

APPENDIX

TIA SCOPING MOU AND CORRESPONDENCE



Revised TIA Scoping Memorandum of Understanding

Gravity Rolesville-Young Street Commercial

DRAFT Submitted: May 6, 2025; Resubmitted: May 8, 2025; Revised and Resubmitted: July 15, 2025

The intent of this memorandum is to summarize the scope for the Traffic Impact Analysis being prepared for the proposed Gravity Rolesville-Young Street Commercial site located along the east side of East Young Street, south of Quarry Road in Rolesville, North Carolina. This MOU is being sent to NCDOT and the Town for approval prior to completing the TIA.

Trip Generation & Proposed Site Access

The attached table includes the trip generation calculations for the proposed development. As shown on the attached concept plan, the proposed site consists of:

- 37,618 square foot grocery store
- 28,000 square feet of general retail
- 4,400 square foot fast food with drive-thru
- 4,400 square foot coffee shop with drive-thru
- 13,000 square feet of general office
- 13,000 square feet of medical office

The trip generation was based on rates and equations published in the *ITE Trip Generation Manual 11th Edition*. The NCDOT Congestion Management Rates vs. Equations spreadsheet was used for guidance. In some instances, pass-by rates were not provided within the *ITE Trip Generation Manual* for uses that would have notable pass-by trips (Strip Retail Plaza and Coffee/Donut Shop with Drive-Thru). Therefore, pass-by rates provided for similar uses were applied. Please see detailed notes in attached trip generation table. Pass-by trips were limited to 10% of the adjacent street traffic expected under no-build conditions.

The proposed access for the site includes two full movement driveways on Quarry Road and one full movement driveway on East Young Street. The proposed development does not require rezoning.

Study Intersections

The study intersections that will be analyzed under in the TIA include:

1. East Young Street at US 401 (signalized)*
2. US 401 at U-turn North of East Young Street (signalized)*
3. US 401 at U-turn South of East Young Street (signalized)*
4. East Young Street at Quarry Road/Future The Point North Driveway (unsignalized)
5. Quarry Road at Rolesville High School Staff & Bus Driveway (unsignalized)
6. East Young Street at Rolesville High School Student & Carpool Driveway/Future Point South Driveway (unsignalized)
7. Rolesville Road at Fowler Road/Future Merritt Property Southern Driveway (unsignalized)
8. Rolesville Road at Mitchell Mill Road (unsignalized)

9. Quarry Road at Proposed Full Movement Site Driveways (2)
10. East Young Street at Proposed Full Movement Site Driveway

Traffic Count Data

New traffic count data was collected at the study intersections during the AM (6:30-9 AM) and PM (4-6 PM) peak periods while school was in session. The Rolesville High School bell schedule runs from 7:20 am – 2:18 pm. The PM peak hour of RHS is not expected to overlap with the PM peak hour of the proposed site. However, the AM peak hours for the school and proposed site may overlap. Therefore, in order to appropriate capture the high school traffic, the morning data collection time period will be extended to begin at 6:30 AM.

*Due to the closure of East Young Street at Main Street in Rolesville, traffic count data will be supplemented with 2024 count data collected on January 30th for use in a local signal timing project for The Point. The annual growth rate will be applied to estimate 2025 volumes at these three intersections.

Trip Distribution

Trip distribution was estimated based on existing travel patterns, surrounding existing and approved residential land uses with consideration of nearby grocery store locations. The proposed distribution is as follows:

- 20% to/from the north on Young Street – dense residential
- 20% to/from the east on US 401 –minimal grocery and retail options to the east
- 15% to/from the west on US 401 –multiple grocery stores to the north and west of the site
- 10% to/from the east on Quarry Road – most direct route to site from NC 96
- 5% to/from the east on Fowler Road – rural residential access (plus access from Woodlief)
- 2% to/from the east on Mitchell Mill – rural residential access (plus access from Rolesville Crossing)
- 10% to/from the south on Rolesville Road – rural residential access
- 5% to/from the west on Mitchel Mill
- 7% to/from Kallas, Woodlief, Rolesville Crossing (approximately 1,150 residential units total)
- 1% to/from Merritt Properties (senior housing so less during peak hours)
- 5% to/from The Point (900 residential units)

Buildout Year and Growth Rate

The developer intends for the proposed site to be built-out by 2027. Historical growth data indicates a 5% annual growth rate in the area. However, because traffic from multiple approved developments will be accounted for separately from a growth factor, **an annual growth rate of 2% will be applied** to the existing counts to estimate 2027 background traffic volumes. The portion of traffic from each approved development expected to be in place by 2027 will be added to the background traffic volumes to estimate 2027 no-build traffic volumes.

Approved Developments

Based on the Town's Development Projects map, the following approved developments will be included in the future year analysis:

The Point land uses
updated per revised TIA

- The Point – Under Construction – 250 multifamily apartment units, 650 single family homes, and 108,200 square feet of retail along the west side of East Young Street north and south of US 401 Bypass. Buildout year 2027. ← 2029 per homebuilder
- 1216 Rolesville Road – In Review – 68 single family homes and 30,000 s.f. of retail located on the west side of Rolesville Road near the Sunset Manor Drive intersection. Buildout year 2028.
- Kalas Falls – Under Construction – 439 single family homes and 96 multifamily apartment units located on the west side of Rolesville Road north of Mitchell Mill Road. Buildout year 2025. ← 2028 per Town
- Woodlief Assemblage (Broadmoor) – In Review – 158 single family homes and 95 townhomes located along the east side of Rolesville Road south of Fowler Road. Buildout year 2028.
- Preserve at Moody Farm – In Review – 82 single family homes located along the west side of Rolesville Road north of Mitchell Mill Road. Buildout year 2026.
- Rolesville Crossing – In Review – 233 single family homes and 125 residential townhomes located along the east side of Rolesville Road north of Mitchell Mill Road. Buildout year 2026.
- Tucker Wilkins – In Review – 27 single family homes and 64 residential townhomes located along the west side of Rolesville Road north of Mitchell Mill Road. Buildout year 2026.
- Merritt Property – In Review – 227 senior adult single family detached homes, 278 senior adult attached homes, 21,000 square feet of retail, and a 15,000 square foot pharmacy with drive-thru located along the west side of Rolesville Road near the Fowler Road intersection. Buildout year 2028.

The Town and NCDOT supplied needed information related to the approved developments such as previously submitted TIAs, the intended buildout year of each approved development, the committed improvements at the study intersections, **updates to the details listed above** (number of units, buildout year), and **the number of Certificates of Occupancy issued at the time of data collection**. If a TIA was not submitted, Town will provide necessary supplemental information.

Committed Roadway Improvement Projects By Others

Based on preliminary research, there do not appear to be any NCDOT or Town projects within the proposed study area. However, the following committed improvements by private developers will be considered in the future year analysis:

East Young Street at US 401:

- Extend the eastbound right-turn lane on US 401 to provide 400 feet of full-width storage. (The Point)
- Extend the second northbound right-turn lane on East Young Street to provide 600 feet of full-width storage (Woodlief/Broadmoor)
- Convert the eastbound right-turn lane on US 401 to a free-flow right-turn lane. (Merritt Property)
- Construct a second southbound receiving lane on East Young Street that drops at The Point North Driveway. (Merritt Property)

US 401 at Eastbound U-turn:

- Construct a second eastbound U-turn lane with 400 feet of full-width storage (Woodlief/Broadmoor)

East Young Street at Quarry Road/Future Point North Driveway:

- Construct The Point North Driveway as the west leg of the intersection and provide:
 - An exclusive eastbound left-turn lane with 275 feet of full-width storage
 - An eastbound shared through/right-turn lane
- Install a traffic signal (The Point)
- Construct a southbound right-turn lane on East Young Street with 100 feet of full-width storage (The Point)
- Construct a northbound left-turn lane on East Young Street with 100 feet of full-width storage (The Point)
- Construct a northbound right-turn lane on East Young Street with 100 feet of full-width storage (The Point)
- Extend the southbound right-turn lane on East Young Street to provide continuous storage to US 401 Bypass. (Merritt Property)

East Young Street at Rolesville High School Student & Carpool Driveway/Future Point South Driveway:

- Construct The Point South Driveway as the west leg of the intersection and provide one ingress and egress lane.
- Construct a northbound left-turn lane with 50 feet of full-width storage (The Point)
Monitor for signal (Woodlief Assemblage)

Rolesville Road at Fowler Road/Future Merritt Property Southern Driveway:

- Construct the Merritt Property Southern Driveway/Fowler Road Extension as the west leg of the intersection and provide one ingress and egress lane.
- Construct a southbound right-turn lane on Rolesville Road with 100 feet of full-width storage. (Merritt Property)
- Construct a southbound left-turn lane on Rolesville Road with 100 feet of full-width storage. (Merritt Property)
- Construct a northbound left-turn lane on Rolesville Road with 100 feet of full-width storage. (Merritt Property)
- Monitor for signalization and install if warranted. (Merritt Property)

Rolesville Road at Mitchell Mill Road:

- Install a traffic signal (multiple developer agreement)

All of the committed improvements listed above are assumed to be in place by 2027 due to the likelihood that each improvement will be constructed prior to the buildout year of the subject approved development.

Analysis Scenarios

The following analysis scenarios will be studied in Synchro 11 in accordance with NCDOT Congestion Management Capacity Analysis Guidelines:

- Existing (2025) AM and PM Peak Hour
- 2027 No-Build AM and PM Peak Hour
- 2027 Buildout AM and PM Peak Hour
- 2027 Buildout AM and PM Peak Hour with recommended improvements, if needed

Synchro 11 will be used to analyze and report 95th percentile queue lengths. SimTraffic queue results will be included to satisfy NCDOT Congestion Management requirements.

Attachments:

Site Plan

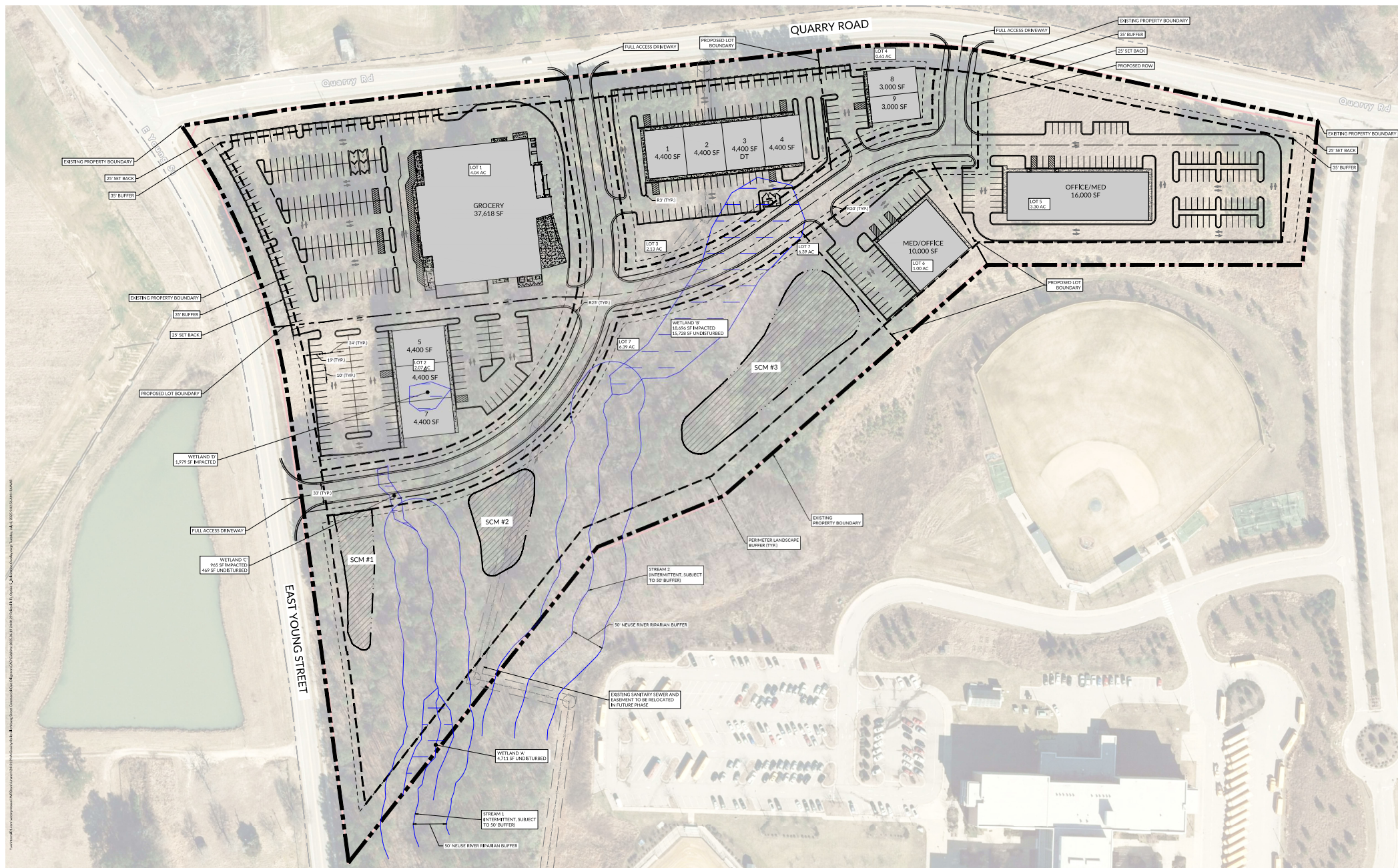
Trip Generation Table

Growth Rate Calculation

2025 AM and PM Existing Traffic Volumes

2027 AM and PM No-Build Traffic Volumes

Proposed Site Trip Distribution



ITE Trip Generation (11th Edition) Gravity Rolesville - Young Commercial													
Site Trips													
LUC	Land Use	Intensity	Units	Avg Rate or Equation?	Daily Trips			AM Peak Hour Trips			PM Peak Hour Trips		
					Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit
					Daily Trips			AM Trips	AM Trips In	AM Trips Out	PM Trips	PM Trips In	PM Trips Out
710	General Office Building	13	1,000 Sq Ft	Eq	198	99	99	29	25	4	31	5	26
720	Medical-Dental Office Building	13	1,000 Sq Ft	Eq	452	226	226	38	30	8	50	15	35
822	Strip Retail Plaza (<40K)	28.0	1,000 Sq Ft	Avg	1,526	763	763	66	40	26	185	92	93
850	Supermarket	37.6	1,000 Sq Ft	Avg	3,528	1,764	1,764	255	133	122	346	176	170
934	Fast-Food Restaurant w/ D.T.	4.4	1,000 Sq Ft	Avg	2,058	1,029	1,029	196	100	96	145	76	69
937	Coffee/Donut Shop w/ D.T.	4.4	1,000 Sq Ft GLA	Avg	2,348	1,174	1,174	378	193	185	172	86	86
Total					10,110	5,055	5,055	962	521	441	929	450	479
Internal Capture													
Land Use Code(s)	Land Use	Daily Trips			AM Peak Hour Trips			PM Peak Hour Trips					
		Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit			
710, 720	Office	-	-	-	21	10	11	22	10	12			
822, 850	Retail	-	-	-	39	18	21	126	73	53			
934, 937	Restaurant	-	-	-	49	27	22	117	49	68			
	Cinema/Entertainment	-	-	-	0	0	0	0	0	0			
	Residential	-	-	-	0	0	0	0	0	0			
	Hotel	-	-	-	0	0	0	0	0	0			
	All Other Land Uses	-	-	-	0	0	0	0	0	0			
Total		2650	1325	1325	109	55	54	265	132	133			
External Trips													
LUC	Land Use	Daily Trips			AM Peak Hour Trips			PM Peak Hour Trips					
		Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit			
710	General Office Building	-	-	-	20	20	0	24	3	21			
720	Medical-Dental Office Building	-	-	-	26	25	1	35	7	28			
822	Strip Retail Plaza (<40K)	-	-	-	58	36	22	141	67	74			
850	Supermarket	-	-	-	224	119	105	264	128	136			
934	Fast-Food Restaurant w/ D.T.	-	-	-	179	91	88	92	53	39			
937	Coffee/Donut Shop w/ D.T.	-	-	-	346	175	171	108	60	48			
Total		7,460	3,730	3,730	853	466	387	664	318	346			
Pass-By Trips													
LUC	Land Use	Daily Trip%	AM Trip%	PM Trip%	Daily Trips			AM Peak Hour Trips			PM Peak Hour Trips		
					Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit
		NonPassby/Daily	NonPassby/AM Trips	NonPassby/PM Trips	Daily PB Trips			AM PB Trips	PB Trips	PB Trips	PM PB Trips	PB Trips	PB Trips
710	General Office Building	0%	0%	0%	0	0	0	0	0	0	0	0	0
720	Medical-Dental Office Building	0%	0%	0%	0	0	0	0	0	0	0	0	0
822	Strip Retail Plaza (<40K)*	0%	0%	40%	570	285	285	0	0	0	57	27	30
850	Supermarket	0%	0%	24%	640	320	320	0	0	0	64	31	33
934	Fast-Food Restaurant w/ D.T.	0%	50%	55%	500	250	250	90	46	44	50	29	21
937	Coffee/Donut Shop w/ D.T. **	0%	50%	55%	590	295	295	174	88	86	59	33	26
Total					2,300	1,150	1,150	264	134	130	230	120	110
Adjacent Street Volumes (No-Build)								2,385			2,090		
Pass-By Maximum (10% Adjacent Street Volumes)					2,090	1,045	1,045	239	121	118	209	109	100
Pass-By Trips Applied					2,090	1,045	1,045	239	121	118	209	109	100
Net New External Site Trips													
					Daily Trips			AM Peak Hour Trips			PM Peak Hour Trips		
					Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit
TOTAL					5,370	2,685	2,685	614	345	269	455	209	246

ITE Trip Generation Manual 11th Edition (ITETripGen Web-based App) utilized for Trip Generation rates and equations

*Applied PM Pass-By Rate for LUC 821 Shopping Plaza (40 - 150K)

**Applied PM Pass-By Rate for LUC 934 Fast-Food Restaurant w/D.T.

NCHRP 684 Internal Trip Capture Estimation Tool					
Project Name:		Organization:			
Project Location:		Performed By:			
Scenario Description:		Date:			
Analysis Year:		Checked By:			
Analysis Period:	AM Street Peak Hour	Date:			

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office	#NAME?			67	55	12
Retail	#NAME?			321	173	148
Restaurant	#NAME?			574	293	281
Cinema/Entertainment	#NAME?			0	0	0
Residential	#NAME?			0	0	0
Hotel	#NAME?			0	0	0
All Other Land Uses ²	#NAME?			0	0	0
				962	521	441

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office	1.10	0%	0%	1.10	0%	0%
Retail	1.10	0%	0%	1.10	0%	0%
Restaurant	1.10	0%	0%	1.10	0%	0%
Cinema/Entertainment	1.10	0%	0%	1.10	0%	0%
Residential	1.10	0%	0%	1.10	0%	0%
Hotel	1.10	0%	0%	1.10	0%	0%
All Other Land Uses ²	1.10	0%	0%	1.10	0%	0%

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		4	8	0	0	0
Retail	2		21	0	0	0
Restaurant	9	15		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	1,058	573	485
Internal Capture Percentage	11%	10%	12%
External Vehicle-Trips ⁵	853	466	387
External Transit-Trips ⁵	0	0	0
External Non-Motorized Trips ⁶	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	18%	92%
Retail	10%	14%
Restaurant	9%	8%
Cinema/Entertainment	N/A	N/A
Residential	N/A	N/A
Hotel	N/A	N/A

¹ Land Use Codes (LUCs) from <i>Trip Generation Manual</i> , published by the Institute of Transportation Engineers.
² Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.
³ Enter trips assuming no transit or non-motorized trips (as assumed in ITE <i>Trip Generation Manual</i>).
⁴ Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.
⁵ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.
⁶ Person-Trips
*Indicates computation that has been rounded to the nearest whole number.
Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

EXULT ADDED TABLE: TOTAL INTERNAL CAPTURE VEHICULAR TRIPS						
Origin Land Use	ENTERING TRIPS			EXITING TRIPS		
	Internal	External	Total	Internal	External	Total
Office	10	45	55	11	1	12
Retail	18	155	173	21	127	148
Restaurant	27	266	293	22	259	281
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Project Name:	0
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.10	55	61	1.10	12	13
Retail	1.10	173	190	1.10	148	163
Restaurant	1.10	293	322	1.10	281	309
Cinema/Entertainment	1.10	0	0	1.10	0	0
Residential	1.10	0	0	1.10	0	0
Hotel	1.10	0	0	1.10	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		4	8	0	0	0
Retail	47		21	0	23	0
Restaurant	96	43		0	12	9
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		61	74	0	0	0
Retail	2		161	0	0	0
Restaurant	9	15		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	32	64	0		0
Hotel	2	8	19	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	11	50	61	45	0	0
Retail	19	171	190	155	0	0
Restaurant	29	293	322	266	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	12	1	13	1	0	0
Retail	23	140	163	127	0	0
Restaurant	24	265	309	259	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.
² Person-Trips
³ Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.
*Indicates computation that has been rounded to the nearest whole number.

NCHRP 684 Internal Trip Capture Estimation Tool					
Project Name:		Organization:			
Project Location:		Performed By:			
Scenario Description:		Date:			
Analysis Year:		Checked By:			
Analysis Period:	PM Street Peak Hour	Date:			

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office	#NAME?			81	20	61
Retail	#NAME?			531	268	263
Restaurant	#NAME?			317	162	155
Cinema/Entertainment	#NAME?			0	0	0
Residential	#NAME?			0	0	0
Hotel	#NAME?			0	0	0
All Other Land Uses ²	#NAME?			0	0	0
				929	450	479

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office	1.10	0%	0%	1.10	0%	0%
Retail	1.10	0%	0%	1.10	0%	0%
Restaurant	1.10	0%	0%	1.10	0%	0%
Cinema/Entertainment	1.10	0%	0%	1.10	0%	0%
Residential	1.10	0%	0%	1.10	0%	0%
Hotel	1.10	0%	0%	1.10	0%	0%
All Other Land Uses ²	1.10	0%	0%	1.10	0%	0%

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		865	734			
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		11	2	0	0	0
Retail	6		52	0	0	0
Restaurant	5	70		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	1,022	495	527
Internal Capture Percentage	29%	29%	28%
External Vehicle-Trips ⁵	664	318	346
External Transit-Trips ⁵	0	0	0
External Non-Motorized Trips ⁶	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	50%	19%
Retail	27%	20%
Restaurant	30%	44%
Cinema/Entertainment	N/A	N/A
Residential	N/A	N/A
Hotel	N/A	N/A

¹ Land Use Codes (LUCs) from <i>Trip Generation Manual</i> , published by the Institute of Transportation Engineers.
² Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.
³ Enter trips assuming no transit or non-motorized trips (as assumed in ITE <i>Trip Generation Manual</i>).
⁴ Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.
⁵ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.
⁶ Person-Trips
*Indicates computation that has been rounded to the nearest whole number.
Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

EXULT ADDED TABLE: TOTAL INTERNAL CAPTURE VEHICULAR TRIPS						
Origin Land Use	ENTERING TRIPS			EXITING TRIPS		
	Internal	External	Total	Internal	External	Total
Office	10	10	20	12	49	61
Retail	73	195	268	53	210	263
Restaurant	49	113	162	68	87	155
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Project Name:	0
Analysis Period:	PM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips [*]	Veh. Occ.	Vehicle-Trips	Person-Trips [*]
Office	1.10	20	22	1.10	61	67
Retail	1.10	268	295	1.10	263	289
Restaurant	1.10	162	178	1.10	155	171
Cinema/Entertainment	1.10	0	0	1.10	0	0
Residential	1.10	0	0	1.10	0	0
Hotel	1.10	0	0	1.10	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		11	2	0	1	0
Retail	6		84	12	75	14
Restaurant	5	70		14	31	12
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		19	3	0	0	0
Retail	7		52	0	0	0
Restaurant	7	148		0	0	0
Cinema/Entertainment	1	12	5		0	0
Residential	13	30	25	0		0
Hotel	0	6	9	0	0	

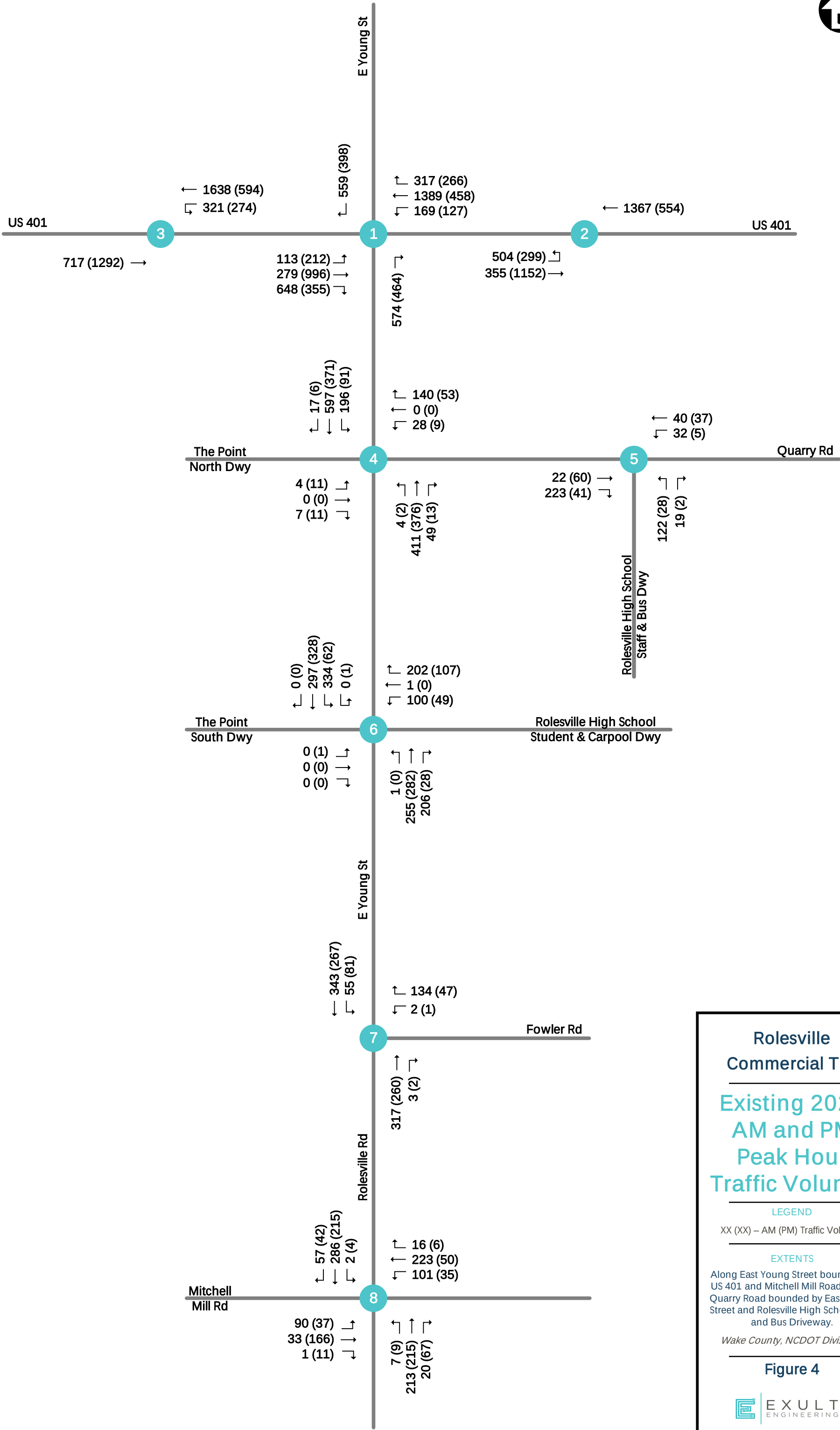
Table 9-A (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	11	11	22	10	0	0
Retail	81	214	295	195	0	0
Restaurant	54	124	178	113	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	13	54	67	49	0	0
Retail	58	231	289	210	0	0
Restaurant	75	96	171	87	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.
² Person-Trips
³ Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.
*Indicates computation that has been rounded to the nearest whole number.

Count station	2023	2019	Annual Growth
Rolesville Road N of Fowler	6500	5400	4.74%
Quarry Road E of E Young*	2100	1000	9.72%
US 401 Bypass E of E Young	16000	14500	2.49%
Rolesville Road N of Mitchell Mill	4700	4300	2.25%
Average			4.80%

*Available data used from 2023 and 2015



**Rolesville
Commercial TIA**

**Existing 2025
AM and PM
Peak Hour
Traffic Volumes**

LEGEND

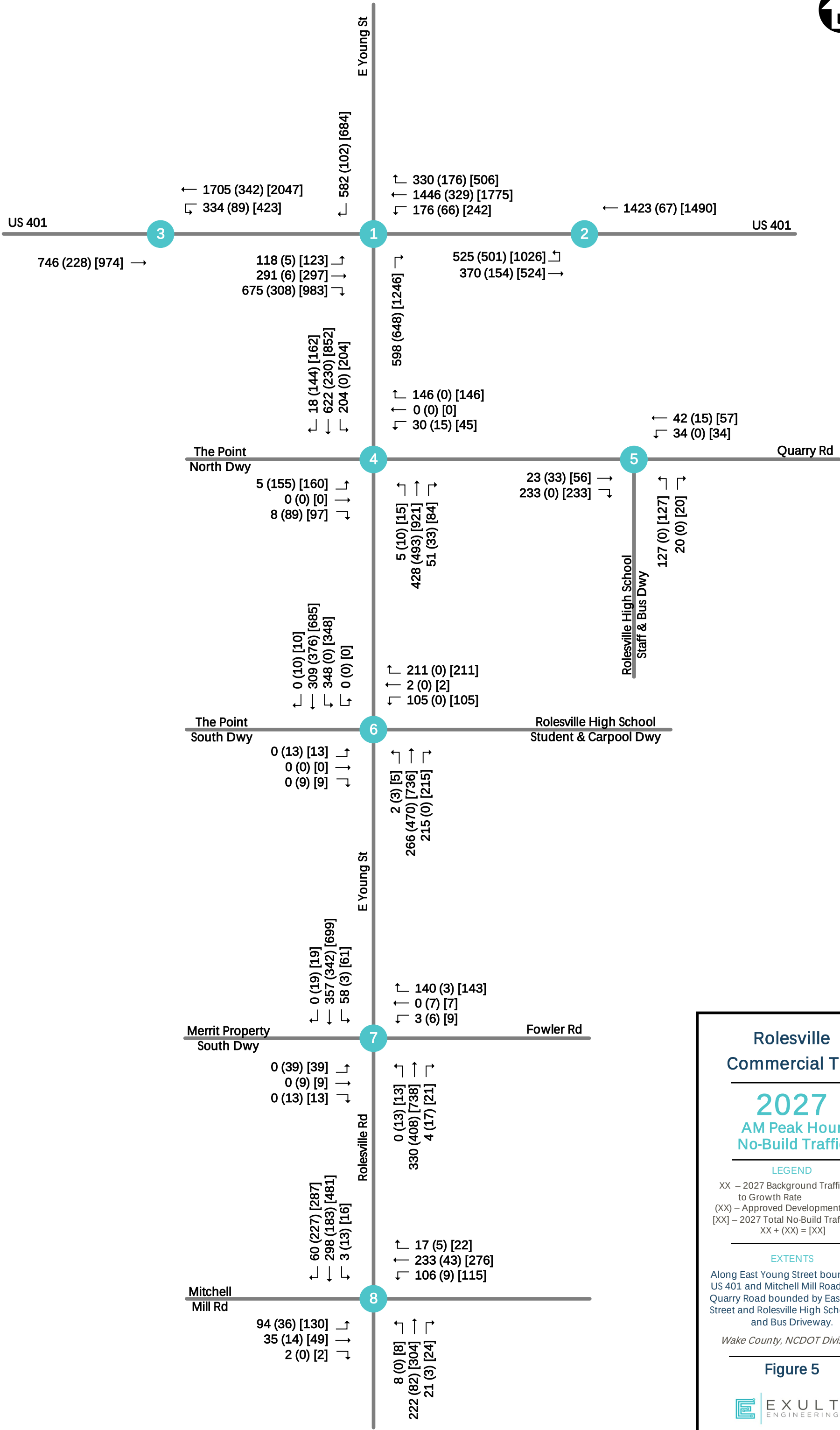
XX (XX) – AM (PM) Traffic Volumes

EXTENTS

Along East Young Street bounded by
US 401 and Mitchell Mill Road; Along
Quarry Road bounded by East Young
Street and Rolesville High School Staff
and Bus Driveway.

Wake County, NCDOT Division 5

Figure 4



Rousesville Commercial TIA

2027
AM Peak Hour
No-Build Traffic

LEGEND

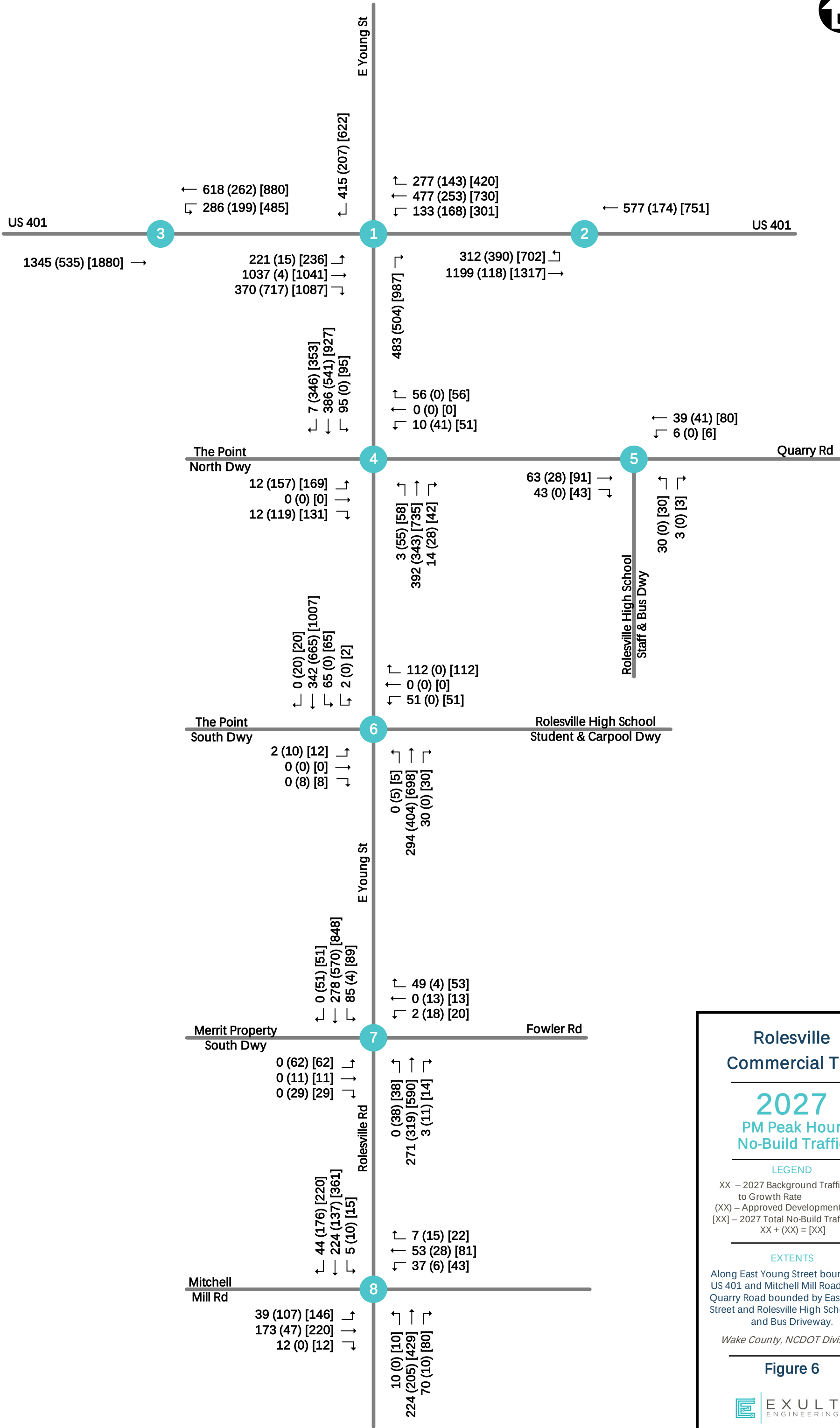
- XX – 2027 Background Traffic Due to Growth Rate
- (XX) – Approved Development Traffic
- [XX] – 2027 Total No-Build Traffic
- XX + (XX) = [XX]

EXTENTS

Along East Young Street bounded by US 401 and Mitchell Mill Road; Along Quarry Road bounded by East Young Street and Rousesville High School Staff and Bus Driveway.

Wake County, NCDOT Division 5

Figure 5



Rolesville Commercial TIA

2027
PM Peak Hour
No-Build Traffic

LEGEND

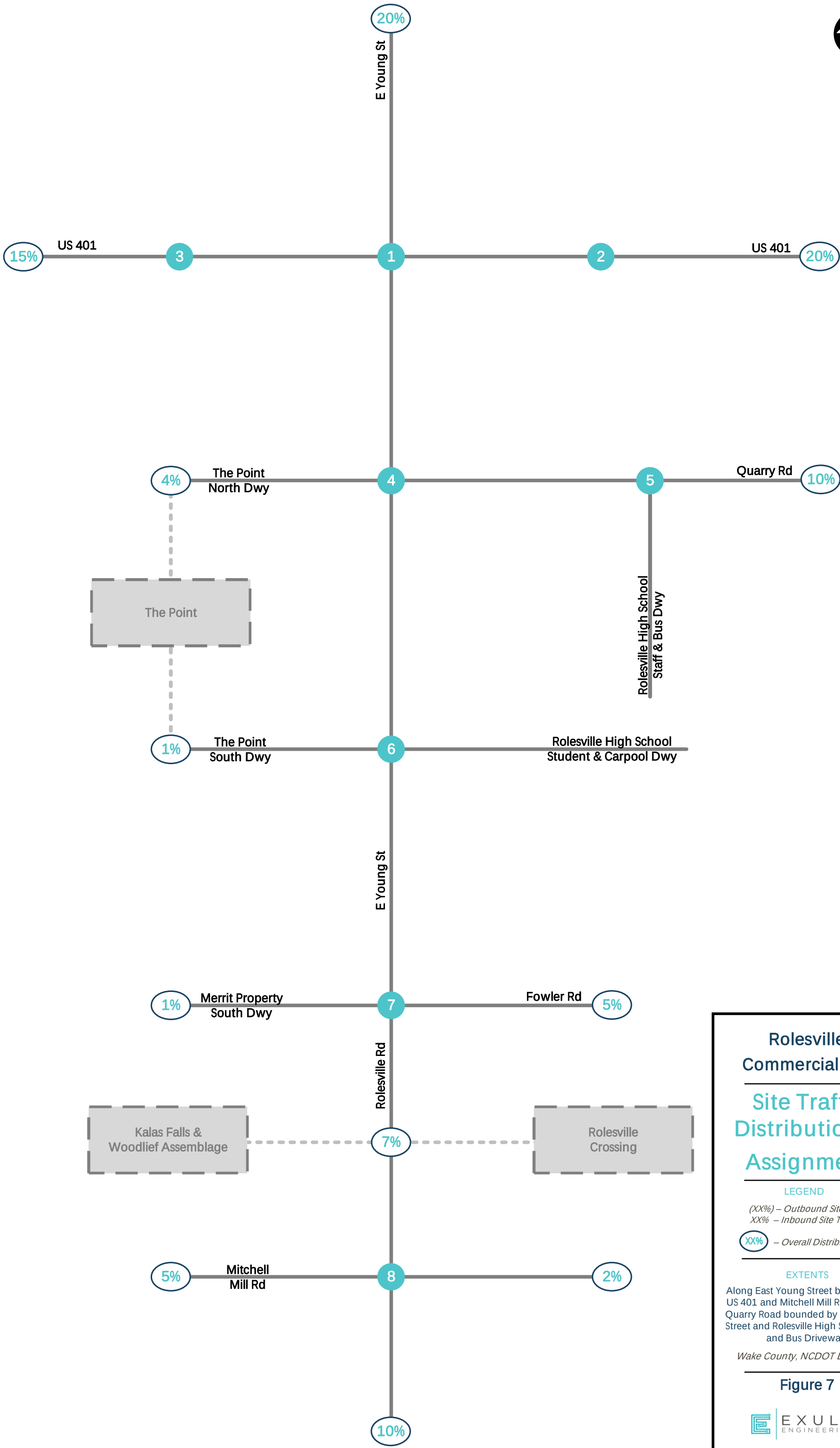
XX – 2027 Background Traffic Due to Growth Rate
(XX) – Approved Development Traffic
[XX] – 2027 Total No-Build Traffic
XX + (XX) = [XX]

EXTENTS

Along East Young Street bounded by US 401 and Mitchell Mill Road; Along Quarry Road bounded by East Young Street and Rolesville High School Staff and Bus Driveway.

Wake County, NCDOT Division 5

Figure 6



**Rolesville
Commercial TIA**

**Site Traffic
Distribution &
Assignment**

LEGEND

(XX%) – Outbound Site Traffic
XX% – Inbound Site Traffic

XX% – Overall Distribution

EXTENTS

Along East Young Street bounded by US 401 and Mitchell Mill Road; Along Quarry Road bounded by East Young Street and Rolesville High School Staff and Bus Driveway.

Wake County, NCDOT Division 5

Figure 7

Brittany Chase

From: Sparrow, Montel V <mvsparrow@ncdot.gov>
Sent: Monday, August 11, 2025 11:55 AM
To: Chanlin Wong; Brittany Chase; Elabarger, Michael S; Zhang, Joshua P
Cc: Drew Plato; Gruber, Meredith; Bunting, Clarence B; Darnell, Trevor S; Boulware, Daniel
Subject: RE: [External] RE: RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Chanlin,

We are good with the MOU. The distribution percentages are slightly different than what we would normally expect but we do not think they will ultimately change the recommendations so, we are good with proceeding.

Sincerely,

Montel Sparrow
Senior Assistant District Engineer
Wake County District Office (Division 5 District 1)
North Carolina Department of Transportation

mvsparrow@ncdot.gov
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Raleigh, NC 27699-1575
4009 District Drive (Physical)
Raleigh, NC 27607



Email correspondence to and from this sender is subject to the N.C. Public Records Law and may be disclosed to third parties.

From: Chanlin Wong <ChanlinW@ExultEngineering.com>
Sent: Monday, August 11, 2025 8:54 AM
To: Brittany Chase <Brittany@ExultEngineering.com>; Elabarger, Michael S <melabarger@rolesvillenc.gov>; Sparrow, Montel V <mvsparrow@ncdot.gov>; Zhang, Joshua P <jpzhang@ncdot.gov>
Cc: Drew Plato <dplato@withersravenel.com>; Gruber, Meredith <mgruber@rolesvillenc.gov>; Bunting, Clarence B <cbunting@ncdot.gov>; Darnell, Trevor S <tsdarnell@ncdot.gov>; Boulware, Daniel <dboulware@ncdot.gov>
Subject: [External] RE: RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Good Morning Montel,

I wanted to see if NCDOT could provide review of the three items below for this Rolesville site, as presented in the attached updated MOU?

- Proposed distribution (page 2)
- Revised driveway locations – confirmation acceptable (page 6 site plan)
- Internal capture calculations – confirmation of methodology (pages 7-9)

Thank you,
Chanlin Wong



Chanlin Wong, PE (NC, SC)

Exult Engineering | 3445 Pelham Road, Suite F-2, Greenville, SC 29615

Office: 864-659-6071 | Mobile: 480-299-2645

Email: ChanlinW@ExultEngineering.com

Website: www.ExultEngineering.com

From: Brittany Chase <Brittany@ExultEngineering.com>

Sent: Thursday, August 7, 2025 12:59 PM

To: Michael S Elabarger <melabarger@rolesvillenc.gov>; Sparrow, Montel V <mvsparrow@ncdot.gov>; Zhang, Joshua P <jpzhang@ncdot.gov>

Cc: Drew Plato <dplato@withersravenel.com>; Chanlin Wong <ChanlinW@ExultEngineering.com>; Meredith Gruber <mgruber@rolesvillenc.gov>; Bunting, Clarence B <cbunting@ncdot.gov>; Darnell, Trevor S <tsdarnell@ncdot.gov>; Boulware, Daniel <dboulware@ncdot.gov>

Subject: RE: RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Thank you for your response, Michael. I have gone ahead and removed Jacqueline from the email.

@Sparrow, Montel V and @Zhang, Joshua P – Can NCDOT please provide feedback on the remaining items at your earliest convenience?

- Proposed distribution
- Revised driveway locations – confirmation acceptable
- Internal capture calculations – confirmation of methodology

Thank you!



Brittany Chase, P.E.

Exult Engineering | P.O. Box 99277, Raleigh, NC 27624

Direct: 984-500-5428

Email: Brittany@ExultEngineering.com

From: Michael S Elabarger <melabarger@rolesvillenc.gov>

Sent: Wednesday, August 6, 2025 7:30 PM

To: Brittany Chase <Brittany@ExultEngineering.com>; Sparrow, Montel V <mvsparrow@ncdot.gov>

Cc: Jacqueline Thompson <Jacqueline.Thompson@bolton-menk.com>; Drew Plato <dplato@withersravenel.com>;

Chanlin Wong <ChanlinW@ExultEngineering.com>; Meredith Gruber <mgruber@rolesvillenc.gov>

Subject: RE: RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Brittany,

I don't see how B&M as Town contracted engineer can perform work on this TIA when there is no money or direct application for Jacque to bill to; a bit of trap of contracted vs on-staff. The Town defers to the NCDOT for the distribution scope.

Mike Elabarger

Interim Planning Director

From: Brittany Chase <Brittany@ExultEngineering.com>

Sent: Wednesday, August 6, 2025 1:54 PM

To: Michael S Elabarger <melabarger@rolesvillenc.gov>; Sparrow, Montel V <mvsparrow@ncdot.gov>

Cc: Jacqueline Thompson <Jacqueline.Thompson@bolton-menk.com>; Drew Plato <dplato@withersravenel.com>;

Chanlin Wong <ChanlinW@ExultEngineering.com>; Meredith Gruber <mgruber@rolesvillenc.gov>

Subject: RE: RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Good afternoon Michael and Montel –

I hope you both are doing well.

Just checking in on these outstanding items. We do need responses from the Town and NCDOT on the following items (detailed in previous emails) so that we can move forward with our analysis:

Town – will Bolton & Menk be providing comments on the proposed distribution or will the Town rely on NCDOT's recommendations on the distribution?

NCDOT –

- Proposed distribution
- Revised driveway locations
- Internal capture calculations

Please let us know your thoughts at your earliest convenience.

Thank you!



Brittany Chase, P.E.

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Direct: 984-500-5428
Email: Brittany@ExultEngineering.com
Website: www.ExultEngineering.com

From: Brittany Chase

Sent: Thursday, July 31, 2025 8:47 AM

To: Michael S Elabarger <melabarger@rolesvillenc.gov>; Sparrow, Montel V <mvsparrow@ncdot.gov>

Cc: Jacqueline Thompson <Jacqueline.Thompson@bolton-menk.com>; Drew Plato <dplato@withersravenel.com>;

Chanlin Wong <ChanlinW@ExultEngineering.com>; Meredith Gruber <mgruber@rolesvillenc.gov>

Subject: RE: RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Good morning Michael and Montel –

I hope you both are doing well.

Just checking in from our latest email from last week. Please let us know your responses at your earliest convenience.

Thank you!



Brittany Chase, P.E.

Exult Engineering | P.O. Box 99277, Raleigh, NC 27624

Direct: 984-500-5428

Email: Brittany@ExultEngineering.com

Website: www.ExultEngineering.com

From: Brittany Chase

Sent: Friday, July 25, 2025 6:20 PM

To: Michael S Elabarger <melabarger@rolesvillenc.gov>; Sparrow, Montel V <mvsparrow@ncdot.gov>

Cc: Jacqueline Thompson <Jacqueline.Thompson@bolton-menk.com>; Drew Plato <dplato@withersravenel.com>;

Chanlin Wong <ChanlinW@ExultEngineering.com>; Meredith Gruber <mgruber@rolesvillenc.gov>

Subject: RE: RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Hi Michael –

We can understand your hesitation to offer comments on the proposed distribution. To confirm, do you expect that Bolton & Menk will instead be offering comments on the proposed distribution? If so, I've reattached our July 15th email for reference. Or does the Town plan to lean on NCDOT's comments?

@Sparrow, Montel V – when do you think we will hear back from NCDOT regarding:

- Proposed distribution
- Revised driveway locations
- Internal capture calculations

Thank you and have a great weekend!



Brittany Chase, P.E.

Exult Engineering | P.O. Box 99277, Raleigh, NC 27624

Direct: 984-500-5428

Email: Brittany@ExultEngineering.com

Website: www.ExultEngineering.com

From: Michael S Elabarger <melabarger@rolesvillenc.gov>

Sent: Wednesday, July 23, 2025 7:40 PM

To: Brittany Chase <Brittany@ExultEngineering.com>; Sparrow, Montel V <mvsparrow@ncdot.gov>; Meredith Gruber <mgruber@rolesvillenc.gov>

Cc: Jacqueline Thompson <Jacqueline.Thompson@bolton-menk.com>

Subject: RE: RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Meredith – how would you normally / how would you like to respond in regards to the proposed trip distribution here? As Town Planner I don't necessarily feel I have the credentials to weigh in on this subject matter decision; I mentioned previously maybe the Town Engineer should be brought into this discussion, and I've now added Jacque, but in no way mean to completely dump this on her/Bolton&Menk without some discussion at least.

Brittany – this project was allowed to stray from the “Town on-call TIA consultant” policy of the Board of Commissioners because this is a by-right development, not going through the Rezoning process. Thus either of those on-call consultants, who by the arrangement of their retainer, are meant to in large part ‘speak’ for and represent the best interests of the Town when scoping TIA's, serving as the Town's SME on the subject (traffic/TIA). So pursuing this TIA and asking Town Planning to provide expertise input is leaving ME at least feeling in a bit of a lurch I apologize for this pause or stall, it's simply a trap of the Town's on-call first and foremost, and then that process being waived for your project, which is why (Exult is) involved in the first place – so the benefit has become a slight detriment. I certainly did not foresee this when we said this project could deviate from the on-call process.

I hope that is a lot more words than maybe Meredith or Jacque can bring to this, I'm fine if the Town leans on DOT and Exult as an expert in this field to flesh out the scope.

Mike E.

From: Brittany Chase <Brittany@ExultEngineering.com>

Sent: Wednesday, July 23, 2025 6:24 PM

To: Sparrow, Montel V <mvsparrow@ncdot.gov>; Michael S Elabarger <melabarger@rolesvillenc.gov>

Cc: Boulware, Daniel <dboulware@ncdot.gov>; Zhang, Joshua P <jpzhang@ncdot.gov>; Bunting, Clarence B <cbunting@ncdot.gov>; Darnell, Trevor S <tsdarnell@ncdot.gov>; Melinda Seley <MelindaS@ExultEngineering.com>; Chanlin Wong <ChanlinW@ExultEngineering.com>; Lisa Lundeen <LisaL@ExultEngineering.com>; Meredith Gruber <meredith.gruber@rolesville.nc.gov>; Drew Plato <dplato@withersravenel.com>

Subject: RE: [External] RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Hi Montel and Michael –

We are hoping to move forward with our buildout year analysis this week. **Could you please provide feedback to the proposed distribution provided on July 15th at your earliest convenience?**

In addition and for reference, based on conversations with the Town/homebuilders and further review of approved development TIA's, the following changes will also be made to the TIA Scoping MOU provided to you on July 15th:

- The Point buildout year will be updated to 2029
- Kalas Falls buildout year will be updated to 2028
- The committed improvement to monitor the intersection of East Young Street at RHS/The Point Southern Driveway will be added

Thank you!



Brittany Chase, P.E.

Exult Engineering | P.O. Box 99277, Raleigh, NC 27624

Direct: 984-500-5428

Email: Brittany@ExultEngineering.com

Website: www.ExultEngineering.com

From: Brittany Chase

Sent: Tuesday, July 15, 2025 6:00 PM

To: Sparrow, Montel V <mvsparrow@ncdot.gov>; Michael S Elabarger <melabarger@rolesvillenc.gov>

Cc: Boulware, Daniel <dboulware@ncdot.gov>; Zhang, Joshua P <jpzhang@ncdot.gov>; Bunting, Clarence B <cbunting@ncdot.gov>; Darnell, Trevor S <tsdarnell@ncdot.gov>; Melinda Seley <MelindaS@ExultEngineering.com>; Chanlin Wong <ChanlinW@ExultEngineering.com>; Lisa Lundeen <LisaL@ExultEngineering.com>; Gruber, Meredith a <meredith.gruber@rolesville.nc.gov>; Drew Plato <dplato@withersravenel.com>

Subject: RE: [External] RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Good afternoon Montel and Michael –

For your records, we have finalized the Gravity Rolesville – Young Commercial TIA Scoping MOU. The changes include:

- The updated site plan
- Updated trip generation to reflect the minor changes to square footages
 - Internal capture has been updated to reflect the ITE methodology (weighted averages for distances between land uses)
 - Pass-by has been capped by 10% of the adjacent street no-build traffic volumes
- We have added a **proposed distribution** for your review. The distribution is based on access to existing and proposed residential uses, existing travel patterns, and consideration of where nearby grocery stores are located.
- We have also included figures of the existing, balanced peak hour traffic volumes as well as the no-build peak hour volumes for your reference.

Please let us know if NCDOT and the Town approve of the attached MOU at your earliest convenience.

Thank you!

Brittany Chase, P.E.

Exult Engineering | P.O. Box 99277, Raleigh, NC 27624

Direct: 984-500-5428

Email: Brittany@ExultEngineering.com

Website: www.ExultEngineering.com

From: Brittany Chase

Sent: Wednesday, July 9, 2025 9:39 AM

To: Sparrow, Montel V <mvsparrow@ncdot.gov>

Cc: Boulware, Daniel <dboulware@ncdot.gov>; Zhang, Joshua P <jpzhang@ncdot.gov>; Bunting, Clarence B <cbunting@ncdot.gov>; Darnell, Trevor S <tsdarnell@ncdot.gov>; Melinda Seley <MelindaS@ExultEngineering.com>; Chanlin Wong <ChanlinW@ExultEngineering.com>; Lisa Lundeen <LisaL@ExultEngineering.com>; Gruber, Meredith a <meredith.gruber@rolesville.nc.gov>; Michael S Elabarger <melabarger@rolesvillenc.gov>; Drew Plato <dplato@withersravenel.com>

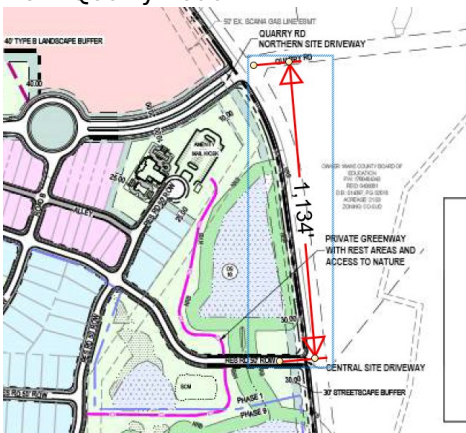
Subject: RE: [External] RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Good morning Montel –

I hope you are doing well.

We wanted to send a quick email on two items related to the Rolesville Commercial site:

1. I have added the Town staff back onto this email chain as I have attached the proposed site plan with the revised driveway locations based on NCDOT's feedback. Can you please confirm if these locations look acceptable to NCDOT and the Town?
 - a. Adjustments were made to address spacing of full movement driveways and to reduce impacts to wetlands.
 - b. Based on a site plan we have on file, the Central Driveway for The Point is approximately 1,130 feet from Quarry Road.



As measured on the attached plan, the proposed driveway for our site is roughly 625 feet from Quarry Road.

2. Have you had the opportunity to discuss our most recent question regarding the methodology for calculating Internal Capture land use interchange distances? For future reference, we would like to confirm that NCDOT requires the maximum distance to be used as opposed to ITE's guidance to use a weighted average.

Thank you for your time!



Brittany Chase, P.E.
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From: Brittany Chase
Sent: Wednesday, June 4, 2025 9:31 AM
To: Sparrow, Montel V <mvsparrow@ncdot.gov>
Cc: Boulware, Daniel <dboulware@ncdot.gov>; Zhang, Joshua P <jpzhang@ncdot.gov>; Bunting, Clarence B <cbunting@ncdot.gov>; Darnell, Trevor S <tsdarnell@ncdot.gov>; Melinda Seley <MelindaS@ExultEngineering.com>; Chanlin Wong <ChanlinW@ExultEngineering.com>; Lisa Lundeen <LisaL@ExultEngineering.com>
Subject: RE: [External] RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Good morning Montel –

Thank you for your comments. Because this topic will come up again on future projects, we do want to make sure we understand what is required by NCDOT. I have removed the Town of Rolesville to not bombard them with technical details.

We initially used the average in our calculations because the spreadsheet indicates an average should be used:

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)
--

Upon further review, in the ITE Trip Generation Handbook (page 53), it states that a weighted average should be used if there are multiple buildings within one land use. The weighting factor being the square footage of each building within that particular land use. So in our case, the grocery store distance would have a higher weight than the smaller buildings for the retail land use. Therefore, it appears ITE does support that an average (although different than we originally calculated) should be used.

The recommended procedure for measuring the distance between two on-site land uses is as follows. If there is only one building of each land use category (for example, one apartment building and one office building), enter the walking distance between the entrances to each building. If there is a group of buildings or businesses of one land use category in an area, separate that land use into blocks, with a block being the building faces along both sides of a street (see Figure 6.3 for an example). Locate the centroid of the entrances of each specific land use for each block. Measure the distance between each block centroid of that land use and the other, interacting land use. If there are multiple blocks, the analyst should measure between all pairs of blocks and use the weighted average distance, using square feet of land use involved in each exchange as the weighting factor.

For confirmation, does NCDOT require that the maximum is used despite ITE's recommendation?

We appreciate your time in working through this detail that will help us with future mixed-use developments.

Thank you!



Brittany Chase, P.E.

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Email: Brittany@ExultEngineering.com

Website: www.ExultEngineering.com

From: Sparrow, Montel V <mvsparrow@ncdot.gov>

Sent: Tuesday, June 3, 2025 5:03 PM

To: Brittany Chase <Brittany@ExultEngineering.com>; Boulware, Daniel <dboulware@ncdot.gov>; Zhang, Joshua P <jpzhang@ncdot.gov>

Cc: Chanlin Wong <ChanlinW@ExultEngineering.com>; Melinda Seley <MelindaS@ExultEngineering.com>; Bunting, Clarence B <cbunting@ncdot.gov>; Darnell, Trevor S <tsdarnell@ncdot.gov>; Gruber, Meredith <mgruber@rolesvillenc.gov>; Elabarger, Michael S <melabarger@rolesvillenc.gov>

Subject: RE: [External] RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Brittany,

The walking distance should be the maximum distance not an average distance and should be measured from the furthest point of each building. Ultimately, it looks like the distance should be around 1,225' but it does not seem to make a big difference in this case so, we are good to proceed with the MOU but please keep in mind that we will be expecting for the maximum distance to be utilized in the future.

Sincerely,

Montel Sparrow
Senior Assistant District Engineer
Wake County District Office (Division 5 District 1)
North Carolina Department of Transportation

mvsparrow@ncdot.gov

(919)814-6115(office)

1575 Mail Service Center (Mail)
Raleigh, NC 27699-1575
4009 District Drive (Physical)
Raleigh, NC 27607



From: Brittany Chase <Brittany@ExultEngineering.com>

Sent: Thursday, May 29, 2025 8:30 PM

To: Sparrow, Montel V <mvsparrow@ncdot.gov>; Boulware, Daniel <dboulware@ncdot.gov>; Zhang, Joshua P <jpzhang@ncdot.gov>

Cc: Chanlin Wong <ChanlinW@ExultEngineering.com>; Melinda Seley <MelindaS@ExultEngineering.com>; Bunting, Clarence B <cbunting@ncdot.gov>; Darnell, Trevor S <tsdarnell@ncdot.gov>; Gruber, Meredith <mgruber@rolesvillenc.gov>; Elabarger, Michael S <melabarger@rolesvillenc.gov>

Subject: RE: [External] RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

CAUTION: External email. Do not click links or open attachments unless verified. Report suspicious emails with the Report Message button located on your Outlook menu bar on the Home tab.

Thank you for your response, Montel. I will pass along the RIRO answer to our client.

Please see attached site plan for some labeled walking distance dimensions. It's a little difficult because the exact location of the 6,000 s.f. of office space has not been identified. To be conservative and to allow for some potential movement in land uses, we measured distances from the furthest office building (eastern portion of site) to all the potential retail and restaurant options, the average distance is approximately 608'. Again, for the proposed site, adjusting this distance only applies to the office-to-retail and office-to-restaurant land use combination, which has pretty minimal internal capture.

For example, these are the results with 600':

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)					
Origin (From)	Destination (To)				
	Office	Retail	Restaurant	Cinema/Entertainment	Residential
Office		600	600		
Retail					
Restaurant					
Cinema/Entertainment					
Residential					
Hotel					

Internal Capture		Total	10,420	9,114	9,114	314	323	443
Land Use Code(s)	Land Use	Daily Trips			AM Peak Hour Trips			
		Total	Enter	Exit	Total	Enter	Exit	
710, 720	Office	-	-	-	17	8	9	
822, 850	Retail	-	-	-	40	17	23	
934, 937	Restaurant	-	-	-	49	28	21	
	Cinema/Entertainment	-	-	-	0	0	0	
	Residential	-	-	-	0	0	0	
	Hotel	-	-	-	0	0	0	
	All Other Land Uses	-	-	-	0	0	0	
Total		2640	1320	1320	106	53	53	
External Trips								

And these are the results for 1,000':

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)					
Origin (From)	Destination (To)				
	Office	Retail	Restaurant	Cinema/Entertainment	Residential
Office		1000	1000		
Retail					
Restaurant					
Cinema/Entertainment					
Residential					
Hotel					

Internal Capture							
Land Use Code(s)	Land Use	Daily Trips			AM Peak Hour Trips		
		Total	Enter	Exit	Total	Enter	Exit
710, 720	Office	-	-	-	17	8	9
822, 850	Retail	-	-	-	40	17	23
934, 937	Restaurant	-	-	-	49	28	21
	Cinema/Entertainment	-	-	-	0	0	0
	Residential	-	-	-	0	0	0
	Hotel	-	-	-	0	0	0
	All Other Land Uses	-	-	-	0	0	0
Total		2620	1310	1310	106	53	53

External Trips

Please let us know if you are okay with our calculations. Thanks!



Brittany Chase, P.E.

Exult Engineering | P.O. Box 99277, Raleigh, NC 27624

Direct: 984-500-5428

Email: Brittany@ExultEngineering.com

Website: www.ExultEngineering.com

From: Sparrow, Montel V <mvsparrow@ncdot.gov>

Sent: Thursday, May 29, 2025 11:42 AM

To: Brittany Chase <Brittany@ExultEngineering.com>; Boulware, Daniel <dboulware@ncdot.gov>; Zhang, Joshua P <jpzhang@ncdot.gov>

Cc: Chanlin Wong <ChanlinW@ExultEngineering.com>; Melinda Seley <MelindaS@ExultEngineering.com>; Bunting, Clarence B <cbunting@ncdot.gov>; Darnell, Trevor S <tsdarnell@ncdot.gov>; Gruber, Meredith <mgruber@rolesvillenc.gov>; Elabarger, Michael S <melabarger@rolesvillenc.gov>

Subject: RE: [External] RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Brittany,

We are not in support of a RIRO between the full movement driveways. The development has the ability to have 3 full movement driveways. Even when looking at the fire code, 3 driveways is more than even access to adequately serve this development. Regarding the internal capture, the walking distance should be based on the site plan. Our scale could be off, but it appears the walking distance should be greater than 600 ft. Is 600' the distance you measured?

Sincerely,

Montel Sparrow

Senior Assistant District Engineer
Wake County District Office (Division 5 District 1)
North Carolina Department of Transportation

mvsparrow@ncdot.gov
(919)814-6115(office)

1575 Mail Service Center (Mail)
Raleigh, NC 27699-1575
4009 District Drive (Physical)
Raleigh, NC 27607



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From: Brittany Chase <Brittany@ExultEngineering.com>
Sent: Wednesday, May 21, 2025 1:18 PM
To: Sparrow, Montel V <mvsparrow@ncdot.gov>; Boulware, Daniel <dboulware@ncdot.gov>; Zhang, Joshua P <jpzhang@ncdot.gov>
Cc: Lineberger, Nicholas C <nclineberger@ncdot.gov>; Chanlin Wong <ChanlinW@ExultEngineering.com>; Melinda Seley <MelindaS@ExultEngineering.com>; Bunting, Clarence B <cbunting@ncdot.gov>; Darnell, Trevor S <tsdarnell@ncdot.gov>; Gruber, Meredith <mgruber@rolesvillenc.gov>; Elabarger, Michael S <melabarger@rolesvillenc.gov>
Subject: RE: [External] RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

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Thank you for your responses, Montel.

We have a few follow up questions/requests for confirmation before passing along these details to our client:

- NCDOT would like at least 600 feet of spacing provided along Quarry Road between East Young Street and the Proposed Western FM Site Driveway, between the Proposed Western FM Site Driveway and the Proposed Eastern FM Site Driveway, and then again between the Proposed Eastern FM Site Driveway and RHS School Bus Driveway.
- **Would a RIRO also be permitted in between any of the full movement driveways along Quarry Road? If so, what is that required spacing?**
- NCDOT requires that at least 600 feet of spacing is provided along East Young Street between Quarry Road and the Proposed FM Site Driveway.
- The applicable average distance of 600 feet was entered into the IC spreadsheet based on the proposed uses (office, retail, and restaurant). We do not have any residential uses proposed so those distances were left blank as they will not impact our calculations. From the ITE Handbook:

The **only land use pairs** for which proximity adjustment factors are available (and therefore are the only land use pairs for which distances are used in the analysis) are the following:

- Office-to-retail;
- Office-to-restaurant;
- Office-to-residential;
- Retail-to-residential;
- Restaurant-to-residential;
- Cinema/entertainment-to-residential;
- Residential-to-retail;
- Residential-to-restaurant; and
- Hotel-to-residential.

The **only time period** for which sufficient data are available to derive a reliable proximity relationship is the weekday PM peak period. In this procedure, AM peak period internal capture rates are **not** adjusted to reflect distance between land uses.

Please let us know if you concur with the trip generation (aside from the 10% adjacent street traffic pass-by cap).

Thanks!



Brittany Chase, P.E.

Exult Engineering | P.O. Box 99277, Raleigh, NC 27624

Direct: 984-500-5428

Email: Brittany@ExultEngineering.com

Website: www.ExultEngineering.com

From: Sparrow, Montel V <mvsparrow@ncdot.gov>

Sent: Wednesday, May 21, 2025 11:56 AM

To: Brittany Chase <Brittany@ExultEngineering.com>; Boulware, Daniel <dboulware@ncdot.gov>; Zhang, Joshua P <jpzhang@ncdot.gov>

Cc: Lineberger, Nicholas C <nclineberger@ncdot.gov>; Chanlin Wong <ChanlinW@ExultEngineering.com>; Melinda Seley <MelindaS@ExultEngineering.com>; Bunting, Clarence B <cbunting@ncdot.gov>; Darnell, Trevor S <tsdarnell@ncdot.gov>; Gruber, Meredith <mgruber@rolesvillenc.gov>; Elabarger, Michael S <melabarger@rolesvillenc.gov>

Subject: RE: [External] RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Brittany,

Please remove the center driveway on Rock Quarry Rd. If full movement is desired for the eastern driveway on Rock Quarry Rd, it must be moved further west away from the school driveway in order to meet our minimum spacing requirement of 600'. If it must remain in the current location, then the driveway will need to be restricted to RIRO. Also, the driveway on E Young Street needs to be shifted further south for full movement consideration due to spacing. If it cannot be moved, then it will need to be restricted to RIRO as well.

We noticed that you are showing a 28% internal capture during the PM peak. It looks like the walking distance was lowered to 0' and 600'. The site plan does not seem to support those distances. Can you

please explain the reason for these assumptions? Also, please ensure that pass-by does not exceed 10% of the adjacent street traffic.

Sincerely,

Montel Sparrow
Senior Assistant District Engineer
Wake County District Office (Division 5 District 1)
North Carolina Department of Transportation

mvsparrow@ncdot.gov
(919)814-6115(office)

1575 Mail Service Center (Mail)
Raleigh, NC 27699-1575
4009 District Drive (Physical)
Raleigh, NC 27607



Email correspondence to and from this sender is subject to the N.C. Public Records Law and may be disclosed to third parties.

From: Brittany Chase <Brittany@ExultEngineering.com>
Sent: Sunday, May 18, 2025 6:17 PM
To: Boulware, Daniel <dboulware@ncdot.gov>; Zhang, Joshua P <jpzhang@ncdot.gov>
Cc: Sparrow, Montel V <mvsparrow@ncdot.gov>; Lineberger, Nicholas C <nclineberger@ncdot.gov>; Chanlin Wong <ChanlinW@ExultEngineering.com>; Melinda Seley <MelindaS@ExultEngineering.com>; Bunting, Clarence B <cbunting@ncdot.gov>; Darnell, Trevor S <tsdarnell@ncdot.gov>; Gruber, Meredith <mgruber@rolesvillenc.gov>; Elabarger, Michael S <melabarger@rolesvillenc.gov>
Subject: RE: [External] RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

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Hi Daniel and Joshua –

Please let us know NCDOT's thoughts on the remainder of the previously provided scope (trip generation, proposed access, growth rate, approved developments, and committed improvements). I have reattached the updated MOU, which also includes how we plan to address the current closure of Main at Young as the closure will impact volumes at our study intersections along US 401.

Please let us know if you would prefer to have a virtual meeting to discuss these remaining items. If so, could you please provide your availability for the coming week?

Thank you!



Brittany Chase, P.E.

Exult Engineering | P.O. Box 99277, Raleigh, NC 27624

Direct: 984-500-5428

Email: Brittany@ExultEngineering.com

Website: www.ExultEngineering.com

From: Brittany Chase

Sent: Tuesday, May 13, 2025 5:35 PM

To: Boulware, Daniel <dboulware@ncdot.gov>; Elabarger, Michael S <melabarger@rolesvillenc.gov>; Zhang, Joshua P <jpzhang@ncdot.gov>

Cc: Sparrow, Montel V <mvsparrow@ncdot.gov>; Lineberger, Nicholas C <nclineberger@ncdot.gov>; Chanlin Wong <ChanlinW@ExultEngineering.com>; Melinda Seley <MelindaS@ExultEngineering.com>; Bunting, Clarence B <cbunting@ncdot.gov>; Darnell, Trevor S <tsdarnell@ncdot.gov>; Gruber, Meredith <mgruber@rolesvillenc.gov>

Subject: RE: [External] RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Thanks for the clarification, Daniel. We will go ahead and collect at the beginning of next week then. We were more concerned with the AP exams impacting the school driveway volumes this week. I was particularly aware of this change in schedule as my son was just able to take advantage of AP testing this last week at an area school!

Please let us know NCDOT's thoughts on the remainder of the scope or if you'd like for us to schedule a meeting to talk through anything. As noted below, we added a note about how we plan to address the current closure of Main at Young because this will impact volumes at our study intersections along US 401.

Thank you!



Brittany Chase, P.E.

Exult Engineering | P.O. Box 99277, Raleigh, NC 27624

Direct: 984-500-5428

Email: Brittany@ExultEngineering.com

Website: www.ExultEngineering.com

From: Boulware, Daniel <dboulware@ncdot.gov>

Sent: Tuesday, May 13, 2025 4:59 PM

To: Elabarger, Michael S <melabarger@rolesvillenc.gov>; Brittany Chase <Brittany@ExultEngineering.com>; Zhang, Joshua P <jpzhang@ncdot.gov>

Cc: Sparrow, Montel V <mvsparrow@ncdot.gov>; Lineberger, Nicholas C <nclineberger@ncdot.gov>; Chanlin Wong <ChanlinW@ExultEngineering.com>; Melinda Seley <MelindaS@ExultEngineering.com>; Bunting, Clarence B <cbunting@ncdot.gov>; Darnell, Trevor S <tsdarnell@ncdot.gov>; Gruber, Meredith <mgruber@rolesvillenc.gov>

Subject: RE: [External] RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Hi Brittany,

I don't think it's a new rule. This TIA isn't being reviewed by MSTA but they've been unhappy about counts being in the last month. It was just an FYI for something MSTA related mostly.

Thank you,

Daniel Boulware, PE

Wake District Engineer (Division 5, District 1)
North Carolina Department of Transportation

919 814 6115 office
dboulware@ncdot.gov

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Raleigh, NC 27699-1575
4009 District Drive (Physical)
Raleigh, NC 27607



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From: Michael S Elabarger <melabarger@rolesvillenc.gov>

Sent: Tuesday, May 13, 2025 4:26 PM

To: Brittany Chase <Brittany@ExultEngineering.com>; Boulware, Daniel <dboulware@ncdot.gov>; Zhang, Joshua P <jpzhang@ncdot.gov>

Cc: Sparrow, Montel V <mvsparrow@ncdot.gov>; Lineberger, Nicholas C <nclineberger@ncdot.gov>; Chanlin Wong <ChanlinW@ExultEngineering.com>; Melinda Seley <MelindaS@ExultEngineering.com>; Bunting, Clarence B <cbunting@ncdot.gov>; Darnell, Trevor S <tsdarnell@ncdot.gov>; Gruber, Meredith <mgruber@rolesvillenc.gov>

Subject: RE: [External] RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Some people who received this message don't often get email from melabarger@rolesvillenc.gov. [Learn why this is important](#)

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The Town defers to the DOT as to their expertise on the TIA assumptions, et al. We want you to go about collecting data asap, and do not want to be in the way of that.

Mike Elabarger
Asst. Planning Director

From: Brittany Chase <Brittany@ExultEngineering.com>

Sent: Thursday, May 8, 2025 7:35 PM

To: Boulware, Daniel <dboulware@ncdot.gov>; Michael S Elabarger <melabarger@rolesvillenc.gov>; Zhang, Joshua P <jpzhang@ncdot.gov>

Cc: Sparrow, Montel V <mvsparrow@ncdot.gov>; Lineberger, Nicholas C <nclineberger@ncdot.gov>; Chanlin Wong <ChanlinW@ExultEngineering.com>; Melinda Seley <MelindaS@ExultEngineering.com>; Bunting, Clarence B <cbunting@ncdot.gov>; Darnell, Trevor S <tsdarnell@ncdot.gov>; Meredith Gruber <mgruber@rolesvillenc.gov>
Subject: RE: [External] RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Hi Daniel, Joshua, and Michael –

We wanted to follow-up to confirm traffic count data collected on May 20th or May 21st will be acceptable for this site. With AP exams scheduled at Rolesville High School that may impact student arrival times, we would like to avoid counting next week. **Please advise at your earliest convenience.**

Also, upon further evaluation of the study area, we have made some revisions shown in red within the attached MOU to account for current fluctuations due to the closure of the Main Street at East Young Street intersection. **Please see revised Draft TIA Scoping MOU for your further review.**

Finally, **would the Town and NCDOT prefer to comment on the remaining TIA assumptions** (aside from the study area) **via email or would you like us to schedule a virtual meeting to discuss?**

Thank you all and have a great evening!



Brittany Chase, P.E.
Exult Engineering | P.O. Box 99277, Raleigh, NC 27624
Direct: 984-500-5428
Email: Brittany@ExultEngineering.com
Website: www.ExultEngineering.com

From: Brittany Chase
Sent: Wednesday, May 7, 2025 10:09 AM
To: Boulware, Daniel <dboulware@ncdot.gov>; Elabarger, Michael S <melabarger@rolesvillenc.gov>; Gruber, Meredith <mgruber@rolesvillenc.gov>
Cc: Sparrow, Montel V <mvsparrow@ncdot.gov>; Lineberger, Nicholas C <nclineberger@ncdot.gov>; Chanlin Wong <ChanlinW@ExultEngineering.com>; Melinda Seley <MelindaS@ExultEngineering.com>; Zhang, Joshua P <jpzhang@ncdot.gov>; Bunting, Clarence B <cbunting@ncdot.gov>; Darnell, Trevor S <tsdarnell@ncdot.gov>
Subject: RE: [External] RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Hi Daniel –

I apologize for multiple emails, but we want to make sure we are collecting traffic counts on a day that makes sense. It looks like there are AP exams through the end of next week at Rolesville High School. Therefore, I'd like to schedule counts for the week of the 19th instead. Would that be acceptable to NCDOT?

← May 2025 →							Month	Day	List
Sun	Mon	Tue	Wed	Thu	Fri	Sat			
27	28	29	30	1	2	3			
4	5	6	7	8	9	10			
11	12	13	14	15	16	17			
18	19	20	21	22	23	24			

Please let us know at your earliest convenience.

Thank you!



Brittany Chase, P.E.
Exult Engineering | P.O. Box 99277, Raleigh, NC 27624
 Direct: 984-500-5428
 Email: Brittany@ExultEngineering.com
 Website: www.ExultEngineering.com

From: Brittany Chase
Sent: Wednesday, May 7, 2025 8:19 AM
To: Boulware, Daniel <dboulware@ncdot.gov>; Elabarger, Michael S <melabarger@rolesvillenc.gov>; Gruber, Meredith <mgruber@rolesvillenc.gov>
Cc: Sparrow, Montel V <mvsparrow@ncdot.gov>; Lineberger, Nicholas C <nclineberger@ncdot.gov>; Chanlin Wong <ChanlinW@ExultEngineering.com>; Melinda Seley <MelindaS@ExultEngineering.com>; Zhang, Joshua P <jpzhang@ncdot.gov>; Bunting, Clarence B <cbunting@ncdot.gov>; Darnell, Trevor S <tsdarnell@ncdot.gov>
Subject: RE: [External] RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Thank you for the study area confirmation, Daniel. We will get the counts scheduled as soon as possible. We do have a few follow up questions/comments:

- For our future reference, the counts needing to be performed prior to the last month of school – is that a new rule? We always have the rush of requests before school ends for the summer and it seems, in the past, the preference of review agencies is to collect prior to Memorial Day, if possible. Any days after would need to be checked closely versus the nearby school calendar for exam days, senior days/picnics, etc.
 - Is the mentioned month window because school driveways are included in the study area?
 - We have already put the request in with our counters for collection and will get these on the schedule as soon as possible. But, what is the last day of data collection that NCDOT/Town will except in this case?
- We will prepare a proposed distribution once we have the existing traffic counts.
- I have attached a to-scale version of the site plan with the driveway spacing dimensions.

Thank you!



Brittany Chase, P.E.

