MONTGOMERY COUNTY
LOCAL AREA TRANSPORTATION REVIEW

15700 Shady Grove Road – Dash In
Montgomery County, MD

Prepared for:

The Wills Group

Prepared by:

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November 17, 2025

Exhibit 11
OZAH Case No: CU 26-04

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TABLES

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EXECUTIVE SUMMARY

This report presents a Local Area Transportation Review (LATR) prepared in support of the proposed redevelopment of an existing 7,473 square-foot (SF) High-Turnover (Sit Down) Restaurant within the General Retail (GR) employment zone. The "Project" will remove the existing restaurant use and construct a Convenience Market with Gas Pumps and Rollover Carwash. The "Site" is located at 15700 Shady Grove Road within the Derwood (Orange) Policy Area of Montgomery County, MD and is situated in the north-east quadrant of the Shady Grove Road / I-270 interchange. The subject Site is identified as Parcel 7-C of Plat 11309 (1.995 acres).

The Wills Group ("Applicant") is proposing to construct an approximately 4,800 SF Convenience Store with 14 fueling positions, as well as an accessory Automated Roll-over Style Car Wash with one tunnel. Access to the site will continue to be provided via the existing right-in/right-out (RIRO) private driveway connection to westbound median-divided Shady Grove Road. Within the overall commercial center, the Project will include two (2) connections to the private driveway, consistent with existing conditions, but with one of the driveways shifted further from Shady Grove Road to provide improved operations and separation.

Table 1: Net New Vehicle Trips

	Land Use	Land Use Code	Units or Square Feet	Peak Hour Motor Vehicle Trips after Adjustments		
				AM	PM	Daily
Existing Use	High-Turnover (Sit Down) Restaurant	932	7,473	63	34	552
Proposed Use	Convenience Market with Gas Pumps - VFP 9-15	945	4,800	65	65	715
	Automated Car Wash Accessory to LUC 945	Special Study	1 tunnel			
Net New Trips				+2	+31	+163

The Project is expected to result in greater than 30 net new vehicle trips and is therefore required to prepare a full Local Area Transportation Review to address the transportation requirements set forth in the Growth and Infrastructure (GIP) Policy for 2024-2028. This evaluation includes the following components:

- Motor Vehicle Adequacy: Intersection Delay
- Pedestrian Adequacy: Streetlighting, ADA & Pedestrian Level of Comfort (PLOC)
- Bicycle Adequacy: Bicycle Level of Traffic Stress (LTS)
- Transit Adequacy: Bus Shelter and Amenities
- Vision Zero: Speed Study Evaluation

The scope of this LATR study was established in consultation with Maryland-National Capital Park and Planning Commission (M-NCPPC), Maryland State Highway Administration (SHA), and the Montgomery County Department of Transportation (MCDOT). Further, the existing use was in operation for more than 12 years, which makes it eligible for trip credit. The trip generation is summarized on **Table 1**.

Deficiencies identified through these analyses have been evaluated to identify what improvements would be needed to attain adequacy. Each improvement was then evaluated to establish a list of proposed mitigation measures. The cumulative implementation costs for the overall list of improvements would exceed the Project's Proportionality Guide amount of up to $124,695. Therefore, some improvements were excluded and are not proposed to be completed or otherwise addressed by the Applicant. Summaries of these findings can be found in **Table 2**.

The full list of proposed mitigation is presented on **Table 8** and summarized below:

- Provide a 10' sidepath across the frontage of the property and remove the existing deficient sidewalk. [Frontage Improvement]
- Reconstruct the existing ADA ramps and install a striped crosswalk on the site driveway at the intersection with Shady Grove Road. [Frontage Improvement]
- Install nine (9) pedestrian lights attached to existing power poles along westbound Shady Grove Road. The estimated cost, including utilities, MOT, engineering and contingencies is approximately $128,250, which slightly exceeds the Proportionality Guide limit of $124,695
- Recommend that MCDOT update the signal timings at Choke Cherry Road / Shady Grove Road in the future as traffic volumes increase. [Not required to satisfy Motor Vehicle Adequacy Test]
- Total expended by Applicant on Off-Site Mitigation: $128,250
    - Exceeds Proportionality Guide Amount

Table 8: Full Results with Proposed Mitigation

ID		Location Description	Linear Feet	Is Adequate?	Adequacy Type and Existing Condition	Mitigation Needed	Feasible to Implement?	Notes on Feasability	Estimated Mitigation Cost	Proposed to be Completed	Mitigated By
Pedestrian Level of Comfort (PLOC)	P0	Site Frontage	120	No	PLOC rating: 4, Between 0'-2' of pathway buffer width, 8' wide sidewalk	Install new Sidepath with 10' pathway width and 8' pathway buffer width	Yes	Will be contructed behind the power poles on the site and place in a PIE.	N/A: Frontage Improvement	Yes	Improvement Constructed by Applicant - Frontage Improvement Not included in Proportionality Guide
	P1	Shady Grove Rd north side, west of Site Driveway	250	No	PLOC rating: 4, Between 0'-2' of pathway buffer width, 8' wide sidewalk	Install new Sidepath with 10' pathway width and 8' pathway buffer width	No	Large changes in grade at the edge of sidewalk	N/A: This section is within the Shady Grove Road / I-270 interchange and is excluded from mitigation requirements		
	P2	Driveway Crossing at Shady Grove Road	30	No	Unmarked Crosswalk with No Median	Install striped crosswalk	Yes		N/A: Frontage Improvement	Yes	Improvement Constructed by Applicant - Frontage Improvement Not included in Proportionality Guide
	P3	Shady Grove Rd north side, east of Site Driveway	250	No	PLOC rating: 4, Between 0'-2' of pathway buffer width, 8' pathway width	Install new Sidepath with 10' pathway width and 8' pathway buffer width	No	Widening would require ROW from the adjacent property and moving power poles	$222,539.30 + ROW Acquisition	No	Excluded due to Proportionality Guide Limit
	P4	Shell Driveway Crossing at Shady Grove Road	20	Yes	Driveway Apron Sidewalk Crossing	N/A				N/A	
	P5	Home Depot Driveway Crossing at Shady Grove Road	30	No	Unmarked Crosswalk with No Median	Install striped crosswalk	Yes			No	Excluded due to Proportionality Guide Limit
	P6	Shady Grove Rd south side, west and east of site frontage	620	Yes	PLOC rating: 2, 8'-10' pathway buffer width, >8' pathway width	N/A					
Lighting	L1	North and south sides of shady grove rd, 250' west and east of site frontage	N/A	No	Illuminance; Inadequate lighting values for multiple categories at multiple locations	Install pedestrian lighting	Yes		$128,250	Yes	Install nine (9) pedestrian lights on existing power poles along Shady Grove Road to illuminate sidewalk.
ADA	A1	Shady Grove Rd north side, west side of site driveway	N/A	No	ADA west ramp exceeds cross slope (>2%)	Reconstruct ADA Ramp west of site driveway	Yes		Included in P2 Above	Yes	Improvement Constructed by Applicant - Frontage Improvement Not included in Proportionality Guide
	A2	Shady Grove Road north side, east side of Site Driveway	N/A	Yes	Meets ADA measurement requirements	None				If needed, this ramp will be replaced by the Applicant to accommodate the new pedestrian crosswalk	
Bicycle Level of Traffic Stress (LTS)	B0	Shady Grove Road north side, Site Frontage	120	No	No Bike Facilities	Install new Sidepath with 10' pathway width and 8' pathway buffer width	Yes	Will be contructed behind the power poles on the site	N/A: Frontage Improvement	Yes	Improvement Constructed by Applicant - Frontage Improvement Not included in Proportionality Guide
	B1	Shady Grove Rd north side, west of site frontage	400	No	No Bike Facilities	Install new Sidepath with 10' pathway width and 8' pathway buffer width	No	Large changes in grade at the edge of sidewalk	Not Applicable: This section is within the Shady Grove Road / I-270 interchange and is excluded from mitigation requirements		
	B2	Shady Grove Rd north side, east of Site Driveway	400	No	No Bike Facilities	Install new Sidepath with 10' pathway width and 8' pathway buffer width	No	Widening would require ROW from the adjacent property	$222,539.30 + ROW Acquisition	No	Excluded due to Proportionality Guide Limit
	B3	Shady Grove Rd south side, west and east of site	920	Yes	Bicycle: LTS score of 1 (Buffer >10')	N/A					
Transit	T1	Shady Grove Rd north side, east of site driveway	N/A	Yes	Bus Stop: Shelter and Amenties Included	N/A					
	T2	Shady Grove Rd south side, east of site driveway	N/A	Yes	Bus Stop: Shelter and Amenties Included	N/A					
Total Proposed Off-Site Improvements											$128,250
Proportionality Guide											$124,695

SECTION 1: PROJECT INFORMATION

1.A: Project Summary

This Local Area Transportation Review (LATR) assesses the proposed convenience store with gas pumps and accessory roll-over style car wash located at 15700 Shady Grove Road in the Derwood (Orange) Policy Area of Montgomery County. For purposes of the study, Shady Grove Road is referenced as an east-west roadway. The Site is situated north of Shady Grove Road immediately east of the I-270 right-of-way. The Site location map is shown on Figure 2. Adjacent to the site, Shady Grove Road is classified as a Town Center Boulevard within an Industrial CSDG area.

The Site is located within the Washingtonian Light Industrial Park focus area of the 2024 Great Seneca Plan, which provides targeted recommendations to guide reinvestment, urban design, sustainability, and transportation improvements. The Project also includes the addition of EV Charging stations, which aligns with the County's broader strategy to transition toward clean transportation infrastructure.

The Site is currently zoned for General Retail (GR-1.5 H-45). Within the GR Zone, convenience stores are permitted by right, car washes are allowed as limited uses, and fuel filling stations are subject to Conditional Use approval pursuant to Section 3.5.9 of the Montgomery County Zoning Ordinance.

The proposed Project consists of a 4,800 SF convenience market with gas pumps (14 fueling positions) and an accessory automated roll-over style carwash with one tunnel. The Project also proposes a new sidewalk located inside of the parcel that will provide a meaningful connection between the building and the new 10' sidepath to be constructed along the frontage on Shady Grove Road.

1.B: Existing Use

The existing 7,473 SF building was previously occupied as a High-Turnover (Sit Down) Restaurant (Red Lobster) that was constructed in the early 1990's and ceased operations within the last two (2) years.

1.C: Net New Motor Vehicle Trips

The Project is expected to result in greater than 30 net new vehicle trips and thus triggers the LATR requirement with vehicular and non-vehicular adequacy tests. The convenience market with gas pumps use was evaluated use ITE Land Use Code (LUC) 945 under the 9-15 fueling positions subcategory with square footage as the independent variable. Some sites represented within the 945 LUC dataset do include carwashes, and the proposed carwash will be a roll-over style accessory carwash. Therefore, the carwash trips were estimated using data collected at other similar Dash-In sites in the region.

The net new motor vehicle trips are outlined in **Table 1**.

Table 1: Net New Trips

	Land Use	Land Use Code	Units or Square Feet	Peak Hour Motor Vehicle Trips after Adjustments		
				AM	PM	Daily
Existing Use	High-Turnover (Sit Down) Restaurant	932	7,473	63	34	552
Proposed Use	Convenience Market with Gas Pumps - VFP 9-15	945	4,800	65	65	715
	Automated Car Wash Accessory to LUC 945	Special Study	1 tunnel			
Net New Trips				+2	+31	+163

1.D: Site Access

The site will continue to use the existing access via a shared driveway and right-in/right-out only connection to Shady Grove Road. The Project will improve the internal circulation by shifting the drive aisle connection nearest Shady Grove Road away from the roadway to provide additional separation. The existing and proposed site access concepts are shown in Figure 1.

The Applicant proposes to construct new ADA curb ramps and install a striped pedestrian crosswalk on the driveway at the intersection of Shady Grove Road.

The drive aisle immediately adjacent to the site is a private driveway and Shady Grove Road is a County owned and maintained roadway.

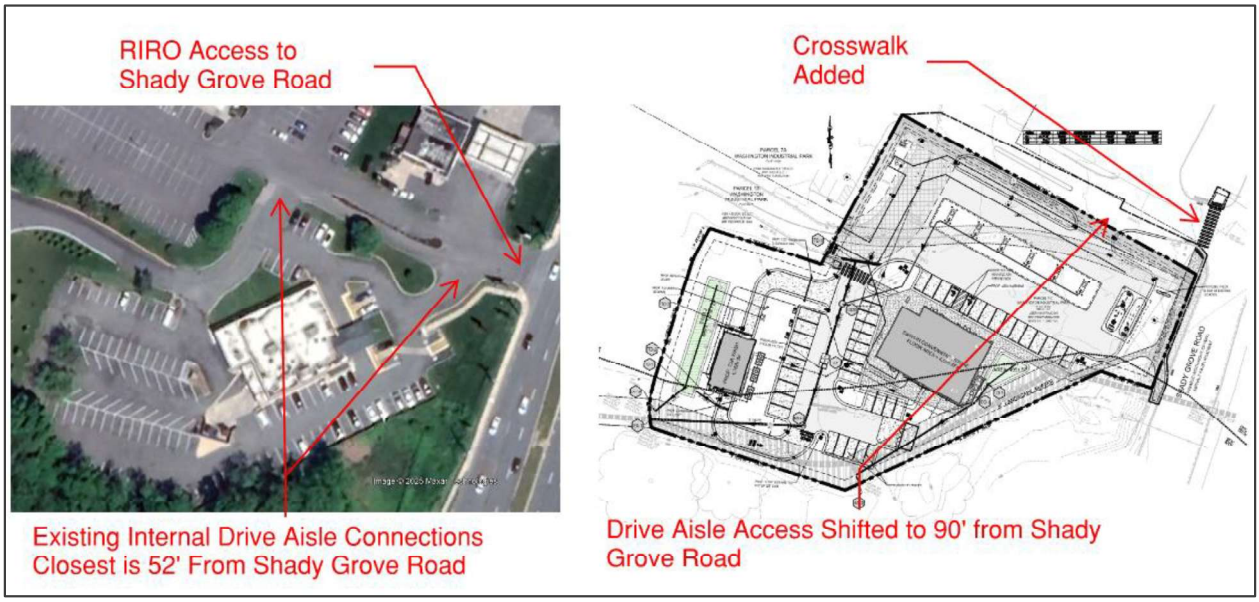

Figure 1: Existing and Proposed Access

1.E: Site Location

Figure 2: Site Location and Boundary

1.F: Programmed Transportation Improvements

There are no programmed transportation improvements within the study area that would be complete and operational within the project buildout horizon.

