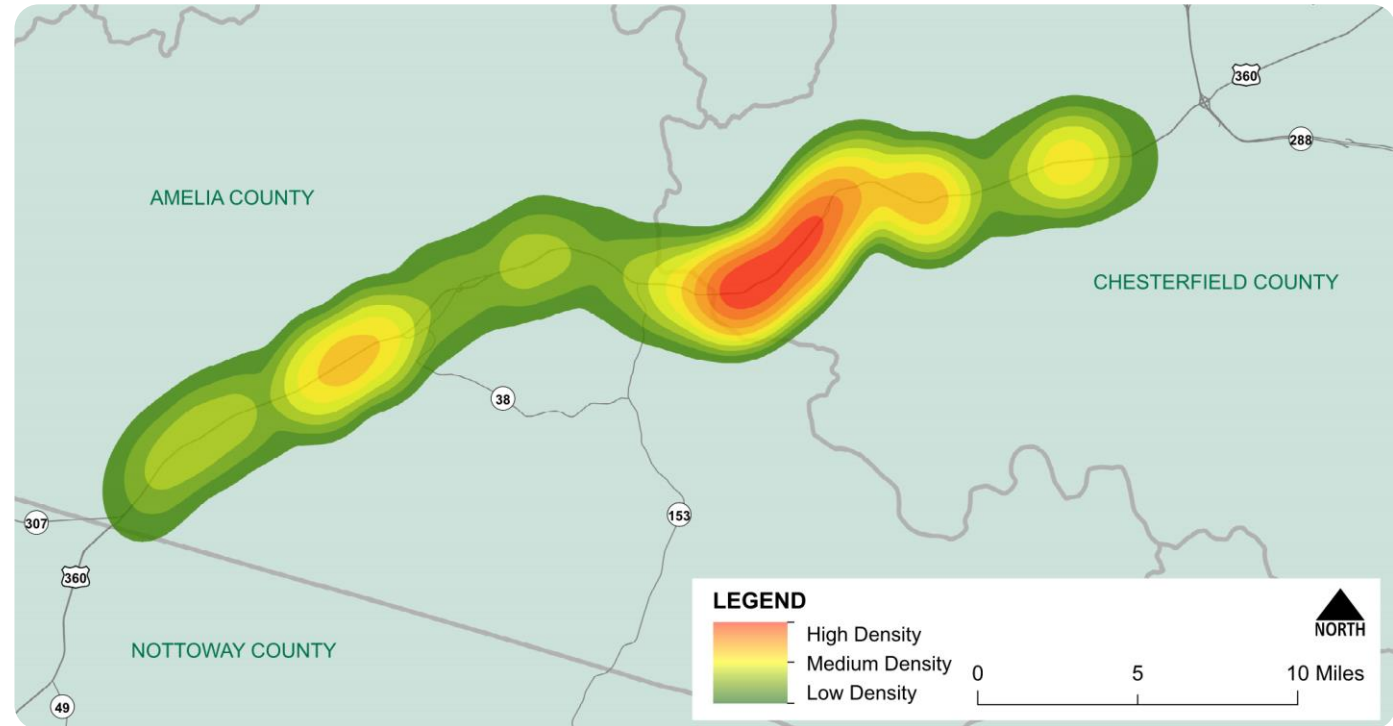
# Crash Analysis

- Roadway Departure Crashes
- Potential for Safety Improvement (PSI)
  - Estimates how much the long term crash frequency could be reduced at an intersection or segment
  - Intersection Rankings, ranked by total PSI within Richmond District
    - 12 – Winterpock Road
    - 42 – Hancock Village Drive/Duckridge Boulevard
    - 90 – Ashlake Parkway
    - 125 – Otterdale Road

# Roadway Departure Crashes

## Qualitative Observations

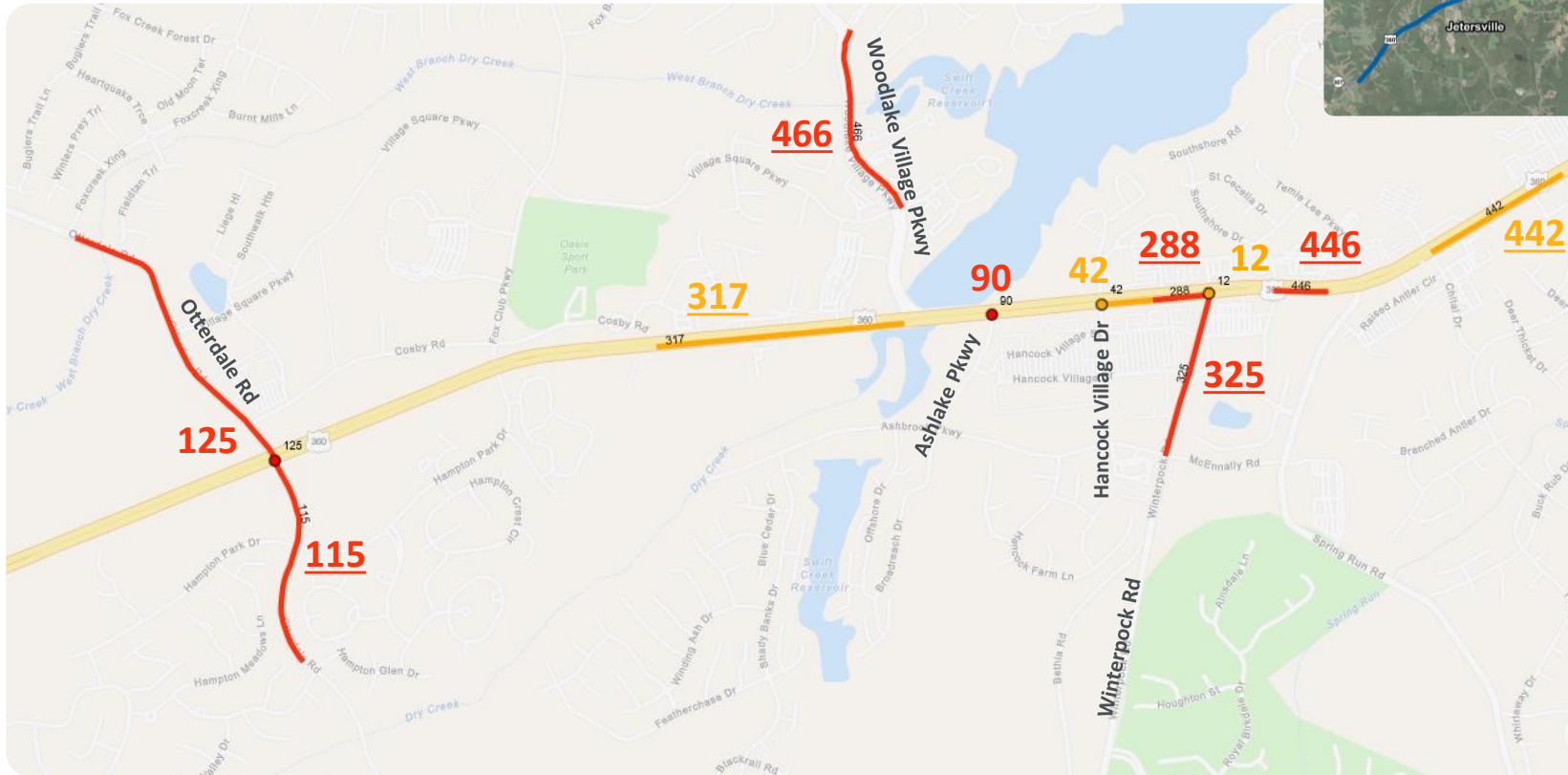
- Little to no recoverable area
- No rumble strips
- No guardrail
- No warning speed signs





# Crash Analysis

## PSI Locations

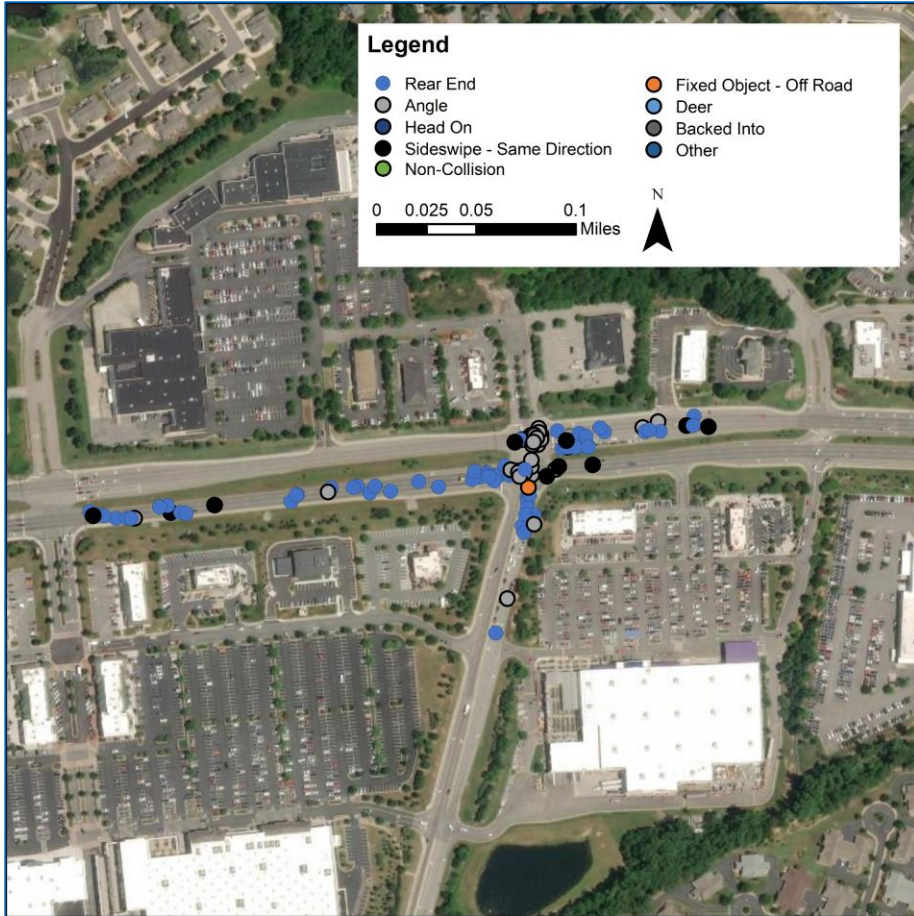


- PSI (Not TSN)- Intersection
- PSI (Not TSN) - Segment
- Traffic Safety Need - Segment
- Traffic Safety Need - Intersection