Exult Engineering | P.O. Box 99277, Raleigh, NC 27624

Direct: 984-500-5428

Email: Brittany@ExultEngineering.com

Website: www.ExultEngineering.com

From: Boulware, Daniel <dboulware@ncdot.gov>

Sent: Tuesday, May 6, 2025 10:00 PM

To: Brittany Chase <Brittany@ExultEngineering.com>; Elabarger, Michael S <melabarger@rolesvillenc.gov>; Gruber, Meredith <mgruber@rolesvillenc.gov>

Cc: Sparrow, Montel V <mvsparrow@ncdot.gov>; Lineberger, Nicholas C <nclineberger@ncdot.gov>; Chanlin Wong <ChanlinW@ExultEngineering.com>; Melinda Seley <MelindaS@ExultEngineering.com>; Zhang, Joshua P <jpzhang@ncdot.gov>; Bunting, Clarence B <cbunting@ncdot.gov>; Darnell, Trevor S <tsdarnell@ncdot.gov>

Subject: RE: [External] RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Adding Trevor and Clarence.

For the purpose of getting counts, the selected off site intersections look appropriate. Just FYI, these are really supposed to be complete before the last month of school so these need to be completed ASAP. Also, I don't see a proposed distribution and can we get a distance between driveways?

Thank you,

Daniel Boulware, PE

Wake District Engineer (Division 5, District 1)
North Carolina Department of Transportation

919 814 6115 office

dboulware@ncdot.gov

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Raleigh, NC 27699-1575
4009 District Drive (Physical)
Raleigh, NC 27607



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From: Brittany Chase <Brittany@ExultEngineering.com>
Sent: Tuesday, May 6, 2025 6:41 PM
To: Elabarger, Michael S <melabarger@rolesvillenc.gov>; Boulware, Daniel <dboulware@ncdot.gov>; Gruber, Meredith <mgruber@rolesvillenc.gov>
Cc: Sparrow, Montel V <mvsparrow@ncdot.gov>; Lineberger, Nicholas C <nclineberger@ncdot.gov>; Chanlin Wong <ChanlinW@ExultEngineering.com>; Melinda Seley <MelindaS@ExultEngineering.com>; Zhang, Joshua P <jpzhang@ncdot.gov>
Subject: [External] RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

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Hi Michael - Thanks for letting us know about Joshua! I've copied him on this reply.

@Boulware, Daniel – please let us know if NCDOT is okay with the study area whenever you have a moment. In addition, any other comments regarding trip generation, proposed access, and the TIA assumptions would be greatly appreciated.

Thanks and have a great evening!



Brittany Chase, P.E.
Exult Engineering | P.O. Box 99277, Raleigh, NC 27624
Direct: 984-500-5428
Email: Brittany@ExultEngineering.com
Website: www.ExultEngineering.com

From: Michael S Elabarger <melabarger@rolesvillenc.gov>
Sent: Tuesday, May 6, 2025 4:58 PM
To: Brittany Chase <Brittany@ExultEngineering.com>; Boulware, Daniel <dboulware@ncdot.gov>; Meredith Gruber <mgruber@rolesvillenc.gov>
Cc: Sparrow, Montel V <mvsparrow@ncdot.gov>; Lineberger, Nicholas C <nclineberger@ncdot.gov>; Chanlin Wong <ChanlinW@ExultEngineering.com>; Melinda Seley <MelindaS@ExultEngineering.com>
Subject: RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

No issue with the Study area here; Meredith may have thoughts. FYI, Zhang, Joshua P jpzhang@ncdot.gov is Rolesville's primary DOT staff at the moment but Montel has been involved too for some time so good to see him!

From: Brittany Chase <Brittany@ExultEngineering.com>
Sent: Tuesday, May 6, 2025 4:41 PM
To: Michael S Elabarger <melabarger@rolesvillenc.gov>; Boulware, Daniel <dboulware@ncdot.gov>; Meredith Gruber <mgruber@rolesvillenc.gov>
Cc: Sparrow, Montel V <mvsparrow@ncdot.gov>; Lineberger, Nicholas C <nclineberger@ncdot.gov>; Chanlin Wong <ChanlinW@ExultEngineering.com>; Melinda Seley <MelindaS@ExultEngineering.com>
Subject: RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Thanks for your quick response, Michael. I have put some follow-ups below in **red** for your review. Please let me know if you have any further questions or concerns. We'd be happy to schedule a meeting to discuss these details further.

Does the Town agree with the study area?



Brittany Chase, P.E.

Exult Engineering | P.O. Box 99277, Raleigh, NC 27624

Direct: 984-500-5428

Email: Brittany@ExultEngineering.com

Website: www.ExultEngineering.com

From: Michael S Elabarger <melabarger@rolesvillenc.gov>

Sent: Tuesday, May 6, 2025 4:28 PM

To: Brittany Chase <Brittany@ExultEngineering.com>; Boulware, Daniel <dboulware@ncdot.gov>; Meredith Gruber <mgruber@rolesvillenc.gov>

Cc: Sparrow, Montel V <mvsparrow@ncdot.gov>; Lineberger, Nicholas C <nclineberger@ncdot.gov>; Chanlin Wong <ChanlinW@ExultEngineering.com>; Melinda Seley <MelindaS@ExultEngineering.com>

Subject: RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Good afternoon, all,

I have the following thoughts:

- There are several other developments (all or mostly residential) in the vicinity that have studied many of the same intersections, and may have obligations in their TIA's. The Point, Kalas Falls, 1216 Rolesville Rd, Broadmoor – they can be found here: <https://www.rolesvillenc.gov/planning/development-projects> **Thanks! We have included these approved developments, along with others in the draft scoping document with a summary on what the developments consist of, buildout years, and committed improvements. We do request confirmation from the Town/NC DOT that nothing has changed significantly from what we pulled from the TIAs.**
- Exult performed this study for the Town not too long ago, found in this link - https://www.rolesvillenc.gov/sites/default/files/uploads/agenda-packets/agendapacket_20231017.pdf - it may provide some good information. **Thanks Michael. We did reference our study when pulling the scoping document together.**
- Build out year – based on experience with the Wallbrook development I think 30 months (end of 2027) is ambitious, but not enough to disagree. **We will confirm with the developer but his original best estimation was mid/late 2027, but this is dependent upon site plan approval timing and permits.**
- IF Applicant wishes for more accurate and up to date Lot recording and Building permitting activity in the near vicinity, getting at the Growth Rate, Planning is happy to discuss. **Because we are accounting for traffic from eight proposed and approved developments, we do believe future traffic volumes will appropriately be accounted for. The growth rate and approved developments**

we are proposing to include are consistent with what was studied in the recent Merritt Property TIA.

- This area has been bottled up by constrained sewer capacity that is about to unleash in 2025. **We will let the site civil engineer/developer know.**
- Until just last month, there was not a single new occupied residence south of the Bypass within Town limits; 136 DU's at The Point are recorded; 120 DU's at Kalas Falls are recorded. Hundreds more are queueing up and expected to record this summer after the downstream improvements to/of the Harris Creek interceptor are accepted and capacity opens up. Traffic Counts in the next few weeks will be outdated in a few months/by the end of the year. Significant traffic growth will be measurable month to month, not just year to year. **As noted above, because we are accounting for traffic from eight proposed and approved developments, we do believe future traffic volumes will appropriately be accounted for. The growth rate and approved developments we are proposing to include are consistent with what was studied in the recent Merritt Property TIA. The future year volumes will include existing traffic volumes, plus area-wide annual growth, plus traffic from the proposed/approved developments, plus our site traffic. So yes - the future traffic volumes will be very different from the existing volumes 😊.**

From: Brittany Chase <Brittany@ExultEngineering.com>

Sent: Tuesday, May 6, 2025 3:46 PM

To: Boulware, Daniel <dboulware@ncdot.gov>; Meredith Gruber <meredith.gruber@rolesville.nc.gov>

Cc: Michael S Elabarger <melabarger@rolesvillenc.gov>; Sparrow, Montel V <mvsparrow@ncdot.gov>; Lineberger, Nicholas C <nclineberger@ncdot.gov>; Chanlin Wong <ChanlinW@ExultEngineering.com>; Melinda Seley <MelindaS@ExultEngineering.com>

Subject: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

You don't often get email from brittany@exultengineering.com. [Learn why this is important](#)

Good afternoon Meredith and Daniel –

I hope you both are doing well.

We have been contracted to determine the traffic analysis requirements for the proposed Gravity Rolesville – Young Commercial development in Rolesville. Please find the attached Draft TIA Scoping MOU for your review and comment. The pdf also includes the preliminary conceptual site plan and trip generation.

While we request your comments on all assumptions listed in the MOU, **we would appreciate your quick response regarding the study area** as we are trying to schedule data collection prior to the end of the school year. It looks like the last day of school is June 13th with exams the last week of school. Would the Town/NCDOT prefer the last day of traffic count data collection to be May 22nd, or are you comfortable with data collection on the Wednesday or Thursday of Memorial Day week or possibly the Tuesday – Thursday of the first week of June (prior to exams)?

As always, we'd be happy to set up a meeting to discuss, if needed.

We look forward to hearing back from you. Thank you and have a great rest of your day!



Brittany Chase

From: Michael S Elabarger <melabarger@rolesvillenc.gov>
Sent: Wednesday, July 16, 2025 7:00 PM
To: Brittany Chase; Meredith Gruber
Cc: Chanlin Wong
Subject: RE: RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Brittany, [see below](#).

From: Brittany Chase <Brittany@ExultEngineering.com>
Sent: Wednesday, July 16, 2025 6:02 PM
To: Meredith Gruber <mgruber@rolesvillenc.gov>; Michael S Elabarger <melabarger@rolesvillenc.gov>
Cc: Chanlin Wong <ChanlinW@ExultEngineering.com>
Subject: RE: RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Thank you for your quick feedback, Meredith!

@Michael S Elabarger – I think my previous response crossed paths with Meredith’s in cyberspace 😊. I have attached the response email and pulled out the questions for you:

- Which of the following land development scenarios is currently proposed for The Point:
 1. 320 townhomes, 621 single family detached homes, and 122,800 square feet of commercial;
OR
 2. 250 townhomes, 650 single family detached, and 108,200 square feet of commercial space

Per the [SUP 18-09 Master Plan](#), cover sheet, the “North” side is approved for 98 Single-family detached and the “South” side for 483 Single-family detached and 324 Townhomes – the sum of all that is 581 SFD / 324 Townhomes (= 905 total dwelling units). I don’t think these numbers are actually expressed in the approved Conditions of Approval (grrr). As we all know, TIA’s are performed BEFORE these final Zoning/SUP commitments are cemented, and so if you are pulling DU figures from TIA’s, there is usually going to be discrepancies.

I can’t find a commitment to Non-Res square footage in the Master Plan or Conditions – Condition #1 explicitly says road improvements along that 11.x acre non res tract will come when it develops, so this R&PUD zoning district seems to be like all the others in Town, NOT delivering any non-residential in relation to the residential units. We know the non-res tract is not owned by Ashton Woods and thus not of their control.

Your #1 is higher than the ultimate approved project (941 > 907), while #2 is about spot on (900 < 907), but I don’t know which Non-Res amount to trust – the higher is the safe bet, right.

- Also, at your earliest convenience, please let us know if the Town can provide a more reasonable buildout year for Kalas and The Point (beyond 2027) based on each site’s progress rate.

If I could guess this I’d be a stock broker 😊.

I usually gauge this by the activity the developer puts into Final Subdivision Plats (FSP).

- **Point** – They are running 6+ final plats as we speak, they are basically indicating moving on their Phases 1 through 10. You could add up those units from <https://www.rolesvillenc.gov/project/point-under-review> and those recorded
- <https://www.rolesvillenc.gov/project/point-approvals>

- . Their smallest part in the “South” is like Phases 8 and 14, which they have not broken ground on TMK; phases 11,12,13 are the “North” and they have not broken ground there. So with full infrastructure construction to come, then building out those last combined say 200 units.....i’d conservatively go 2 years from now, so that is Q3 2027.
- **Kalas** – They’ve recorded Phase 1 of 5, and DRH is building as we speak (but just started). I’d give phase on at least 1 year to build out, probably longer – Q42026. Phase 2 CID is approved, under construction, but we have not yet seen the Final Plat. I don’t think any other construction is occurring on Phase 3 or 4, and we’re still reviewing Phase 5 (Townhomes) I think. We’ve heard bad news on the Townhome sales market recently, but it can greatly depend on the original investment as to what is profitable. So I would have to guess 3 years from now based on current pace, so that is Q3 2028.
- **FYI all of the above is a yearly exercise part of the budget process, and inexact is the best way to describe.**
- Hope this helps.

Thank you!



Brittany Chase, P.E.
Exult Engineering | P.O. Box 99277, Raleigh, NC 27624
 Direct: 984-500-5428
 Email: Brittany@ExultEngineering.com
 Website: www.ExultEngineering.com

From: Meredith Gruber <mgruber@rolesvillenc.gov>
Sent: Wednesday, July 16, 2025 2:46 PM
To: Michael S Elabarger <melabarger@rolesvillenc.gov>; Brittany Chase <Brittany@ExultEngineering.com>
Subject: RE: RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Hello Brittany and Mike,

There is no official approval from the Town on TIA scopes. I typically take a look to see if I think the study area makes sense/has good coverage and rely mostly on the traffic engineer preparing the scope and NCDOT to provide comments and questions. The MOU you sent before Brittany looks fine to me!

Best regards,
 Meredith

IMPORTANT NOTICE: My email address has changed to mgruber@rolesvillenc.gov. Please update your contact records accordingly.

Meredith A. Gruber, PLA, AICP
Planning Director
 Town of Rolesville
 P.O. Box 250
 502 Southtown Circle



From: Michael S Elabarger <melabarger@rolesvillenc.gov>
Sent: Tuesday, July 15, 2025 7:57 PM
To: Brittany Chase <Brittany@ExultEngineering.com>; Meredith Gruber <mgruber@rolesvillenc.gov>
Subject: RE: RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Meredith – in your experience, what merits>equals the ‘approval from the Town’ that Brittany seeks? The Town usually has [Stantec or DRMP] producing the scoping, and due to the ‘neutral’ state of that on-call consultant, I don’t think Town Planning usually has issue with their scope or tact. This is different – should we ask the Town Engineer to be part of the ‘blessing of the scope’?

Here are some of my immediate thoughts (and they are minor IMO):

- When you say a build out year, that’s a 12 month variable, which is really long. If you were to use quarters, I could more easily agree or disagree...
 - o For example – page 3, says The Point building year is 2027 – December 2027 is 29 months from now, but January 2027 is 17 months, big difference. 2 of the 4 major sections have not even broken ground yet.
 - o Example page 3 – says Kalas Falls Building year 2025 – that is a huge NO, its buildout year should at best be 2029, and be rolled backwards about every 6 months that that project does not make significant forward movement.
- There are references to ‘multifamily apartments’ in The Point and Kalas – that is Wrong, they are Townhomes – this may come from looking at ITE manual or the TIA’s, but there is not a single apartment approved and unbuilt in the Town of Rolesville at the moment.
- The Town FY25-26 Capital Improvement projects – I don’t see anything south of the Bypass so I concur there are no Town projects; no idea on DOT.
-

**NCDOT REVIEW REQUIREMENTS FROM SEPTEMBER 2025 TIA
AND FOLLOW-UP CORRESPONDENCE**



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JOSH STEIN
GOVERNOR

DANIEL H. JOHNSON
SECRETARY

October 31, 2025

**Rolesville Gravity-Young
Street Commercial
Traffic Impact Analysis Review Report
Congestion Management Section**

TIA Project: SC-2025-202
Division: 5
County: Wake



Clarence B. Bunting, P.E. Regional Engineer
Trevor S. Darnell, Project Design Engineer

Rolesville Gravity-Young Street Commercial

SC-2025-202

Rolesville

Wake County

Per your request, the Congestion Management Section (CMS) of the Transportation Mobility and Safety Division has completed a review of the subject site. The comments and recommendations contained in this review are based on data for background conditions presented in the Traffic Impact Analysis (TIA) and are subject to the approval of the local District Engineer's Office and appropriate local authorities.

Date Initially Received by CMS	09/11/25	Date of Site Plan	N/A
Date of Complete Information	09/11/25	Date of Sealed TIA	09/11/25

Proposed Development

The TIA assumes the development is completed by 2027 and consists of the following:

Land Use	Land Use Code	Size
General Office Building	710	13,000 sq.ft.
Medical-Dental Office Building - Stand Alone	720	13,000 sq.ft.
Strip Retail Plaza (<40k)	822	28,000 sq.ft.
Supermarket	850	37,600 sq.ft.
Fast-Food Restaurant with Drive-Through Window	934	4,400 sq.ft.
Coffee/Donut Shop with Drive-Through Window	937	4,400 sq.ft.

Trip Generation - Unadjusted Volumes During a Typical Weekday

	IN	OUT	TOTAL
AM Peak Hour	521	441	962
PM Peak Hour	450	479	929
Daily Trips			10,110

General Reference

For reference to various documents applicable to this review please reference the following link: <https://connect.ncdot.gov/resources/safety/Pages/Congestion-Management.aspx>

Once the driveway permit has been approved and issued, a copy of the final driveway permit requirements should be forwarded to this office. If we can provide further assistance, please contact the Congestion Management Section.

E Young Street / Proposed Site Driveway

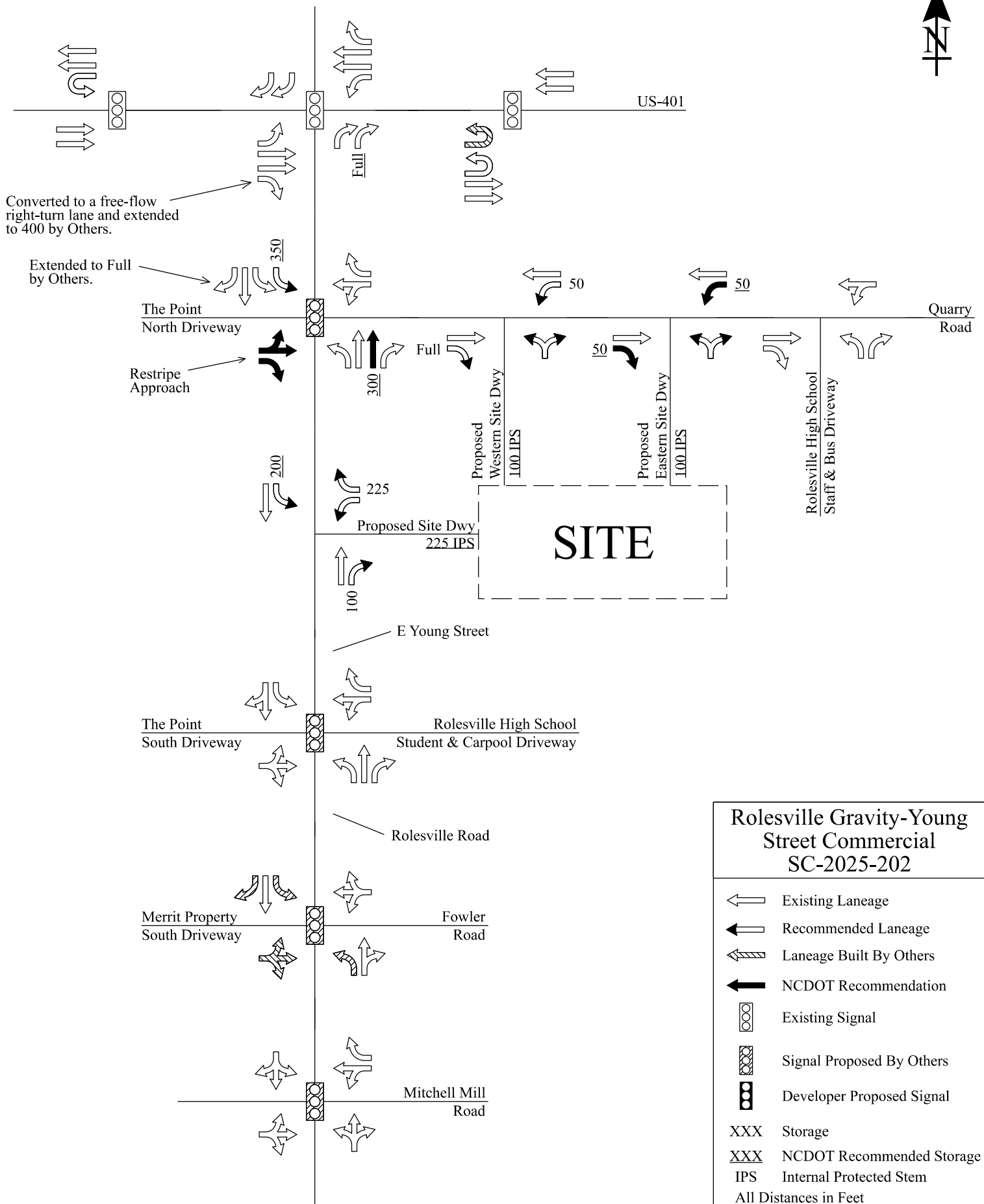
The proposed site driveway is in close proximity to the E Young Street / Quarry Road / The Point North Driveway intersection. If operational issues develop, access may need to be restricted.

Improvements By Others

The analysis includes background improvements by others. If these improvements are not in place at the time of construction, the site developer should provide these improvements or analysis demonstrating mitigation is not necessary.

Signalization

We defer to the District Engineer, the Division Traffic Engineer, and the Regional Traffic Engineer for final decisions regarding signalization.



Rolesville Gravity-Young Street Commercial SC-2025-202

- Existing Laneage
- Recommended Laneage
- Laneage Built By Others
- NCDOT Recommendation
- Existing Signal
- Signal Proposed By Others
- Developer Proposed Signal
- XXX Storage
- XXX NCDOT Recommended Storage
- IPS Internal Protected Stem
- All Distances in Feet
- Drawing Not to Scale

Melinda Seley

From: Boulware, Daniel <dboulware@ncdot.gov>
Sent: Wednesday, December 17, 2025 1:08 PM
To: Brittany Chase; Elabarger, Michael S; Bunting, Clarence B
Cc: Zhang, Joshua P; DeAveiro, Thomas D; Kevin Lacy; Drew Plato; Gruber, Meredith;
Darnell, Trevor S; Melinda Seley; Garrett Boyle; Elizabeth Lynch
Subject: RE: [External] RE: RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Hi Brittany,

We took a look at the updated analysis regarding the E Young Street / Quarry Road / The Point North Driveway intersection. The updated analysis shows one SB left-turn lane and two NB through lanes at the subject intersection. Based on this analysis, we are okay with updated improvements. It looks like the projected SB left-turn lane queue lengths were provided by Exult below.

Let me know if you need anything further.

Thank you,

Daniel Boulware, PE

Wake District Engineer (Division 5, District 1)
North Carolina Department of Transportation

919 814 6115 office
dboulware@ncdot.gov

1575 Mail Service Center (Mail)
Raleigh, NC 27699-1575
4009 District Drive (Physical)
Raleigh, NC 27607



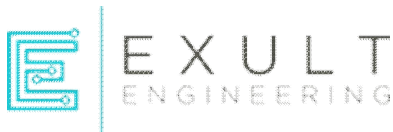
*Email correspondence to and from this address is subject to the
North Carolina Public Records Law and may be disclosed to third parties.*

From: Brittany Chase <Brittany@ExultEngineering.com>
Sent: Monday, December 15, 2025 9:25 AM
To: Boulware, Daniel <dboulware@ncdot.gov>; Elabarger, Michael S <melabarger@rolesvillenc.gov>; Bunting, Clarence B <cbunting@ncdot.gov>
Cc: Zhang, Joshua P <jpzhang@ncdot.gov>; DeAveiro, Thomas D <tddeaveiro@ncdot.gov>; Kevin Lacy <KevinL@ExultEngineering.com>; Drew Plato <dplato@withersravenel.com>; Gruber, Meredith <mgruber@rolesvillenc.gov>; Darnell, Trevor S <tsdarnell@ncdot.gov>; Melinda Seley <MelindaS@ExultEngineering.com>; Garrett Boyle <GarrettB@ExultEngineering.com>; Elizabeth Lynch <ElizabethL@ExultEngineering.com>
Subject: RE: [External] RE: RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Hi Daniel –

It's Monday morning and I hit send too soon. I do apologize for multiple emails, but I did want to add, for the sake of clarification, that Woodlief Assemblage/Broadmoor is responsible for extending the second NB right-turn lane on Young Street at US 401 to provide 600 feet of storage. Therefore, we would plan for our second NB receiving lane to tie into that extension. We did include this committed improvement in our TIA. We understand, as always, if committed improvements fall through, these improvements would need to be provided by the developer or additional analysis would need to be submitted showing the mitigation is not necessary.

Thank you!



Brittany Chase, P.E.

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Website: www.ExultEngineering.com

From: Brittany Chase

Sent: Monday, December 15, 2025 9:16 AM

To: 'Boulware, Daniel' <dboulware@ncdot.gov>; Elabarger, Michael S <melabarger@rolesvillenc.gov>; Bunting, Clarence B <cbunting@ncdot.gov>

Cc: Zhang, Joshua P <jpzhang@ncdot.gov>; DeAveiro, Thomas D <tddeaveiro@ncdot.gov>; Kevin Lacy <KevinL@ExultEngineering.com>; Drew Plato <dplato@withersravenel.com>; Gruber, Meredith <mgruber@rolesvillenc.gov>; Darnell, Trevor S <tsdarnell@ncdot.gov>; Melinda Seley <MelindaS@ExultEngineering.com>; Garrett Boyle <GarrettB@ExultEngineering.com>; Elizabeth Lynch <ElizabethL@ExultEngineering.com>

Subject: RE: [External] RE: RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Good morning, Daniel –

I hope you had a great weekend.

Yes, the two NB through lanes on Young Street/Rolesville Road with single SB left-turn lane alternative is what we would like to move forward with. The second NB through lane would extend to tie into the second NB right-turn lane at US 401. As shown on the table below, the projected maximum SB left-turn queue is approximately 500 feet. The existing SB left-turn lane storage is 545 feet. Therefore, we would not recommend an extension. Please confirm if you are okay with us moving forward with this alternative and we will revise the TIA per the Town's request.

Thank you and have a great rest of your Monday!

**Table 7: Level-of-Service: East Young Street at Quarry Road/The Point North Driveway
(Unsignalized & Signalized)**

Condition	AM Peak		PM Peak	
	LOS and Delay (sec/veh)	Turn Lane Synchro 95% Queue Length/ SimTraffic Max Queue Length (ft)	LOS and Delay (sec/veh)	Turn Lane Synchro 95% Queue Length/ SimTraffic Max Queue Length (ft)
2025 Existing	NBL – A (9.5) EB – F (96.5) EBL – F (241.0) EBT/R – E (43.9) WB – F (83.9) WBL/T – F (381.3) WBR – C (15.9) SBL – B (10.2)	NBL – 0'/20' NBR – -'/12' EBL – 20'/26' WBR – 40'/100' SBL – 28'/100' SBR – -'/-'	NBL – A (8.2) EB – C (20.6) EBL – D (29.2) EBT/R – B (14.3) WB – B (14.1) WBL/T – D (25.5) WBR – B (11.3) SBL – A (8.6)	NBL – 0'/12' NBR – -'/3' EBL – 5'/40' WBR – 8'/34' SBL – 8'/61' SBR – -'/-'
2027 No-Build	Overall – B (17.2) EB – E (57.9) WB – C (33.5) NB – B (14.4) SB – B (11.5)	NBL – 2'/104' NBR – 17'/248' EBL – 126'/164' WBR – 122'/142' SBL – 240'/348' SBR – 10'/123'	Overall – B (14.6) EB – D (47.9) WB – C (32.6) NB – B (10.3) SB – B (10.7)	NBL – 13'/67' NBR – 13'/124' EBL – 114'/152' WBR – 56'/80' SBL – 111'/143' SBR – 44'/134'
2027 Buildout	Overall – C (30.8) EB – F (101.5) WB – D (52.1) NB – C (23.9) SB – C (22.7)	NBL – 4'/46' NBR – 42'/250' EBL – 178'/235' WBR – 247'/238' SBL – 456'/581' SBR – 19'/880'	Overall – B (20.0) EB – E (58.0) WB – D (39.2) NB – B (16.6) SB – B (13.4)	NBL – 11'/84' NBR – 17'/140' EBL – 135'/167' WBR – 121'/138' SBL – 179'/281' SBR – 58'/581'
2027 Buildout with Improvements (EB restripe, 2 nd NBT)	Overall – C (22.7) EB – E (60.1) WB – C (33.5) NB – B (17.5) SB – B (19.8)	NBL – 5'/58' NBR – 37'/140' EBL/T – 141'/197' WBR – 175'/212' SBL – 261'/499' SBR – 16'/401'	Overall – B (15.4) EB – D (45.7) WB – C (28.4) NB – B (12.1) SB – B (11.1)	NBL – 17'/97' NBR – 24'/86' EBL/T – 113'/138' WBR – 101'/150' SBL – 149'/405' SBR – 40'/379'
2027 Buildout with Improvements and Diversion (EB restripe, 2 nd NBT)	Overall – C (25.5) EB – D (54.7) WB – D (36.8) NB – C (20.8) SB – C (22.4)	NBL – 6'/55' NBR – 58'/181' EBL/T – 138'/162' WBR – 158'/228' SBL – 350'/508' SBR – 24'/941'		



Brittany Chase, P.E.

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Website: www.ExultEngineering.com

From: Boulware, Daniel <dboulware@ncdot.gov>

Sent: Friday, December 12, 2025 9:50 PM

To: Brittany Chase <Brittany@ExultEngineering.com>; Elabarger, Michael S <melabarger@rolesvillenc.gov>; Bunting, Clarence B <cbunting@ncdot.gov>

Cc: Zhang, Joshua P <jpzhang@ncdot.gov>; DeAveiro, Thomas D <tddeaveiro@ncdot.gov>; Kevin Lacy <KevinL@ExultEngineering.com>; Drew Plato <dplato@withersravenel.com>; Gruber, Meredith <mgruber@rolesvillenc.gov>; Darnell, Trevor S <tsdarnell@ncdot.gov>; Melinda Seley <MelindaS@ExultEngineering.com>; Garrett Boyle <GarrettB@ExultEngineering.com>; Elizabeth Lynch <ElizabethL@ExultEngineering.com>

Subject: RE: [External] RE: RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Hi Brittany,

You're talking about the 2 NB lanes on Rolesville Rd. Both on the site frontage and toward US-401? What was the single SB Turn lane length supposed to be since that was not included in our recommendation?

We're comfortable the island restricting the left-ins without further analysis since there will be limited site traffic coming from this direction at this time.

Thank you,

Daniel Boulware, PE

Wake District Engineer (Division 5, District 1)
North Carolina Department of Transportation

919 814 6115 office
dboulware@ncdot.gov

1575 Mail Service Center (Mail)
Raleigh, NC 27699-1575
4009 District Drive (Physical)
Raleigh, NC 27607



Email correspondence to and from this address is subject to the North Carolina Public Records Law and may be disclosed to third parties.

From: Brittany Chase <Brittany@ExultEngineering.com>

Sent: Monday, December 8, 2025 1:35 PM

To: Boulware, Daniel <dboulware@ncdot.gov>; Elabarger, Michael S <melabarger@rolesvillenc.gov>; Bunting, Clarence B <cbunting@ncdot.gov>

Cc: Zhang, Joshua P <jpzhang@ncdot.gov>; DeAveiro, Thomas D <tddeaveiro@ncdot.gov>; Kevin Lacy <KevinL@ExultEngineering.com>; Drew Plato <dplato@withersravenel.com>; Gruber, Meredith <mgruber@rolesvillenc.gov>; Darnell, Trevor S <tsdarnell@ncdot.gov>; Melinda Seley <MelindaS@ExultEngineering.com>; Garrett Boyle <GarrettB@ExultEngineering.com>; Elizabeth Lynch <ElizabethL@ExultEngineering.com>

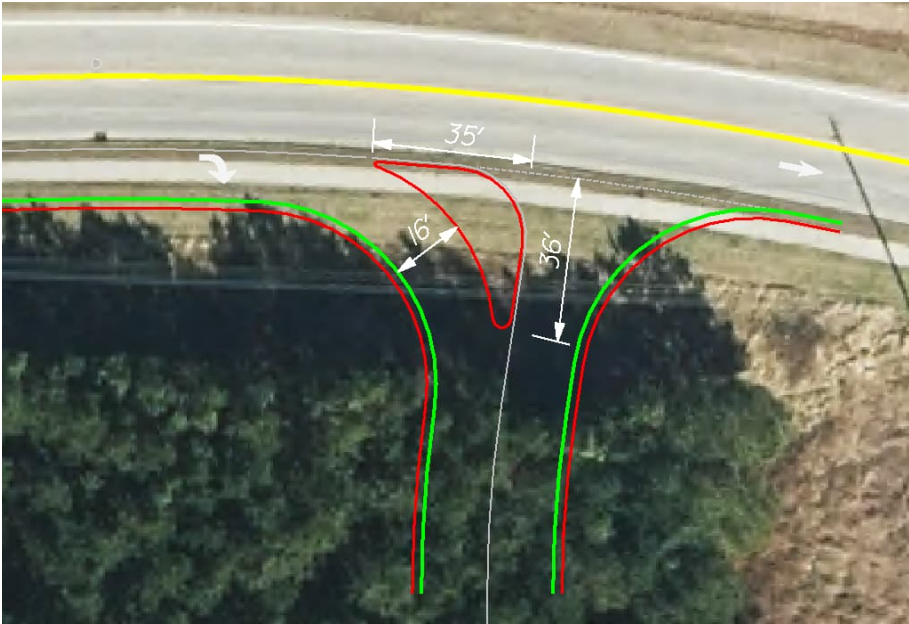
Subject: RE: [External] RE: RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

CAUTION: External email. Do not click links or open attachments unless verified. Report suspicious emails with the Report Message button located on your Outlook menu bar on the Home tab.

Good afternoon, Daniel and Clarence –

I hope all is well.

We wanted to check in to confirm if NCDOT is okay with us proceeding with the dual NB through lane (with single SB left-turn lane) option as presented in the analysis provided on November 21st. Please let us know as soon as possible. In addition, please see the following snippet for our proposed conceptual design to restrict the left-in from Quarry Road into the Eastern Site Driveway:



Please let us know if this will be acceptable to NCDOT.

@Michael S Elabarger – Will the Town require any sort of resubmittal for the traffic analysis given the requirements differ from the TIA recommendations? If so, for the sake of our client's timeline with a development resubmittal in early January, would it be okay if we submitted a TIA Addendum (in lieu of a fully revised TIA) to address the updates?

Thank you!



Brittany Chase, P.E.

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Website: www.ExultEngineering.com

From: Brittany Chase

Sent: Friday, November 21, 2025 11:47 AM

To: 'Boulware, Daniel' <dboulware@ncdot.gov>; 'Zhang, Joshua P' <jpzhang@ncdot.gov>; 'DeAveiro, Thomas D' <tddeaveiro@ncdot.gov>

Cc: Kevin Lacy <KevinL@ExultEngineering.com>; 'Drew Plato' <dplato@withersravenel.com>; 'Gruber, Meredith'

<mgruber@rolesvillenc.gov>; 'Bunting, Clarence B' <cbunting@ncdot.gov>; 'Darnell, Trevor S' <tsdarnell@ncdot.gov>;
Melinda Seley <MelindaS@ExultEngineering.com>; Garrett Boyle <GarrettB@ExultEngineering.com>; 'Elabarger, Michael
S' <melabarger@rolesvillenc.gov>; Elizabeth Lynch <ElizabethL@ExultEngineering.com>
Subject: RE: [External] RE: RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Good morning, Daniel –

Thank you, again, for taking the time to meet with us earlier this week regarding the required improvements for the proposed Rolesville Gravity – Young Commercial development. As discussed, we have compiled our capacity analysis models to incorporate the second NB through lane on Young Street at Quarry Road INSTEAD of the originally recommended dual SB left-turn lanes at the intersection. Please use the following link to access these files as well as a revised summary table:



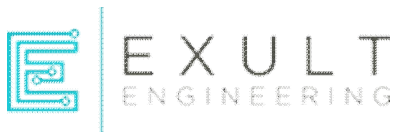
Powered by **EGNYTE**

We did have to re-run SimTraffic when we moved our Synchro files, so queue lengths may slightly vary from what we quoted on the call. Please let us know if this set of improvements satisfies NCDOT's concerns at the intersection at your earliest convenience.

In terms of the westbound left-turn lane on Quarry Road at the Proposed Eastern Site Driveway, the developer is now seeking restricted access instead of full movement at that location. We are working on a quick sketch of how we would propose to appropriately restrict the left-turn in and will have that over to you shortly for review.

Once all is determined, we can prepare a TIA Addendum for NCDOT's and the Town's records that incorporates the improvement changes at the intersection of Young Street and Quarry Road as well as the access change.

Thank you and have a great weekend!



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Office: 984-500-5428 | Mobile: 919-610-4444
Email: Brittany@ExultEngineering.com
Website: www.ExultEngineering.com

From: Brittany Chase
Sent: Monday, November 17, 2025 5:53 PM
To: Boulware, Daniel <dboulware@ncdot.gov>; Zhang, Joshua P <jpzhang@ncdot.gov>; DeAveiro, Thomas D <tddeaveiro@ncdot.gov>
Cc: Kevin Lacy <KevinL@ExultEngineering.com>; Drew Plato <dplato@withersravenel.com>; Gruber, Meredith <mgruber@rolesvillenc.gov>; Bunting, Clarence B <cbunting@ncdot.gov>; Darnell, Trevor S <tsdarnell@ncdot.gov>; Melinda Seley <MelindaS@ExultEngineering.com>; Garrett Boyle <GarrettB@ExultEngineering.com>; Elabarger, Michael S

Good afternoon, Daniel –

Thank you for providing NCDOT's comments on the Rolesville Gravity – Young Street Commercial TIA. We have taken a look at NCDOT's improvement requirements and would like the opportunity to discuss further. We do have a limited number of projects to discuss at our upcoming monthly meeting this Wednesday, so we were hoping to slot this project beginning at 2:30 (following Arden) in case you would like to include Congestion Management. Would that be a good time to meet? I have included some information below for your review and to help with our conversations.

As you may recall, our TIA recommendations included:

- Construct a second SB left-turn lane with 225 feet of storage on Young Street at Quarry Road with a second EB receiving lane on Quarry Road dropping as right-turn lane at Proposed Western Site Driveway
- Construct an exclusive WB left-turn lane on Quarry Road at Western Site Driveway
- Restriping existing TWLTL on Young Street at the Proposed Site Driveway to provide 125-foot SB left-turn lane
- Construct an exclusive NB right-turn lane on Young Street at Proposed Site Driveway with 100 feet of storage

Based on your provided comments, in addition to the recommendations above, NCDOT is requiring:

- 350 feet for the second SB left-turn lane on Young Street at Quarry Road (instead of 225 feet)
- Restriping the EB approach of The Point Driveway (at Young and Quarry Road)
- Adding a second NB through lane on Young Street to begin 300 feet south of Quarry Road and extend to the right-turn lane at US 401
- Constructing an exclusive EB right turn lane and an exclusive WB left-turn lane on Quarry Road at the Proposed Eastern Site Driveway

Based on recent bid information, the additional NCDOT requirements **add** roughly \$1.31 million, almost doubling total construction costs (total estimate: \$2.96 million).

We would like to further discuss two of the additional improvements:

- Second NB through lane on Young Street (~\$640,000)
- Exclusive westbound left-turn lane on Quarry Road at the Eastern Site Driveway (~\$465,000)

These two improvements total roughly \$1.11 million and we are having a difficult time quantifying an appropriate benefit of these improvements given the high construction costs.

Additional NB through lane on Young Street:

We went back to our models to incorporate NCDOT's requirements at the intersection of Young Street and Quarry Road. Please see table below for comparative results.

As shown in the table below, although the NB through lane gets us within the 25% increase in overall delay threshold, it only saves about 3.8 seconds of overall delay compared to the TIA recommendations. With the TIA recommendations, the NB and SB approaches are expected to still operate at LOS B (same as no-build). The EB approach remains at LOS E with 2% increase in delay compared to no-build conditions. The WB approach does degrade from LOS C to LOS D in both the TIA recommendations scenario and the NCDOT recommendations scenario with a benefit difference of only 4.3 seconds in

delay. We do not see there is justifiable benefit versus the cost associated with the additional NB through lane.

4. East Young Street at Quarry Road/The Point North Driveway

	AM		PM	
No Build	Overall – B (17.2) EB – E (57.9) WB – C (33.5) NB – B (14.4) SB – B (11.5)		Overall – B (14.6) EB – D (47.9) WB – C (32.6) NB – B (10.3) SB – B (10.7)	
Build	Overall – C (30.8) EB – F (101.5) WB – D (52.1) NB – C (23.9) SB – C (22.7)	79% 75% 56% 66% 97%	Overall – B (20.0) EB – E (58.0) WB – D (39.2) NB – B (16.6) SB – B (13.4)	37% 21% 20% 61% 25%
NCDOT Recommendations Permitted EB/WB 120 Sec	Overall – C (20.8) EB – E (55.8) WB – D (38.7) NB – B (10.4) SB – C (20.2)	21% -4% 16% -28% 76%	Overall – B (15.4) EB – D (45.7) WB – C (33.4) NB – A (8.0) SB – B (12.9)	5% -5% 2% -22% 21%
Build with Improvements (dual SBL) 120 sec In Report	Overall – C (24.6) EB – E (59.0) WB – D (43.0) NB – B (19.5) SB – B (19.9)	43% 2% 28% 35% 73%	Overall – B (18.1) EB – D (44.3) WB – C (34.6) NB – B (18.3) SB – B (11.2)	24% -8% 6% 78% 5%
TIA Recs vs. NCDOT Recs Difference in delay (secs)	Overall EB WB NB SB	3.8 3.2 4.3 9.1 -0.3	Overall EB WB NB SB	2.7 -1.4 1.2 10.3 -1.7

Additionally, the projected queue length for the NB right-turn on Young Street at US 401 is less than what will be provided by the committed improvements; therefore, a further extension of the northbound right-turn lane is not necessary.

Finally, the current CTP calls for this section of Young Street to be a three-lane section. The developer has planned the site around this ultimate cross section and the developability of the site is already constrained by riparian buffers and wetlands. Removing the NB through requirement results in less extensive ROW acquisition along Young Street and less impact on the developability of the site. We are working to prepare comparative ROW lines for your review as well. Please see following snippet below for estimated ROW that would be needed to accommodate the NCDOT requirements (acquisition would be extend further to the north than what is shown below):



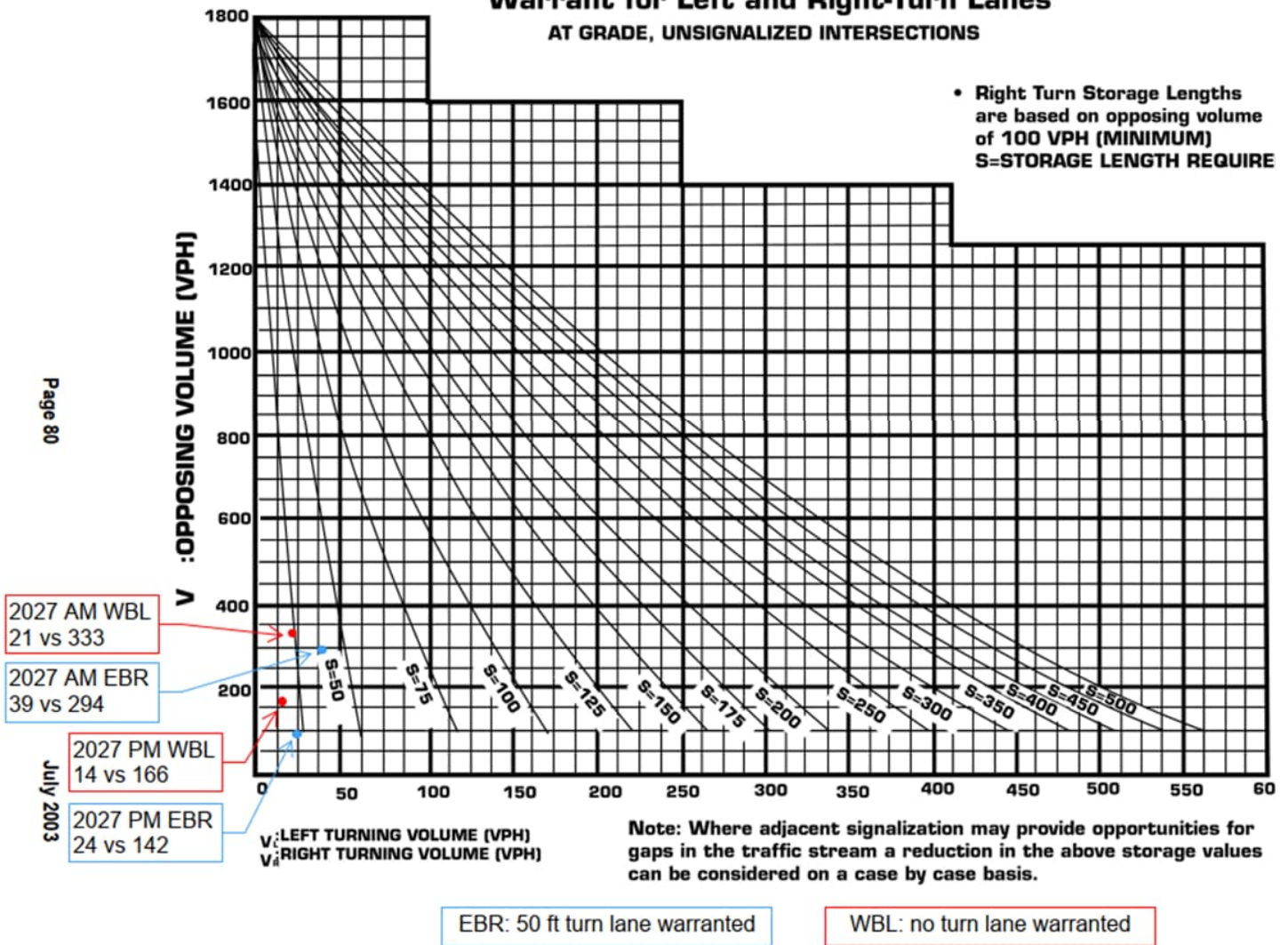
Exclusive WB left-turn lane on Quarry Road at Proposed Eastern Site Driveway:

The 2023 ADT on Quarry Road is 2,100 vehicles per day. The majority of site traffic is expected to utilize the Western Site Driveway; therefore, we would project the ADT to be less than 4,000 vehicles per day on the segment of Quarry Road near the Proposed Eastern Site Driveway (assuming the PM peak hour accounts for 10% of the daily traffic). Regardless, if we apply NCDOT's warrants, we do not warrant a left-turn lane:

Int 9: Quarry Road at Proposed Eastern Full Movement Site Driveway 2027 Buildout

Warrant for Left and Right-Turn Lanes AT GRADE, UNSIGNALIZED INTERSECTIONS

- Right Turn Storage Lengths are based on opposing volume of 100 VPH (MINIMUM)
S=STORAGE LENGTH REQUIRE



Please let us know if Wednesday works to discuss with NCDOT or if you have any questions in the meantime on the information provided above.

Thank you and have a great evening!



Brittany Chase, P.E.

Exult Engineering | P.O. Box 99277, Raleigh, NC 27624

Office: 984-500-5428 | Mobile: 919-610-4444

Email: Brittany@ExultEngineering.com

Website: www.ExultEngineering.com

From: Boulware, Daniel <dboulware@ncdot.gov>

Sent: Monday, November 3, 2025 2:14 PM

To: Brittany Chase <Brittany@ExultEngineering.com>; Elabarger, Michael S <melabarger@rolesvillenc.gov>; Zhang, Joshua P <jpzhang@ncdot.gov>; DeAveiro, Thomas D <tddeaveiro@ncdot.gov>
Cc: Drew Plato <dplato@withersravenel.com>; Gruber, Meredith <mgruber@rolesvillenc.gov>; Bunting, Clarence B <cbunting@ncdot.gov>; Darnell, Trevor S <tsdarnell@ncdot.gov>; Chanlin Wong <ChanlinW@ExultEngineering.com>; Melinda Seley <MelindaS@ExultEngineering.com>; Zach Peterman <ZachP@ExultEngineering.com>
Subject: RE: [External] RE: RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Hi All,

See the attached TIA recommendations.

Thank you,

Daniel Boulware, PE

Wake District Engineer (Division 5, District 1)
North Carolina Department of Transportation

919 814 6115 office
dboulware@ncdot.gov

1575 Mail Service Center (Mail)
Raleigh, NC 27699-1575
4009 District Drive (Physical)
Raleigh, NC 27607



Email correspondence to and from this address is subject to the North Carolina Public Records Law and may be disclosed to third parties.

From: Boulware, Daniel

Sent: Friday, September 19, 2025 10:52 AM

To: 'Brittany Chase' <Brittany@ExultEngineering.com>; Elabarger, Michael S; Zhang, Joshua P <jpzhang@ncdot.gov>; DeAveiro, Thomas D <tddeaveiro@ncdot.gov>

Cc: Drew Plato <dplato@withersravenel.com>; Gruber, Meredith; Bunting, Clarence B <cbunting@ncdot.gov>; Darnell, Trevor S <tsdarnell@ncdot.gov>; Chanlin Wong <ChanlinW@ExultEngineering.com>; Melinda Seley <MelindaS@ExultEngineering.com>; Zach Peterman <ZachP@ExultEngineering.com>

Subject: RE: [External] RE: RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

Removing Montel and adding Tom.

Tom will be contact for this project going forward.

Thank you,

Daniel Boulware, PE

Wake District Engineer (Division 5, District 1)
North Carolina Department of Transportation

919 814 6115 office
dboulware@ncdot.gov

1575 Mail Service Center (Mail)
Raleigh, NC 27699-1575
4009 District Drive (Physical)
Raleigh, NC 27607



Email correspondence to and from this address is subject to the North Carolina Public Records Law and may be disclosed to third parties.

From: Brittany Chase <Brittany@ExultEngineering.com>
Sent: Thursday, September 11, 2025 5:27 PM
To: Sparrow, Montel V <mvsparrow@ncdot.gov>; Elabarger, Michael S <melabarger@rolesvillenc.gov>; Zhang, Joshua P <jpzhang@ncdot.gov>
Cc: Drew Plato <dplato@withersravenel.com>; Gruber, Meredith <mgruber@rolesvillenc.gov>; Bunting, Clarence B <cbunting@ncdot.gov>; Darnell, Trevor S <tsdarnell@ncdot.gov>; Boulware, Daniel <dboulware@ncdot.gov>; Chanlin Wong <ChanlinW@ExultEngineering.com>; Melinda Seley <MelindaS@ExultEngineering.com>; Zach Peterman <ZachP@ExultEngineering.com>
Subject: RE: [External] RE: RE: Gravity Rolesville - Young Commercial - Draft TIA Scoping MOU

CAUTION: External email. Do not click links or open attachments unless verified. Report suspicious emails with the Report Message button located on your Outlook menu bar on the Home tab.

Good afternoon Montel, Joshua, and Michael –

I hope you all are doing well.

Please use the following link to access the submittal files for the Gravity Rolesville – Young Commercial TIA. The folder contains the TIA report, Appendix, and Synchro files for your review.

Electronic Submittal

<https://exultengineering.egnyte.com/fl/KFXtQhmpV8Wb>

Please let us know if you have any issues with the link or if you need any additional information to complete your review.

Thank you and have a great evening!

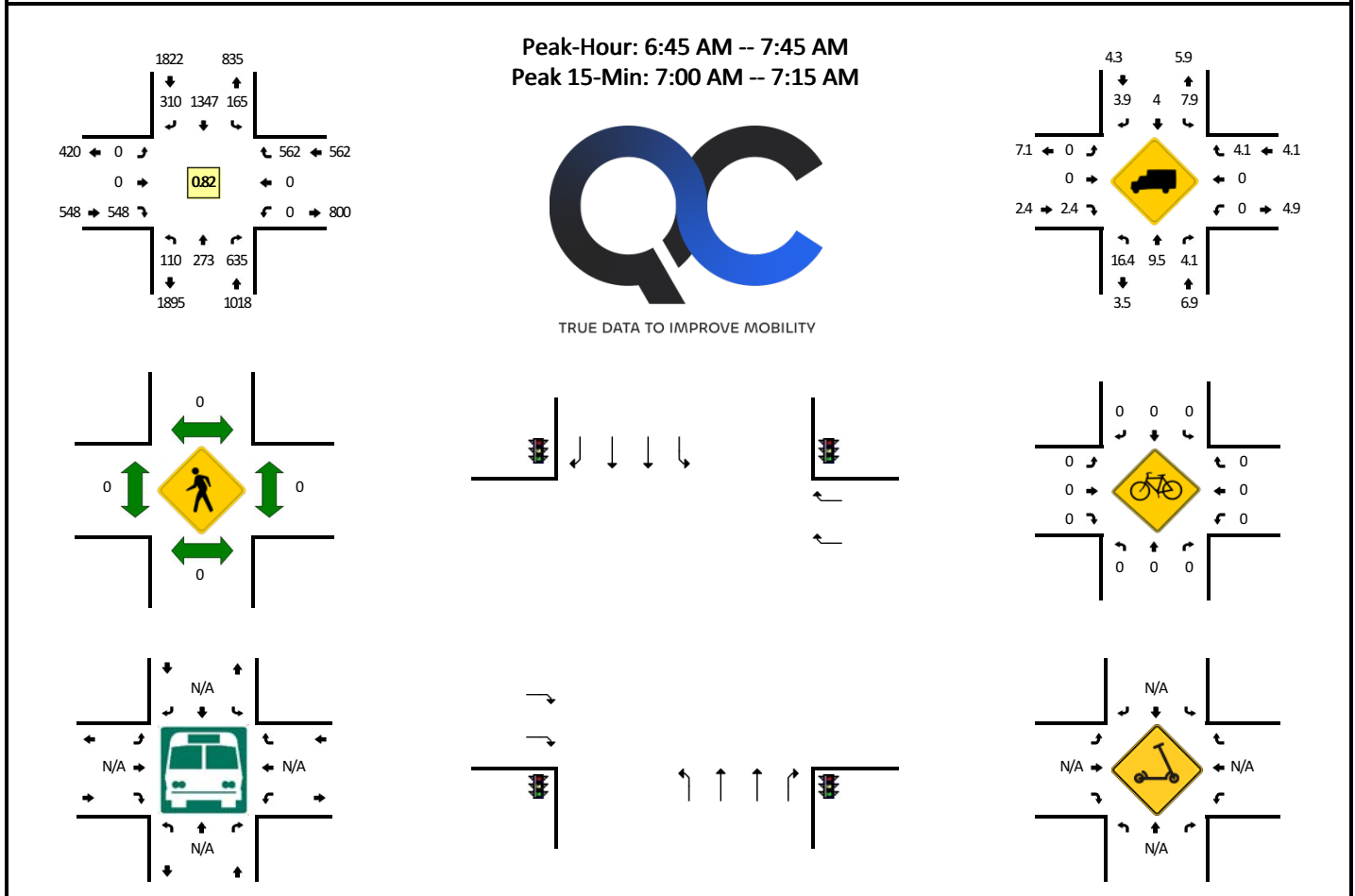


Brittany Chase, P.E.
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Website: www.ExultEngineering.com

TRAFFIC COUNT DATA

LOCATION: US 401/Louisburg Rd -- Young St
CITY/STATE: Rolesville, NC

QC JOB #: 16359001
DATE: Tue, Jan 30 2024



15-Min Count Period Beginning At	US 401/Louisburg Rd (Northbound)				US 401/Louisburg Rd (Southbound)				Young St (Eastbound)				Young St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	5	25	17	0	18	219	15	0	0	0	34	0	0	0	31	0	364	
6:15 AM	6	36	30	0	22	273	22	0	0	0	58	0	0	0	34	0	481	
6:30 AM	7	56	96	0	31	297	29	0	0	0	81	0	0	0	75	0	672	
6:45 AM	14	49	162	0	50	376	54	0	0	0	130	0	0	0	101	0	936	2453
7:00 AM	24	53	287	0	41	371	76	0	0	0	205	0	0	0	149	0	1206	3295
7:15 AM	36	86	119	0	41	330	100	0	0	0	111	0	0	0	199	0	1022	3836
7:30 AM	36	85	67	0	33	270	80	0	0	0	102	0	0	0	113	0	786	3950
7:45 AM	45	109	64	0	37	207	85	0	0	0	106	0	0	0	117	0	770	3784
8:00 AM	25	103	56	0	36	232	58	0	0	0	108	0	0	0	79	0	697	3275
8:15 AM	30	78	60	0	29	220	56	0	0	0	89	0	0	0	79	0	641	2894
8:30 AM	30	96	55	0	16	221	58	0	0	0	80	0	0	0	85	0	641	2749
8:45 AM	34	101	40	0	18	172	43	0	0	0	91	0	0	0	60	0	559	2538
9:00 AM	28	85	53	0	21	159	49	0	0	0	79	0	0	0	70	0	544	2385
9:15 AM	17	70	48	0	14	159	29	0	0	0	88	0	0	0	45	0	470	2214
9:30 AM	19	78	33	1	14	131	33	0	0	0	52	0	0	0	55	0	416	1989
9:45 AM	23	82	36	0	20	119	42	0	0	0	50	0	0	0	72	0	444	1874
10:00 AM	23	60	23	0	13	103	34	1	0	0	32	0	0	0	44	0	333	1663
10:15 AM	24	64	34	0	7	125	49	0	0	0	50	0	0	0	61	0	414	1607
10:30 AM	17	67	40	0	7	111	31	0	0	0	49	0	0	0	59	0	381	1572
10:45 AM	20	72	43	0	5	115	72	0	0	0	48	0	0	0	105	0	480	1608
11:00 AM	26	72	69	0	11	94	37	0	0	0	78	0	0	0	44	0	431	1706
11:15 AM	19	80	69	0	9	90	31	0	0	0	69	0	0	0	44	0	411	1703
11:30 AM	10	72	51	0	10	119	37	0	0	0	55	0	0	0	53	0	407	1729
11:45 AM	16	74	34	0	14	103	31	0	0	0	45	0	0	0	48	0	365	1614
12:00 PM	20	96	51	0	6	102	38	0	0	0	55	0	0	0	54	0	422	1605
12:15 PM	27	96	56	0	21	113	81	0	0	0	60	0	0	0	101	0	555	1749
12:30 PM	25	74	65	0	21	90	25	0	0	0	87	0	0	0	40	0	427	1769
12:45 PM	21	89	86	0	12	95	33	0	0	0	80	0	0	0	44	0	460	1864
1:00 PM	29	95	49	0	12	117	34	0	0	0	51	0	0	0	61	0	448	1890
1:15 PM	25	110	44	0	15	93	39	0	0	0	68	0	0	0	53	0	447	1782
1:30 PM	22	110	59	0	8	108	33	0	0	0	62	0	0	0	51	0	453	1808
1:45 PM	26	112	63	0	14	89	35	0	0	0	69	0	0	0	64	0	472	1820
2:00 PM	27	120	62	0	12	100	41	0	0	0	63	0	0	0	52	0	477	1849
2:15 PM	28	139	70	0	17	142	85	0	0	0	57	0	0	0	173	0	711	2113
2:30 PM	41	122	58	0	19	194	127	0	0	0	63	0	0	0	237	0	861	2521
2:45 PM	53	139	85	0	17	113	59	0	0	0	73	0	0	0	93	0	632	2681
3:00 PM	48	143	62	0	16	99	75	0	0	0	77	0	0	0	105	0	625	2829
3:15 PM	41	205	67	0	19	109	51	0	0	0	84	0	0	0	90	0	666	2784

15-Min Count Period Beginning At	US 401/Louisburg Rd (Northbound)				US 401/Louisburg Rd (Southbound)				Young St (Eastbound)				Young St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:30 PM	59	182	93	0	29	117	63	0	0	0	112	0	0	0	86	0	741	2664
3:45 PM	57	213	111	0	30	95	50	0	0	0	115	0	0	0	81	0	752	2784
4:00 PM	62	225	97	0	28	110	63	0	0	0	121	0	0	0	101	0	807	2966
4:15 PM	49	230	108	0	38	107	49	0	0	0	93	0	0	0	81	0	755	3055
4:30 PM	65	200	98	0	48	91	51	0	0	0	100	0	0	0	82	0	735	3049
4:45 PM	55	257	92	0	33	119	44	0	0	0	87	0	0	0	85	0	772	3069
5:00 PM	48	225	97	0	26	111	64	0	0	1	102	0	0	0	119	0	793	3055
5:15 PM	59	250	92	0	33	122	72	0	0	0	107	0	0	0	125	0	860	3160
5:30 PM	56	247	67	0	30	109	67	0	0	1	87	0	0	0	120	0	784	3209
5:45 PM	44	254	92	0	35	107	57	0	0	0	94	0	0	0	90	0	773	3210
6:00 PM	52	236	64	0	20	118	40	0	0	0	91	0	0	0	63	0	684	3101
6:15 PM	45	222	67	0	20	95	34	0	0	0	57	0	0	0	52	0	592	2833
6:30 PM	32	172	61	0	7	78	39	0	0	0	59	0	0	0	60	0	508	2557
6:45 PM	26	149	34	0	6	72	47	0	0	0	38	0	0	0	62	0	434	2218
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	96	212	1148	0	164	1484	304	0	0	0	820	0	0	0	596	0	4824	
Heavy Trucks	16	28	48		8	44	12		0	0	20		0	0	24		200	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		
Comments:																		

Report generated on 2/8/2024 11:55 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

QUALITY COUNTS REPORT

Intersectio US 401/Louisburg Rd		Young St		Lane Configuration:												
City/State: Rolesville NC																
QCJobNo: 16359001																
ClientID:																
Date: 1/30/2024																
Comments:																
Latitude/Lc 35.9133904 -78.45																
PEAK HOU 6:45 AM																
PEAK HOU 7:45 AM																
PEAK 15-M 7:00 AM																
PEAK 15-M 7:15 AM																
PHF 0.82																

HEAVY-VEHICLE VOLUMES

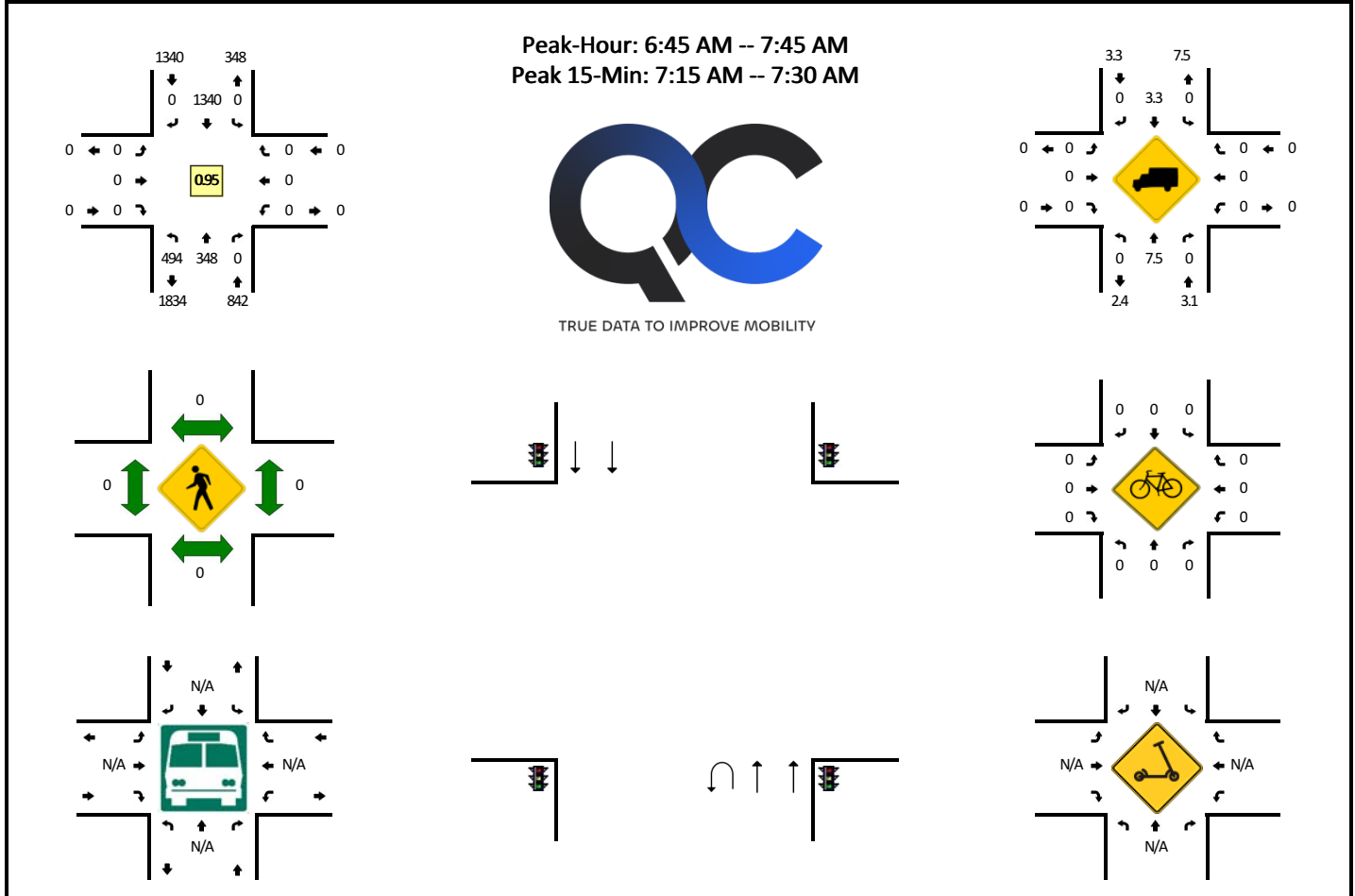
Time Period	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
6:00 AM	0	2	0	0	9	2	0	0	0	0	0	5	18
6:15 AM	1	5	0	2	5	1	0	0	0	0	0	0	14
6:30 AM	2	5	12	5	20	0	0	0	2	0	0	9	55
6:45 AM	4	3	4	6	18	2	0	0	3	0	0	4	44
7:00 AM	4	7	12	2	11	3	0	0	5	0	0	6	50
7:15 AM	7	6	7	3	14	0	0	0	3	0	0	5	45
7:30 AM	3	10	3	2	11	7	0	0	2	0	0	8	46
7:45 AM	3	8	6	4	10	4	0	0	5	0	0	5	45
8:00 AM	3	14	5	5	12	1	0	0	7	0	0	9	56
8:15 AM	3	6	5	3	8	7	0	0	1	0	0	9	42
8:30 AM	4	15	5	2	9	2	0	0	4	0	0	3	44
8:45 AM	1	8	3	2	8	0	0	0	5	0	0	2	29
9:00 AM	4	14	13	2	13	7	0	0	6	0	0	16	75
9:15 AM	1	16	5	1	7	4	0	0	8	0	0	12	54
9:30 AM	2	14	7	1	19	1	0	0	8	0	0	6	58
9:45 AM	3	14	5	2	10	3	0	0	7	0	0	10	54
10:00 AM	4	5	5	3	12	0	0	0	2	0	0	3	34
10:15 AM	2	13	1	0	6	2	0	0	1	0	0	0	25
10:30 AM	1	8	0	2	15	1	0	0	0	0	0	8	35
10:45 AM	4	9	2	0	7	0	0	0	1	0	0	4	27
11:00 AM	4	4	0	2	8	2	0	0	1	0	0	2	23
11:15 AM	2	14	2	1	9	1	0	0	5	0	0	2	36
11:30 AM	1	6	2	1	18	5	0	0	4	0	0	5	42
11:45 AM	2	11	3	3	10	1	0	0	4	0	0	4	38
12:00 PM	0	6	5	0	9	5	0	0	3	0	0	3	31
12:15 PM	1	7	3	3	6	2	0	0	5	0	0	3	30
12:30 PM	0	10	1	4	5	1	0	0	5	0	0	3	29
12:45 PM	1	11	2	2	9	3	0	0	0	0	0	6	34
1:00 PM	2	3	3	1	13	1	0	0	3	0	0	4	30
1:15 PM	2	14	3	4	12	1	0	0	4	0	0	4	44
1:30 PM	1	7	4	2	9	3	0	0	3	0	0	5	34
1:45 PM	1	7	3	2	10	3	0	0	3	0	0	8	37
2:00 PM	1	8	5	5	6	3	0	0	4	0	0	4	36
2:15 PM	3	8	3	3	16	2	0	0	5	0	0	12	52
2:30 PM	1	9	4	5	16	7	0	0	4	0	0	8	54
2:45 PM	3	8	12	3	8	3	0	0	3	0	0	10	50
3:00 PM	2	9	5	3	10	1	0	0	4	0	0	6	40
3:15 PM	2	6	3	2	9	2	0	0	4	0	0	5	33
3:30 PM	0	9	6	7	7	1	0	0	4	0	0	3	37
3:45 PM	0	11	2	5	7	2	0	0	1	0	0	6	34
4:00 PM	2	11	3	3	4	2	0	0	2	0	0	3	30
4:15 PM	0	11	3	4	5	1	0	0	3	0	0	1	28
4:30 PM	1	3	2	5	3	2	0	0	2	0	0	3	21
4:45 PM	0	14	9	5	6	0	0	0	7	0	0	3	44
5:00 PM	0	14	7	3	8	3	0	0	4	0	0	5	44
5:15 PM	3	6	5	4	3	0	0	0	4	0	0	3	28
5:30 PM	0	4	5	2	0	2	0	0	3	0	0	3	19
5:45 PM	2	7	5	2	4	0	0	0	3	0	0	0	23
6:00 PM	0	3	1	1	5	1	0	0	1	0	0	2	14
6:15 PM	2	3	5	1	3	1	0	0	1	0	0	1	17
6:30 PM	0	3	1	0	0	1	0	0	1	0	0	1	7
6:45 PM	0	4	0	0	3	1	0	0	0	0	0	0	8

AM PHF 0.86
PM 0.98

	NB -> EB					SB -> WB					EB -> SB					WB -> NB				
	NB Left	NB Thru	NB Right	NB U-Turn	NB RTOR	SB Left	SB Thru	SB Right	SB U-Turn	SB RTOR	EB Left	EB Thru	EB Right	EB U-Turn	EB RTOR	WB Left	WB Thru	WB Right	WB U-Turn	WB RTOR
AM	110	273	635	0	0	165	1347	310	0	0	0	0	548	0	0	0	0	562	0	0
PM	207	976	348	0	0	124	449	260	0	0	0	2	390	0	0	0	0	454	0	0
HV % - AM	6.9%				4.3%				2.4%				4.1%							
HV % - PM	3.8%				3.7%				3.6%				2.4%							

LOCATION: US 401/Louisburg Rd -- U-Turn north of Young St
CITY/STATE: Rolesville, NC

QC JOB #: 16359002
DATE: Tue, Jan 30 2024



15-Min Count Period Beginning At	US 401/Louisburg Rd (Northbound)				US 401/Louisburg Rd (Southbound)				U-Turn north of Young St (Eastbound)				U-Turn north of Young St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	36	0	18	0	236	0	0	0	0	0	0	0	0	0	0	290	
6:15 AM	0	39	0	24	0	296	0	0	0	0	0	0	0	0	0	0	359	
6:30 AM	0	80	0	47	0	310	0	0	0	0	0	0	0	0	0	0	437	
6:45 AM	0	70	0	84	0	409	0	0	0	0	0	0	0	0	0	0	563	1649
7:00 AM	0	74	0	129	0	373	0	0	0	0	0	0	0	0	0	0	576	1935
7:15 AM	0	102	0	177	0	298	0	0	0	0	0	0	0	0	0	0	577	2153
7:30 AM	0	102	0	104	0	260	0	0	0	0	0	0	0	0	0	0	466	2182
7:45 AM	0	127	0	103	0	227	0	0	0	0	0	0	0	0	0	0	457	2076
8:00 AM	0	116	0	62	0	281	0	0	0	0	0	0	0	0	0	0	459	1959
8:15 AM	0	93	0	67	0	227	0	0	0	0	0	0	0	0	0	0	387	1769
8:30 AM	0	115	0	66	0	227	0	0	0	0	0	0	0	0	0	0	408	1711
8:45 AM	0	117	0	43	0	193	0	0	0	0	0	0	0	0	0	0	353	1607
9:00 AM	0	104	0	47	0	180	0	0	0	0	0	0	0	0	0	0	331	1479
9:15 AM	0	85	0	33	0	169	0	0	0	0	0	0	0	0	0	0	287	1379
9:30 AM	0	94	0	36	0	143	0	0	0	0	0	0	0	0	0	0	273	1244
9:45 AM	0	107	0	44	0	137	0	0	0	0	0	0	0	0	0	0	288	1179
10:00 AM	0	71	0	39	0	114	0	0	0	0	0	0	0	0	0	0	224	1072
10:15 AM	0	79	0	45	0	135	0	0	0	0	0	0	0	0	0	0	259	1044
10:30 AM	0	80	0	44	0	107	0	0	0	0	0	0	0	0	0	0	231	1002
10:45 AM	0	88	0	95	0	95	0	0	0	0	0	0	0	0	0	0	278	992
11:00 AM	0	74	0	39	0	105	0	0	0	0	0	0	0	0	0	0	218	986
11:15 AM	0	88	0	37	0	94	0	0	0	0	0	0	0	0	0	0	219	946
11:30 AM	0	83	0	40	0	128	0	0	0	0	0	0	0	0	0	0	251	966
11:45 AM	0	83	0	41	0	111	0	0	0	0	0	0	0	0	0	0	235	923
12:00 PM	0	103	0	43	0	100	0	0	0	0	0	0	0	0	0	0	246	951
12:15 PM	0	107	0	91	0	125	0	0	0	0	0	0	0	0	0	0	323	1055
12:30 PM	0	84	0	31	0	107	0	0	0	0	0	0	0	0	0	0	222	1026
12:45 PM	0	104	0	31	0	107	0	0	0	0	0	0	0	0	0	0	242	1033
1:00 PM	0	113	0	41	0	124	0	0	0	0	0	0	0	0	0	0	278	1065
1:15 PM	0	129	0	38	0	107	0	0	0	0	0	0	0	0	0	0	274	1016
1:30 PM	0	116	0	42	0	106	0	0	0	0	0	0	0	0	0	0	264	1058
1:45 PM	0	127	0	45	0	96	0	0	0	0	0	0	0	0	0	0	268	1084
2:00 PM	0	132	0	43	0	108	0	0	0	0	0	0	0	0	0	0	283	1089
2:15 PM	0	146	0	151	0	100	0	0	0	0	0	0	0	0	0	0	397	1212
2:30 PM	0	150	0	216	0	129	0	0	0	0	0	0	0	0	0	0	495	1443
2:45 PM	0	161	0	77	0	103	0	0	0	0	0	0	0	0	0	0	341	1516
3:00 PM	0	158	0	91	0	98	0	0	0	0	0	0	0	0	0	0	347	1580
3:15 PM	0	215	0	70	0	113	0	0	0	0	0	0	0	0	0	0	398	1581

15-Min Count Period Beginning At	US 401/Louisburg Rd (Northbound)				US 401/Louisburg Rd (Southbound)				U-Turn north of Young St (Eastbound)				U-Turn north of Young St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:30 PM	0	202	0	72	0	136	0	0	0	0	0	0	0	0	0	0	410	1496
3:45 PM	0	235	0	55	0	123	0	0	0	0	0	0	0	0	0	0	413	1568
4:00 PM	0	244	0	76	0	135	0	0	0	0	0	0	0	0	0	0	455	1676
4:15 PM	0	235	0	59	0	128	0	0	0	0	0	0	0	0	0	0	422	1700
4:30 PM	0	227	0	60	0	122	0	0	0	0	0	0	0	0	0	0	409	1699
4:45 PM	0	289	0	54	0	146	0	0	0	0	0	0	0	0	0	0	489	1775
5:00 PM	0	245	0	81	0	123	0	0	0	0	0	0	0	0	0	0	449	1769
5:15 PM	0	306	0	82	0	144	0	0	0	0	0	0	0	0	0	0	532	1879
5:30 PM	0	289	0	76	0	130	0	0	0	0	0	0	0	0	0	0	495	1965
5:45 PM	0	270	0	67	0	135	0	0	0	0	0	0	0	0	0	0	472	1948
6:00 PM	0	255	0	46	0	128	0	0	0	0	0	0	0	0	0	0	429	1928
6:15 PM	0	227	0	39	0	112	0	0	0	0	0	0	0	0	0	0	378	1774
6:30 PM	0	190	0	41	0	83	0	0	0	0	0	0	0	0	0	0	314	1593
6:45 PM	0	162	0	48	0	76	0	0	0	0	0	0	0	0	0	0	286	1407
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	408	0	708	0	1192	0	0	0	0	0	0	0	0	0	0	2308	
Heavy Trucks	0	12	0		0	40	0		0	0	0		0	0	0		52	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		
Comments:																		

Report generated on 2/8/2024 11:55 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

```

Intersection:      US 401/Lot U-Turn north of Young St
City/State:       Rolesville  NC
QCJobNo:          16359002
ClientID:
Date:             #####
Comments:
Latitude/Longitude 35.91508  -78.4482
PEAK HOUR START    6:45 AM
PEAK HOUR END      7:45 AM
PEAK 15-MIN START  7:15 AM
PEAK 15-MIN END    7:30 AM
PHF                 0.95

```

Lane Configuration:								
SIGNAL	SBLane1	SBLane2	SBLane3	SBLane4	SBLane5	SBLane6	SBLane7	
EBLane7	T	T						
EBLane6								
EBLane5								
EBLane4								
EBLane3								
EBLane2								
EBLane1								
SIGNAL	NRI.ane7	NRI.ane6	NRI.ane5	NRI.ane4	UT NRI.ane3	T NRI.ane2	T NRI.ane1	SIGNAL

SIGNAL
WBLane1
WBLane2
WBLane3
WBLane4
WBLane5
WBLane6
WBLane7

[illegible][illegible]