There is a current project titled “Shady Grove Bikeway & Safety Improvements” that is being preliminarily designed and studied under the general CIP P502312 for preliminary assessments. A standalone CIP has not been established for funding the construction of the project; however,

the improvements being considered would mitigate the pedestrian and bike deficiencies identified within the study area for this LATR study if implemented.

There are two options being considered for these improvements within the study area:

Option/Alternative 1: MCDOT currently recommended

- Removes the sidewalk along the north and south sides of Shady Grove Road between the site driveway and Corporate Boulevard.
- Extends the existing sidepath on the south side of Shady Grove Road over I-270 via a pedestrian flyover bridge.
- The proposed sidepaths and buffers in this plan would include narrowing travel lanes on Shady Grove Road and using the existing ROW. This would conflict with any new facilities that could be installed by the Applicant for this private development project.
- Images from the current plans for this project are shown below adjacent to the site frontage and for the LATR non-auto study area:

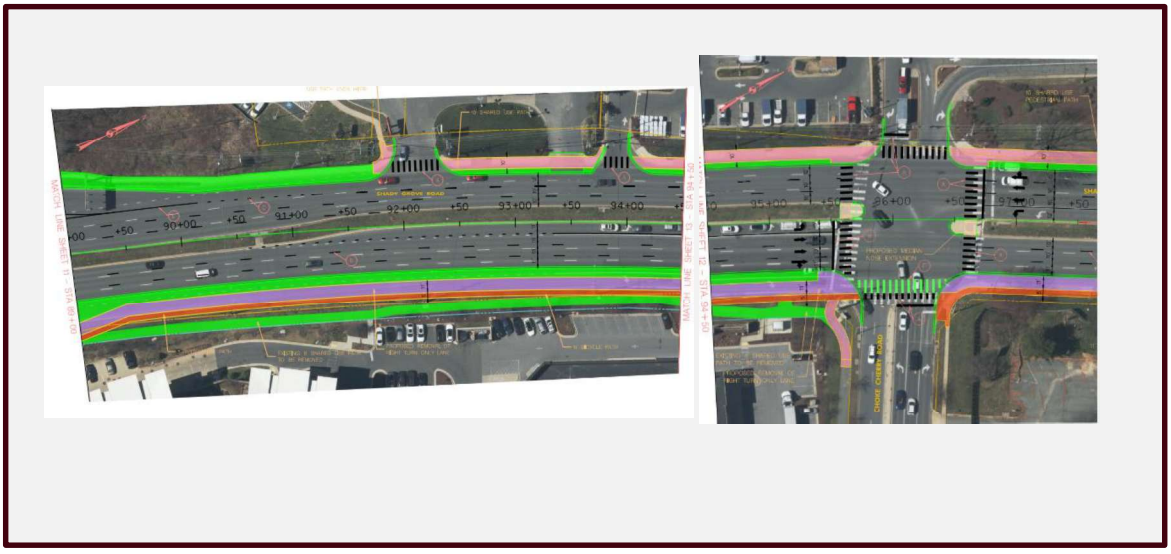

Figure 3: MCDOT Preliminary Design - Alt 1 (Currently Recommended)

Option/Alternative 2:

- Constructs a sidepath with buffer along the site frontage and through the study area to the east and west.
- The proposed sidepaths and buffers in this plan would include narrowing travel lanes on Shady Grove Road and using the existing ROW. This would conflict with any new facilities that could be installed by the Applicant for this private development project.
- Images from the current plans for this project are shown below adjacent to the site frontage and for the LATR non-auto study area:

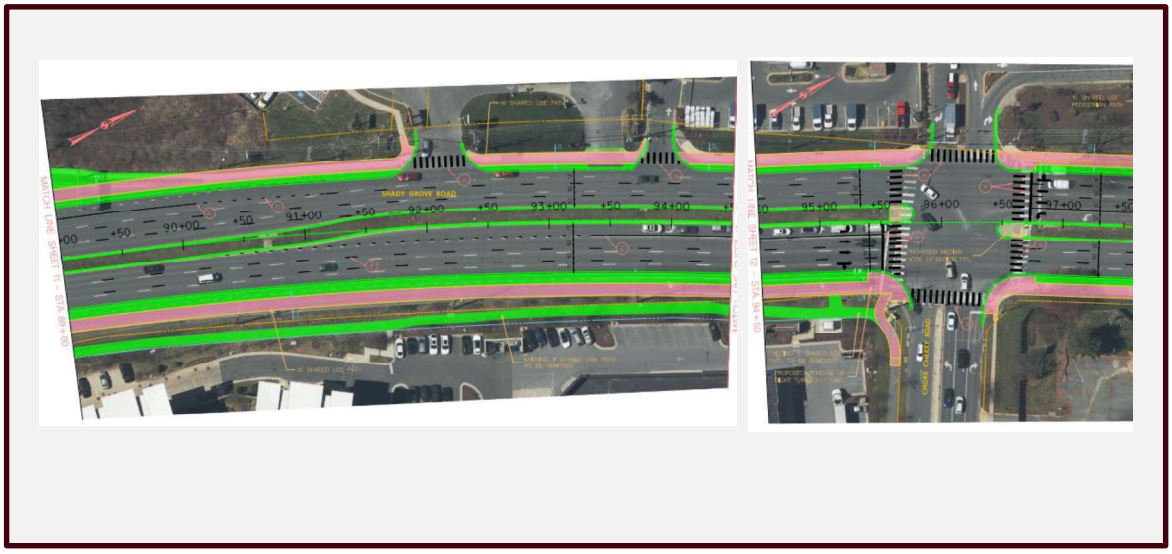

Figure 4: MCDOT Preliminary Design - Alt 2

SECTION 2: LATR VISION ZERO STATEMENT

2.A: Speed Studies

Per the LATR Guidelines, all LATR studies for a site that will generate 30 or more net new vehicle trips must develop a Vision Zero Statement. This statement must assess high injury network, review traffic speeds, and describe in detail how site access will be provided.

As detailed in Table 1 of the LATR Guidelines, Projects generating between 30-64 net new peak hour vehicle trips must complete one (1) speed study meeting the following criteria:

- For 48 hours
- Mid-week (Tuesday, Wednesday, or Thursday) when school is in session
- In dry conditions
- At least 200 feet from the nearest intersection, where feasible

As confirmed through the scoping process, a speed study was completed along Shady Grove Road adjacent to the site. The speed study was conducted beginning on June 10, 2025, a Tuesday when public schools were in session and the weather was dry.

- Begin: 12:00 AM, Tuesday, June 10, 2025
- End: 11:59 PM, Wednesday, June 11, 2025

Shady Grove Road is classified as a Town Center Boulevard. The current speed limit is 40 mph, with a master planned target speed of 30 mph in the Master Plan of Highways and Transitways. The road has six (6) lanes with a raised median.

A review of the speed data indicates that the posted speed limit of 40 mph was not exceeded by 20% or greater in either direction or on either day that data was collected. A summary of the speed data is provided in Table 2.

Further, the section of Shady Grove Road located within the study are is currently identified as a High Injury Network roadway, as shown on Figure 5. While no improvements are required for this LATR study, Montgomery County's potential pedestrian and bicycle improvements discussed previously are targeted to address this High Injury Network condition and improve pedestrian and bicycle safety along the corridor.

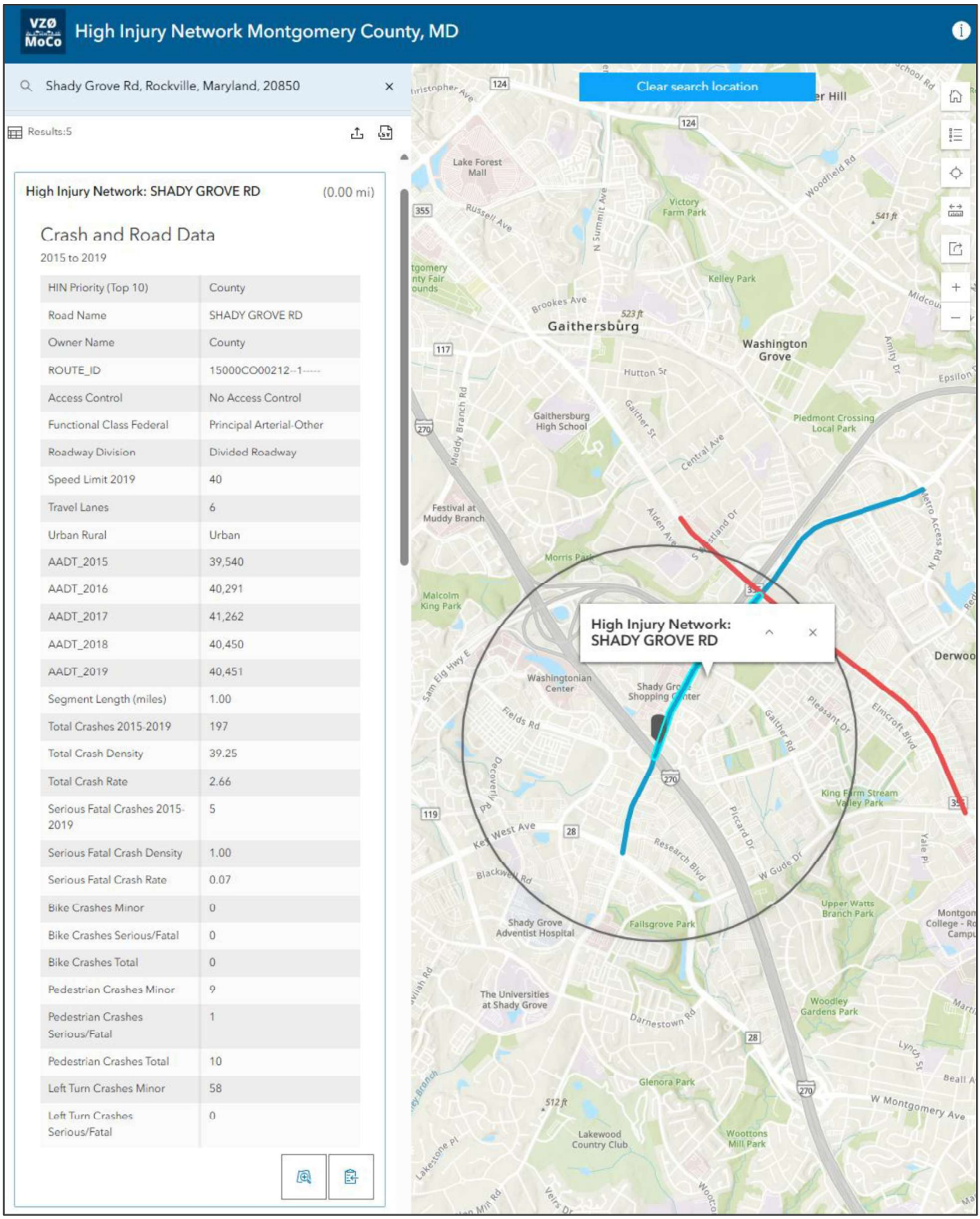

Figure 5: Shady Grove Road - High Injury Network Roadway

2.B: Map of Speed Study Locations

Figure 6: Speed Study Location

2.C: Observed Speeds

Table 2: Speed Data Summary

Location	Direction	Posted Speed Limit	Day	50th Percentile Speed	85th Percentile Speed	10-mile per hour Pace	Speed Limit Exceeded by 20% Threshold	Speed Limit Exceeded by 20% (Y or N)
Adjacent to Site Frontage on Shady Grove Road	Eastbound (northbound on printout)	40	Tuesday	33	42	30-39	48	N
			Wednesday	32	41	25-34	48	N
	Westbound (southbound on printout)	40	Tuesday	35	41	30-39	48	N
			Wednesday	34	41	30-39	48	N

2.D: Potential Mitigation

As observed speeds did not exceed the speed limit threshold, no mitigation alternatives are required.

For the High Injury Network sections of Shady Grove Road, the previously discussed Shady Grove Bikeway & Safety Improvements project currently being studied and designed by MCDOT is targeted at addressing pedestrian and bike safety.

The proposed 10’ sidepath with buffer along the site frontage would improve walking conditions at the site.