\*No PSI or TSN intersections/segments west of Otterdale Road

# US 360 at Winterpock Rd

116 Total Crashes ( January 1, 2014 - December 31, 2018)



## Type of Collision

- 65 (56%) rear end
- 38 (33%) angle

## Contributing Factors

- Red light running
- Stopped at red light

## Crash Severity

- 17 (15%) B-crash
- 4 (3%) C-crash
- 1 (1%) A-crash

## Time Period

- 62 (53%) off peak
- 44 (38%) PM peak (3pm-6pm)

# US 360 and Hancock Village Dr./Duckridge Blvd.

## 72 Total Crashes ( January 1, 2014 - December 31, 2018)



### Type of Collision

- 47 (65%) rear end
- 15 (21%) angle

### Contributing Factors

- EB slowing traffic

### Crash Severity

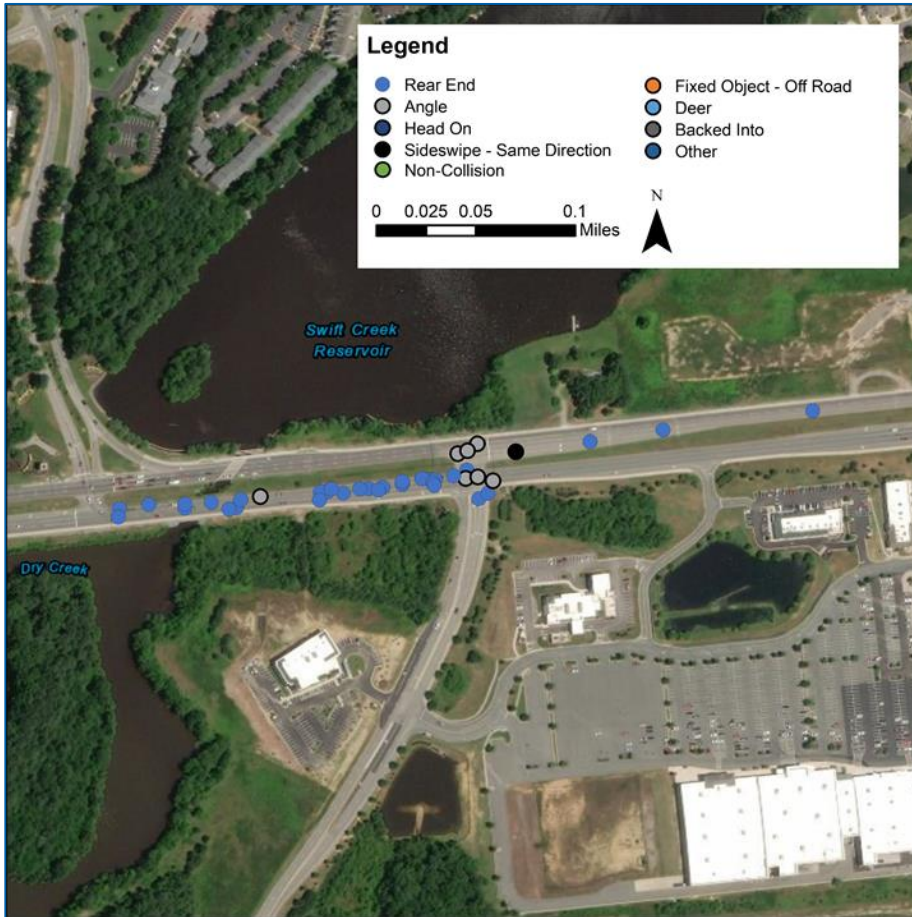
- 16 (22%) B-crash
- 2 (3%) C-crash
- 1 (1%) A-crash

### Time Period

- 43 (60%) off peak
- 20 (28%) PM peak (3pm-6pm)

# US 360 and Ashlake Pwky.

42 Total Crashes ( January 1, 2014 - December 31, 2018)



## Type of Collision

- 33 (79%) rear end
- 8 (19%) angle

## Crash Severity

- 5 (12%) B-crash
- 2 (5%) C -crash
- 2 (5%) A-crash

## Time Period

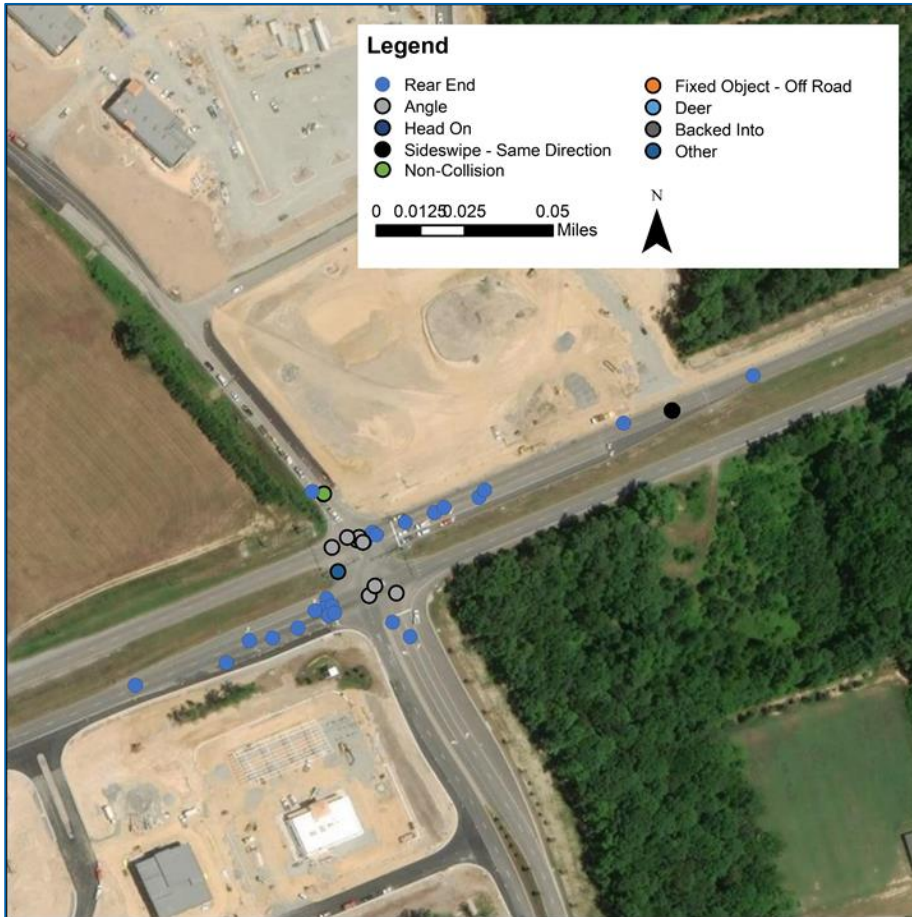
- 20 (48%) off peak
- 12 (29%) PM peak (3pm-6pm)
- 10 (24%) AM peak (6am-9am)

## Contributing Factors

- EB slowing traffic

# US 360 and Otterdale Rd

38 Total Crashes ( January 1, 2014 - December 31, 2018)



## Type of Collision

- 27 (71%) rear end
- 8 (21%) angle

## Crash Severity

- 6 (16%) B-crash
- 5 (13%) C-crash
- 2 (5%) A-crash

## Time Period

- 35 (60%) off peak
- 11 (29%) PM peak (3pm-6pm)
- 4 (11%) AM peak (6am-9am)

## Contributing Factors

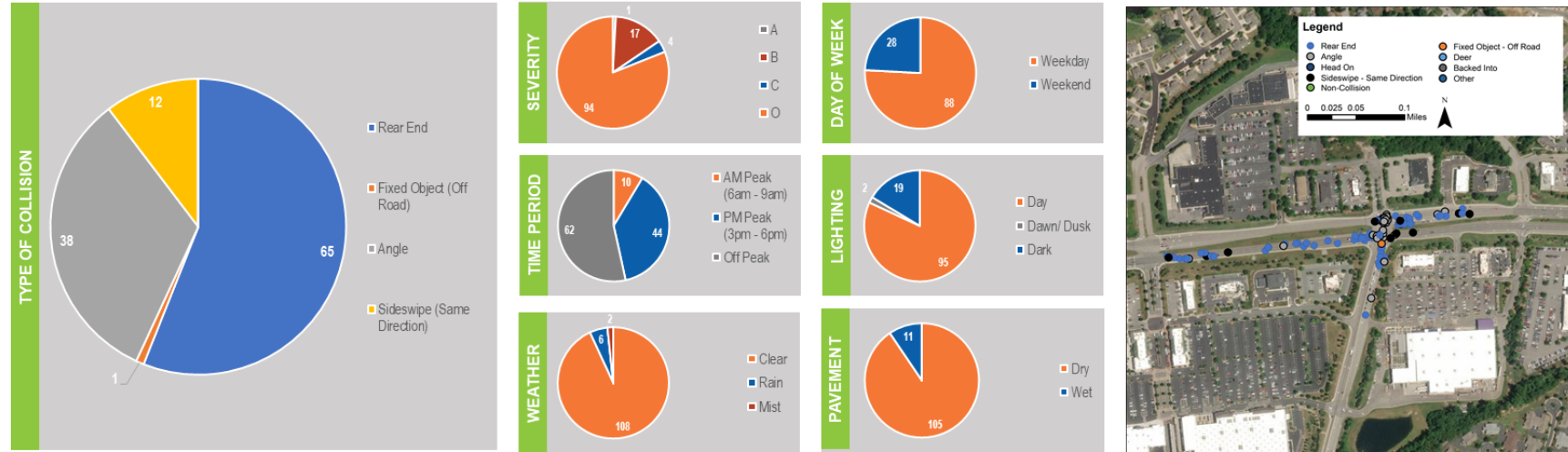
- EB slowing traffic
- Red light running
- WBL turn during permitted phase (2016)