Time Period	NB Left	NB Thru	NB Right	NB U-Turn	NB RTOR	SB Left	SB Thru	SB Right	SB U-Turn	SB RTOR	EB Left	EB Thru	EB Right	EB U-Turn	EB RTOR	WB Left	WB Thru	WB Right	WB U-Turn	WB RTOR	Total	Hourly Totals
6:00 AM	0	36	0	18		0	236	0	0	0		0	0	0	0		0	0	0	0	290	
6:15 AM	0	39	0	24		0	296	0	0	0		0	0	0	0		0	0	0	0	359	
6:30 AM	0	80	0	47		0	310	0	0	0		0	0	0	0		0	0	0	0	437	
6:45 AM	0	70	0	84		0	409	0	0	0		0	0	0	0		0	0	0	0	563	1649
7:00 AM	0	74	0	129		0	373	0	0	0		0	0	0	0		0	0	0	0	576	1935
7:15 AM	0	102	0	177		0	298	0	0	0		0	0	0	0		0	0	0	0	577	2153
7:30 AM	0	102	0	104		0	260	0	0	0		0	0	0	0		0	0	0	0	466	2182
7:45 AM	0	127	0	103		0	227	0	0	0		0	0	0	0		0	0	0	0	457	2076
8:00 AM	0	116	0	62		0	281	0	0	0		0	0	0	0		0	0	0	0	459	1959
8:15 AM	0	93	0	67		0	227	0	0	0		0	0	0	0		0	0	0	0	387	1769
8:30 AM	0	115	0	66		0	227	0	0	0		0	0	0	0		0	0	0	0	408	1711
8:45 AM	0	117	0	43		0	193	0	0	0		0	0	0	0		0	0	0	0	353	1607
9:00 AM	0	104	0	47		0	180	0	0	0		0	0	0	0		0	0	0	0	331	1479
9:15 AM	0	85	0	33		0	169	0	0	0		0	0	0	0		0	0	0	0	287	1379
9:30 AM	0	94	0	36		0	143	0	0	0		0	0	0	0		0	0	0	0	273	1244
9:45 AM	0	107	0	44		0	137	0	0	0		0	0	0	0		0	0	0	0	288	1179
10:00 AM	0	71	0	39		0	114	0	0	0		0	0	0	0		0	0	0	0	224	1072
10:15 AM	0	79	0	45		0	135	0	0	0		0	0	0	0		0	0	0	0	259	1044
10:30 AM	0	80	0	44		0	107	0	0	0		0	0	0	0		0	0	0	0	231	1002
10:45 AM	0	88	0	95		0	95	0	0	0		0	0	0	0		0	0	0	0	278	992
11:00 AM	0	74	0	39		0	105	0	0	0		0	0	0	0		0	0	0	0	218	986
11:15 AM	0	88	0	37		0	94	0	0	0		0	0	0	0		0	0	0	0	219	946
11:30 AM	0	83	0	40		0	128	0	0	0		0	0	0	0		0	0	0	0	251	966
11:45 AM	0	83	0	41		0	111	0	0	0		0	0	0	0		0	0	0	0	235	923
12:00 PM	0	103	0	43		0	100	0	0	0		0	0	0	0		0	0	0	0	246	951
12:15 PM	0	107	0	91		0	125	0	0	0		0	0	0	0		0	0	0	0	323	1055
12:30 PM	0	84	0	31																		

HEAVY-VEHICLE VOLUMES

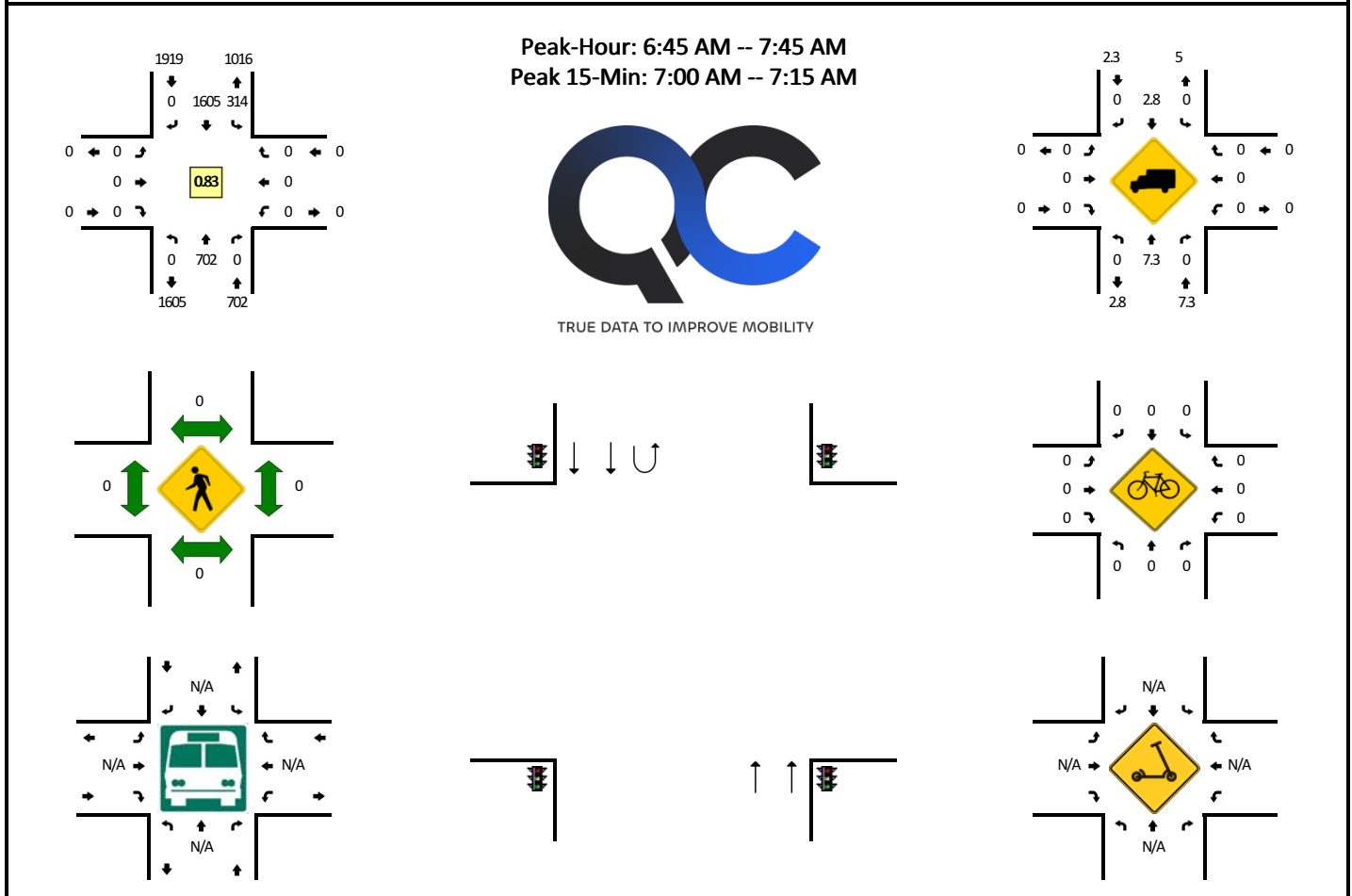
Time Period	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	Total
6:00 AM	0	2	0	0	1	0	0	0	0	0	0	0	3
6:15 AM	0	3	0	0	4	0	0	0	0	0	0	0	7
6:30 AM	0	1	0	0	9	0	0	0	0	0	0	0	10
6:45 AM	0	4	0	0	15	0	0	0	0	0	0	0	19
7:00 AM	0	8	0	0	8	0	0	0	0	0	0	0	16
7:15 AM	0	3	0	0	10	0	0	0	0	0	0	0	13
7:30 AM	0	11	0	0	11	0	0	0	0	0	0	0	22
7:45 AM	0	6	0	0	9	0	0	0	0	0	0	0	15
8:00 AM	0	17	0	0	14	0	0	0	0	0	0	0	31
8:15 AM	0	9	0	0	12	0	0	0	0	0	0	0	21
8:30 AM	0	13	0	0	10	0	0	0	0	0	0	0	23
8:45 AM	0	9	0	0	10	0	0	0	0	0	0	0	19
9:00 AM	0	20	0	0	14	0	0	0	0	0	0	0	34
9:15 AM	0	21	0	0	8	0	0	0	0	0	0	0	29
9:30 AM	0	14	0	0	19	0	0	0	0	0	0	0	33
9:45 AM	0	16	0	0	13	0	0	0	0	0	0	0	29
10:00 AM	0	9	0	0	13	0	0	0	0	0	0	0	22
10:15 AM	0	11	0	0	7	0	0	0	0	0	0	0	18
10:30 AM	0	13	0	0	15	0	0	0	0	0	0	0	28
10:45 AM	0	13	0	0	6	0	0	0	0	0	0	0	19
11:00 AM	0	4	0	0	11	0	0	0	0	0	0	0	15
11:15 AM	0	12	0	0	9	0	0	0	0	0	0	0	21
11:30 AM	0	5	0	0	20	0	0	0	0	0	0	0	25
11:45 AM	0	11	0	0	10	0	0	0	0	0	0	0	21
12:00 PM	0	4	0	0	11	0	0	0	0	0	0	0	15
12:15 PM	0	8	0	0	9	0	0	0	0	0	0	0	17
12:30 PM	0	12	0	0	8	0	0	0	0	0	0	0	20
12:45 PM	0	16	0	0	12	0	0	0	0	0	0	0	28
1:00 PM	0	5	0	0	15	0	0	0	0	0	0	0	20
1:15 PM	0	15	0	0	17	0	0	0	0	0	0	0	32
1:30 PM	0	9	0	0	9	0	0	0	0	0	0	0	18
1:45 PM	0	9	0	0	10	0	0	0	0	0	0	0	19
2:00 PM	0	8	0	0	9	0	0	0	0	0	0	0	17
2:15 PM	0	8	0	0	12	0	0	0	0	0	0	0	20
2:30 PM	0	11	0	0	19	0	0	0	0	0	0	0	30
2:45 PM	0	8	0	0	8	0	0	0	0	0	0	0	16
3:00 PM	0	9	0	0	12	0	0	0	0	0	0	0	21
3:15 PM	0	4	0	0	11	0	0	0	0	0	0	0	15
3:30 PM	0	7	0	0	11	0	0	0	0	0	0	0	18
3:45 PM	0	10	0	0	10	0	0	0	0	0	0	0	20
4:00 PM	0	11	0	0	9	0	0	0	0	0	0	0	20
4:15 PM	0	8	0	0	9	0	0	0	0	0	0	0	17
4:30 PM	0	6	0	0	7	0	0	0	0	0	0	0	13
4:45 PM	0	17	0	0	14	0	0	0	0	0	0	0	31
5:00 PM	0	10	0	0	8	0	0	0	0	0	0	0	18
5:15 PM	0	6	0	0	5	0	0	0	0	0	0	0	11
5:30 PM	0	2	0	0	1	0	0	0	0	0	0	0	3
5:45 PM	0	6	0	0	5	0	0	0	0	0	0	0	11
6:00 PM	0	3	0	0	4	0	0	0	0	0	0	0	7
6:15 PM	0	2	0	0	3	0	0	0	0	0	0	0	5
6:30 PM	0	3	0	0	1	0	0	0	0	0	0	0	4
6:45 PM	0	3	0	0	4	0	0	0	0	0	0	0	7

PHF AM 0.91
PHF PM 0.94

	NB -> EB					SB -> WB					EB -> SB					WB -> NB				
	NB Left	NB Thru	NB Right	NB U-Turn	NB RTOR	SB Left	SB Thru	SB Right	SB U-Turn	SB RTOR	EB Left	EB Thru	EB Right	EB U-Turn	EB RTOR	WB Left	WB Thru	WB Right	WB U-Turn	WB RTOR
AM	0	348	0	494	0	0	1340	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	0	1129	0	293	0	0	543	0	0	0	0	0	0	0	0	0	0	0	0	0
HV % - AM		7.5%			HV % - AM		3.3%			HV % - AM		2.0%			HV % - AM		2.0%			
HV % - PM		3.1%			HV % - PM		5.2%			HV % - PM		2.0%			HV % - PM		2.0%			

LOCATION: US 401/Louisburg Rd -- U-Turn south of Young St
CITY/STATE: Rolesville, NC

QC JOB #: 16359003
DATE: Tue, Jan 30 2024



15-Min Count Period Beginning At	US 401/Louisburg Rd (Northbound)				US 401/Louisburg Rd (Southbound)				U-Turn south of Young St (Eastbound)				U-Turn south of Young St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	35	0	0	0	245	0	12	0	0	0	0	0	0	0	0	292	
6:15 AM	0	50	0	0	0	305	0	23	0	0	0	0	0	0	0	0	378	
6:30 AM	0	115	0	0	0	332	0	48	0	0	0	0	0	0	0	0	495	
6:45 AM	0	159	0	0	0	447	0	66	0	0	0	0	0	0	0	0	672	1837
7:00 AM	0	232	0	0	0	428	0	134	0	0	0	0	0	0	0	0	794	2339
7:15 AM	0	175	0	0	0	401	0	66	0	0	0	0	0	0	0	0	642	2603
7:30 AM	0	136	0	0	0	329	0	48	0	0	0	0	0	0	0	0	513	2621
7:45 AM	0	166	0	0	0	265	0	50	0	0	0	0	0	0	0	0	481	2430
8:00 AM	0	141	0	0	0	296	0	45	0	0	0	0	0	0	0	0	482	2118
8:15 AM	0	127	0	0	0	267	0	43	0	0	0	0	0	0	0	0	437	1913
8:30 AM	0	134	0	0	0	267	0	40	0	0	0	0	0	0	0	0	441	1841
8:45 AM	0	134	0	0	0	222	0	39	0	0	0	0	0	0	0	0	395	1755
9:00 AM	0	120	0	0	0	205	0	38	0	0	0	0	0	0	0	0	363	1636
9:15 AM	0	88	0	0	0	199	0	48	0	0	0	0	0	0	0	0	335	1534
9:30 AM	0	103	0	0	0	158	0	26	0	0	0	0	0	0	0	0	287	1380
9:45 AM	0	112	0	0	0	142	0	27	0	0	0	0	0	0	0	0	281	1266
10:00 AM	0	86	0	0	0	116	0	20	0	0	0	0	0	0	0	0	222	1125
10:15 AM	0	99	0	0	0	152	0	22	0	0	0	0	0	0	0	0	273	1063
10:30 AM	0	88	0	0	0	126	0	33	0	0	0	0	0	0	0	0	247	1023
10:45 AM	0	103	0	0	0	135	0	29	0	0	0	0	0	0	0	0	267	1009
11:00 AM	0	118	0	0	0	121	0	52	0	0	0	0	0	0	0	0	291	1078
11:15 AM	0	119	0	0	0	106	0	51	0	0	0	0	0	0	0	0	276	1081
11:30 AM	0	91	0	0	0	137	0	39	0	0	0	0	0	0	0	0	267	1101
11:45 AM	0	92	0	0	0	119	0	28	0	0	0	0	0	0	0	0	239	1073
12:00 PM	0	133	0	0	0	115	0	38	0	0	0	0	0	0	0	0	286	1068
12:15 PM	0	125	0	0	0	127	0	50	0	0	0	0	0	0	0	0	302	1094
12:30 PM	0	113	0	0	0	118	0	50	0	0	0	0	0	0	0	0	281	1108
12:45 PM	0	133	0	0	0	113	0	60	0	0	0	0	0	0	0	0	306	1175
1:00 PM	0	136	0	0	0	130	0	37	0	0	0	0	0	0	0	0	303	1192
1:15 PM	0	144	0	0	0	125	0	34	0	0	0	0	0	0	0	0	303	1193
1:30 PM	0	153	0	0	0	137	0	38	0	0	0	0	0	0	0	0	328	1240
1:45 PM	0	154	0	0	0	117	0	43	0	0	0	0	0	0	0	0	314	1248
2:00 PM	0	166	0	0	0	115	0	44	0	0	0	0	0	0	0	0	325	1270
2:15 PM	0	200	0	0	0	157	0	44	0	0	0	0	0	0	0	0	401	1368
2:30 PM	0	175	0	0	0	218	0	37	0	0	0	0	0	0	0	0	430	1470
2:45 PM	0	220	0	0	0	131	0	55	0	0	0	0	0	0	0	0	406	1562
3:00 PM	0	210	0	0	0	136	0	41	0	0	0	0	0	0	0	0	387	1624
3:15 PM	0	269	0	0	0	139	0	48	0	0	0	0	0	0	0	0	456	1679

15-Min Count Period Beginning At	US 401/Louisburg Rd (Northbound)				US 401/Louisburg Rd (Southbound)				U-Turn south of Young St (Eastbound)				U-Turn south of Young St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:30 PM	0	257	0	0	0	155	0	74	0	0	0	0	0	0	0	0	486	1735
3:45 PM	0	296	0	0	0	136	0	82	0	0	0	0	0	0	0	0	514	1843
4:00 PM	0	305	0	0	0	142	0	75	0	0	0	0	0	0	0	0	522	1978
4:15 PM	0	309	0	0	0	131	0	78	0	0	0	0	0	0	0	0	518	2040
4:30 PM	0	282	0	0	0	120	0	76	0	0	0	0	0	0	0	0	478	2032
4:45 PM	0	334	0	0	0	156	0	60	0	0	0	0	0	0	0	0	550	2068
5:00 PM	0	304	0	0	0	136	0	73	0	0	0	0	0	0	0	0	513	2059
5:15 PM	0	318	0	0	0	147	0	74	0	0	0	0	0	0	0	0	539	2080
5:30 PM	0	310	0	0	0	143	0	61	0	0	0	0	0	0	0	0	514	2116
5:45 PM	0	319	0	0	0	132	0	72	0	0	0	0	0	0	0	0	523	2089
6:00 PM	0	303	0	0	0	152	0	46	0	0	0	0	0	0	0	0	501	2077
6:15 PM	0	289	0	0	0	120	0	42	0	0	0	0	0	0	0	0	451	1989
6:30 PM	0	217	0	0	0	97	0	41	0	0	0	0	0	0	0	0	355	1830
6:45 PM	0	184	0	0	0	88	0	23	0	0	0	0	0	0	0	0	295	1602
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	928	0	0	0	1712	0	536	0	0	0	0	0	0	0	0	3176	
Heavy Trucks	0	76	0		0	32	0		0	0	0		0	0	0		108	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		
Comments:																		

Report generated on 2/8/2024 11:55 AM

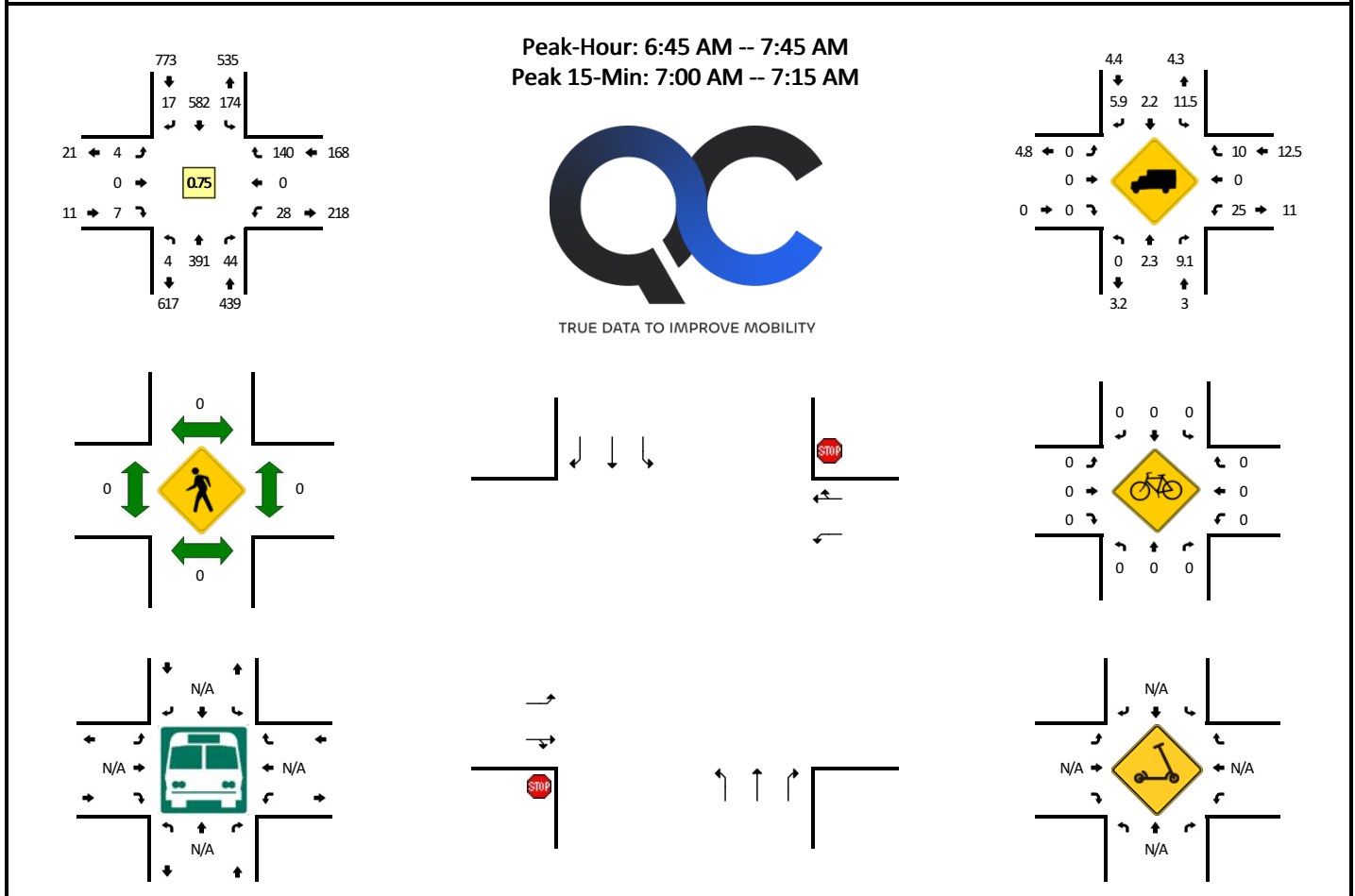
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

[illegible][illegible]

PHF AM	0.90																			
PHF PM	0.98																			
	NB -> EB				SB -> WB				EB -> SB				WB -> NB							
	NB Left	NB Thru	NB Right	NB U-Turn	NB RTOR	SB Left	SB Thru	SB Right	SB U-Turn	SB RTOR	EB Left	EB Thru	EB Right	EB U-Turn	EB RTOR	WB Left	WB Thru	WB Right	WB U-Turn	WB RTOR
AM	0	702	0	0	0	0	1605	0	314	0	0	0	0	0	0	0	0	0	0	0
PM	0	1266	0	0	0	0	582	0	268	0	0	0	0	0	0	0	0	0	0	0
HV % - AM		7.3%			HV % - AM		2.8%		HV % - AM		2.0%			HV % - AM		2.0%				
HV % - PM		3.3%			HV % - PM		3.1%		HV % - PM		2.0%			HV % - PM		2.0%				

LOCATION: E Young St -- Quarry Rd
CITY/STATE: Rolesville, NC

QC JOB #: 17066107
DATE: Tue, May 20 2025



15-Min Count Period Beginning At	E Young St (Northbound)				E Young St (Southbound)				Quarry Rd (Eastbound)				Quarry Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:30 AM	0	44	7	0	27	70	7	0	2	0	1	0	6	0	17	0	181	
6:45 AM	2	71	13	0	33	102	2	0	1	0	0	0	6	0	22	0	252	
7:00 AM	0	104	18	0	78	208	4	0	1	0	2	0	5	0	45	0	465	
7:15 AM	1	105	11	0	51	166	7	0	1	0	3	0	13	0	48	0	406	1304
7:30 AM	1	111	2	0	12	106	4	0	1	0	2	0	4	0	25	0	268	1391
7:45 AM	2	70	0	0	6	86	3	0	2	0	1	0	3	0	20	0	193	1332
8:00 AM	1	58	0	0	12	82	8	0	1	1	1	0	1	0	13	0	178	1045
8:15 AM	0	56	4	0	13	67	4	0	1	0	0	0	4	0	15	0	164	803
8:30 AM	1	54	1	0	4	68	3	0	2	0	2	0	0	0	14	0	149	684
8:45 AM	0	53	5	0	8	45	3	0	1	0	0	0	0	0	12	0	127	618
9:00 AM	2	44	1	0	12	57	6	0	2	0	2	0	1	0	8	0	135	575
9:15 AM	1	50	4	0	22	35	2	0	1	0	2	0	1	0	18	0	136	547
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	416	72	0	312	832	16	0	4	0	8	0	20	0	180	0	1860	
Heavy Trucks	0	8	8		40	20	4		0	0	0		0	0	20		100	
Buses																		
Pedestrians	0	0			0	0			0	0			0	0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scooters																		

Comments:

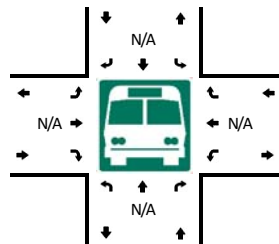
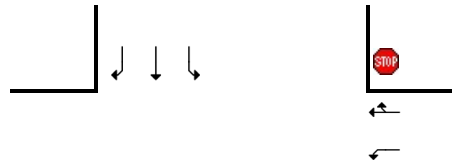
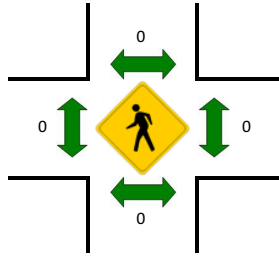
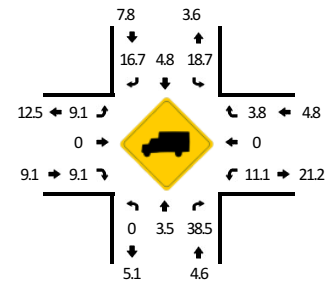
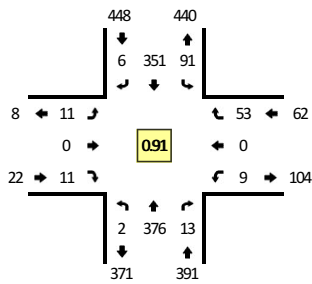
LOCATION: E Young St -- Quarry Rd
CITY/STATE: Rolesville, NC

QC JOB #: 17066108
DATE: Tue, May 20 2025

Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:15 PM -- 5:30 PM



TRUE DATA TO IMPROVE MOBILITY

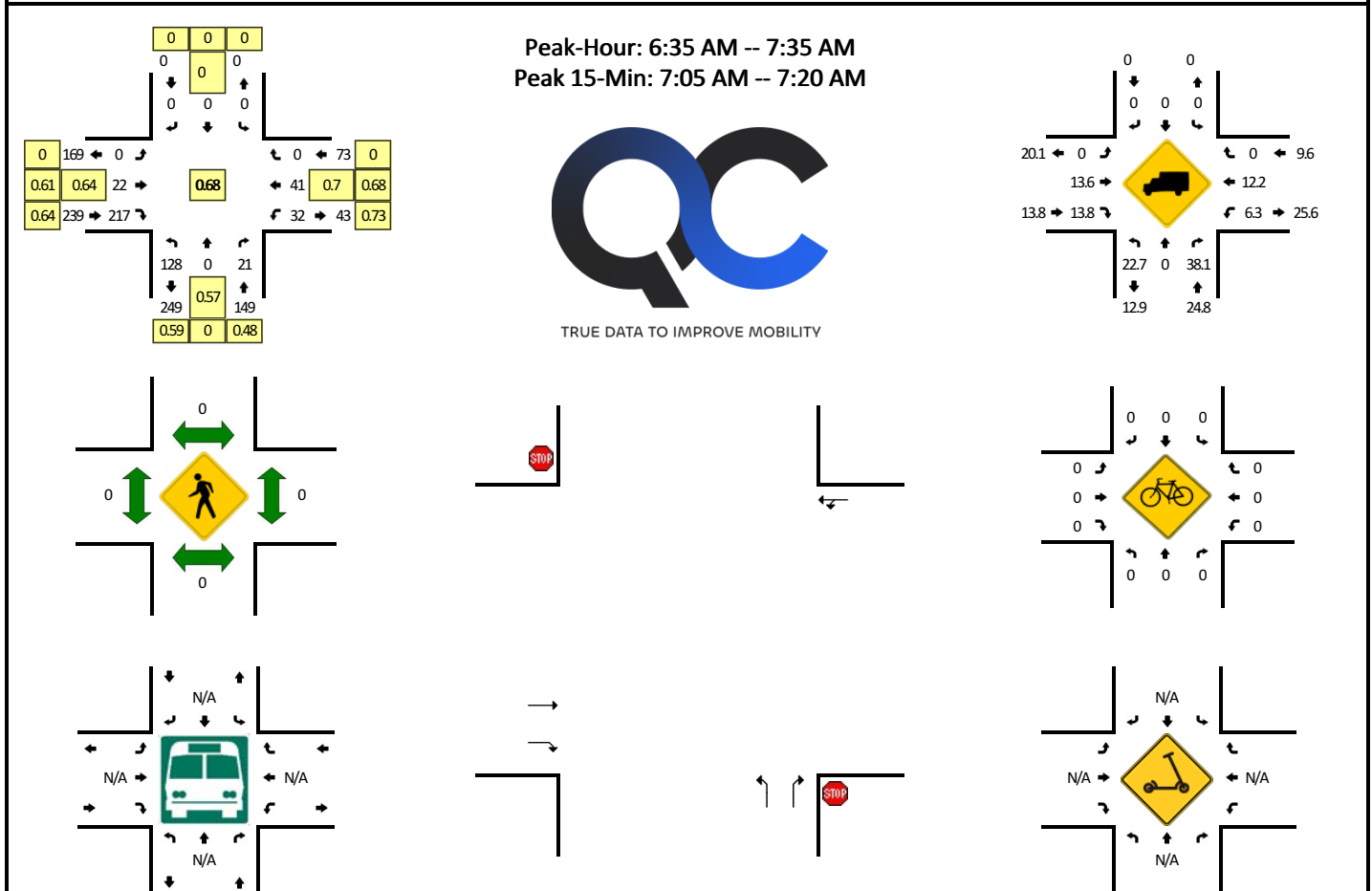


15-Min Count Period Beginning At	E Young St (Northbound)				E Young St (Southbound)				Quarry Rd (Eastbound)				Quarry Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	66	3	0	16	81	4	0	3	0	0	0	3	0	16	0	193	
4:15 PM	1	53	1	0	13	66	6	0	4	1	2	0	1	1	12	0	161	
4:30 PM	2	81	3	0	21	81	1	0	1	0	1	0	2	0	11	0	204	
4:45 PM	0	77	2	0	25	73	2	0	2	0	2	0	2	0	8	0	193	751
5:00 PM	0	92	5	0	18	95	2	0	1	0	4	0	3	0	16	0	236	794
5:15 PM	2	112	1	0	17	101	0	0	1	0	3	0	2	0	15	0	254	887
5:30 PM	0	95	5	0	31	82	2	0	7	0	2	0	2	0	14	0	240	923
5:45 PM	2	65	0	0	24	60	1	0	5	0	0	0	1	0	14	0	172	902
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	8	448	4	0	68	404	0	0	4	0	12	0	8	0	60	0	1016	
Heavy Trucks	0	16	0	0	12	28	0	0	0	0	0	0	0	0	0	0	56	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scooters																		

Comments:

Report generated on 5/29/2025 2:19 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

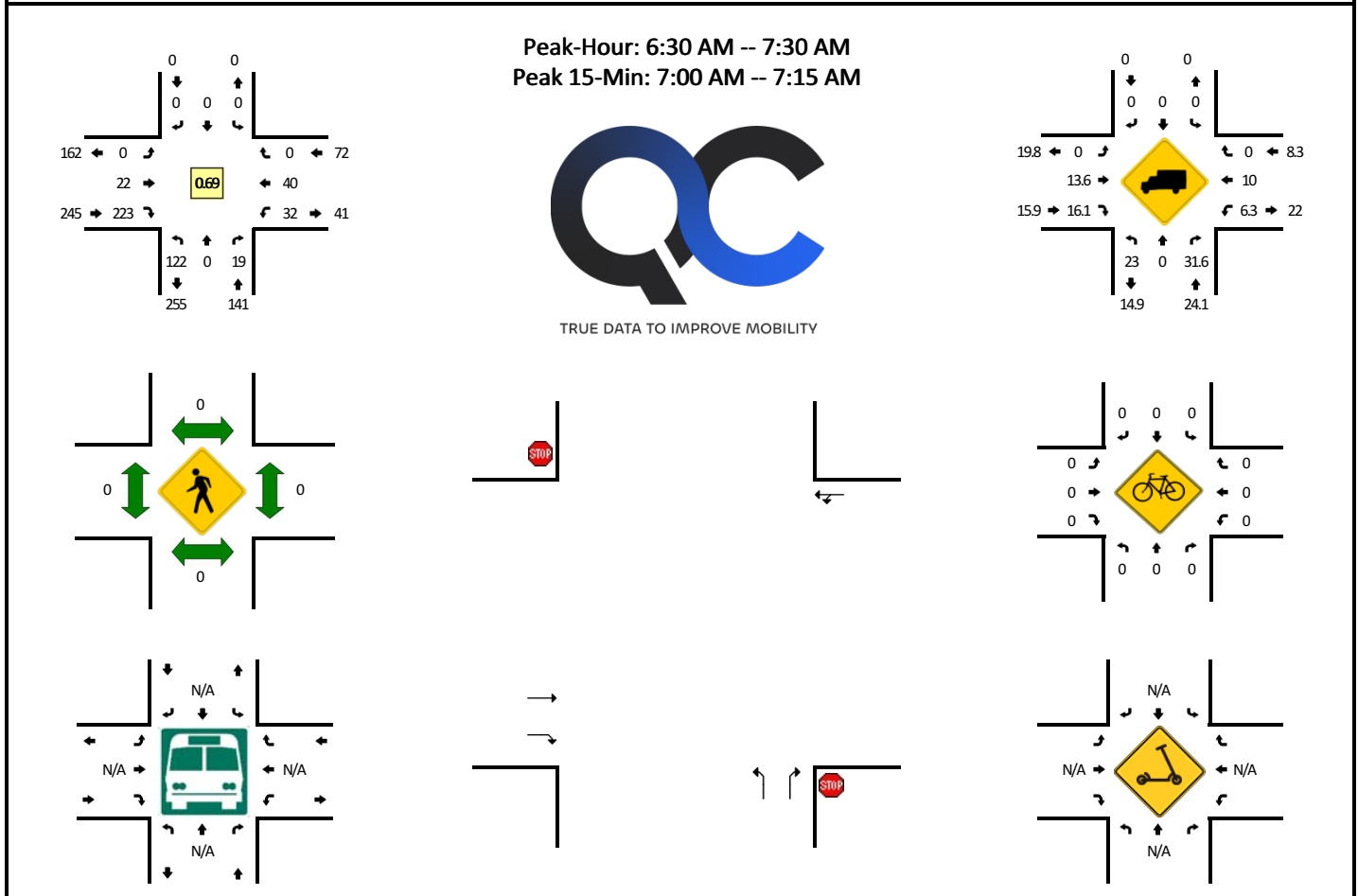
LOCATION: Rolesville High School Staff/Bus Dwy -- Quarry Rd**QC JOB #:** 17066109**CITY/STATE:** Wake, NC**DATE:** Tue, May 20 2025

5-Min Count Period Beginning At	Rolesville High School Staff/Bus Dwy (Northbound)				Rolesville High School Staff/Bus Dwy (Southbound)				Quarry Rd (Eastbound)				Quarry Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:30 AM	0	0	0	0	0	0	0	0	0	1	11	0	0	3	0	0	15	
6:35 AM	2	0	0	0	0	0	0	0	0	0	15	0	3	1	0	0	21	
6:40 AM	15	0	0	0	0	0	0	0	0	1	13	0	3	1	0	0	33	
6:45 AM	4	0	0	0	0	0	0	0	0	1	15	0	3	7	0	0	30	
6:50 AM	4	0	1	0	0	0	0	0	0	1	12	0	4	5	0	0	27	
6:55 AM	5	0	3	0	0	0	0	0	0	0	16	0	4	3	0	0	31	
7:00 AM	12	0	1	0	0	0	0	0	0	3	32	0	3	3	0	0	54	
7:05 AM	15	0	1	0	0	0	0	0	0	3	24	0	4	6	0	0	53	
7:10 AM	14	0	6	0	0	0	0	0	0	3	29	0	4	3	0	0	59	
7:15 AM	18	0	4	0	0	0	0	0	0	1	29	0	2	3	0	0	57	
7:20 AM	22	0	1	0	0	0	0	0	0	5	22	0	0	0	0	0	50	
7:25 AM	11	0	2	0	0	0	0	0	0	3	5	0	2	5	0	0	28	458
7:30 AM	6	0	2	0	0	0	0	0	0	1	5	0	0	4	0	0	18	461
7:35 AM	2	0	0	0	0	0	0	0	0	4	2	0	0	7	0	0	15	455
7:40 AM	2	0	0	1	0	0	0	0	0	2	1	0	0	6	0	0	12	434
7:45 AM	6	0	1	0	0	0	0	0	0	0	1	0	2	5	0	0	15	419
7:50 AM	1	0	0	0	0	0	0	0	0	2	1	0	1	6	0	0	11	403
7:55 AM	1	0	0	0	0	0	0	0	0	0	2	0	0	4	0	0	7	379
8:00 AM	1	0	0	0	0	0	0	0	0	4	0	0	0	1	0	0	6	331
8:05 AM	0	0	0	0	0	0	0	0	0	2	1	0	0	7	0	0	10	288
8:10 AM	1	0	0	0	0	0	0	0	0	3	2	0	0	4	0	0	10	239
8:15 AM	2	0	0	0	0	0	0	0	0	5	4	0	0	3	0	0	14	196
8:20 AM	3	0	0	0	0	0	0	0	0	1	3	0	0	5	0	0	12	158
8:25 AM	1	0	0	0	0	0	0	0	0	3	0	0	0	6	0	0	10	140
8:30 AM	1	0	0	0	0	0	0	0	0	1	1	0	0	6	0	0	9	131
8:35 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0	4	120
8:40 AM	0	0	0	0	0	0	0	0	0	1	1	0	0	3	0	0	5	113
8:45 AM	1	0	0	0	0	0	0	0	0	2	2	0	0	5	0	0	10	108
8:50 AM	0	0	0	0	0	0	0	0	0	2	3	0	0	4	0	0	9	106
8:55 AM	0	0	0	0	0	0	0	0	0	1	1	0	0	3	0	0	5	104
9:00 AM	2	0	0	0	0	0	0	0	0	1	5	0	0	0	0	0	8	106
9:05 AM	3	0	0	1	0	0	0	0	0	1	4	0	0	2	0	0	11	107
9:10 AM	1	0	0	0	0	0	0	0	0	0	4	0	0	1	0	0	6	103
9:15 AM	2	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	8	97
9:20 AM	6	0	0	0	0	0	0	0	0	5	3	0	0	7	0	0	21	106
9:25 AM	1	0	0	0	0	0	0	0	0	6	4	0	1	3	0	0	15	111

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	188	0	44	0	0	0	0	0	0	28	328	0	40	48	0	0	676
Heavy Trucks	20	0	4		0	0	0		0	4	44		0	4	0		76
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	
<i>Comments:</i>																	

LOCATION: Rolesville High School Staff/Bus Dwy -- Quarry Rd
CITY/STATE: Wake, NC

QC JOB #: 17066109
DATE: Tue, May 20 2025

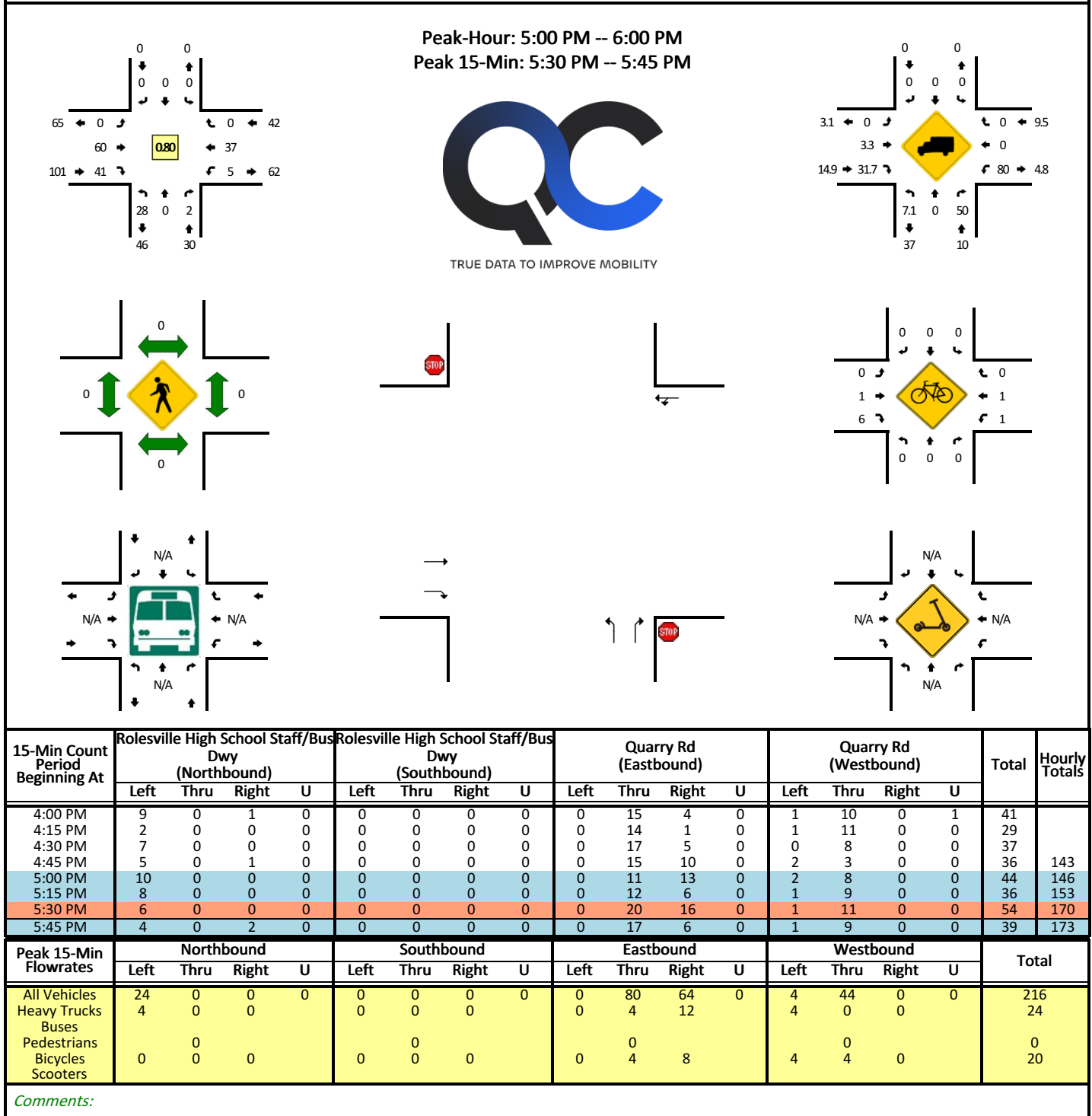


15-Min Count Period Beginning At	Rolesville High School Staff/Bus Dwy (Northbound)				Rolesville High School Staff/Bus Dwy (Southbound)				Quarry Rd (Eastbound)				Quarry Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:30 AM	17	0	0	0	0	0	0	0	0	2	39	0	6	5	0	0	69	
6:45 AM	13	0	4	0	0	0	0	0	0	2	43	0	11	15	0	0	88	
7:00 AM	41	0	8	0	0	0	0	0	0	9	85	0	11	12	0	0	166	
7:15 AM	51	0	7	0	0	0	0	0	0	9	56	0	4	8	0	0	135	458
7:30 AM	10	0	2	1	0	0	0	0	0	7	8	0	0	17	0	0	45	434
7:45 AM	8	0	1	0	0	0	0	0	0	2	4	0	3	15	0	0	33	379
8:00 AM	2	0	0	0	0	0	0	0	0	9	3	0	0	12	0	0	26	239
8:15 AM	6	0	0	0	0	0	0	0	0	9	7	0	0	14	0	0	36	140
8:30 AM	1	0	0	0	0	0	0	0	0	2	3	0	0	12	0	0	18	113
8:45 AM	1	0	0	0	0	0	0	0	0	5	6	0	0	12	0	0	24	104
9:00 AM	6	0	0	1	0	0	0	0	0	2	13	0	0	3	0	0	25	103
9:15 AM	9	0	0	0	0	0	0	0	0	14	10	0	1	10	0	0	44	111
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	164	0	32	0	0	0	0	0	0	36	340	0	44	48	0	0	664	
Heavy Trucks	16	0	0		0	0	0		0	4	36		0	8	0		64	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scooters																		

Comments:

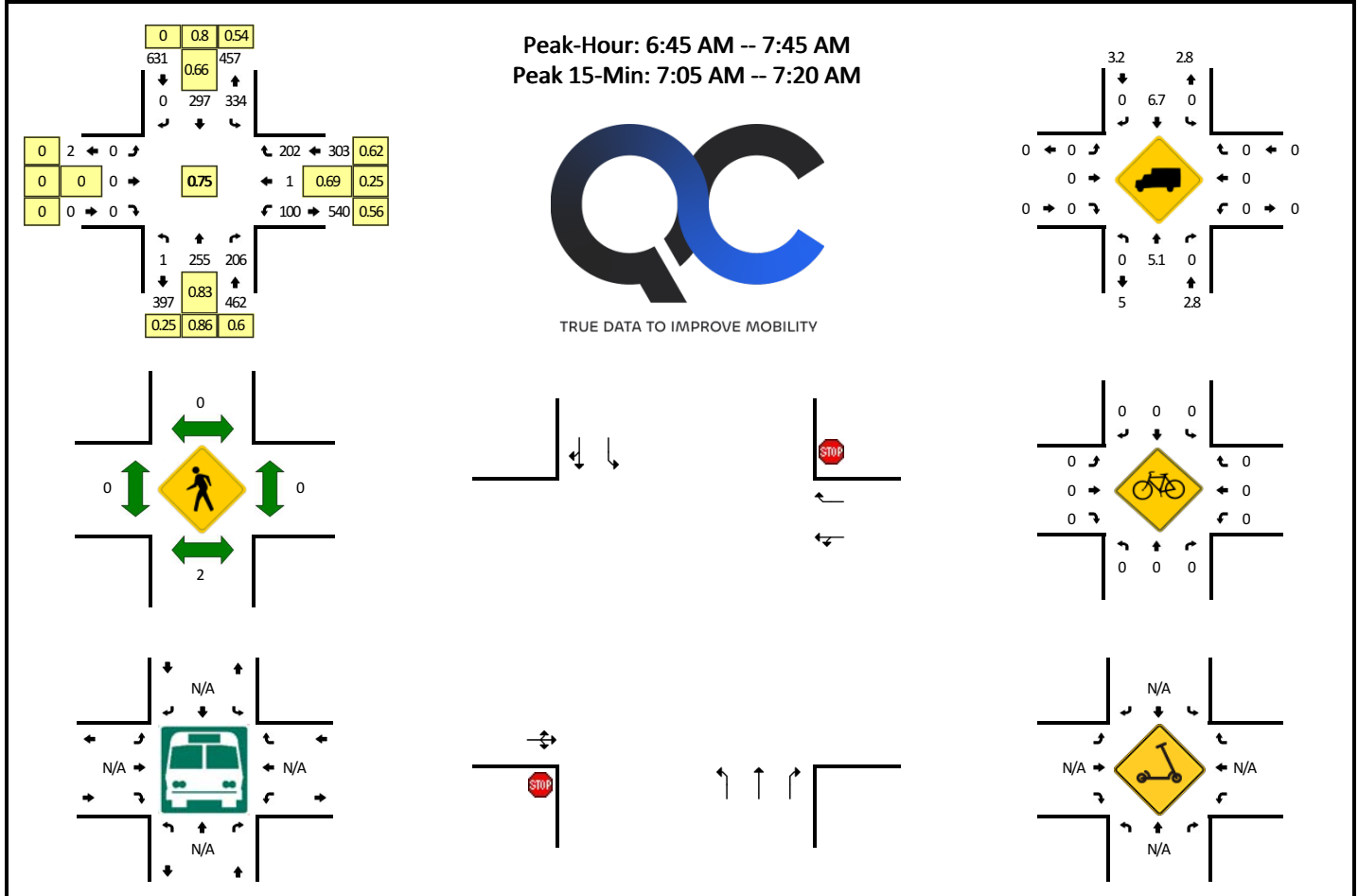
LOCATION: Rolesville High School Staff/Bus Dwy -- Quarry Rd
CITY/STATE: Wake, NC

QC JOB #: 17066110
DATE: Tue, May 20 2025



LOCATION: E Young St -- Rolesville High School Student/Carpool Dwy
CITY/STATE: Rolesville, NC

QC JOB #: 17066111
DATE: Tue, May 20 2025

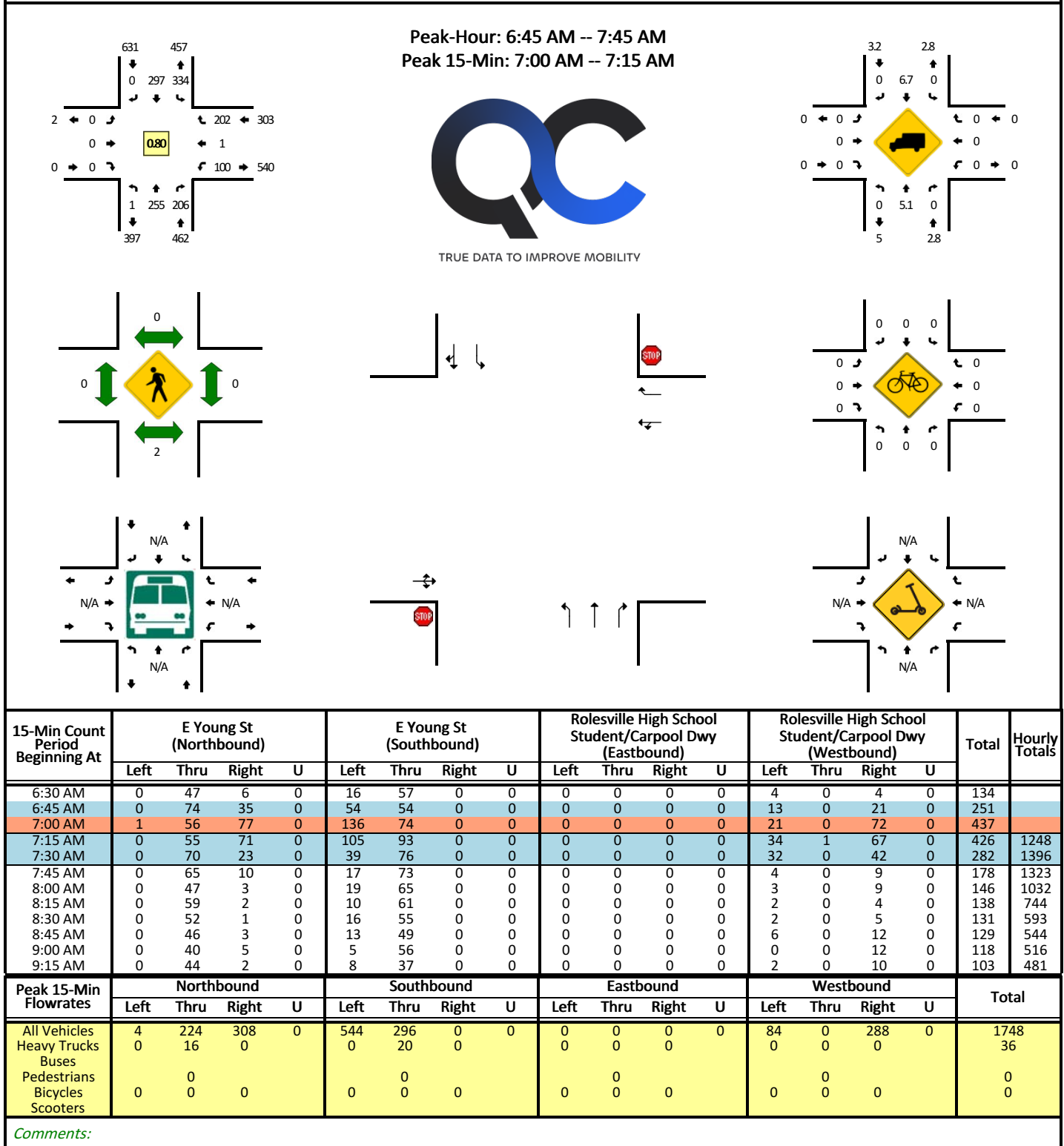


5-Min Count Period Beginning At	E Young St (Northbound)				E Young St (Southbound)				Rolesville High School Student/Carpool Dwy (Eastbound)				Rolesville High School Student/Carpool Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:30 AM	0	21	1	0	3	16	0	0	0	0	0	0	1	0	0	0	42	
6:35 AM	0	16	1	0	7	18	0	0	0	0	0	0	0	0	2	0	44	
6:40 AM	0	10	4	0	6	23	0	0	0	0	0	0	3	0	2	0	48	
6:45 AM	0	29	7	0	8	21	0	0	0	0	0	0	2	0	4	0	71	
6:50 AM	0	24	6	0	20	12	0	0	0	0	0	0	4	0	8	0	74	
6:55 AM	0	21	22	0	26	21	0	0	0	0	0	0	7	0	9	0	106	
7:00 AM	0	23	25	0	34	25	0	0	0	0	0	0	8	0	26	0	141	
7:05 AM	0	19	26	0	51	26	0	0	0	0	0	0	5	0	18	0	145	
7:10 AM	1	14	26	0	51	23	0	0	0	0	0	0	8	0	28	0	151	
7:15 AM	0	20	34	0	52	37	0	0	0	0	0	0	4	0	24	0	171	
7:20 AM	0	15	24	0	29	29	0	0	0	0	0	0	16	0	29	0	142	
7:25 AM	0	20	13	0	24	27	0	0	0	0	0	0	14	1	14	0	113	1248
7:30 AM	0	18	12	0	15	23	0	0	0	0	0	0	15	0	21	0	104	1310
7:35 AM	0	25	9	0	13	20	0	0	0	0	0	0	9	0	13	0	89	1355
7:40 AM	0	27	2	0	11	33	0	0	0	0	0	0	8	0	8	0	89	1396
7:45 AM	0	22	4	0	8	24	0	0	0	0	0	0	3	0	5	0	66	1391
7:50 AM	0	23	2	0	4	19	0	0	0	0	0	0	0	0	3	0	51	1368
7:55 AM	0	20	4	0	5	30	0	0	0	0	0	0	1	0	1	0	61	1323
8:00 AM	0	18	1	0	9	28	0	0	0	0	0	0	1	0	6	0	63	1245
8:05 AM	0	17	2	0	7	18	0	0	0	0	0	0	2	0	3	0	49	1149
8:10 AM	0	12	0	0	3	19	0	0	0	0	0	0	0	0	0	0	34	1032
8:15 AM	0	21	0	0	2	21	0	0	0	0	0	0	0	0	1	0	45	906
8:20 AM	0	15	2	0	5	16	0	0	0	0	0	0	0	0	1	0	39	803
8:25 AM	0	23	0	0	3	24	0	0	0	0	0	0	2	0	2	0	54	744
8:30 AM	0	18	1	0	3	16	0	0	0	0	0	0	0	0	0	0	38	678
8:35 AM	0	19	0	0	7	19	0	0	0	0	0	0	1	0	0	0	46	635
8:40 AM	0	15	0	0	6	20	0	0	0	0	0	0	1	0	5	0	47	593
8:45 AM	0	20	2	0	5	16	0	0	0	0	0	0	3	0	5	0	51	578
8:50 AM	0	15	0	0	8	14	0	0	0	0	0	0	3	0	2	0	42	569
8:55 AM	0	11	1	0	0	19	0	0	0	0	0	0	0	0	5	0	36	544
9:00 AM	0	15	1	0	0	28	0	0	0	0	0	0	0	0	2	0	46	527
9:05 AM	0	10	2	0	3	10	0	0	0	0	0	0	0	0	3	0	28	506
9:10 AM	0	15	2	0	2	18	0	0	0	0	0	0	0	0	7	0	44	516
9:15 AM	0	13	0	0	2	11	0	0	0	0	0	0	1	0	4	0	31	502
9:20 AM	0	19	1	0	2	18	0	0	0	0	0	0	0	0	3	0	43	506
9:25 AM	0	12	1	0	4	8	0	0	0	0	0	0	1	0	3	0	29	481

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	212	344	0	616	344	0	0	0	0	0	0	68	0	280	0	1868
Heavy Trucks	0	16	0		0	28	0		0	0	0		0	0	0		44
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	
<i>Comments:</i>																	

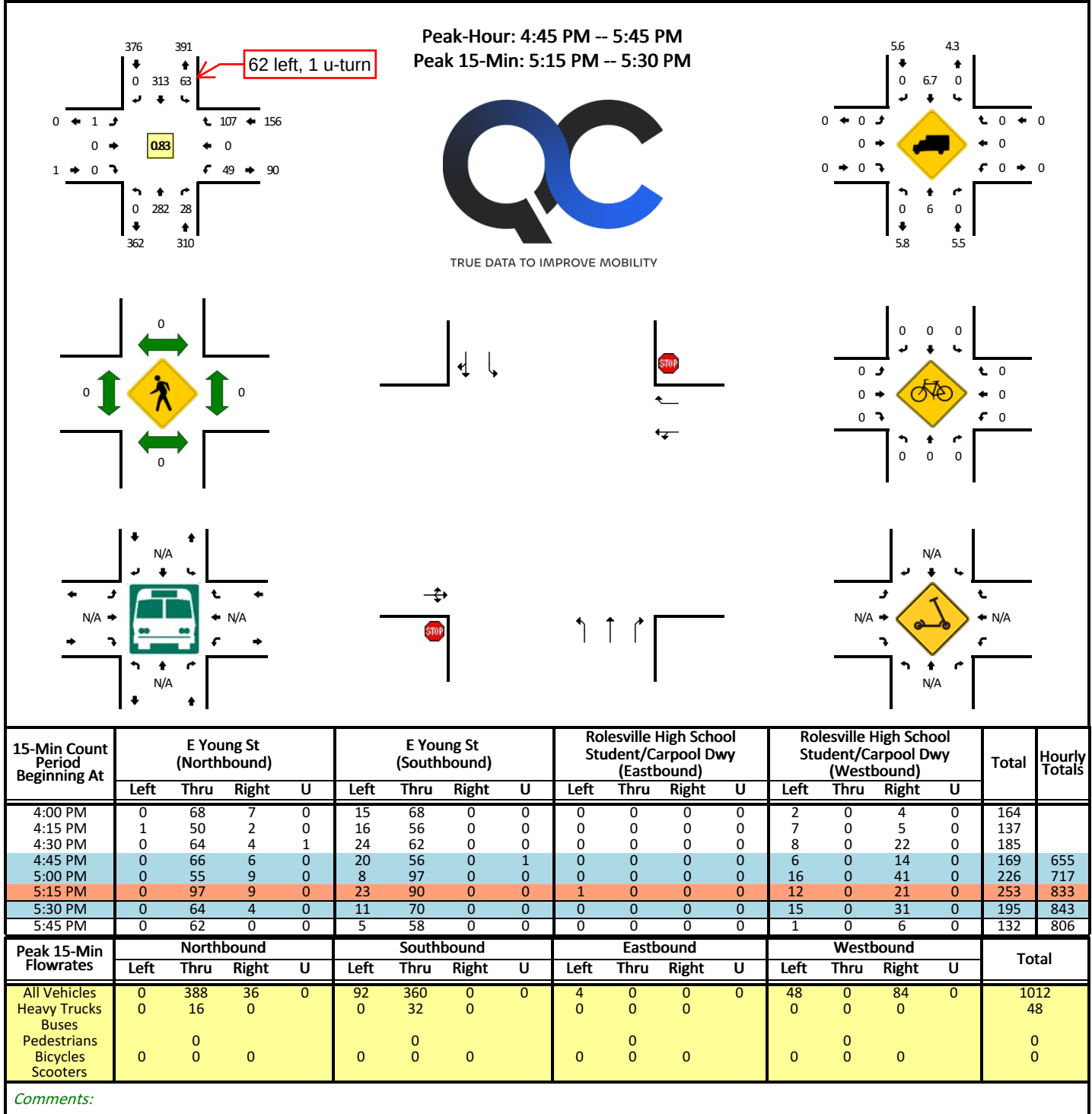
LOCATION: E Young St -- Rolesville High School Student/Carpool Dwy
CITY/STATE: Rolesville, NC

QC JOB #: 17066111
DATE: Tue, May 20 2025



LOCATION: E Young St -- Rolesville High School Student/Carpool Dwy
CITY/STATE: Rolesville, NC

QC JOB #: 17066112
DATE: Tue, May 20 2025

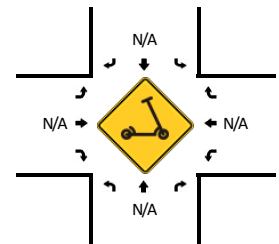
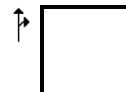
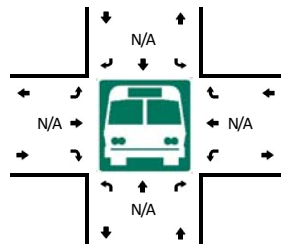
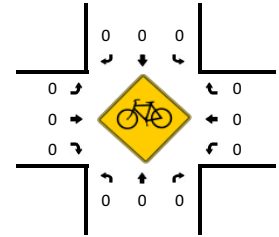
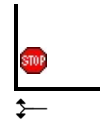
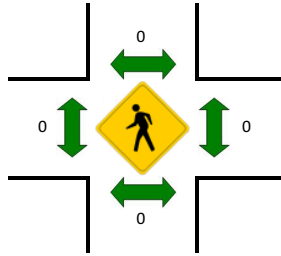
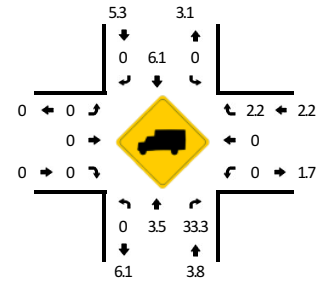
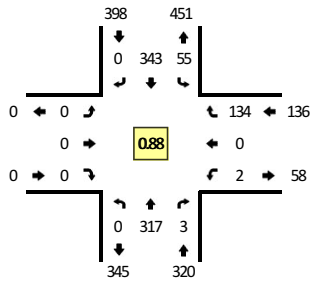


LOCATION: Rolesville Rd -- Fowler Rd**CITY/STATE:** Wake, NC**QC JOB #:** 17066113**DATE:** Tue, May 20 2025

Peak-Hour: 6:45 AM -- 7:45 AM
Peak 15-Min: 7:15 AM -- 7:30 AM



TRUE DATA TO IMPROVE MOBILITY



15-Min Count Period Beginning At	Rolesville Rd (Northbound)				Rolesville Rd (Southbound)				Fowler Rd (Eastbound)				Fowler Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:30 AM	0	32	0	0	9	55	0	0	0	0	0	0	0	0	19	0	115	
6:45 AM	0	74	1	0	10	60	0	0	0	0	0	0	2	0	33	0	180	
7:00 AM	0	98	0	0	12	84	0	0	0	0	0	0	0	0	38	0	232	
7:15 AM	0	88	2	0	18	106	0	0	0	0	0	0	0	0	30	0	244	771
7:30 AM	0	57	0	0	15	93	0	0	0	0	0	0	0	0	33	0	198	854
7:45 AM	0	51	0	0	8	71	0	0	0	0	0	0	2	0	23	0	155	829
8:00 AM	0	29	1	0	12	54	0	0	0	0	0	0	1	0	17	0	114	711
8:15 AM	0	41	0	0	13	48	0	0	0	0	0	0	0	0	15	0	117	584
8:30 AM	0	30	0	0	16	41	0	0	0	0	0	0	0	0	25	0	112	498
8:45 AM	0	33	0	0	15	35	0	0	0	0	0	0	0	0	10	0	93	436
9:00 AM	0	36	0	0	17	39	0	0	0	0	0	0	0	0	8	0	100	422
9:15 AM	0	29	0	0	12	26	0	0	0	0	0	0	1	0	12	0	80	385
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	352	8	0	72	424	0	0	0	0	0	0	0	0	120	0	976	
Heavy Trucks	0	12	0	0	0	16	0	0	0	0	0	0	0	0	4	0	32	
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Scooters	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

Report generated on 5/29/2025 2:19 PM

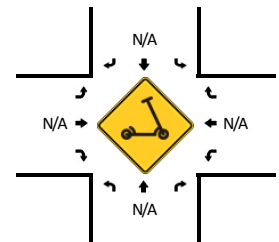
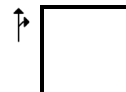
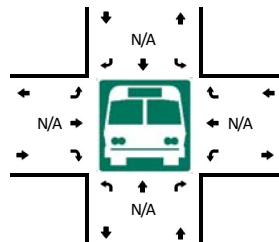
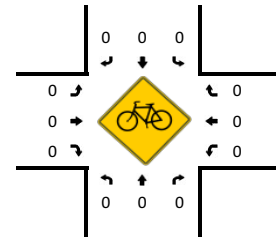
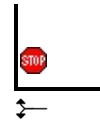
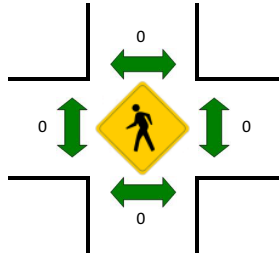
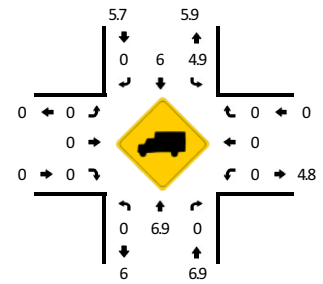
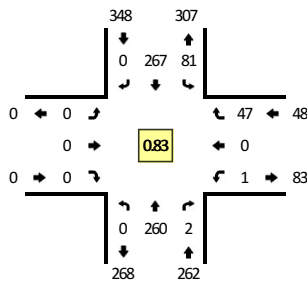
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

LOCATION: Rolesville Rd -- Fowler Rd**CITY/STATE:** Wake, NC**QC JOB #:** 17066114**DATE:** Tue, May 20 2025

Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:15 PM -- 5:30 PM



TRUE DATA TO IMPROVE MOBILITY



15-Min Count Period Beginning At	Rolesville Rd (Northbound)				Rolesville Rd (Southbound)				Fowler Rd (Eastbound)				Fowler Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	67	0	0	16	52	0	0	0	0	0	0	0	0	11	0	146	
4:15 PM	0	45	0	0	18	43	0	0	0	0	0	0	0	0	7	0	113	
4:30 PM	0	57	2	0	16	53	0	0	0	0	0	0	1	0	9	0	138	
4:45 PM	0	63	2	0	10	43	0	0	0	0	0	0	0	0	10	0	128	525
5:00 PM	0	57	0	0	30	83	0	0	0	0	0	0	1	0	7	0	178	557
5:15 PM	0	79	0	0	27	69	0	0	0	0	0	0	0	0	24	0	199	643
5:30 PM	0	61	0	0	14	72	0	0	0	0	0	0	0	0	6	0	153	658
5:45 PM	0	41	2	0	19	41	0	0	0	0	0	0	2	0	16	0	121	651
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	316	0	0	108	276	0	0	0	0	0	0	0	0	96	0	796	
Heavy Trucks	0	20	0	0	12	20	0	0	0	0	0	0	0	0	0	0	52	
Buses																		
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Scooters																		

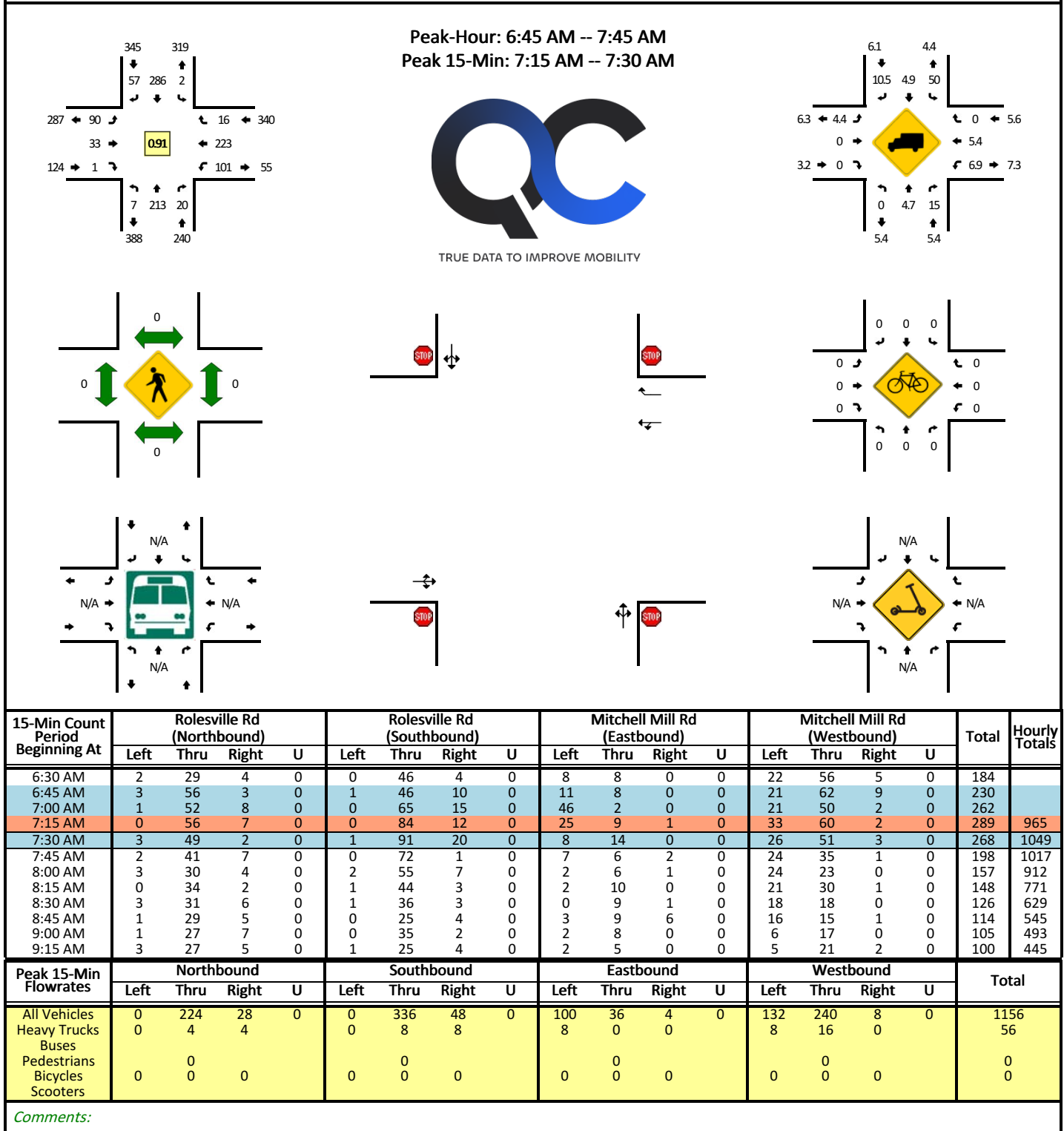
Comments:

Report generated on 5/29/2025 2:19 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

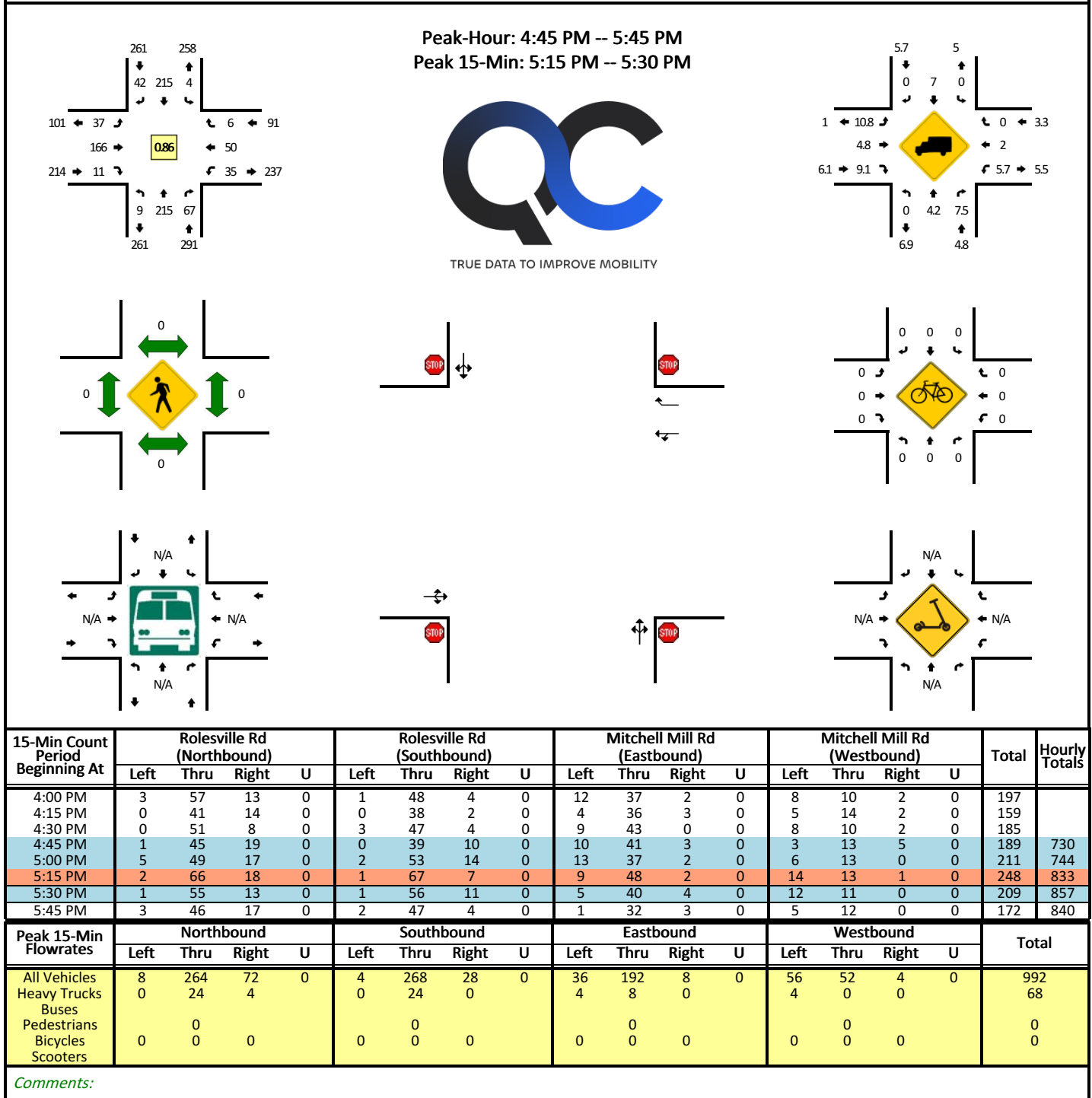
LOCATION: Rolesville Rd -- Mitchell Mill Rd
CITY/STATE: Wake, NC

QC JOB #: 17066115
DATE: Tue, May 20 2025



LOCATION: Rolesville Rd -- Mitchell Mill Rd
CITY/STATE: Wake, NC

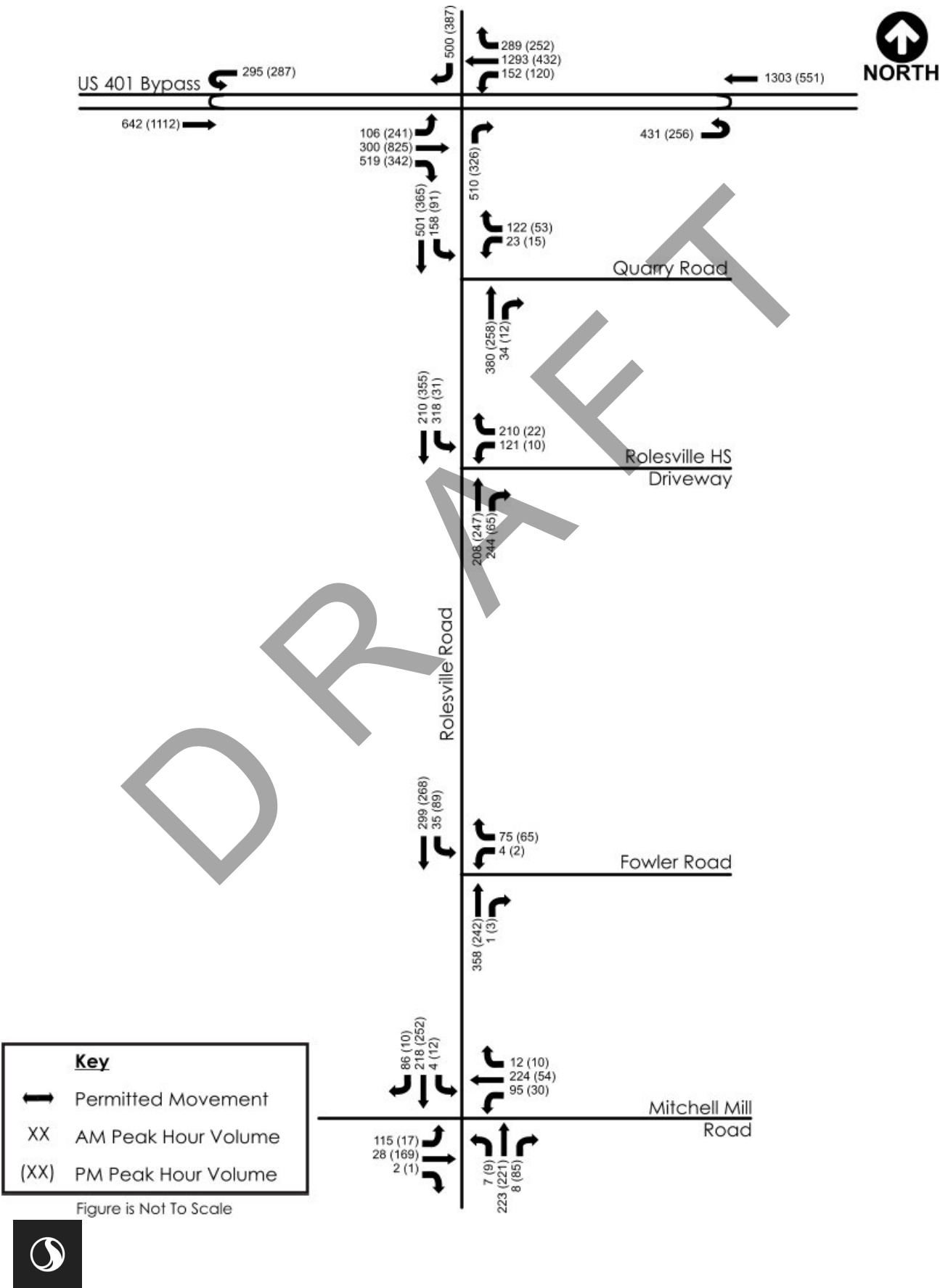
QC JOB #: 17066116
DATE: Tue, May 20 2025