SECTION 3: NON-MOTOR VEHICLE SYSTEM ADEQUACY

3.A: Non-Motor Vehicle System Deficiencies

As part of an LATR Study, Non-Motor Adequacy must be assessed for proposed developments generating greater than 30 net new vehicle trips. Field observations, data collection and measurements were completed by Kimley-Horn based on the criteria set forth in:

- Montgomery County Local Area Transportation Review Guidelines
- Pedestrian Level of Comfort Methodology
- Americans With Disabilities Act
- Bicycle Level of Stress Methodology
- Streetlighting and Illuminance Instructions

The results of these assessments identified the following:

- The Pedestrian Level of Comfort was generally consistent with the map provided on MCAtlas, as shown in Figure 12.
    - The Applicant proposes to improve the site frontage with a 10-foot sidepath with 8-foot buffer. Due to the presence of existing utilities, the 10-foot sidepath will be constructed within the property adjacent to the power poles and is proposed to be placed in a Public Improvement Easement.
    - The Applicant proposes to install a new striped crosswalk across the driveway at Shady Grove Road with new ADA ramps.
    - The estimated cost to improve the study area east of the site with a new 10-foot sidepath and 8-foot buffer and new crossing of the Home Depot Driveway would be approximately $220,539.30 before incorporating the costs of right-of-way acquisition. This would exceed the Proportionality Guide for this Project.
- The Bicycle Level of Traffic Stress is consistent with the MCAtlas map (Figure 13) for the north side of Shady Grove Road; however, the south side of the road was found to be adequate within the study area.
    - The mitigation required for PLOC would also mitigate the BLTS.
- The lighting analysis identified deficiencies in multiple categories throughout the study area, as summarized on Table 4 and shown in the Appendix.
    - As shown on Figure 7, there are four (4) existing power poles with mast arm lights installed that hang over the roadway but do not light the pedestrian facilities. There are five (5) power poles that do not include any installed lighting.
    - To mitigate the lighting condition, mast-arm lights would need to be installed on each power pole facing the pedestrian facilities.

  - The approximate cost to install nine (9) lights on existing poles would be: $128,250. This full amount exceeds the Proportionality Guide for the Project. The Applicant proposes to install nine (9) pedestrian lights mounted to existing power poles, subject to MCDOT approval.

- One ADA ramp within the study area was found to be deficient and will be replaced by the Applicant.

- Both bus stops within the study area provide shelters with amenities, including Real Time Information displays. The stops are located at on Shady Grove Road west of Choke Cherry Road with service along RideOn Route 4, which is along Phase 1 of the Great Seneca Transit Network (RideOn Extra Service) that began operations this year.

Table 3: Non-Motor Vehicle Analysis Summary

ID		Location Description	Linear Feet	Is Adequate?	Adequacy Type and Existing Condition	Mitigation Needed	Feasible to Implement?	Notes on Feasability	Estimated Mitigation Cost	Proposed to be Completed	Mitigated By
Pedestrian Level of Comfort (PLOC)	P0	Site Frontage	120	No	PLOC rating: 4, Between 0'-2' of pathway buffer width, 8' wide sidewalk	Install new Sidepath with 10' pathway width and 8' pathway buffer width	Yes	Will be contructed behind the power poles on the site and place in a PIE.	N/A: Frontage Improvement	Yes	Improvement Constructed by Applicant - Frontage Improvement Not included in Proportionality Guide
	P1	Shady Grove Rd north side, west of Site Driveway	250	No	PLOC rating: 4, Between 0'-2' of pathway buffer width, 8' wide sidewalk	Install new Sidepath with 10' pathway width and 8' pathway buffer width	No	Large changes in grade at the edge of sidewalk	N/A: This section is within the Shady Grove Road / I-270 interchange and is excluded from mitigation requirements		
	P2	Driveway Crossing at Shady Grove Road	30	No	Unmarked Crosswalk with No Median	Install striped crosswalk	Yes		N/A: Frontage Improvement	Yes	Improvement Constructed by Applicant - Frontage Improvement Not included in Proportionality Guide
	P3	Shady Grove Rd north side, east of Site Driveway	250	No	PLOC rating: 4, Between 0'-2' of pathway buffer width, 8' pathway width	Install new Sidepath with 10' pathway width and 8' pathway buffer width	No	Widening would require ROW from the adjacent property and moving power poles	$222,539.30 + ROW Acquisition	No	Excluded due to Proportionality Guide Limit
	P4	Shell Driveway Crossing at Shady Grove Road	20	Yes	Driveway Apron Sidewalk Crossing	N/A				N/A	
	P5	Home Depot Driveway Crossing at Shady Grove Road	30	No	Unmarked Crosswalk with No Median	Install striped crosswalk	Yes			No	Excluded due to Proportionality Guide Limit
	P6	Shady Grove Rd south side, west and east of site frontage	620	Yes	PLOC rating: 2, 8'-10' pathway buffer width, >8' pathway width	N/A					
Lighting	L1	North and south sides of shady grove rd, 250' west and east of site frontage	N/A	No	Illuminance; Inadequate lighting values for multiple categories at multiple locations	Install pedestrian lighting	Yes		$128,250	Yes	Install nine (9) pedestrian lights on existing power poles along Shady Grove Road to illuminate sidewalk.
ADA	A1	Shady Grove Rd north side, west side of site driveway	N/A	No	ADA west ramp exceeds cross slope (>2%)	Reconstruct ADA Ramp west of site driveway	Yes		Included in P2 Above	Yes	Improvement Constructed by Applicant - Frontage Improvement Not included in Proportionality Guide
	A2	Shady Grove Road north side, east side of Site Driveway	N/A	Yes	Meets ADA measurement requirements	None				If needed, this ramp will be replaced by the Applicant to accommodate the new pedestrian crosswalk	
Bicycle Level of Traffic Stress (LTS)	B0	Shady Grove Road north side, Site Frontage	120	No	No Bike Facilities	Install new Sidepath with 10' pathway width and 8' pathway buffer width	Yes	Will be contructed behind the power poles on the site	N/A: Frontage Improvement	Yes	Improvement Constructed by Applicant - Frontage Improvement Not included in Proportionality Guide
	B1	Shady Grove Rd north side, west of site frontage	400	No	No Bike Facilities	Install new Sidepath with 10' pathway width and 8' pathway buffer width	No	Large changes in grade at the edge of sidewalk	Not Applicable: This section is within the Shady Grove Road / I-270 interchange and is excluded from mitigation requirements		
	B2	Shady Grove Rd north side, east of Site Driveway	400	No	No Bike Facilities	Install new Sidepath with 10' pathway width and 8' pathway buffer width	No	Widening would require ROW from the adjacent property	$222,539.30 + ROW Acquisition	No	Excluded due to Proportionality Guide Limit
	B3	Shady Grove Rd south side, west and east of site	920	Yes	Bicycle: LTS score of 1 (Buffer >10')	N/A					
Transit	T1	Shady Grove Rd north side, east of site driveway	N/A	Yes	Bus Stop: Shelter and Amenties Included	N/A					
	T2	Shady Grove Rd south side, east of site driveway	N/A	Yes	Bus Stop: Shelter and Amenties Included	N/A					
Total Proposed Off-Site Improvements											$128,250
Proportionality Guide											$124,695

Table 4: Illuminance Study Results

Key	Zone Type	CSDG Street Type	Min. Horizontal Illuminance (fc), $E_{H,min}$		Maintd. Avg. Horizontal Illuminance (fc), $E_{H,avg}$		Uniformity Ration ($E_{H,avg}$ / $E_{H,min}$)		Maintd. Avg. Vertical Illuminance (fc), $E_{V,avg}$		Maintd. Avg. Surface Luminance (cd/m^2), L_{avg}		Veiling Luminance (L_{max}/L_{avg})	
			Target (Min.)	Modeled Existing	**Target (Min.)**	Modeled Existing	**Target (Max.)**	Modeled Existing	**Target (Min.)**	Modeled Existing	**Target (Min.)**	Modeled Existing	**Target (Max.)**	Modeled Existing
a1	Active	Town Center Boulevard	0.2	0.0	0.9	0.0	3.0	N.A.	1.0-1.2	0.0	2.0-2.5	0.0	---	---
a2	Active	Town Center Boulevard	0.2	0.0	0.9	2.1	3.0	N.A.	1.0-1.2	0.8	2.0-2.5	1.5	---	---
s1	Street Zone: Segment	Town Center Boulevard	---	----	0.7-1.0	0.0	3.0	N.A.	----	----	0.6-1.5	0.0	0.3	N.A.
s2	Street Zone: Segment	Town Center Boulevard	---	----	0.7-1.0	0.3	3.0	N.A.	----	----	0.6-1.5	0.2	0.3	0.0

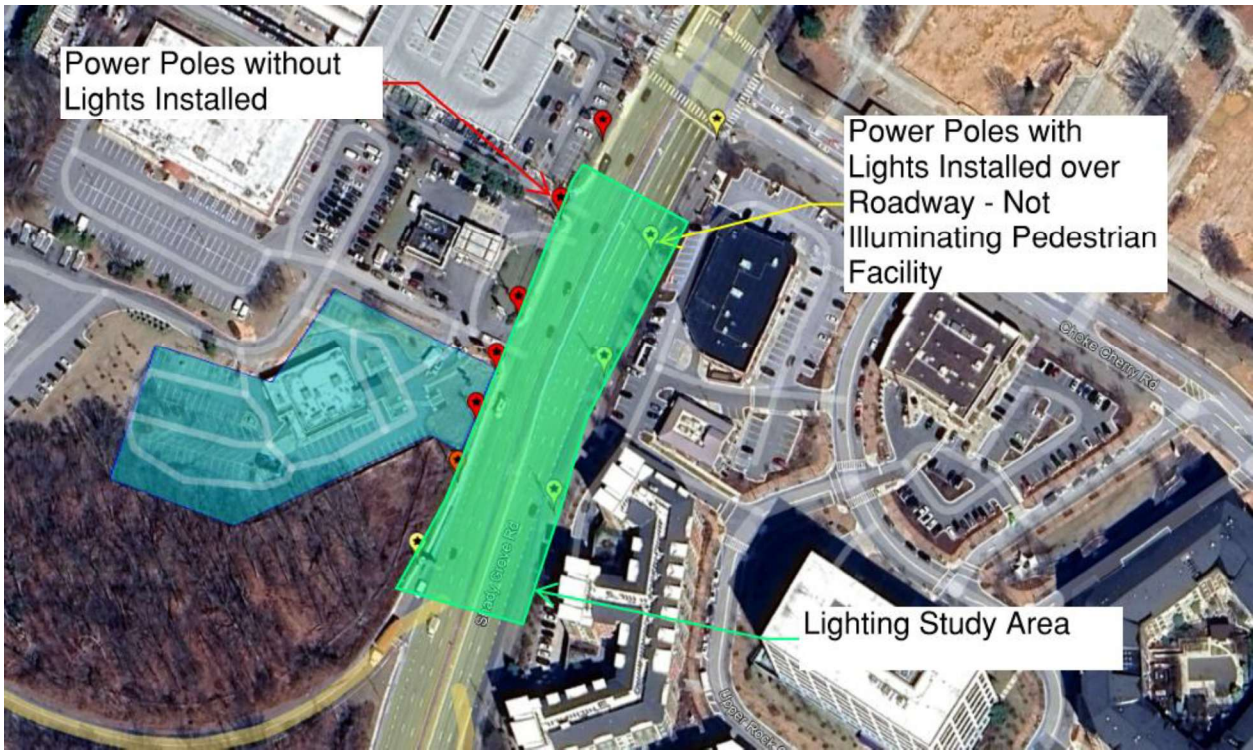

Figure 7: Lighting Study Area

3.B: Non-Motor Inadequacy Maps

The study areas for each assessment, including labels for each item shown on Table 1 are provided as follows:

- Figure 8: Pedestrian and Illuminance Study Areas
- Figure 9: ADA Study Area
- Figure 10: Bike Study Area
- Figure 11: Transit Study Area

The currently reported PLOC and LTS from MCAtlas are shown on Figure 12 and Figure 13, respectively.