# Intersection Crash Summaries

## 2. US 360 AT WINTERPOCK ROAD

Summary of Crash Data: January 1, 2014 - December 31, 2018

Signalized | 116 Total Crashes



YEAR	SEVERITY					DAY OF WEEK		TIME PERIOD			LIGHTING		
	K	A	B	C	O	Weekday	Weekend	AM Peak (6am - 9am)	PM Peak (3pm - 6pm)	Off Peak	Day	Dawn/ Dusk	Dark
2014	--	1	3	1	16	14	7	1	6	14	16	1	4
2015	--	--	5	--	14	13	6	2	12	5	15	1	3
2016	--	--	3	1	29	26	7	4	9	20	28	--	5
2017	--	--	2	1	22	25	--	2	12	11	23	--	2
2018	--	--	4	1	13	10	8	1	5	12	13	--	5
<b>TOTAL</b>	<b>0 (0%)</b>	<b>1 (1%)</b>	<b>17 (15%)</b>	<b>4 (3%)</b>	<b>94 (81%)</b>	<b>88 (76%)</b>	<b>28 (24%)</b>	<b>10 (9%)</b>	<b>44 (38%)</b>	<b>62 (53%)</b>	<b>95 (82%)</b>	<b>2 (2%)</b>	<b>19 (16%)</b>

YEAR	WEATHER							PAVEMENT			TYPE OF COLLISION										
	Clear	Rain	Snow	Mist	Sleet/ Hail	Fog	Other	Dry	Wet	Other	Rear End	Fixed Object (Off Road)	Angle	Sideswipe (Same Direction)	Deer	Non-Collision	Head On	Fixed Object (In Road)	Other	Backed Into	Pedestrian / Bicyclist
2014	20	1	--	--	--	--	--	20	1	--	12	--	6	3	--	--	--	--	--	--	--
2015	18	1	--	--	--	--	--	18	1	--	8	1	8	2	--	--	--	--	--	--	--
2016	29	3	--	1	--	--	--	27	6	--	17	--	13	3	--	--	--	--	--	--	--
2017	25	--	--	--	--	--	--	25	--	--	19	--	3	3	--	--	--	--	--	--	--
2018	16	1	--	1	--	--	--	15	3	--	9	--	8	1	--	--	--	--	--	--	--
<b>TOTAL</b>	<b>108 (93%)</b>	<b>6 (5%)</b>	<b>0 (0%)</b>	<b>2 (2%)</b>	<b>0 (0%)</b>	<b>0 (0%)</b>	<b>0 (0%)</b>	<b>105 (91%)</b>	<b>11 (9%)</b>	<b>0 (0%)</b>	<b>65 (56%)</b>	<b>1 (1%)</b>	<b>38 (33%)</b>	<b>12 (10%)</b>	<b>0 (0%)</b>	<b>0 (0%)</b>	<b>0 (0%)</b>	<b>0 (0%)</b>	<b>0 (0%)</b>	<b>0 (0%)</b>	<b>0 (0%)</b>

# Software Tool Analysis Areas

Analysis Periods - AM: 7:45am-8:45am | PM: 5:00pm-6:00pm

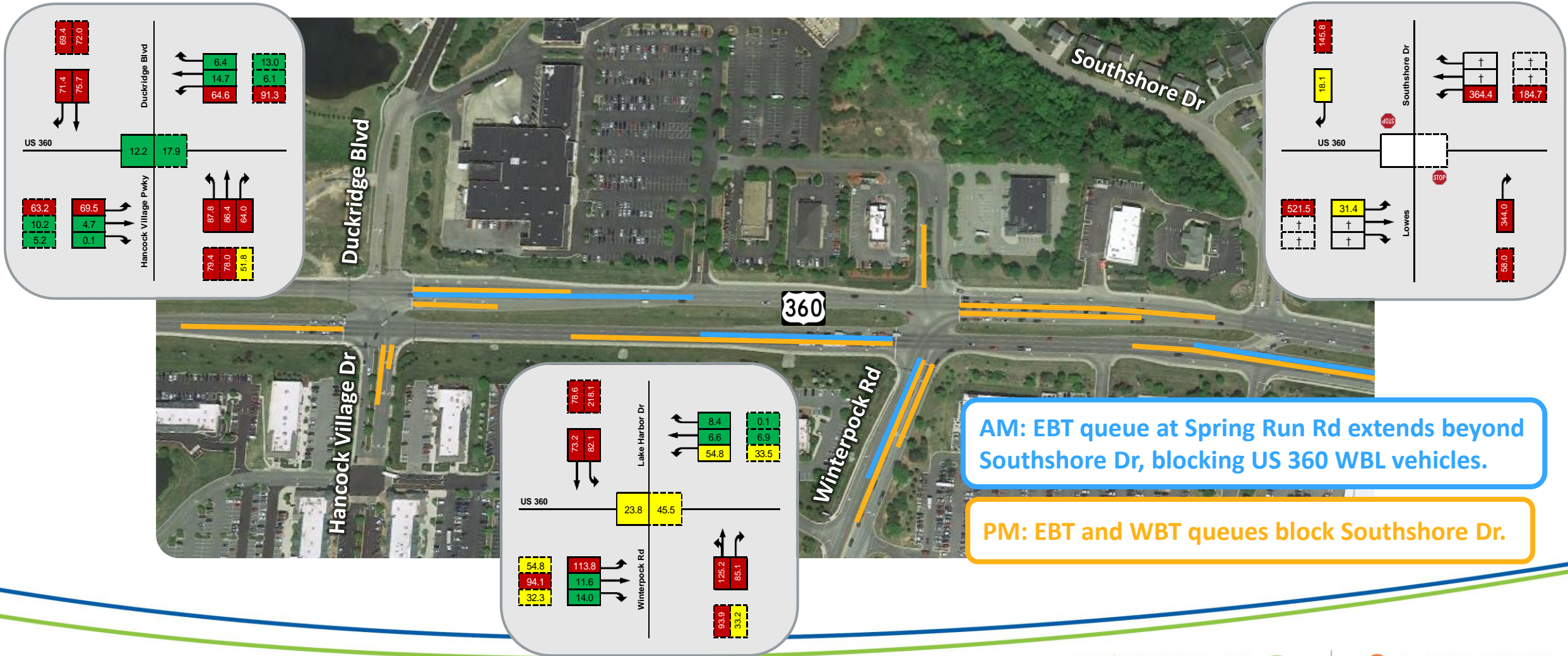


**West of Magnolia Green Pkwy**  
**Analysis Tool:** Synchro 10  
**MOEs:** Control delay, 95th percentile queue length

**Winterpock Rd to Magnolia Green Pkwy**  
**Analysis Tool:** SimTraffic 10  
**MOEs:** Maximum queue length, 95th percentile queue length

# Peak Hour Queue and Control Delay

## Southshore Dr to Hancock Village Dr/Duckridge Blvd



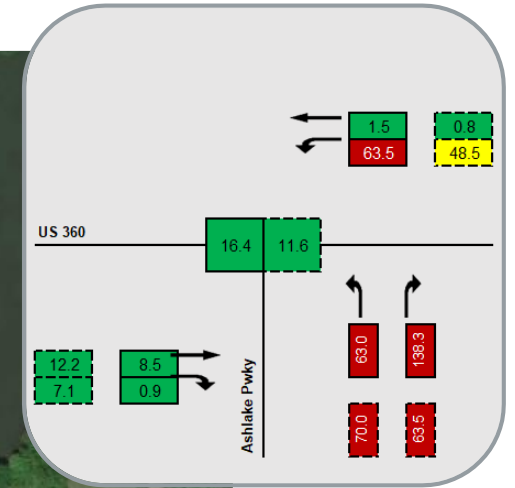
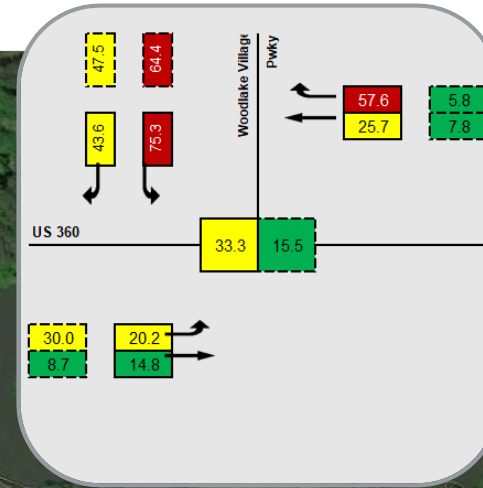
AM: EBT queue at Spring Run Rd extends beyond Southshore Dr, blocking US 360 WBL vehicles.

PM: EBT and WBT queues block Southshore Dr.