US 401 TRAFFIC VOLUME CALCULATIONS

Traffic Volumes
 September 10, 2024

Figure 9: 2024 Existing Traffic Volumes



East Young Street at US 401

AM PEAK HOUR

	Northbound East Young Street				Southbound East Young Street				Eastbound US 401				Westbound US 401			
	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn
2024 Traffic Volumes From Merritt Property TIA	0	0	510	0	0	0	500	0	106	300	519	0	152	1293	289	0
Growth Factor	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Estimated 2025 Traffic Volume	0	0	521	0	0	0	510	0	109	306	530	0	156	1319	295	0
2025 Traffic Count with Young and Main Closed	0	0	532	0	0	0	243	0	20	363	510	0	262	1381	187	0
2025 Traffic Volume (Highest Volume)	0	0	532	0	0	0	510	0	109	363	530	0	262	1381	295	0
Difference	0	0	-11	0	0	0	267	0	89	-57	20	0	-106	-62	108	0
Reassignment Due to Closure	-89															
Revised 2025 Volume	274															

PM PEAK HOUR

	Northbound East Young Street				Southbound East Young Street				Eastbound US 401				Westbound US 401			
	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn
2024 Traffic Volumes From Merritt Property TIA	0	0	326	0	0	0	387	0	241	825	342	0	120	432	252	0
Growth Factor	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Estimated 2025 Traffic Volume	0	0	333	0	0	0	395	0	246	842	349	0	123	441	258	0
2025 Traffic Count with Young and Main Closed	0	0	447	0	0	0	207	0	64	1075	267	1	180	556	150	1
2025 Traffic Volume (Highest Volume)	0	0	447	0	0	0	395	0	246	1075	349	1	180	556	258	1
Difference	0	0	-114	0	0	0	188	0	182	-233	82	-1	-57	-115	108	-1
Reassignment Due to Closure										-182						
Revised 2025 Volume										893						

AM PEAK HOUR

PM PEAK HOUR																	
	Northbound U-Turn				Southbound -				Eastbound US 401				Westbound US 401				
	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	
2024 Traffic Volumes From Merritt Property TIA	0	0	0	0	0	0	0	0	0	895	0	256	0	551	0	0	
Growth Factor	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	
Estimated 2025 Traffic Volume	0	0	0	0	0	0	0	0	0	913	0	262	0	563	0	0	
2025 Traffic Count with Young and Main Closed	0	0	0	0	0	0	0	0	0	1255	0	263	0	629	0	0	
2025 Traffic Volume (Highest Volume)	0	0	0	0	0	0	0	0	0	1255	0	263	0	629	0	0	
Difference	0	0	0	0	0	0	0	0	0	-342	0	-1	0	-66	0	0	
Reassignment Due to Closure											-182						
Revised 2025 Volume											1073						

US 401 at South U-Turn

AM PEAK HOUR

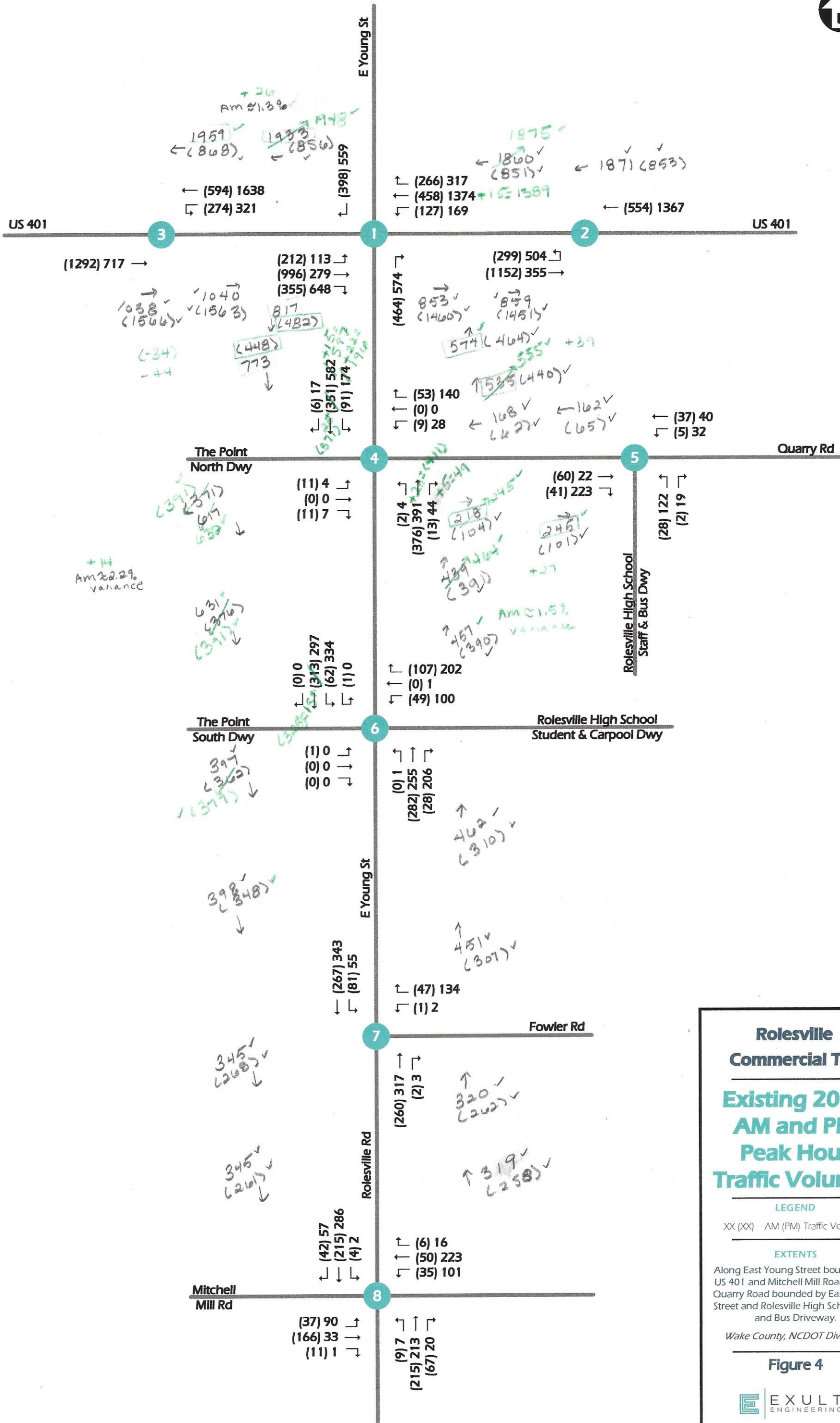
	Northbound				Southbound U-Turn				Eastbound US 401				Westbound US 401			
	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn
2024 Traffic Volumes From Merritt Property TIA	0	0	0	0	0	0	0	0	0	642	0	0	0	1498	0	295
Growth Factor	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Estimated 2025 Traffic Volume	0	0	0	0	0	0	0	0	0	655	0	0	0	1528	0	301
2025 Traffic Count with Young and Main Closed	0	0	0	0	0	0	0	0	0	692	0	0	0	1421	0	201
2025 Traffic Volume (Highest Volume)	0	0	0	0	0	0	0	0	0	692	0	0	0	1528	0	301
Difference	0	0	0	0	0	0	0	0	0	-37	0	0	0	107	0	100

PM PEAK HOUR

	Northbound				Southbound U-Turn				Eastbound US 401				Westbound US 401			
	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn
2024 Traffic Volumes From Merritt Property TIA	0	0	0	0	0	0	0	0	0	1112	0	0	0	532	0	287
Growth Factor	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Estimated 2025 Traffic Volume	0	0	0	0	0	0	0	0	0	1135	0	0	0	543	0	293
2025 Traffic Count with Young and Main Closed	0	0	0	0	0	0	0	0	0	1240	0	0	0	602	0	168
2025 Traffic Volume (Highest Volume)	0	0	0	0	0	0	0	0	0	1240	0	0	0	602	0	293
Difference	0	0	0	0	0	0	0	0	0	-105	0	0	0	-59	0	125

EXISTING VOLUME BALANCING

Existing Volume Balancing

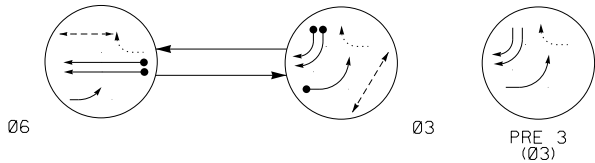


SIGNAL PLANS

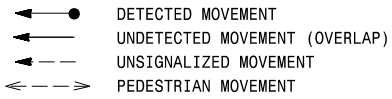
PROJECT REFERENCE NO.	SHEET NO.
44823	Sig. 2.0

DEFAULT PHASING DIAGRAM

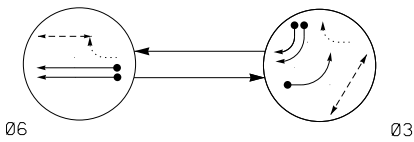
EV PREEMPT PHASES (Medium Priority)



PHASING DIAGRAM DETECTION LEGEND



ALTERNATE PHASING DIAGRAM



DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE			
	Ø 6	Ø 3	P 3	F LASH
3I	←	→	←	→
32, 33	R	→	→	R
6I, 62	G	R	R	Y
P3I, P32	DW	W	DW	DRK
P6I, P62 P63, P64	W	DW	DW	DRK

ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE			
	Ø 6	Ø 3	P 3	F LASH
3I	←	→	←	→
32, 33	R	→	→	R
6I, 62	G	R	R	Y
P3I, P32	DW	W	DW	DRK
P6I, P62 P63, P64	W	DW	DW	DRK

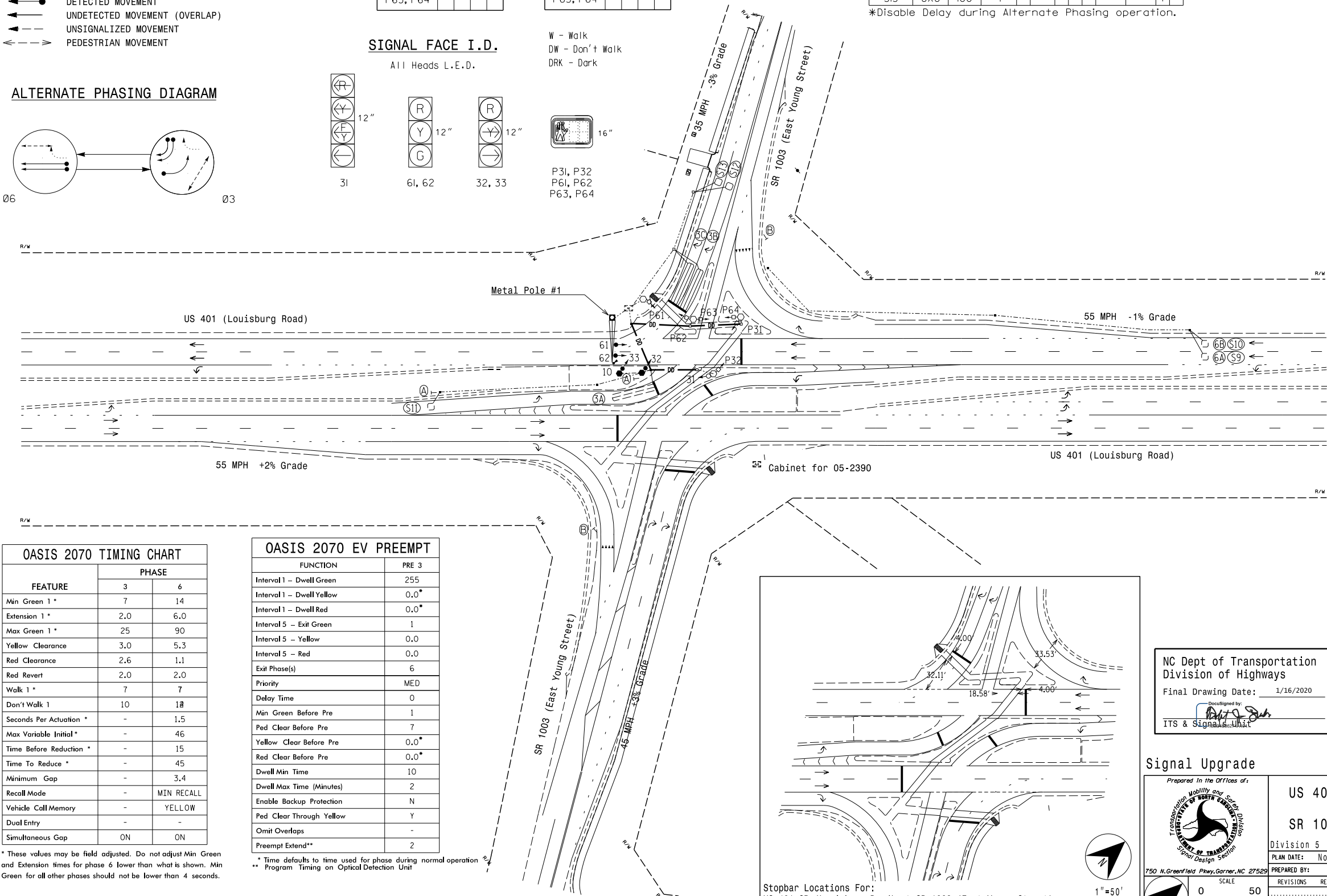
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART												
INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
3A	6X40	0	2-4-2	-	3	Y	Y	-	-	15*	-	-
3B	6X40	0	2-4-2	-	3	Y	Y	-	-	15	-	-
3C	6X40	0	2-4-2	-	3	Y	Y	-	-	15	-	-
6A/S9	6X6	420	EXIST	-	6	Y	Y	-	-	-	Y	-
6B/S10	6X6	420	EXIST	-	6	Y	Y	-	-	-	Y	-
S11	6X6	200	EXIST	-	-	-	-	-	-	-	Y	-
S12	6X6	100	4	-	-	-	-	-	-	-	Y	-
S13	6X6	100	4	-	-	-	-	-	-	-	Y	-

*Disable Delay during Alternate Phasing operation.

2 Phase
Fully Actuated
w/ EV Preemption
US 401 Bypass (Rolesville) CLS
Signal System #: 10552

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Set all detector units to presence mode.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown flashing "DON'T WALK" time only.
- This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
- Optical detector 10 calls PRE 3.
- The Division Traffic Engineer will determine the hours of use for each phasing plan.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Closed loop system data:
Controller Asset #: 2236.



OASIS 2070 TIMING CHART

FEATURE	PHASE	
	3	6
Min Green 1 *	7	14
Extension 1 *	2.0	6.0
Max Green 1 *	25	90
Yellow Clearance	3.0	5.3
Red Clearance	2.6	1.1
Red Revert	2.0	2.0
Walk 1 *	7	7
Don't Walk 1	10	18
Seconds Per Actuation *	-	1.5
Max Variable Initial *	-	46
Time Before Reduction *	-	15
Time To Reduce *	-	45
Minimum Gap	-	3.4
Recall Mode	-	MIN RECALL
Vehicle Call Memory	-	YELLOW
Dual Entry	-	-
Simultaneous Gap	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phase 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

OASIS 2070 EV PREEMPT

FUNCTION	PRE 3
Interval 1 - Dwell Green	255
Interval 1 - Dwell Yellow	0.0*
Interval 1 - Dwell Red	0.0*
Interval 5 - Exit Green	1
Interval 5 - Yellow	0.0
Interval 5 - Red	0.0
Exit Phase(s)	6
Priority	MED
Delay Time	0
Min Green Before Pre	1
Ped Clear Before Pre	7
Yellow Clear Before Pre	0.0*
Red Clear Before Pre	0.0*
Dwell Min Time	10
Dwell Max Time (Minutes)	2
Enable Backup Protection	N
Ped Clear Through Yellow	Y
Omit Overlaps	-
Preempt Extend**	2

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

LEGEND

PROPOSED	EXISTING
	N/A
N/A	
N/A	
N/A	

NC Dept of Transportation
Division of Highways

Final Drawing Date: 1/16/2020

Designed by:
ITS & Signals Unit

Signal Upgrade

Prepared in the Offices of:



750 N. Greenfield Place, Garner, NC 27529

SCALE 0 50 1"=50'

US 401 SB (Louisburg Road)
at
SR 1003 (East Young Street)

Division 5 Wake County Rolesville

PLAN DATE: November 2019 REVIEWED BY: T. Kirk

PREPARED BY: T. Wells REVIEWED BY:

REVISIONS REVISIONS

INIT. DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



1/20/2019

SIGNATURE DATE

SIG. INVENTORY NO. 05-2236

502236 - US 401 @ Young St
2-1 Phase Control Functions Page 1
9/10/2025 2:52 PM

[illegible]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Soft Recall																
Ped Recall																
Rest In Walk																
Modified Rest In Walk																
Ped Reservice																
Flashing Walk																
Advanced Walk																
Delayed Walk																
Ped Yellow Clear																
Ped Red Clear																
Startup In Green	6															
Startup In Yellow																
Startup Red Clear																
First Phases	6															
Startup Calls																
Startup Ped Calls	3 6															
Flash Entry	6															
Yellow Flash	6															
Wag Phases	1 3 6 8															
Wag Overlaps																
Manual Control	1 2 3 4 5 6 7 8															
Manual Control Omit Ped																
Red Detector Lock																
Yellow Detector Lock	6															
Active Logic 1 - 16	1 2 3															
Active Logic 17 - 32																
Dynamic/Backup																

9/10/2025 2:52 PM

Phase Timing Elements	Phase															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Minimum Green 1	0	0	7	0	0	14	0	0	0	0	0	0	0	0	0	0
Minimum Green 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Re-service Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Extension 1 (Gap 1)	2.0	2.0	2.0	2.0	2.0	6.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Extension 2 (Gap 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Maximum Green 1	30	30	25	30	30	90	30	30	0	0	0	0	0	0	0	0
Maximum Green 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow Clearance	4.0	4.0	3.0	4.0	4.0	5.3	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Red Clearance	2.0	2.0	2.6	2.0	2.0	1.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1	0	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0
Walk 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dont Walk 1	0	0	10	0	0	10	0	0	0	0	0	0	0	0	0	0
Dont Walk 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Advance Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk Delay Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alternate Walk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alternate Dont Walk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alternate Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max / Max 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Adjust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Seconds / Actuation	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Variable Initial	0	0	0	0	0	46	0	0	0	0	0	0	0	0	0	0
Time Before Reduction	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	45	0	0	0	0	0	0	0	0	0	0
Minimum Gap	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alt Flash Frequency (0-25.5 Hz)	1.0															

[illegible]

Rings	Barrier 5				Barrier 6				Barrier 7				Barrier 8			
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

502236 - US 401 @ Young St
9 - Coordination Plan 1
9/10/2025 2:52 PM

Coordination Plan # 1

Cycle length (0-999 sec)	90
Min Transition Cycle (0-999 sec)	80
Max Transition Cycle (0-999 sec)	100

Offset # or Ring:	1	2	3	4
Offsets (0-999 sec)	0	0	0	0
Act Coord Phase Min Green (0-255)	0	0	0	0

Splits (0-255 sec)

Phase	1	2	3	4	5	6	7	8
Split	0	0	35	0	0	55	0	0
Phase	9	10	11	12	13	14	15	16
Split	0	0	0	0	0	0	0	0

Verify Plan Data

Phase/Function Settings:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phase	6															
Float Force Offs																
Hold to Force Off																
Hi Priority Ped																
Dynamic/Backup																

Options:

Split/Timing in percent?	(Y/N)	
	N	
*Permissive Mode (0-4)	0	*0 = Auto
Enable Transition Permissive Mode?	N	1 = Open
Adjust Non-Coordinated Splits?	Y	2 = Manual
Cycle Once per Cycle Length?	Y	3 = Window
		4 = Walk

Active Pages:

Phase Sequence Page (1-12)	1
Phase Timing Page (1-4)	1
Phase Control Page (1-4)	1
OverLap Control Page (1-4)	1
Input Page (1-4)	1
Output Page (1-4)	1

Global Manual Permissive windows:

*Applies when "Window" permissive is selected	
Manual Perm 1 End Point (0-255 sec)	0
Manual Perm 2 Start Point (0-255 sec)	0
Manual Perm 2 End Point (0-255 sec)	0

Manual Permissives by Phase:

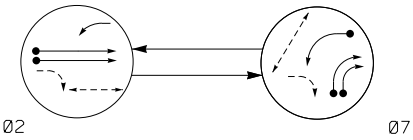
*Applies when "Manual" permissive is selected

(0-255 sec)	Vehicle		Pedestrian	
	Start	Stop	Start	Stop
Phase 1	0	0	0	0
Phase 2	0	0	0	0
Phase 3	0	0	0	0
Phase 4	0	0	0	0
Phase 5	0	0	0	0
Phase 6	0	0	0	0
Phase 7	0	0	0	0
Phase 8	0	0	0	0
Phase 9	0	0	0	0
Phase 10	0	0	0	0
Phase 11	0	0	0	0
Phase 12	0	0	0	0
Phase 13	0	0	0	0
Phase 14	0	0	0	0
Phase 15	0	0	0	0
Phase 16	0	0	0	0

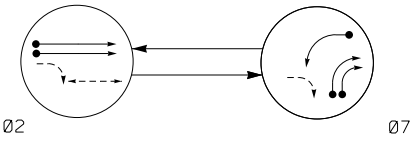
502236 - US 401 @ Young St
B - Scheduling Events 1-100
9/10/2025 2:52 PM

[illegible]

DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

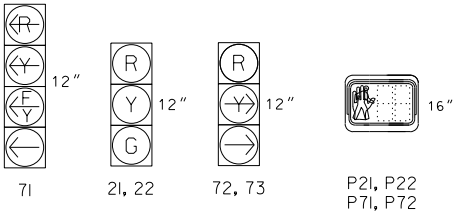
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

EV PREEMPT PHASES
(Medium Priority)



SIGNAL FACE I.D.

All Heads L.E.D.



SIGNAL FACE	PHASE			
	02	07	PRE 3	FLASH
21, 22	G	R	R	Y
71	Y	←	←	Y
72, 73	R	→	→	R
P21, P22	W	DW	DW	DRK
P71, P72	DW	W	DW	DRK

SIGNAL FACE	PHASE			
	02	07	PRE 3	FLASH
21, 22	G	R	R	Y
71	←	←	←	Y
72, 73	R	→	→	R
P21, P22	W	DW	DW	DRK
P71, P72	DW	W	DW	DRK

W - Walk
DW - Don't Walk
DRK - Dark

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART											
INDUCTIVE LOOPS					DETECTOR PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP NEW CARD
2A/S4	6X6	420	EXIST	-	2	Y	Y	-	-	-	Y -
2B/S5	6X6	420	EXIST	-	2	Y	Y	-	-	-	Y -
7A	6X40	0	2-4-2	-	7	Y	Y	-	-	15*	- -
7B	6X40	0	2-4-2	-	7	Y	Y	-	-	15	- -
7C	6X40	0	2-4-2	-	7	Y	Y	-	-	15	- -
S6	6X6	200	EXIST	-	-	-	-	-	-	-	Y -
S7	6X6	100	4	-	-	-	-	-	-	-	Y -
S8	6X6	100	4	-	-	-	-	-	-	-	Y -

* Disable Delay during Alternate Phasing operation.

2 Phase
Fully Actuated
w/ EV Preemption
US 401 Bypass (Rolesville) CLS
Signal System #: 10552

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Set all detector units to presence mode.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown flashing "DON'T WALK" time only.
- This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
- Optical detector 10 calls PRE 3.
- The Division Traffic Engineer will determine the hours of use for each phasing plan.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Closed loop system data:
Master Asset #: 10552.
Controller Asset #: 2290.

LEGEND

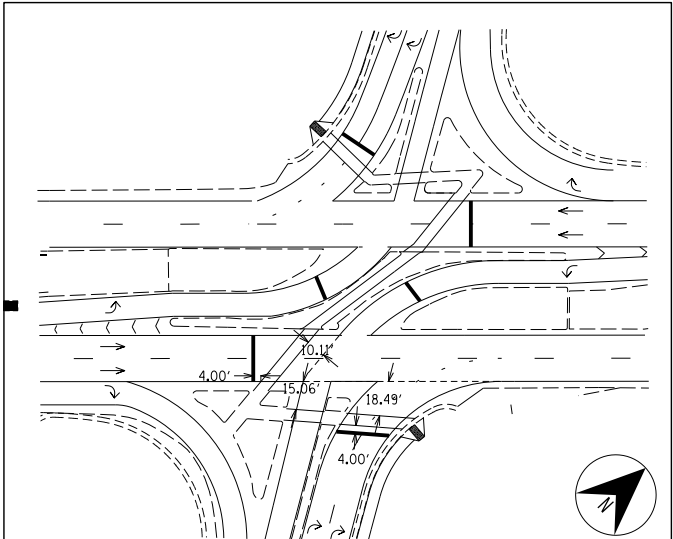
PROPOSED	EXISTING

OASIS 2070 TIMING CHART		
FEATURE	PHASE	
	2	7
Min Green 1 *	14	7
Extension 1 *	6.0	2.0
Max Green 1 *	90	25
Yellow Clearance	5.0	3.0
Red Clearance	1.0	2.8
Red Revert	2.0	2.0
Walk 1 *	7	7
Don't Walk 1	13	10
Seconds Per Actuation *	1.5	-
Max Variable Initial *	46	-
Time Before Reduction *	15	-
Time To Reduce *	45	-
Minimum Gap	3.4	-
Recall Mode	MIN RECALL	-
Vehicle Call Memory	YELLOW	-
Dual Entry	-	-
Simultaneous Gap	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phase 2 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

OASIS 2070 EV PREEMPT		
FUNCTION	PRE 3	
Interval 1 - Dwell Green	255	
Interval 1 - Dwell Yellow	0.0*	
Interval 1 - Dwell Red	0.0*	
Interval 5 - Exit Green	1	
Interval 5 - Yellow	0.0	
Interval 5 - Red	0.0	
Exit Phase(s)	2	
Priority	MED	
Delay Time	0	
Min Green Before Pre	1	
Ped Clear Before Pre	7	
Yellow Clear Before Pre	0.0*	
Red Clear Before Pre	0.0*	
Dwell Min Time	10	
Dwell Max Time (Minutes)	2	
Enable Backup Protection	N	
Ped Clear Through Yellow	Y	
Omit Overlaps	-	
Preempt Extend**	2	

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit



Stopbar Locations For:
US 401 NB (Louisburg Road) at SR 1003 (East Young Street)

NC Dept of Transportation
Division of Highways
Final Drawing Date: 1/16/2020
ITS & Signals Unit

Signal Upgrade

Prepared In the Offices of:
TRANSPORTATION MOBILITY AND SAFETY DIVISION
NORTH CAROLINA
DIVISION OF TRANSPORTATION
Signal Design Section

750 N. Greenfield Place, Garner, NC 27529
SCALE
0 50
1"=50'

US 401 NB (Louisburg Road)
at
SR 1003 (East Young Street)

Division 5 Wake County Rolesville
PLAN DATE: November 2019 REVIEWED BY: T. Kirk
PREPARED BY: T. Wells REVIEWED BY:

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

NORTH CAROLINA
PROFESSIONAL
SEAL
043930
ENGINEER
TIMOTHY S. KIRK
11/20/2019
DATE
SIC. INVENTORY NO. 05-2390

502390 - US 401 @ Young St
2-1 Phase Control Functions Page 1
9/10/2025 2:55 PM

[illegible]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Soft Recall																
Ped Recall																
Rest In Walk																
Modified Rest In Walk																
Ped Reservice																
Flashing Walk																
Advanced Walk																
Delayed Walk																
Ped Yellow Clear																
Ped Red Clear																
Startup In Green	2															
Startup In Yellow																
Startup Red Clear																
First Phases																
Startup Calls																
Startup Ped Calls	2 7															
Flash Entry	2															
Yellow Flash	2															
Wag Phases	1 3 6 8															
Wag Overlaps																
Manual Control	1 2 3 4 5 6 7 8															
Manual Control Omit Ped																
Red Detector Lock																
Yellow Detector Lock	2															
Active Logic 1 - 16	1 2 3															
Active Logic 17 - 32																
Dynamic/Backup																

9/10/2025 2:55 PM

Phase Timing Elements	Phase															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Minimum Green 1	0	14	0	0	0	0	7	0	0	0	0	0	0	0	0	0
Minimum Green 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Re-service Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Extension 1 (Gap 1)	0.0	6.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Extension 2 (Gap 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Maximum Green 1	0	90	0	0	0	0	40	0	0	0	0	0	0	0	0	0
Maximum Green 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow Clearance	3.0	5.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Red Clearance	2.0	1.0	2.0	2.0	2.0	2.0	2.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1	0	7	0	0	0	0	7	0	0	0	0	0	0	0	0	0
Walk 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dont Walk 1	0	13	0	0	0	0	10	0	0	0	0	0	0	0	0	0
Dont Walk 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Advance Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk Delay Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alternate Walk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alternate Dont Walk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alternate Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max / Max 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Adjust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Seconds / Actuation	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Variable Initial	0	46	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time Before Reduction	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Gap	0.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alt Flash Frequency (0-25.5 Hz)	1.0															

[illegible]

Rings	Barrier 5				Barrier 6				Barrier 7				Barrier 8			
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

502390 - US 401 @ Young St
9 - Coordination Plan 1
9/10/2025 2:55 PM

Coordination Plan # 1

Cycle length (0-999 sec)	90
Min Transition Cycle (0-999 sec)	80
Max Transition Cycle (0-999 sec)	100

Offset # or Ring:	1	2	3	4
Offsets (0-999 sec)	48	0	0	0
Act Coord Phase Min Green (0-255)	0	0	0	0

Splits (0-255 sec)

Phase	1	2	3	4	5	6	7	8
Split	0	60	0	0	0	0	30	0
Phase	9	10	11	12	13	14	15	16
Split	0	0	0	0	0	0	0	0

Verify Plan Data

Phase/Function Settings:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phase	2															
Float Force Offs																
Hold to Force Off																
Hi Priority Ped																
Dynamic/Backup																

Options:

Split/Timing in percent?	N	(Y/N)
*Permissive Mode (0-4)	0	*0 = Auto
Enable Transition Permissive Mode?	N	1 = Open
Adjust Non-Coordinated Splits?	Y	2 = Manual
Cycle Once per Cycle Length?	Y	3 = Window
		4 = Walk

Active Pages:

Phase Sequence Page (1-12)	1
Phase Timing Page (1-4)	1
Phase Control Page (1-4)	1
OverLap Control Page (1-4)	1
Input Page (1-4)	1
Output Page (1-4)	1

Global Manual Permissive windows:

*Applies when "Window" permissive is selected	
Manual Perm 1 End Point (0-255 sec)	0
Manual Perm 2 Start Point (0-255 sec)	0
Manual Perm 2 End Point (0-255 sec)	0

Manual Permissives by Phase:

*Applies when "Manual" permissive is selected

(0-255 sec)	Vehicle		Pedestrian	
	Start	Stop	Start	Stop
Phase 1	0	0	0	0
Phase 2	0	0	0	0
Phase 3	0	0	0	0
Phase 4	0	0	0	0
Phase 5	0	0	0	0
Phase 6	0	0	0	0
Phase 7	0	0	0	0
Phase 8	0	0	0	0
Phase 9	0	0	0	0
Phase 10	0	0	0	0
Phase 11	0	0	0	0
Phase 12	0	0	0	0
Phase 13	0	0	0	0
Phase 14	0	0	0	0
Phase 15	0	0	0	0
Phase 16	0	0	0	0

502390 - US 401 @ Young St
B - Scheduling Events 1-100
9/10/2025 2:55 PM

[illegible]

2 Phase
Fully Actuated
w/ EV Preemption
US 401 Bypass (Rolesville) CLS

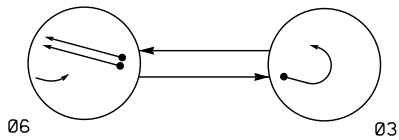
NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
5. Disconnect existing loop 3A.
6. Pavement markings are existing unless otherwise shown.
7. Remove existing "LEFT ON GREEN ARROW ONLY" (R10-5) signs.
8. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
9. Optical detector 10 calls EVP 3.
10. The Division Traffic Engineer will determine the hours of use for each phasing plan.
11. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
12. Closed loop system data:
Controller Asset #: 2391.

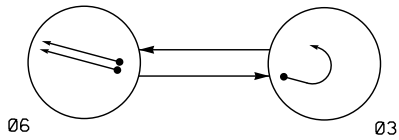
LEGEND

PROPOSED	EXISTING

DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

EV PREEMPT PHASES
(Medium Priority)



SIGNAL FACE	PHASE			
	06	03	EVP 3	FLASH
3l, 32	Y	Y	Y	Y
6l, 62	G	R	R	Y

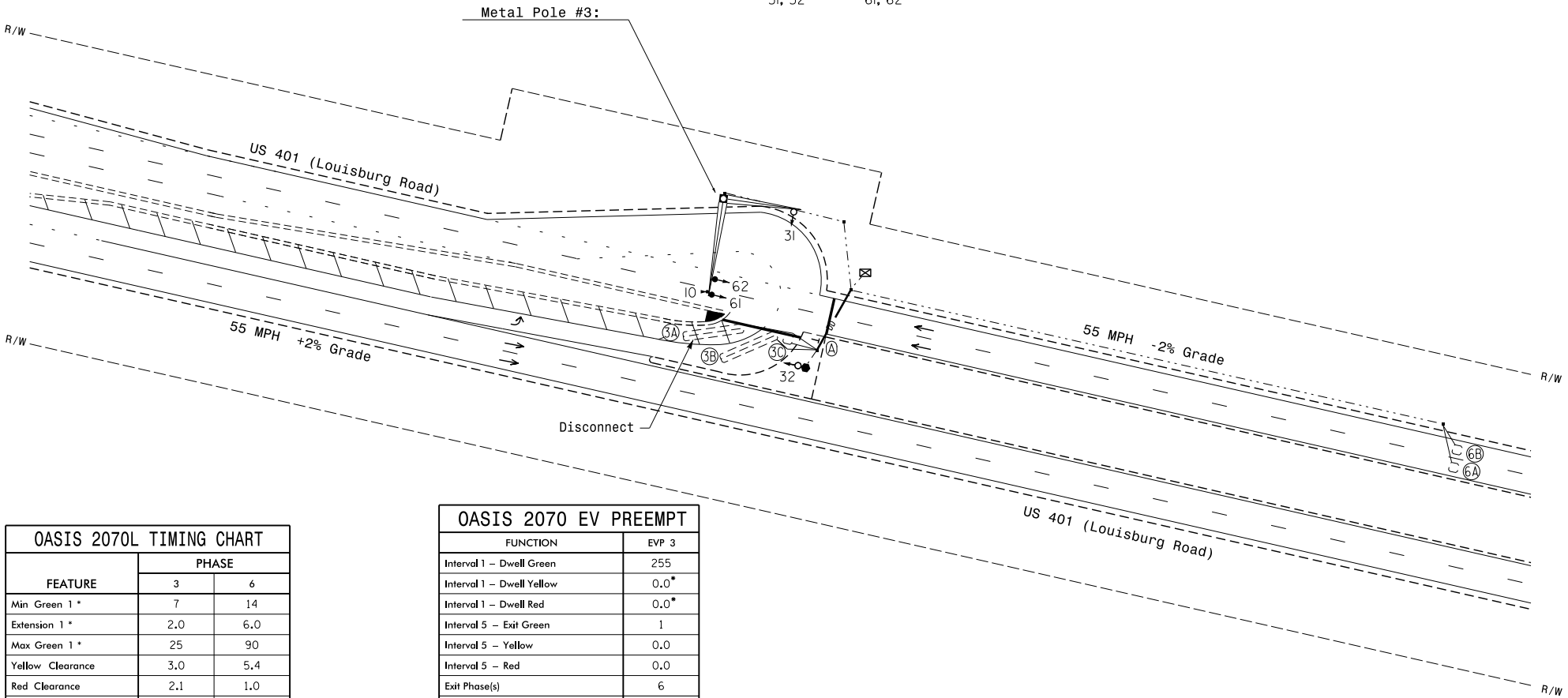
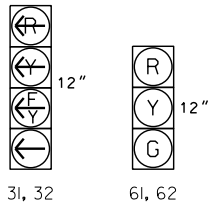
SIGNAL FACE	PHASE			
	06	03	EVP 3	FLASH
3l, 32	Y	Y	Y	Y
6l, 62	G	R	R	Y

OASIS 2070L LOOP & DETECTOR INSTALLATION CHART											
INDUCTIVE LOOPS						DETECTOR PROGRAMMING					
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURN	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP NEW CARD
3A	6X40	0	2-4-2	-	DISCONNECT						
3B	6X40	0	2-4-2	-	3	Y	Y	-	-	15*	- Y
3C	6X6	0	EXIST	-	3	Y	Y	-	-	15*	- Y
6A	6X6	420	EXIST	-	6	Y	Y	-	-	-	- Y
6B	6X6	420	EXIST	-	6	Y	Y	-	-	-	- Y

*Disable Delay during Alternate Phasing operation.

SIGNAL FACE I.D.

All Heads L.E.D.



OASIS 2070L TIMING CHART		
FEATURE	PHASE	
	3	6
Min Green 1 *	7	14
Extension 1 *	2.0	6.0
Max Green 1 *	25	90
Yellow Clearance	3.0	5.4
Red Clearance	2.1	1.0
Red Revert	2.0	2.0
Walk 1 *	-	-
Don't Walk 1	-	-
Seconds Per Actuation *	-	1.5
Max Variable Initial *	-	46
Time Before Reduction *	-	15
Time To Reduce *	-	45
Minimum Gap	-	3.4
Recall Mode	-	MIN RECALL
Vehicle Call Memory	-	YELLOW
Dual Entry	-	-
Simultaneous Gap	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phase 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

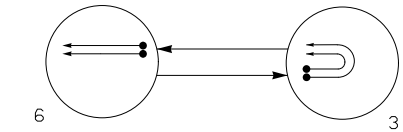
OASIS 2070 EV PREEMPT	
FUNCTION	EVP 3
Interval 1 - Dwell Green	255
Interval 1 - Dwell Yellow	0.0*
Interval 1 - Dwell Red	0.0*
Interval 5 - Exit Green	1
Interval 5 - Yellow	0.0
Interval 5 - Red	0.0
Exit Phase(s)	6
Priority	MED
Delay Time	0
Min Green Before Pre	1
Ped Clear Before Pre	0
Yellow Clear Before Pre	0.0*
Red Clear Before Pre	0.0*
Dwell Min Time	10
Dwell Max Time (Minutes)	2
Enable Backup Protection	N
Ped Clear Through Yellow	N
Omit Overlaps	-
Preempt Extend**	2

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

Signal Upgrade

Prepared in the Offices of: TRANSPORTATION MOBILITY AND SAFETY DIVISION STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION Signal Design Section		US 401 SB (Louisburg Road) at U-Turn North of SR 1003 (Rolesville Road) Division 5 Wake County Rolesville		SEAL NORTH CAROLINA PROFESSIONAL SEAL 026486 ENGINEER ROBERT J. LITWAK	
750 N. Greenfield Pkwy, Garner, NC 27529		PLAN DATE: March 2016 REVIEWED BY:		DATE: 4/6/2016	
PREPARED BY: M.E. Giles		REVIEWED BY:		DATE: 4/6/2016	
REVISIONS		INIT.		DATE	
0		SCALE		1"=50'	
N		SIG. INVENTORY NO.		05-2391	

PHASING DIAGRAM

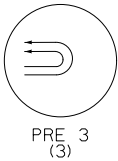


PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

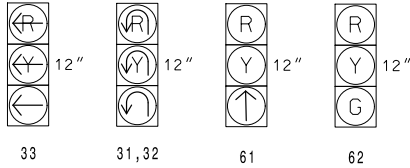
EV PREEMPT PHASES

(Medium Priority)



SIGNAL FACE I.D.

All Heads L.E.D.



SIGNAL FACE	PHASE			
	6	3	PRE 3	3
31,32	R	R	R	R
33	R	R	R	R
61	↑	R	R	R
62	G	R	R	R

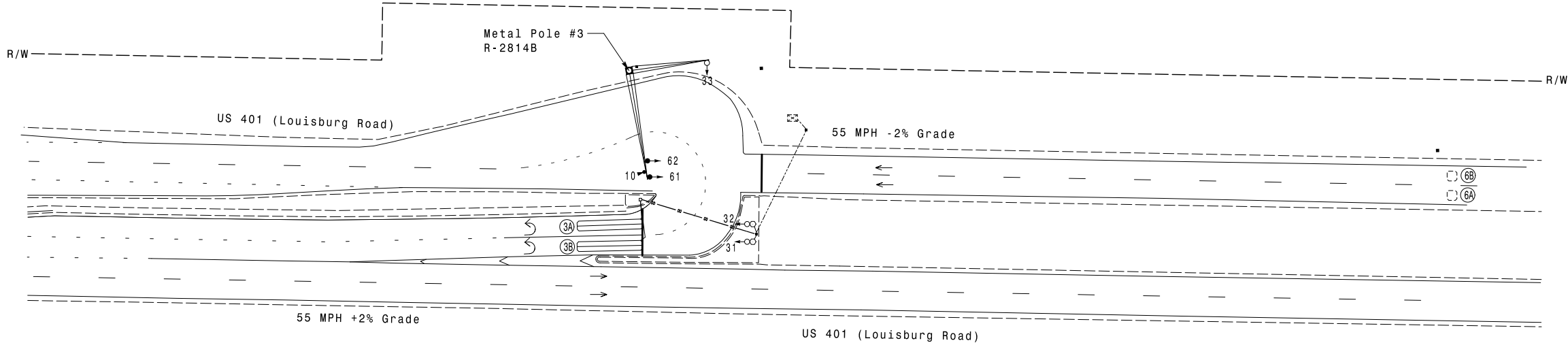
MAXTIME DETECTOR INSTALLATION CHART

DETECTOR				PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND INITIAL	ADDED INITIAL	CALL DURING GREEN	NEW CARD
3A	6X40	0	2-4-2	X	3	-	-	X	-	X	-
3B	6X40	0	2-4-2	X	3	-	-	X	-	X	-
6A	6X6	420	EXIST	-	6	-	-	X	X	X	-
6B	6X6	420	EXIST	-	6	-	-	X	X	X	-

2 Phase
Fully Actuated
w/ EV Preemption
(US 401 Bypass (Rolesville))
Signal System #: D05-52_Rolesville)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2024, "Standard Specifications for Roads and Structures" dated January 2024, and all applicable sections of the latest version of the generic Project Special Provisions. The PSP can be accessed at the following website: <https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx>
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Remove existing pedestal and signal head 32.
- Disconnect and abandon existing loops 3A, 3B, and 3C.
- Set all detector units to presence mode.
- Install new 2070LX controller in existing signal cabinet.
- This intersection features an optical preemption system. Shown location of optical detector is conceptual only.
- Optical detector 10 calls PRE 3.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



MAXTIME TIMING CHART

FEATURE	PHASE	
	3	6
Walk *	-	-
Ped Clear	-	-
Min Green *	7	14
Passage *	2.0	6.0
Max 1 *	25	90
Yellow Change	3.0	5.4
Red Clear	5.3	1.1
Red Revert	2.0	2.0
Added Initial *	-	1.5
Maximum Initial *	-	46
Time Before Reduction *	-	15
Time To Reduce *	-	45
Minimum Gap	-	3.4
Advance Walk	-	-
Non Lock Detector	X	-
Vehicle Recall	-	MIN RECALL
Dual Entry	-	-

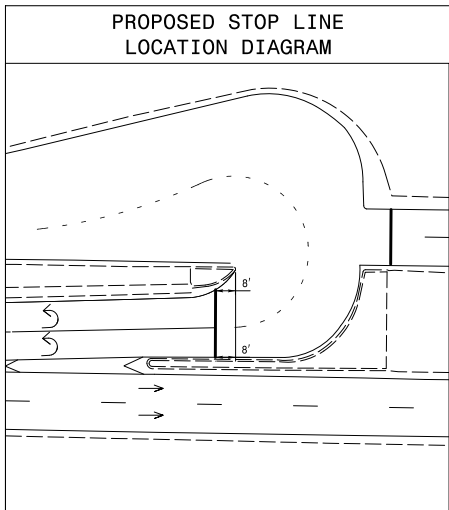
* These values may be field adjusted. Do not adjust Min Green and Passage times for phase 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

MAXTIME PREEMPTION CHART

FUNCTION		PRE 3
Type	EMERG VEH	
Exit Phases		6
Delay		0
Call Extend Time **		2.0
Max Presence		120
Enter Min Green		1
Enter Walk		0
Enter Ped Clear		25.5 *
Enter Yellow Change		25.5 *
Enter Red Clear		25.5 *
Track Green		0
Track Yellow Change		25.5 *
Track Red Clear		25.5 *
Dwell Green		10
Exit Min Green		25.5 *
Exit Yellow Change		25.5 *
Exit Red Clear		25.5 *
Exit Type	EXIT PHASES	
Ped Clear Through Yellow		-
Require All Red Entry		-

* Controller uses lesser time of time shown and the normal time used for phase.
** Program Timing on Optical Detection Unit.

PROPOSED STOP LINE LOCATION DIAGRAM



LEGEND

- | PROPOSED | EXISTING |
|----------|----------|
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NC Dept of Transportation
Division of Highways

Final Drawing Date: 5/28/2025

Chang Bock
NCDOT Approval

Signal Upgrade



US 401 SB (Louisburg Road)

at
U-Turn North of
SR 1003 (Rolesville Road)

Division 5 Wake County Rolesville

PLAN DATE: January 2025 REVIEWED BY:

PREPARED BY: SP Pennington REVIEWED BY: KP Baumann

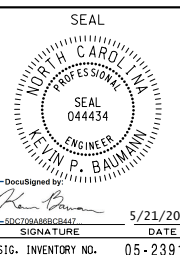
REVISIONS INIT. DATE

SIGNATURE DATE

SIG. INVENTORY NO. 05-2391

PLANS PREPARED IN THE OFFICE OF:
Kimley»Horn
NC License #F-0102
421 Fayetteville Street, Suite 600
Raleigh, NC 27601
(919) 677-2000

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



502391 - US 401 @ Young St
2-1 Phase Control Functions Page 1
9/10/2025 2:59 PM

[illegible]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Soft Recall																
Ped Recall																
Rest In Walk																
Modified Rest In Walk																
Ped Reservice																
Flashing Walk																
Advanced Walk																
Delayed Walk																
Ped Yellow Clear																
Ped Red Clear																
Startup In Green	6															
Startup In Yellow																
Startup Red Clear																
First Phases																
Startup Calls																
Startup Ped Calls																
Flash Entry	6															
Yellow Flash	6															
Wag Phases	1	3		6		8										
Wag Overlaps																
Manual Control	1	2	3	4	5	6	7	8								
Manual Control Omit Ped																
Red Detector Lock																
Yellow Detector Lock	6															
Active Logic 1 - 16	1	2	3													
Active Logic 17 - 32																
Dynamic/Backup																

9/10/2025 2:59 PM

Phase Timing Elements	Phase															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Minimum Green 1	0	0	7	0	0	14	0	0	0	0	0	0	0	0	0	0
Minimum Green 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Re-service Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Extension 1 (Gap 1)	2.0	2.0	3.5	2.0	2.0	6.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Extension 2 (Gap 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Maximum Green 1	30	30	65	30	30	90	30	30	0	0	0	0	0	0	0	0
Maximum Green 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow Clearance	4.0	4.0	3.0	4.0	4.0	5.4	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Red Clearance	2.0	2.0	2.1	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dont Walk 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dont Walk 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Advance Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk Delay Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alternate Walk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alternate Dont Walk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alternate Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max / Max 3	0	0	75	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Adjust	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Seconds / Actuation	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Variable Initial	0	0	0	0	0	46	0	0	0	0	0	0	0	0	0	0
Time Before Reduction	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	45	0	0	0	0	0	0	0	0	0	0
Minimum Gap	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alt Flash Frequency (0-25.5 Hz)	1.0															

[illegible]

Rings	Barrier 5				Barrier 6				Barrier 7				Barrier 8			
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

502391 - US 401 @ Young St
9 - Coordination Plan 1
9/10/2025 2:59 PM

Coordination Plan # 1

Cycle length (0-999 sec)	90
Min Transition Cycle (0-999 sec)	80
Max Transition Cycle (0-999 sec)	100

Offset # or Ring:	1	2	3	4
Offsets (0-999 sec)	85	0	0	0
Act Coord Phase Min Green (0-255)	0	0	0	0

Splits (0-255 sec)

Phase	1	2	3	4	5	6	7	8
Split	0	0	45	0	0	45	0	0
Phase	9	10	11	12	13	14	15	16
Split	0	0	0	0	0	0	0	0

Verify Plan Data

Phase/Function Settings:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phase	6															
Float Force Offs																
Hold to Force Off																
Hi Priority Ped																
Dynamic/Backup																

Options:

	(Y/N)	
Split/Timing in percent?	N	
*Permissive Mode (0-4)	0	*0 = Auto
Enable Transition Permissive Mode?	N	1 = Open
Adjust Non-Coordinated Splits?	Y	2 = Manual
Cycle Once per Cycle Length?	Y	3 = Window
		4 = Walk

Active Pages:

Phase Sequence Page (1-12)	1
Phase Timing Page (1-4)	1
Phase Control Page (1-4)	1
OverLap Control Page (1-4)	1
Input Page (1-4)	1
Output Page (1-4)	1

Global Manual Permissive windows:

*Applies when "Window" permissive is selected	
Manual Perm 1 End Point (0-255 sec)	0
Manual Perm 2 Start Point (0-255 sec)	0
Manual Perm 2 End Point (0-255 sec)	0

Manual Permissives by Phase:

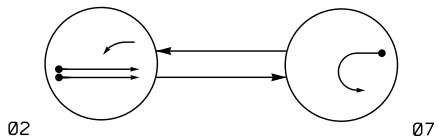
*Applies when "Manual" permissive is selected

(0-255 sec)	Vehicle		Pedestrian	
	Start	Stop	Start	Stop
Phase 1	0	0	0	0
Phase 2	0	0	0	0
Phase 3	0	0	0	0
Phase 4	0	0	0	0
Phase 5	0	0	0	0
Phase 6	0	0	0	0
Phase 7	0	0	0	0
Phase 8	0	0	0	0
Phase 9	0	0	0	0
Phase 10	0	0	0	0
Phase 11	0	0	0	0
Phase 12	0	0	0	0
Phase 13	0	0	0	0
Phase 14	0	0	0	0
Phase 15	0	0	0	0
Phase 16	0	0	0	0

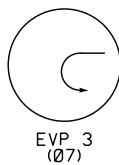
502391 - US 401 @ Young St
B - Scheduling Events 1-100
9/10/2025 2:59 PM

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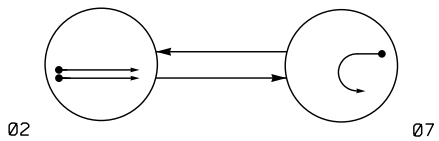
DEFAULT PHASING DIAGRAM



EV PREEMPT PHASES
(Medium Priority)



ALTERNATE PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

SIGNAL FACE	PHASE			
	02	07	EVP	FLASH
21, 22	G	R	R	Y
71, 72	F	←	←	←

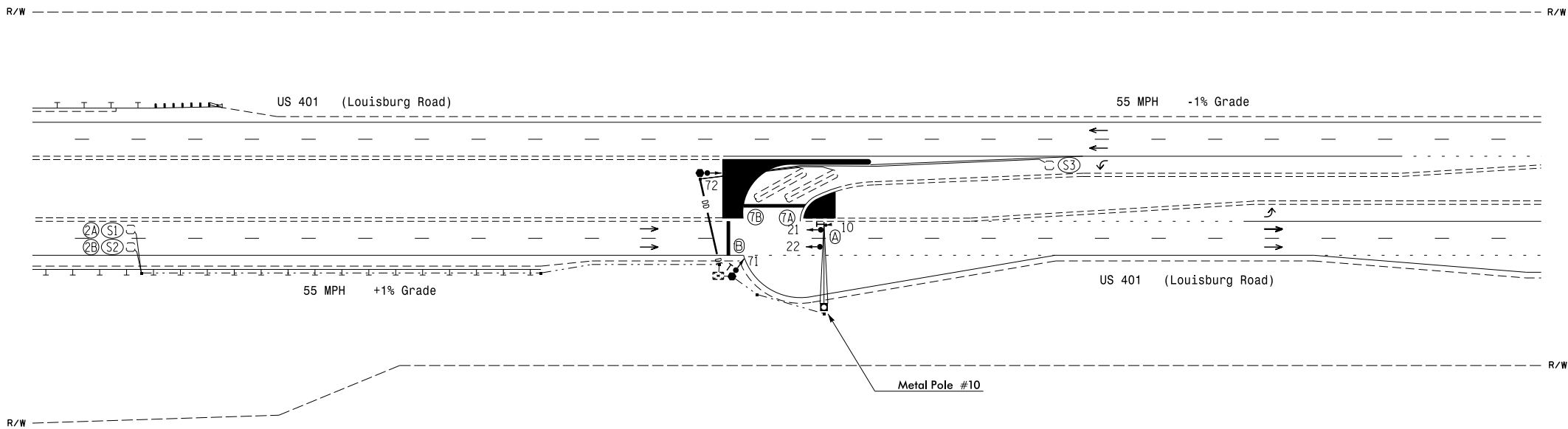
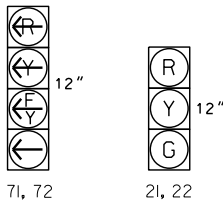
SIGNAL FACE	PHASE			
	02	07	EVP	FLASH
21, 22	G	R	R	Y
71, 72	←	←	←	←

OASIS 2070L LOOP & DETECTOR INSTALLATION CHART											
INDUCTIVE LOOPS						DETECTOR PROGRAMMING					
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP NEW CARD
2A/S1	6X6	420	EXIST	-	2	Y	Y	-	-	-	Y -
2B/S2	6X6	420	EXIST	-	2	Y	Y	-	-	-	Y -
7A	6X40	0	2-4-2	-	7	Y	Y	-	-	15*	- -
7B	6X40	0	2-4-2	-	7	Y	Y	-	-	15*	- -
S3	6X6	200	EXIST	-	-	-	-	-	-	-	Y -

*Disable Delay during Alternate Phasing operation.

SIGNAL FACE I.D.

All Heads L.E.D.



FEATURE	PHASE	
	2	7
Min Green 1 *	14	7
Extension 1 *	6.0	2.0
Max Green 1 *	90	25
Yellow Clearance	5.2	3.0
Red Clearance	1.0	1.8
Red Revert	2.0	2.0
Walk 1 *	-	-
Don't Walk 1	-	-
Seconds Per Actuation *	1.5	-
Max Variable Initial *	46	-
Time Before Reduction *	15	-
Time To Reduce *	45	-
Minimum Gap	3.4	-
Recall Mode	MIN RECALL	-
Vehicle Call Memory	YELLOW	-
Dual Entry	-	-
Simultaneous Gap	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phase 2 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

OASIS 2070 EV PREEMPT	
FUNCTION	EVP 3
Interval 1 - Dwell Green	255
Interval 1 - Dwell Yellow	0.0*
Interval 1 - Dwell Red	0.0*
Interval 5 - Exit Green	1
Interval 5 - Yellow	0.0
Interval 5 - Red	0.0
Exit Phase(s)	2
Priority	MED
Delay Time	0
Min Green Before Pre	1
Ped Clear Before Pre	0
Yellow Clear Before Pre	0.0*
Red Clear Before Pre	0.0*
Dwell Min Time	10
Dwell Max Time (Minutes)	2
Enable Backup Protection	N
Ped Clear Through Yellow	N
Omit Overlaps	-
Preempt Extend**	2

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

2 Phase
Fully Actuated
w/ EV Preemption
US 401 Bypass (Rolesville) CLS

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Set all detector units to presence mode.
- Pavement markings are existing.
- This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
- Optical detector 10 calls EVP 3.
- The Division Traffic Engineer will determine the hours of use for each phasing plan.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Closed loop system data:
Controller Asset #: 2425.

LEGEND

PROPOSED	EXISTING
Traffic Signal Head	Modified Signal Head
Sign	Sign
Pedestrian Signal Head With Push Button & Sign	Signal Pole with Guy
Signal Pole with Guy	Signal Pole with Sidewalk Guy
Inductive Loop Detector	Controller & Cabinet
Junction Box	2-in Underground Conduit
Right of Way	Directional Arrow
Directional Arrow	Metal Pole with Mastarm
Guardrail	Guardrail
Type II Signal Pedestal	Directional Drill
Optical Detector	No Left Turn Sign (R3-2)
No Left Turn Sign (R3-2)	No Right Turn Sign (R3-1)

Signal Upgrade

Prepared in the Offices of: TRANSPORTATION MOBILITY AND SAFETY DIVISION NORTH CAROLINA DEPARTMENT OF TRANSPORTATION Signal Design Section 750 N. Greenfield Pkwy, Garner, NC 27529	US 401 NB (Louisburg Road) at U-Turn South of SR 1003 (Rolesville Road) Division 5 Wake County Rolesville PLAN DATE: February 2016 PREPARED BY: M.E. Giles REVIEWED BY:	SEAL NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 026486 ROBERT J. ZIEGLER DATE 4/6/2016 SIC. INVENTORY NO. 05-2425
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502425 - US 401 @ Young St
2-1 Phase Control Functions Page 1
9/10/2025 3:00 PM

[illegible][illegible]

9/10/2025 3:00 PM

Phase Timing Elements	Phase															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Minimum Green 1	3	14	0	0	0	0	7	0	0	0	0	0	0	0	0	0
Minimum Green 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Re-service Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Extension 1 (Gap 1)	0.0	6.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Extension 2 (Gap 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Maximum Green 1	0	90	0	0	0	0	35	0	0	0	0	0	0	0	0	0
Maximum Green 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow Clearance	3.0	5.2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clearance	0.0	1.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Revert	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dont Walk 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dont Walk 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Advance Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk Delay Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alternate Walk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alternate Dont Walk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alternate Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max / Max 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Adjust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Seconds / Actuation	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Variable Initial	0	45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time Before Reduction	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Gap	0.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alt Flash Frequency (0-25.5 Hz)	1.0															

502425 - US 401 @ Young St
4 - Phase Sequence Page 1
9/10/2025 3:00 PM

[illegible]

Rings	Barrier 5				Barrier 6				Barrier 7				Barrier 8			
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

502425 - US 401 @ Young St
9 - Coordination Plan 1
9/10/2025 3:00 PM

Coordination Plan # 1

Cycle length (0-999 sec)	90
Min Transition Cycle (0-999 sec)	80
Max Transition Cycle (0-999 sec)	100

Offset # or Ring:	1	2	3	4
Offsets (0-999 sec)	77	0	0	0
Act Coord Phase Min Green (0-255)	0	0	0	0

Splits (0-255 sec)

Phase	1	2	3	4	5	6	7	8
Split	0	46	0	0	0	0	44	0
Phase	9	10	11	12	13	14	15	16
Split	0	0	0	0	0	0	0	0

Verify Plan Data

Phase/Function Settings:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phase	2															
Float Force Offs																
Hold to Force Off																
Hi Priority Ped																
Dynamic/Backup																

Options:

Split/Timing in percent?	N	(Y/N)
*Permissive Mode (0-4)	0	*0 = Auto
Enable Transition Permissive Mode?	N	1 = Open
Adjust Non-Coordinated Splits?	Y	2 = Manual
Cycle Once per Cycle Length?	Y	3 = Window
		4 = Walk

Active Pages:

Phase Sequence Page (1-12)	1
Phase Timing Page (1-4)	1
Phase Control Page (1-4)	1
OverLap Control Page (1-4)	1
Input Page (1-4)	1
Output Page (1-4)	1

Global Manual Permissive windows:

*Applies when "Window" permissive is selected	
Manual Perm 1 End Point (0-255 sec)	0
Manual Perm 2 Start Point (0-255 sec)	0
Manual Perm 2 End Point (0-255 sec)	0

Manual Permissives by Phase:

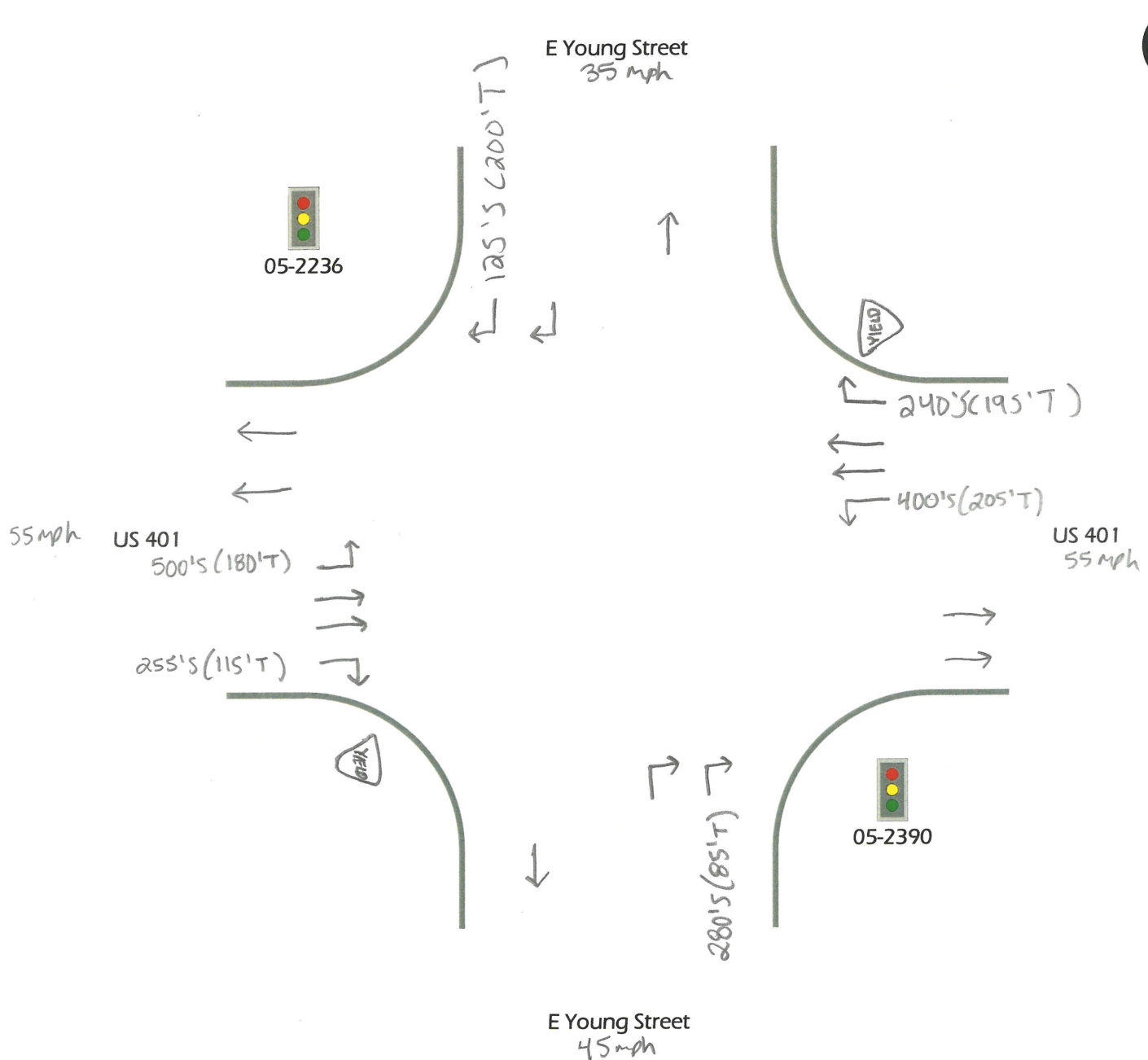
*Applies when "Manual" permissive is selected

	Vehicle		Pedestrian	
(0-255 sec)	Start	Stop	Start	Stop
Phase 1	0	0	0	0
Phase 2	0	0	0	0
Phase 3	0	0	0	0
Phase 4	0	0	0	0
Phase 5	0	0	0	0
Phase 6	0	0	0	0
Phase 7	0	0	0	0
Phase 8	0	0	0	0
Phase 9	0	0	0	0
Phase 10	0	0	0	0
Phase 11	0	0	0	0
Phase 12	0	0	0	0
Phase 13	0	0	0	0
Phase 14	0	0	0	0
Phase 15	0	0	0	0
Phase 16	0	0	0	0

502425 - US 401 @ Young St
B - Scheduling Events 1-100
9/10/2025 3:00 PM

Event		Pri	Start Date	Stop Date	Start Time	Stop Time	DOW Enabled	Del When Done	Cont	Event Groups Assigned
#	Event Type	LMH	MM DD	MM DD	HH MM	HH MM	1 2 3 4 5 6 7	N	N	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
1	Coordination Plan (1-66)	L	1 1	12 31	6 0	9 0	2 3 4 5 6	N	N	
2	Coordination Plan (1-66)	L	1 1	12 31	14 0	17 0	2 3 4 5 6	N	N	
3	None		0 0	0 0	0 0	0 0		N	N	
4	Coordination Plan (1-66)	L	1 1	1 1	0 0	24 0	1 2 3 4 5 6 7	N	N	
5	Coordination Plan (1-66)	L	11 22	11 28	0 0	24 0	5	N	N	
6	Coordination Plan (1-66)	L	12 25	12 25	0 0	24 0	1 2 3 4 5 6 7	N	N	
7	None		0 0	0 0	0 0	0 0		N	N	
8	None		0 0	0 0	0 0	0 0		N	N	
9	None		0 0	0 0	0 0	0 0		N	N	
10	None		0 0	0 0	0 0	0 0		N	N	
11	None		0 0	0 0	0 0	0 0		N	N	
12	None		0 0	0 0	0 0	0 0		N	N	
13	None		0 0	0 0	0 0	0 0		N	N	
14	None		0 0	0 0	0 0	0 0		N	N	
15	None		0 0	0 0	0 0	0 0		N	N	
16	None		0 0	0 0	0 0	0 0		N	N	
17	None		0 0	0 0	0 0	0 0		N	N	
18	None		0 0	0 0	0 0	0 0		N	N	
19	None		0 0	0 0	0 0	0 0		N	N	
20	None		0 0	0 0	0 0	0 0		N	N	
21	None		0 0	0 0	0 0	0 0		N	N	
22	None		0 0	0 0	0 0	0 0		N	N	
23	None		0 0	0 0	0 0	0 0		N	N	
24	None		0 0	0 0	0 0	0 0		N	N	
25	None		0 0	0 0	0 0	0 0		N	N	
26	None		0 0	0 0	0 0	0 0		N	N	
27	None		0 0	0 0	0 0	0 0		N	N	
28	None		0 0	0 0	0 0	0 0		N	N	
29	None		0 0	0 0	0 0	0 0		N	N	
30	None		0 0	0 0	0 0	0 0		N	N	
31	None		0 0	0 0	0 0	0 0		N	N	
32	None		0 0	0 0	0 0	0 0		N	N	
33	None		0 0	0 0	0 0	0 0		N	N	
34	None		0 0	0 0	0 0	0 0		N	N	
35	None		0 0	0 0	0 0	0 0		N	N	
36	None		0 0	0 0	0 0	0 0		N	N	
37	None		0 0	0 0	0 0	0 0		N	N	
38	None		0 0	0 0	0 0	0 0		N	N	
39	None		0 0	0 0	0 0	0 0		N	N	
40	None		0 0	0 0	0 0	0 0		N	N	
41	None		0 0	0 0	0 0	0 0		N	N	
42	None		0 0	0 0	0 0	0 0		N	N	
43	None		0 0	0 0	0 0	0 0		N	N	
44	None		0 0	0 0	0 0	0 0		N	N	
45	None		0 0	0 0	0 0	0 0		N	N	
46	None		0 0	0 0	0 0	0 0		N	N	
47	None		0 0	0 0	0 0	0 0		N	N	
48	None		0 0	0 0	0 0	0 0		N	N	
49	None		0 0	0 0	0 0	0 0		N	N	
50	None		0 0	0 0	0 0	0 0		N	N	

SITE VISIT DATA COLLECTION



- Label: Street names, storage lengths, taper lengths, speed limits, lane geometry, driveways
- Photos of all approaches and departures
- Signal Head/Phasing Information:

Northbound:

Eastbound:

Southbound:

Westbound:

- Approximate Cycle Length:
- Problems Observed, Excessive Queues, etc.?

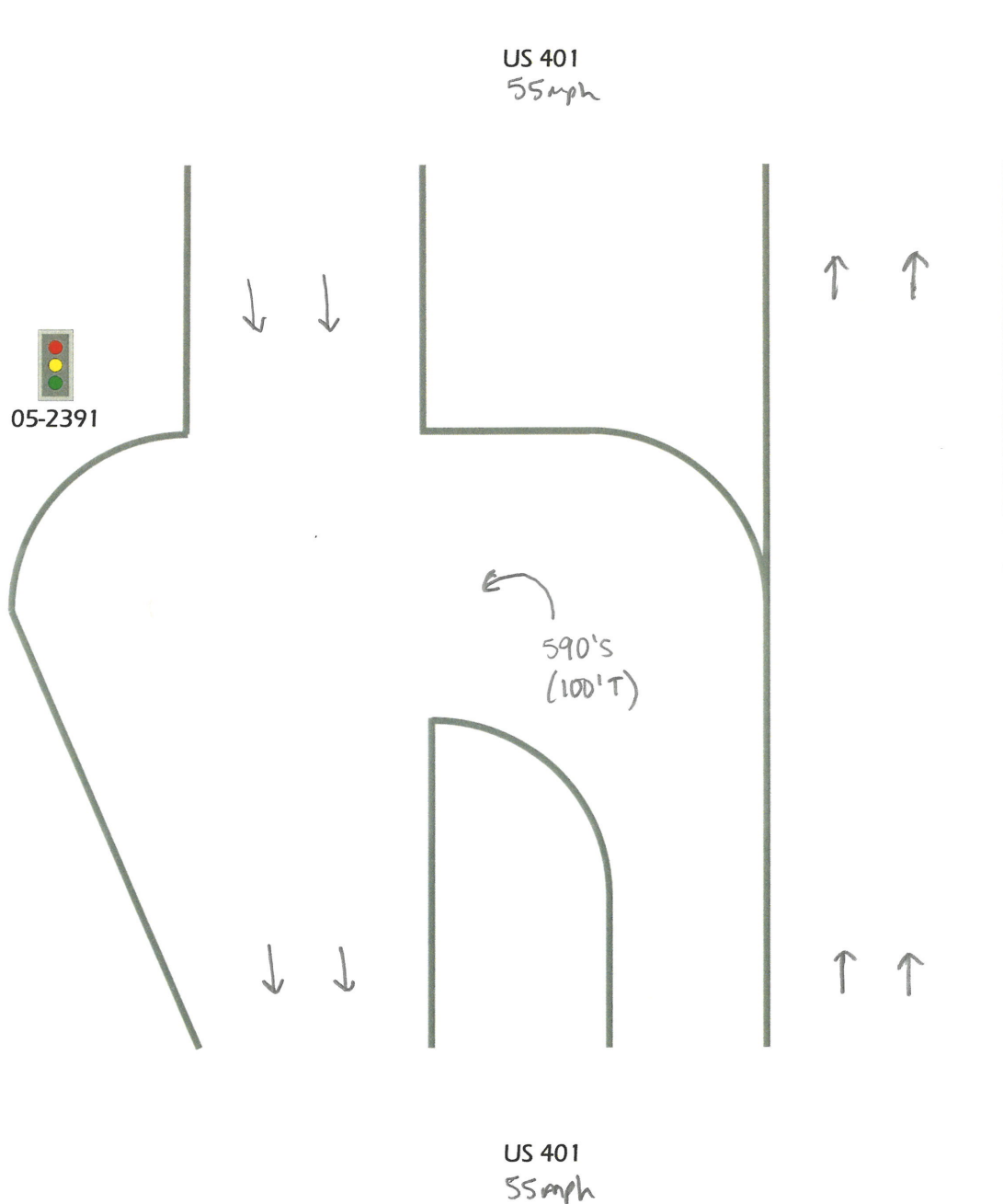
Project: Rolesville Commercial

2/12

Date: 06/10/2025

Initials: TB, ZP

Intersection: US 401 at U-turn North of East Young Street



- Label: Street names, storage lengths, taper lengths, speed limits, lane geometry, driveways
- Photos of all approaches and departures
- Signal Head/Phasing Information:

Northbound:

Eastbound:

Southbound:

Westbound:

- Approximate Cycle Length:
- Problems Observed, Excessive Queues, etc.?

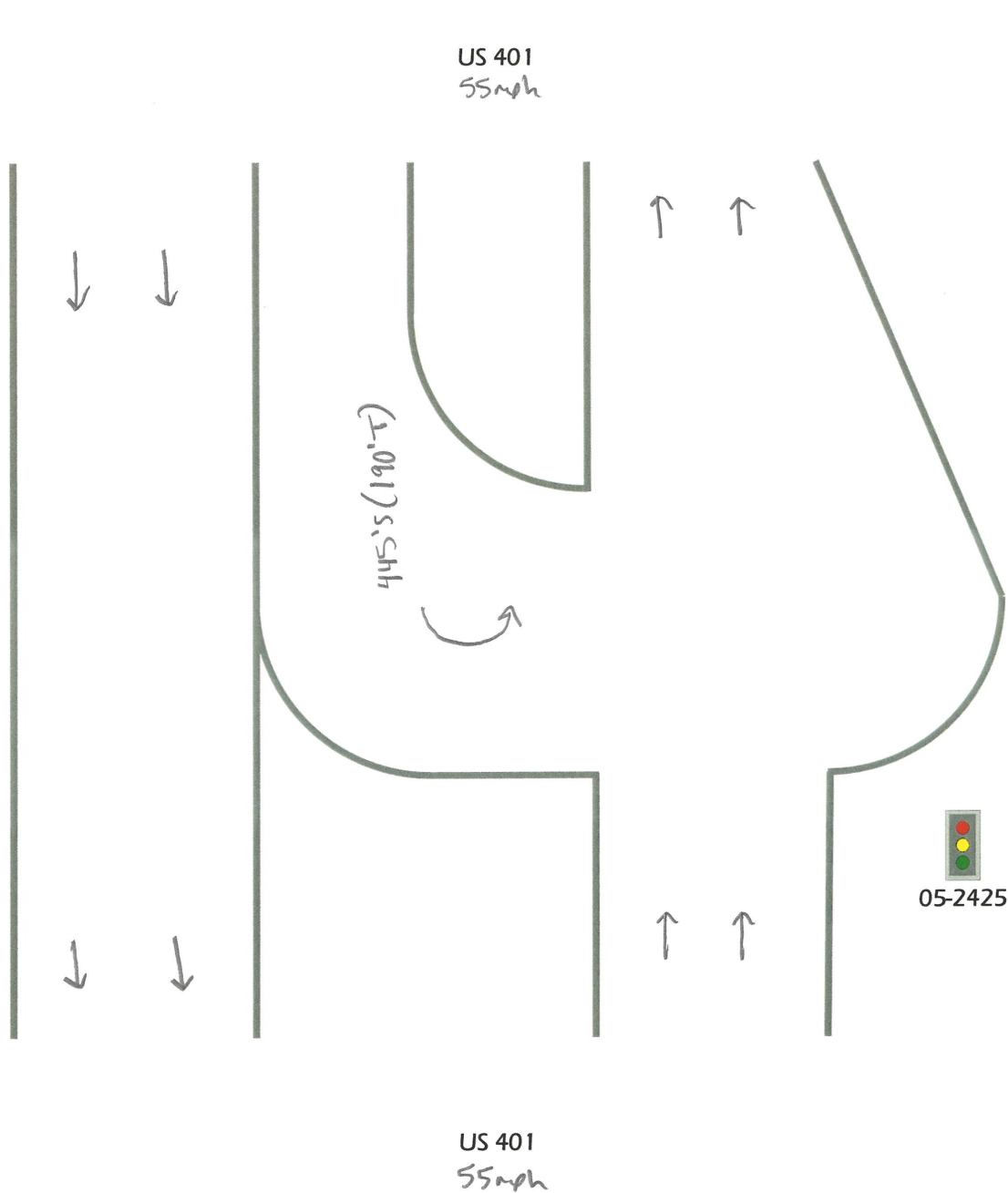
Project: Rolesville Commercial

Date: 06/10/2025

Initials: TB, ZP

Intersection: US 401 at U-turn South of East Young Street

3/12



- Label: Street names, storage lengths, taper lengths, speed limits, lane geometry, driveways
- Photos of all approaches and departures
- Signal Head/Phasing Information:

Northbound:

Eastbound:

Southbound:

Westbound:

- Approximate Cycle Length:
- Problems Observed, Excessive Queues, etc.?

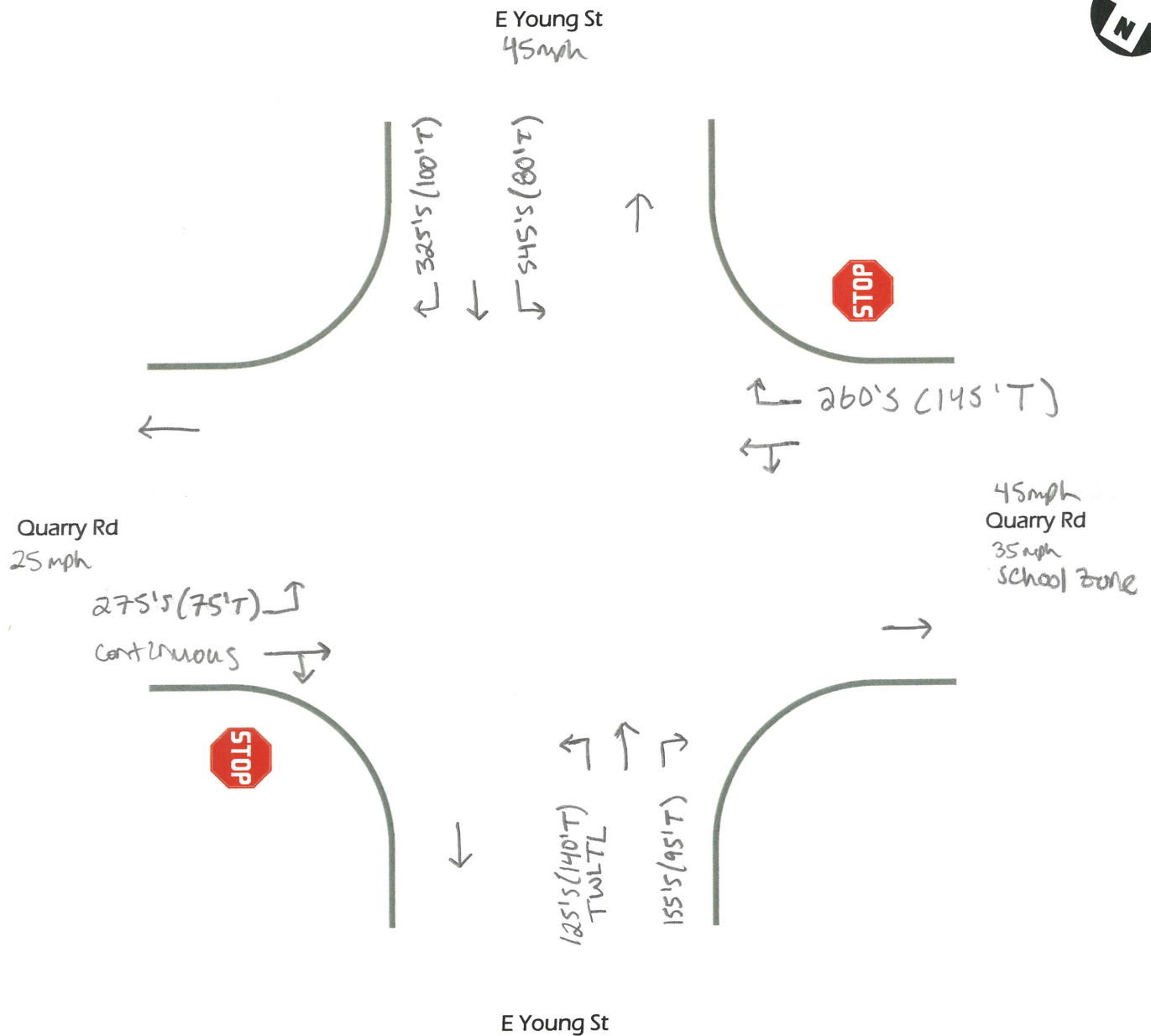
Project: Rolesville Commercial

4/12

Date: 06/10/2025

Initials: TB, ZP

Intersection: East Young Street at Quarry Road/Future The Point North Driveway



- Label: Street names, storage lengths, taper lengths, speed limits, lane geometry, driveways
- Photos of all approaches and departures
- Signal Head/Phasing Information:

Northbound:

Eastbound:

Southbound:

Westbound:

- Approximate Cycle Length:
- Problems Observed, Excessive Queues, etc.?