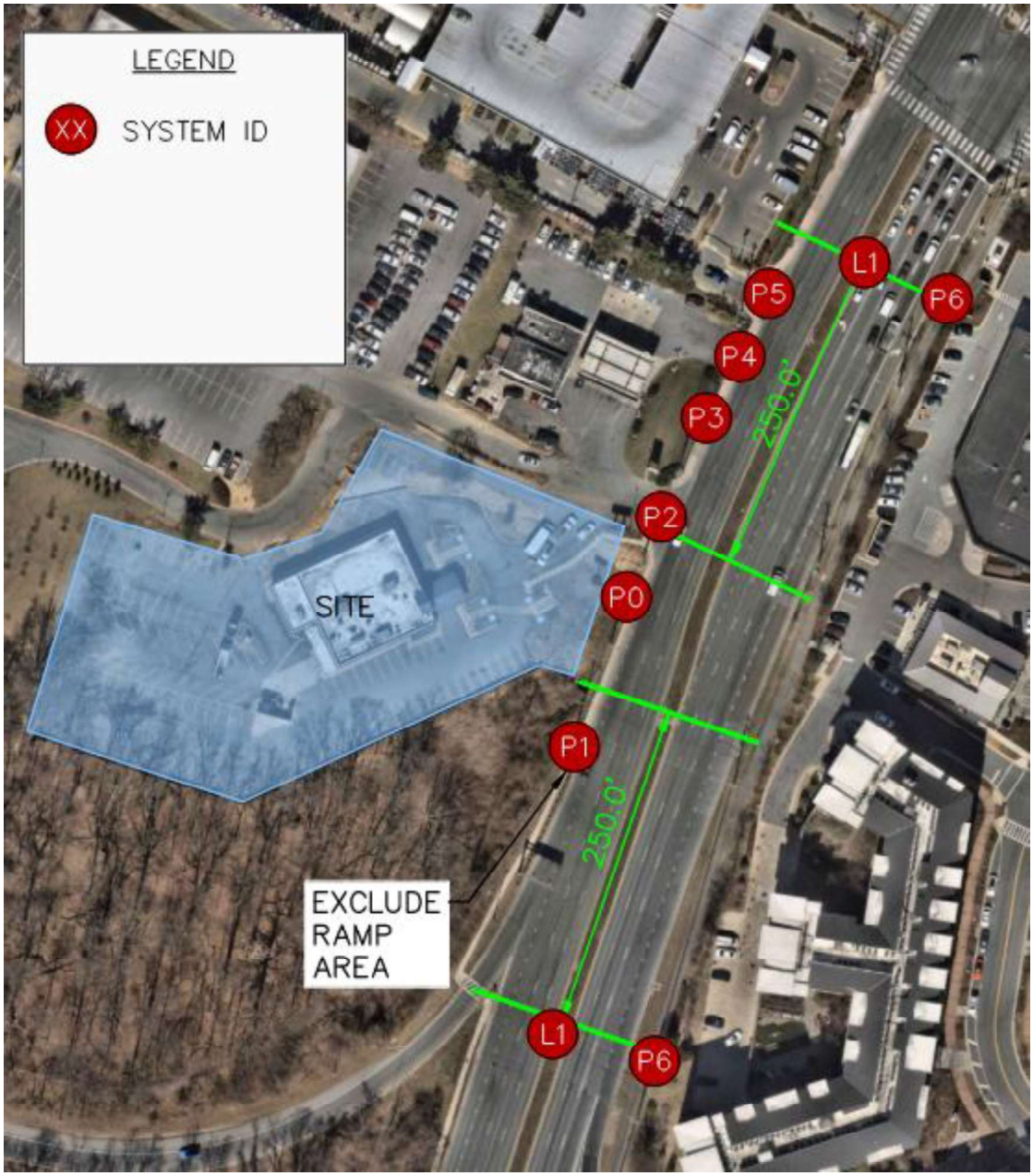

Figure 8: Pedestrian and Illuminance Study Areas

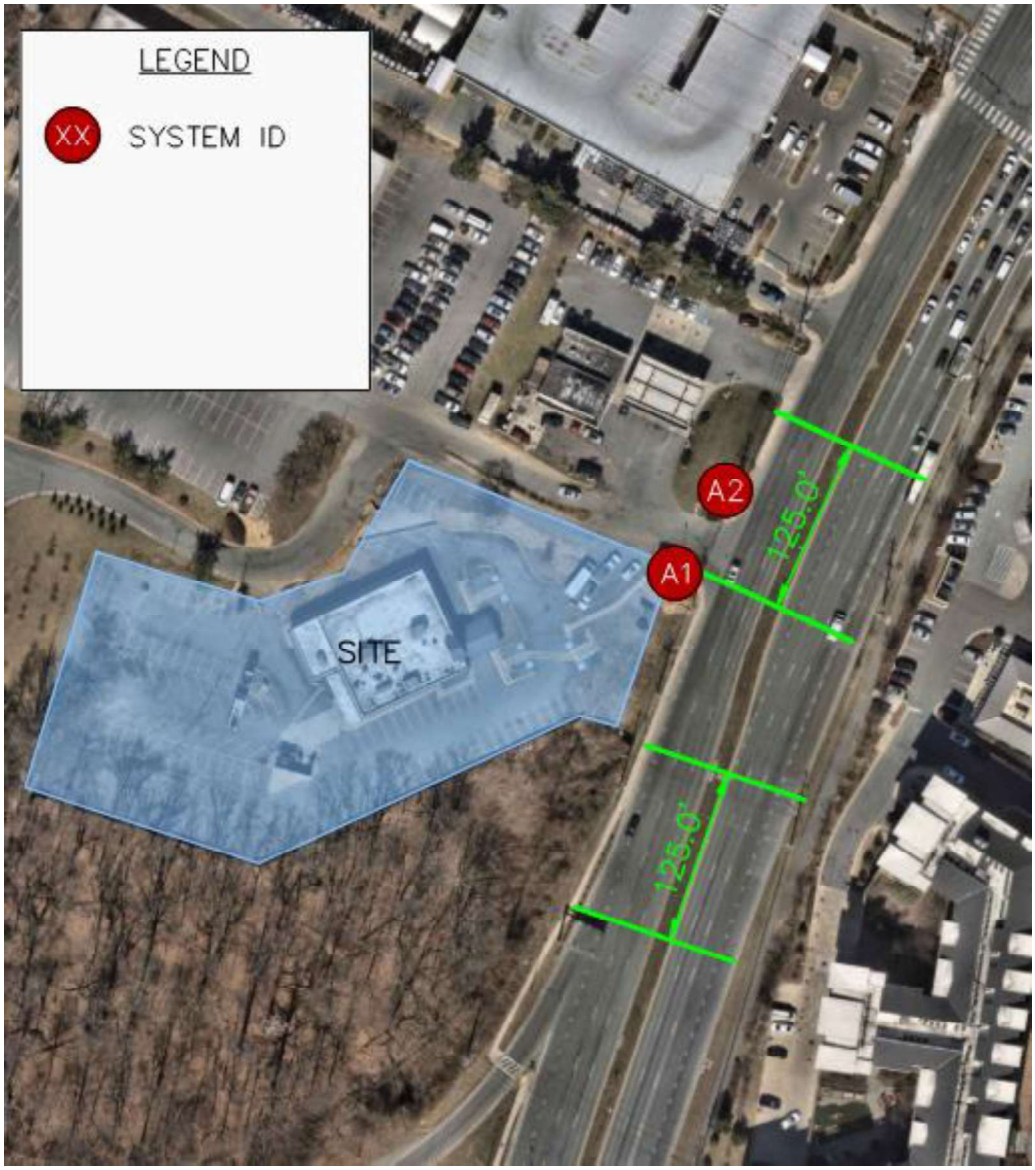

Figure 9: ADA Study Area

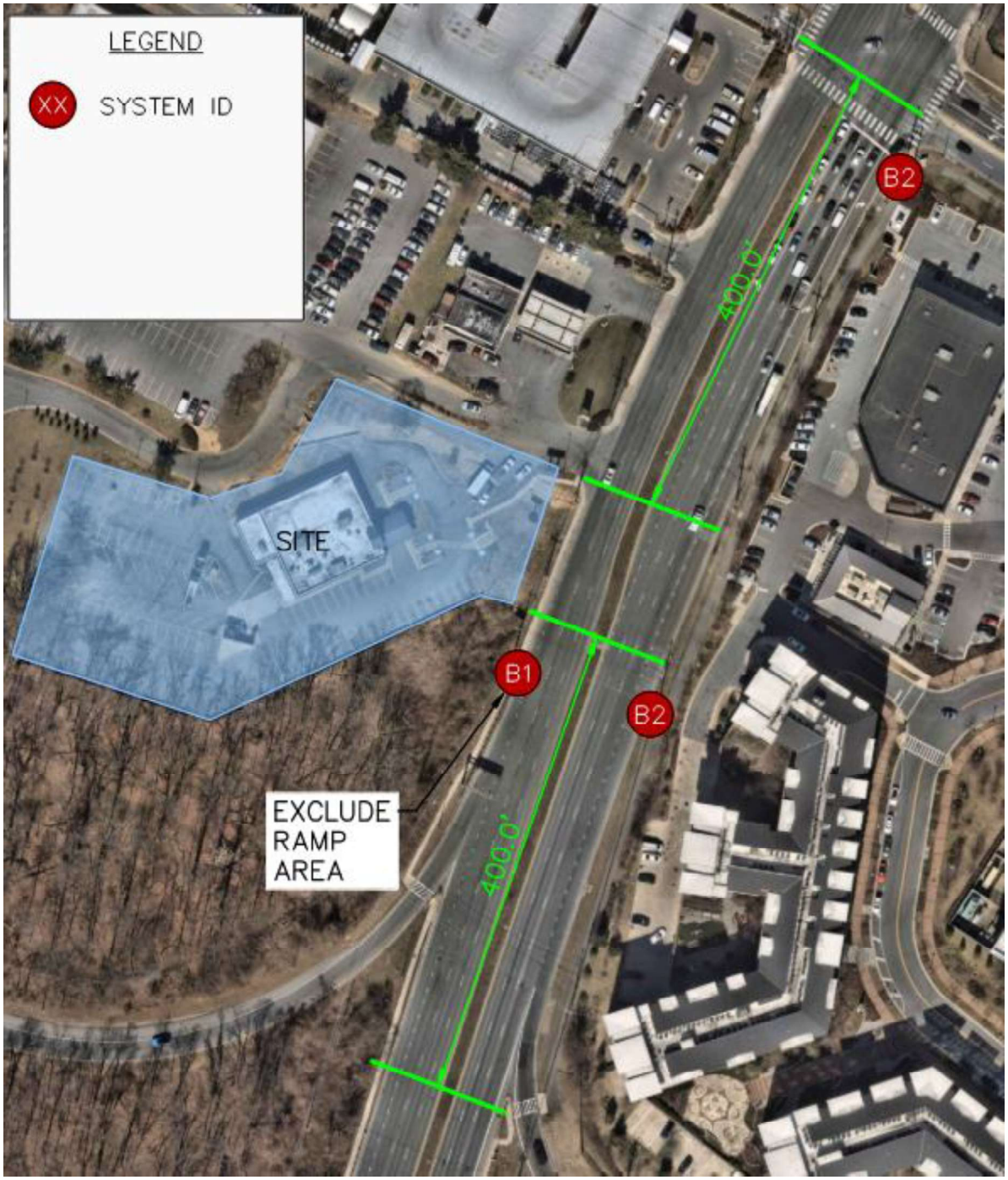

Figure 10: Bike Study Area

Figure 11: Transit Study Area

Figure 12: PLOC from MCAtlas

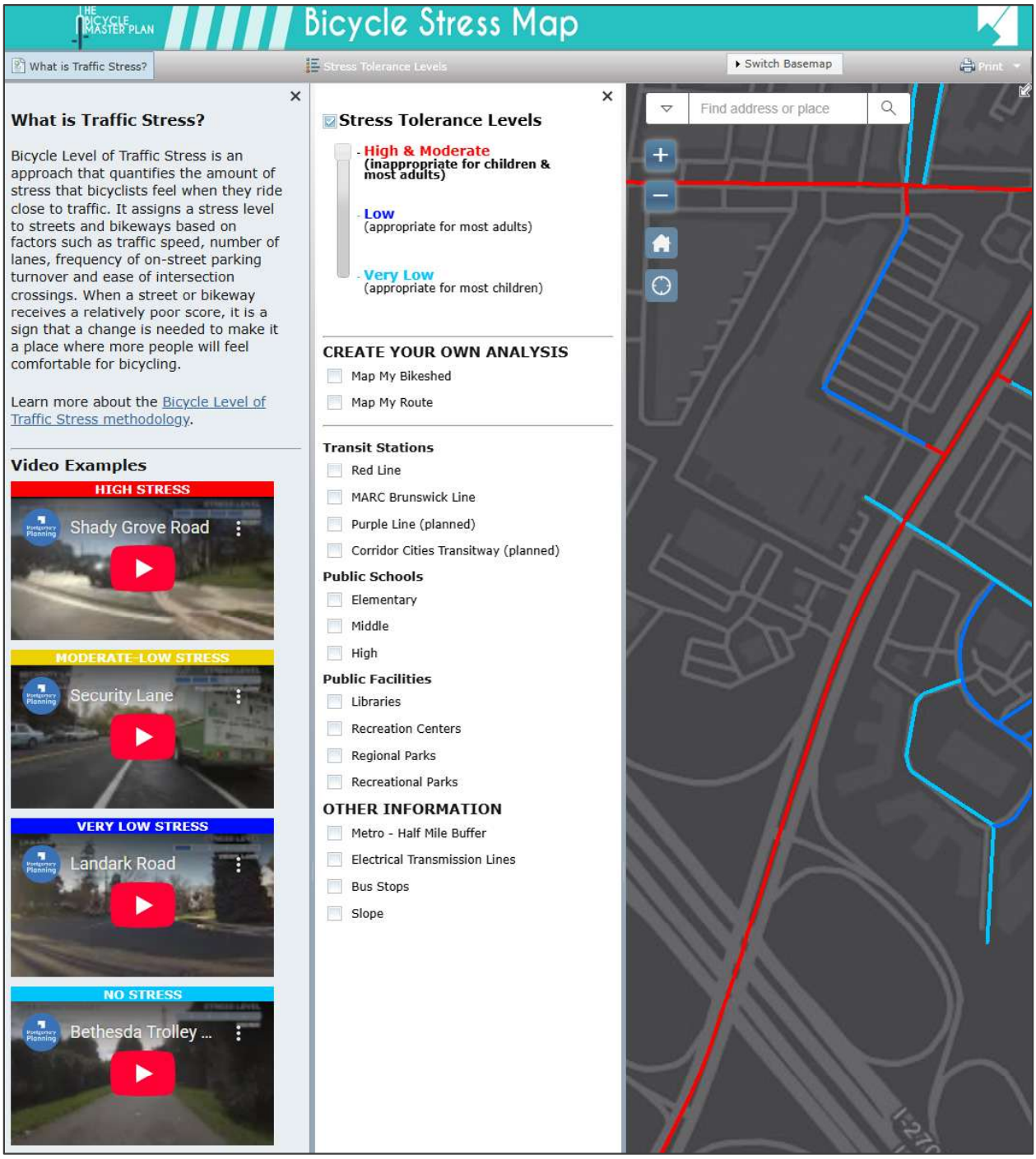

Figure 13: Bicycle Level of Traffic Stress (LTS) from MCAtlas

SECTION 4: MOTOR VEHICLE SYSTEM ASSESSMENT

4.A: Study Intersections

The Project is expected to generate between 30-250 net new peak hour vehicle trips and is therefore required to include at least one (1) intersection in each direction from the site. Based on feedback received during the scoping process, the following intersections were identified to be included in the study, as detailed on the approved Transportation Adequacy Form (TAF):

1. Shady Grove Rd (County) / Choke Cherry Rd (City Rockville)
2. Shady Grove Rd (County) / Site Dwy (Private)
3. Shady Grove Rd (County) / I-270 NB Ramps (State)
4. Shady Grove Rd (County) / I-270 SB Ramps (State)
5. Shady Grove Rd (County / Corporate Dr (County North Leg & City Rockville South Leg)

A map of the study area is provided on Figure 15.