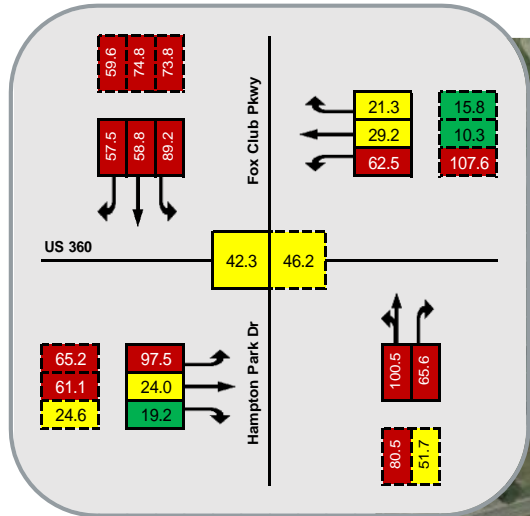
# Peak Hour Queue and Control Delay

## Ashlake Pkwy to Woodlake Village Commons



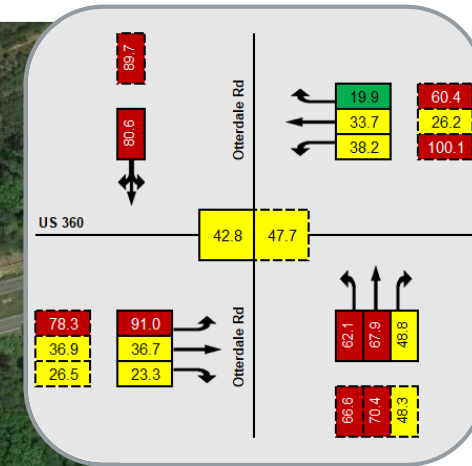
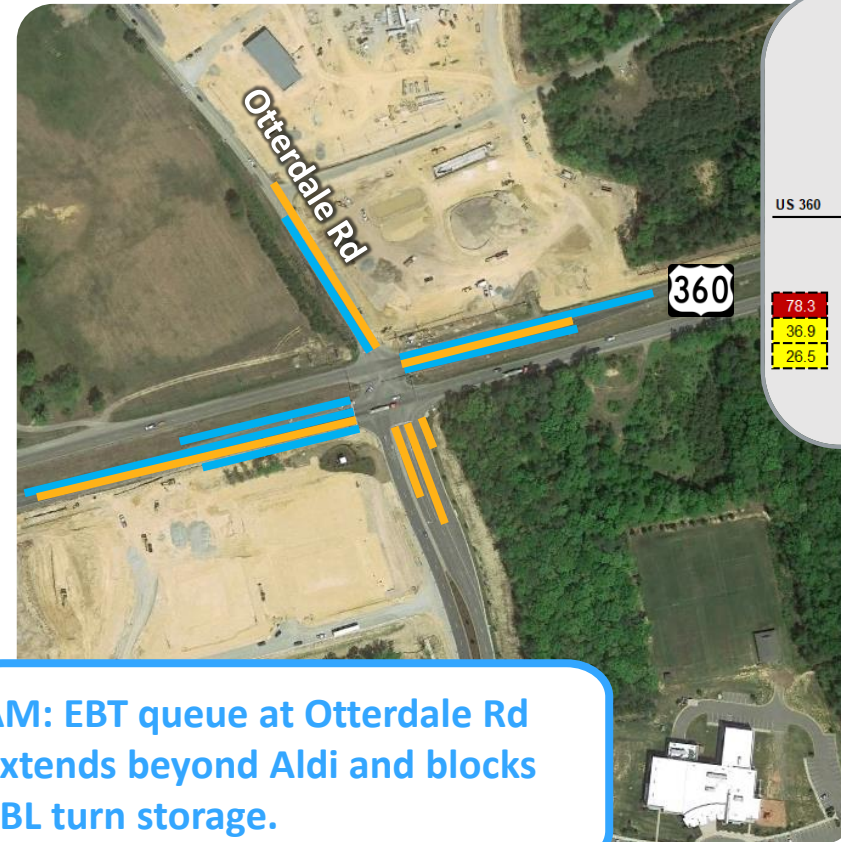
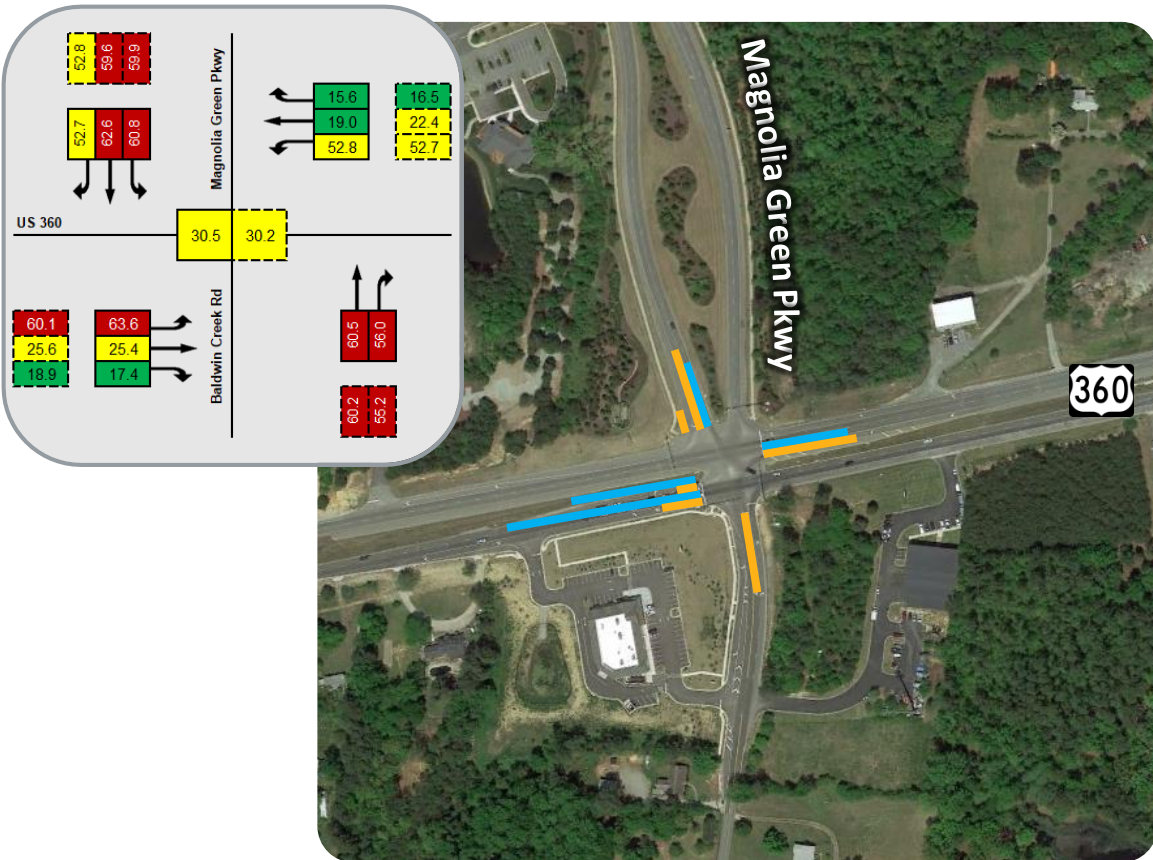
# Peak Hour Queue and Control Delay

Cosby Rd to Fox Club Pkwy/Hampton Park Dr



# Peak Hour Queue Observations

Otterdale Rd to Magnolia Green Pwky/Baldwin Creek Rd



# Traffic Forecasting

# Traffic Forecasting

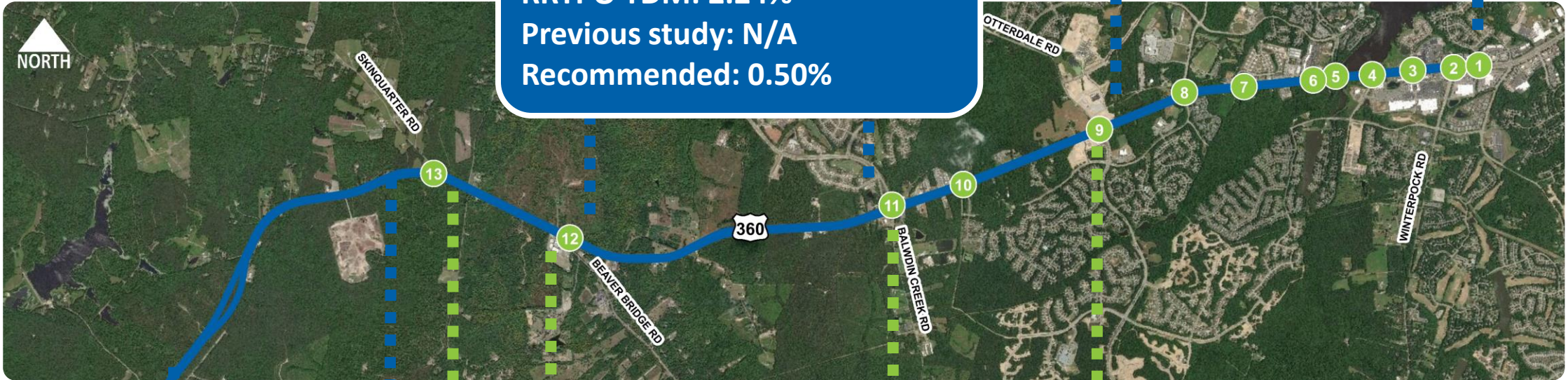
- Linear growth rate development (2019 to 2040)
  - Agreed upon growth rates will be applied linearly to existing (2019) balanced volumes
- Data sources
  - Richmond TPO Regional Travel Demand Model [2012-2040]
    - Does not include Amelia County
    - TDM output adjusted using NCHRP-765 methodologies
    - 2012 and 2040 transportation networks unrefined (includes unconstrained projects)
  - Historical traffic count data [Varies]
  - VDOT Statewide Planning System (SPS) database [Varies]
  - Previous studies
    - STARS US 360/Route 288 Interchange Study [2014]
    - STARS US 360/Route 288 Subarea Model (without “Big Powhite”) [2014]
  - Socioeconomic data [2012-2040, 2017-2045]
- “High density” development scenario methodology (sensitivity analysis)

# Proposed Growth Rates

## Chesterfield County

Historical: 2.26%  
 RRTPO TDM: 2.33-5.76%  
 STARS 288/360 Study: 1.00%  
 STARS 288/360 Subarea: 1.40%  
 Recommended: 1.50%

Historical: 0.34%  
 RRTPO TDM: 2.24%  
 Previous study: N/A  
 Recommended: 0.50%



Historical: 0.34%  
 RRTPO TDM: 2.05%  
 Previous study: N/A  
 Recommended: 0.50%

Historical: 0.34%  
 RRTPO TDM: 3.96%  
 Previous study: N/A  
 Recommended: 0.50%

Historical: 1.92%  
 RRTPO TDM: 4.57%  
 Previous study: N/A  
 Recommended: 2.00%

# Proposed Growth Rates

Amelia County from Chesterfield County to Goodes Bridge Rd



Historical: 0.51%  
RRTPO TDM: 2.05%  
Previous study: N/A  
Recommended: 0.50%

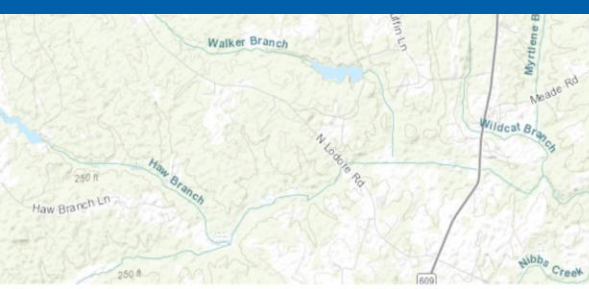
Historical: 0.73%  
TDM: N/A  
Previous study: N/A  
Recommended: 0.50%