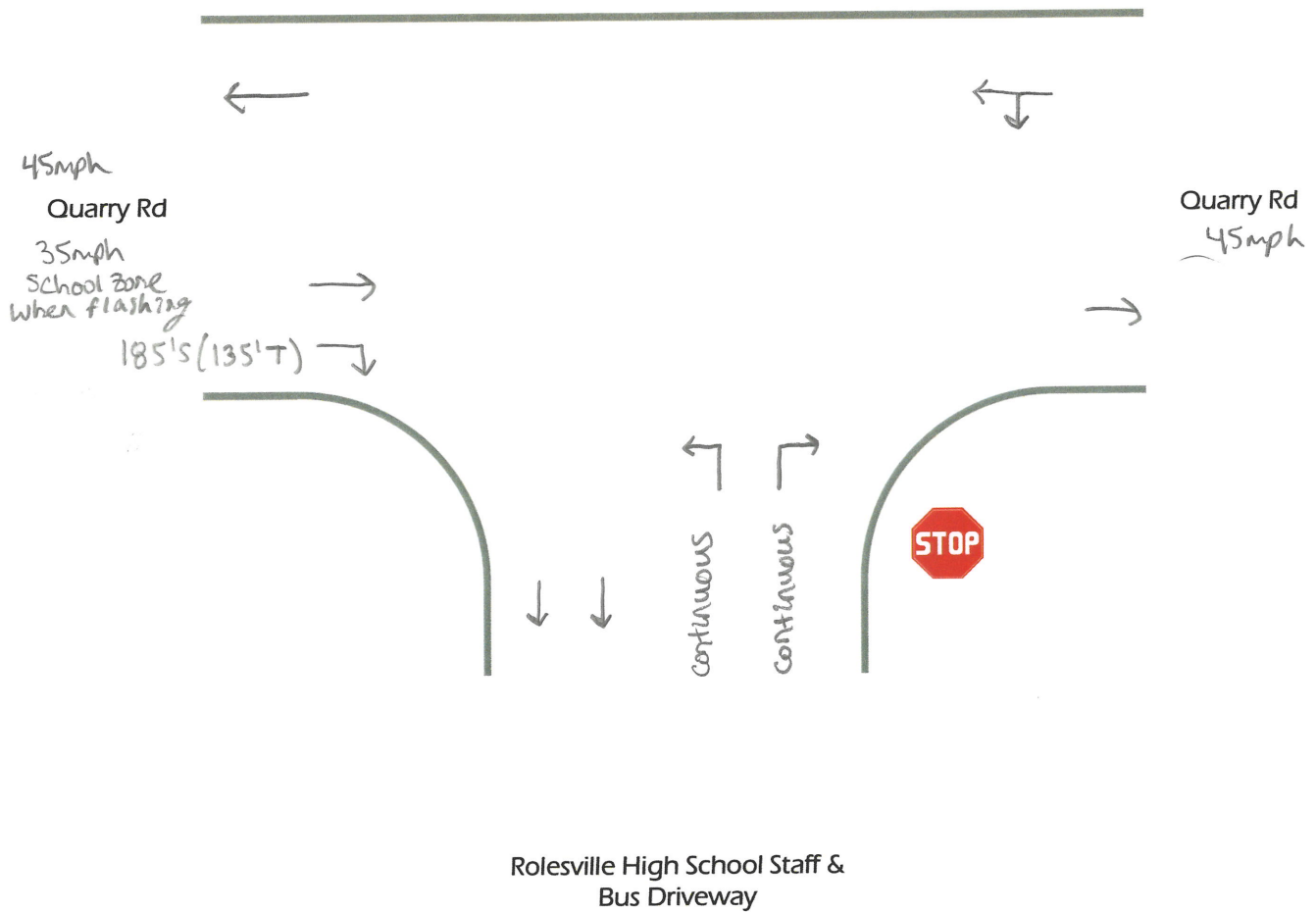
Project: Rolesville Commercial

5/12

Date: 06/10/2025

Initials: TB, ZP

Intersection: Quarry Road at Rolesville High School Staff & Bus Driveway



- Label: Street names, storage lengths, taper lengths, speed limits, lane geometry, driveways
- Photos of all approaches and departures
- Signal Head/Phasing Information:

Northbound:

Eastbound:

Southbound:

Westbound:

- Approximate Cycle Length:
- Problems Observed, Excessive Queues, etc.?

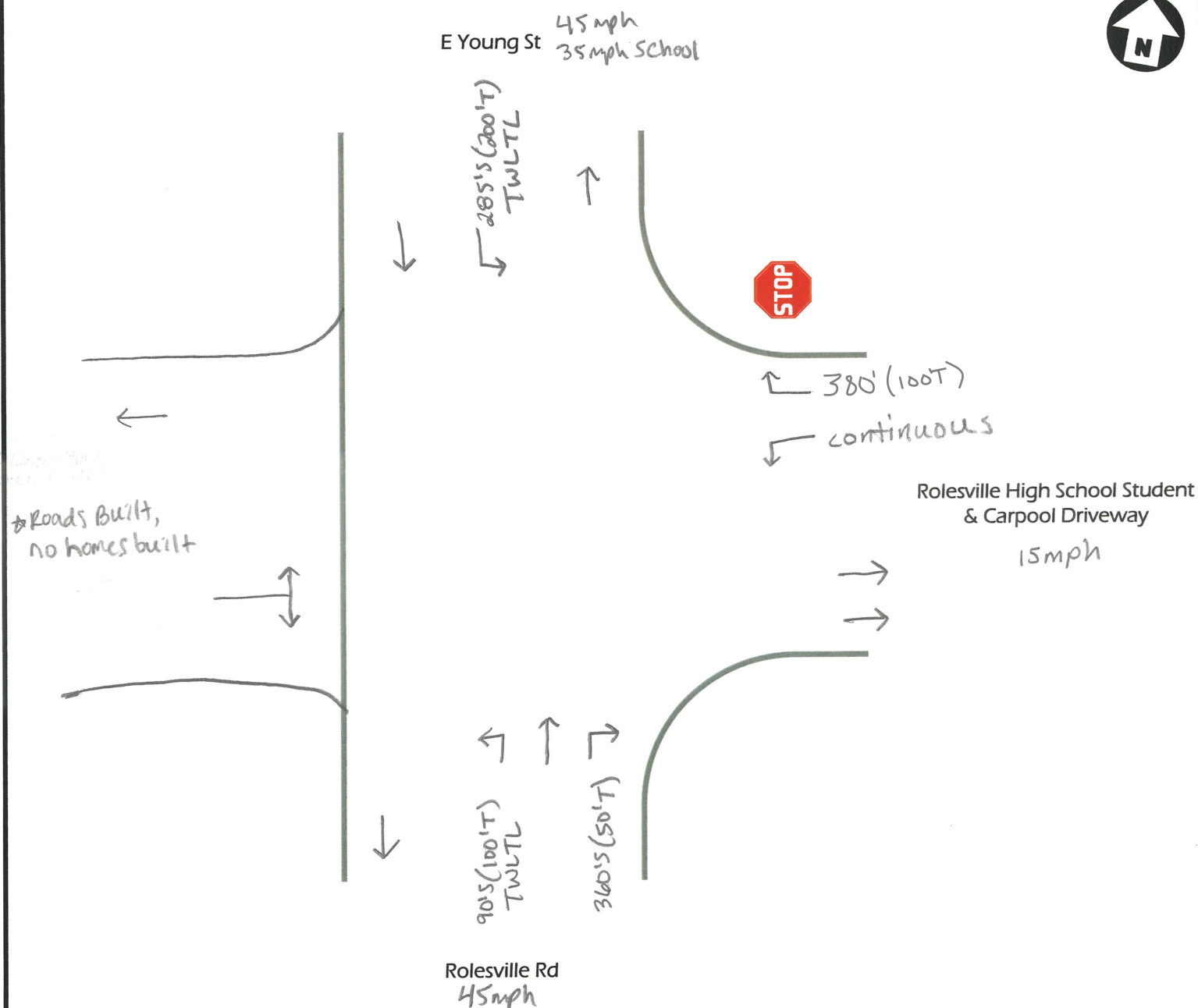
Project: Rolesville Commercial

6/12

Date: 06/10/2025

Initials: TB, ZP

Intersection: East Young Street at Rolesville High School Student & Carpool Driveway/Future Point South Driveway



- Label: Street names, storage lengths, taper lengths, speed limits, lane geometry, driveways
- Photos of all approaches and departures
- Signal Head/Phasing Information:

Northbound:

Eastbound:

Southbound:

Westbound:

- Approximate Cycle Length:
- Problems Observed, Excessive Queues, etc.?

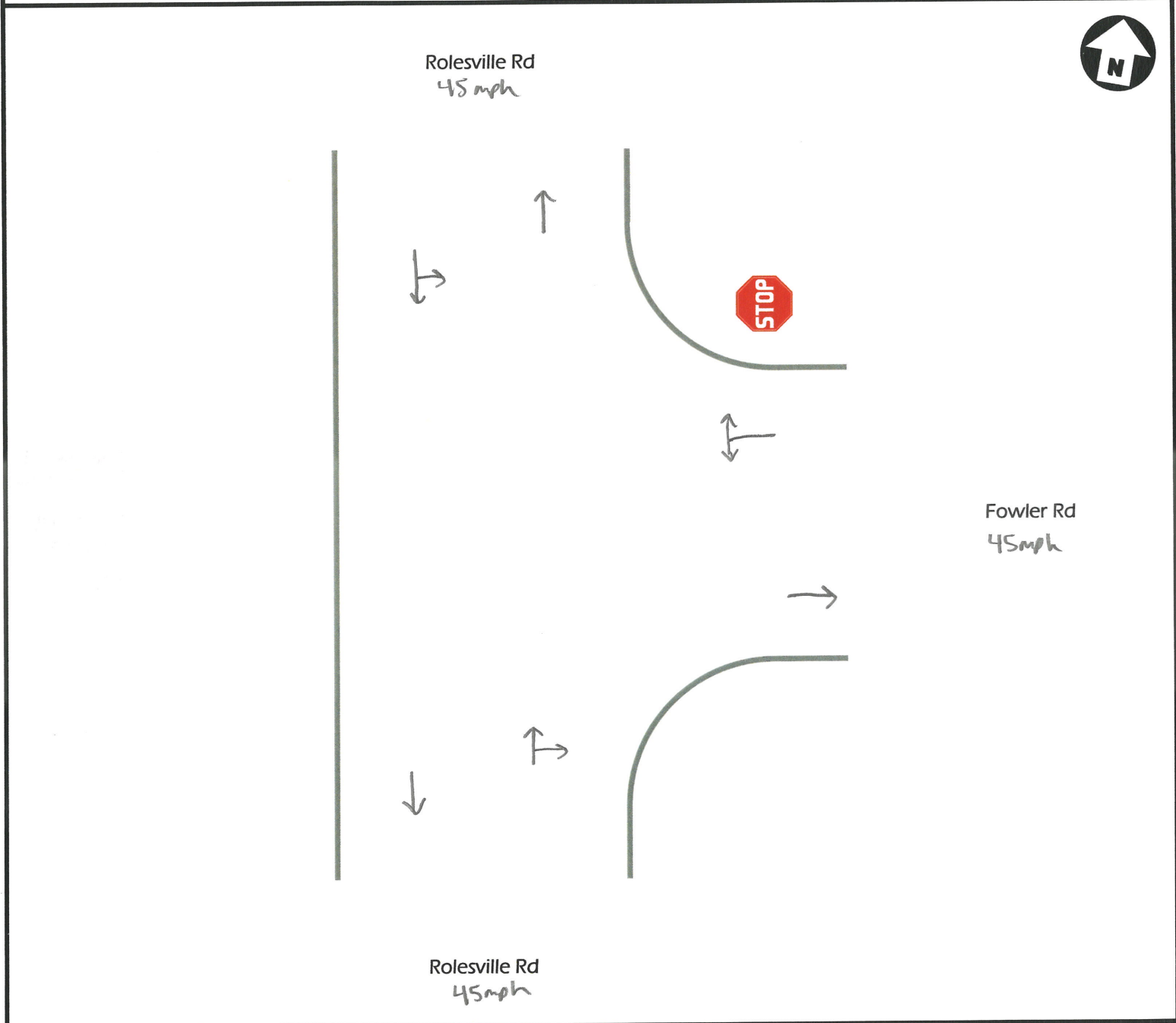
Project: Rolesville Commercial

7/12

Date: 06/10/2025

Initials: TB, ZP

Intersection: Rolesville Road at Fowler Road/Future Merritt Property Southern Driveway



- Label: Street names, storage lengths, taper lengths, speed limits, lane geometry, driveways
- Photos of all approaches and departures
- Signal Head/Phasing Information:

Northbound:

Eastbound:

Southbound:

Westbound:

- Approximate Cycle Length:
- Problems Observed, Excessive Queues, etc.?

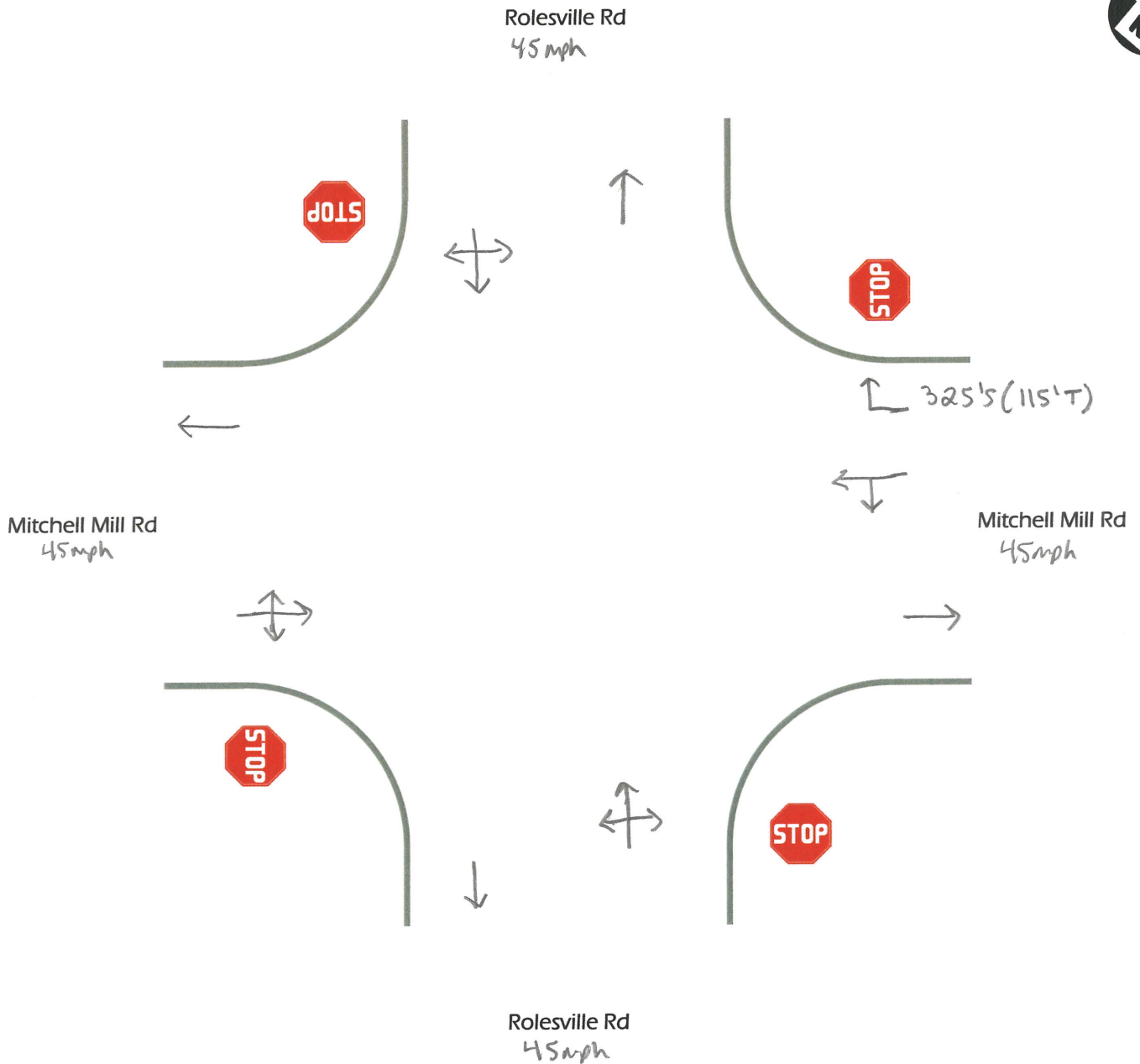
Project: Rolesville Commercial

8/12

Date: 06/10/2025

Initials: TB, ZP

Intersection: Rolesville Road at Mitchell Mill Road



- Label: Street names, storage lengths, taper lengths, speed limits, lane geometry, driveways
- Photos of all approaches and departures
- Signal Head/Phasing Information:

Northbound:

Eastbound:

Southbound:

Westbound:

- Approximate Cycle Length:
- Problems Observed, Excessive Queues, etc.?

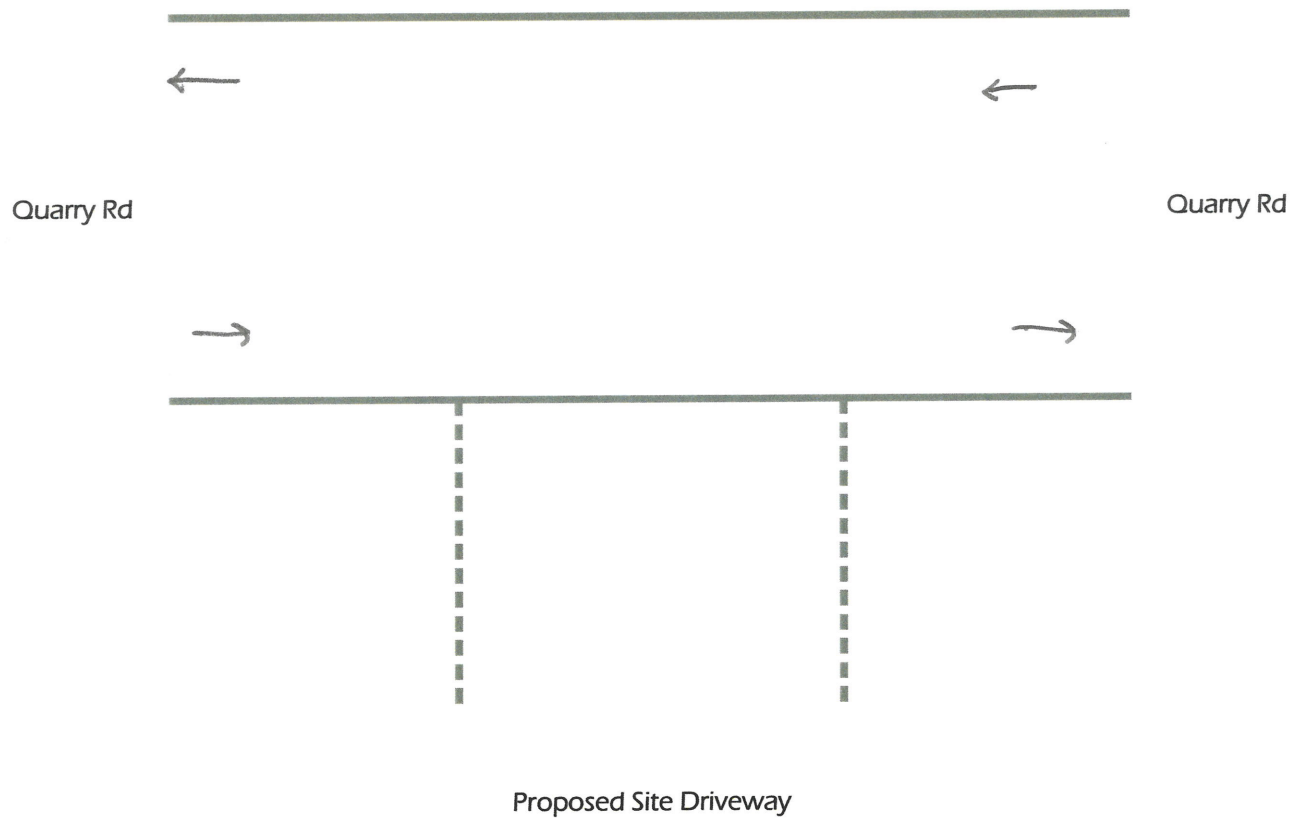
Project: Rolesville Commercial

9/12

Date: 06/10/2025

Initials: TB, ZP

Intersection: Quarry Road at Proposed Full Movement Site Driveway 1



- **Label: Street names, storage lengths, taper lengths, speed limits, lane geometry, driveways**
- **Photos of all approaches and departures**
- **Signal Head/Phasing Information:**

Northbound:

Eastbound:

Southbound:

Westbound:

- **Approximate Cycle Length:**
- **Problems Observed, Excessive Queues, etc.?**

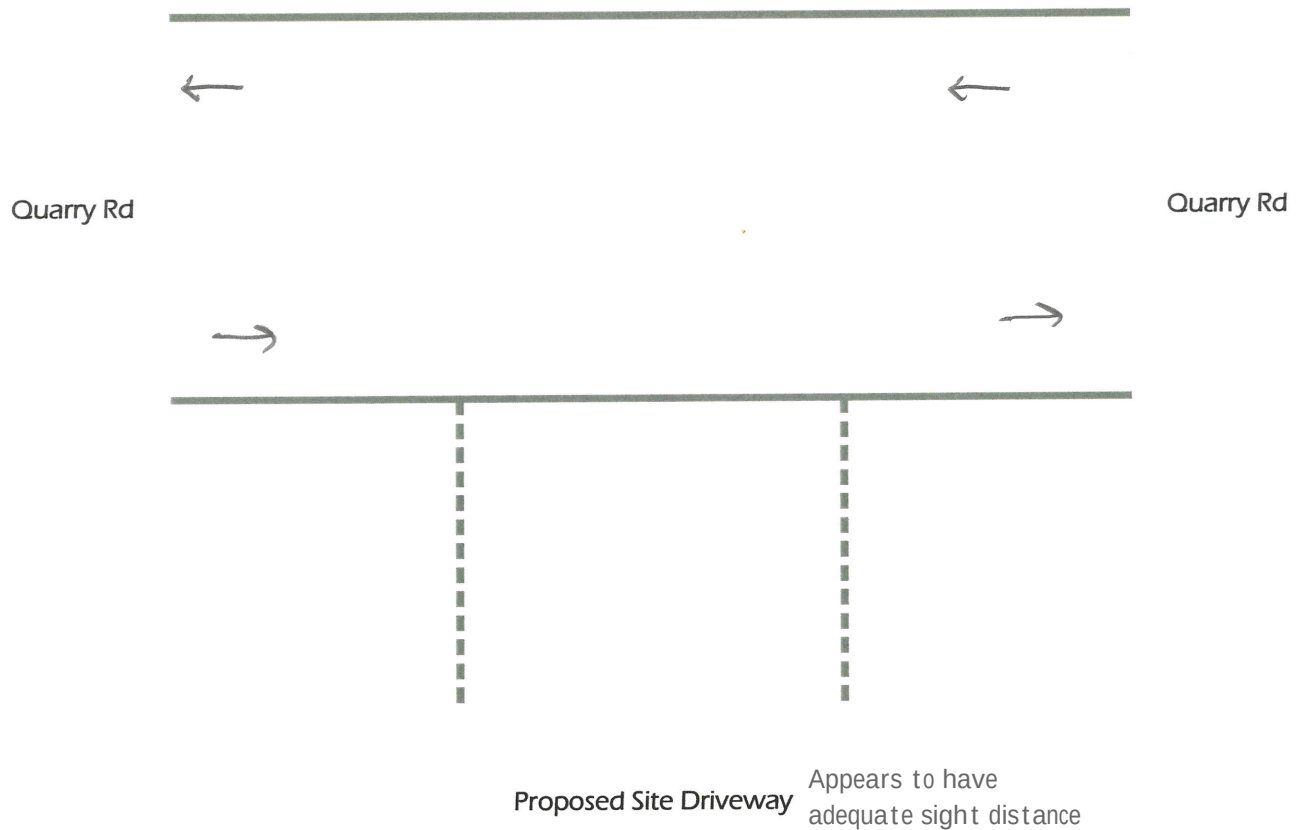
Project: Rolesville Commercial

10/12

Date: 06/10/2025

Initials: TB, ZP

Intersection: Quarry Road at Proposed Full Movement Site Driveway 2



- **Label: Street names, storage lengths, taper lengths, speed limits, lane geometry, driveways**
- **Photos of all approaches and departures**
- **Signal Head/Phasing Information:**

Northbound:

Eastbound:

Southbound:

Westbound:

- **Approximate Cycle Length:**
- **Problems Observed, Excessive Queues, etc.?**

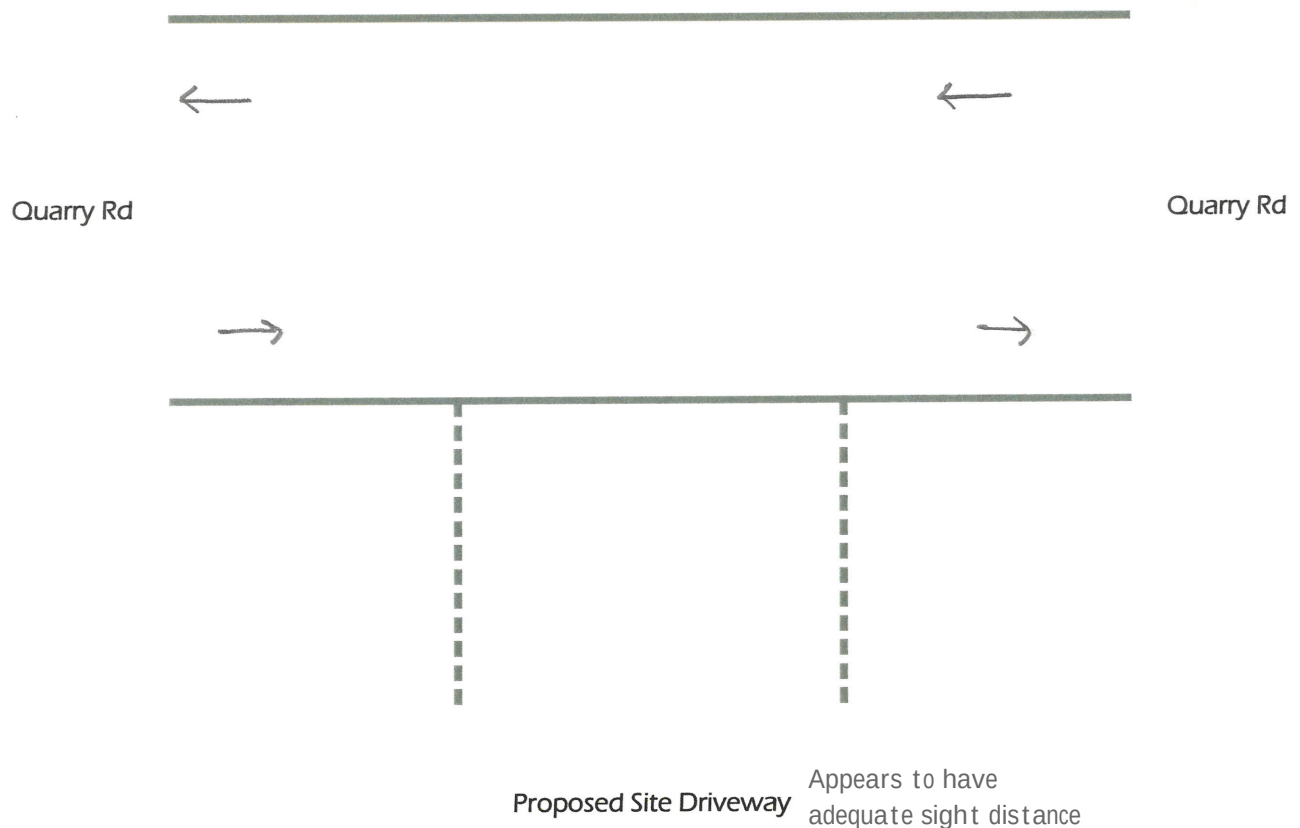
Project: Rolesville Commercial

11/12

Date: 06/10/2025

Initials: TB, ZP

Intersection: Quarry Road at Proposed Full Movement Site Driveway 3



- **Label: Street names, storage lengths, taper lengths, speed limits, lane geometry, driveways**
- **Photos of all approaches and departures**
- **Signal Head/Phasing Information:**

Northbound:

Eastbound:

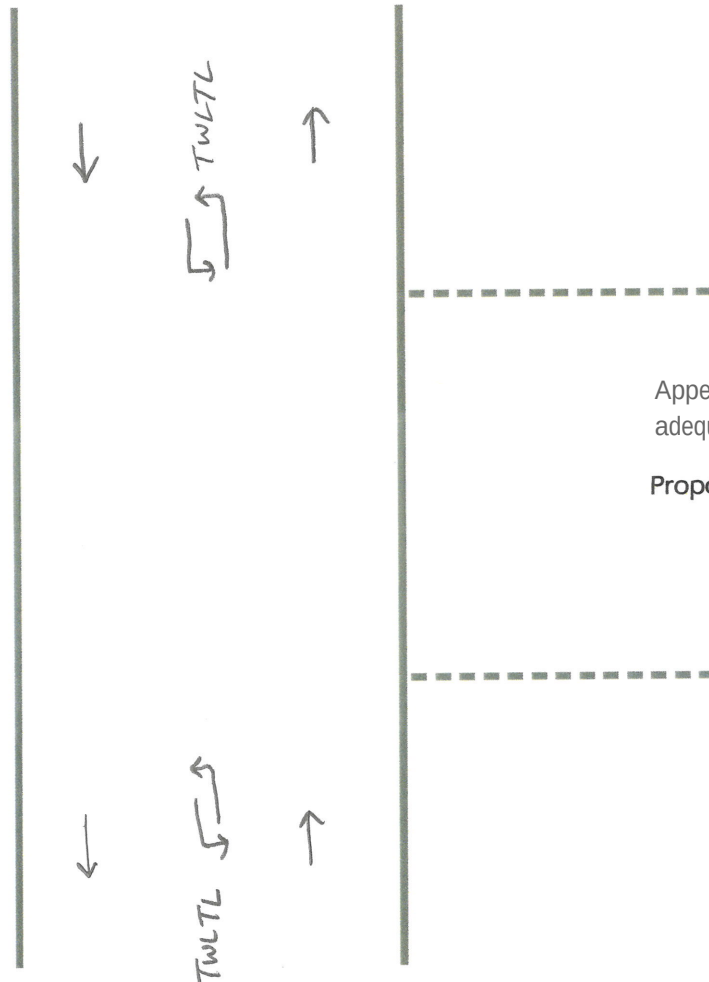
Southbound:

Westbound:

- **Approximate Cycle Length:**
- **Problems Observed, Excessive Queues, etc.?**



E Young St



Appears to have
adequate sight distance

Proposed Site Driveway

E Young St

- Label: Street names, storage lengths, taper lengths, speed limits, lane geometry, driveways
- Photos of all approaches and departures
- Signal Head/Phasing Information:

Northbound:

Eastbound:

Southbound:

Westbound:

- Approximate Cycle Length:
- Problems Observed, Excessive Queues, etc.?

APPROVED DEVELOPMENT INFORMATION

E Young Street

Adjacent Site Drive

Quarry Road

Adjacent Site Drive

High School Driveway

Sunset Manor Drive

Fowler Road

US 401

Rolesville Road

SITE

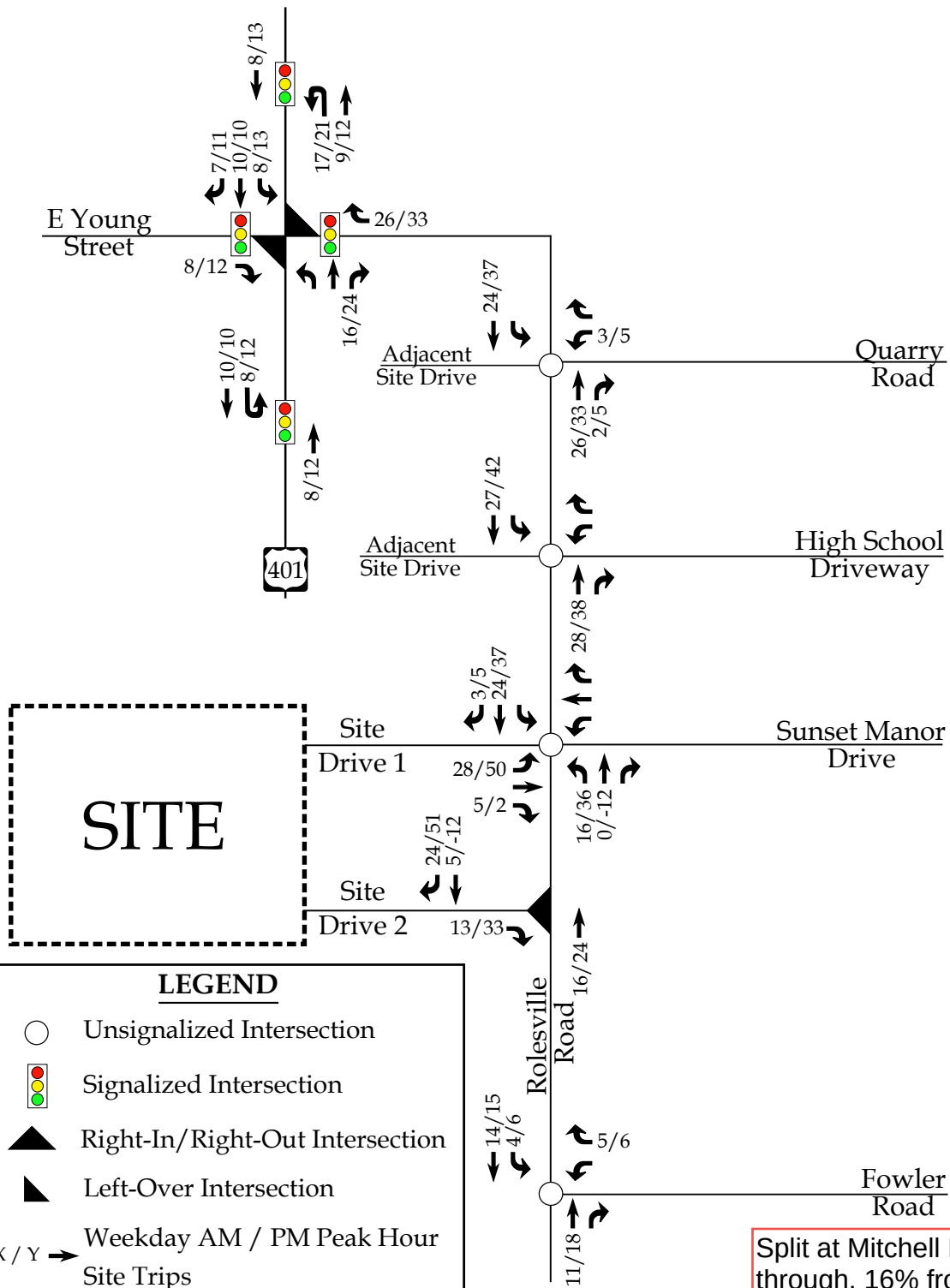
100 IPS
Site Drive 1

100 IPS
Site Drive 2

Rolesville Road Rolesville, Wake County SC-2023-052

- Existing Laneage
- Recommended Laneage
- Laneage Built By Others
- NCDOT Recommendation
- Existing Signal
- Signal Proposed By Others
- Developer Proposed Signal
- Monitor for Signal
- XXX Storage
- XXX NCDOT Recommended Storage
- <XXX> Distance Between Intersections
- IPS Internal Protected Stem
- All Distances in Feet
- Drawing Not to Scale





1216 Rolesville Road
Rolesville, NC

Split at Mitchell Mill 83% through, 16% from west, 1% from east (follow existing travel patterns at intersection)

Scale: Not to Scale

Figure 10

Young St PUD North Driveway

Quarry Road

Young St PUD South Driveway

Rolesville HS Driveway

Site Access A

Site Access B

Wheeler Tract Site Access

Site Access C

Mitchell Mill Road

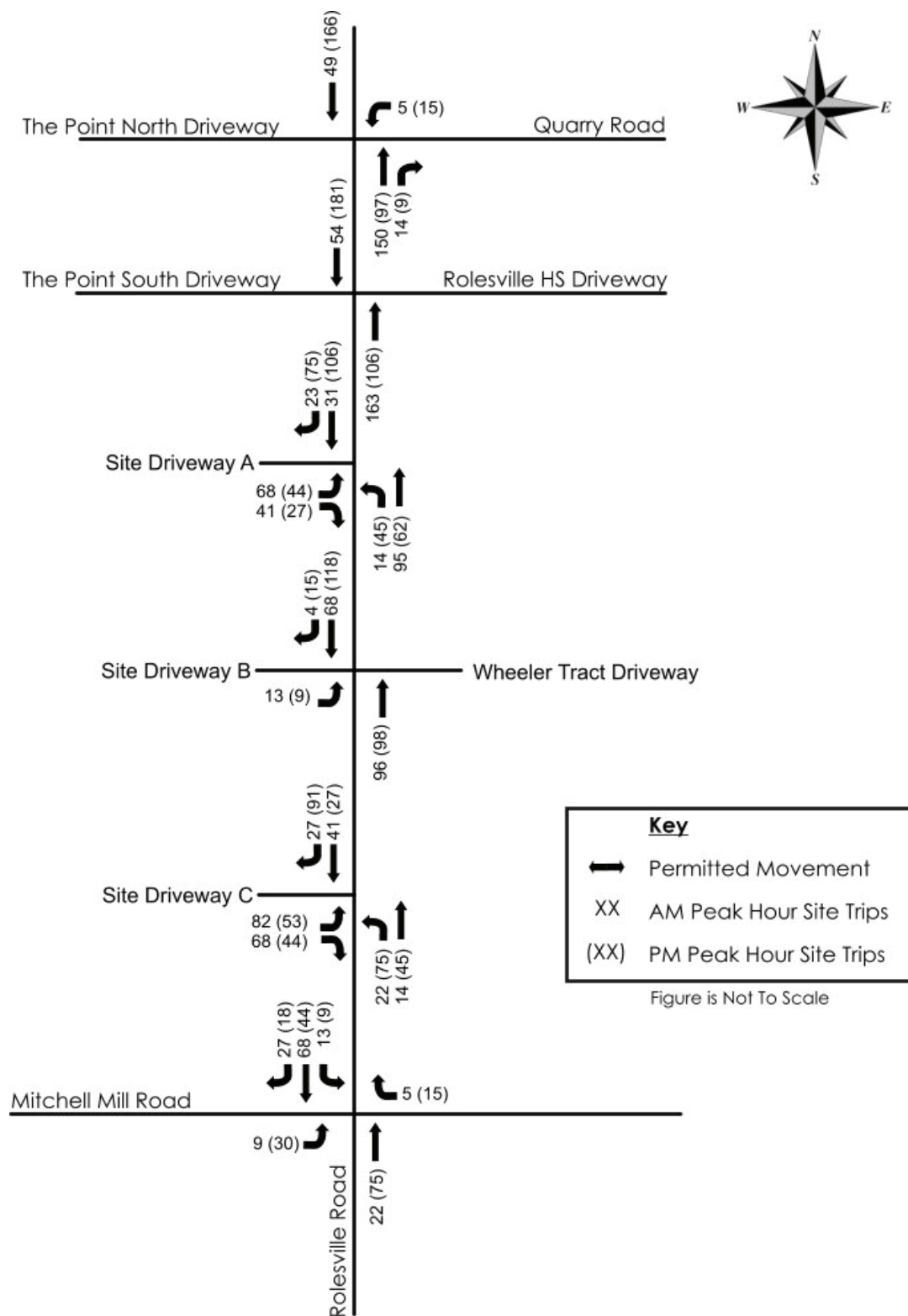
Rolesville Road

Kalas/Watkins Family Property
Rolesville, Wake County
SC-2019-109R1

-  Existing Laneage
-  Recommended Laneage
-  Laneage Built By Others
-  NCDOT Recommendation
-  Existing Signal
-  Signal Proposed By Others
-  Developer Proposed Signal
- XXX Storage
- XXX NCDOT Recommended Storage
- <XXX> Distance Between Intersections
- IPS Internal Protected Stem
- All Distances in Feet
- Drawing Not to Scale



Figure 6: Site Trip Assignment





Kallas Fans

Date: _____ Sheet _____ of _____

Project: _____ Task: _____

Engineer: _____

Serving our clients, communities, & team with excellence.

* on 401, used in Woodlief
(approved dist. for all residential)

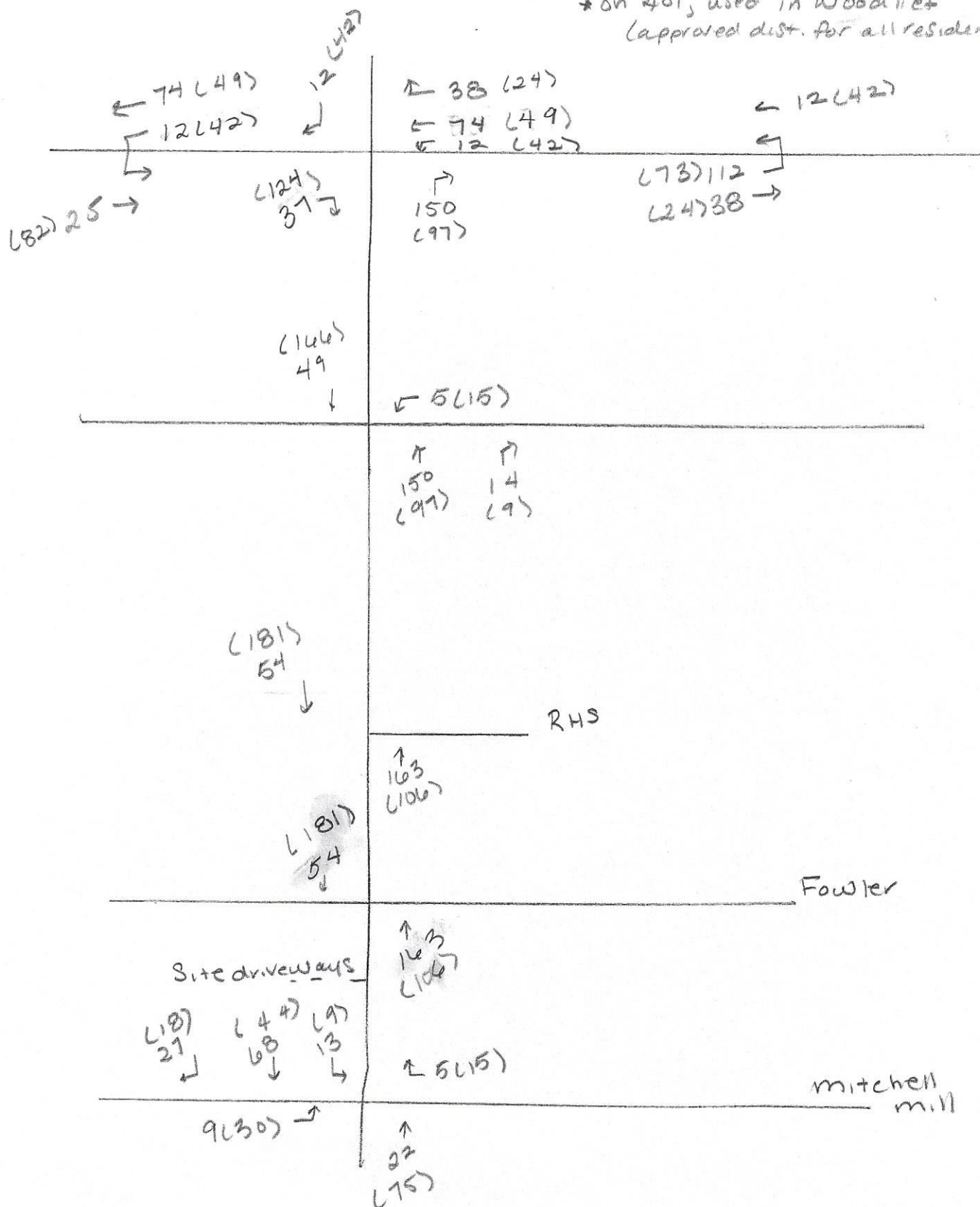
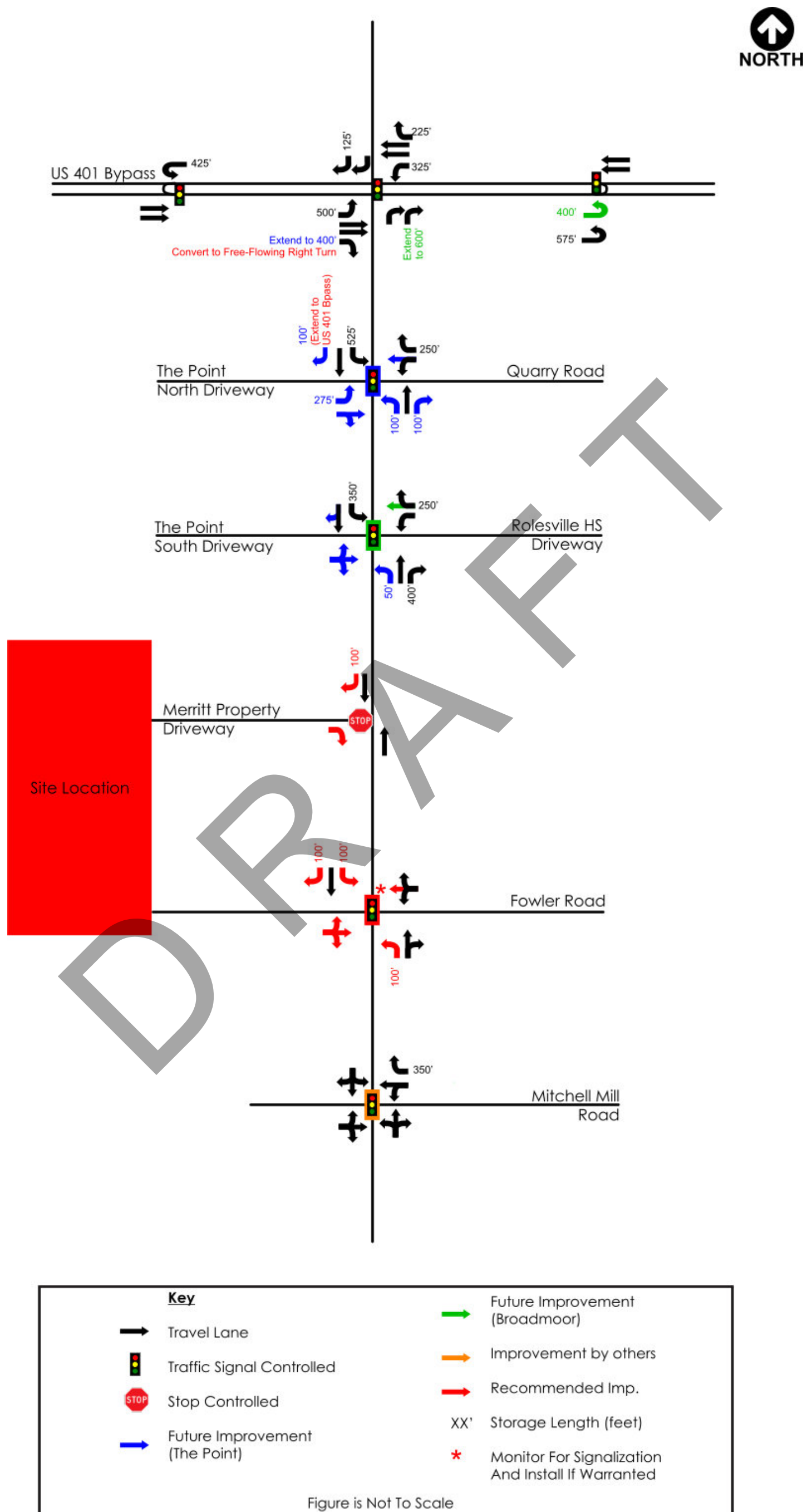


Figure 14: Recommended Improvements



REZ 24-01: MERRITT PROPERTY TRAFFIC IMPACT ANALYSIS

Trip Generation and Distribution
September 10, 2024

Figure 6: Trip Assignment

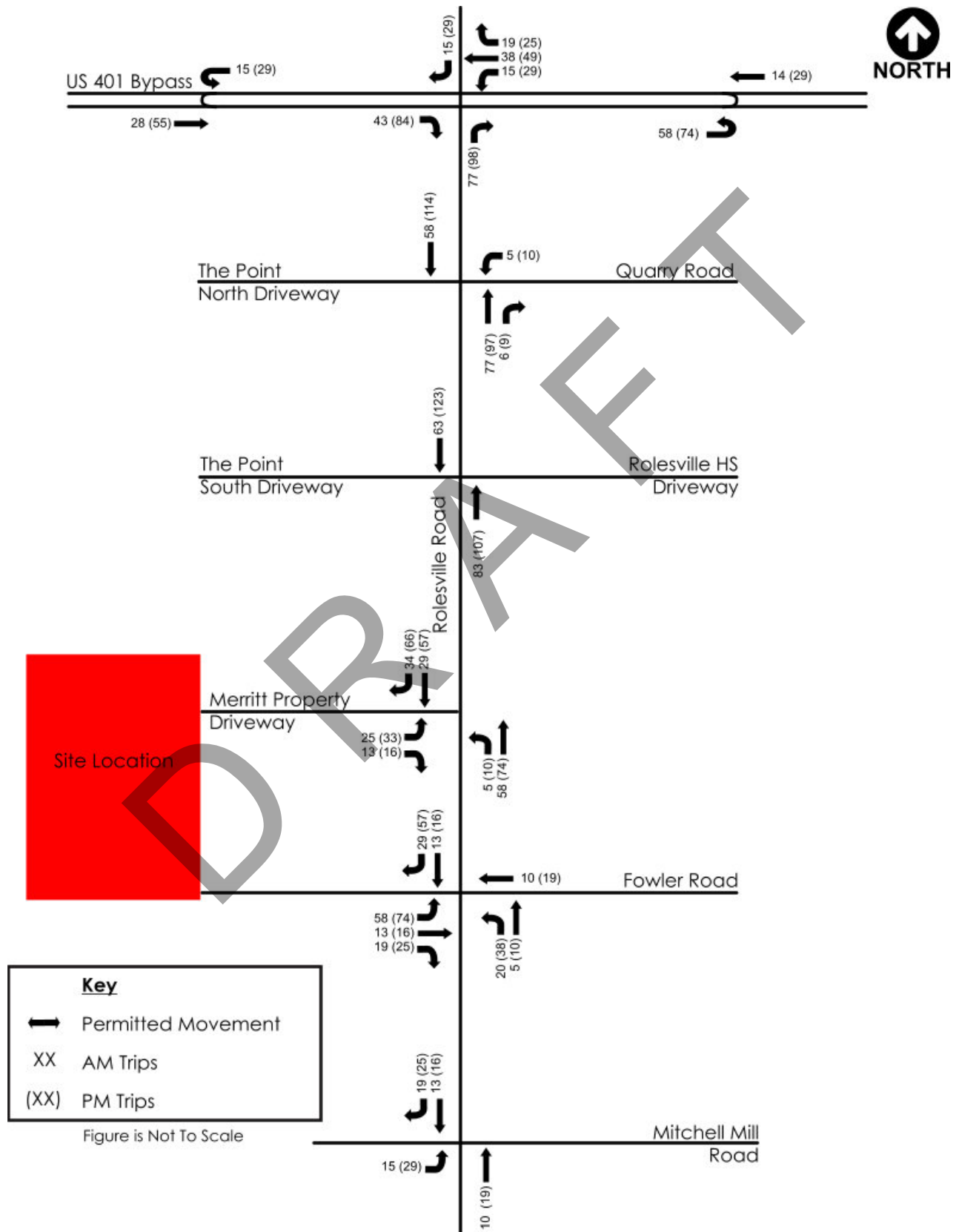
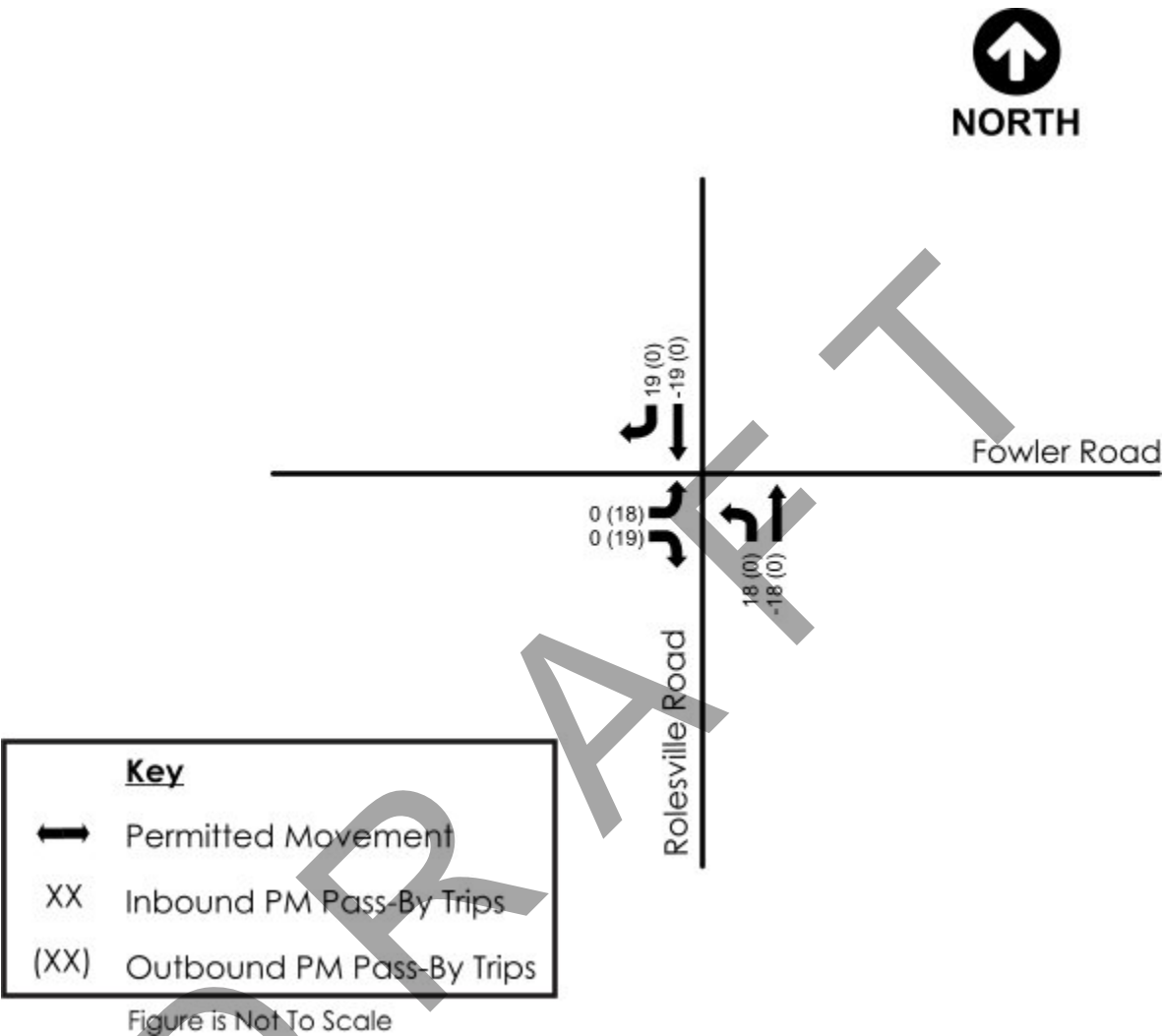


Figure 8: Pass-By Assignment





EXULT
ENGINEERING

www.ExultEngineering.com

Preserve at Moody Farm

Date: _____ Sheet _____ of _____

Project: _____ Task: _____

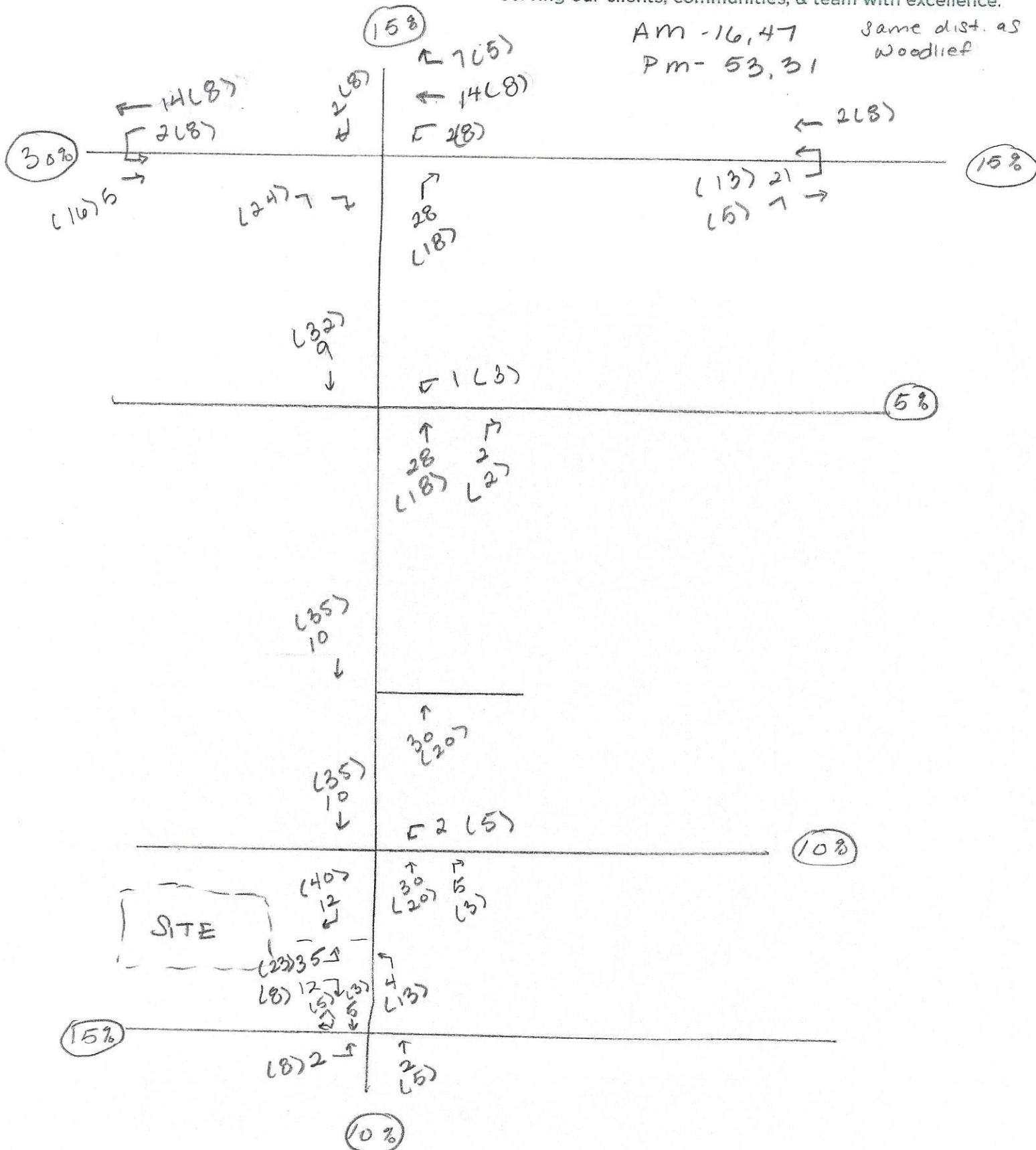
Engineer: _____

Serving our clients, communities, & team with excellence.

AM - 16,47

same dist. as
Woodlief

PM - 53,31





Stantec Consulting Services Inc.
801 Jones Franklin Road, Suite 300, Raleigh, NC 27606

October 8, 2021
File: 171002513

Attention: Meredith Gruber
Town of Rolesville
502 Southtown Circle, Rolesville, NC 27571

Dear Ms. Gruber,

Reference: Moody / Hollingsworth Property (A.K.A. The Preserve at Moody Farm)

The purpose of this letter is to provide trip generation and an evaluation of traffic for the subject development. The development, currently proposed by Caruso Homes, is located along Rolesville Road in Rolesville. The conceptual site plan, prepared by American Engineering Associates – Southeast, PA, proposes 82 detached single-family homes. Access to the site is envisioned to be provided by one full-movement driveway onto Rolesville Road as well as two stub connections to the planned Kalas Falls residential development. The site plan can be found in the attachments. This letter presents trip generation, distribution, and traffic analysis of the proposed driveway onto Rolesville Road.

TRIP GENERATION

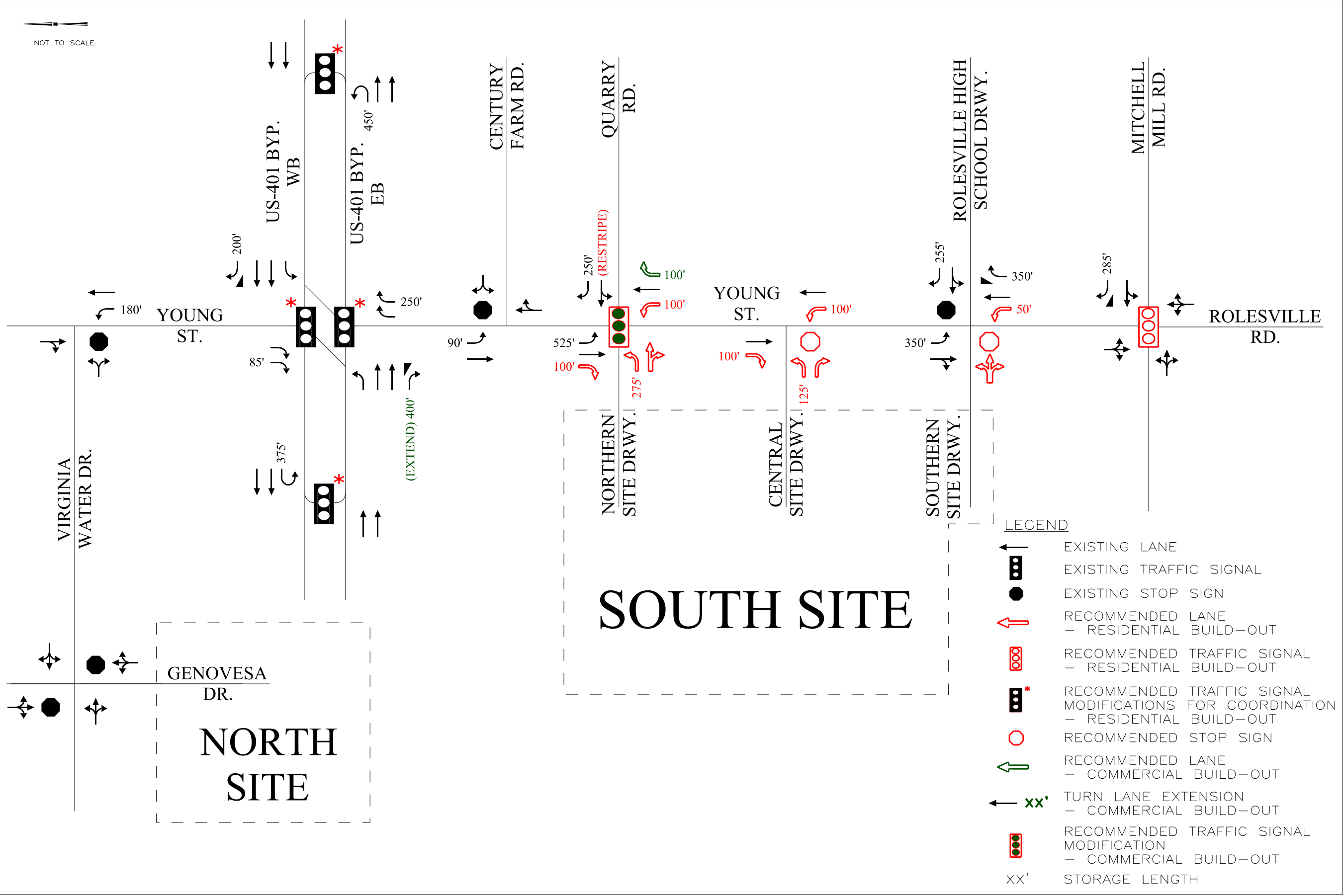
The proposed development is anticipated to consist of 82 detached single-family homes. Estimated weekday daily, AM peak hour, and PM peak hour trips for the proposed use were calculated using methodology contained within the Institute of Transportation *Trip Generation Manual, 10th Edition*. The methodology was supplemented using the North Carolina Department of Transportation Congestion Management Section *Rate vs Equation Spreadsheet* (July 1, 2018). Trip generation results are shown in Table 1. It should be noted that no reductions due to internal capture or pass-by trips are applicable to this type of development.

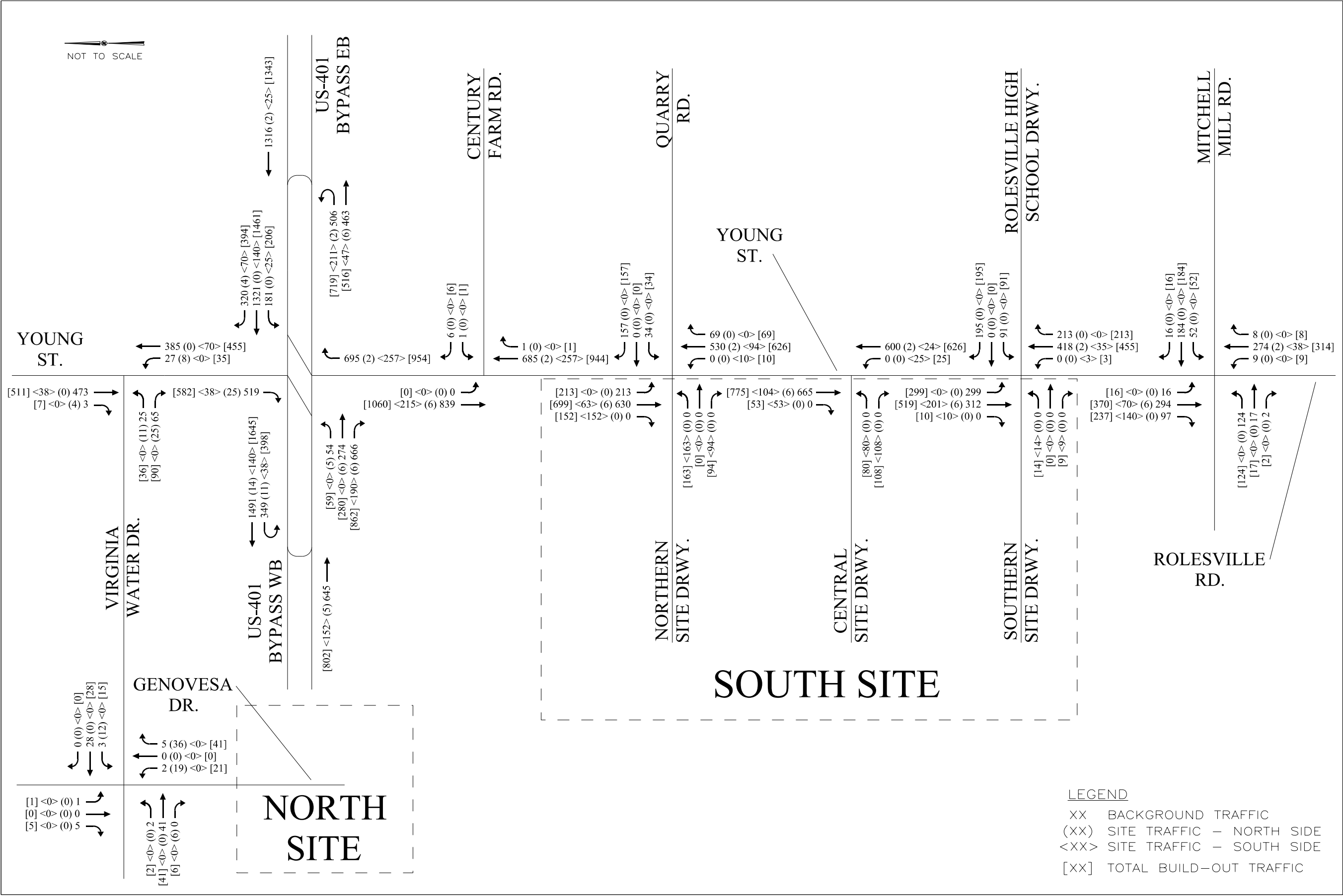
Table 1: Proposed Trip Generation

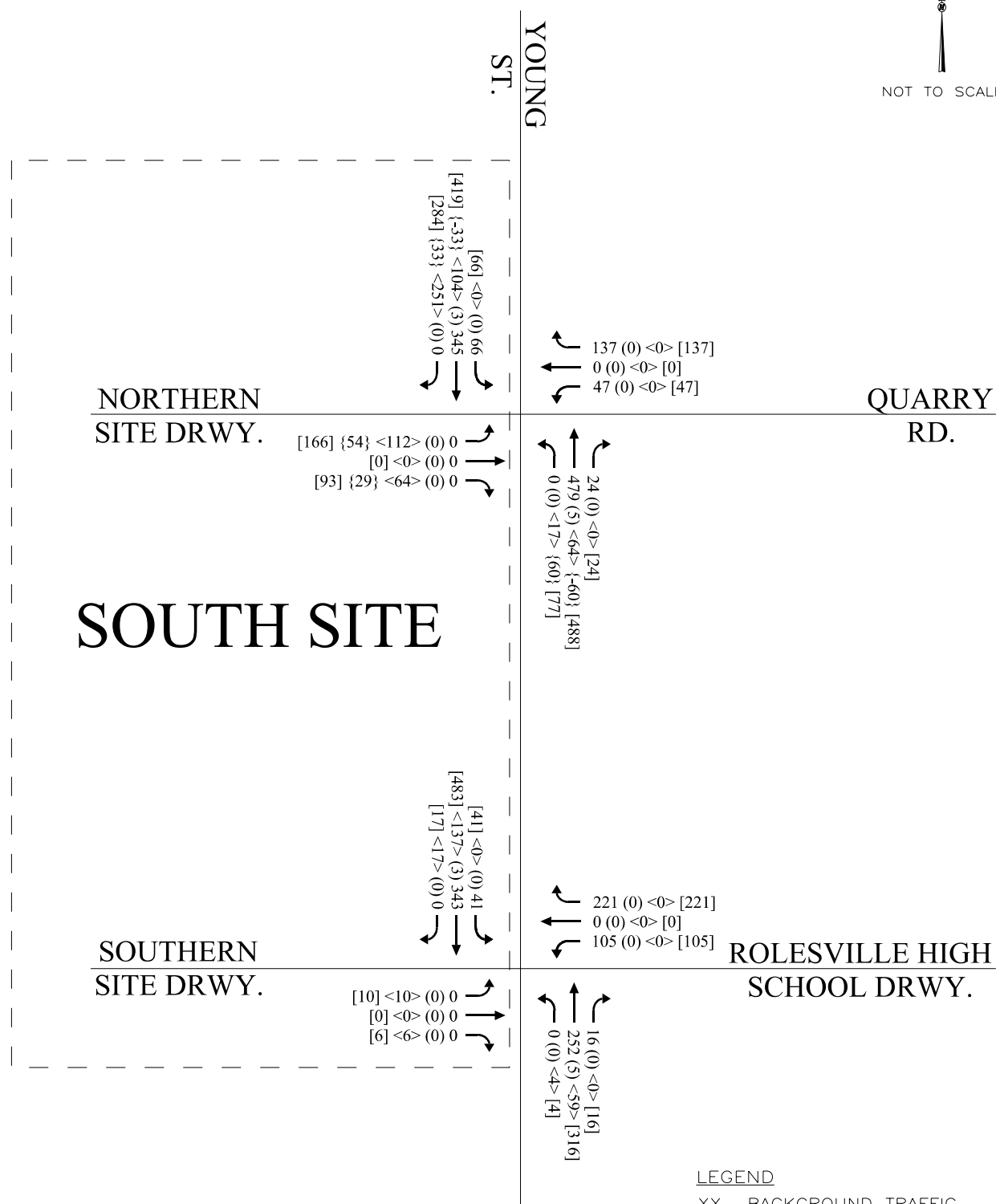
Proposed Use / Land Use Code	Size	Units	Daily Trips	AM Peak Hour			PM Peak Hour		
				Total	Enter	Exit	Total	Enter	Exit
Single-Family Housing (LUC 210)	82	d.u.	866	63	16	47	84	53	31
Net New External Trips			866	63	16	47	84	53	31

Section 8 of the Town of Rolesville Land Development Ordinance (adopted June 1, 2021) establishes thresholds for when a Traffic Impact Analysis (TIA) is required for a particular development. Those are as follows:

- The proposed development could be expected to generate one hundred (100) or more added vehicle trips to or from the site during the peak traffic hour.
- The proposed development could be expected to generate one thousand (1,000) or more added vehicle trips to or from the site during a twenty-four (24) hour period.

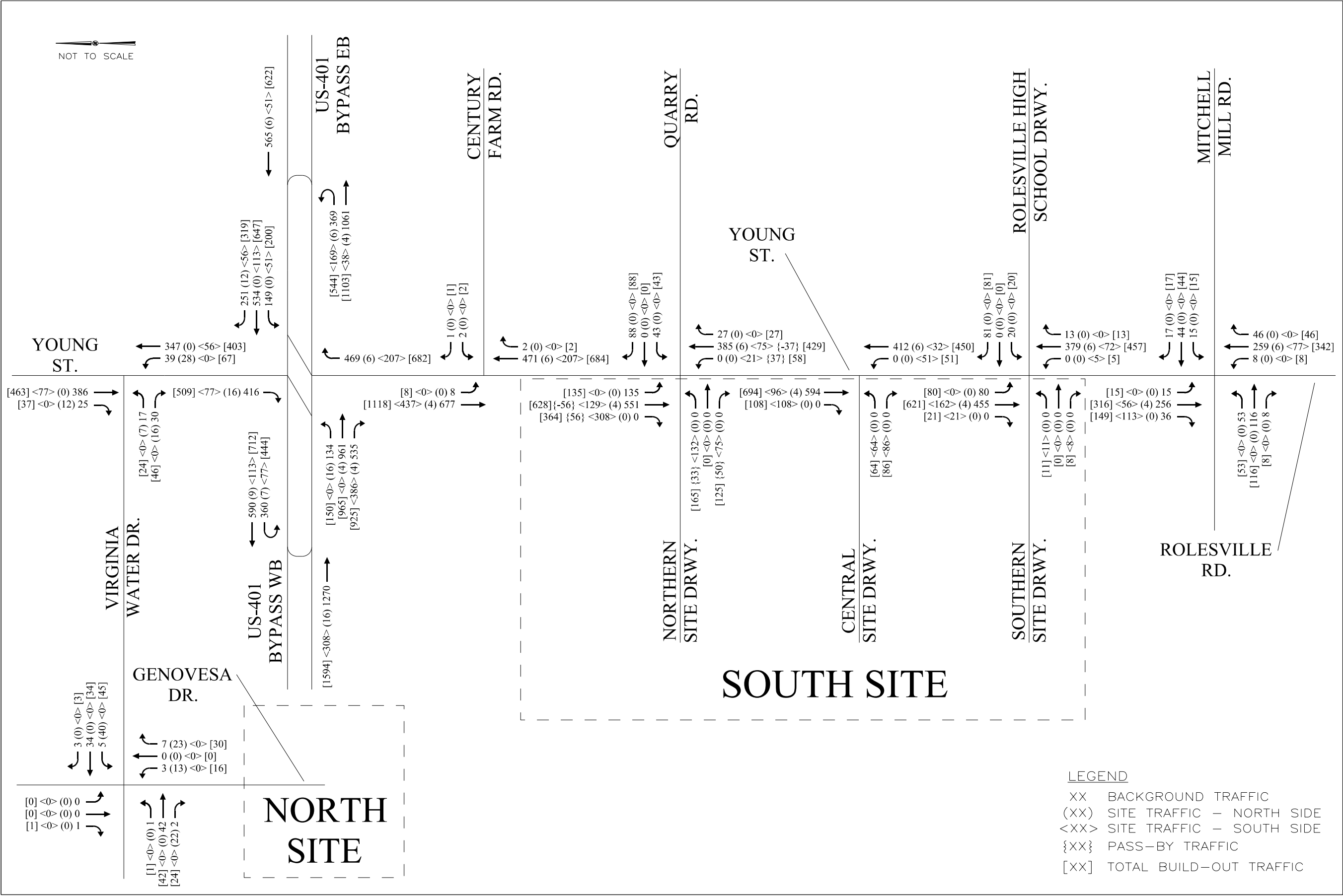






- LEGEND**
- XX BACKGROUND TRAFFIC
 - (XX) SITE TRAFFIC – NORTH SIDE
 - <XX> SITE TRAFFIC – SOUTH SIDE
 - {XX} PASS-BY TRAFFIC
 - [XX] TOTAL BUILD-OUT TRAFFIC

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.