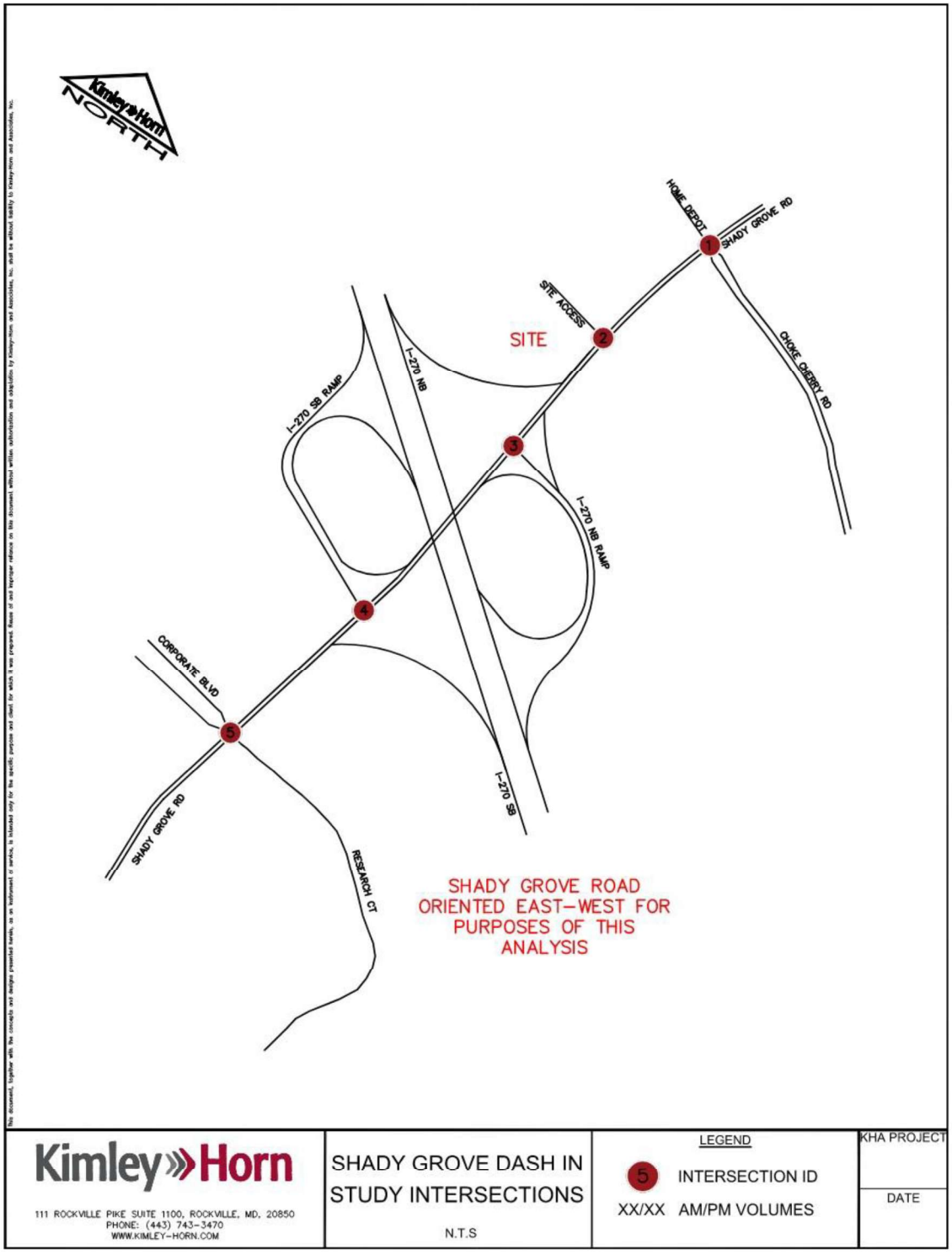

Figure 15: Study Intersections

4.B: Multimodal Counts

Traffic counts were collected as each of the study intersections in accordance with the LATR Guidelines, as follows:

- Collected on Tuesday, June 10th, 2025 & Wednesday, September 10, 2025
  - ✓ On a Tuesday, Wednesday or Thursday
  - ✓ When Public Schools were in session
  - ✓ On a non-holiday and not on a day followed by or preceded by a holiday
  - ✓ On a typical day with no major incidents in the study area
  - ✓ During fair weather day
  - ✓ On a day when Federal, State and Local Government did not have mandated telework

Counts were collected in 15-minute intervals for the periods of 6:30-9:30 AM and 4:00-7:00 PM. Counts included recording of the following:

- Vehicle through and turning movements
- Bicycle movements
- Pedestrian crossings

Traffic count data is provided in the Appendix, and the existing peak hour traffic volumes are shown on Figure 16, Figure 17, & Figure 18.