Historical: 0.24%  
TDM: N/A  
Previous study: N/A  
Recommended: 0.50%

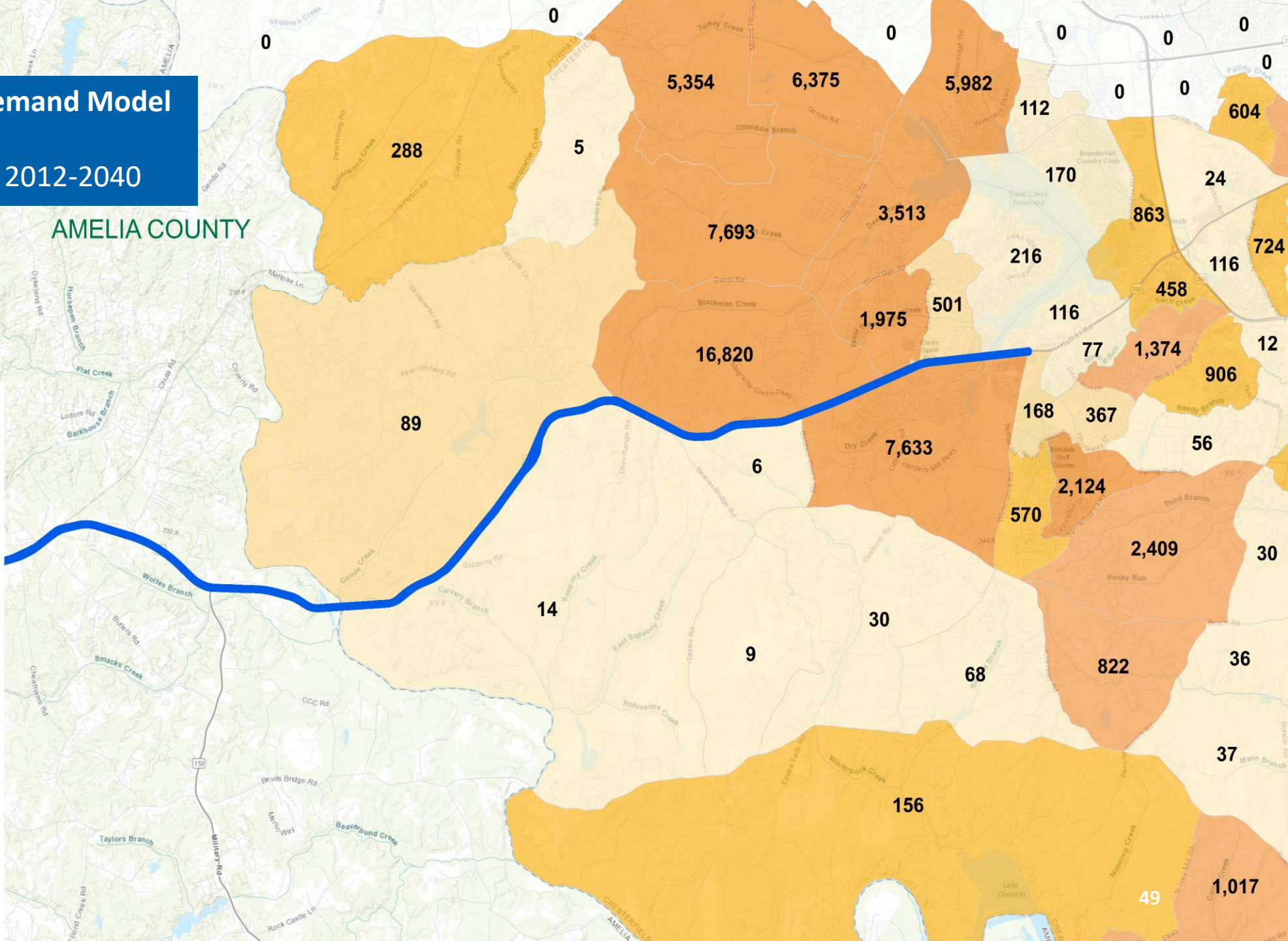
Historical: 0.64%  
TDM: N/A  
Previous study: N/A  
Recommended: 0.50%