Stantec Consulting Services Inc.
801 Jones Franklin Road, Suite 300, Raleigh, NC 27606

October 8, 2021
File: 171002516

Attention: Meredith Gruber
Town of Rolesville
502 Southtown Circle, Rolesville, NC 27571

Dear Ms. Gruber,

Reference: Tucker-Wilkins Property

The purpose of this letter is to provide trip generation and an evaluation of traffic for the subject development. The development, is located along Rolesville Road in Rolesville. The conceptual site plan, prepared by American Engineering Associates – Southeast, PA, proposes 27 detached single-family homes and 64 townhomes. Access to the site is envisioned to be provided by one full-movement driveway onto Rolesville Road as well as one stub connection to the planned Kalas Falls residential development. The site plan can be found in the attachments. This letter presents trip generation, distribution, and traffic analysis of the proposed driveway onto Rolesville Road.

TRIP GENERATION

The proposed development is anticipated to consist of 27 detached single-family homes and 64 townhomes (low-rise multifamily housing). Estimated weekday daily, AM peak hour, and PM peak hour trips for the proposed use were calculated using methodology contained within the Institute of Transportation *Trip Generation Manual, 10th Edition*. The methodology was supplemented using the North Carolina Department of Transportation Congestion Management Section *Rate vs Equation Spreadsheet* (July 1, 2018). Trip generation results are shown in Table 1. It should be noted that no reductions due to internal capture or pass-by trips are applicable to this type of development.

Table 1: Proposed Trip Generation

Proposed Use / Land Use Code	Size	Units	Daily Trips	AM Peak Hour			PM Peak Hour		
				Total	Enter	Exit	Total	Enter	Exit
Single-Family Housing (LUC 210)	27	d.u.	312	24	6	18	29	18	11
Multifamily Housing (LUC 220)	64	d.u.	443	31	7	24	40	25	15
Net New External Trips			755	55	13	42	69	43	26

Section 8 of the Town of Rolesville Land Development Ordinance (adopted June 1, 2021) establishes thresholds for when a Traffic Impact Analysis (TIA) is required for a particular development. Those are as follows:

- The proposed development could be expected to generate one hundred (100) or more added vehicle trips to or from the site during the peak traffic hour.



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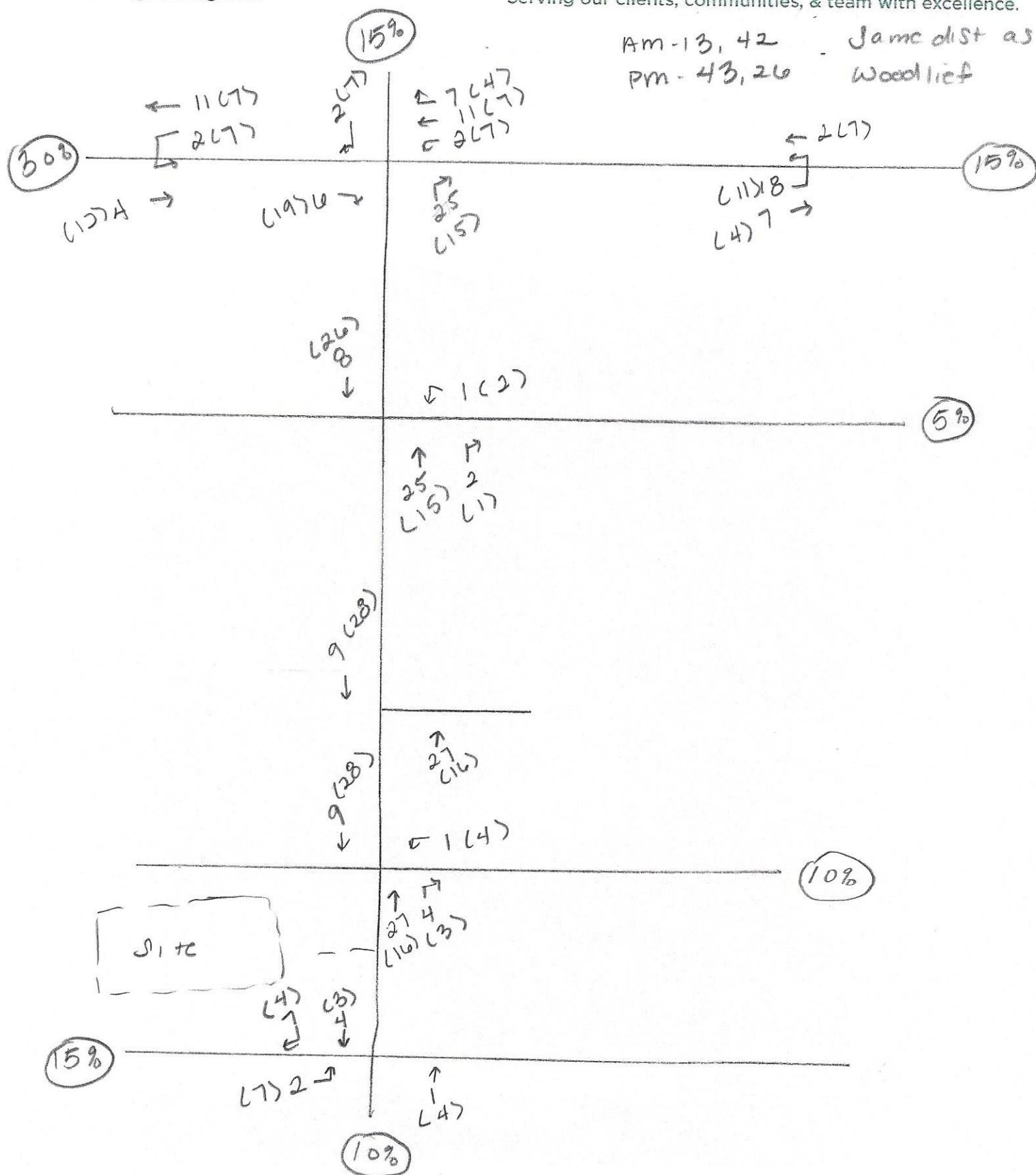
Tucker Wilkins

Date: _____ Sheet _____ of _____

Project: _____ Task: _____

Engineer: _____

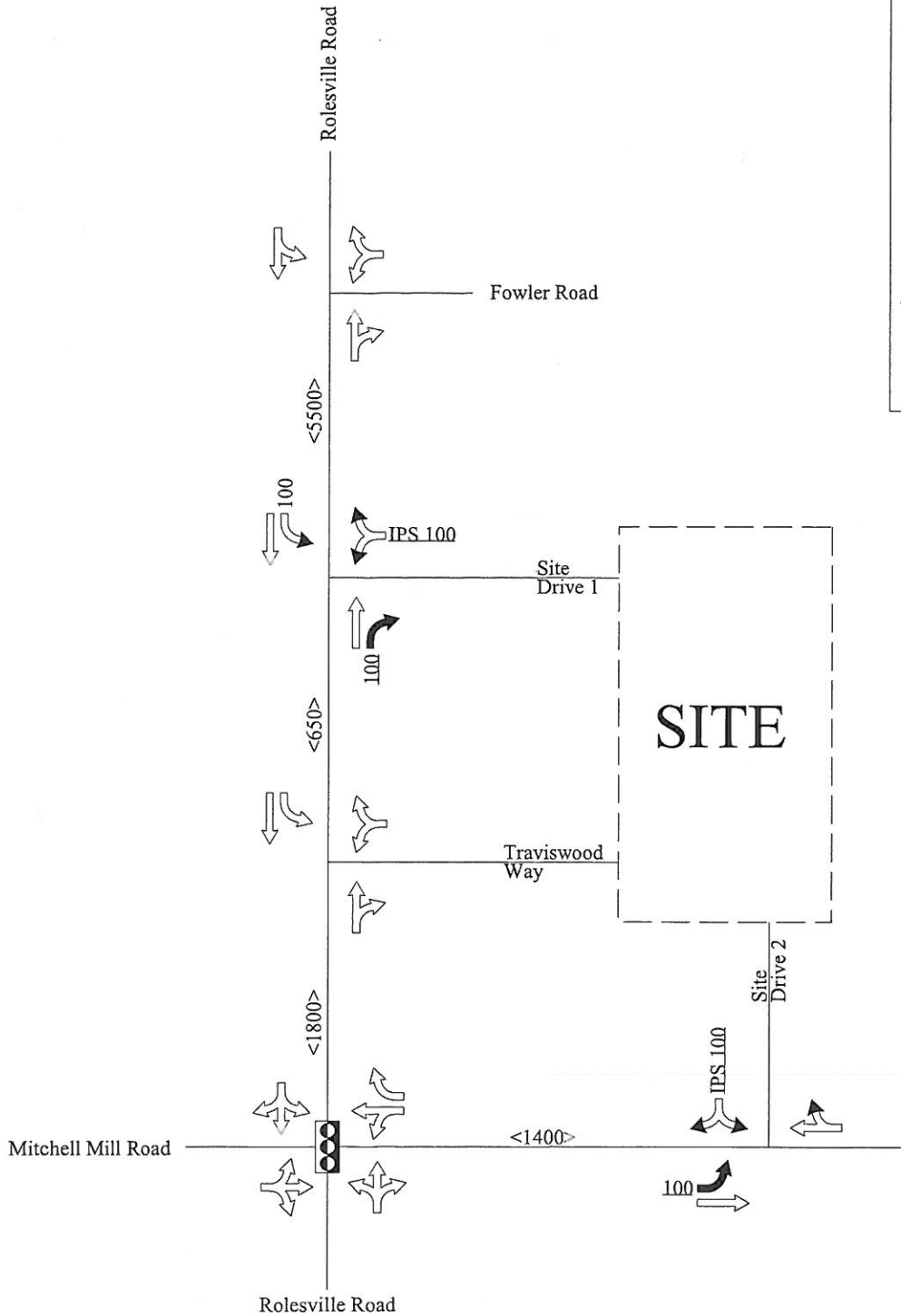
Serving our clients, communities, & team with excellence.





Wheeler Tract
Rolesville, Wake County
SC-2019-113

- Existing Laneage
- Recommended Laneage
- Laneage Built By Others
- NCDOT Recommendation
- Existing Signal
- Signal Proposed By Others
- Developer Proposed Signal
- Monitor for Signal
- XXX Storage
- XXX NCDOT Recommended Storage
- <XXX> Distance Between Intersections
- IPS Internal Protected Stem
- All Distances in Feet
- Drawing Not to Scale

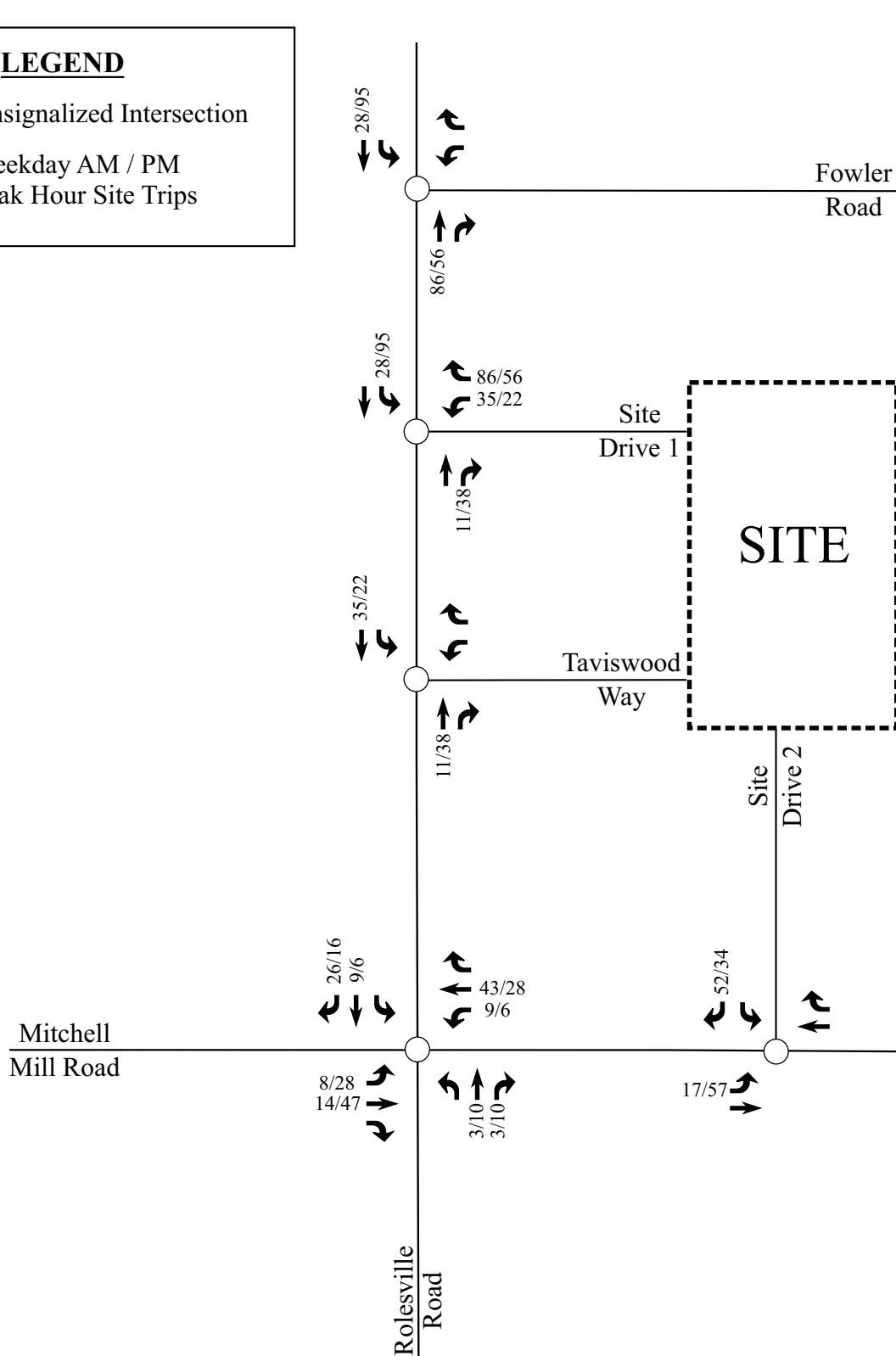


○

Unsignalized Intersection

X/Y →

Weekday AM / PM
Peak Hour Site Trips



 RAMEY KEMP & ASSOCIATES TRANSPORTATION ENGINEERS	Wheeler Tract Rolesville, NC	Site Trip Assignment	
		Scale: Not to Scale	Figure 9



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Wheeler Tract (Rolesville Crossing)

Date: _____ Sheet _____ of _____

Project: _____ Task: _____

Engineer: _____

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Distribute @ northern
intersections according
to same proportion
as Woodlief
← 7 (22)

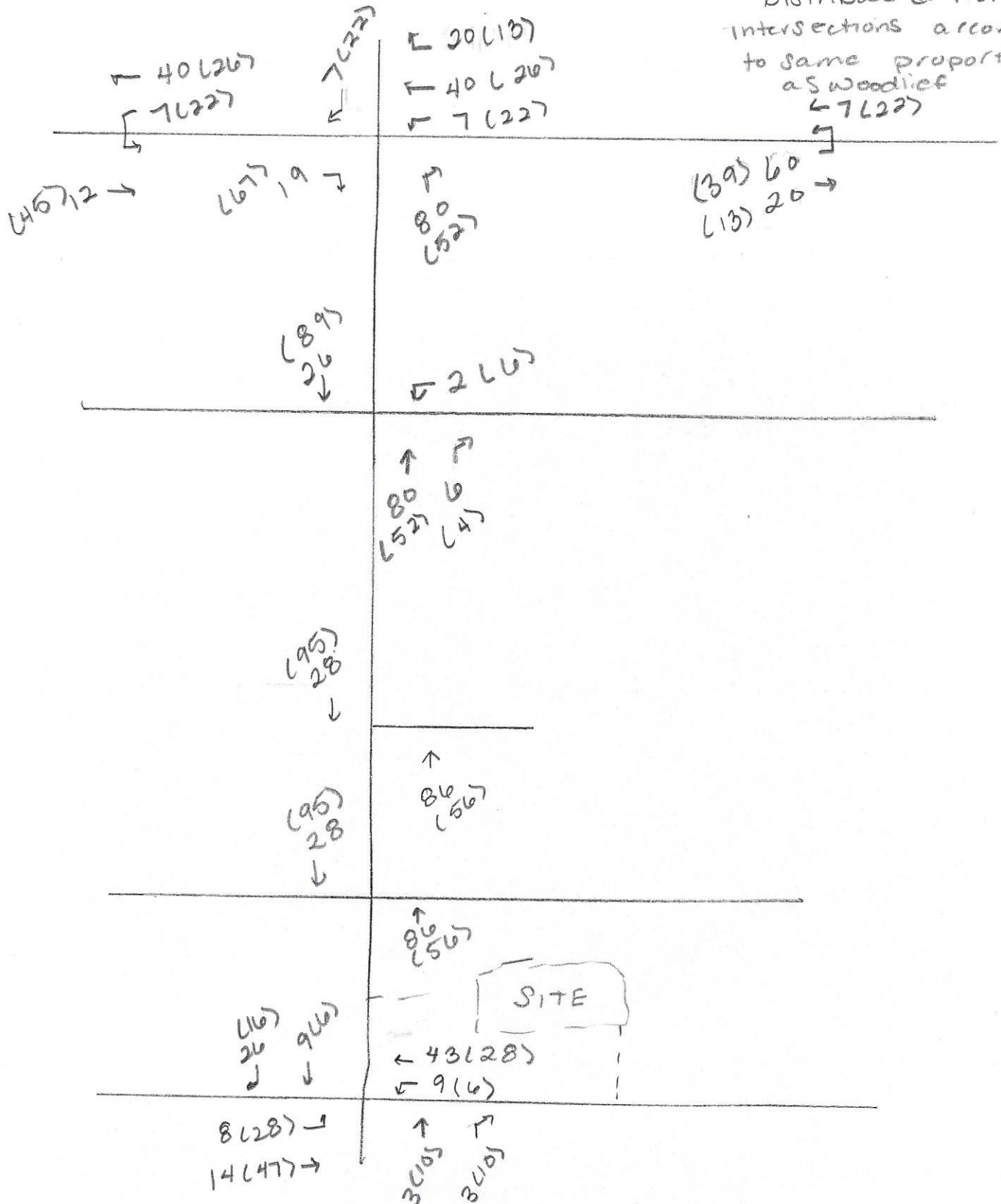
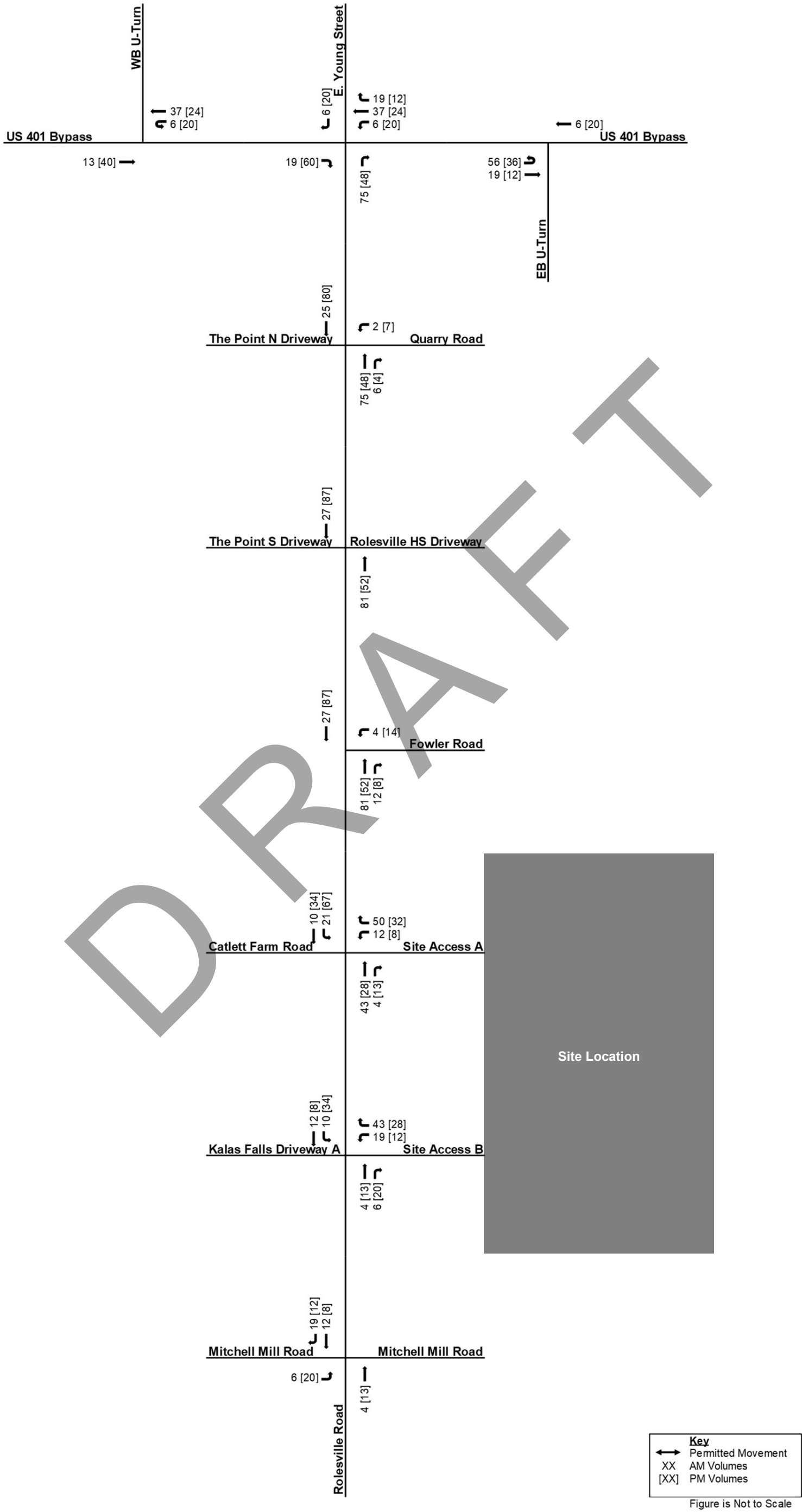
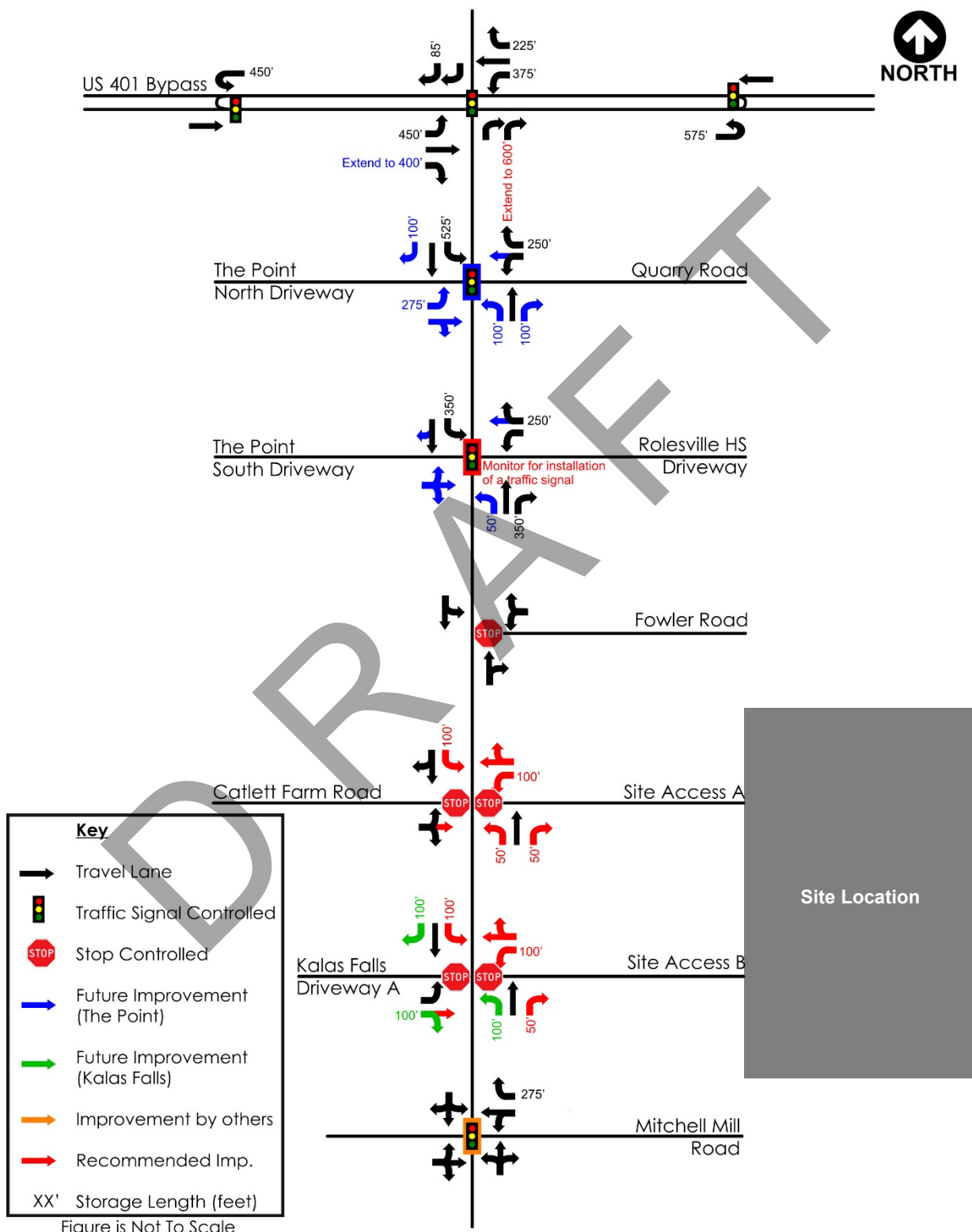


Figure 6: Trip Assignment



Recommendations
July 28, 2023

Figure 12: Recommended Improvements



TRIP GENERATION CALCULATIONS

ITE Trip Generation (11th Edition) Gravity Rolesville - Young Commercial													
Site Trips													
LUC	Land Use	Intensity	Units	Avg Rate or Equation?	Daily Trips			AM Peak Hour Trips			PM Peak Hour Trips		
					Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit
710	General Office Building	13	1,000 Sq Ft	Eq	198	99	99	29	25	4	31	5	26
720	Medical-Dental Office Building	13	1,000 Sq Ft	Eq	452	226	226	38	30	8	50	15	35
822	Strip Retail Plaza (<40K)	28.0	1,000 Sq Ft	Avg	1,526	763	763	66	40	26	185	92	93
850	Supermarket	37.6	1,000 Sq Ft	Avg	3,528	1,764	1,764	255	133	122	346	176	170
934	Fast-Food Restaurant w/ D.T.	4.4	1,000 Sq Ft	Avg	2,058	1,029	1,029	196	100	96	145	76	69
937	Coffee/Donut Shop w/ D.T.	4.4	1,000 Sq Ft GLA	Avg	2,348	1,174	1,174	378	193	185	172	86	86
Total					10,110	5,055	5,055	962	521	441	929	450	479
Internal Capture													
Land Use Code(s)	Land Use	Daily Trips			AM Peak Hour Trips			PM Peak Hour Trips					
		Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit			
710, 720	Office	-	-	-	21	10	11	22	10	12			
822, 850	Retail	-	-	-	39	18	21	126	73	53			
934, 937	Restaurant	-	-	-	49	27	22	117	49	68			
	Cinema/Entertainment	-	-	-	0	0	0	0	0	0			
	Residential	-	-	-	0	0	0	0	0	0			
	Hotel	-	-	-	0	0	0	0	0	0			
	All Other Land Uses	-	-	-	0	0	0	0	0	0			
Total		2650	1325	1325	109	55	54	265	132	133			
External Trips													
LUC	Land Use	Daily Trips			AM Peak Hour Trips			PM Peak Hour Trips					
		Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit			
710	General Office Building	-	-	-	20	20	0	24	3	21			
720	Medical-Dental Office Building	-	-	-	26	25	1	35	7	28			
822	Strip Retail Plaza (<40K)	-	-	-	58	36	22	141	67	74			
850	Supermarket	-	-	-	224	119	105	264	128	136			
934	Fast-Food Restaurant w/ D.T.	-	-	-	179	91	88	92	53	39			
937	Coffee/Donut Shop w/ D.T.	-	-	-	346	175	171	108	60	48			
Total		7,460	3,730	3,730	853	466	387	664	318	346			
Pass-By Trips													
LUC	Land Use	Daily Trip%	AM Trip%	PM Trip%	Daily Trips			AM Peak Hour Trips			PM Peak Hour Trips		
					Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit
710	General Office Building	0%	0%	0%	0	0	0	0	0	0	0	0	0
720	Medical-Dental Office Building	0%	0%	0%	0	0	0	0	0	0	0	0	0
822	Strip Retail Plaza (<40K)*	0%	0%	40%	570	285	285	0	0	0	57	27	30
850	Supermarket	0%	0%	24%	640	320	320	0	0	0	64	31	33
934	Fast-Food Restaurant w/ D.T.	0%	50%	55%	500	250	250	90	46	44	50	29	21
937	Coffee/Donut Shop w/ D.T. **	0%	50%	55%	590	295	295	174	88	86	59	33	26
Total					2,300	1,150	1,150	264	134	130	230	120	110
Adjacent Street Volumes (No-Build)								2,156			1,852		
Pass-By Maximum (10% Adjacent Street Volumes)					1,850	925	925	216	110	106	185	97	88
Pass-By Trips Applied					1,850	925	925	216	110	106	185	97	88
Net New External Site Trips													
					Daily Trips			AM Peak Hour Trips			PM Peak Hour Trips		
					Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit
TOTAL					5,610	2,805	2,805	637	356	281	479	221	258

ITE Trip Generation Manual 11th Edition (ITETripGen Web-based App) online calculator utilized for Trip Generation rates and equations

*Applied PM Pass-By Rate for LUC 821 Shopping Plaza (40 - 150K)

**Applied PM Pass-By Rate for LUC 934 Fast-Food Restaurant w/D.T.

NCHRP 684 Internal Trip Capture Estimation Tool					
Project Name:		Organization:			
Project Location:		Performed By:			
Scenario Description:		Date:			
Analysis Year:		Checked By:			
Analysis Period:	AM Street Peak Hour	Date:			

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office	710 720			67	55	12
Retail	822 850			321	173	148
Restaurant	934 937			574	293	281
Cinema/Entertainment				0	0	0
Residential				0	0	0
Hotel				0	0	0
All Other Land Uses ²				0	0	0
				962	521	441

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office	1.10	0%	0%	1.10	0%	0%
Retail	1.10	0%	0%	1.10	0%	0%
Restaurant	1.10	0%	0%	1.10	0%	0%
Cinema/Entertainment	1.10	0%	0%	1.10	0%	0%
Residential	1.10	0%	0%	1.10	0%	0%
Hotel	1.10	0%	0%	1.10	0%	0%
All Other Land Uses ²	1.10	0%	0%	1.10	0%	0%

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		4	8	0	0	0
Retail	2		21	0	0	0
Restaurant	9	15		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary				Table 6-A: Internal Trip Capture Percentages by Land Use		
	Total	Entering	Exiting	Land Use	Entering Trips	Exiting Trips
All Person-Trips	1,058	573	485	Office	18%	92%
Internal Capture Percentage	11%	10%	12%	Retail	10%	14%
				Restaurant	9%	8%
External Vehicle-Trips ⁵	853	466	387	Cinema/Entertainment	N/A	N/A
External Transit-Trips ⁶	0	0	0	Residential	N/A	N/A
External Non-Motorized Trips ⁶	0	0	0	Hotel	N/A	N/A

¹ Land Use Codes (LUCs) from <i>Trip Generation Manual</i> , published by the Institute of Transportation Engineers.
² Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.
³ Enter trips assuming no transit or non-motorized trips (as assumed in ITE <i>Trip Generation Manual</i>).
⁴ Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.
⁵ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.
⁶ Person-Trips
[*] Indicates computation that has been rounded to the nearest whole number.
Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

EXULT ADDED TABLE: TOTAL INTERNAL CAPTURE VEHICULAR TRIPS						
Origin Land Use	ENTERING TRIPS			EXITING TRIPS		
	Internal	External	Total	Internal	External	Total
Office	10	45	55	11	1	12
Retail	18	155	173	21	127	148
Restaurant	27	266	293	22	259	281
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Project Name:	0
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips ⁴	Veh. Occ.	Vehicle-Trips	Person-Trips ⁴
Office	1.10	55	61	1.10	12	13
Retail	1.10	173	190	1.10	148	163
Restaurant	1.10	293	322	1.10	281	309
Cinema/Entertainment	1.10	0	0	1.10	0	0
Residential	1.10	0	0	1.10	0	0
Hotel	1.10	0	0	1.10	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		4	8	0	0	0
Retail	47		21	0	23	0
Restaurant	96	43		0	12	9
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		61	74	0	0	0
Retail	2		161	0	0	0
Restaurant	9	15		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	32	64	0		0
Hotel	2	8	19	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode ⁴		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	11	50	61	45	0	0
Retail	19	171	190	155	0	0
Restaurant	29	293	322	266	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode ⁴		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	12	1	13	1	0	0
Retail	23	140	163	127	0	0
Restaurant	24	285	309	259	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A
² Person-Trips
³ Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator
⁴ Indicates computation that has been rounded to the nearest whole number.

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:		Organization:	
Project Location:		Performed By:	
Scenario Description:		Date:	
Analysis Year:		Checked By:	
Analysis Period:	PM Street Peak Hour	Date:	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ¹		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office	710 720			81	20	61
Retail	822 850			531	268	263
Restaurant	934 937			317	162	155
Cinema/Entertainment				0	0	0
Residential				0	0	0
Hotel				0	0	0
All Other Land Uses ²				0	0	0
				929	450	479

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office	1.10	0%	0%	1.10	0%	0%
Retail	1.10	0%	0%	1.10	0%	0%
Restaurant	1.10	0%	0%	1.10	0%	0%
Cinema/Entertainment	1.10	0%	0%	1.10	0%	0%
Residential	1.10	0%	0%	1.10	0%	0%
Hotel	1.10	0%	0%	1.10	0%	0%
All Other Land Uses ²	1.10	0%	0%	1.10	0%	0%

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		865	734			
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		11	2	0	0	0
Retail	6		52	0	0	0
Restaurant	5	70		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	1,022	495	527
Internal Capture Percentage	29%	29%	26%
External Vehicle-Trips ²	664	318	346
External Transit-Trips ³	0	0	0
External Non-Motorized Trips ³	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use			
Land Use	Entering Trips	Exiting Trips	
Office	50%	19%	
Retail	27%	20%	
Restaurant	30%	44%	
Cinema/Entertainment	N/A	N/A	
Residential	N/A	N/A	
Hotel	N/A	N/A	

¹ Land Use Codes (LUCs) from <i>Trip Generation Manual</i> , published by the Institute of Transportation Engineers.
² Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.
³ Enter trips assuming no transit or non-motorized trips (as assumed in <i>ITE Trip Generation Manual</i>).
⁴ Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.
⁵ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.
⁶ Person-Trips
*Indicates computation that has been rounded to the nearest whole number.
Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

EXULT ADDED TABLE: TOTAL INTERNAL CAPTURE VEHICULAR TRIPS						
Origin Land Use	ENTERING TRIPS			EXITING TRIPS		
	Internal	External	Total	Internal	External	Total
Office	10	10	20	12	49	61
Retail	73	195	268	53	210	263
Restaurant	49	113	162	68	87	155
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Project Name:	0
Analysis Period:	PM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips ⁴	Veh. Occ.	Vehicle-Trips	Person-Trips ⁴
Office	1.10	20	22	1.10	61	67
Retail	1.10	268	295	1.10	263	289
Restaurant	1.10	162	178	1.10	155	171
Cinema/Entertainment	1.10	0	0	1.10	0	0
Residential	1.10	0	0	1.10	0	0
Hotel	1.10	0	0	1.10	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		11	2	0	1	0
Retail	6		84	12	75	14
Restaurant	5	70		14	31	14
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		19	3	0	0	0
Retail	7		52	0	0	0
Restaurant	7	148		0	0	0
Cinema/Entertainment	1	12	5		0	0
Residential	13	30	25	0		0
Hotel	0	6	9	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode ⁴		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	11	11	22	10	0	0
Retail	81	214	295	195	0	0
Restaurant	54	124	178	113	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode ⁴		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	13	54	67	49	0	0
Retail	58	231	289	210	0	0
Restaurant	75	96	171	87	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.
² Person-Trips
³ Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.
⁴ Indicates computation that has been rounded to the nearest whole number.

SITE TRAFFIC BALANCING

AM Peak Hour

Total	Enter	Exit
637	356	281



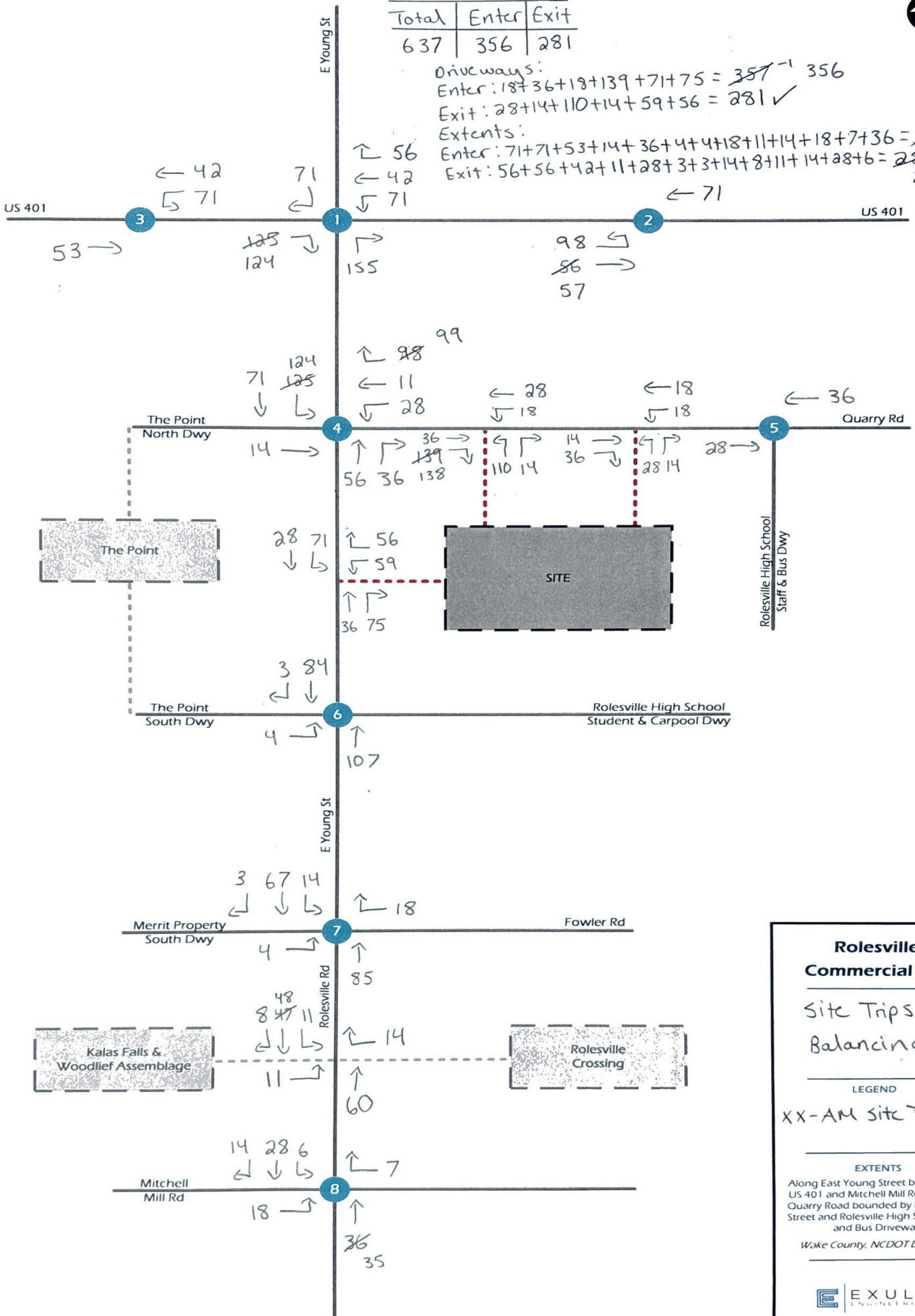
Driveways:
Enter: $18+36+18+139+71+75 = 357 - 1 = 356$

Exit: $28+14+110+14+59+56 = 281$ ✓

Extents:

Enter: $71+71+53+14+36+4+4+18+11+14+18+7+36 = 357 - 1 = 356$

Exit: $56+56+42+11+28+3+3+14+8+11+14+28+6 = 280 + 1 = 281$



Rolesville Commercial TIA

Site Trips Balancing

LEGEND

xx-AM Site Trips

EXTENTS

Along East Young Street bounded by US 401 and Mitchell Mill Road, Along Quarry Road bounded by East Young Street and Rolesville High School Staff and Bus Driveway.

Wake County, NCDOT Division 5



PM Peak Hour

Total	Enter	Exit
479	221	258

Driveways:

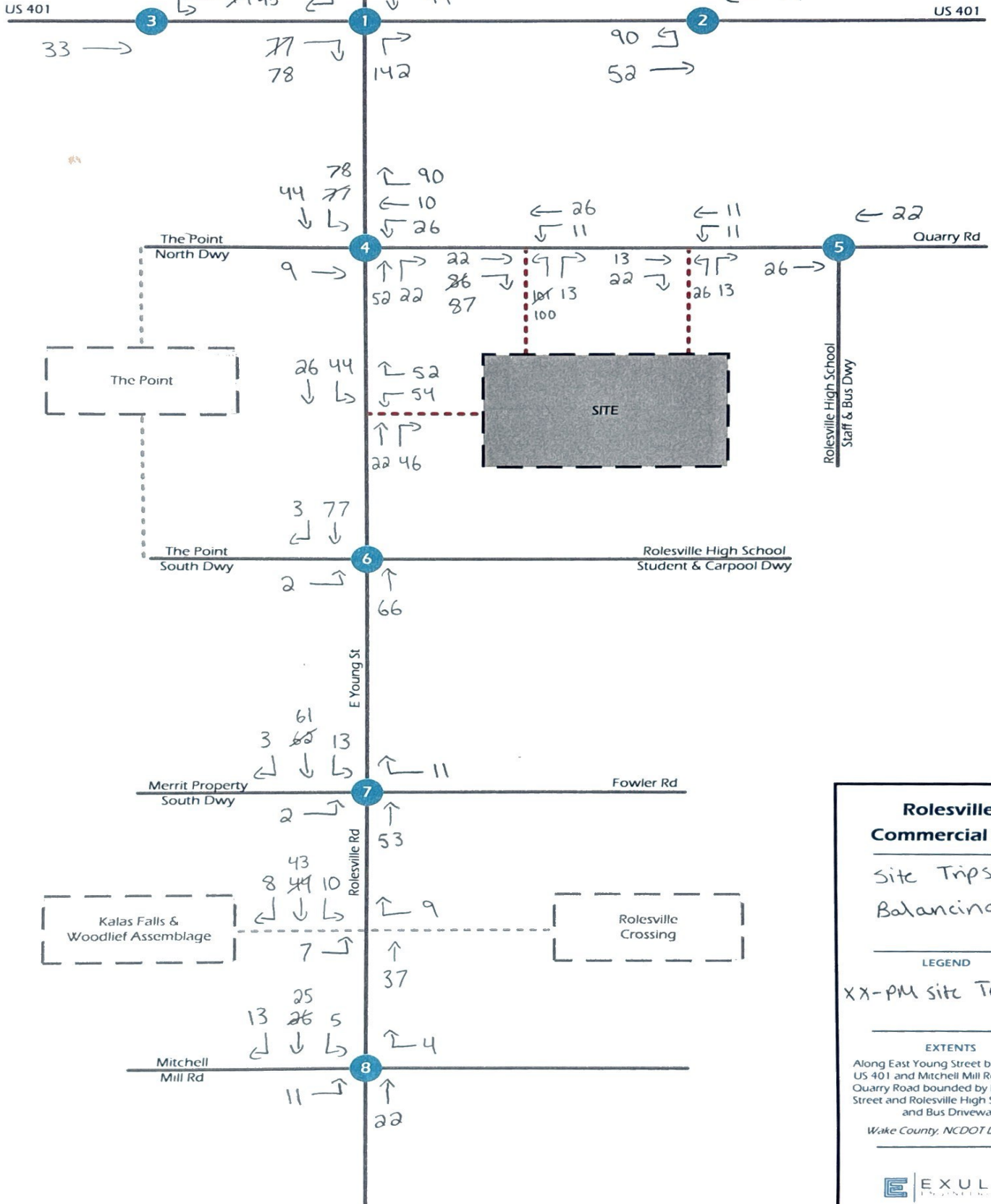
Enter: $11 + 22 + 11 + 86 + 44 + 46 = 220^{+1}$ 221

Exit: $26 + 13 + 10 + 13 + 52 + 54 = 258^{-1}$ 258

Extents:

Enter: $44 + 44 + 33 + 9 + 22 + 2 + 2 + 11 + 7 + 9 + 11 + 4 + 22 = 220^{+1}$ 221

Exit: $52 + 52 + 39 + 10 + 26 + 3 + 3 + 13 + 8 + 10 + 13 + 26 + 5 = 260^{-2}$ 258



Rolesville Commercial TIA

Site Trips Balancing

LEGEND

xx-PM site Trips

EXTENTS

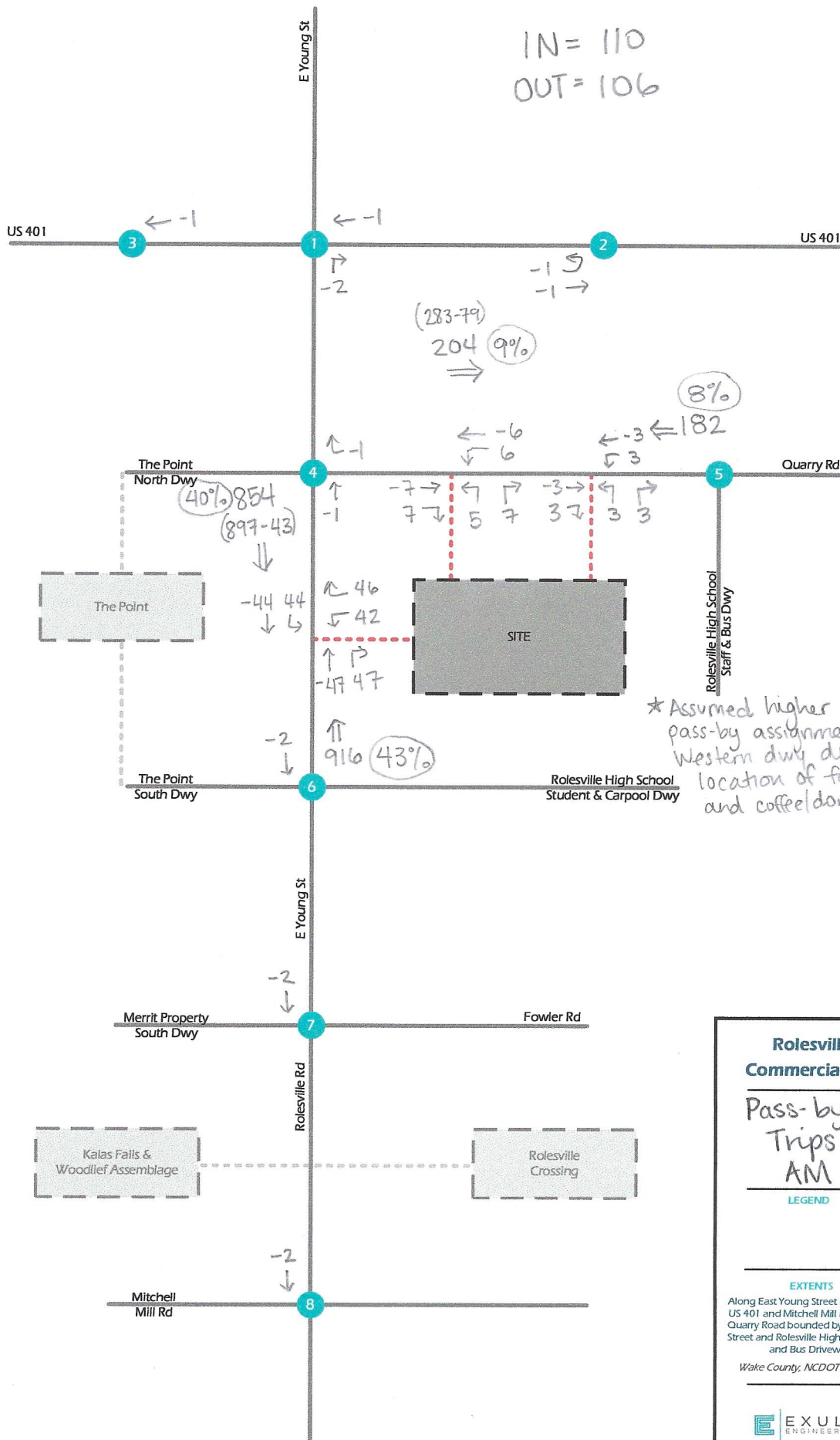
Along East Young Street bounded by US 401 and Mitchell Mill Road, Along Quarry Road bounded by East Young Street and Rolesville High School Staff and Bus Driveway

Wake County, NCDOT Division 5

PASS-BY TRIPS



IN = 110
OUT = 106



Rolesville Commercial TIA

Pass-by
Trips
AM

LEGEND

EXTENTS

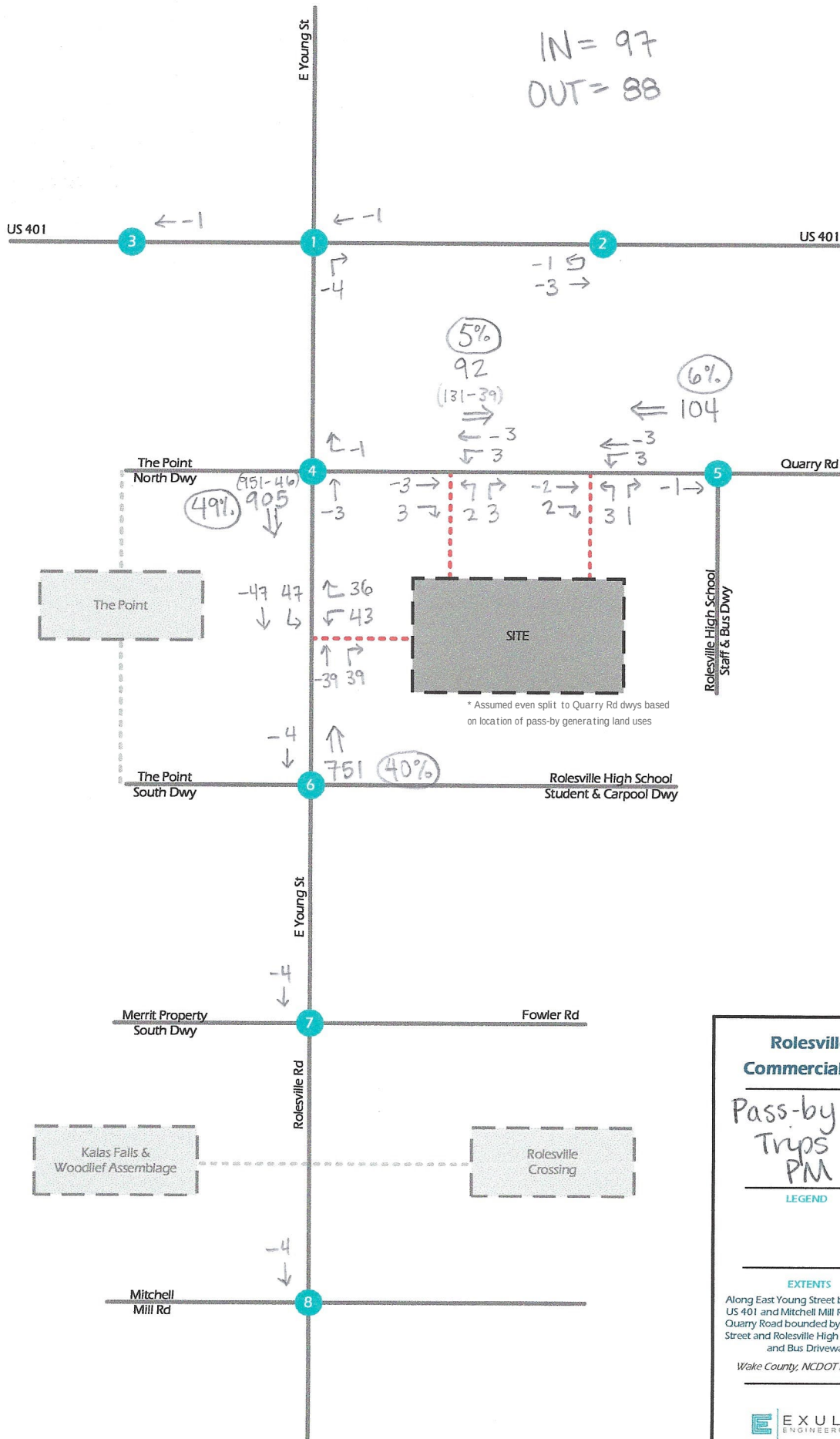
Along East Young Street bounded by
US 401 and Mitchell Mill Road; Along
Quarry Road bounded by East Young
Street and Rolesville High School Staff
and Bus Driveway.

Wake County, NCDOT Division 5

EXULT
ENGINEERING



IN = 97
OUT = 88



Rolesville Commercial TIA

Pass-by
Trips
PM

LEGEND

EXTENTS

Along East Young Street bounded by
US 401 and Mitchell Mill Road; Along
Quarry Road bounded by East Young
Street and Rolesville High School Staff
and Bus Driveway.

Wake County, NCDOT Division 5

INTERSECTION VOLUME SPREADSHEETS

Intersection Development Worksheet
Intersection #1 - East Young Street at US 401

AM PEAK HOUR

	Northbound East Young Street				Southbound East Young Street				Eastbound US 401				Westbound US 401			
	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn
2025 Existing Traffic																
2025 Traffic Count	574				559				113	279	648		169	1374	317	
Balancing													15			
2025 Existing Traffic	0	0	574	0	0	0	559	0	113	279	648	0	169	1389	317	0
Background Growth Calculation																
Growth Factor	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
2027 Background Growth	6	6	24	6	6	6	23	6	5	12	27	6	7	57	13	6
2027 Background Traffic Due to Growth Factor	6	6	598	6	6	6	582	6	118	291	675	6	176	1446	330	6
Approved Developments																
The Point	0	0	259	0	0	0	63	0	5	6	196	0	25	140	74	0
48%	0	0	124	0	0	0	30	0	2	3	94	0	12	67	36	0
1216 Rolesville Road	0	0	26	0	0	0	8	0	0	0	16	0	8	10	7	0
67%	0	0	17	0	0	0	5	0	0	0	11	0	5	7	5	0
Kalas Falls	0	0	150	0	0	0	12	0	0	0	37	0	12	74	38	0
67%	0	0	101	0	0	0	8	0	0	0	25	0	8	50	25	0
Woodlief Assemblage	0	0	75	0	0	0	6	0	0	0	19	0	6	37	24	0
67%	0	0	50	0	0	0	4	0	0	0	13	0	4	25	16	0
Preserve at Moody Farm	0	0	28	0	0	0	2	0	0	0	7	0	2	14	7	0
100%	0	0	28	0	0	0	2	0	0	0	7	0	2	14	7	0
Wheeler Tract/Rolesville Crossing	0	0	80	0	0	0	7	0	0	0	19	0	7	40	20	0
100%	0	0	80	0	0	0	7	0	0	0	19	0	7	40	20	0
Tucker Wilkins	0	0	25	0	0	0	2	0	0	0	6	0	2	11	7	0
100%	0	0	25	0	0	0	2	0	0	0	6	0	2	11	7	0
Merritt Property	0	0	77	0	0	0	15	0	0	0	43	0	15	38	19	0
67%	0	0	52	0	0	0	10	0	0	0	29	0	10	25	13	0
Total Approved Development Traffic	6	6	477	6	6	6	66	6	2	3	204	6	50	238	128	6
Final Background Growth																
Background Growth Total																
2027 No Build Traffic	0	0	1075	0	0	0	650	0	120	294	879	0	226	1685	459	0
Trip Assignment																
Outbound Assigned Percentage	0%	0%	55%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	15%	20%	0%
Outbound Primary Site Trips	0	0	155	0	0	0	0	0	0	0	0	0	0	42	56	0
Inbound Assigned Percentage	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	35%	0%	20%	0%	0%	0%
Inbound Primary Site Trips	0	0	0	0	0	0	71	0	0	0	124	0	71	0	0	0
Total Primary Site Trips	6	6	155	6	6	6	71	6	0	6	124	6	71	42	56	6
Pass-By Traffic Calculation																
Pass-By Capture Reduction	-2												-1			
Pass-By Capture Assignment																
Total Pass-By Traffic	6	6	-2	6	6	6	6	6	6	6	6	6	6	-1	6	6
Total Project Traffic	6	6	153	6	6	6	71	6	6	6	124	6	71	41	56	6
2027 Buildout Volumes	0	0	1228	0	0	0	721	0	120	294	1003	0	297	1726	515	0

PM PEAK HOUR

	Northbound				Southbound				Eastbound				Westbound					
	East Young Street				East Young Street				US 401				US 401					
	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn		
2025 Existing Traffic																		
2025 Traffic Count	464				398				212				996	355	127		458	266
Balancing	0	0	464	0	0	0	398	0	212	996	355	0	127	458	266	0		
Background Growth Calculation																		
Growth Factor	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04		
2027 Background Growth	6	6	19	6	6	6	17	6	9	41	15	6	6	19	11	6		
2027 Background Traffic Due to Growth Factor	6	6	483	6	6	6	415	6	221	1037	370	6	133	477	277	6		
Approved Developments																		
The Point	0	0	213	0	0	0	93	0	16	4	390	0	51	113	68	0		
48%	0	0	102	0	0	0	45	0	8	2	187	0	24	54	33	0		
1216 Rolesville Road	0	0	33	0	0	0	12	0	0	0	24	0	13	10	11	0		
67%	0	0	22	0	0	0	8	0	0	0	16	0	9	7	7	0		
Kalas Falls	0	0	97	0	0	0	42	0	0	0	124	0	42	49	24	0		
67%	0	0	65	0	0	0	28	0	0	0	83	0	28	33	16	0		
Woodlief Assemblage	0	0	48	0	0	0	20	0	0	0	60	0	20	24	12	0		
67%	0	0	32	0	0	0	13	0	0	0	40	0	13	16	8	0		
Preserve at Moody Farm	0	0	18	0	0	0	8	0	0	0	24	0	8	8	5	0		
100%	0	0	18	0	0	0	8	0	0	0	24	0	8	8	5	0		
Wheeler Tract/Rolesville Crossing	0	0	52	0	0	0	22	0	0	0	67	0	22	26	13	0		
100%	0	0	52	0	0	0	22	0	0	0	67	0	22	26	13	0		
Tucker Wilkins	0	0	15	0	0	0	7	0	0	0	19	0	7	7	4	0		
100%	0	0	15	0	0	0	7	0	0	0	19	0	7	7	4	0		
Merritt Property	0	0	98	0	0	0	29	0	0	0	84	0	29	49	25	0		
67%	0	0	66	0	0	0	19	0	0	0	56	0	19	33	17	0		
Total Approved Development Traffic	6	6	372	6	6	6	156	6	8	2	492	6	130	184	103	6		
Final Background Growth																		
Background Growth Total																		
2027 No Build Traffic	0	0	855	0	0	0	565	0	229	1039	862	0	263	661	380	0		
Trip Assignment																		
Outbound Assigned Percentage	0%	0%	55%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	15%	20%	0%		
Outbound Primary Site Trips	0	0	142	0	0	0	0	0	0	0	0	0	0	39	51	0		
Inbound Assigned Percentage	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	35%	0%	20%	0%	0%	0%		
Inbound Primary Site Trips	0	0	0	0	0	0	45	0	0	0	78	0	44	0	0	0		
Total Primary Site Trips	0	6	142	0	0	0	45	0	0	0	78	0	44	39	51	0		
Pass-By Traffic Calculation																		
Pass-By Capture Reduction	-4												-1					
Pass-By Capture Assignment																		
Total Pass-By Traffic	6	0	-4	0	6	0	0	0	0	0	0	0	0	-1	0	0		
Total Project Traffic	6	6	138	6	6	0	45	6	0	0	78	6	44	38	51	0		
2027 Buildout Volumes																		
	0	0	993	0	0	0	610	0	229	1039	940	0	307	699	431	0		

Intersection Development Worksheet
Intersection #2 - US 401 at U-turn North of East Young Street

AM PEAK HOUR

	Northbound U-Turn North of East Young Street				Southbound				Eastbound US 401				Westbound US 401			
	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn
2025 Existing Traffic																
2025 Traffic Count									355				504			
Balancing													1367			
2025 Existing Traffic	0	0	0	0	0	0	0	0	0	355	0	504	0	1367	0	0
Background Growth Calculation																
Growth Factor	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
2027 Background Growth	6	0	0	0	0	0	0	0	0	15	0	21	0	56	0	0
2027 Background Traffic Due to Growth Factor	0	0	0	0	0	0	0	0	0	0	0	0	0	1423	0	0
Approved Developments																
The Point	0	0	0	0	0	0	0	0	0	53	0	213	0	27	0	0
48%	0	0	0	0	0	0	0	0	0	25	0	102	0	13	0	0
1216 Rolesville Road	0	0	0	0	0	0	0	0	0	9	0	17	0	9	0	0
67%	0	0	0	0	0	0	0	0	0	6	0	11	0	5	0	0
Kalas Falls	0	0	0	0	0	0	0	0	0	38	0	112	0	12	0	0
67%	0	0	0	0	0	0	0	0	0	25	0	75	0	8	0	0
Woodlief Assemblage	0	0	0	0	0	0	0	0	0	19	0	56	0	6	0	0
67%	0	0	0	0	0	0	0	0	0	13	0	38	0	4	0	0
Preserve at Moody Farm	0	0	0	0	0	0	0	0	0	7	0	21	0	2	0	0
100%	0	0	0	0	0	0	0	0	0	7	0	21	0	2	0	0
Wheeler Tract/Rolesville Crossing	0	0	0	0	0	0	0	0	0	20	0	60	0	7	0	0
100%	0	0	0	0	0	0	0	0	0	20	0	60	0	7	0	0
Tucker Wilkins	0	0	0	0	0	0	0	0	0	7	0	18	0	2	0	0
100%	0	0	0	0	0	0	0	0	0	7	0	18	0	2	0	0
Merritt Property	0	0	0	0	0	0	0	0	0	13	0	58	0	14	0	0
67%	0	0	0	0	0	0	0	0	0	13	0	39	0	9	0	0
Total Approved Development Traffic	6	0	0	0	0	0	0	0	0	116	0	364	0	50	0	0
Final Background Growth																
Background Growth Total																
2027 No Build Traffic	0	0	0	0	0	0	0	0	0	486	0	889	0	1473	0	0
Trip Assignment																
Outbound Assigned Percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	35%	0%	0%	0%	0%
Outbound Primary Site Trips	0	0	0	0	0	0	0	0	0	57	0	98	0	0	0	0
Inbound Assigned Percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%
Inbound Primary Site Trips	0	0	0	0	0	0	0	0	0	0	0	0	0	71	0	0
Total Primary Site Trips	0	0	0	0	0	0	0	0	0	57	0	98	0	71	0	0
Pass-By Traffic Calculation																
Pass-By Capture Reduction									-1				-1			
Pass-By Capture Assignment																
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	-1	0	-1	0	0	0	0
Total Project Traffic	6	0	0	0	0	0	0	0	0	56	0	97	0	71	0	0
2027 Buildout Volumes	0	0	0	0	0	0	0	0	0	542	0	986	0	1544	0	0

PM PEAK HOUR

	Northbound U-Turn North of East Young Street				Southbound				Eastbound US 401				Westbound US 401			
	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn
2025 Existing Traffic																
2025 Traffic Count									1152				299			
Balancing													554			
2025 Existing Traffic	0	0	0	0	0	0	0	0	0	1152	0	299	0	554	0	0
Background Growth Calculation																
Growth Factor	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
2027 Background Growth	6	0	0	0	0	0	0	0	0	47	0	13	0	23	0	0
2027 Background Traffic Due to Growth Factor	0	0	0	0	0	0	0	0	0	1199	0	312	0	577	0	0
Approved Developments																
The Point	0	0	0	0	0	0	0	0	0	42	0	175	0	57	0	0
48%	0	0	0	0	0	0	0	0	0	20	0	84	0	27	0	0
1216 Rolesville Road	0	0	0	0	0	0	0	0	0	12	0	21	0	13	0	0
67%	0	0	0	0	0	0	0	0	0	8	0	14	0	9	0	0
Kalas Falls	0	0	0	0	0	0	0	0	0	24	0	73	0	42	0	0
67%	0	0	0	0	0	0	0	0	0	16	0	49	0	28	0	0
Woodlief Assemblage	0	0	0	0	0	0	0	0	0	12	0	36	0	20	0	0
67%	0	0	0	0	0	0	0	0	0	8	0	24	0	13	0	0
Preserve at Moody Farm	0	0	0	0	0	0	0	0	0	5	0	13	0	8	0	0
100%	0	0	0	0	0	0	0	0	0	5	0	13	0	8	0	0
Wheeler Tract/Rolesville Crossing	0	0	0	0	0	0	0	0	0	13	0	39	0	22	0	0
100%	0	0	0	0	0	0	0	0	0	13	0	39	0	22	0	0
Tucker Wilkins	0	0	0	0	0	0	0	0	0	4	0	11	0	7	0	0
100%	0	0	0	0	0	0	0	0	0	4	0	11	0	7	0	0
Merritt Property	0	0	0	0	0	0	0	0	0	24	0	74	0	29	0	0
67%	0	0	0	0	0	0	0	0	0	16	0	50	0	19	0	0
Total Approved Development Traffic	0	0	0	0	0	0	0	0	0	90	0	284	0	133	0	0
Final Background Growth																
Background Growth Total																
2027 No Build Traffic	0	0	0	0	0	0	0	0	0	1289	0	596	0	710	0	0
Trip Assignment																
Outbound Assigned Percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	35%	0%	0%	0%	0%
Outbound Primary Site Trips	0	0	0	0	0	0	0	0	0	52	0	90	0	0	0	0
Inbound Assigned Percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%
Inbound Primary Site Trips	0	0	0	0	0	0	0	0	0	0	0	0	0	44	0	0
Total Primary Site Trips	0	0	0	0	0	0	0	0	0	52	0	90	0	44	0	0
Pass-By Traffic Calculation																
Pass-By Capture Reduction									-3				-1			
Pass-By Capture Assignment																
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	-3	0	-1	0	0	0	0
Total Project Traffic	0	0	0	0	0	0	0	0	0	49	0	89	0	44	0	0
2027 Buildout Volumes	0	0	0	0	0	0	0	0	0	1338	0	685	0	754	0	0

Intersection Development Worksheet
Intersection #3 - US 401 at U-turn South of East Young Street

AM PEAK HOUR

	Northbound				Southbound U-Turn South of East Young Street				Eastbound US 401				Westbound US 401			
	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn
2025 Existing Traffic																
2025 Traffic Count									717				1638			
Balancing																
2025 Existing Traffic	0	0	0	0	0	0	0	0	0	717	0	0	0	1638	0	321
Background Growth Calculation																
Growth Factor	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
2027 Background Growth	6	0	0	0	0	0	0	0	0	29	0	0	0	67	0	13
2027 Background Traffic Due to Growth Factor	0	0	0	0	0	0	0	0	0	746	0	0	0	1705	0	334
Approved Developments																
The Point	0	0	0	0	0	0	0	0	0	157	0	0	0	154	0	49
48%	0	0	0	0	0	0	0	0	0	75	0	0	0	74	0	24
1216 Rolesville Road	0	0	0	0	0	0	0	0	0	8	0	0	0	10	0	8
67%	0	0	0	0	0	0	0	0	0	5	0	0	0	7	0	5
Kalas Falls	0	0	0	0	0	0	0	0	0	25	0	0	0	74	0	12
67%	0	0	0	0	0	0	0	0	0	17	0	0	0	50	0	8
Woodlief Assemblage	0	0	0	0	0	0	0	0	0	13	0	0	0	37	0	6
67%	0	0	0	0	0	0	0	0	0	9	0	0	0	25	0	4
Preserve at Moody Farm	0	0	0	0	0	0	0	0	0	5	0	0	0	14	0	2
100%	0	0	0	0	0	0	0	0	0	5	0	0	0	14	0	2
Wheeler Tract/Rolesville Crossing	0	0	0	0	0	0	0	0	0	12	0	0	0	40	0	7
100%	0	0	0	0	0	0	0	0	0	12	0	0	0	40	0	7
Tucker Wilkins	0	0	0	0	0	0	0	0	0	4	0	0	0	11	0	2
100%	0	0	0	0	0	0	0	0	0	4	0	0	0	11	0	2
Merritt Property	0	0	0	0	0	0	0	0	0	28	0	0	0	38	0	15
67%	0	0	0	0	0	0	0	0	0	19	0	0	0	25	0	10
Total Approved Development Traffic	6	0	0	0	0	0	0	0	0	146	0	0	0	246	0	62
Final Background Growth																
Background Growth Total																
2027 No Build Traffic	0	0	0	0	0	0	0	0	0	892	0	0	0	1951	0	396
Trip Assignment																
Outbound Assigned Percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	15%	0%	0%
Outbound Primary Site Trips	0	0	0	0	0	0	0	0	0	0	0	0	0	42	0	0
Inbound Assigned Percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	15%	0%	0%	0%	0%	0%	20%
Inbound Primary Site Trips	0	0	0	0	0	0	0	0	0	53	0	0	0	0	0	71
Total Primary Site Trips	0	0	0	0	0	0	0	0	0	53	0	0	0	42	0	71
Pass-By Traffic Calculation																
Pass-By Capture Reduction													-1			
Pass-By Capture Assignment																
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	0	0
Total Project Traffic	6	0	0	0	0	0	0	0	0	53	0	0	0	41	0	71
2027 Buildout Volumes	0	0	0	0	0	0	0	0	0	945	0	0	0	1992	0	467

PM PEAK HOUR

	Northbound				Southbound U-Turn South of East Young Street				Eastbound US 401				Westbound US 401			
	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn
2025 Existing Traffic																
2025 Traffic Count									1292				594			
Balancing																
2025 Existing Traffic	0	0	0	0	0	0	0	0	0	1292	0	0	0	594	0	274
Background Growth Calculation																
Growth Factor	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
2027 Background Growth	6	0	0	0	0	0	0	0	0	53	0	0	0	24	0	12
2027 Background Traffic Due to Growth Factor	0	0	0	0	0	0	0	0	0	1345	0	0	0	618	0	286
Approved Developments																
The Point	0	0	0	0	0	0	0	0	0	324	0	0	0	122	0	84
48%	0	0	0	0	0	0	0	0	0	156	0	0	0	59	0	40
1216 Rolesville Road	0	0	0	0	0	0	0	0	0	12	0	0	0	10	0	12
67%	0	0	0	0	0	0	0	0	0	8	0	0	0	7	0	8
Kalas Falls	0	0	0	0	0	0	0	0	0	82	0	0	0	49	0	42
67%	0	0	0	0	0	0	0	0	0	55	0	0	0	33	0	28
Woodlief Assemblage	0	0	0	0	0	0	0	0	0	40	0	0	0	24	0	20
67%	0	0	0	0	0	0	0	0	0	27	0	0	0	16	0	13
Preserve at Moody Farm	0	0	0	0	0	0	0	0	0	16	0	0	0	8	0	8
100%	0	0	0	0	0	0	0	0	0	16	0	0	0	8	0	8
Wheeler Tract/Rolesville Crossing	0	0	0	0	0	0	0	0	0	45	0	0	0	26	0	22
100%	0	0	0	0	0	0	0	0	0	45	0	0	0	26	0	22
Tucker Wilkins	0	0	0	0	0	0	0	0	0	12	0	0	0	7	0	7
100%	0	0	0	0	0	0	0	0	0	12	0	0	0	7	0	7
Merritt Property	0	0	0	0	0	0	0	0	0	55	0	0	0	49	0	29
67%	0	0	0	0	0	0	0	0	0	37	0	0	0	33	0	19
Total Approved Development Traffic	0	0	0	0	0	0	0	0	0	356	0	0	0	189	0	145
Final Background Growth																
Background Growth Total																
2027 No Build Traffic	0	0	0	0	0	0	0	0	0	1701	0	0	0	807	0	431
Trip Assignment																
Outbound Assigned Percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	15%	0%	0%
Outbound Primary Site Trips	0	0	0	0	0	0	0	0	0	0	0	0	0	39	0	0
Inbound Assigned Percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	15%	0%	0%	0%	0%	0%	20%
Inbound Primary Site Trips	0	0	0	0	0	0	0	0	0	33	0	0	0	0	0	45
Total Primary Site Trips	0	0	0	0	0	0	0	0	0	33	0	0	0	39	0	45
Pass-By Traffic Calculation																
Pass-By Capture Reduction													-1			
Pass-By Capture Assignment																
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	0	0
Total Project Traffic	0	0	0	0	0	0	0	0	0	33	0	0	0	38	0	45
2027 Buildout Volumes	0	0	0	0	0	0	0	0	0	1734	0	0	0	845	0	476

Intersection Development Worksheet
Intersection #4 - East Young Street at Quarry Road/The Point North Driveway

AM PEAK HOUR

	Northbound East Young Street				Southbound East Young Street				Eastbound The Point North Driveway				Westbound Quarry Road			
	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn
2025 Existing Traffic																
2025 Traffic Count	4	391	44	0	174	582	17	0	4	0	7	0	28	0	140	0
Balancing	20	5			22	15			1	0	1	0	2	0	6	0
2025 Existing Traffic	4	411	49	0	196	597	17	0	4	0	7	0	28	0	140	0
Background Growth Calculation																
Growth Factor	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
2027 Background Growth	1	17	2	0	8	25	1	0	1	0	1	0	2	0	6	0
2027 Background Traffic Due to Growth Factor	5	428	51	0	204	622	18	0	5	0	8	0	30	0	146	0
Approved Developments																
The Point	10	96	0	0	0	69	152	0	163	0	94	0	0	0	0	0
48%	5	46	0	0	0	33	73	0	78	0	45	0	0	0	0	0
1216 Rolesville Road	0	26	2	0	0	24	0	0	0	0	0	0	3	0	0	0
67%	0	17	1	0	0	16	0	0	0	0	0	0	2	0	0	0
Kalas Falls	0	150	14	0	0	49	0	0	0	0	0	0	5	0	0	0
67%	0	101	9	0	0	33	0	0	0	0	0	0	3	0	0	0
Woodlief Assemblage	0	75	6	0	0	25	0	0	0	0	0	0	2	0	0	0
67%	0	50	4	0	0	17	0	0	0	0	0	0	1	0	0	0
Preserve at Moody Farm	0	28	2	0	0	9	0	0	0	0	0	0	1	0	0	0
100%	0	28	2	0	0	9	0	0	0	0	0	0	1	0	0	0
Wheeler Tract/Rolesville Crossing	0	80	6	0	0	26	0	0	0	0	0	0	2	0	0	0
100%	0	80	6	0	0	26	0	0	0	0	0	0	2	0	0	0
Tucker Wilkins	0	25	2	0	0	8	0	0	0	0	0	0	1	0	0	0
100%	0	25	2	0	0	8	0	0	0	0	0	0	1	0	0	0
Merritt Property	0	77	6	0	0	58	0	0	0	0	0	0	5	0	0	0
67%	0	52	4	0	0	39	0	0	0	0	0	0	3	0	0	0
Total Approved Development Traffic	5	399	28	0	9	161	73	0	78	0	45	0	13	0	0	0
Final Background Growth																
Background Growth Total																
2027 No Build Traffic	10	827	79	0	204	803	91	0	83	0	53	0	43	0	146	0
Trip Assignment																
Outbound Assigned Percentage	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	4%	35%	0%
Outbound Primary Site Trips	0	56	0	0	0	0	0	0	0	0	0	0	28	11	99	0
Inbound Assigned Percentage	0%	0%	10%	0%	35%	20%	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%
Inbound Primary Site Trips	0	0	36	0	124	71	0	0	0	14	0	0	0	0	0	0
Total Primary Site Trips	0	56	36	0	124	71	0	0	0	14	0	0	28	11	99	0
Pass-By Traffic Calculation																
Pass-By Capture Reduction		-1													-1	
Pass-By Capture Assignment																
Total Pass-By Traffic	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	-1	0
Total Project Traffic	0	55	36	0	124	71	0	0	0	14	0	0	28	11	98	0
2027 Buildout Volumes	10	882	115	0	328	874	91	0	83	14	53	0	71	11	244	0