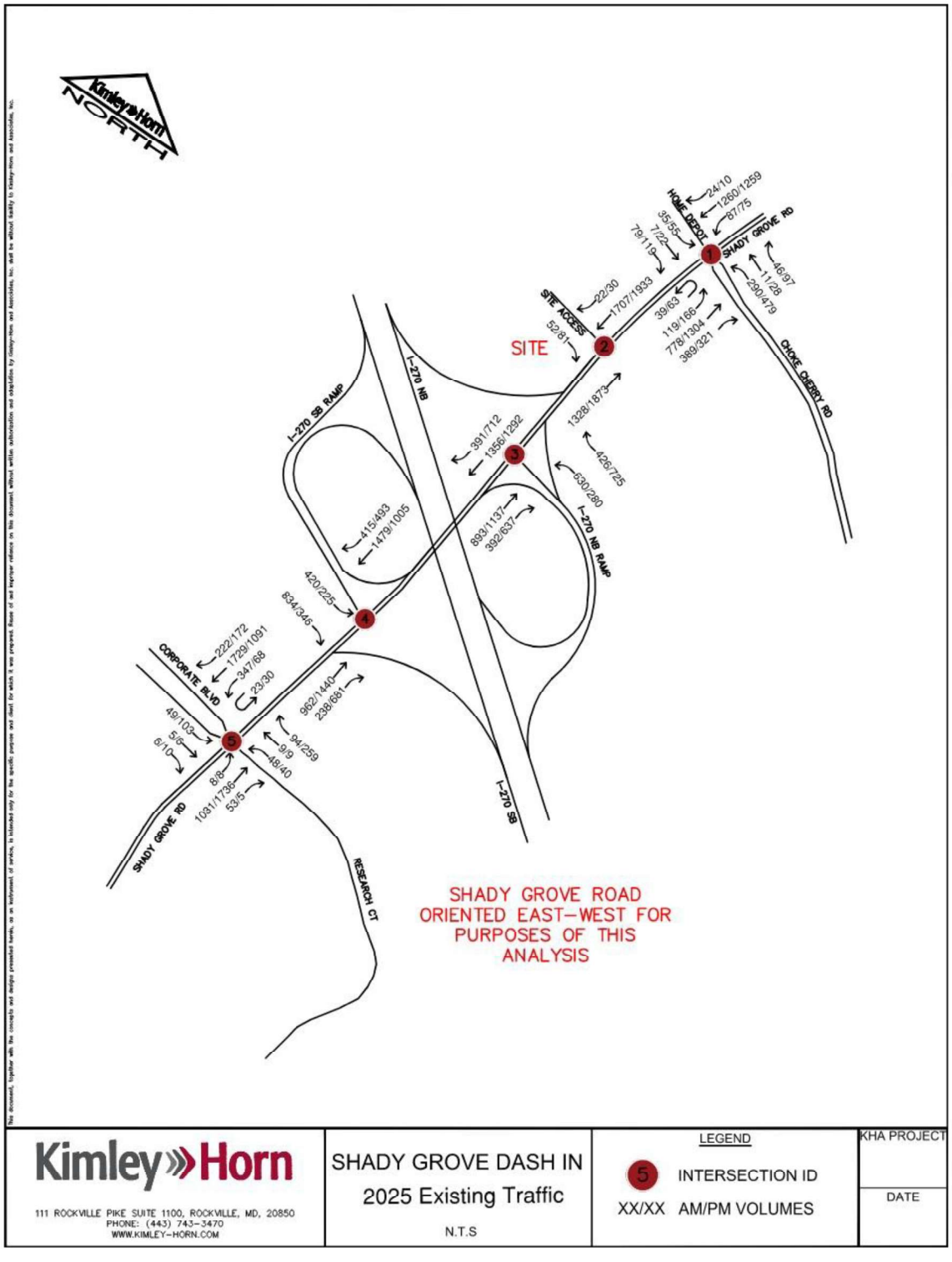

Figure 16: 2025 Existing Peak Hour Traffic Volumes

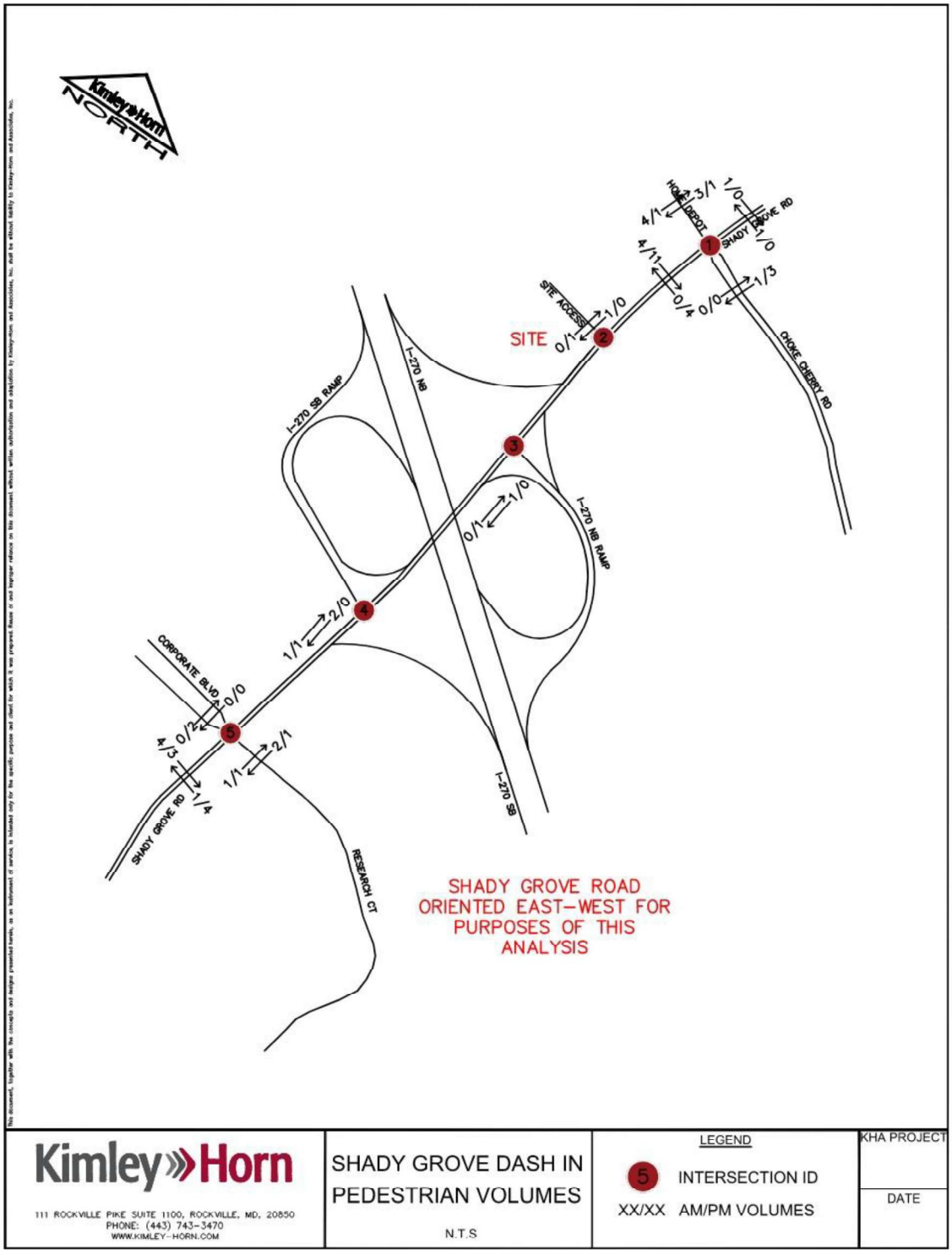

Figure 17: 2025 Existing Peak Hour Pedestrian Volumes

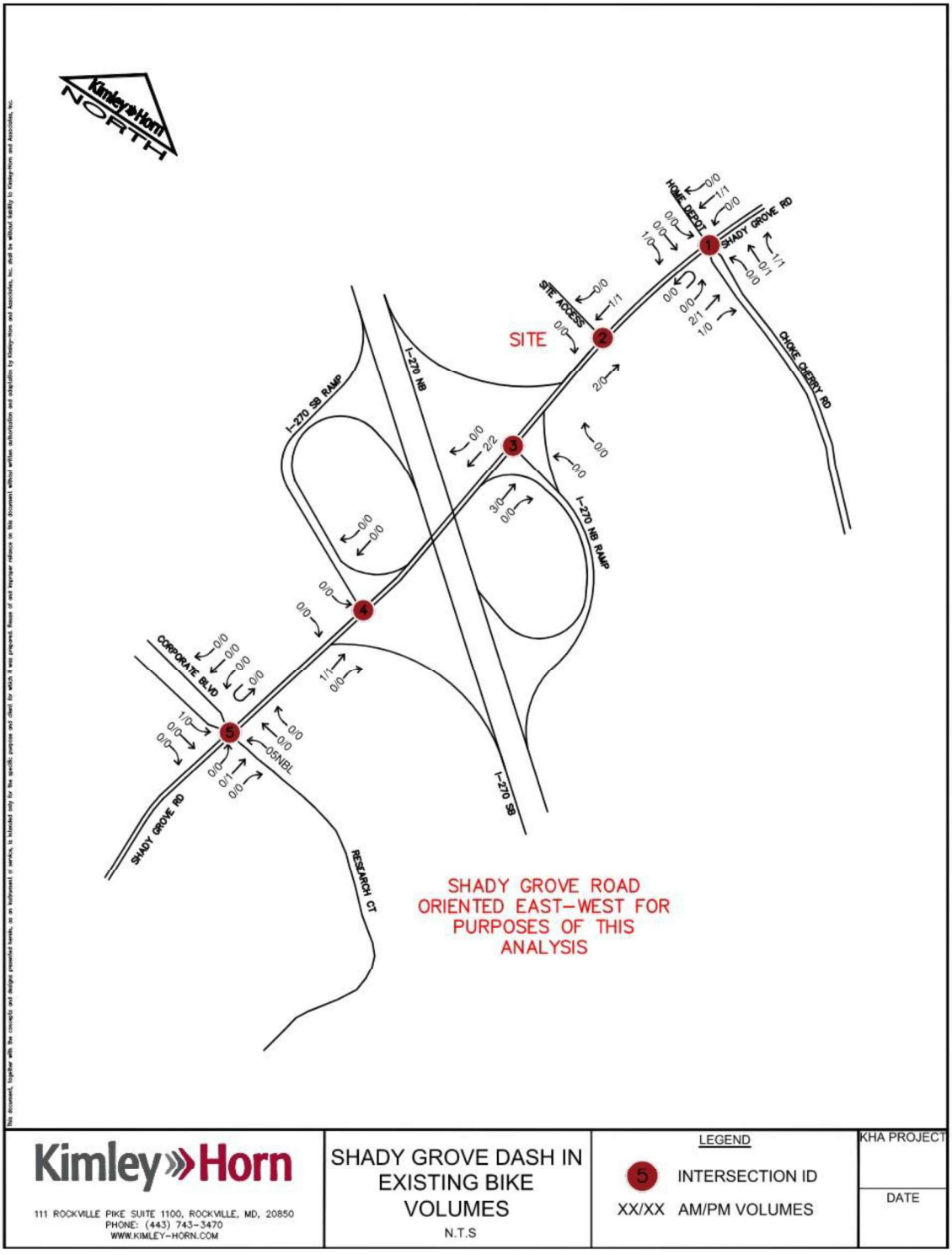

Figure 18: 2025 Existing Peak Hour Bike Volumes

4.C: Pipeline Developments

The following pipeline development projects were identified during the scoping process for inclusion in the traffic forecasting for this LATR study. Trip generation and traffic distributions were taken from approved traffic studies completed for nearby developments. Where study intersections for this LATR study were not included in the study area in those reports, the traffic assignments were carried through to complete the data set.

- Shady Grove Innovation District – 359 Multi-family units, 145,000 sf of R&D (In-Process City of Rockville Application)
- Park Plaza – Phase 1 – 223,000 sf of R&D space and parking structure (In-Process City of Rockville Application)
- 16200 Frederick Road King Buick Redevelopment – 252 townhomes, 118 condominium townhomes, 2,000 sf of community building
- Redland Tech Center – 300,000 SF of new office (Phase 1 restaurant already completed)

As summarized on Table 5, pipeline development projects near the site are expected to add approximately 1,146 vehicle trips during the AM peak hour and 1,094 vehicle trips during the PM peak hour to area roadways.

A map of pipeline development locations is provided on Figure 19 and cumulative pipeline development traffic assignments are shown on Figure 20.

The Background Future forecasts were compiled by adding the Existing traffic volumes with the pipeline development traffic volumes, as shown on Figure 21.

Table 5: Pipeline Development Trip Generation

Pipeline Development Trip Generation

ITE Code	Land Use	Density		AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Redland Corporate Center									
710	Phases 2 & 3 (Phase 1 Completed) [1]	300,000	SF	358	54	412	59	290	349
Shady Grove Innovation District									
220	Townhomes[2]	136	d.u.	16	49	65	50	29	79
221	Mid-Rise Multi-Family[2]	359	d.u.	34	112	146	85	55	140
760	Research and Development[2]	145,000	s.f.	126	28	154	24	123	147
	Subtotal			**176**	**189**	**365**	**159**	**207**	**366**
Park Plaza - Phase 1									
760	Research and Development[3]	223,000	s.f.	189	41	230	35	184	219
16200 Frederick Road King Buick Redevelopment									
220	Residential	368	d.u.	38	126	164	118	70	188
	15% TOA Reduction per Approved Study			-6	-19	-25	-18	-10	-28
	Subtotal Site Trips			**32**	**107**	**139**	**100**	**60**	**160**
	Total New Primary Trips			**755**	**391**	**1,146**	**353**	**741**	**1,094**

Notes: 1) Redland Corporate Center trip generation taken from the Shady Grove Neighborhood Center CTR.
2) SGID Trip generation taken from W+A Comprehensive transportation review 08.27.2018
3) Park Plaza trip generation taken from W+A Comprehensive Transporation Review 7.22.2025