# Richmond Regional Travel Demand Model 2012-2040

## Projected Population Change 2012-2040



AMELIA COUNTY



### LEGEND

US 360 Study Corridor

### 2012-2040 Population Data

#### Projected Population Change


- 0%
- 0-10%
- 10-20%
- 20-50%
- 50-100%
- >100%











# Richmond Regional Travel Demand Model 2017-2045 Draft Projected Population Change 2017-2045


## LEGEND

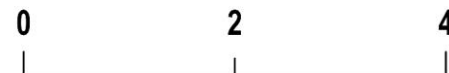
 US 360 Study Corridor

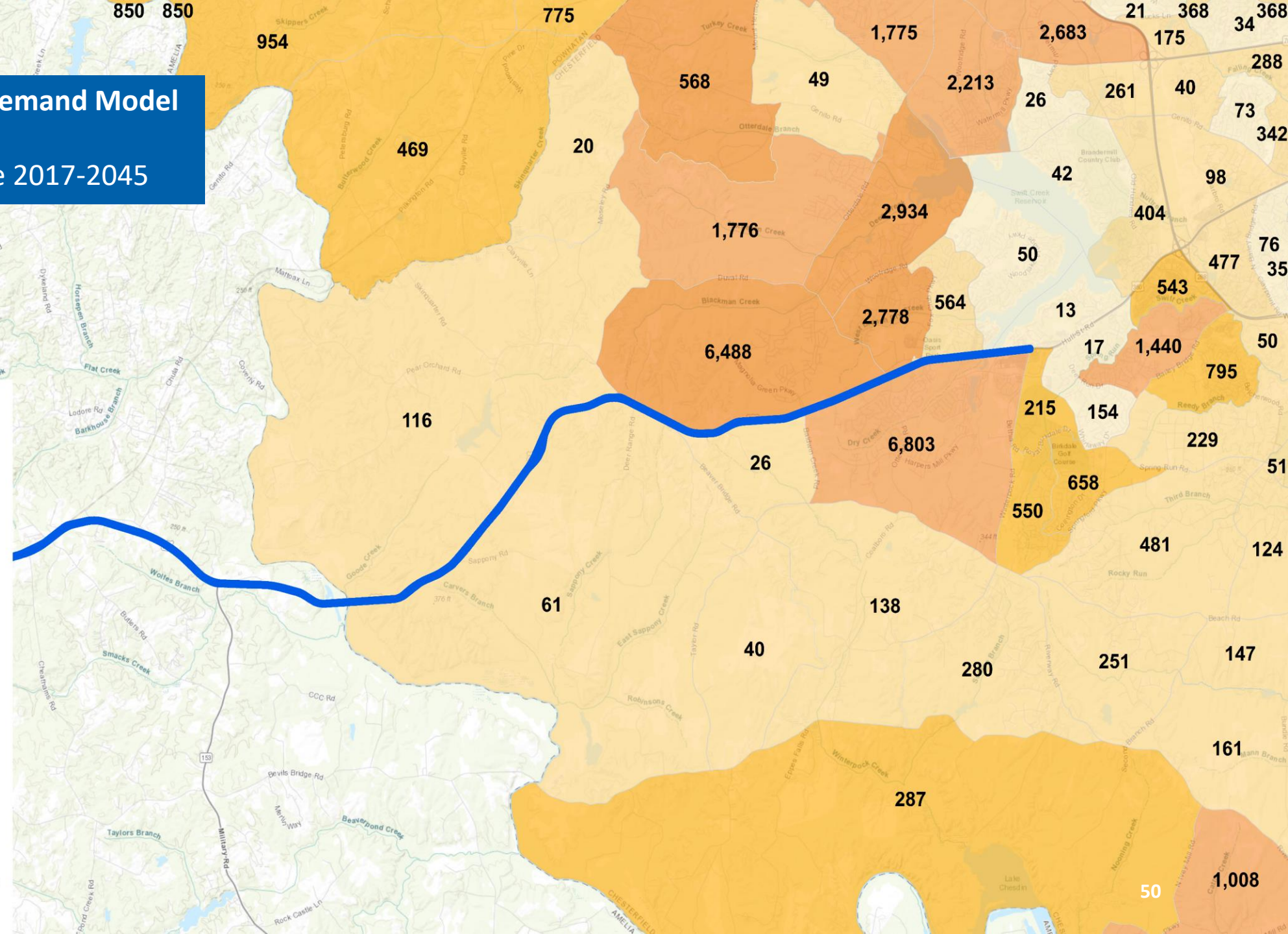
**2017-2045 Population Data**

**Projected Population Change**

-  0%
-  0-10%
-  10-20%
-  20-50%
-  50-100%
-  >100%

 **NORTH**

 0 2 4 **MILES**



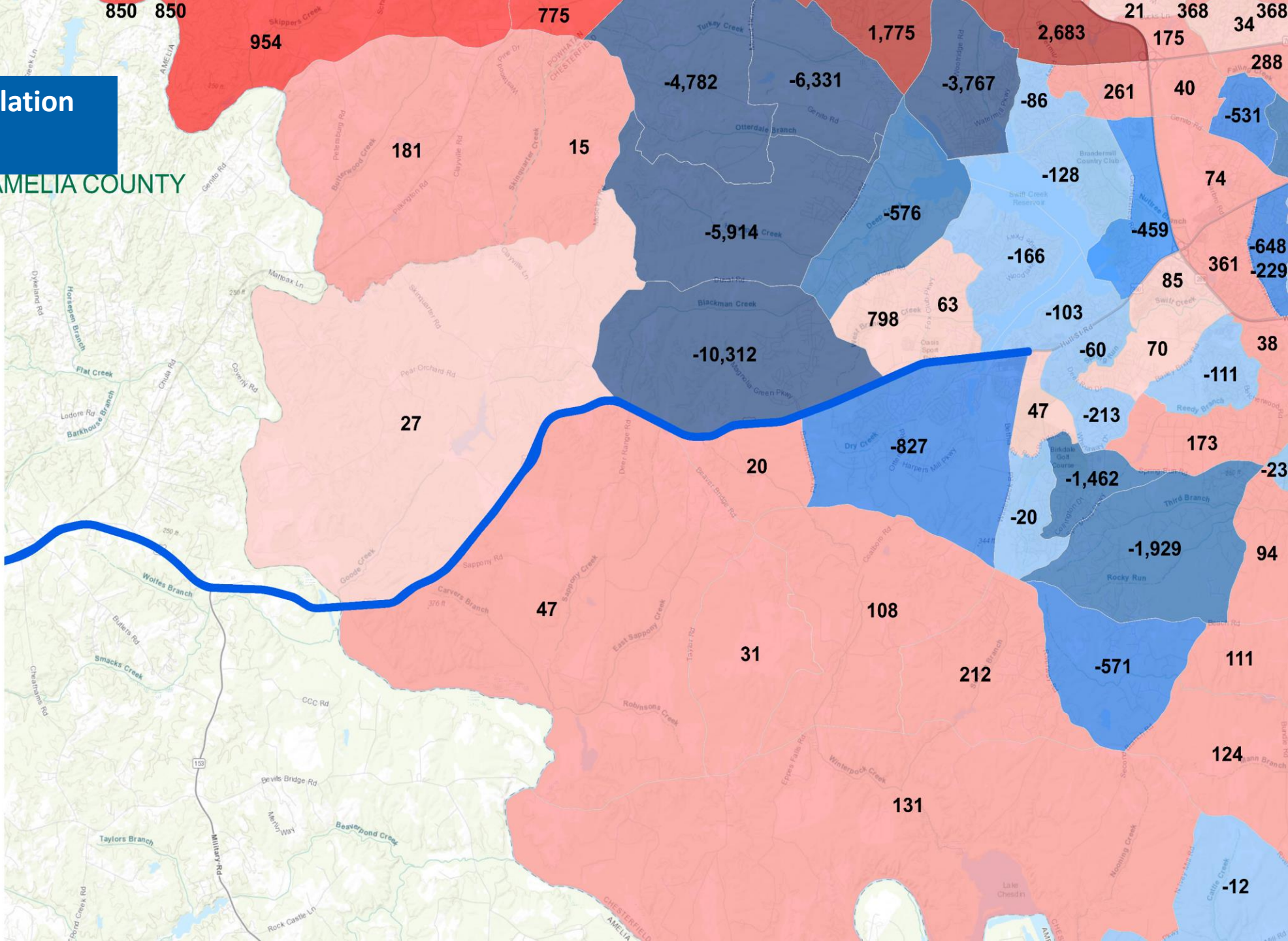
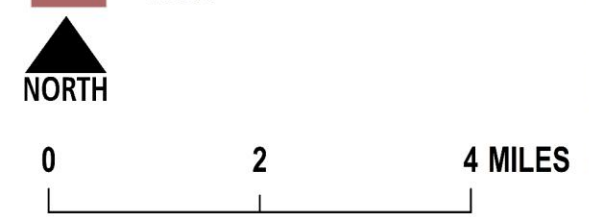
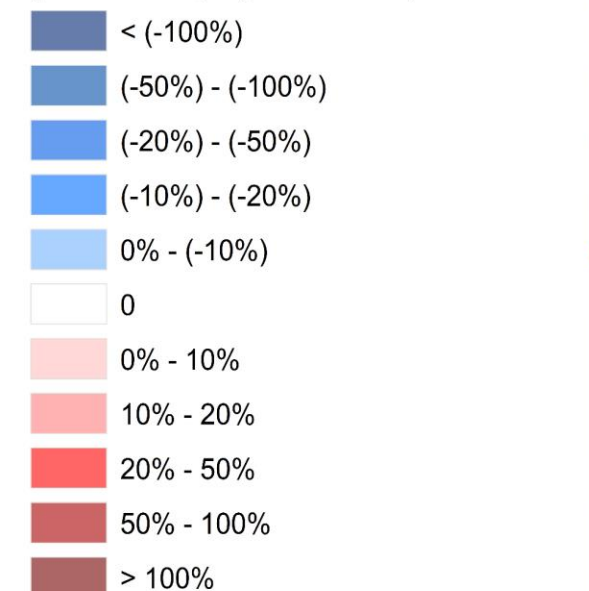
# Difference in Projected Population Change

AMELIA COUNTY

## LEGEND

— US 360 Study Corridor


### Projected Population Difference (2017-2045) - (2012-2040)



# Richmond Regional Travel Demand Model 2012-2040







## Projected Employment Change 2012-2040


### LEGEND

 US 360 Study Corridor


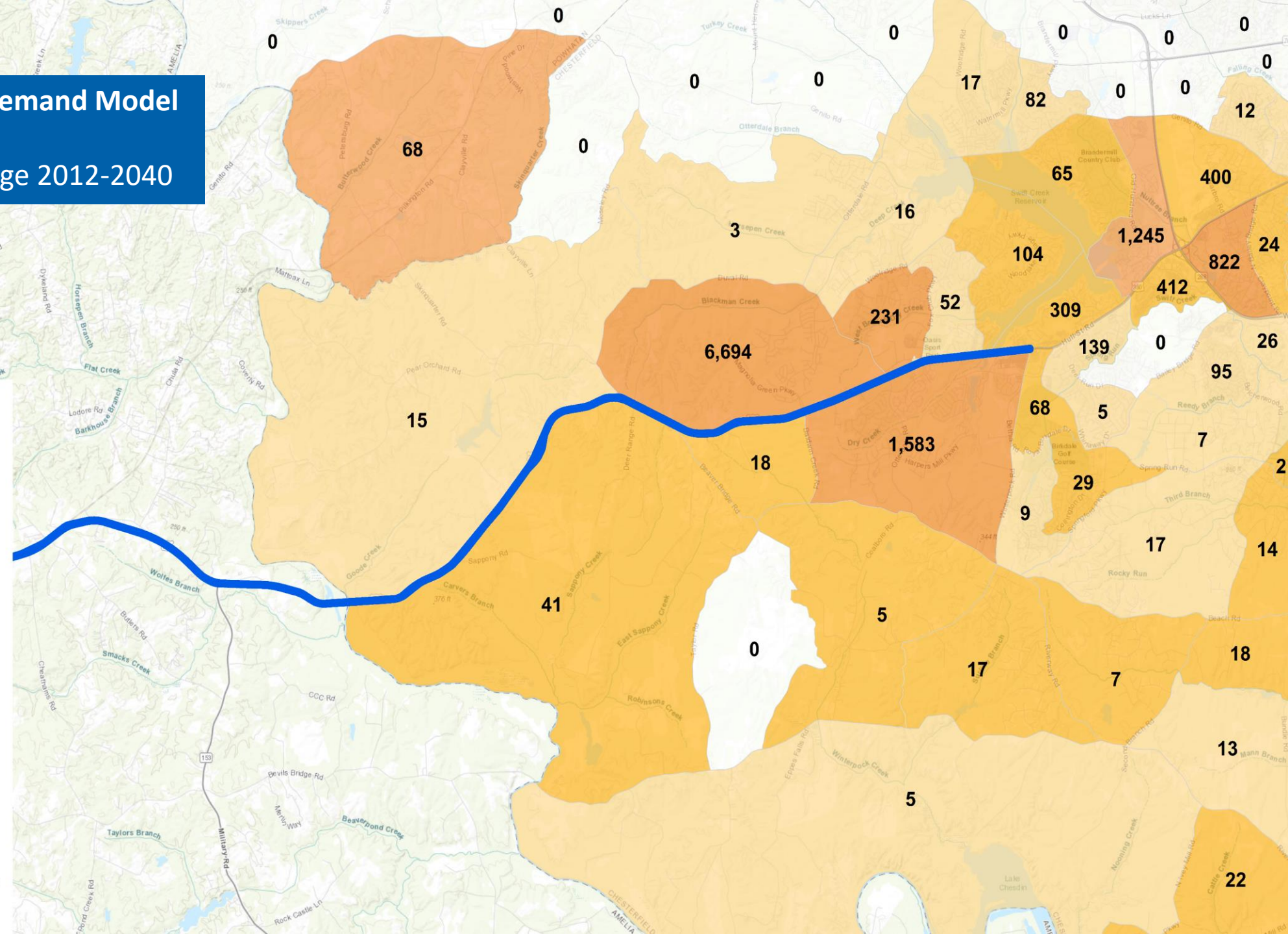
#### 2012-2040 Employment Data

#### Projected Employment Change

	0%
	0-10%
	10-20%
	20-50%
	50-100%
	>100%

 NORTH

0      2      4 MILES





# Concept Testing

Proposed High Density Sensitivity Analysis Methodology

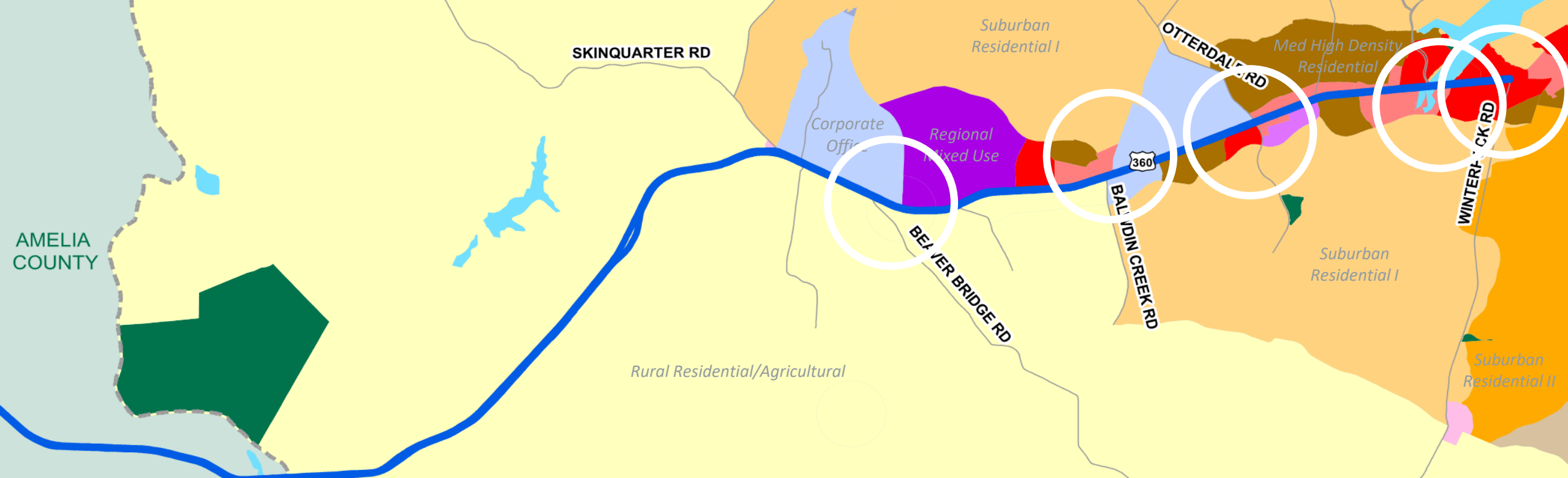
# High Density Sensitivity Analysis

## Methodology

**Objective:** Test potential alternatives assuming a future high-density land use scenario to mitigate uncertainty associated with future growth.