PM PEAK HOUR

	Northbound East Young Street				Southbound East Young Street				Eastbound The Point North Driveway				Westbound Quarry Road			
	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn
2025 Existing Traffic																
2025 Traffic Count	2	376	13	0	91	351	6	0	11	0	11	0	9	0	53	0
Balancing	20				20											
2025 Existing Traffic	2	376	13	0	91	371	6	0	11	0	11	0	9	0	53	0
Background Growth Calculation																
Growth Factor	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
2027 Background Growth	1	16	1	0	4	15	1	0	1	0	1	0	1	0	3	0
2027 Background Traffic Due to Growth Factor	3	392	14	0	95	386	7	0	12	0	12	0	10	0	56	0
Approved Developments																
The Point	58	44	0	0	0	77	364	0	165	0	125	0	0	0	0	0
48%	28	21	0	0	0	37	175	0	79	0	60	0	0	0	0	0
1216 Rolesville Road	0	33	5	0	0	37	0	0	0	0	0	0	5	0	0	0
67%	0	22	3	0	0	25	0	0	0	0	0	0	3	0	0	0
Kalas Falls	0	97	9	0	0	166	0	0	0	0	0	0	15	0	0	0
67%	0	65	6	0	0	111	0	0	0	0	0	0	10	0	0	0
Woodlief Assemblage	0	48	4	0	0	80	0	0	0	0	0	0	7	0	0	0
67%	0	32	3	0	0	54	0	0	0	0	0	0	5	0	0	0
Preserve at Moody Farm	0	18	2	0	0	32	0	0	0	0	0	0	3	0	0	0
100%	0	18	2	0	0	32	0	0	0	0	0	0	3	0	0	0
Wheeler Tract/Rolesville Crossing	0	52	4	0	0	89	0	0	0	0	0	0	6	0	0	0
100%	0	52	4	0	0	89	0	0	0	0	0	0	6	0	0	0
Tucker Wilkins	0	15	1	0	0	26	0	0	0	0	0	0	2	0	0	0
100%	0	15	1	0	0	26	0	0	0	0	0	0	2	0	0	0
Merritt Property	0	97	9	0	0	114	0	0	0	0	0	0	10	0	0	0
67%	0	65	6	0	0	76	0	0	0	0	0	0	7	0	0	0
Total Approved Development Traffic	28	290	25	0	9	450	175	0	79	0	60	0	38	0	0	0
Final Background Growth																
Background Growth Total																
2027 No Build Traffic	31	682	39	0	95	836	182	0	91	0	72	0	46	0	56	0
Trip Assignment																
Outbound Assigned Percentage	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	4%	35%	0%
Outbound Primary Site Trips	0	52	0	0	0	0	0	0	0	0	0	0	26	10	90	0
Inbound Assigned Percentage	0%	0%	10%	0%	35%	20%	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%
Inbound Primary Site Trips	0	0	22	0	78	44	0	0	0	9	0	0	0	0	0	0
Total Primary Site Trips	0	52	22	0	78	44	0	0	0	9	0	0	26	10	90	0
Pass-By Traffic Calculation																
Pass-By Capture Reduction		-3													-1	
Pass-By Capture Assignment																
Total Pass-By Traffic	0	-3	0	0	0	0	0	0	0	0	0	0	0	0	-1	0
Total Project Traffic	0	49	22	0	78	44	0	0	0	9	0	0	26	10	89	0
2027 Buildout Volumes	31	731	61	0	173	880	182	0	91	9	72	0	72	10	145	0

Intersection Development Worksheet
Intersection #5 - Quarry Road at Rolesville High School Staff & Bus Driveway

AM PEAK HOUR

	Northbound RHS Staff & Bus Driveway				Southbound -				Eastbound Quarry Road				Westbound Quarry Road			
	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn
2025 Existing Traffic																
2025 Traffic Count	122	0	19	0	0	0	0	0	0	22	223	0	32	40	0	0
Balancing																
2025 Existing Traffic	122	0	19	0	0	0	0	0	0	22	223	0	32	40	0	0
Background Growth Calculation																
Growth Factor	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
2027 Background Growth	5	0	1	0	0	0	0	0	0	1	20	0	2	2	0	0
2027 Background Traffic Due to Growth Factor	127	0	20	0	0	0	0	0	0	23	233	0	34	42	0	0
Approved Developments																
The Point	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1216 Rolesville Road	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0
67%	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0
Kalas Falls	0	0	0	0	0	0	0	0	0	14	0	0	0	5	0	0
67%	0	0	0	0	0	0	0	0	0	9	0	0	0	3	0	0
Woodlief Assemblage	0	0	0	0	0	0	0	0	0	6	0	0	0	2	0	0
67%	0	0	0	0	0	0	0	0	0	4	0	0	0	1	0	0
Preserve at Moody Farm	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0
100%	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0
Wheeler Tract/Rolesville Crossing	0	0	0	0	0	0	0	0	0	6	0	0	0	2	0	0
100%	0	0	0	0	0	0	0	0	0	6	0	0	0	2	0	0
Tucker Wilkins	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0
100%	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0
Merritt Property	0	0	0	0	0	0	0	0	0	6	0	0	0	5	0	0
67%	0	0	0	0	0	0	0	0	0	4	0	0	0	3	0	0
Total Approved Development Traffic	0	0	0	0	0	0	0	0	0	28	0	0	0	13	0	0
Final Background Growth																
Background Growth Total																
2027 No Build Traffic	127	0	20	0	0	0	0	0	0	51	233	0	34	55	0	0
Trip Assignment																
Outbound Assigned Percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%
Outbound Primary Site Trips	0	0	0	0	0	0	0	0	0	28	0	0	0	0	0	0
Inbound Assigned Percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
Inbound Primary Site Trips	0	0	0	0	0	0	0	0	0	0	0	0	0	36	0	0
Total Primary Site Trips	0	0	0	0	0	0	0	0	0	28	0	0	0	36	0	0
Pass-By Traffic Calculation																
Pass-By Capture Reduction																
Pass-By Capture Assignment																
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	0	0	0	0	0	0	0	0	28	0	0	0	36	0	0
2027 Buildout Volumes	127	0	20	0	0	0	0	0	0	79	233	0	34	91	0	0

PM PEAK HOUR

	Northbound RHS Staff & Bus Driveway				Southbound -				Eastbound Quarry Road				Westbound Quarry Road			
	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn
2025 Existing Traffic																
2025 Traffic Count	28	0	2	0	0	0	0	0	0	60	41	0	5	37	0	0
Balancing																
2025 Existing Traffic	28	0	2	0	0	0	0	0	0	60	41	0	5	37	0	0
Background Growth Calculation																
Growth Factor	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
2027 Background Growth	2	0	1	0	0	0	0	0	0	3	2	0	1	2	0	0
2027 Background Traffic Due to Growth Factor	30	0	3	0	0	0	0	0	0	63	43	0	6	39	0	0
Approved Developments																
The Point	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1216 Rolesville Road	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0
67%	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	0
Kalas Falls	0	0	0	0	0	0	0	0	0	9	0	0	0	15	0	0
67%	0	0	0	0	0	0	0	0	0	6	0	0	0	10	0	0
Woodlief Assemblage	0	0	0	0	0	0	0	0	0	4	0	0	0	7	0	0
67%	0	0	0	0	0	0	0	0	0	3	0	0	0	5	0	0
Preserve at Moody Farm	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0
100%	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0
Wheeler Tract/Rolesville Crossing	0	0	0	0	0	0	0	0	0	4	0	0	0	6	0	0
100%	0	0	0	0	0	0	0	0	0	4	0	0	0	6	0	0
Tucker Wilkins	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0
100%	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0
Merritt Property	0	0	0	0	0	0	0	0	0	9	0	0	0	10	0	0
67%	0	0	0	0	0	0	0	0	0	6	0	0	0	7	0	0
Total Approved Development Traffic	0	0	0	0	0	0	0	0	0	23	0	0	0	36	0	0
Final Background Growth																
Background Growth Total																
2027 No Build Traffic	30	0	3	0	0	0	0	0	0	83	43	0	6	75	0	0
Trip Assignment																
Outbound Assigned Percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%
Outbound Primary Site Trips	0	0	0	0	0	0	0	0	0	26	0	0	0	0	0	0
Inbound Assigned Percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
Inbound Primary Site Trips	0	0	0	0	0	0	0	0	0	0	0	0	0	22	0	0
Total Primary Site Trips	0	0	0	0	0	0	0	0	0	26	0	0	0	22	0	0
Pass-By Traffic Calculation																
Pass-By Capture Reduction										-1						
Pass-By Capture Assignment																
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	-1	0	0	0	0	0	0
Total Project Traffic	0	0	0	0	0	0	0	0	0	25	0	0	0	22	0	0
2027 Buildout Volumes	30	0	3	0	0	0	0	0	0	113	43	0	6	97	0	0

Intersection Development Worksheet
Intersection #6 - East Young Street / Rolesville Road at Rolesville High School Student & Carpool Driveway/The Point South Driveway

AM PEAK HOUR

	Northbound Rolesville Road				Southbound East Young Street				Eastbound The Point South Driveway				Westbound RHS Student & Carpool Driveway			
	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn
2025 Existing Traffic																
2025 Traffic Count	1	255	206	0	334	297	0	0	0	0	0	0	100	1	202	0
Balancing	1	255	206	0	334	297	0	0	0	0	0	0	100	1	202	0
2025 Existing Traffic																
Background Growth Calculation																
Growth Factor	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
2027 Background Growth	1	11	9	0	14	12	0	0	0	0	0	0	5	1	9	0
2027 Background Traffic Due to Growth Factor	2	266	215	0	348	309	0	0	0	0	0	0	105	2	211	0
Approved Developments																
The Point	3	37	0	0	0	207	10	0	14	0	9	0	0	0	0	0
48%	1	18	0	0	0	99	5	0	7	0	4	0	0	0	0	0
1216 Rolesville Road	0	28	0	0	0	27	0	0	0	0	0	0	0	0	0	0
67%	0	19	0	0	0	18	0	0	0	0	0	0	0	0	0	0
Kalas Falls	0	163	0	0	0	54	0	0	0	0	0	0	0	0	0	0
67%	0	109	0	0	0	36	0	0	0	0	0	0	0	0	0	0
Woodlief Assemblage	0	81	0	0	0	27	0	0	0	0	0	0	0	0	0	0
67%	0	54	0	0	0	18	0	0	0	0	0	0	0	0	0	0
Preserve at Moody Farm	0	30	0	0	0	10	0	0	0	0	0	0	0	0	0	0
100%	0	30	0	0	0	10	0	0	0	0	0	0	0	0	0	0
Wheeler Tract/Rolesville Crossing	0	86	0	0	0	28	0	0	0	0	0	0	0	0	0	0
100%	0	86	0	0	0	28	0	0	0	0	0	0	0	0	0	0
Tucker Wilkins	0	27	0	0	0	9	0	0	0	0	0	0	0	0	0	0
100%	0	27	0	0	0	9	0	0	0	0	0	0	0	0	0	0
Merritt Property	0	83	0	0	0	63	0	0	0	0	0	0	0	0	0	0
67%	0	56	0	0	0	42	0	0	0	0	0	0	0	0	0	0
Total Approved Development Traffic	1	399	0	0	0	260	5	0	7	0	4	0	6	0	0	0
Final Background Growth																
Background Growth Total																
2027 No Build Traffic	3	665	215	0	348	569	5	0	7	0	4	0	105	2	211	0
Trip Assignment																
Outbound Assigned Percentage	0%	0%	0%	0%	0%	30%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Primary Site Trips	0	0	0	0	0	84	3	0	0	0	0	0	0	0	0	0
Inbound Assigned Percentage	0%	30%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Inbound Primary Site Trips	0	107	0	0	0	0	0	0	4	0	0	0	0	0	0	0
Total Primary Site Trips	0	107	0	0	0	84	3	0	4	0	0	0	0	0	0	0
Pass-By Traffic Calculation																
Pass-By Capture Reduction						-2										
Pass-By Capture Assignment						-2										
Total Pass-By Traffic	0	0	0	0	0	-2	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	107	0	0	0	82	3	0	4	0	0	0	0	0	0	0
2027 Buildout Volumes	3	772	215	0	348	651	8	0	11	0	4	0	105	2	211	0

PM PEAK HOUR

	Northbound Rolesville Road				Southbound East Young Street				Eastbound The Point South Driveway				Westbound RHS Student & Carpool Driveway			
	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn
2025 Existing Traffic																
2025 Traffic Count	0	282	28	0	62	313	0	1	1	0	0	0	49	0	107	0
Balancing	0	282	28	0	62	313	0	1	1	0	0	0	49	0	107	0
2025 Existing Traffic																
Background Growth Calculation																
Growth Factor	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
2027 Background Growth	0	12	2	0	3	14	0	1	1	0	0	0	2	0	5	0
2027 Background Traffic Due to Growth Factor	0	294	30	0	65	342	0	2	2	0	0	0	51	0	112	0
Approved Developments																
The Point	5	78	0	0	0	166	21	0	11	0	8	0	0	0	0	0
48%	2	37	0	0	0	80	10	0	5	0	4	0	0	0	0	0
1216 Rolesville Road	0	38	0	0	0	42	0	0	0	0	0	0	0	0	0	0
67%	0	25	0	0	0	28	0	0	0	0	0	0	0	0	0	0
Kalas Falls	0	106	0	0	0	181	0	0	0	0	0	0	0	0	0	0
67%	0	71	0	0	0	121	0	0	0	0	0	0	0	0	0	0
Woodlief Assemblage	0	52	0	0	0	87	0	0	0	0	0	0	0	0	0	0
67%	0	35	0	0	0	58	0	0	0	0	0	0	0	0	0	0
Preserve at Moody Farm	0	20	0	0	0	35	0	0	0	0	0	0	0	0	0	0
100%	0	20	0	0	0	35	0	0	0	0	0	0	0	0	0	0
Wheeler Tract/Rolesville Crossing	0	56	0	0	0	95	0	0	0	0	0	0	0	0	0	0
100%	0	56	0	0	0	95	0	0	0	0	0	0	0	0	0	0
Tucker Wilkins	0	16	0	0	0	28	0	0	0	0	0	0	0	0	0	0
100%	0	16	0	0	0	28	0	0	0	0	0	0	0	0	0	0
Merritt Property	0	107	0	0	0	123	0	0	0	0	0	0	0	0	0	0
67%	0	72	0	0	0	82	0	0	0	0	0	0	0	0	0	0
Total Approved Development Traffic	2	332	0	0	0	527	10	0	5	0	4	0	0	0	0	0
Final Background Growth																
Background Growth Total																
2027 No Build Traffic	2	626	30	0	65	869	10	2	7	0	4	0	51	0	112	0
Trip Assignment																
Outbound Assigned Percentage	0%	0%	0%	0%	0%	30%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Primary Site Trips	0	0	0	0	0	77	3	0	0	0	0	0	0	0	0	0
Inbound Assigned Percentage	0%	30%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Inbound Primary Site Trips	0	66	0	0	0	0	0	0	2	0	0	0	0	0	0	0
Total Primary Site Trips	0	66	0	0	0	77	3	0	2	0	0	0	0	0	0	0
Pass-By Traffic Calculation																
Pass-By Capture Reduction						-4										
Pass-By Capture Assignment						-4										
Total Pass-By Traffic	0	0	0	0	0	-4	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	66	0	0	0	73	3	0	2	0	0	0	0	0	0	0
2027 Buildout Volumes	2	692	30	0	65	942	13	2	9	0	4	0	51	0	112	0

Intersection Development Worksheet
Intersection #7 - Rolesville Road at Fowler Road/Merritt Property Southern Driveway

AM PEAK HOUR

	Northbound Rolesville Road				Southbound Rolesville Road				Eastbound Merritt Property Southern Driveway				Westbound Fowler Road			
	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn
2025 Existing Traffic																
2025 Traffic Count	0	317	3	0	55	343	0	0	0	0	0	0	2	0	134	0
Balancing	0	317	3	0	55	343	0	0	0	0	0	0	2	0	134	0
2025 Existing Traffic	0	317	3	0	55	343	0	0	0	0	0	0	2	0	134	0
Background Growth Calculation																
Growth Factor	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
2027 Background Growth	0	15	1	0	5	14	0	0	0	0	0	0	1	0	5	0
2027 Background Traffic Due to Growth Factor	0	330	4	0	58	357	0	0	0	0	0	0	3	0	140	0
Approved Developments																
The Point	0	40	0	0	0	216	0	0	0	0	0	0	0	0	0	0
48%	0	19	0	0	0	104	0	0	0	0	0	0	0	0	0	0
1216 Rolesville Road	0	11	0	0	4	14	0	0	0	0	0	0	0	0	5	0
67%	0	7	0	0	3	9	0	0	0	0	0	0	0	0	3	0
Kalas Falls	0	163	0	0	0	54	0	0	0	0	0	0	0	0	0	0
67%	0	109	0	0	0	36	0	0	0	0	0	0	0	0	0	0
Woodlief Assemblage	0	81	12	0	0	27	0	0	0	0	0	0	4	0	0	0
67%	0	54	8	0	0	18	0	0	0	0	0	0	3	0	0	0
Preserve at Moody Farm	0	30	5	0	0	10	0	0	0	0	0	0	2	0	0	0
100%	0	30	5	0	0	10	0	0	0	0	0	0	2	0	0	0
Wheeler Tract/Rolesville Crossing	0	86	0	0	0	28	0	0	0	0	0	0	0	0	0	0
100%	0	86	0	0	0	28	0	0	0	0	0	0	0	0	0	0
Tucker Wilkins	0	27	4	0	0	9	0	0	0	0	0	0	1	0	0	0
100%	0	27	4	0	0	9	0	0	0	0	0	0	1	0	0	0
Merritt Property	20	5	0	0	0	13	29	0	58	13	19	0	0	10	0	0
67%	13	3	0	0	0	9	19	0	39	9	13	0	0	7	0	0
Total Approved Development Traffic	13	335	17	0	3	223	19	0	39	9	13	0	6	7	3	0
Final Background Growth																
Background Growth Total																
2027 No Build Traffic	13	665	21	0	61	580	19	0	39	9	13	0	9	7	143	0
Trip Assignment																
Outbound Assigned Percentage	0%	0%	0%	0%	5%	24%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Primary Site Trips	0	0	0	0	14	67	3	0	0	0	0	0	0	0	0	0
Inbound Assigned Percentage	0%	24%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	5%	0%
Inbound Primary Site Trips	0	85	0	0	0	0	0	0	4	0	0	0	0	0	18	0
Total Primary Site Trips	0	85	0	0	14	67	3	0	4	0	0	0	0	0	18	0
Pass-By Traffic Calculation																
Pass-By Capture Reduction					-2											
Pass-By Capture Assignment																
Total Pass-By Traffic	0	0	0	0	0	-2	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	85	0	0	14	65	3	0	4	0	0	0	0	0	18	0
2027 Buildout Volumes	13	750	21	0	75	645	22	0	43	9	13	0	9	7	161	0

PM PEAK HOUR

	Northbound Rolesville Road				Southbound Rolesville Road				Eastbound Merritt Property Southern Driveway				Westbound Fowler Road			
	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn
2025 Existing Traffic																
2025 Traffic Count	0	260	2	0	81	267	0	0	0	0	0	0	1	0	47	0
Balancing	0	260	2	0	81	267	0	0	0	0	0	0	1	0	47	0
2025 Existing Traffic	0	260	2	0	81	267	0	0	0	0	0	0	1	0	47	0
Background Growth Calculation																
Growth Factor	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
2027 Background Growth	0	11	1	0	4	11	0	0	0	0	0	0	1	0	2	0
2027 Background Traffic Due to Growth Factor	0	271	3	0	85	278	0	0	0	0	0	0	2	0	49	0
Approved Developments																
The Point	0	83	0	0	0	174	0	0	0	0	0	0	0	0	0	0
48%	0	40	0	0	0	84	0	0	0	0	0	0	0	0	0	0
1216 Rolesville Road	0	18	0	0	6	15	0	0	0	0	0	0	0	0	6	0
67%	0	12	0	0	4	10	0	0	0	0	0	0	0	0	4	0
Kalas Falls	0	106	0	0	0	181	0	0	0	0	0	0	0	0	0	0
67%	0	71	0	0	0	121	0	0	0	0	0	0	0	0	0	0
Woodlief Assemblage	0	52	8	0	0	87	0	0	0	0	0	0	14	0	0	0
67%	0	35	5	0	0	58	0	0	0	0	0	0	9	0	0	0
Preserve at Moody Farm	0	20	3	0	0	35	0	0	0	0	0	0	5	0	0	0
100%	0	20	3	0	0	35	0	0	0	0	0	0	5	0	0	0
Wheeler Tract/Rolesville Crossing	0	56	0	0	0	95	0	0	0	0	0	0	0	0	0	0
100%	0	56	0	0	0	95	0	0	0	0	0	0	0	0	0	0
Tucker Wilkins	0	16	3	0	0	28	0	0	0	0	0	0	4	0	0	0
100%	0	16	3	0	0	28	0	0	0	0	0	0	4	0	0	0
Merritt Property	56	-8	0	0	0	-3	76	0	92	16	44	0	0	19	0	0
67%	38	-5	0	0	0	-2	51	0	62	11	29	0	0	13	0	0
Total Approved Development Traffic	38	245	11	0	4	429	51	0	62	11	29	0	18	13	4	0
Final Background Growth																
Background Growth Total																
2027 No Build Traffic	38	516	14	0	89	707	51	0	62	11	29	0	20	13	53	0
Trip Assignment																
Outbound Assigned Percentage	0%	0%	0%	0%	5%	24%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Primary Site Trips	0	0	0	0	13	61	3	0	0	0	0	0	0	0	0	0
Inbound Assigned Percentage	0%	24%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	5%	0%
Inbound Primary Site Trips	0	53	0	0	0	0	0	0	2	0	0	0	0	0	11	0
Total Primary Site Trips	0	53	0	0	13	61	3	0	2	0	0	0	0	0	11	0
Pass-By Traffic Calculation																
Pass-By Capture Reduction					-4											
Pass-By Capture Assignment																
Total Pass-By Traffic	0	0	0	0	0	-4	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	53	0	0	13	57	3	0	2	0	0	0	0	0	11	0
2027 Buildout Volumes	38	569	14	0	102	764	54	0	64	11	29	0	20	13	64	0

Intersection Development Worksheet
Intersection #8 - Rolesville Road at Mitchell Mill Road

AM PEAK HOUR

	Northbound Rolesville Road				Southbound Rolesville Road				Eastbound Mitchell Mill Road				Westbound Mitchell Mill Road			
	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn
2025 Existing Traffic																
2025 Traffic Count	7	213	20	0	2	286	57	0	90	33	1	0	101	223	16	0
Balancing																
2025 Existing Traffic	7	213	20	0	2	286	57	0	90	33	1	0	101	223	16	0
Background Growth Calculation																
Growth Factor	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
2027 Background Growth	1	9	1	0	1	12	3	0	4	2	1	0	5	19	1	0
2027 Background Traffic Due to Growth Factor	8	222	21	0	3	298	60	0	94	35	2	0	106	232	17	0
Approved Developments																
The Point	0	40	0	0	0	76	140	0	0	0	0	0	0	0	0	0
48%	0	19	0	0	0	36	67	0	0	0	0	0	0	0	0	0
1216 Rolesville Road	0	9	0	0	0	12	2	0	2	0	0	0	0	0	0	0
67%	0	6	0	0	0	8	1	0	1	0	0	0	0	0	0	0
Kalas Falls	0	22	0	0	13	68	27	0	9	0	0	0	0	0	5	0
67%	0	15	0	0	9	46	18	0	6	0	0	0	0	0	3	0
Woodlief Assemblage	0	4	0	0	0	12	19	0	6	0	0	0	0	0	0	0
67%	0	3	0	0	0	8	13	0	4	0	0	0	0	0	0	0
Preserve at Moody Farm	0	2	0	0	0	5	7	0	2	0	0	0	0	0	0	0
100%	0	2	0	0	0	5	7	0	2	0	0	0	0	0	0	0
Wheeler Tract/Rolesville Crossing	0	3	3	0	0	9	26	0	8	14	0	0	9	43	0	0
100%	0	3	3	0	0	9	26	0	8	14	0	0	9	43	0	0
Tucker Wilkins	0	1	0	0	0	4	7	0	2	0	0	0	0	0	0	0
100%	0	1	0	0	0	4	7	0	2	0	0	0	0	0	0	0
Merritt Property	0	10	0	0	0	13	19	0	15	0	0	0	0	0	0	0
67%	0	7	0	0	0	9	13	0	10	0	0	0	0	0	0	0
Total Approved Development Traffic	0	96	3	0	9	125	152	0	33	14	0	0	9	43	3	0
Final Background Growth																
Background Growth Total																
2027 No Build Traffic	8	278	24	0	12	423	212	0	127	49	2	0	115	276	20	0
Trip Assignment																
Outbound Assigned Percentage	0%	0%	0%	0%	2%	10%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Primary Site Trips	0	0	0	0	6	28	14	0	0	0	0	0	0	0	0	0
Inbound Assigned Percentage	0%	10%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	2%	0%
Inbound Primary Site Trips	0	35	0	0	0	0	0	0	18	0	0	0	0	0	7	0
Total Primary Site Trips	0	35	0	0	6	28	14	0	18	0	0	0	0	0	7	0
Pass-By Traffic Calculation																
Pass-By Capture Reduction					-2											
Pass-By Capture Assignment																
Total Pass-By Traffic	0	0	0	0	0	-2	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	8	35	0	0	6	26	14	0	18	0	0	0	0	0	7	0
2027 Buildout Volumes	8	313	24	0	18	449	226	0	145	49	2	0	115	276	27	0

PM PEAK HOUR

	Northbound Rolesville Road				Southbound Rolesville Road				Eastbound Mitchell Mill Road				Westbound Mitchell Mill Road			
	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn
2025 Existing Traffic																
2025 Traffic Count	9	215	67	0	4	215	42	0	37	166	11	0	35	50	6	0
Balancing																
2025 Existing Traffic	9	215	67	0	4	215	42	0	37	166	11	0	35	50	6	0
Background Growth Calculation																
Growth Factor	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
2027 Background Growth	1	9	3	0	1	9	2	0	2	7	1	0	2	3	1	0
2027 Background Traffic Due to Growth Factor	10	224	70	0	5	224	44	0	39	173	12	0	37	53	7	0
Approved Developments																
The Point	0	83	0	0	0	60	113	0	0	0	0	0	0	0	0	0
48%	0	40	0	0	0	29	54	0	0	0	0	0	0	0	0	0
1216 Rolesville Road	0	15	0	0	1	12	2	0	3	0	0	0	0	0	0	0
67%	0	10	0	0	1	8	1	0	2	0	0	0	0	0	0	0
Kalas Falls	0	75	0	0	9	44	18	0	30	0	0	0	0	0	15	0
67%	0	50	0	0	6	29	12	0	20	0	0	0	0	0	10	0
Woodlief Assemblage	0	13	0	0	0	8	12	0	20	0	0	0	0	0	0	0
67%	0	9	0	0	0	5	8	0	13	0	0	0	0	0	0	0
Preserve at Moody Farm	0	5	0	0	0	3	5	0	8	0	0	0	0	0	0	0
100%	0	5	0	0	0	3	5	0	8	0	0	0	0	0	0	0
Wheeler Tract/Rolesville Crossing	0	10	10	0	0	6	16	0	28	47	0	0	6	28	0	0
100%	0	10	10	0	0	6	16	0	28	47	0	0	6	28	0	0
Tucker Wilkins	0	4	0	0	0	3	4	0	7	0	0	0	0	0	0	0
100%	0	4	0	0	0	3	4	0	7	0	0	0	0	0	0	0
Merritt Property	0	19	0	0	0	16	25	0	29	0	0	0	0	0	0	0
67%	0	13	0	0	0	11	17	0	19	0	0	0	0	0	0	0
Total Approved Development Traffic	0	141	10	0	7	94	117	0	97	47	0	0	6	29	10	0
Final Background Growth																
Background Growth Total																
2027 No Build Traffic	10	365	80	0	12	318	161	0	136	220	12	0	43	81	17	0
Trip Assignment																
Outbound Assigned Percentage	0%	0%	0%	0%	2%	10%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Primary Site Trips	0	0	0	0	5	25	13	0	0	0	0	0	0	0	0	0
Inbound Assigned Percentage	0%	10%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	2%	0%
Inbound Primary Site Trips	0	22	0	0	0	0	0	0	11	0	0	0	0	0	4	0
Total Primary Site Trips	0	22	0	0	5	25	13	0	11	0	0	0	0	0	4	0
Pass-By Traffic Calculation																
Pass-By Capture Reduction					-4											
Pass-By Capture Assignment																
Total Pass-By Traffic	0	0	0	0	0	-4	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	22	0	0	5	21	13	0	11	0	0	0	0	0	4	0
2027 Buildout Volumes	10	387	80	0	17	339	174	0	147	220	12	0	43	81	21	0

Intersection Development Worksheet
Intersection #9 - Quarry Road at Proposed RIRO/Left-Out Site Driveway

AM PEAK HOUR

	Northbound Proposed RIRO/Left-Out Site Driveway				Southbound -				Eastbound Quarry Road				Westbound Quarry Road			
	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn
2025 Existing Traffic																
2025 Traffic Count									245				162			
Balancing																
2025 Existing Traffic	0	0	0	0	0	0	0	0	0	245	0	0	0	162	0	0
Background Growth Calculation																
Growth Factor	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
2027 Background Growth	0	0	0	0	0	0	0	0	0	19	0	0	0	7	0	0
2027 Background Traffic Due to Growth Factor	0	0	0	0	0	0	0	0	0	235	0	0	0	169	0	0
Approved Developments																
The Point	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1216 Rolesville Road	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0
67%	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0
Kalas Falls	0	0	0	0	0	0	0	0	0	14	0	0	0	5	0	0
67%	0	0	0	0	0	0	0	0	0	9	0	0	0	3	0	0
Woodlief Assemblage	0	0	0	0	0	0	0	0	0	6	0	0	0	2	0	0
67%	0	0	0	0	0	0	0	0	0	4	0	0	0	1	0	0
Preserve at Moody Farm	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0
100%	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0
Wheeler Tract/Rolesville Crossing	0	0	0	0	0	0	0	0	0	6	0	0	0	2	0	0
100%	0	0	0	0	0	0	0	0	0	6	0	0	0	2	0	0
Tucker Wilkins	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0
100%	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0
Merritt Property	0	0	0	0	0	0	0	0	0	6	0	0	0	5	0	0
67%	0	0	0	0	0	0	0	0	0	4	0	0	0	3	0	0
Total Approved Development Traffic	0	0	0	0	0	0	0	0	0	28	0	0	0	6	13	0
Final Background Growth																
Background Growth Total																
2027 No Build Traffic	0	0	0	0	0	0	0	0	0	263	0	0	0	182	0	0
Trip Assignment																
Outbound Assigned Percentage	10%	0%	5%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%
Outbound Primary Site Trips	28	0	14	0	0	0	0	0	0	14	0	0	0	0	0	0
Inbound Assigned Percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	10%	0%	0%
Inbound Primary Site Trips	0	0	0	0	0	0	0	0	0	0	36	0	0	36	0	0
Total Primary Site Trips	28	0	14	0	0	0	0	0	0	14	36	0	0	36	0	0
Pass-By Traffic Calculation																
Pass-By Capture Reduction									-3							
Pass-By Capture Assignment	3		3						3							
Total Pass-By Traffic	3	0	3	0	0	0	0	0	0	-3	3	0	0	0	0	0
Total Project Traffic	31	0	17	0	0	0	0	0	0	11	39	0	0	36	0	0
2027 Buildout Volumes	31	0	17	0	0	0	0	0	0	294	39	0	0	218	0	0

PM PEAK HOUR

	Northbound Proposed RIRO/Left-Out Site Driveway				Southbound -				Eastbound Quarry Road				Westbound Quarry Road			
	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn
2025 Existing Traffic																
2025 Traffic Count									101				65			
Balancing																
2025 Existing Traffic	0	0	0	0	0	0	0	0	0	101	0	0	0	65	0	0
Background Growth Calculation																
Growth Factor	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
2027 Background Growth	0	0	0	0	0	0	0	0	0	5	0	0	0	3	0	0
2027 Background Traffic Due to Growth Factor	0	0	0	0	0	0	0	0	0	106	0	0	0	68	0	0
Approved Developments																
The Point	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1216 Rolesville Road	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0
67%	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	0
Kalas Falls	0	0	0	0	0	0	0	0	0	9	0	0	0	15	0	0
67%	0	0	0	0	0	0	0	0	0	6	0	0	0	10	0	0
Woodlief Assemblage	0	0	0	0	0	0	0	0	0	4	0	0	0	7	0	0
67%	0	0	0	0	0	0	0	0	0	3	0	0	0	5	0	0
Preserve at Moody Farm	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0
100%	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0
Wheeler Tract/Rolesville Crossing	0	0	0	0	0	0	0	0	0	4	0	0	0	6	0	0
100%	0	0	0	0	0	0	0	0	0	4	0	0	0	6	0	0
Tucker Wilkins	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0
100%	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0
Merritt Property	0	0	0	0	0	0	0	0	0	9	0	0	0	10	0	0
67%	0	0	0	0	0	0	0	0	0	6	0	0	0	7	0	0
Total Approved Development Traffic	0	0	0	0	0	0	0	0	0	23	0	0	0	34	0	0
Final Background Growth																
Background Growth Total																
2027 No Build Traffic	0	0	0	0	0	0	0	0	0	131	0	0	0	104	0	0
Trip Assignment																
Outbound Assigned Percentage	10%	0%	5%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%
Outbound Primary Site Trips	26	0	13	0	0	0	0	0	0	13	0	0	0	0	0	0
Inbound Assigned Percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	10%	0%	0%
Inbound Primary Site Trips	0	0	0	0	0	0	0	0	0	0	22	0	0	22	0	0
Total Primary Site Trips	26	0	13	0	0	0	0	0	0	13	22	0	0	22	0	0
Pass-By Traffic Calculation																
Pass-By Capture Reduction									-2							
Pass-By Capture Assignment	3		1						2							
Total Pass-By Traffic	3	0	1	0	0	0	0	0	0	-2	2	0	0	0	0	0
Total Project Traffic	29	0	14	0	0	0	0	0	0	11	24	0	0	22	0	0
2027 Buildout Volumes	29	0	14	0	0	0	0	0	0	142	24	0	0	126	0	0

Intersection Development Worksheet
Intersection #10 - Quarry Road at Proposed Full Movement Site Driveway

AM PEAK HOUR

	Northbound Proposed Full Movement Site Driveway				Southbound -				Eastbound Quarry Road				Westbound Quarry Road			
	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn
2025 Existing Traffic																
2025 Traffic Count									245				162			
Balancing																
2025 Existing Traffic	0	0	0	0	0	0	0	0	0	245	0	0	0	162	0	0
Background Growth Calculation																
Growth Factor	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
2027 Background Growth	0	0	0	0	0	0	0	0	0	19	0	0	0	7	0	0
2027 Background Traffic Due to Growth Factor	0	0	0	0	0	0	0	0	0	235	0	0	0	160	0	0
Approved Developments																
The Point	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1216 Rolesville Road	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0
67%	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0
Kalas Falls	0	0	0	0	0	0	0	0	0	14	0	0	0	5	0	0
67%	0	0	0	0	0	0	0	0	0	9	0	0	0	3	0	0
Woodlief Assemblage	0	0	0	0	0	0	0	0	0	6	0	0	0	2	0	0
67%	0	0	0	0	0	0	0	0	0	4	0	0	0	1	0	0
Preserve at Moody Farm	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0
100%	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0
Wheeler Tract/Rolesville Crossing	0	0	0	0	0	0	0	0	0	6	0	0	0	2	0	0
100%	0	0	0	0	0	0	0	0	0	6	0	0	0	2	0	0
Tucker Wilkins	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0
100%	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0
Merritt Property	0	0	0	0	0	0	0	0	0	6	0	0	0	5	0	0
67%	0	0	0	0	0	0	0	0	0	4	0	0	0	3	0	0
Total Approved Development Traffic	0	0	0	0	0	0	0	0	0	28	0	0	0	13	0	0
Final Background Growth																
Background Growth Total																
2027 No Build Traffic	0	0	0	0	0	0	0	0	0	263	0	0	0	182	0	0
Trip Assignment																
Outbound Assigned Percentage	39%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
Outbound Primary Site Trips	110	0	14	0	0	0	0	0	0	0	0	0	0	28	0	0
Inbound Assigned Percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	39%	0%	10%	0%	0%	0%
Inbound Primary Site Trips	0	0	0	0	0	0	0	0	0	36	138	0	36	0	0	0
Total Primary Site Trips	110	0	14	0	0	0	0	0	0	36	138	0	36	28	0	0
Pass-By Traffic Calculation																
Pass-By Capture Reduction									-7				-9			
Pass-By Capture Assignment	5		7						7				3			
Total Pass-By Traffic	5	0	7	0	0	0	0	0	0	-7	7	0	9	-6	0	0
Total Project Traffic	115	0	21	0	0	0	0	0	0	29	145	0	45	22	0	0
2027 Buildout Volumes	115	0	21	0	0	0	0	0	0	312	145	0	45	204	0	0

PM PEAK HOUR

	Northbound Proposed Full Movement Site Driveway				Southbound -				Eastbound Quarry Road				Westbound Quarry Road			
	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn
2025 Existing Traffic																
2025 Traffic Count									101				65			
Balancing																
2025 Existing Traffic	0	0	0	0	0	0	0	0	0	101	0	0	0	65	0	0
Background Growth Calculation																
Growth Factor	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
2027 Background Growth	0	0	0	0	0	0	0	0	0	5	0	0	0	3	0	0
2027 Background Traffic Due to Growth Factor	0	0	0	0	0	0	0	0	0	106	0	0	0	68	0	0
Approved Developments																
The Point	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1216 Rolesville Road	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0
67%	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	0
Kalas Falls	0	0	0	0	0	0	0	0	0	9	0	0	0	15	0	0
67%	0	0	0	0	0	0	0	0	0	6	0	0	0	10	0	0
Woodlief Assemblage	0	0	0	0	0	0	0	0	0	4	0	0	0	7	0	0
67%	0	0	0	0	0	0	0	0	0	3	0	0	0	5	0	0
Preserve at Moody Farm	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0
100%	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0
Wheeler Tract/Rolesville Crossing	0	0	0	0	0	0	0	0	0	4	0	0	0	6	0	0
100%	0	0	0	0	0	0	0	0	0	4	0	0	0	6	0	0
Tucker Wilkins	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0
100%	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0
Merritt Property	0	0	0	0	0	0	0	0	0	9	0	0	0	10	0	0
67%	0	0	0	0	0	0	0	0	0	6	0	0	0	7	0	0
Total Approved Development Traffic	0	0	0	0	0	0	0	0	0	24	1	0	0	36	0	0
Final Background Growth																
Background Growth Total																
2027 No Build Traffic	0	0	0	0	0	0	0	0	0	130	1	0	0	104	0	0
Trip Assignment																
Outbound Assigned Percentage	39%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
Outbound Primary Site Trips	100	0	13	0	0	0	0	0	0	0	0	0	0	26	0	0
Inbound Assigned Percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	39%	0%	10%	0%	0%	0%
Inbound Primary Site Trips	0	0	0	0	0	0	0	0	0	22	87	0	22	0	0	0
Total Primary Site Trips	100	0	13	0	0	0	0	0	0	22	87	0	22	26	0	0
Pass-By Traffic Calculation																
Pass-By Capture Reduction									-3				-6			
Pass-By Capture Assignment	2		3						3				3			
Total Pass-By Traffic	2	0	3	0	0	0	0	0	0	-3	3	0	6	-3	0	0
Total Project Traffic	102	0	16	0	0	0	0	0	0	19	90	0	28	23	0	0
2027 Buildout Volumes	102	0	16	0	0	0	0	0	0	149	91	0	28	127	0	0

AM PEAK HOUR

Southb

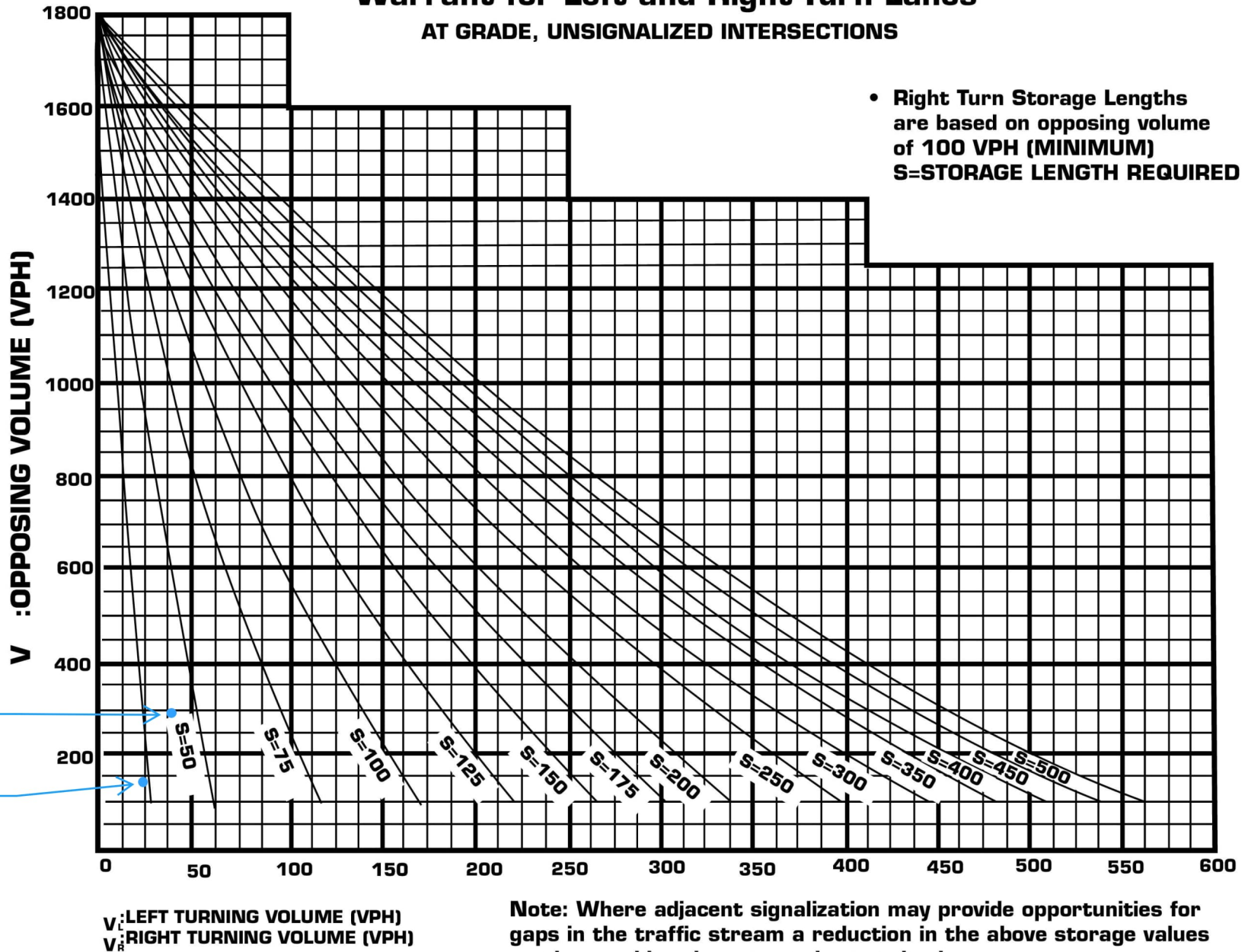
TURN LANE NOMOGRAPHS

Int 9: Quarry Road at Proposed RIRO/Left-Out Site Driveway

2027 Buildout

Warrant for Left and Right-Turn Lanes

AT GRADE, UNSIGNALIZED INTERSECTIONS



Policy On Street And Driveway Access to North Carolina Highways

2027 AM EBR
39 vs 294

2027 PM EBR
24 vs 142

EBR: 50 ft turn lane warranted

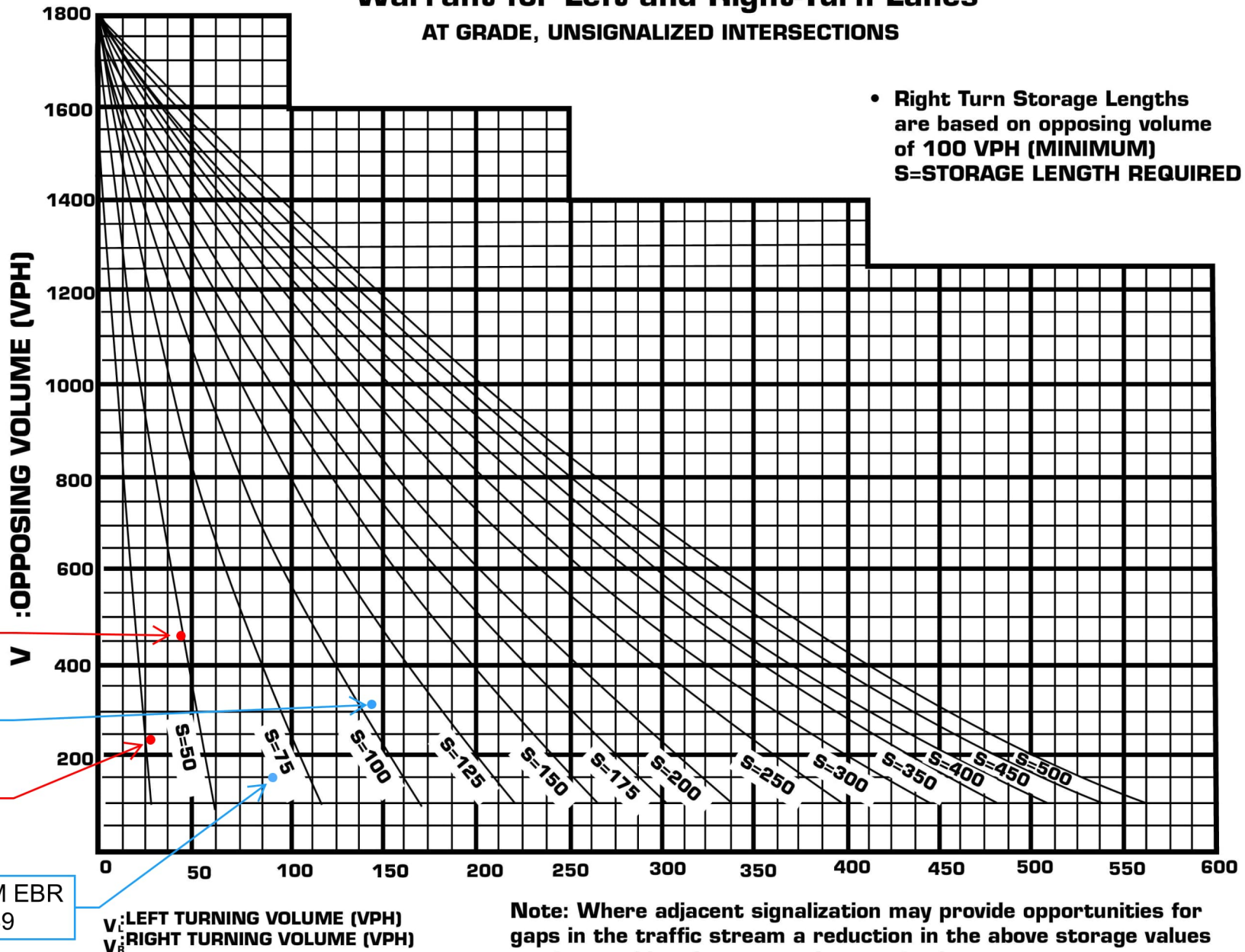
Int 10: Quarry Road at Proposed Full Movement Site Driveway

2027 Buildout

Warrant for Left and Right-Turn Lanes

AT GRADE, UNSIGNALIZED INTERSECTIONS

- Right Turn Storage Lengths are based on opposing volume of 100 VPH (MINIMUM)
S=STORAGE LENGTH REQUIRED



2027 AM WBL
45 vs 457

2027 AM EBR
145 vs 312

2027 PM WBL
28 vs 240

2027 PM EBR
91 vs 149

EBR: 125 ft turn lane warranted

WBL: 50 ft turn lane warranted

July 2003

SIGNAL WARRANT ANALYSIS

**Signal Warrant Approach Lanes and Volumes:
Rolesville Road at Fowler Road/Merritt Property Southern Driveway**

Approach	Lanes Included	Traffic Volume Included	Reasoning
Northbound Rolesville Road	1	100%	The left-turn volume was included, but the lane was not considered due to minimal volume utilizing that turn. There are still 2 or more lanes on the southbound approach to trigger the 2 or more curve for the mainline approach.
Southbound Rolesville Road	2 or more	100%	The left-turn and right-turn volume was included, but the right-lane was not considered due to minimal volume utilizing that turn. There are still 2 lanes on the approach, so the approach was evaluated as 2 or more.
Eastbound Merritt Property Southern Driveway	1	100%	Total approach volume was applied against a single lane approach because there are no exclusive turn lanes.
Westbound Fowler Road	1	100%	Total approach volume was applied against a single lane approach because there are no exclusive turn lanes.

**Signal Warrant Approach Lanes and Volumes:
Rolesville Road at Rolesville High School Student & Carpool Driveway/The Point South Driveway**

Approach	Lanes Included	Traffic Volume Included	Reasoning
Northbound Rolesville Road	2	100%	The left-turn volume was included, but the lane was not considered due to minimal volume utilizing that turn. There are still 2 or more lanes on the northbound approach and 2 lanes on the southbound approach to trigger the 2 or more curve for the mainline approach.
Southbound Rolesville Road	2 or more	100%	The left-turn lane and volume were included since the left-turn volume makes up a significant portion of the overall approach traffic.
Eastbound The Point South Driveway	1	100%	Total approach volume was applied against a single lane approach because there are no exclusive turn lanes.
Westbound Rolesville High School Student & Carpool Driveway	2	100%	The left-turn lane and volume were included since the left-turn volume makes up a significant portion of the overall approach traffic.

Signal Warrant Approach Lanes and Volumes:
Rolesville Road at Mitchell Mill Road

Approach	Lanes Included	Traffic Volume Included	Reasoning
Northbound Rolesville Road	1	100%	Total approach volume was applied against a single lane approach because there are no exclusive turn lanes.
Southbound Rolesville Road	1	100%	Total approach volume was applied against a single lane approach because there are no exclusive turn lanes.
Eastbound Mitchell Mill Road	1	100%	Total approach volume was applied against a single lane approach because there are no exclusive turn lanes.
Westbound Mitchell Mill Road	1	0% Right-Turns	The right-turn lane and volumes were not considered since the volumes are minimal and it is an exclusive right-turn lane.



NCDOT Signal Warrant Analysis

Project Information

Name	Gravity Rolesville - Young Commercial		
Client	Gravity Companies		
Scenario	2027 No-Build		
Intersection	Rolesville Road at Fowler Road/Merritt Property		
City:	Rolesville	County	Wake
Division	5	Project #	126002

Intersection Information

NB Approach	Rolesville Road		
Speed (mph)	45	Lanes	2
SB Approach	Rolesville Road		
Speed (mph)	45	Lanes	2
EB Approach	Merritt Property Southern Driveway		
Speed (mph)	25	Lanes	1
WB Approach	Fowler Road		
Speed (mph)	45	Lanes	1
Major Road	N/S	# Approaches	4 or more
% Right Turns Included by Approach			
NB Approach	100%	SB Approach	100%
EB Approach	100%	WB Approach	100%
In built-up area of isolated community of < 10,000 population?			0%

Project Assumptions

Existing Year	2025	Buildout Year	2027
Growth Rate	2.0%	Growth Factor	0.04

Site Trip Generation Data

ITE LUC	Description
	-
	-

Approved Developments

AD ID	Name	Completion %
AD01	The Point	48%
AD02	1216 Rolesville Road	67%
AD03	Kalas Falls	67%
AD04	Woodlief Assemblage	67%
AD05	Preserve at Moody Farm	100%
AD06	Wheeler Tract/Rolesville Crossing	100%
AD07	Tucker Wilkins	100%
AD08	Merritt Property	67%
AD09	-	-
AD10	-	-
AD11	-	-
AD12	-	-
AD13	-	-
AD14	-	-
AD15	-	-

Raw + Growth

Raw + Growth		Rolesville Road					Rolesville Road			Merritt Property Southern Driveway				Fowler Road			
HOUR	Time Frame	NBL	NBT	NBR	NBU	SBL	SBT	SBR	SBU	EBL	EBT	EBR	EBU	WBL	WBT	WBR	WBU
H01	12:00 AM - 01:00 AM																
H02	01:00 AM - 02:00 AM																
H03	02:00 AM - 03:00 AM																
H04	03:00 AM - 04:00 AM																
H05	04:00 AM - 05:00 AM																
H06	05:00 AM - 06:00 AM																
H07	06:00 AM - 07:00 AM																
H08	07:00 AM - 08:00 AM	0	306	3	0	56	369	0	0	0	0	0	0	3	0	129	0
H09	08:00 AM - 09:00 AM	0	139	2	0	59	186	0	0	0	0	0	0	2	0	70	0
H10	09:00 AM - 10:00 AM	0	68	0	0	31	68	0	0	0	0	0	0	2	0	21	0
H11	10:00 AM - 11:00 AM																
H12	11:00 AM - 12:00 PM																
H13	12:00 PM - 01:00 PM																
H14	01:00 PM - 02:00 PM																
H15	02:00 PM - 03:00 PM																
H16	03:00 PM - 04:00 PM																
H17	04:00 PM - 05:00 PM	0	242	5	0	63	199	0	0	0	0	0	0	2	0	39	0
H18	05:00 PM - 06:00 PM	0	248	3	0	94	276	0	0	0	0	0	0	4	0	56	0
H19	06:00 PM - 07:00 PM																
H20	07:00 PM - 08:00 PM																
H21	08:00 PM - 09:00 PM																
H22	09:00 PM - 10:00 PM																
H23	10:00 PM - 11:00 PM																
H24	11:00 PM - 12:00 AM																

Hourly Volume Data																						
One Hour Time Period Start Time		↓ From North (SB)					← From East (WB)					↑ From South (NB)					→ From West (EB)					Total Vehicle Volume
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM	6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:00	11	486	59	0	556	130	4	6	0	140	11	598	7	0	616	10	7	30	0	47	1359
	8:00	15	322	61	0	398	72	5	5	0	82	9	391	10	0	410	12	8	34	0	54	944
	9:00	20	188	33	0	241	24	7	5	0	36	5	244	13	0	262	12	8	36	0	56	595
MD	10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	16:00	37	531	67	0	635	44	13	10	0	67	11	486	25	0	522	15	10	44	0	69	1293
	17:00	36	608	98	0	742	61	12	12	0	85	9	505	24	0	538	16	11	46	0	73	1438
	18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals		119	2135	318	0	2572	331	41	38	0	410	45	2224	79	0	2348	65	44	190	0	299	5629

Note: Copy volume data and paste into cells using paste special -> values

Note: U-Turns are counted as Left Turns in the Volume Totals

Please Select the Major Road:

N/S

Major Road Left Turn as Minor Approach?

No

% Right Turns Included (Default 0%)

From North (SB)	100%
From East (WB)	100%
From South (NB)	100%
From West (EB)	100%

Major Road Volume Totals: North/South				
Right	Thru	Left	T+LT	Total
0	0	0	0	0
22	1084	66	1150	1172
24	713	71	784	808
25	432	46	478	503
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
164	4359	397	4756	4920

Minor Road Highest Volume: East/West				
Right	Thru	Left	T+LT	Total
0	0	0	0	0
130	4	6	10	140
72	5	5	10	82
12	8	36	44	56
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
290	39	103	142	432



The Worksheet(s) attached are provided as an attachment to the Engineering Investigation Study for:

Scenario: 2027 No-Build

Intersection: Rolesville Road at Fowler Road/Merritt Property Southern Driveway

County: Wake

City: Rolesville

Major Street: Rolesville Road

Critical Approach Speed: 45 mph

Lanes: 2 or more lanes

Minor Street: Merritt Property Southern Driveway/Fowler Road

Critical Approach Speed: 25 / 45 mph

Lanes: 1 lane

% Right Turns Included

From North (SB) 100%

From East (WB) 100%

From South (NB) 100%

From West (EB) 100%

In built-up area of isolated community of < 10,000 population? No

Total number of approaches at intersection? 4 or more

Manually set volume level? No

Analysis based on PROJECTED volume data.

Forecast Year	Within 5 Years of Construction?	Time (HH:MM)			
		From	AM / PM	To	AM / PM

Warrant Evaluation Summary	Warrant Met:
Warrant 1: Eight-Hour Vehicular Volume	No
Condition A: Minimum Vehicular Volume	No
Condition B: Interruption of Continuous Traffic	No
Condition C: Combination: 80% of A and B	No
Warrant 2: Four-Hour Volume	Yes
Warrant 3: Peak-Hour Volume	Yes
Warrant 4: Pedestrian Volume	N/A
Criterion A: Four-Hour	
Criterion B: Peak-Hour	
Warrant 5: School Crossing	N/A
Warrant 6: Coordinated Signal System	N/A
Warrant 7: Crash Experience	N/A
Warrant 8: Roadway Network	N/A
Warrant 9: Intersection Near a Grade Crossing	N/A

Warrant Analysis Conducted By:

Agency: Exult Engineering

Date:

Warrant 1: Eight-Hour Vehicular Volume

70%

Warrant Evaluated? Yes

Warrant Satisfied? No

Manually Set To:

Condition A : Min. Veh. Volume		
Volume Level	70%	56%
Major Rd. Req	420	336
Minor Rd. Req	105	84
Number of Hours	1	2

Satisfied? No

Condition B: Interruption of Continuous Traffic		
Volume Level	70%	56%
Major Rd. Req	630	504
Minor Rd. Req	53	42
Number of Hours	4	4

Satisfied? No

Condition C: Combination of A & B at 56%		
---	--	--

Satisfied? No

6:00 AM		Enter Start Time (Military Time) (HH:MM)			Total
Time Period	From	To	Major Road: Both App. (VPH)	Minor Road: High App. (VPH)	
1	6:00	7:00	0	0	0
2	7:00	8:00	1172	140	1312
3	8:00	9:00	808	82	890
4	9:00	10:00	503	56	559
5	10:00	11:00	0	0	0
6	11:00	12:00	0	0	0
7	12:00	13:00	0	0	0
8	13:00	14:00	0	0	0
9	14:00	15:00	0	0	0
10	15:00	16:00	0	0	0
11	16:00	17:00	1157	69	1226
12	17:00	18:00	1280	85	1365
13	18:00	19:00	0	0	0
14	19:00	20:00	0	0	0
15	20:00	21:00	0	0	0
16	21:00	22:00	0	0	0

Warrant 2: Four-Hour Volume

70%

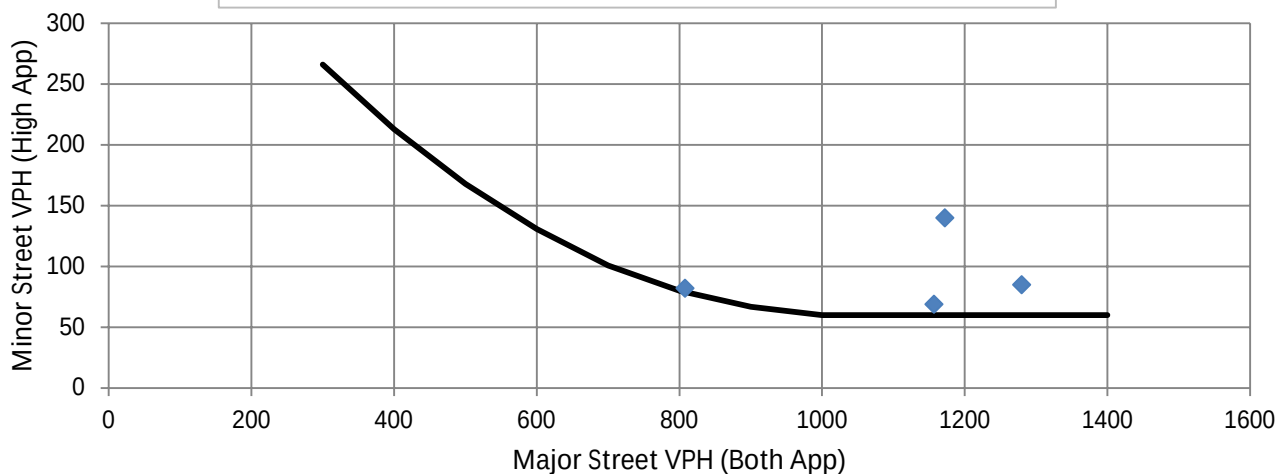
Warrant Evaluated? Yes

Warrant Satisfied? Yes

Manually Set To:

Hour Start	17:00	7:00	16:00	8:00
Major Road Vol.	1280	1172	1157	808
Minor Road Vol.	85	140	69	82

Figure 4C-2 Warrant 2, Four-Hour Vehicular Volume (70% Factor)



Warrant 3: Peak-Hour Volume

70%

Warrant Evaluated? Yes

Warrant Satisfied? Yes

Manually Set To:

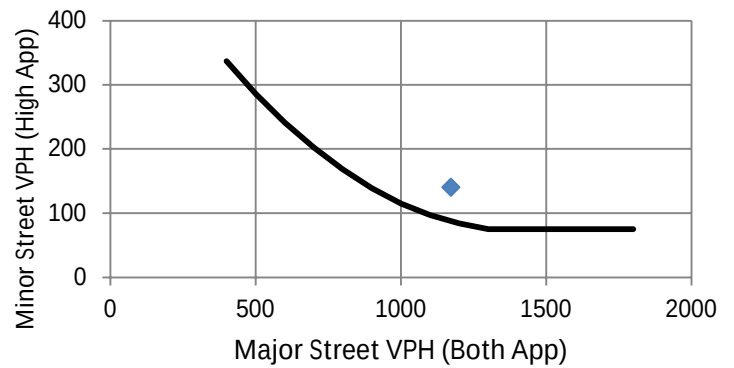
Condition justifying use of warrant:

Criteria		Met?
Delay on Minor Approach	4	Yes
Volume on Minor Approach	100	
Total Entering Volume (veh/h)	800	

Manually Set Peak Hour? Yes

Peak Hour	Major Road Vol. (Both App.)	Minor Road Vol. (High App.)
7:00	1172	140
7:00	1172	140

Figure 4C-4 Warrant 3, Peak Hour (70% Factor)





NCDOT Signal Warrant Analysis

Project Information

Name	Gravity Rolesville - Young Commercial		
Client	Gravity Companies		
Scenario	2027 No-Build		
Intersection	Rolesville Road at Mitchell Mill Road		
City:	Rolesville	County	Wake
Division	5	Project #	126002

Intersection Information

NB Approach	Rolesville Road		
Speed (mph)	45	Lanes	1
SB Approach	Rolesville Road		
Speed (mph)	45	Lanes	1
EB Approach	Mitchell Mill Road		
Speed (mph)	45	Lanes	1
WB Approach	Mitchell Mill Road		
Speed (mph)	45	Lanes	1
Major Road	N/S	# Approaches	4 or more
% Right Turns Included by Approach			
NB Approach	100%	SB Approach	100%
EB Approach	100%	WB Approach	0%
In built-up area of isolated community of < 10,000 population?			0%

Project Assumptions

Existing Year	2025	Buildout Year	2027
Growth Rate	2.0%	Growth Factor	0.04

Site Trip Generation Data

ITE LUC	Description
	-
	-

Approved Developments

AD ID	Name	Completion %
AD01	The Point	48%
AD02	1216 Rolesville Road	67%
AD03	Kalas Falls	67%
AD04	Woodlief Assemblage	67%
AD05	Preserve at Moody Farm	100%
AD06	Wheeler Tract/Rolesville Crossing	100%
AD07	Tucker Wilkins	100%
AD08	Merritt Property	67%
AD09	-	-
AD10	-	-
AD11	-	-
AD12	-	-
AD13	-	-
AD14	-	-
AD15	-	-

Raw + Growth

Raw + Growth		Rolesville Road					Rolesville Road			Mitchell Mill Road				Mitchell Mill Road			
HOUR	Time Frame	NBL	NBT	NBR	NBU	SBL	SBT	SBR	SBU	EBL	EBT	EBR	EBU	WBL	WBT	WBR	WBU
H01	12:00 AM - 01:00 AM																
H02	01:00 AM - 02:00 AM																
H03	02:00 AM - 03:00 AM																
H04	03:00 AM - 04:00 AM																
H05	04:00 AM - 05:00 AM																
H06	05:00 AM - 06:00 AM																
H07	06:00 AM - 07:00 AM	6	89	8	0	2	96	15	0	20	17	0	0	45	123	15	0
H08	07:00 AM - 08:00 AM	7	206	25	0	2	325	50	0	90	33	4	0	109	204	9	0
H09	08:00 AM - 09:00 AM	8	129	18	0	5	167	18	0	8	36	9	0	83	90	3	0
H10	09:00 AM - 10:00 AM	5	57	13	0	2	63	7	0	5	14	0	0	12	40	3	0
H11	10:00 AM - 11:00 AM																
H12	11:00 AM - 12:00 PM																
H13	12:00 PM - 01:00 PM																
H14	01:00 PM - 02:00 PM																
H15	02:00 PM - 03:00 PM																
H16	03:00 PM - 04:00 PM																
H17	04:00 PM - 05:00 PM	5	202	57	0	5	179	21	0	37	164	9	0	25	49	12	0
H18	05:00 PM - 06:00 PM	12	225	68	0	7	232	38	0	30	164	12	0	39	51	2	0
H19	06:00 PM - 07:00 PM																
H20	07:00 PM - 08:00 PM																
H21	08:00 PM - 09:00 PM																
H22	09:00 PM - 10:00 PM																
H23	10:00 PM - 11:00 PM																
H24	11:00 PM - 12:00 AM																

Hourly Volume Data																						
One Hour Time Period Start Time		↓ From North (SB)					← From East (WB)					↑ From South (NB)					→ From West (EB)					Total Vehicle Volume
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM	6:00	79	159	7	0	245	17	148	50	0	215	10	135	6	0	151	0	24	30	0	54	665
	7:00	160	435	11	0	606	12	245	118	0	375	28	288	7	0	323	4	45	110	0	159	1463
	8:00	115	268	12	0	395	6	125	90	0	221	21	213	8	0	242	9	51	34	0	94	952
	9:00	80	141	7	0	228	6	63	17	0	86	16	129	5	0	150	0	27	32	0	59	523
MD	10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	16:00	124	317	11	0	452	21	77	31	0	129	66	354	5	0	425	9	206	109	0	324	1330
	17:00	147	374	13	0	534	11	81	45	0	137	77	380	12	0	469	12	206	101	0	319	1459
	18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals		705	1694	61	0	2460	73	739	351	0	1163	218	1499	43	0	1760	34	559	416	0	1009	6392

Note: Copy volume data and paste into cells using paste special -> values

Note: U-Turns are counted as Left Turns in the Volume Totals

Please Select the Major Road:

N/S

Major Road Left Turn as Minor Approach?

No

% Right Turns Included (Default 0%)

From North (SB)	100%
From East (WB)	0%
From South (NB)	100%
From West (EB)	100%

Major Road Volume Totals: North/South				
Right	Thru	Left	T+LT	Total
89	294	13	307	396
188	723	18	741	929
136	481	20	501	637
96	270	12	282	378
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
190	671	16	687	877
224	754	25	779	1003
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
923	3193	104	3297	4220

Minor Road Highest Volume: East/West				
Right	Thru	Left	T+LT	Total
0	148	50	198	198
0	245	118	363	363
0	125	90	215	215
0	63	17	80	80
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
9	206	109	315	324
12	206	101	307	319
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
21	993	485	1478	1499



The Worksheet(s) attached are provided as an attachment to the Engineering Investigation Study for:

Scenario: 2027 No-Build

Intersection: Rolesville Road at Mitchell Mill Road

County: Wake

City: Rolesville

Major Street: Rolesville Road

Critical Approach Speed: 45 mph

Lanes: 1 lane

Minor Street: Mitchell Mill Road

Critical Approach Speed: 45 mph

Lanes: 1 lane

% Right Turns Included

From North (SB) 100%

From East (WB) 0%

From South (NB) 100%

From West (EB) 100%

In built-up area of isolated community of < 10,000 population? No

Total number of approaches at intersection? 4 or more

Manually set volume level? No

Analysis based on PROJECTED volume data.

Forecast Year	Within 5 Years of Construction?	Time (HH:MM)			
		From	AM / PM	To	AM / PM

Warrant Evaluation Summary	Warrant Met:
Warrant 1: Eight-Hour Vehicular Volume	No
Condition A: Minimum Vehicular Volume	No
Condition B: Interruption of Continuous Traffic	No
Condition C: Combination: 80% of A and B	No
Warrant 2: Four-Hour Volume	Yes
Warrant 3: Peak-Hour Volume	Yes
Warrant 4: Pedestrian Volume	N/A
Criterion A: Four-Hour	
Criterion B: Peak-Hour	
Warrant 5: School Crossing	N/A
Warrant 6: Coordinated Signal System	N/A
Warrant 7: Crash Experience	N/A
Warrant 8: Roadway Network	N/A
Warrant 9: Intersection Near a Grade Crossing	N/A

Warrant Analysis Conducted By:

Agency: Exult Engineering

Date:

Warrant 1: Eight-Hour Vehicular Volume

70%

Warrant Evaluated? Yes

Warrant Satisfied? No

Manually Set To:

Condition A : Min. Veh. Volume		
Volume Level	70%	56%
Major Rd. Req	350	280
Minor Rd. Req	105	84
Number of Hours	5	5

Satisfied? No

Condition B: Interruption of Continuous Traffic		
Volume Level	70%	56%
Major Rd. Req	525	420
Minor Rd. Req	53	42
Number of Hours	4	4

Satisfied? No

Condition C: Combination of A & B at 56%		
---	--	--

Satisfied? No

6:00 AM		Enter Start Time (Military Time) (HH:MM)			Total
Time Period	From	To	Major Road: Both App. (VPH)	Minor Road: High App. (VPH)	
1	6:00	7:00	396	198	594
2	7:00	8:00	929	363	1292
3	8:00	9:00	637	215	852
4	9:00	10:00	378	80	458
5	10:00	11:00	0	0	0
6	11:00	12:00	0	0	0
7	12:00	13:00	0	0	0
8	13:00	14:00	0	0	0
9	14:00	15:00	0	0	0
10	15:00	16:00	0	0	0
11	16:00	17:00	877	324	1201
12	17:00	18:00	1003	319	1322
13	18:00	19:00	0	0	0
14	19:00	20:00	0	0	0
15	20:00	21:00	0	0	0
16	21:00	22:00	0	0	0

Warrant 2: Four-Hour Volume

70%

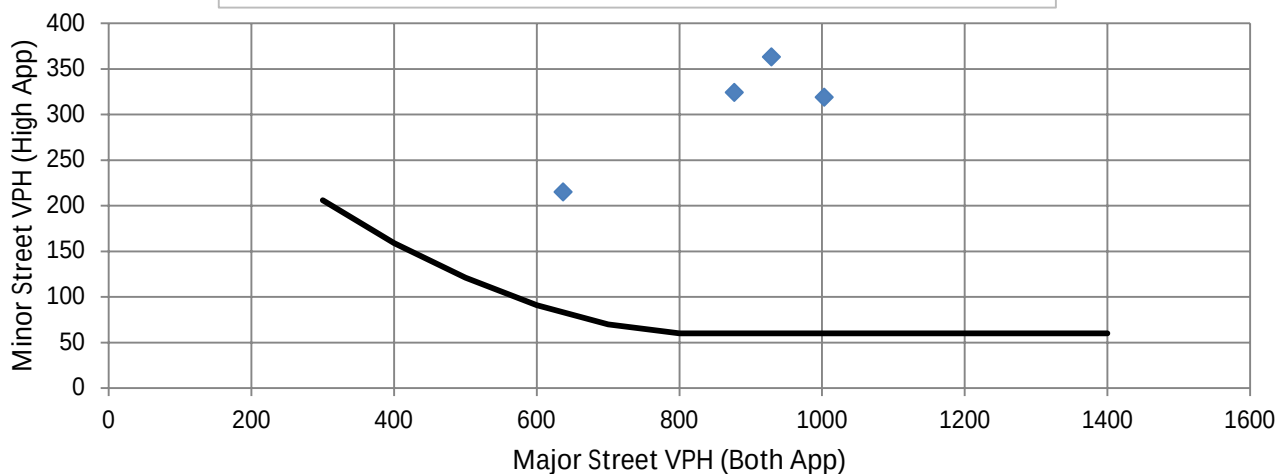
Warrant Evaluated? Yes

Warrant Satisfied? Yes

Manually Set To:

Hour Start	17:00	7:00	16:00	8:00
Major Road Vol.	1003	929	877	637
Minor Road Vol.	319	363	324	215

Figure 4C-2 Warrant 2, Four-Hour Vehicular Volume (70% Factor)



Warrant 3: Peak-Hour Volume

70%

Warrant Evaluated? Yes

Warrant Satisfied? Yes

Manually Set To:

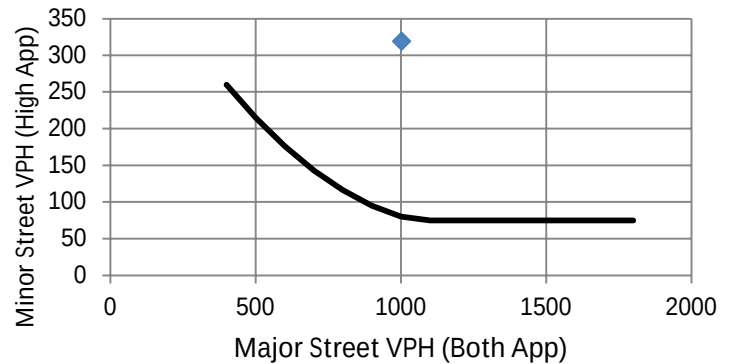
Condition justifying use of warrant:

Criteria		Met?
Delay on Minor Approach	4	Yes
Volume on Minor Approach	100	
Total Entering Volume (veh/h)	800	

Manually Set Peak Hour? No

Peak Hour	Major Road Vol. (Both App.)	Minor Road Vol. (High App.)
17:00	1003	319

Figure 4C-4 Warrant 3, Peak Hour (70% Factor)





NCDOT Signal Warrant Analysis

Project Information

Name	Gravity Rolesville - Young Commercial		
Client	Gravity Companies		
Scenario	2027 No-Build		
Intersection	East Young Street/Rolesville Road at Rolesville High School Student & Carpool Dwy/The Point South Dwy		
City:	Rolesville	County	Wake
Division	5	Project #	126002

Intersection Information

NB Approach	Rolesville Road		
Speed (mph)	45	Lanes	2
SB Approach	East Young Street		
Speed (mph)	45	Lanes	2
EB Approach	The Point South Driveway		
Speed (mph)	25	Lanes	1
WB Approach	RHS Student & Carpool Driveway		
Speed (mph)	15	Lanes	2
Major Road	N/S	# Approaches	4 or more
% Right Turns Included by Approach			
NB Approach	100%	SB Approach	100%
EB Approach	100%	WB Approach	100%
In built-up area of isolated community of < 10,000 population?			0%

Project Assumptions

Existing Year	2025	Buildout Year	2027
Growth Rate	2.0%	Growth Factor	0.04

Site Trip Generation Data

ITE LUC	Description
	-
	-

Approved Developments

AD ID	Name	Completion %
AD01	The Point	48%
AD02	1216 Rolesville Road	67%
AD03	Kalas Falls	67%
AD04	Woodlief Assemblage	67%
AD05	Preserve at Moody Farm	100%
AD06	Wheeler Tract/Rolesville Crossing	100%
AD07	Tucker Wilkins	100%
AD08	Merritt Property	67%
AD09	-	-
AD10	-	-
AD11	-	-
AD12	-	-
AD13	-	-
AD14	-	-
AD15	-	-

Raw + Growth

Raw + Growth			Rolesville Road				East Young Street				The Point South Driveway				RHS Student & Carpool Driveway			
HOUR	Time Frame	NBL	NBT	NBR	NBU	SBL	SBT	SBR	SBU	EBL	EBT	EBR	EBU	WBL	WBT	WBR	WBU	
H01	12:00 AM - 01:00 AM																	
H02	01:00 AM - 02:00 AM																	
H03	02:00 AM - 03:00 AM																	
H04	03:00 AM - 04:00 AM																	
H05	04:00 AM - 05:00 AM																	
H06	05:00 AM - 06:00 AM																	
H07	06:00 AM - 07:00 AM	2	242	197	0	324	290	0	0	0	0	0	0	75	2	171	0	
H08	07:00 AM - 08:00 AM	0	251	40	0	89	286	0	0	0	0	0	0	43	0	67	0	
H09	08:00 AM - 09:00 AM	0	190	12	0	44	205	0	0	0	0	0	0	11	0	41	0	
H10	09:00 AM - 10:00 AM																	
H11	10:00 AM - 11:00 AM																	
H12	11:00 AM - 12:00 PM																	
H13	12:00 PM - 01:00 PM																	
H14	01:00 PM - 02:00 PM																	
H15	02:00 PM - 03:00 PM																	
H16	03:00 PM - 04:00 PM																	
H17	04:00 PM - 05:00 PM	2	258	20	2	78	252	0	2	0	0	0	0	24	0	47	0	
H18	05:00 PM - 06:00 PM	0	290	23	0	49	328	0	0	2	0	0	0	46	0	103	0	
H19	06:00 PM - 07:00 PM																	
H20	07:00 PM - 08:00 PM																	
H21	08:00 PM - 09:00 PM																	
H22	09:00 PM - 10:00 PM																	
H23	10:00 PM - 11:00 PM																	
H24	11:00 PM - 12:00 AM																	

Hourly Volume Data																						
One Hour Time Period Start Time		↓ From North (SB)					← From East (WB)					↑ From South (NB)					→ From West (EB)					Total Vehicle Volume
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM	6:00	2	418	324	0	744	171	2	75	0	248	197	513	3	0	713	3	0	4	0	7	1712
	7:00	2	470	89	0	561	67	0	43	0	110	40	600	1	0	641	3	0	5	0	8	1320
	8:00	2	376	44	0	422	41	0	11	0	52	12	430	1	0	443	2	0	3	0	5	922
	9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD	10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	16:00	10	717	78	2	807	47	0	24	0	71	20	569	5	2	596	4	0	6	0	10	1484
	17:00	10	797	49	0	856	103	0	46	0	149	23	615	3	0	641	4	0	8	0	12	1658
	18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals		26	2778	584	2	3390	429	2	199	0	630	292	2727	13	2	3034	16	0	26	0	42	7096

Note: Copy volume data and paste into cells using paste special -> values

Note: U-Turns are counted as Left Turns in the Volume Totals

Please Select the Major Road:

N/S

Major Road Left Turn as Minor Approach?

No

% Right Turns Included (Default 0%)

From North (SB)	100%
From East (WB)	100%
From South (NB)	100%
From West (EB)	100%

Major Road Volume Totals: North/South				
Right	Thru	Left	T+LT	Total
199	931	327	1258	1457
42	1070	90	1160	1202
14	806	45	851	865
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
318	5505	601	6106	6424

Minor Road Highest Volume: East/West				
Right	Thru	Left	T+LT	Total
171	2	75	77	248
67	0	43	43	110
41	0	11	11	52
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
429	2	199	201	630



The Worksheet(s) attached are provided as an attachment to the Engineering Investigation Study for:

Scenario: 2027 No-Build

Intersection: East Young Street/Rolesville Road at Rolesville High School Student & Carpool Dwy/The Point South Dwy

County: Wake

City: Rolesville

Major Street: Rolesville Road/East Young Street

Critical Approach Speed: 45 mph

Lanes: 2 or more lanes

Minor Street: The Point South Driveway/RHS Student & Carpool Dr

Critical Approach Speed: 15 mph

Lanes: 1 lane

% Right Turns Included

From North (SB) 100%

From East (WB) 100%

From South (NB) 100%

From West (EB) 100%

In built-up area of isolated community of < 10,000 population? No

Total number of approaches at intersection? 4 or more

Manually set volume level? No

Analysis based on PROJECTED volume data.