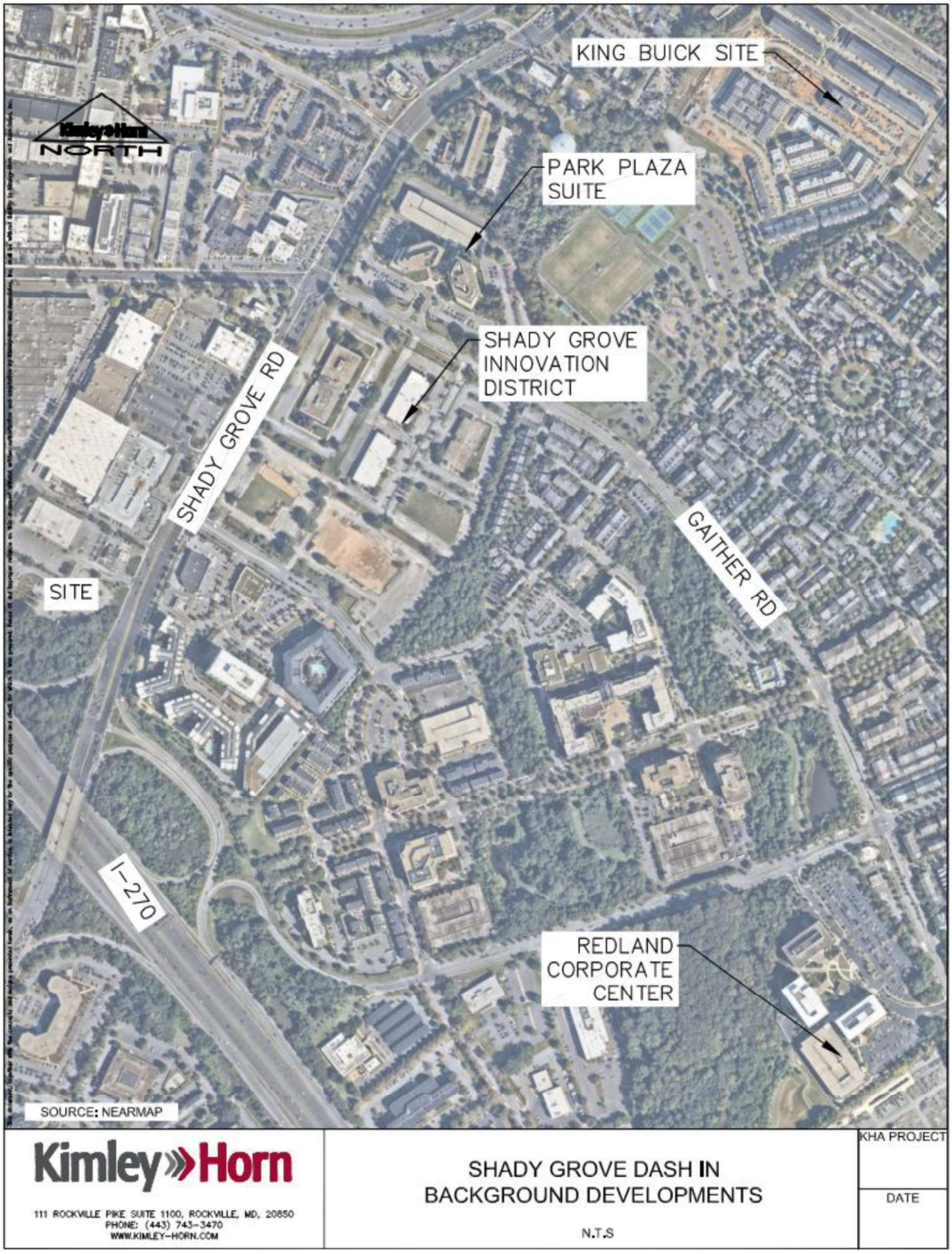

Figure 19: Pipeline Development Locations

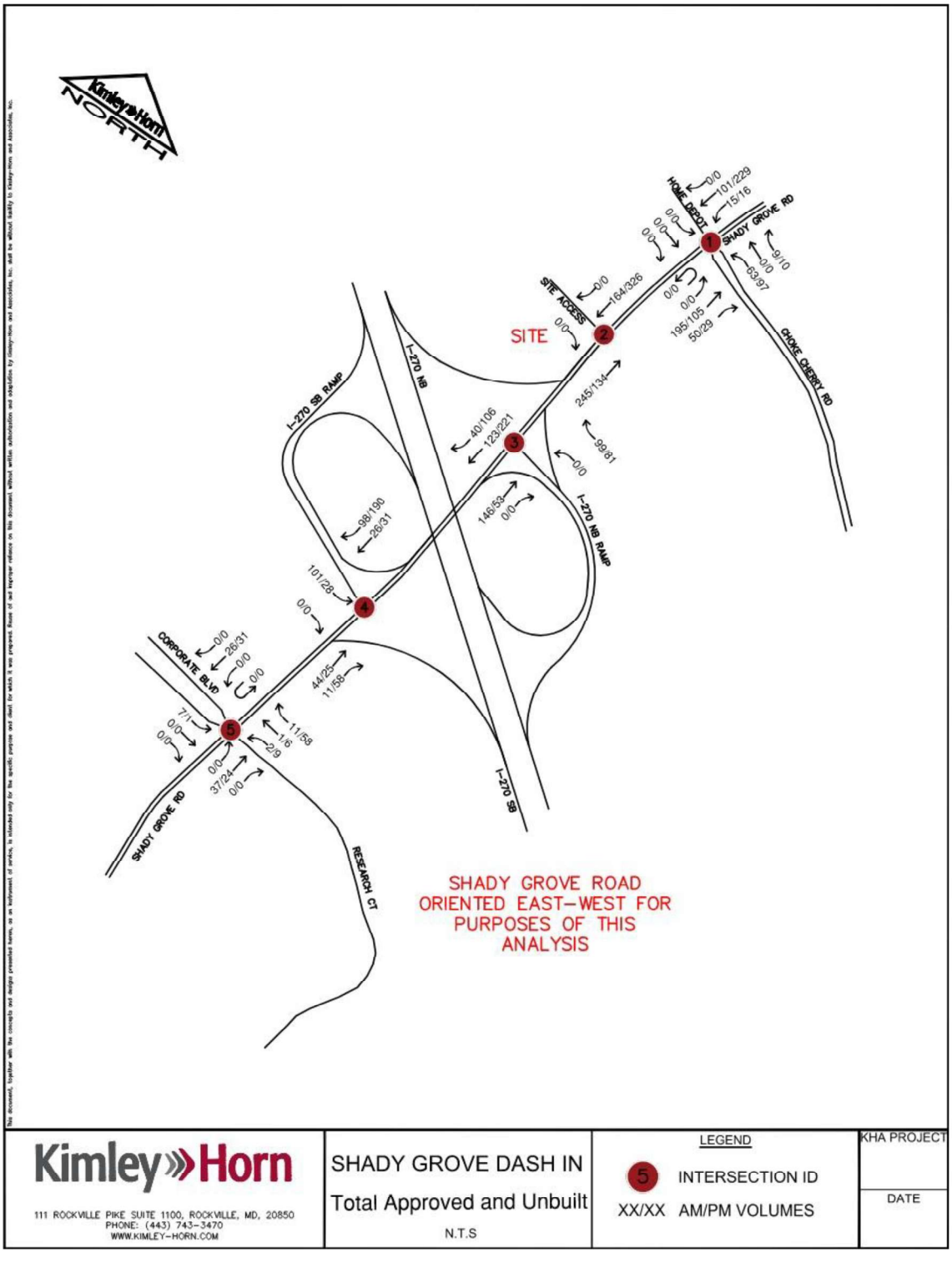

Figure 20: Pipeline Development Traffic Assignments

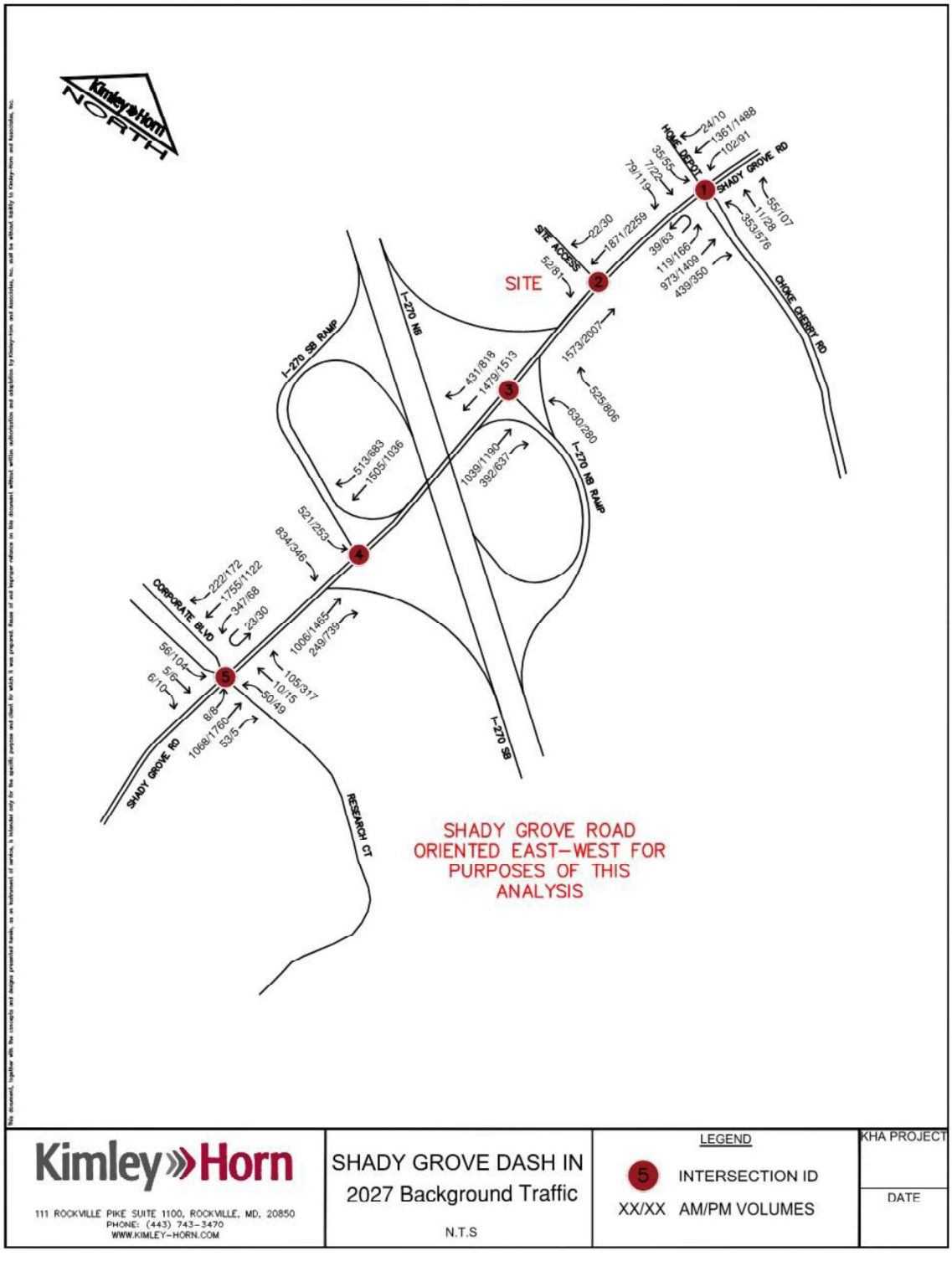

Figure 21: 2027 Background Future Traffic Forecasts

4.D: CLV/HCM Analysis

Per the approved scope, site trip distributions were developed based on the existing traffic volumes in the area, as follows:

- To/From North-East on Shady Grove Road: 50% AM / 34% PM
- To/From East on Choke Cherry Road: 10% AM / 13% PM
- To/From South on I-270: 14% AM / 22% PM
- To/From North on I-270: 7% AM / 3% PM
- To/From South on Shady Grove Road: 17% AM / 23% PM
- To/From West on Corporate Drive 1% AM / 2% PM
- To/From East on Corporate Drive: 1% AM / 3% PM

Note that due to the median-divided configuration that allows for only westbound rights in to the site and right turns out to the west, it is unlikely that pass-by or traffic returning to the east would travel west to the first allowable U-Turn at Corporate Drive. These vehicles would use the NB I-270 on-ramp to travel to I-370 and use the interchange at Shady Grove Road for that return route. To recognize that some traffic may utilize the u-turn route where this alternative route would not meet their destination, such as traffic destined for Choke Cherry Road, the u-turn route was used for 10% of site traffic. These assumptions were included in the routing of the above global traffic distributions.

For the pass-by trip assignments, delays for the eastbound protected phase only left/u-turn movement at Choke Cherry Road would make it inconvenient for eastbound through traffic to access the site. Therefore, it is assumed that the majority of pass-by traffic will be drawn from the westbound traffic flow. However, 5% of the pass-by traffic was assumed to utilize the eastbound u-turn movement to travel back to the site and then return to the original route via I-270 NB to I-370 EB to return to Shady Grove Road to the east. The pass-by, primary and total site traffic assignments are shown on Figure 22, Figure 23, & Figure 24, respectively. The Total Future traffic forecasts were compiled by adding the Total Site Assignments to the Background Future traffic forecasts, as shown on Figure 25.

The site is located within the Derwood (Orange) Policy Area of Montgomery County where the LATR Guidelines identify the allowable delay threshold to be no more than 59 seconds per vehicle for the overall intersection delay. Further, Yellow Policy Area capacity is determined using the Highway Capacity Manual Methodology. For this evaluation, the Synchro (Version 12) software was used, and the model was calibrated using field observed road characteristics and volume-related factors per Appendix 6 of the LATR Guidelines. The results of the HCM analyses are provided on Table 7. Critical Lane Volume (CLV) calculations are also included for informational purposes, and a summary of the results is provided on Table 6. **The study intersections were found to operate within acceptable thresholds with average intersection delays below 59 seconds per vehicle.**

As requested during scoping, queues were analyzed using the SimTraffic software by simulating the study area network and taking the average of five (5) model runs with 15-minutes of seeding time and 60-minutes of run time. The queue results are provided in the Appendix. While queuing is observed along Shady Grove Road at Choke Cherry Road, the intersection meets the Policy Area threshold of 59.0 seconds per vehicle of delay. Therefore, no improvements are required. However, these findings indicate that timing improvements along the corridor should be considered by MCDOT for future implementation.