### Proposed Five intersections:

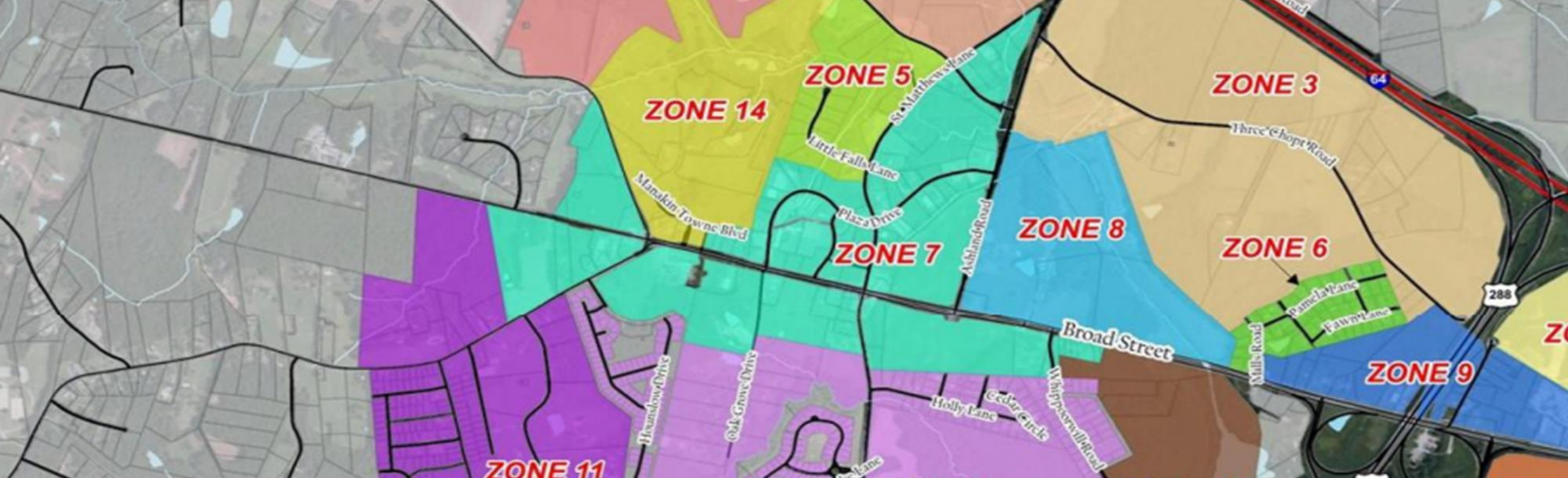
1. US 360 and Winterpock Road
2. US 360 and Ashlake Parkway
3. US 360 and Otterdale Road
4. US 360 and Magnolia Green Parkway
5. US 360 and Beaver Bridge Road



## High Density Sensitivity Analysis Methodology

**Step 1:** Define a high intensity land use scenario based on the amount of approved and planned future development.





## High Density Sensitivity Analysis Methodology

**Step 2:** Segment the study area into development zones based on land use and trip characteristics such as percent developable land, floor-to-area ratio, and percent of internal capture.

Land Use	Description	ITE Code	Area	Developable Land	Developable Area	Total	Trips		
							Daily	AM	PM
<b>ZONE 1</b>									
Residential	Single Family (2.5 units/acre)	210	254 AC	45%	286 AC	286 Units	2,759	210	270
<b>Total Zone 1 Trips</b>							<b>2,759</b>	<b>210</b>	<b>270</b>
<b>ZONE 2</b>									
			11,388,315 SF	35%	3,985,910 SF				
Industrial	General Light Industrial (80% of total)	110	FAR 0.2		3,188,728 SF	637,746 SF	4,663	842	1,069
Commercial	Shopping Center (20% of total)	820	FAR 0.2		797,182 SF	159,436 SF	9,196	207	819
Pass-By Reduction (30%)							2,759	62	246
<b>Total Zone 2 Trips</b>							<b>11,100</b>	<b>987</b>	<b>1,642</b>
<b>ZONE 3</b>									
Mixed Use	Mixed Use		371 AC	40%	148 AC				
	Shopping Center (80% of total)	820	FAR 0.2		119 AC	1,034,289 SF	31,007	648	2,866
	General Office Building (20% of total)	710	FAR 0.2		30 AC	258,572 SF	2,703	409	368
<b>Subtotal</b>							<b>33,710</b>	<b>1,057</b>	<b>3,234</b>

## High Density Sensitivity Analysis Methodology

**Step 3:** Calculate the total amount of residential, office, and commercial trips generated. Distribute the high-intensity land use trips to the network based on existing traffic patterns. Add the additional trips to the calculated proposed growth for the corridor. These high density volumes will only be used during concept testing.



## High Density Sensitivity Analysis Methodology

**Step 4:** For the five identified intersections, perform a sensitivity analysis during the concept testing stage to determine the effectiveness of the proposed improvements and the need for additional improvements.

# No-Build Conditions

Funded Background Improvements

# No-Build Conditions

## Funded Background Improvements

Background improvements will be coded into the No-Build Synchro model and will be the base scenario to compare to proposed alternatives

- US 360 at Spring Run Road intersection improvements
  - Add dual northbound right turn lanes, dual westbound left turn lanes, and new westbound right turn lane
  - Timeline: Construction anticipated to begin Spring 2020
- Winterpock Road widening
  - Two to four lane widening from US 360 to south of Royal Birkdale Parkway
  - Timeline: Construction anticipated to begin Summer 2020
- Otterdale Road widening
  - Two to four lane widening from US 360 to Woolridge Road
  - Timeline: Spring 2020 to Spring 2021
- Additional background improvements? Proffers?

# US 360 at Spring Run Rd Improvements Construction Spring 2020

REVISION	STATE	ROUTE	PROJECT	SHEET
	VA	360	0360-020-689, RW-201 C-501	5

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

A. Morton Thomas & Assoc., Inc.  
 Richmond, Virginia  
 HYDRAULIC ENGINEER

A. Morton Thomas & Assoc., Inc.  
 Richmond, Virginia  
 ROADWAY ENGINEER

Curve 702-4  
 PI = 12179.32  
 DELTA = 33° 03' 30.53" (LT)  
 D = 15° 54' 56"  
 T = 106.84'  
 L = 207.71'  
 PC = 360.00'  
 R = 12072.48'  
 PT = 12280.19'

P&F LLC.  
 DB6007 PG585  
 PB113 PG71  
 PB113 PG76  
 PB122 PG23  
 PB202 PG43  
 2.072 AC.  
 Tax\* 725671375700000

Begin Constr. / Begin Project  
 0360-020-689, C-501-PE-101-RW-201  
 Route 360 Construction Bl.  
 Sta. 201+24.62

WB HULL STREET ASSOCIATES LLC.  
 DB5636 PG222  
 PB152 PG10  
 2.077 AC.  
 Tax\* 725672420300000

EX-5-01  
 In Pl. Conc. DI  
 Top = 277.65'  
 Inv. Out = 274.20'

EX-5-02  
 In Pl. Conc. MH  
 Top = 278.40'  
 Inv. In = 274.60'  
 Inv. Out = 274.25'

EX-5-03  
 In Pl. Conc. DI  
 Top = 277.03'  
 Inv. In = 272.73'  
 Inv. Out = 272.68'

EX-5-04  
 In Pl. Conc. DI  
 Top = 278.99'  
 Inv. Out = 274.89'

BODDIE MIDLOTHIAN LLC.  
 DB4784 PG81  
 PB118 PG94  
 PB152 PG10  
 2.412 AC.  
 Tax\* 725672818000000

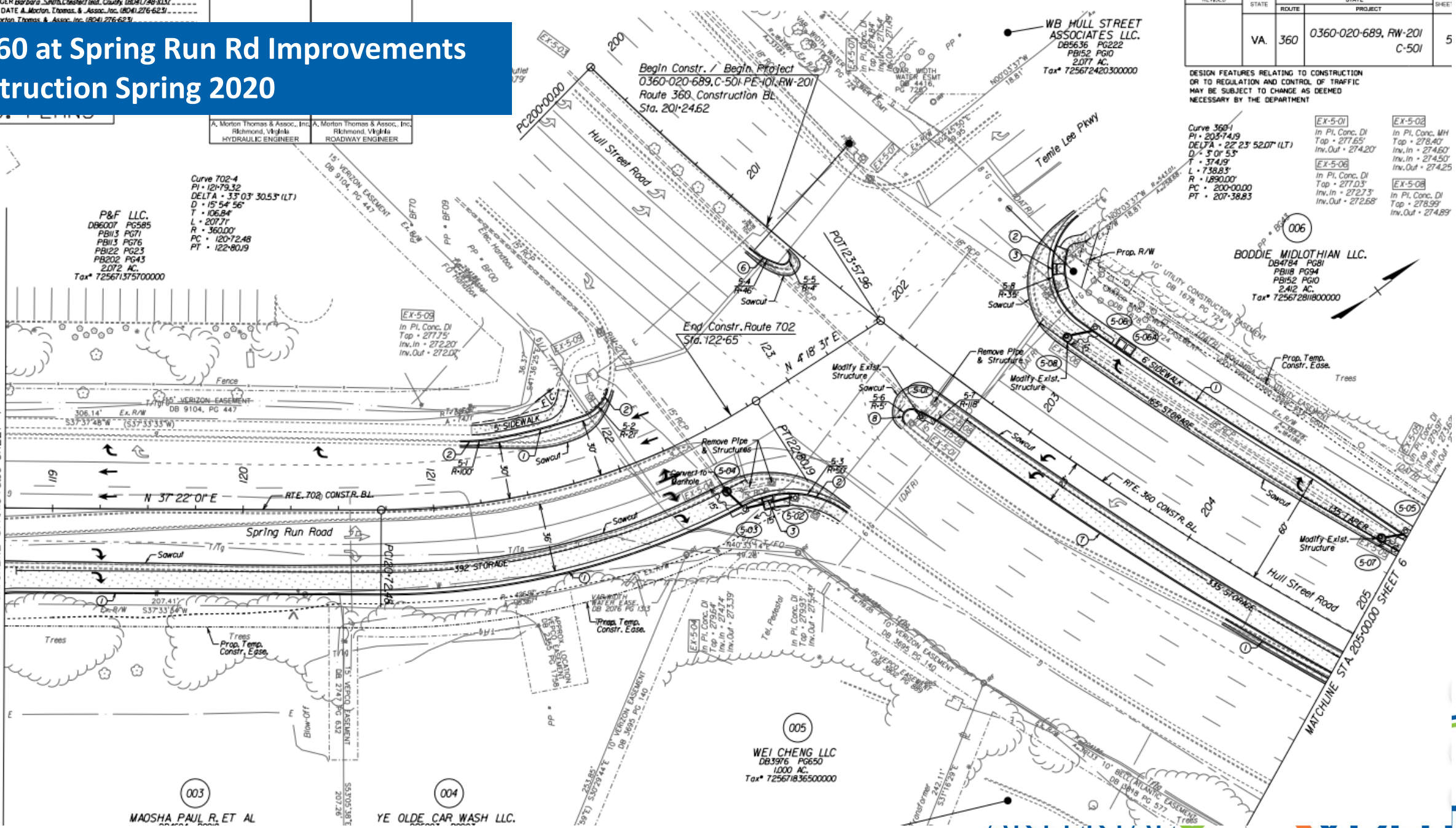
WEI CHENG LLC  
 DB3976 PG650  
 1.000 AC.  
 Tax\* 725671836500000

MAOSHA PAUL R, ET AL

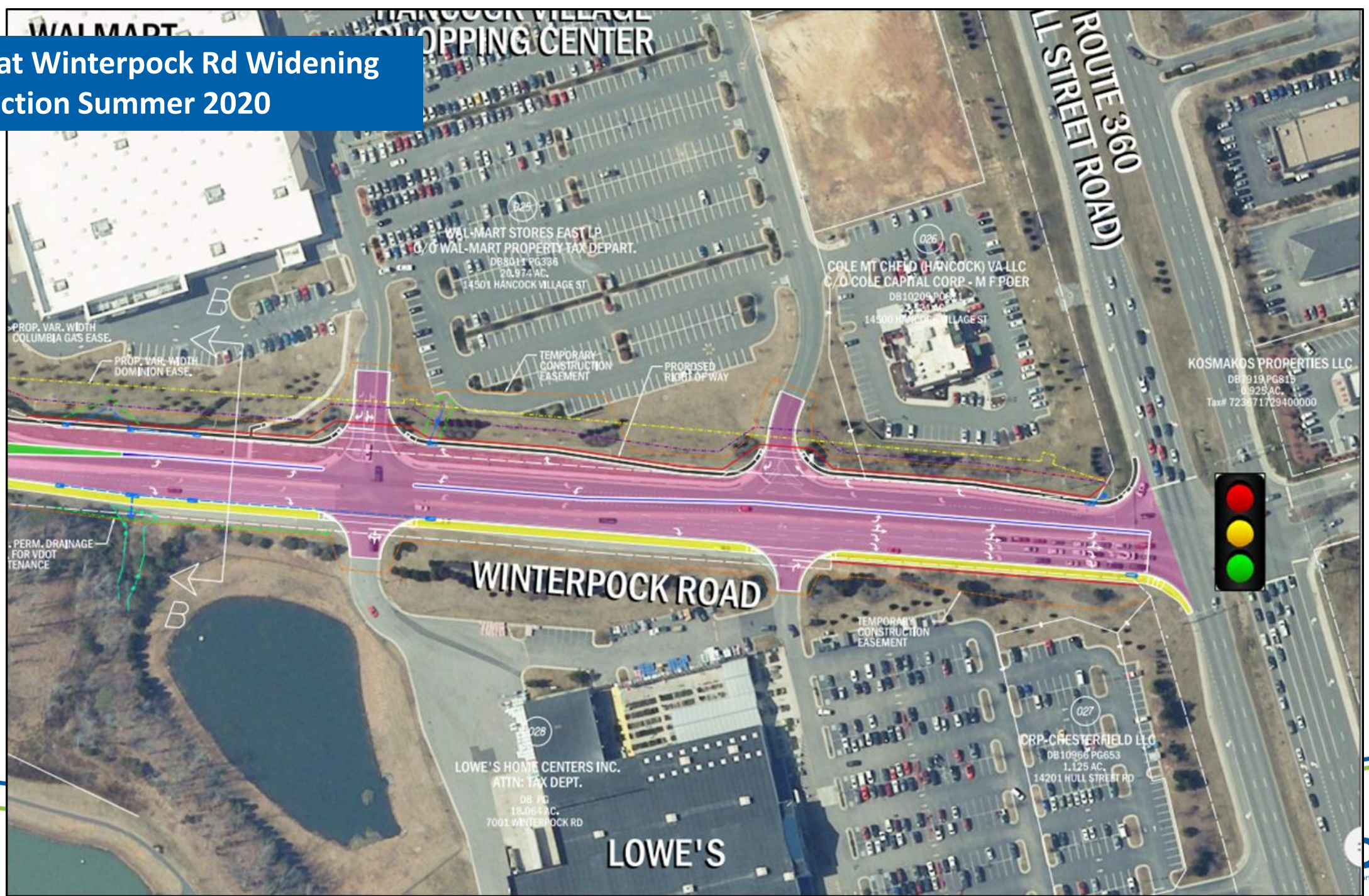
YE OLDE CAR WASH LLC.

MATCHLINE STA. 118+75.00 SHEET 4

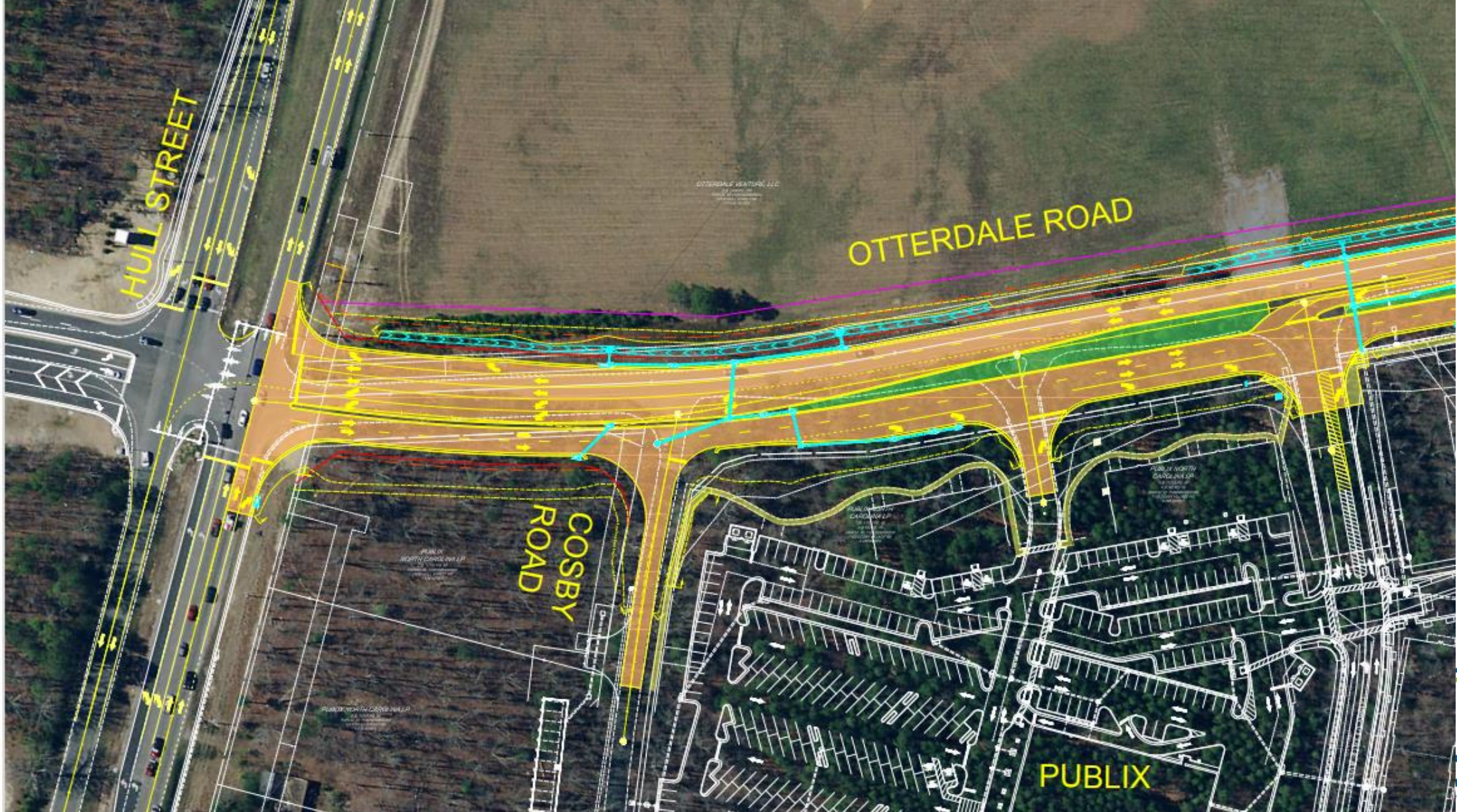
MATCHLINE STA. 205+00.00 SHEET 6



# US 360 at Winterpock Rd Widening Construction Summer 2020



# US 360 at Otterdale Rd Widening Spring 2020 to Spring 2021





# Next Steps

Schedule and Major Milestones

# Next Steps

- Finalize growth rates
- Develop future traffic volumes
- Process MetroQuest results
- Conduct No-Build traffic operations analysis
- Concept development and screening

# Overall Schedule and Major Milestones

- April-May: Forecasting and No-Build Conditions
- May-June: Concept Development and Screening
  - Full SWG Meeting
- June-July: Cost Estimates, Schedules, Reporting
  - Technical Committee Review and Meeting
  - Full SWG Meeting
  - Community Engagement

# ARTERIAL

PRESERVATION PROGRAM

**US 360 Arterial Management Plan (AMP)  
Existing Conditions and Forecasting Meeting**

Thursday, April 30, 2020 | 2:00pm-3:30pm