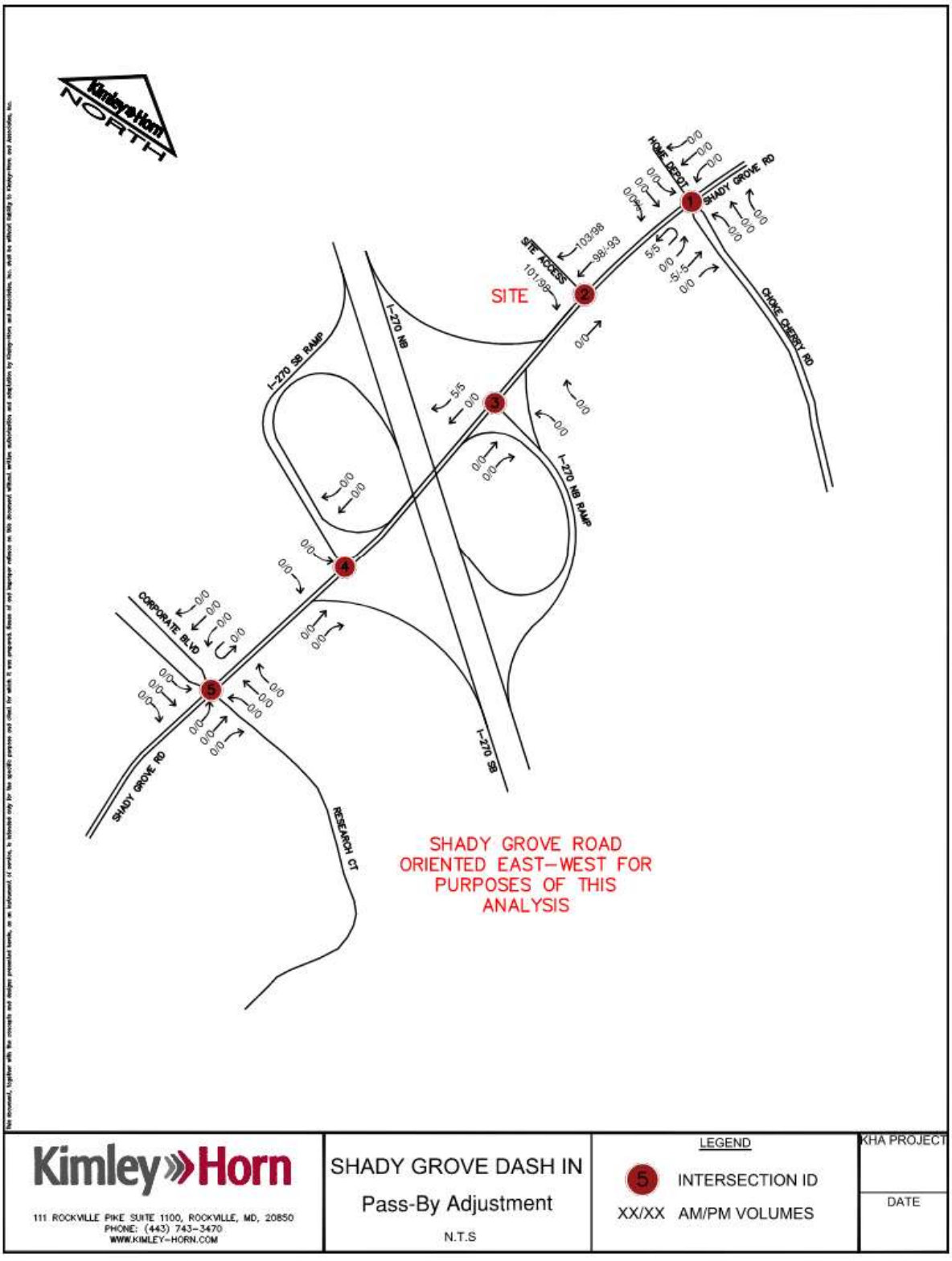

Figure 22: Site Pass-By Trip Assignments

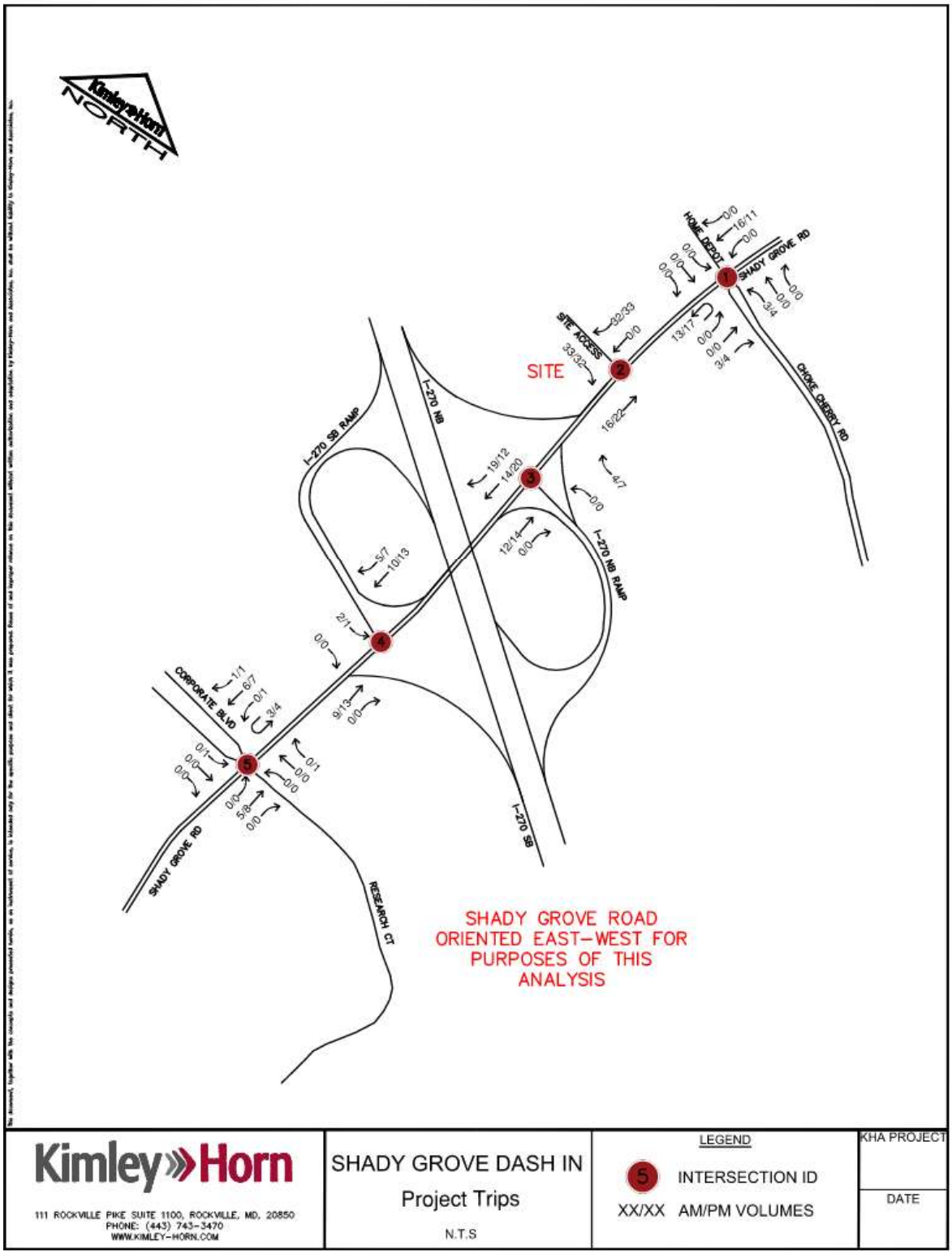

Figure 23: Site Primary Trip Assignments

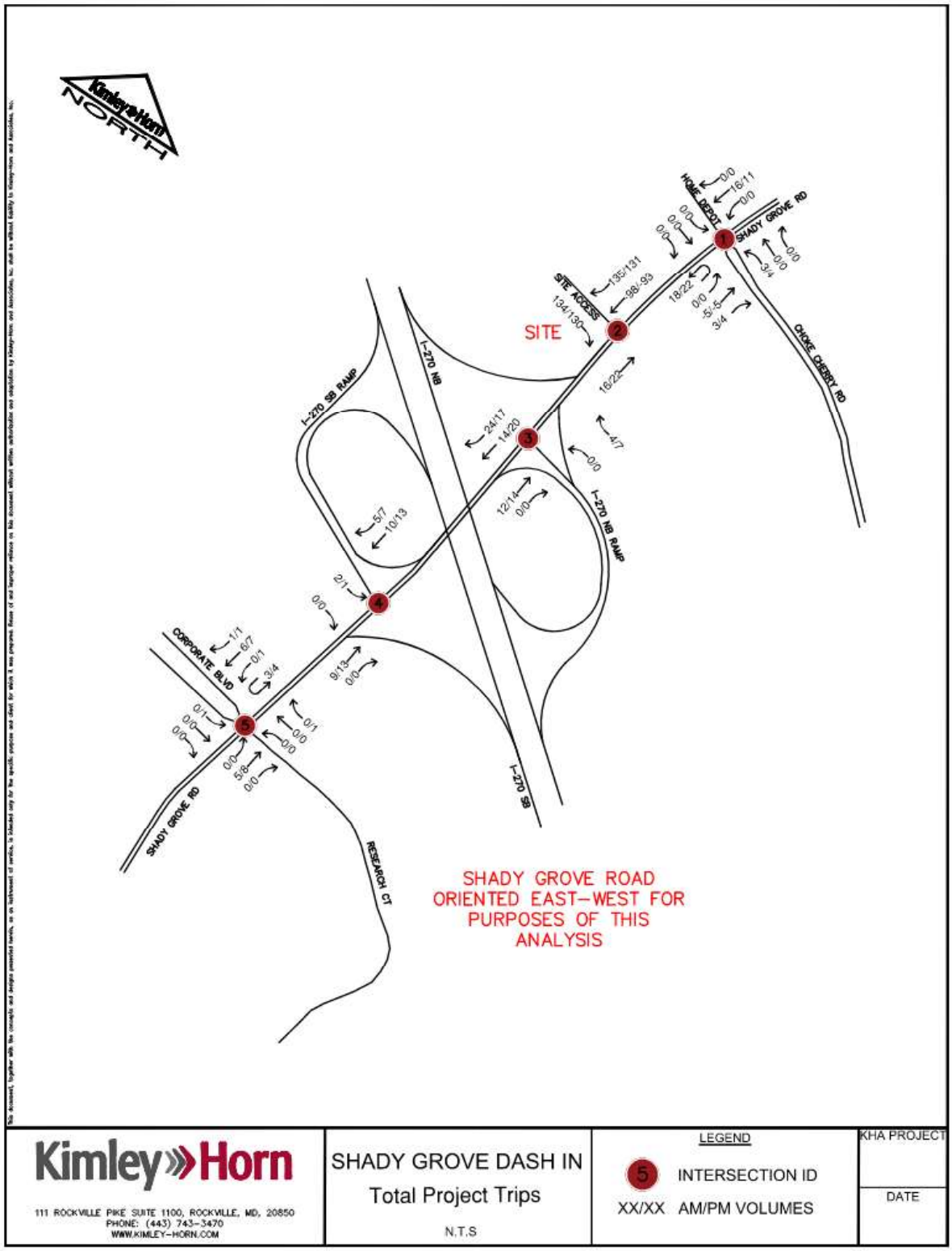

Figure 24: Total Site Trip Assignments (Primary + Pass-By)

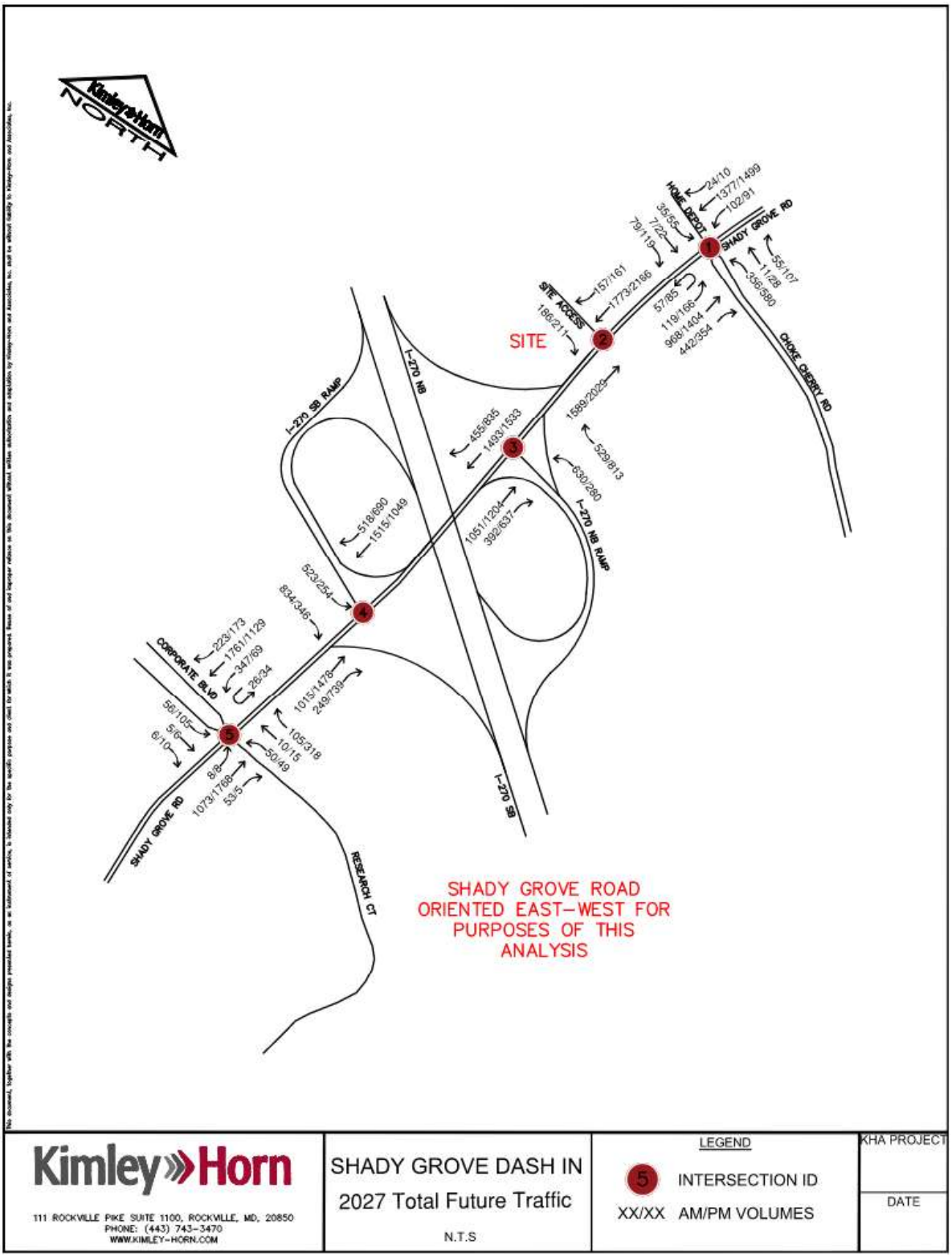

Figure 25: 2027 Total Future Traffic Forecasts

4.E: Results Tables

Table 6: Critical Lane Volume (CLV)

Intersection		AM Peak Hour			PM Peak Hour		
		Existing	Background	Total Future	Existing	Background	Total Future
1	Shady Grove Rd / Choke Cherry Rd	893 (B)	967 (B)	993 (B)	1122 (C)	1264 (D)	1288 (D)
2	Shady Grove Rd / Site Driveway	571 (A)	634 (A)	774 (A)	774 (A)	824 (A)	962 (B)
3	Shady Grove Rd / I-270 NB Ramp	785 (A)	822 (A)	826 (A)	589 (A)	622 (A)	628 (A)
4	Shady Grove Rd / I-270 SB Ramp	989 (B)	999 (B)	1003 (B)	716 (A)	725 (A)	730 (A)
5	Shady Grove Rd / Coroporate Blvd	860 (A)	882 (B)	887 (B)	807 (A)	817 (A)	826 (A)

Table 7: HCM Analyses Results (Threshold: 59 sec/veh)

Intersection		Signalized or Unsignalized	Delay Standard (CLV or HCM)	AM Peak Hour (sec/veh)			PM Peak Hour (sec/veh)		
				Existing	Background	Total Future	Existing	Background	Total Future
1	Shady Grove Rd / Choke Cherry Rd	Signalized	HCM 59 sec/veh	31.6	33.7	34.6	40.9	48.5	52.6
2	Shady Grove Rd / Site Driveway	Unsignalized	HCM 59 sec/veh	0.2	0.1	0.5	0.2	0.2	0.6
3	Shady Grove Rd / I-270 NB Ramp	Signalized	HCM 59 sec/veh	14.5	14.3	14.3	6.5	6.3	6.3
4	Shady Grove Rd / I-270 SB Ramp	Signalized	HCM 59 sec/veh	29.7	29.6	29.5	12.4	12.1	12
5	Shady Grove Rd / Coroporate Blvd	Signalized	HCM 59 sec/veh	20.1	21.1	29.5	20.2	22	22.2

4.F: Intersections Exceeding Delay Standard

No intersections exceeded the delay standard of 59 seconds per vehicle under either AM or PM peak hour conditions with or without the proposed development.

4.G: Proposed Motor Vehicle Mitigations

While all intersections operate with delays within the Policy Area standard, it is recommended that signal timings be evaluated and updated as volumes increase along Shady Grove Road in the future to improve queuing and green time allocation.

No vehicular mitigation is required or proposed.

SECTION 5: MITIGATION

5.A: Proportionality

The Proportionality Guide is calculated as follows:

*Proportionality Guide = Net New Daily Trips * $765 per Net New Daily Trip*

As shown in Table 1, the Project would generate 163 net new daily trips. The Proportionality Guide for the project is as follows:

Proportionality Guide = 163 trips * $765/trip = $124,695

5.B: Off-Site Considerations Summary

The Applicant is proposing to construct some pedestrian and bike improvements adjacent to the site; however, with the limited Proportionality Guide amount excluding off-site sidepath installation, the Applicant proposes to mitigate lighting deficiencies for the project.

5.C: Proposed Off-Site Mitigations

The full list of proposed mitigation is presented on Table 3 and summarized below:

- Provide a 10’ sidepath across the frontage of the property and remove the existing deficient sidewalk. The sidepath will tie back in to the existing sidewalk at the western end of the site where the interchange begins.
    - On-Site improvement not included in Proportionality Guide
- Reconstruct the existing ADA ramps and install a striped crosswalk on the site driveway at the intersection with Shady Grove Road.
    - On-Site improvement not included in Proportionality Guide
- Install nine (9) pedestrian lights attached to existing power poles along westbound Shady Grove Road. The estimated cost, including utilities, MOT, engineering and contingencies is approximately 128,250, which slightly exceeds the Proportionality Guide limit of $124,695

Table 8: Proposed Mitigation

ID		Location Description	Linear Feet	Is Adequate?	Adequacy Type and Existing Condition	Mitigation Needed	Feasible to Implement?	Notes on Feasability	Estimated Mitigation Cost	Proposed to be Completed	Mitigated By
Pedestrian Level of Comfort (PLOC)	P1	Shady Grove Rd north side, west of Site Driveway	250	No	PLOC rating: 4, Between 0'-2' of pathway buffer width, 8' wide sidewalk	Install new Sidepath with 10' pathway width and 8' pathway buffer width	No	Large changes in grade at the edge of sidewalk	N/A: This section is within the Shady Grove Road / I-270 interchange and is excluded from mitigation requirements		
	P3	Shady Grove Rd north side, east of Site Driveway	250	No	PLOC rating: 4, Between 0'-2' of pathway buffer width, 8' pathway width	Install new Sidepath with 10' pathway width and 8' pathway buffer width	No	Widening would require ROW from the adjacent property and moving power poles	$222,539.30 + ROW Acquisition	No	Excluded due to Proportionality Guide Limit
	P5	Home Depot Driveway Crossing at Shady Grove Road	30	No	Unmarked Crosswalk with No Median	Install striped crosswalk	Yes			No	Excluded due to Proportionality Guide Limit
Lighting	L1	North and south sides of shady grove rd, 250' west and east of site frontage	N/A	No	Illuminance; Inadequate lighting values for multiple categories at multiple locations	Install pedestrian lighting	Yes		$128,250	Yes	Install nine (9) pedestrian lights on existing power poles along Shady Grove Road to illuminate sidewalk.
Bicycle Level of Traffic Stress (LTS)	B1	Shady Grove Rd north side, west of site frontage	400	No	No Bike Facilities	Install new Sidepath with 10' pathway width and 8' pathway buffer width	No	Large changes in grade at the edge of sidewalk	Not Applicable: This section is within the Shady Grove Road / I-270 interchange and is excluded from mitigation requirements		
	B2	Shady Grove Rd north side, east of Site Driveway	400	No	No Bike Facilities	Install new Sidepath with 10' pathway width and 8' pathway buffer width	No	Widening would require ROW from the adjacent property	$222,539.30 + ROW Acquisition	No	Excluded due to Proportionality Guide Limit
Total Proposed Off-Site Improvements											$128,250
Proportionality Guide											$124,695

5.D: Alternative Mitigation Projects

The lighting improvements are the only identified mitigation that can be constructed within the Proportionality Guide amount.

The Applicant proposes that a fee-in-lieu payment towards future MCDOT pedestrian and bicycle improvements along Shady Grove Road be held as a potential alternative mitigation measure.