Forecast Year	Within 5 Years of Construction?	Time (HH:MM)			
		From	AM / PM	To	AM / PM

Warrant Evaluation Summary	Warrant Met:
Warrant 1: Eight-Hour Vehicular Volume	No
Condition A: Minimum Vehicular Volume	No
Condition B: Interruption of Continuous Traffic	No
Condition C: Combination: 80% of A and B	No
Warrant 2: Four-Hour Volume	Yes
Warrant 3: Peak-Hour Volume	Yes
Warrant 4: Pedestrian Volume	N/A
Criterion A: Four-Hour	
Criterion B: Peak-Hour	
Warrant 5: School Crossing	N/A
Warrant 6: Coordinated Signal System	N/A
Warrant 7: Crash Experience	N/A
Warrant 8: Roadway Network	N/A
Warrant 9: Intersection Near a Grade Crossing	N/A

Warrant Analysis Conducted By:

Agency: Exult Engineering

Date:

Warrant 1: Eight-Hour Vehicular Volume

70%

Warrant Evaluated? Yes

Warrant Satisfied? No

Manually Set To:

Condition A : Min. Veh. Volume		
Volume Level	70%	56%
Major Rd. Req	420	336
Minor Rd. Req	105	84
Number of Hours	3	3

Satisfied? No

Condition B: Interruption of Continuous Traffic		
Volume Level	70%	56%
Major Rd. Req	630	504
Minor Rd. Req	53	42
Number of Hours	4	5

Satisfied? No

Condition C: Combination of A & B at 56%		
---	--	--

Satisfied? No

6:00 AM		Enter Start Time (Military Time) (HH:MM)			Total
Time Period	From	To	Major Road: Both App. (VPH)	Minor Road: High App. (VPH)	
1	6:00	7:00	1457	248	1705
2	7:00	8:00	1202	110	1312
3	8:00	9:00	865	52	917
4	9:00	10:00	0	0	0
5	10:00	11:00	0	0	0
6	11:00	12:00	0	0	0
7	12:00	13:00	0	0	0
8	13:00	14:00	0	0	0
9	14:00	15:00	0	0	0
10	15:00	16:00	0	0	0
11	16:00	17:00	1403	71	1474
12	17:00	18:00	1497	149	1646
13	18:00	19:00	0	0	0
14	19:00	20:00	0	0	0
15	20:00	21:00	0	0	0
16	21:00	22:00	0	0	0

Warrant 2: Four-Hour Volume

70%

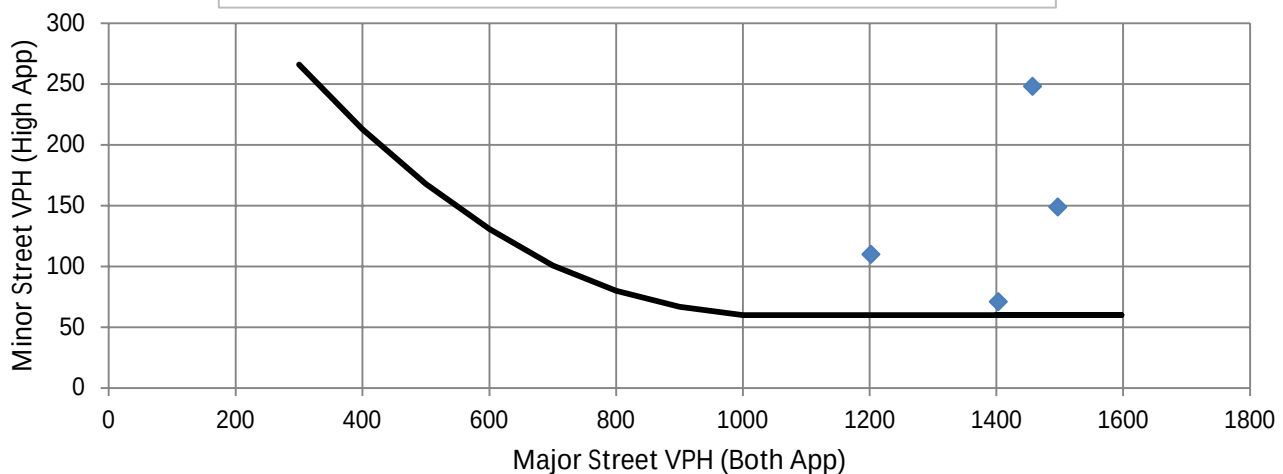
Warrant Evaluated? Yes

Warrant Satisfied? Yes

Manually Set To:

Hour Start	6:00	17:00	16:00	7:00
Major Road Vol.	1457	1497	1403	1202
Minor Road Vol.	248	149	71	110

Figure 4C-2 Warrant 2, Four-Hour Vehicular Volume (70% Factor)



Warrant 3: Peak-Hour Volume

70%

Warrant Evaluated? Yes

Warrant Satisfied? Yes

Manually Set To:

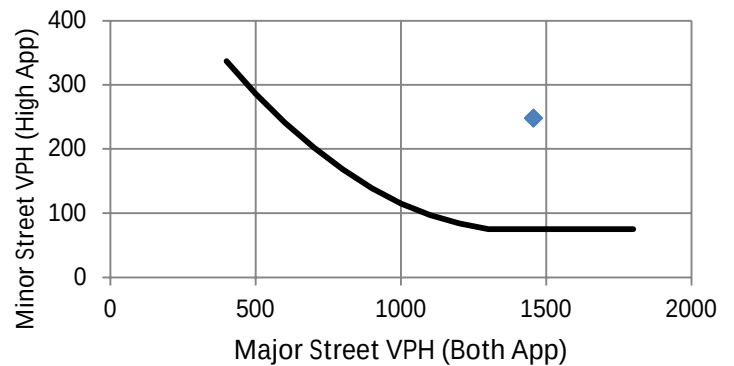
Condition justifying use of warrant:

Criteria		Met?
Delay on Minor Approach	4	Yes
Volume on Minor Approach	100	
Total Entering Volume (veh/h)	800	

Manually Set Peak Hour? Yes

Peak Hour	Major Road Vol. (Both App.)	Minor Road Vol. (High App.)
6:00	1457	248
6:00	1457	248

Figure 4C-4 Warrant 3, Peak Hour (70% Factor)



SYNCHRO REPORT PRINTOUTS

2025 EXISTING AM PEAK HOUR

Rolesville Commercial TIA
1: US 401 NBL/E Young Street & US 401

2025 Existing AM
08/11/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑		↑				↑↑
Traffic Volume (vph)	0	0	0	0	1389	317	0	113	0	0	0	559
Future Volume (vph)	0	0	0	0	1389	317	0	113	0	0	0	559
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-1%			2%			-3%	
Storage Length (ft)	0		0	0		240	0		0	0		125
Storage Lanes	0		0	0		1	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.88
Frnt						0.850						0.850
Flt Protected												
Satd. Flow (prot)	0	0	0	0	3489	1561	0	1758	0	0	0	2828
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	3489	1561	0	1758	0	0	0	2828
Right Turn on Red			No			No	No		No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			35	
Link Distance (ft)		736			364			400			1141	
Travel Time (s)		9.1			4.5			6.1			22.2	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	7%	7%	7%	4%	4%	4%	7%	7%	7%	2%	2%	2%
Adj. Flow (vph)	0	0	0	0	1615	369	0	131	0	0	0	650
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	1615	369	0	131	0	0	0	650
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	0.99	0.99	0.99	1.01	1.01	1.01	0.98	0.98	0.98
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors					2	1		2				1
Detector Template					Thru	Right						Right
Leading Detector (ft)					100	20		100				20
Trailing Detector (ft)					0	0		0				0
Detector 1 Position(ft)					0	0		0				0
Detector 1 Size(ft)					6	20		6				20
Detector 1 Type					Cl+Ex	Cl+Ex		Cl+Ex				Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)					0.0	0.0		0.0				0.0
Detector 1 Queue (s)					0.0	0.0		0.0				0.0
Detector 1 Delay (s)					0.0	0.0		0.0				0.0
Detector 2 Position(ft)					94			94				
Detector 2 Size(ft)					6			6				
Detector 2 Type					Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0				
Turn Type					NA	Perm		NA				Prot



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases					6			3				3
Permitted Phases						6						
Detector Phase					6	6		3				3
Switch Phase												
Minimum Initial (s)					14.0	14.0		7.0				7.0
Minimum Split (s)					20.4	20.4		12.6				12.6
Total Split (s)					55.0	55.0		35.0				35.0
Total Split (%)					61.1%	61.1%		38.9%				38.9%
Maximum Green (s)					48.6	48.6		29.4				29.4
Yellow Time (s)					5.3	5.3		3.0				3.0
All-Red Time (s)					1.1	1.1		2.6				2.6
Lost Time Adjust (s)					-1.4	-1.4		-0.6				-0.6
Total Lost Time (s)					5.0	5.0		5.0				5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)					3.0	3.0		3.0				3.0
Recall Mode					C-Max	C-Max		None				None
Act Effct Green (s)					53.5	53.5		26.5				26.5
Actuated g/C Ratio					0.59	0.59		0.29				0.29
v/c Ratio					0.78	0.40		0.25				0.78
Control Delay					12.9	7.7		24.4				36.0
Queue Delay					0.0	0.0		0.0				0.0
Total Delay					12.9	7.7		24.4				36.0
LOS					B	A		C				D
Approach Delay					11.9			24.4			36.0	
Approach LOS					B			C			D	
Queue Length 50th (ft)					266	64		44				186
Queue Length 95th (ft)					266	m79		101				232
Internal Link Dist (ft)		656			284			320			1061	
Turn Bay Length (ft)						240						125
Base Capacity (vph)					2074	928		586				942
Starvation Cap Reductn					0	0		0				0
Spillback Cap Reductn					0	0		0				0
Storage Cap Reductn					0	0		0				0
Reduced v/c Ratio					0.78	0.40		0.22				0.69

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 6:WBT, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 18.2

Intersection LOS: B

Intersection Capacity Utilization 66.3%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: US 401 NBL/E Young Street & US 401



Rolesville Commercial TIA
2: U-turn North of E Young St & US 401

2025 Existing AM
08/11/2025

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑	↖	
Traffic Volume (vph)	0	0	0	1367	504	0
Future Volume (vph)	0	0	0	1367	504	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-2%	2%	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	3540	1655	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	3540	1655	0
Right Turn on Red		No			No	No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	45	
Link Distance (ft)	423			1187	100	
Travel Time (s)	5.2			14.7	1.5	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	3%	3%	8%	8%
Adj. Flow (vph)	0	0	0	1502	554	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1502	554	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	0.99	0.99	1.01	1.01
Turning Speed (mph)		9	15		15	9
Number of Detectors				2	1	
Detector Template				Thru	Left	
Leading Detector (ft)				100	20	
Trailing Detector (ft)				0	0	
Detector 1 Position(ft)				0	0	
Detector 1 Size(ft)				6	20	
Detector 1 Type				Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)				0.0	0.0	
Detector 1 Queue (s)				0.0	0.0	
Detector 1 Delay (s)				0.0	0.0	
Detector 2 Position(ft)				94		
Detector 2 Size(ft)				6		
Detector 2 Type				Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)				0.0		
Turn Type				NA	Prot	
Protected Phases				6	3	
Permitted Phases						
Detector Phase				6	3	

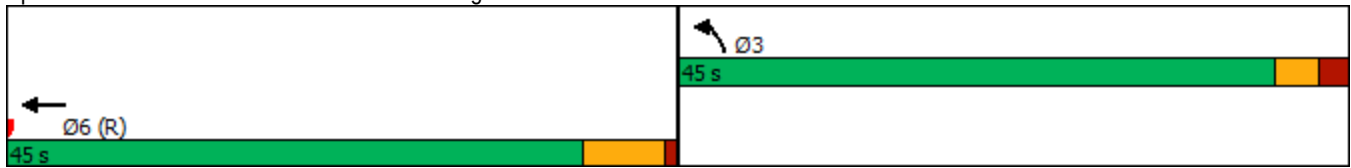


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Switch Phase						
Minimum Initial (s)				14.0	7.0	
Minimum Split (s)				20.4	12.1	
Total Split (s)				45.0	45.0	
Total Split (%)				50.0%	50.0%	
Maximum Green (s)				38.6	39.9	
Yellow Time (s)				5.4	3.0	
All-Red Time (s)				1.0	2.1	
Lost Time Adjust (s)				-1.4	-0.1	
Total Lost Time (s)				5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)				3.0	3.0	
Recall Mode				C-Max	None	
Act Effect Green (s)				45.3	34.7	
Actuated g/C Ratio				0.50	0.39	
v/c Ratio				0.84	0.87	
Control Delay				26.5	30.4	
Queue Delay				0.0	0.0	
Total Delay				26.5	30.4	
LOS				C	C	
Approach Delay				26.5	30.4	
Approach LOS				C	C	
Queue Length 50th (ft)				383	330	
Queue Length 95th (ft)				#584	m391	
Internal Link Dist (ft)	343			1107	20	
Turn Bay Length (ft)						
Base Capacity (vph)				1781	735	
Starvation Cap Reductn				0	0	
Spillback Cap Reductn				0	0	
Storage Cap Reductn				0	0	
Reduced v/c Ratio				0.84	0.75	

Intersection Summary

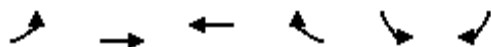
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 85 (94%), Referenced to phase 6:WBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 27.6	Intersection LOS: C
Intersection Capacity Utilization 74.0%	ICU Level of Service D
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 2: U-turn North of E Young St & US 401



Rolesville Commercial TIA
3: US 401 & U-Turn S of E Young Street

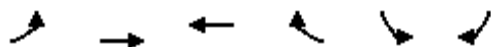
2025 Existing AM
08/11/2025



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑			↵	
Traffic Volume (vph)	0	717	0	0	321	0
Future Volume (vph)	0	717	0	0	321	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	0%		-1%	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	3357	0	0	1761	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	3357	0	0	1761	0
Right Turn on Red				No	No	No
Satd. Flow (RTOR)						
Link Speed (mph)		55	55		45	
Link Distance (ft)		990	429		100	
Travel Time (s)		12.3	5.3		1.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	2%	2%	3%	3%
Adj. Flow (vph)	0	797	0	0	357	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	797	0	0	357	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.00	1.00	0.99	0.99
Turning Speed (mph)	15			9	15	9
Number of Detectors		2			1	
Detector Template		Thru			Left	
Leading Detector (ft)		100			20	
Trailing Detector (ft)		0			0	
Detector 1 Position(ft)		0			0	
Detector 1 Size(ft)		6			20	
Detector 1 Type		Cl+Ex			Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)		0.0			0.0	
Detector 1 Queue (s)		0.0			0.0	
Detector 1 Delay (s)		0.0			0.0	
Detector 2 Position(ft)		94				
Detector 2 Size(ft)		6				
Detector 2 Type		Cl+Ex				
Detector 2 Channel						
Detector 2 Extend (s)		0.0				
Turn Type		NA			Prot	
Protected Phases		2			7	
Permitted Phases						
Detector Phase		2			7	

Rolesville Commercial TIA
3: US 401 & U-Turn S of E Young Street

2025 Existing AM
08/11/2025

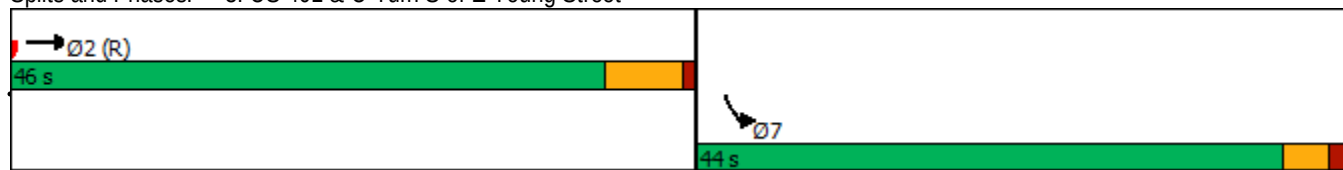


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Switch Phase						
Minimum Initial (s)		14.0			7.0	
Minimum Split (s)		20.2			11.8	
Total Split (s)		46.0			44.0	
Total Split (%)		51.1%			48.9%	
Maximum Green (s)		39.8			39.2	
Yellow Time (s)		5.2			3.0	
All-Red Time (s)		1.0			1.8	
Lost Time Adjust (s)		-1.2			0.2	
Total Lost Time (s)		5.0			5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0			3.0	
Recall Mode		C-Max			None	
Act Effct Green (s)		56.1			23.9	
Actuated g/C Ratio		0.62			0.27	
v/c Ratio		0.38			0.76	
Control Delay		10.0			33.4	
Queue Delay		0.0			0.0	
Total Delay		10.0			33.4	
LOS		A			C	
Approach Delay		10.0			33.4	
Approach LOS		A			C	
Queue Length 50th (ft)		106			198	
Queue Length 95th (ft)		182			m233	
Internal Link Dist (ft)		910	349		20	
Turn Bay Length (ft)						
Base Capacity (vph)		2093			763	
Starvation Cap Reductn		0			0	
Spillback Cap Reductn		0			0	
Storage Cap Reductn		0			0	
Reduced v/c Ratio		0.38			0.47	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 77 (86%), Referenced to phase 2:EBT, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 17.2
Intersection LOS: B
Intersection Capacity Utilization 72.6%
ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: US 401 & U-Turn S of E Young Street



4: E Young Street & The Point North Driveway/Quarry Road

08/11/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	7	28	4	140	4	411	49	196	597	17
Future Volume (vph)	4	4	7	28	4	140	4	411	49	196	597	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	0		260	125		155	545		325
Storage Lanes	1		0	0		1	1		1	1		1
Taper Length (ft)	75			25			140			80		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.904				0.850			0.850			0.850
Flt Protected	0.950				0.958		0.950			0.950		
Satd. Flow (prot)	1770	1684	0	0	1611	1429	1752	1845	1568	1736	1827	1553
Flt Permitted	0.950				0.958		0.950			0.950		
Satd. Flow (perm)	1770	1684	0	0	1611	1429	1752	1845	1568	1736	1827	1553
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		1270			1891			2194			1459	
Travel Time (s)		34.6			36.8			42.7			28.4	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	2%	2%	2%	13%	13%	13%	3%	3%	3%	4%	4%	4%
Adj. Flow (vph)	5	5	9	37	5	187	5	548	65	261	796	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	14	0	0	42	187	5	548	65	261	796	23
Enter Blocked Intersection	1 veh	1 veh	1 veh	1 veh	1 veh	1 veh	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	53.2%											
Analysis Period (min)	15											
	ICU Level of Service A											

Intersection												
Int Delay, s/veh	12.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	4	7	28	4	140	4	411	49	196	597	17
Future Vol, veh/h	4	4	7	28	4	140	4	411	49	196	597	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	275	-	-	-	-	260	125	-	155	545	-	325
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	13	13	13	3	3	3	4	4	4
Mvmt Flow	5	5	9	37	5	187	5	548	65	261	796	23
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2005	1941	796	1895	1899	548	819	0	0	613	0	0
Stage 1	1318	1318	-	558	558	-	-	-	-	-	-	-
Stage 2	687	623	-	1337	1341	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.23	6.63	6.33	4.13	-	-	4.14	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.23	5.63	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.23	5.63	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.617	4.117	3.417	2.227	-	-	2.236	-	-
Pot Cap-1 Maneuver	44	65	387	50	65	516	805	-	-	957	-	-
Stage 1	194	227	-	495	494	-	-	-	-	-	-	-
Stage 2	437	478	-	179	210	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	20	47	387	~ 35	47	516	805	-	-	957	-	-
Mov Cap-2 Maneuver	20	47	-	~ 35	47	-	-	-	-	-	-	-
Stage 1	193	165	-	492	491	-	-	-	-	-	-	-
Stage 2	274	475	-	123	153	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	96.5		83.9		0.1		2.5					
HCM LOS	F		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	805	-	-	20	107	36	516	957	-	-		
HCM Lane V/C Ratio	0.007	-	-	0.267	0.137	1.185	0.362	0.273	-	-		
HCM Control Delay (s)	9.5	-	-	241	43.9	381.3	15.9	10.2	-	-		
HCM Lane LOS	A	-	-	F	E	F	C	B	-	-		
HCM 95th %tile Q(veh)	0	-	-	0.8	0.5	4.4	1.6	1.1	-	-		
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

Rolesville Commercial TIA
5: Rolesville High Staff & Bus Driveway & Quarry Road

2025 Existing AM
08/11/2025

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	22	223	32	40	122	19
Future Volume (vph)	22	223	32	40	122	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		185	0		0	0
Storage Lanes		1	0		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected				0.979	0.950	
Satd. Flow (prot)	1667	1417	0	1700	1467	1170
Flt Permitted				0.979	0.950	
Satd. Flow (perm)	1667	1417	0	1700	1467	1170
Link Speed (mph)	35			35	25	
Link Distance (ft)	1891			1490	1086	
Travel Time (s)	36.8			29.0	29.6	
Peak Hour Factor	0.61	0.64	0.73	0.68	0.59	0.48
Heavy Vehicles (%)	14%	14%	6%	12%	23%	38%
Adj. Flow (vph)	36	348	44	59	207	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	36	348	0	103	207	40
Enter Blocked Intersection	No	No	No	No	1 veh	1 veh
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	24.4%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	4.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↖	↗	↗
Traffic Vol, veh/h	22	223	32	40	122	19
Future Vol, veh/h	22	223	32	40	122	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	185	-	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	61	64	73	68	59	48
Heavy Vehicles, %	14	14	6	12	23	38
Mvmt Flow	36	348	44	59	207	40
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	384	0	183	36
Stage 1	-	-	-	-	36	-
Stage 2	-	-	-	-	147	-
Critical Hdwy	-	-	4.16	-	6.63	6.58
Critical Hdwy Stg 1	-	-	-	-	5.63	-
Critical Hdwy Stg 2	-	-	-	-	5.63	-
Follow-up Hdwy	-	-	2.254	-	3.707	3.642
Pot Cap-1 Maneuver	-	-	1153	-	761	942
Stage 1	-	-	-	-	935	-
Stage 2	-	-	-	-	832	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1153	-	731	942
Mov Cap-2 Maneuver	-	-	-	-	731	-
Stage 1	-	-	-	-	935	-
Stage 2	-	-	-	-	800	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		3.5		11.4	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	731	942	-	-	1153	-
HCM Lane V/C Ratio	0.283	0.042	-	-	0.038	-
HCM Control Delay (s)	11.9	9	-	-	8.2	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	1.2	0.1	-	-	0.1	-

6: Rolesville Road/E Young Street & The Point South Driveway/Rolesville High Student & Carpool Dwy

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	4	100	4	202	4	255	206	334	297	4
Future Volume (vph)	4	4	4	100	4	202	4	255	206	334	297	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		380	90		360	285		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	25			25			100			200		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.955				0.850			0.850		0.998	
Flt Protected		0.984			0.956		0.950			0.950		
Satd. Flow (prot)	0	1750	0	0	1781	1583	1752	1845	1568	1752	1841	0
Flt Permitted		0.984			0.956		0.950			0.950		
Satd. Flow (perm)	0	1750	0	0	1781	1583	1752	1845	1568	1752	1841	0
Link Speed (mph)		25			15			35			35	
Link Distance (ft)		1316			1290			2126			2194	
Travel Time (s)		35.9			58.6			41.4			42.7	
Peak Hour Factor	0.90	0.90	0.90	0.56	0.25	0.62	0.25	0.86	0.60	0.54	0.80	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	4	4	4	179	16	326	16	297	343	619	371	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	12	0	0	195	326	16	297	343	619	375	0
Enter Blocked Intersection	1 veh	1 veh	1 veh	1 veh	1 veh	1 veh	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			20			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane											Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	54.3%											
Analysis Period (min)	15											
	ICU Level of Service A											

Intersection												
Int Delay, s/veh	334.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	4	4	100	4	202	4	255	206	334	297	4
Future Vol, veh/h	4	4	4	100	4	202	4	255	206	334	297	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Free	-	-	None
Storage Length	-	-	-	-	-	380	90	-	360	285	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	56	25	62	25	86	60	54	80	90
Heavy Vehicles, %	2	2	2	2	2	2	3	3	3	3	3	3
Mvmt Flow	4	4	4	179	16	326	16	297	343	619	371	4
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2111	1940	373	1944	1942	297	375	0	-	297	0	0
Stage 1	1611	1611	-	329	329	-	-	-	-	-	-	-
Stage 2	500	329	-	1615	1613	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	37	65	673	~ 49	65	742	1178	-	0	1259	-	-
Stage 1	131	163	-	684	646	-	-	-	0	-	-	-
Stage 2	553	646	-	~ 131	163	-	-	-	0	-	-	-
Platoon blocked, %								-			-	-
Mov Cap-1 Maneuver	8	33	673	~ 27	33	742	1178	-	-	1259	-	-
Mov Cap-2 Maneuver	8	33	-	~ 27	33	-	-	-	-	-	-	-
Stage 1	129	83	-	674	637	-	-	-	-	-	-	-
Stage 2	298	637	-	~ 63	83	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	\$ 381		\$ 1159.5		0.4		6.6					
HCM LOS	F		F									
Minor Lane/Major Mvmt	NBL		NBT		EBLn1WBLn1WBLn2		SBL		SBT		SBR	
Capacity (veh/h)	1178		-		19 27 742		1259		-		-	
HCM Lane V/C Ratio	0.014		-		0.702 7.206 0.439		0.491		-		-	
HCM Control Delay (s)	8.1		-		\$ 381 3078.3 13.6		10.6		-		-	
HCM Lane LOS	A		-		F F B B		B B		-		-	
HCM 95th %tile Q(veh)	0		-		1.9 24 2.3		2.8		-		-	
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon						

Rolesville Commercial TIA
7: Rolesville Road & Fowler Road

2025 Existing AM
08/11/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	134	317	4	55	343
Future Volume (vph)	4	134	317	4	55	343
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.869		0.998			
Flt Protected	0.998					0.993
Satd. Flow (prot)	1615	0	1823	0	0	1797
Flt Permitted	0.998					0.993
Satd. Flow (perm)	1615	0	1823	0	0	1797
Link Speed (mph)	45		45			45
Link Distance (ft)	1228		7395			2126
Travel Time (s)	18.6		112.0			32.2
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	4%	4%	5%	5%
Adj. Flow (vph)	5	152	360	5	63	390
Shared Lane Traffic (%)						
Lane Group Flow (vph)	157	0	365	0	0	453
Enter Blocked Intersection	1 veh	1 veh	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	56.5%			ICU Level of Service B		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	2.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	134	317	4	55	343
Future Vol, veh/h	4	134	317	4	55	343
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	4	4	5	5
Mvmt Flow	5	152	360	5	63	390
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	879	363	0	0	365	0
Stage 1	363	-	-	-	-	-
Stage 2	516	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.15	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.245	-
Pot Cap-1 Maneuver	318	682	-	-	1177	-
Stage 1	704	-	-	-	-	-
Stage 2	599	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	296	682	-	-	1177	-
Mov Cap-2 Maneuver	296	-	-	-	-	-
Stage 1	704	-	-	-	-	-
Stage 2	558	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	12.2	0		1.1		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-		657	1177	
HCM Lane V/C Ratio	-	-		0.239	0.053	
HCM Control Delay (s)	-	-		12.2	8.2	
HCM Lane LOS	-	-		B	A	
HCM 95th %tile Q(veh)	-	-		0.9	0.2	

Rolesville Commercial TIA
8: Rolesville Road & Mitchell Mill Road

2025 Existing AM
08/11/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	33	4	101	223	16	7	213	20	4	286	57
Future Volume (vph)	90	33	4	101	223	16	7	213	20	4	286	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		325	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996				0.850		0.989			0.978	
Flt Protected		0.966			0.985			0.998			0.999	
Satd. Flow (prot)	0	1775	0	0	1766	1524	0	1786	0	0	1751	0
Flt Permitted		0.966			0.985			0.998			0.999	
Satd. Flow (perm)	0	1775	0	0	1766	1524	0	1786	0	0	1751	0
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1427			1134			1110			7395	
Travel Time (s)		21.6			17.2			16.8			112.0	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	5%	5%	5%	6%	6%	6%
Adj. Flow (vph)	99	36	4	111	245	18	8	234	22	4	314	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	139	0	0	356	18	0	264	0	0	381	0
Enter Blocked Intersection	1 veh	1 veh	1 veh	1 veh	1 veh	1 veh	1 veh	1 veh	1 veh	1 veh	1 veh	1 veh
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type: Other												
Control Type: Unsignalized												
Intersection Capacity Utilization 54.6%												
ICU Level of Service A												
Analysis Period (min) 15												

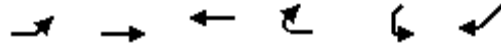
Intersection	
Intersection Delay, s/veh	20.5
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Vol, veh/h	90	33	4	101	223	16	7	213	20	4	286	57
Future Vol, veh/h	90	33	4	101	223	16	7	213	20	4	286	57
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	3	3	3	6	6	6	5	5	5	6	6	6
Mvmt Flow	99	36	4	111	245	18	8	234	22	4	314	63
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	13.4	25	16.1	21.8
HCM LOS	B	C	C	C

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	3%	71%	31%	0%	1%
Vol Thru, %	89%	26%	69%	0%	82%
Vol Right, %	8%	3%	0%	100%	16%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	240	127	324	16	347
LT Vol	7	90	101	0	4
Through Vol	213	33	223	0	286
RT Vol	20	4	0	16	57
Lane Flow Rate	264	140	356	18	381
Geometry Grp	2	4a	5	5	2
Degree of Util (X)	0.49	0.285	0.711	0.031	0.676
Departure Headway (Hd)	6.688	7.363	7.185	6.309	6.385
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	535	486	502	565	564
Service Time	4.758	5.45	4.946	4.07	4.446
HCM Lane V/C Ratio	0.493	0.288	0.709	0.032	0.676
HCM Control Delay	16.1	13.4	25.8	9.3	21.8
HCM Lane LOS	C	B	D	A	C
HCM 95th-tile Q	2.7	1.2	5.6	0.1	5.1

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				 		
Traffic Volume (vph)	0	0	169	1706	0	0
Future Volume (vph)	0	0	169	1706	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	25		0	0
Storage Lanes		0	1		0	0
Taper Length (ft)			205		25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1736	3471	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1736	3471	0	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	364			423	375	
Travel Time (s)	4.5			5.2	4.6	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	4%	4%	0%	0%
Adj. Flow (vph)	0	0	197	1984	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	197	1984	0	0
Enter Blocked Intersection	No	No	Yes	Yes	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	45		15	9
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	74.0%			ICU Level of Service D		
Analysis Period (min)	15					



Lane Group	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	113	927	0	0	0	0
Future Volume (vph)	113	927	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			0	0	0
Storage Lanes	1			0	0	0
Taper Length (ft)	180				25	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1687	3374	0	0	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1687	3374	0	0	0	0
Link Speed (mph)		55	55		45	
Link Distance (ft)		429	389		400	
Travel Time (s)		5.3	4.8		6.1	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	7%	7%	0%	0%	0%	0%
Adj. Flow (vph)	131	1078	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	131	1078	0	0	0	0
Enter Blocked Intersection	Yes	Yes	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	45			9	15	9
Sign Control		Free	Free		Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	66.3%			ICU Level of Service C		
Analysis Period (min)	15					

Rolesville Commercial TIA
101: E Young Street/US 401 SBL & US 401

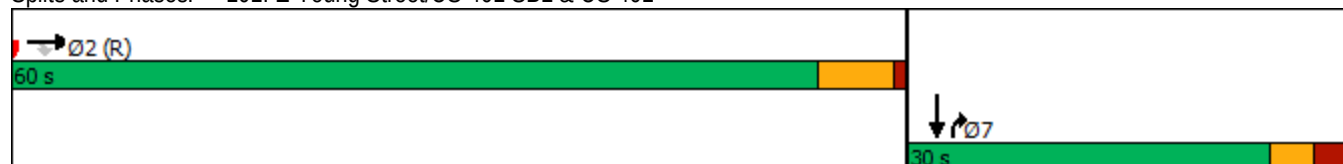
2025 Existing AM
08/11/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗						↗↗		↑	
Traffic Volume (vph)	0	279	648	0	0	0	0	0	574	0	169	0
Future Volume (vph)	0	279	648	0	0	0	0	0	574	0	169	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			0%			3%			-1%	
Storage Length (ft)	0		255	0		0	0		280	0		0
Storage Lanes	0		1	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	1.00
Fr't			0.850						0.850			
Flt Protected												
Satd. Flow (prot)	0	3340	1494	0	0	0	0	0	2692	0	1836	0
Flt Permitted												
Satd. Flow (perm)	0	3340	1494	0	0	0	0	0	2692	0	1836	0
Right Turn on Red			No			No			No	No		No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		389			703			1459			375	
Travel Time (s)		4.8			8.7			22.1			5.7	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	4%	4%	4%	4%	4%	4%
Adj. Flow (vph)	0	324	753	0	0	0	0	0	667	0	197	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	324	753	0	0	0	0	0	667	0	197	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.00	1.00	1.00	1.02	1.02	1.02	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	0						1		2	
Detector Template									Right			
Leading Detector (ft)		100	0						20		100	
Trailing Detector (ft)		0	0						0		0	
Detector 1 Position(ft)		0	0						0		0	
Detector 1 Size(ft)		6	20						20		6	
Detector 1 Type		Cl+Ex	Cl+Ex						Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0						0.0		0.0	
Detector 1 Queue (s)		0.0	0.0						0.0		0.0	
Detector 1 Delay (s)		0.0	0.0						0.0		15.0	
Detector 2 Position(ft)		94									94	
Detector 2 Size(ft)		6									6	
Detector 2 Type		Cl+Ex									Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0									0.0	
Turn Type		NA	Perm						Prot		NA	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		2							7		7	
Permitted Phases			2									
Detector Phase		2	2						7		7	
Switch Phase												
Minimum Initial (s)		14.0	14.0						7.0		7.0	
Minimum Split (s)		20.0	20.0						12.8		12.8	
Total Split (s)		60.0	60.0						30.0		30.0	
Total Split (%)		66.7%	66.7%						33.3%		33.3%	
Maximum Green (s)		54.0	54.0						24.2		24.2	
Yellow Time (s)		5.0	5.0						3.0		3.0	
All-Red Time (s)		1.0	1.0						2.8		2.8	
Lost Time Adjust (s)		-1.0	-1.0						-0.8		-0.8	
Total Lost Time (s)		5.0	5.0						5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0	3.0						3.0		3.0	
Recall Mode		C-Max	C-Max						None		None	
Act Effct Green (s)		55.5	55.5						24.5		24.5	
Actuated g/C Ratio		0.62	0.62						0.27		0.27	
v/c Ratio		0.16	0.82						0.91		0.39	
Control Delay		5.1	19.2						49.9		20.6	
Queue Delay		0.0	0.0						0.0		0.0	
Total Delay		5.1	19.2						49.9		20.6	
LOS		A	B						D		C	
Approach Delay		14.9						49.9			20.6	
Approach LOS		B						D			C	
Queue Length 50th (ft)		22	238						206		74	
Queue Length 95th (ft)		31	319						#292		m87	
Internal Link Dist (ft)		309			623			1379			295	
Turn Bay Length (ft)			255						280			
Base Capacity (vph)		2058	921						747		510	
Starvation Cap Reductn		0	0						0		0	
Spillback Cap Reductn		0	0						0		0	
Storage Cap Reductn		0	0						0		0	
Reduced v/c Ratio		0.16	0.82						0.89		0.39	
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 90												
Offset: 48 (53%), Referenced to phase 2:EBT, Start of Green												
Natural Cycle: 75												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 0.91												
Intersection Signal Delay: 27.5						Intersection LOS: C						
Intersection Capacity Utilization 57.4%						ICU Level of Service B						
Analysis Period (min) 15												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

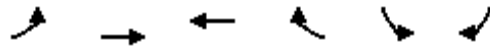
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 101: E Young Street/US 401 SBL & US 401



Rolesville Commercial TIA
201: US 401 & U-turn North of E Young St

2025 Existing AM
08/11/2025



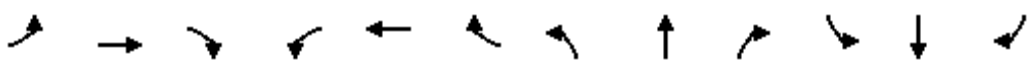
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	504	355	0	0	0	0
Future Volume (vph)	504	355	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		0%	0%		2%	
Storage Length (ft)	490			0	0	0
Storage Lanes	1			0	0	0
Taper Length (ft)	100				25	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1671	3343	0	0	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1671	3343	0	0	0	0
Link Speed (mph)		55	55		45	
Link Distance (ft)		703	1237		100	
Travel Time (s)		8.7	15.3		1.5	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	8%	8%	2%	2%	2%	2%
Adj. Flow (vph)	554	390	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	554	390	0	0	0	0
Enter Blocked Intersection	Yes	Yes	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.01	1.01
Turning Speed (mph)	45			9	15	9
Sign Control		Free	Stop		Stop	
Intersection Summary						
Area Type: Other						
Control Type: Unsignalized						
Intersection Capacity Utilization 73.2% ICU Level of Service D						
Analysis Period (min) 15						

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				 		
Traffic Volume (vph)	0	0	321	1638	0	0
Future Volume (vph)	0	0	321	1638	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	-1%	
Storage Length (ft)		0	345		0	0
Storage Lanes		0	1		0	0
Taper Length (ft)			190		25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frnt						
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1752	3505	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1752	3505	0	0
Link Speed (mph)	55			55	45	
Link Distance (ft)	1037			736	100	
Travel Time (s)	12.9			9.1	1.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	3%	3%	2%	2%
Adj. Flow (vph)	0	0	357	1820	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	357	1820	0	0
Enter Blocked Intersection	No	No	Yes	Yes	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (mph)		9	45		15	9
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	39.2%			ICU Level of Service A		
Analysis Period (min)	15					

2025 EXISTING PM PEAK HOUR

Rolesville Commercial TIA
1: US 401 NBL/E Young Street & US 401

2025 Existing PM
08/11/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↗		↑				↖↖
Traffic Volume (vph)	0	0	0	0	458	266	0	212	0	0	0	398
Future Volume (vph)	0	0	0	0	458	266	0	212	0	0	0	398
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-1%			2%			-3%	
Storage Length (ft)	0		0	0		240	0		0	0		125
Storage Lanes	0		0	0		1	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.88
Frnt						0.850						0.850
Flt Protected												
Satd. Flow (prot)	0	0	0	0	3489	1561	0	1809	0	0	0	2774
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	3489	1561	0	1809	0	0	0	2774
Right Turn on Red			No			No	No		No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			35	
Link Distance (ft)		736			364			400			1141	
Travel Time (s)		9.1			4.5			6.1			22.2	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Adj. Flow (vph)	0	0	0	0	467	271	0	216	0	0	0	406
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	467	271	0	216	0	0	0	406
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	0.99	0.99	0.99	1.01	1.01	1.01	0.98	0.98	0.98
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors					2	1		2				1
Detector Template					Thru	Right						Right
Leading Detector (ft)					100	20		100				20
Trailing Detector (ft)					0	0		0				0
Detector 1 Position(ft)					0	0		0				0
Detector 1 Size(ft)					6	20		6				20
Detector 1 Type					Cl+Ex	Cl+Ex		Cl+Ex				Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)					0.0	0.0		0.0				0.0
Detector 1 Queue (s)					0.0	0.0		0.0				0.0
Detector 1 Delay (s)					0.0	0.0		0.0				0.0
Detector 2 Position(ft)					94			94				
Detector 2 Size(ft)					6			6				
Detector 2 Type					Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0				
Turn Type					NA	Perm		NA				Prot



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases					6			3				3
Permitted Phases						6						
Detector Phase					6	6		3				3
Switch Phase												
Minimum Initial (s)					14.0	14.0		7.0				7.0
Minimum Split (s)					20.4	20.4		12.6				12.6
Total Split (s)					55.0	55.0		35.0				35.0
Total Split (%)					61.1%	61.1%		38.9%				38.9%
Maximum Green (s)					48.6	48.6		29.4				29.4
Yellow Time (s)					5.3	5.3		3.0				3.0
All-Red Time (s)					1.1	1.1		2.6				2.6
Lost Time Adjust (s)					-1.4	-1.4		-0.6				-0.6
Total Lost Time (s)					5.0	5.0		5.0				5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)					3.0	3.0		3.0				3.0
Recall Mode					C-Max	C-Max		None				None
Act Effct Green (s)					60.3	60.3		19.7				19.7
Actuated g/C Ratio					0.67	0.67		0.22				0.22
v/c Ratio					0.20	0.26		0.55				0.67
Control Delay					9.7	11.3		42.8				37.3
Queue Delay					0.0	0.0		0.0				0.0
Total Delay					9.7	11.3		42.8				37.3
LOS					A	B		D				D
Approach Delay					10.3			42.8			37.3	
Approach LOS					B			D			D	
Queue Length 50th (ft)					65	106		116				120
Queue Length 95th (ft)					76	169		187				159
Internal Link Dist (ft)		656			284			320			1061	
Turn Bay Length (ft)						240						125
Base Capacity (vph)					2336	1045		603				924
Starvation Cap Reductn					0	0		0				0
Spillback Cap Reductn					0	0		0				0
Storage Cap Reductn					0	0		0				0
Reduced v/c Ratio					0.20	0.26		0.36				0.44

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 6:WBT, Start of Green

Natural Cycle: 40

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 23.5

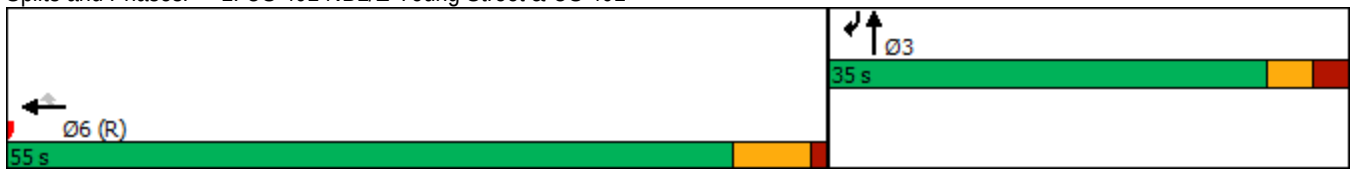
Intersection LOS: C

Intersection Capacity Utilization 40.7%

ICU Level of Service A

Analysis Period (min) 15

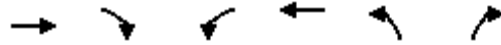
Splits and Phases: 1: US 401 NBL/E Young Street & US 401



Rolesville Commercial TIA
2: U-turn North of E Young St & US 401

2025 Existing PM
08/11/2025

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑	↖	
Traffic Volume (vph)	0	0	0	554	299	0
Future Volume (vph)	0	0	0	554	299	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-2%	2%	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	3472	1735	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	3472	1735	0
Right Turn on Red		No			No	No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	45	
Link Distance (ft)	423			1187	100	
Travel Time (s)	5.2			14.7	1.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	5%	5%	3%	3%
Adj. Flow (vph)	0	0	0	589	318	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	589	318	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	0.99	0.99	1.01	1.01
Turning Speed (mph)		9	15		15	9
Number of Detectors				2	1	
Detector Template				Thru	Left	
Leading Detector (ft)				100	20	
Trailing Detector (ft)				0	0	
Detector 1 Position(ft)				0	0	
Detector 1 Size(ft)				6	20	
Detector 1 Type				CI+Ex	CI+Ex	
Detector 1 Channel						
Detector 1 Extend (s)				0.0	0.0	
Detector 1 Queue (s)				0.0	0.0	
Detector 1 Delay (s)				0.0	0.0	
Detector 2 Position(ft)				94		
Detector 2 Size(ft)				6		
Detector 2 Type				CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)				0.0		
Turn Type				NA	Prot	
Protected Phases				6	3	
Permitted Phases						
Detector Phase				6	3	



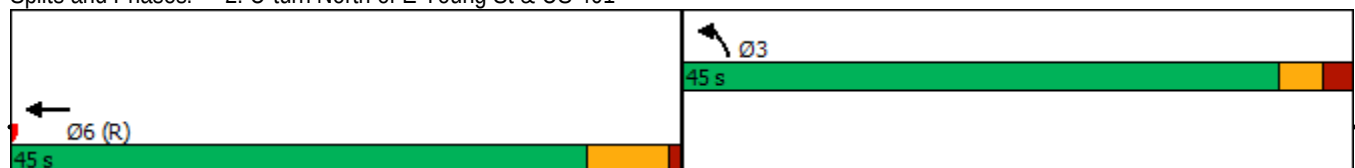
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Switch Phase						
Minimum Initial (s)				14.0	7.0	
Minimum Split (s)				20.4	12.1	
Total Split (s)				45.0	45.0	
Total Split (%)				50.0%	50.0%	
Maximum Green (s)				38.6	39.9	
Yellow Time (s)				5.4	3.0	
All-Red Time (s)				1.0	2.1	
Lost Time Adjust (s)				-1.4	-0.1	
Total Lost Time (s)				5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)				3.0	3.0	
Recall Mode				C-Max	None	
Act Effect Green (s)				57.6	22.4	
Actuated g/C Ratio				0.64	0.25	
v/c Ratio				0.27	0.74	
Control Delay				8.2	36.4	
Queue Delay				0.0	0.0	
Total Delay				8.2	36.4	
LOS				A	D	
Approach Delay				8.2	36.4	
Approach LOS				A	D	
Queue Length 50th (ft)				68	161	
Queue Length 95th (ft)				121	212	
Internal Link Dist (ft)	343			1107	20	
Turn Bay Length (ft)						
Base Capacity (vph)				2222	771	
Starvation Cap Reductn				0	0	
Spillback Cap Reductn				0	0	
Storage Cap Reductn				0	0	
Reduced v/c Ratio				0.27	0.41	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 85 (94%), Referenced to phase 6:WBT, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 18.1
Intersection Capacity Utilization 40.2%
Analysis Period (min) 15

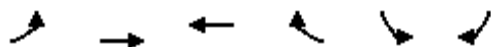
Intersection LOS: B
ICU Level of Service A

Splits and Phases: 2: U-turn North of E Young St & US 401

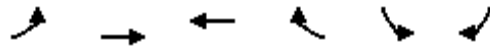


Rolesville Commercial TIA
3: US 401 & U-Turn S of E Young Street

2025 Existing PM
08/11/2025



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑			↵	
Traffic Volume (vph)	0	1292	0	0	274	0
Future Volume (vph)	0	1292	0	0	274	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	0%		-1%	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Fr t						
Flt Protected					0.950	
Satd. Flow (prot)	0	3487	0	0	1761	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	3487	0	0	1761	0
Right Turn on Red				No	No	No
Satd. Flow (RTOR)						
Link Speed (mph)		55	55		45	
Link Distance (ft)		990	429		100	
Travel Time (s)		12.3	5.3		1.5	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	3%	3%	2%	2%	3%	3%
Adj. Flow (vph)	0	1318	0	0	280	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1318	0	0	280	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.00	1.00	0.99	0.99
Turning Speed (mph)	15			9	15	9
Number of Detectors		2			1	
Detector Template		Thru			Left	
Leading Detector (ft)		100			20	
Trailing Detector (ft)		0			0	
Detector 1 Position(ft)		0			0	
Detector 1 Size(ft)		6			20	
Detector 1 Type		Cl+Ex			Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)		0.0			0.0	
Detector 1 Queue (s)		0.0			0.0	
Detector 1 Delay (s)		0.0			0.0	
Detector 2 Position(ft)		94				
Detector 2 Size(ft)		6				
Detector 2 Type		Cl+Ex				
Detector 2 Channel						
Detector 2 Extend (s)		0.0				
Turn Type		NA			Prot	
Protected Phases		2			7	
Permitted Phases						
Detector Phase		2			7	

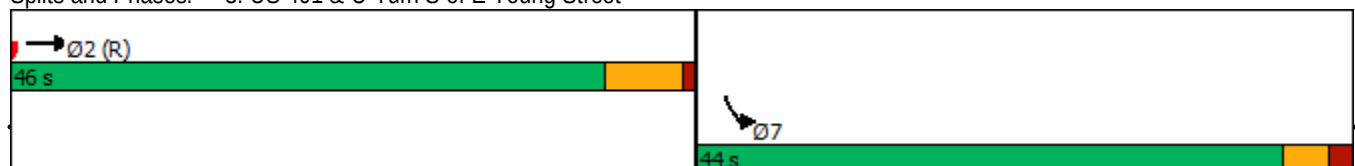


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Switch Phase						
Minimum Initial (s)		14.0			7.0	
Minimum Split (s)		20.2			11.8	
Total Split (s)		46.0			44.0	
Total Split (%)		51.1%			48.9%	
Maximum Green (s)		39.8			39.2	
Yellow Time (s)		5.2			3.0	
All-Red Time (s)		1.0			1.8	
Lost Time Adjust (s)		-1.2			0.2	
Total Lost Time (s)		5.0			5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0			3.0	
Recall Mode		C-Max			None	
Act Effect Green (s)		60.2			19.8	
Actuated g/C Ratio		0.67			0.22	
v/c Ratio		0.57			0.72	
Control Delay		10.0			52.5	
Queue Delay		0.0			0.0	
Total Delay		10.0			52.5	
LOS		B			D	
Approach Delay		10.0			52.5	
Approach LOS		B			D	
Queue Length 50th (ft)		184			167	
Queue Length 95th (ft)		308			247	
Internal Link Dist (ft)		910	349		20	
Turn Bay Length (ft)						
Base Capacity (vph)		2331			763	
Starvation Cap Reductn		0			0	
Spillback Cap Reductn		0			0	
Storage Cap Reductn		0			0	
Reduced v/c Ratio		0.57			0.37	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 77 (86%), Referenced to phase 2:EBT, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 17.5
Intersection LOS: B
Intersection Capacity Utilization 59.6%
ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 3: US 401 & U-Turn S of E Young Street



4: E Young Street & The Point North Driveway/Quarry Road

08/11/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	4	11	9	4	53	4	376	13	91	371	6
Future Volume (vph)	11	4	11	9	4	53	4	376	13	91	371	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	0		260	125		155	545		325
Storage Lanes	1		0	0		1	1		1	1		1
Taper Length (ft)	75			25			140			80		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.887				0.850			0.850			0.850
Flt Protected	0.950				0.966		0.950			0.950		
Satd. Flow (prot)	1656	1546	0	0	1748	1538	1719	1810	1538	1671	1759	1495
Flt Permitted	0.950				0.966		0.950			0.950		
Satd. Flow (perm)	1656	1546	0	0	1748	1538	1719	1810	1538	1671	1759	1495
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		1270			1891			2194			1459	
Travel Time (s)		34.6			28.7			33.2			22.1	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	9%	9%	9%	5%	5%	5%	5%	5%	5%	8%	8%	8%
Adj. Flow (vph)	12	4	12	10	4	58	4	413	14	100	408	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	16	0	0	14	58	4	413	14	100	408	7
Enter Blocked Intersection	1 veh	1 veh	1 veh	1 veh	1 veh	1 veh	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	42.2%											
Analysis Period (min)	15											
	ICU Level of Service A											

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	4	11	9	4	53	4	376	13	91	371	6
Future Vol, veh/h	11	4	11	9	4	53	4	376	13	91	371	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	275	-	-	-	-	260	125	-	155	545	-	325
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	9	9	9	5	5	5	5	5	5	8	8	8
Mvmt Flow	12	4	12	10	4	58	4	413	14	100	408	7

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1067	1043	408	1041	1036	413	415	0	0	427	0	0
Stage 1	608	608	-	421	421	-	-	-	-	-	-	-
Stage 2	459	435	-	620	615	-	-	-	-	-	-	-
Critical Hdwy	7.19	6.59	6.29	7.15	6.55	6.25	4.15	-	-	4.18	-	-
Critical Hdwy Stg 1	6.19	5.59	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.19	5.59	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.581	4.081	3.381	3.545	4.045	3.345	2.245	-	-	2.272	-	-
Pot Cap-1 Maneuver	194	223	628	205	229	633	1128	-	-	1101	-	-
Stage 1	471	475	-	604	584	-	-	-	-	-	-	-
Stage 2	569	569	-	470	478	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	161	202	628	183	207	633	1128	-	-	1101	-	-
Mov Cap-2 Maneuver	161	202	-	183	207	-	-	-	-	-	-	-
Stage 1	469	432	-	602	582	-	-	-	-	-	-	-
Stage 2	511	567	-	415	435	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	20.6		14.1		0.1		1.7	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1128	-	-	161	402	190	633	1101	-	-
HCM Lane V/C Ratio	0.004	-	-	0.075	0.041	0.075	0.092	0.091	-	-
HCM Control Delay (s)	8.2	-	-	29.2	14.3	25.5	11.3	8.6	-	-
HCM Lane LOS	A	-	-	D	B	D	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0.2	0.3	0.3	-	-

Rolesville Commercial TIA
5: Rolesville High Staff & Bus Driveway & Quarry Road

2025 Existing PM
08/11/2025

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	60	41	5	37	28	4
Future Volume (vph)	60	41	5	37	28	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		185	0		0	0
Storage Lanes		1	0		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected				0.994	0.950	
Satd. Flow (prot)	1652	1404	0	1717	1641	1468
Flt Permitted				0.994	0.950	
Satd. Flow (perm)	1652	1404	0	1717	1641	1468
Link Speed (mph)	45			45	25	
Link Distance (ft)	1891			1490	1086	
Travel Time (s)	28.7			22.6	29.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	15%	15%	10%	10%	10%	10%
Adj. Flow (vph)	75	51	6	46	35	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	75	51	0	52	35	5
Enter Blocked Intersection	No	No	No	No	1 veh	1 veh
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	16.2%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	1.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	60	41	5	37	28	4
Future Vol, veh/h	60	41	5	37	28	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	185	-	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	15	15	10	10	10	10
Mvmt Flow	75	51	6	46	35	5
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	126	0	133	75
Stage 1	-	-	-	-	75	-
Stage 2	-	-	-	-	58	-
Critical Hdwy	-	-	4.2	-	6.5	6.3
Critical Hdwy Stg 1	-	-	-	-	5.5	-
Critical Hdwy Stg 2	-	-	-	-	5.5	-
Follow-up Hdwy	-	-	2.29	-	3.59	3.39
Pot Cap-1 Maneuver	-	-	1412	-	842	965
Stage 1	-	-	-	-	928	-
Stage 2	-	-	-	-	945	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1412	-	839	965
Mov Cap-2 Maneuver	-	-	-	-	839	-
Stage 1	-	-	-	-	928	-
Stage 2	-	-	-	-	941	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.9		9.4	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	839	965	-	-	1412	-
HCM Lane V/C Ratio	0.042	0.005	-	-	0.004	-
HCM Control Delay (s)	9.5	8.8	-	-	7.6	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-

6: Rolesville Road/E Young Street & The Point South Driveway/Rolesville High Student & Carpool Dwy

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	4	49	0	108	4	282	28	63	328	4
Future Volume (vph)	4	4	4	49	0	108	4	282	28	63	328	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		380	90		360	285		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	25			25			100			200		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.955				0.850			0.850		0.998	
Flt Protected		0.984			0.950		0.950			0.950		
Satd. Flow (prot)	0	1750	0	0	1770	1583	1703	1792	1524	1703	1789	0
Flt Permitted		0.984			0.950		0.950			0.950		
Satd. Flow (perm)	0	1750	0	0	1770	1583	1703	1792	1524	1703	1789	0
Link Speed (mph)		25			15			45			45	
Link Distance (ft)		1316			1290			2126			2194	
Travel Time (s)		35.9			58.6			32.2			33.2	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	6%	6%	6%	6%	6%	6%
Adj. Flow (vph)	5	5	5	59	0	130	5	340	34	76	395	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	15	0	0	59	130	5	340	34	76	400	0
Enter Blocked Intersection	1 veh	1 veh	1 veh	1 veh	1 veh	1 veh	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			20			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane											Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	37.6%											
Analysis Period (min)	15											
	ICU Level of Service A											

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕	↕	↕	↕	↕	↕	
Traffic Vol, veh/h	4	4	4	49	0	108	4	282	28	63	328	4
Future Vol, veh/h	4	4	4	49	0	108	4	282	28	63	328	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Free	-	-	None
Storage Length	-	-	-	-	-	380	90	-	360	285	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2	6	6	6	6	6	6
Mvmt Flow	5	5	5	59	0	130	5	340	34	76	395	5
Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	965	900	398	905	902	340	400	0	-	340	0	0
Stage 1	550	550	-	350	350	-	-	-	-	-	-	-
Stage 2	415	350	-	555	552	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.254	-	-	2.254	-	-
Pot Cap-1 Maneuver	234	278	652	257	277	702	1137	-	0	1197	-	-
Stage 1	519	516	-	666	633	-	-	-	0	-	-	-
Stage 2	615	633	-	516	515	-	-	-	0	-	-	-
Platoon blocked, %								-			-	-
Mov Cap-1 Maneuver	181	259	652	238	258	702	1137	-	-	1197	-	-
Mov Cap-2 Maneuver	181	259	-	238	258	-	-	-	-	-	-	-
Stage 1	517	483	-	663	630	-	-	-	-	-	-	-
Stage 2	499	630	-	475	483	-	-	-	-	-	-	-
Approach	EB		WB		NB			SB				
HCM Control Delay, s	18.8		15.6		0.1			1.3				
HCM LOS	C		C									
Minor Lane/Major Mvmt	NBL		NBT		EBLn1WBLn1WBLn2		SBL	SBT	SBR			
Capacity (veh/h)	1137		-		275 238		702	1197	-			
HCM Lane V/C Ratio	0.004		-		0.053 0.248		0.185	0.063	-			
HCM Control Delay (s)	8.2		-		18.8 25		11.3	8.2	-			
HCM Lane LOS	A		-		C D		B	A	-			
HCM 95th %tile Q(veh)	0		-		0.2 0.9		0.7	0.2	-			

Rolesville Commercial TIA
7: Rolesville Road & Fowler Road

2025 Existing PM
08/11/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	47	260	4	81	267
Future Volume (vph)	4	47	260	4	81	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.876		0.998			
Flt Protected	0.996					0.988
Satd. Flow (prot)	1625	0	1772	0	0	1771
Flt Permitted	0.996					0.988
Satd. Flow (perm)	1625	0	1772	0	0	1771
Link Speed (mph)	45		45			45
Link Distance (ft)	1228		7395			2126
Travel Time (s)	18.6		112.0			32.2
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	2%	2%	7%	7%	6%	6%
Adj. Flow (vph)	5	57	313	5	98	322
Shared Lane Traffic (%)						
Lane Group Flow (vph)	62	0	318	0	0	420
Enter Blocked Intersection	1 veh	1 veh	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	45.8%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	1.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	47	260	4	81	267
Future Vol, veh/h	4	47	260	4	81	267
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	7	7	6	6
Mvmt Flow	5	57	313	5	98	322
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	834	316	0	0	318	0
Stage 1	316	-	-	-	-	-
Stage 2	518	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.16	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.254	-
Pot Cap-1 Maneuver	338	724	-	-	1220	-
Stage 1	739	-	-	-	-	-
Stage 2	598	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	305	724	-	-	1220	-
Mov Cap-2 Maneuver	305	-	-	-	-	-
Stage 1	739	-	-	-	-	-
Stage 2	539	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	11.1	0		1.9		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-		654	1220	-
HCM Lane V/C Ratio	-	-		0.094	0.08	-
HCM Control Delay (s)	-	-		11.1	8.2	0
HCM Lane LOS	-	-		B	A	A
HCM 95th %tile Q(veh)	-	-		0.3	0.3	-

Rolesville Commercial TIA
8: Rolesville Road & Mitchell Mill Road

2025 Existing PM
08/11/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	166	11	35	50	6	9	215	67	4	215	42
Future Volume (vph)	37	166	11	35	50	6	9	215	67	4	215	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		325	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993				0.850		0.969			0.978	
Flt Protected		0.991			0.980			0.999			0.999	
Satd. Flow (prot)	0	1764	0	0	1808	1568	0	1752	0	0	1751	0
Flt Permitted		0.991			0.980			0.999			0.999	
Satd. Flow (perm)	0	1764	0	0	1808	1568	0	1752	0	0	1751	0
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1427			1134			1110			7395	
Travel Time (s)		21.6			17.2			16.8			112.0	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	5%	5%	5%	6%	6%	6%
Adj. Flow (vph)	43	193	13	41	58	7	10	250	78	5	250	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	249	0	0	99	7	0	338	0	0	304	0
Enter Blocked Intersection	1 veh	1 veh	1 veh	1 veh	1 veh	1 veh	1 veh	1 veh	1 veh	1 veh	1 veh	1 veh
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type: Other												
Control Type: Unsignalized												
Intersection Capacity Utilization 45.4%												
ICU Level of Service A												
Analysis Period (min) 15												

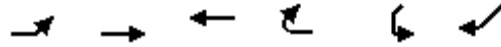
Intersection	
Intersection Delay, s/veh	13.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Vol, veh/h	37	166	11	35	50	6	9	215	67	4	215	42
Future Vol, veh/h	37	166	11	35	50	6	9	215	67	4	215	42
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	6	6	6	3	3	3	5	5	5	6	6	6
Mvmt Flow	43	193	13	41	58	7	10	250	78	5	250	49
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	13.7	11.3	14.4	13.7
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	3%	17%	41%	0%	2%
Vol Thru, %	74%	78%	59%	0%	82%
Vol Right, %	23%	5%	0%	100%	16%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	291	214	85	6	261
LT Vol	9	37	35	0	4
Through Vol	215	166	50	0	215
RT Vol	67	11	0	6	42
Lane Flow Rate	338	249	99	7	303
Geometry Grp	2	4a	5	5	2
Degree of Util (X)	0.518	0.423	0.193	0.012	0.473
Departure Headway (Hd)	5.507	6.124	7.013	6.087	5.614
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	650	585	509	583	637
Service Time	3.575	4.199	4.799	3.873	3.685
HCM Lane V/C Ratio	0.52	0.426	0.194	0.012	0.476
HCM Control Delay	14.4	13.7	11.5	8.9	13.7
HCM Lane LOS	B	B	B	A	B
HCM 95th-tile Q	3	2.1	0.7	0	2.5

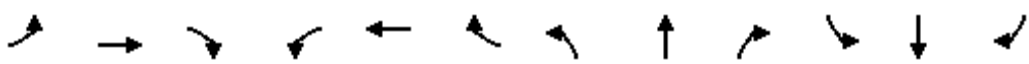
	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations			↘	↗↗		
Traffic Volume (vph)	0	0	127	724	0	0
Future Volume (vph)	0	0	127	724	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	25		0	0
Storage Lanes		0	1		0	0
Taper Length (ft)			205		25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1736	3471	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1736	3471	0	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	364			423	375	
Travel Time (s)	4.5			5.2	4.6	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	4%	4%	0%	0%
Adj. Flow (vph)	0	0	130	739	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	130	739	0	0
Enter Blocked Intersection	No	No	Yes	Yes	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	45		15	9
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	40.2%			ICU Level of Service A		
Analysis Period (min)	15					



Lane Group	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	212	1351	0	0	0	0
Future Volume (vph)	212	1351	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			0	0	0
Storage Lanes	1			0	0	0
Taper Length (ft)	180				25	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1736	3471	0	0	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1736	3471	0	0	0	0
Link Speed (mph)		55	55		45	
Link Distance (ft)		429	389		400	
Travel Time (s)		5.3	4.8		6.1	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	4%	4%	0%	0%	0%	0%
Adj. Flow (vph)	216	1379	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	216	1379	0	0	0	0
Enter Blocked Intersection	Yes	Yes	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	45			9	15	9
Sign Control		Free	Free		Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 40.7%				ICU Level of Service A		
Analysis Period (min) 15						

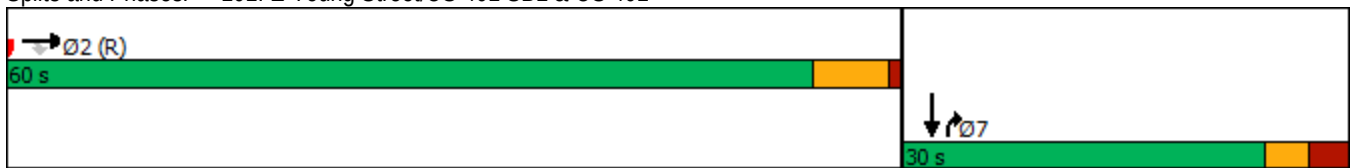
Rolesville Commercial TIA
101: E Young Street/US 401 SBL & US 401

2025 Existing PM
08/11/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗						↖↖		↑	
Traffic Volume (vph)	0	996	355	0	0	0	0	0	464	0	165	0
Future Volume (vph)	0	996	355	0	0	0	0	0	464	0	165	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			0%			3%			-1%	
Storage Length (ft)	0		255	0		0	0		280	0		0
Storage Lanes	0		1	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	1.00
Frt			0.850						0.850			
Flt Protected												
Satd. Flow (prot)	0	3436	1537	0	0	0	0	0	2745	0	1836	0
Flt Permitted												
Satd. Flow (perm)	0	3436	1537	0	0	0	0	0	2745	0	1836	0
Right Turn on Red			No			No			No	No		No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		389			703			1459			375	
Travel Time (s)		4.8			8.7			22.1			5.7	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	4%	4%	4%
Adj. Flow (vph)	0	1016	362	0	0	0	0	0	473	0	168	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1016	362	0	0	0	0	0	473	0	168	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.00	1.00	1.00	1.02	1.02	1.02	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	0						1		2	
Detector Template									Right			
Leading Detector (ft)		100	0						20		100	
Trailing Detector (ft)		0	0						0		0	
Detector 1 Position(ft)		0	0						0		0	
Detector 1 Size(ft)		6	20						20		6	
Detector 1 Type		Cl+Ex	Cl+Ex						Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0						0.0		0.0	
Detector 1 Queue (s)		0.0	0.0						0.0		0.0	
Detector 1 Delay (s)		0.0	0.0						0.0		15.0	
Detector 2 Position(ft)		94									94	
Detector 2 Size(ft)		6									6	
Detector 2 Type		Cl+Ex									Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0									0.0	
Turn Type		NA	Perm						Prot		NA	

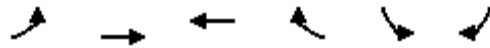
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		2							7		7	
Permitted Phases			2									
Detector Phase		2	2						7		7	
Switch Phase												
Minimum Initial (s)		14.0	14.0						7.0		7.0	
Minimum Split (s)		20.0	20.0						12.8		12.8	
Total Split (s)		60.0	60.0						30.0		30.0	
Total Split (%)		66.7%	66.7%						33.3%		33.3%	
Maximum Green (s)		54.0	54.0						24.2		24.2	
Yellow Time (s)		5.0	5.0						3.0		3.0	
All-Red Time (s)		1.0	1.0						2.8		2.8	
Lost Time Adjust (s)		-1.0	-1.0						-0.8		-0.8	
Total Lost Time (s)		5.0	5.0						5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0	3.0						3.0		3.0	
Recall Mode		C-Max	C-Max						None		None	
Act Effct Green (s)		58.6	58.6						21.4		21.4	
Actuated g/C Ratio		0.65	0.65						0.24		0.24	
v/c Ratio		0.45	0.36						0.72		0.38	
Control Delay		6.9	7.1						38.1		32.9	
Queue Delay		0.0	0.0						0.0		0.0	
Total Delay		6.9	7.1						38.1		32.9	
LOS		A	A						D		C	
Approach Delay		6.9						38.1			32.9	
Approach LOS		A						D			C	
Queue Length 50th (ft)		90	56						139		87	
Queue Length 95th (ft)		143	110						189		144	
Internal Link Dist (ft)		309			623			1379			295	
Turn Bay Length (ft)			255						280			
Base Capacity (vph)		2236	1000						762		510	
Starvation Cap Reductn		0	0						0		0	
Spillback Cap Reductn		0	0						0		0	
Storage Cap Reductn		0	0						0		0	
Reduced v/c Ratio		0.45	0.36						0.62		0.33	
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 90												
Offset: 48 (53%), Referenced to phase 2:EBT, Start of Green												
Natural Cycle: 40												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 0.72												
Intersection Signal Delay: 16.4						Intersection LOS: B						
Intersection Capacity Utilization 52.1%						ICU Level of Service A						
Analysis Period (min) 15												

Splits and Phases: 101: E Young Street/US 401 SBL & US 401



Rolesville Commercial TIA
201: US 401 & U-turn North of E Young St

2025 Existing PM
08/11/2025



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	299	1152	0	0	0	0
Future Volume (vph)	299	1152	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		0%	0%		2%	
Storage Length (ft)	490			0	0	0
Storage Lanes	1			0	0	0
Taper Length (ft)	100				25	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1752	3505	0	0	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1752	3505	0	0	0	0
Link Speed (mph)		55	55		45	
Link Distance (ft)		703	1237		100	
Travel Time (s)		8.7	15.3		1.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%
Adj. Flow (vph)	318	1226	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	318	1226	0	0	0	0
Enter Blocked Intersection	Yes	Yes	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.01	1.01
Turning Speed (mph)	45			9	15	9
Sign Control		Free	Stop		Stop	
Intersection Summary						
Area Type: Other						
Control Type: Unsignalized						
Intersection Capacity Utilization 54.7% ICU Level of Service A						
Analysis Period (min) 15						

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	274	594	0	0
Future Volume (vph)	0	0	274	594	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	-1%	
Storage Length (ft)		0	345		0	0
Storage Lanes		0	1		0	0
Taper Length (ft)			190		25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frnt						
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1752	3505	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1752	3505	0	0
Link Speed (mph)	55			55	45	
Link Distance (ft)	1037			736	100	
Travel Time (s)	12.9			9.1	1.5	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	3%	3%	2%	2%
Adj. Flow (vph)	0	0	280	606	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	280	606	0	0
Enter Blocked Intersection	No	No	Yes	Yes	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (mph)		9	45		15	9
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	55.0%			ICU Level of Service B		
Analysis Period (min)	15					

2027 NO-BUILD AM PEAK HOUR

Rolesville Commercial TIA
1: US 401 NBL/E Young Street & US 401

2027 No-Build AM
08/18/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑		↑				↑↑
Traffic Volume (vph)	0	0	0	0	1685	459	0	120	0	0	0	650
Future Volume (vph)	0	0	0	0	1685	459	0	120	0	0	0	650
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-1%			2%			-3%	
Storage Length (ft)	0		0	0		240	0		0	0		125
Storage Lanes	0		0	0		1	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.88
Frnt						0.850						0.850
Flt Protected												
Satd. Flow (prot)	0	0	0	0	3557	1591	0	1844	0	0	0	2828
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	3557	1591	0	1844	0	0	0	2828
Right Turn on Red			No			No	No		No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			35	
Link Distance (ft)		736			364			400			1141	
Travel Time (s)		9.1			4.5			6.1			22.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	1872	510	0	133	0	0	0	722
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	1872	510	0	133	0	0	0	722
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	0.99	0.99	0.99	1.01	1.01	1.01	0.98	0.98	0.98
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors					2	1		2				1
Detector Template					Thru	Right						Right
Leading Detector (ft)					100	20		100				20
Trailing Detector (ft)					0	0		0				0
Detector 1 Position(ft)					0	0		0				0
Detector 1 Size(ft)					6	20		6				20
Detector 1 Type					Cl+Ex	Cl+Ex		Cl+Ex				Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)					0.0	0.0		0.0				0.0
Detector 1 Queue (s)					0.0	0.0		0.0				0.0
Detector 1 Delay (s)					0.0	0.0		0.0				0.0
Detector 2 Position(ft)					94			94				
Detector 2 Size(ft)					6			6				
Detector 2 Type					Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0				
Turn Type					NA	Perm		NA				Prot
Protected Phases					6			3				3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases						6						
Detector Phase					6	6		3				3
Switch Phase												
Minimum Initial (s)					14.0	14.0		7.0				7.0
Minimum Split (s)					21.0	21.0		14.0				14.0
Total Split (s)					58.0	58.0		32.0				32.0
Total Split (%)					64.4%	64.4%		35.6%				35.6%
Maximum Green (s)					51.0	51.0		25.0				25.0
Yellow Time (s)					5.0	5.0		5.0				5.0
All-Red Time (s)					2.0	2.0		2.0				2.0
Lost Time Adjust (s)					-2.0	-2.0		-2.0				-2.0
Total Lost Time (s)					5.0	5.0		5.0				5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)					3.0	3.0		3.0				3.0
Recall Mode					C-Max	C-Max		None				None
Act Effect Green (s)					53.6	53.6		26.4				26.4
Actuated g/C Ratio					0.60	0.60		0.29				0.29
v/c Ratio					0.88	0.54		0.25				0.87
Control Delay					16.4	10.5		26.9				43.1
Queue Delay					0.0	0.0		0.0				0.0
Total Delay					16.4	10.5		26.9				43.1
LOS					B	B		C				D
Approach Delay					15.1			26.9			43.1	
Approach LOS					B			C			D	
Queue Length 50th (ft)					318	139		49				218
Queue Length 95th (ft)					524	m191		116				#324
Internal Link Dist (ft)		656			284			320			1061	
Turn Bay Length (ft)						240						125
Base Capacity (vph)					2119	947		553				848
Starvation Cap Reductn					0	0		0				0
Spillback Cap Reductn					0	0		0				0
Storage Cap Reductn					0	0		0				0
Reduced v/c Ratio					0.88	0.54		0.24				0.85

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 57 (63%), Referenced to phase 6:WBT, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 21.9

Intersection LOS: C

Intersection Capacity Utilization 77.6%

ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: US 401 NBL/E Young Street & US 401



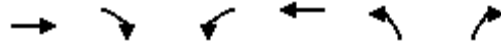
Rolesville Commercial TIA
2: U-turn North of E Young St & US 401

2027 No-Build AM
08/18/2025

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑	↑↑	
Traffic Volume (vph)	0	0	0	1473	889	0
Future Volume (vph)	0	0	0	1473	889	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-2%	2%	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.97	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	3575	3399	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	3575	3399	0
Right Turn on Red		No			No	No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	45	
Link Distance (ft)	423			1187	100	
Travel Time (s)	5.2			14.7	1.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1637	988	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1637	988	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	0.99	0.99	1.01	1.01
Turning Speed (mph)		9	15		15	9
Number of Detectors				2	1	
Detector Template				Thru	Left	
Leading Detector (ft)				100	20	
Trailing Detector (ft)				0	0	
Detector 1 Position(ft)				0	0	
Detector 1 Size(ft)				6	20	
Detector 1 Type				CI+Ex	CI+Ex	
Detector 1 Channel						
Detector 1 Extend (s)				0.0	0.0	
Detector 1 Queue (s)				0.0	0.0	
Detector 1 Delay (s)				0.0	0.0	
Detector 2 Position(ft)				94		
Detector 2 Size(ft)				6		
Detector 2 Type				CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)				0.0		
Turn Type				NA	Prot	
Protected Phases				6	3	
Permitted Phases						
Detector Phase				6	3	
Switch Phase						

Rolesville Commercial TIA
2: U-turn North of E Young St & US 401

2027 No-Build AM
08/18/2025

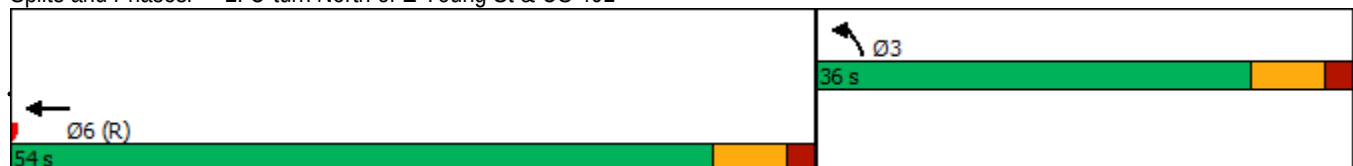


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Initial (s)				14.0	7.0	
Minimum Split (s)				21.0	14.0	
Total Split (s)				54.0	36.0	
Total Split (%)				60.0%	40.0%	
Maximum Green (s)				47.0	29.0	
Yellow Time (s)				5.0	5.0	
All-Red Time (s)				2.0	2.0	
Lost Time Adjust (s)				-2.0	-2.0	
Total Lost Time (s)				5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)				3.0	3.0	
Recall Mode				C-Max	None	
Act Effct Green (s)				49.8	30.2	
Actuated g/C Ratio				0.55	0.34	
v/c Ratio				0.83	0.87	
Control Delay				21.5	30.8	
Queue Delay				0.0	0.0	
Total Delay				21.5	30.8	
LOS				C	C	
Approach Delay				21.5	30.8	
Approach LOS				C	C	
Queue Length 50th (ft)				386	254	
Queue Length 95th (ft)				491	#346	
Internal Link Dist (ft)	343			1107	20	
Turn Bay Length (ft)						
Base Capacity (vph)				1978	1170	
Starvation Cap Reductn				0	0	
Spillback Cap Reductn				0	0	
Storage Cap Reductn				0	0	
Reduced v/c Ratio				0.83	0.84	

Intersection Summary

Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 61 (68%), Referenced to phase 6:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 25.0	Intersection LOS: C
Intersection Capacity Utilization 74.4%	ICU Level of Service D
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

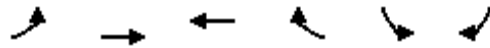
Splits and Phases: 2: U-turn North of E Young St & US 401



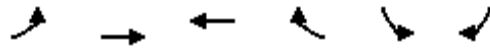
Rolesville Commercial TIA
3: US 401 & U-Turn S of E Young Street

2027 No-Build AM

08/18/2025



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑			↵	
Traffic Volume (vph)	0	892	0	0	396	0
Future Volume (vph)	0	892	0	0	396	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	0%		-1%	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	3522	0	0	1778	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	3522	0	0	1778	0
Right Turn on Red				No	No	No
Satd. Flow (RTOR)						
Link Speed (mph)		55	55		45	
Link Distance (ft)		990	429		100	
Travel Time (s)		12.3	5.3		1.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	991	0	0	440	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	991	0	0	440	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.00	1.00	0.99	0.99
Turning Speed (mph)	15			9	15	9
Number of Detectors		2			1	
Detector Template		Thru			Left	
Leading Detector (ft)		100			20	
Trailing Detector (ft)		0			0	
Detector 1 Position(ft)		0			0	
Detector 1 Size(ft)		6			20	
Detector 1 Type		Cl+Ex			Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)		0.0			0.0	
Detector 1 Queue (s)		0.0			0.0	
Detector 1 Delay (s)		0.0			0.0	
Detector 2 Position(ft)		94				
Detector 2 Size(ft)		6				
Detector 2 Type		Cl+Ex				
Detector 2 Channel						
Detector 2 Extend (s)		0.0				
Turn Type		NA			Prot	
Protected Phases		2			7	
Permitted Phases						
Detector Phase		2			7	
Switch Phase						

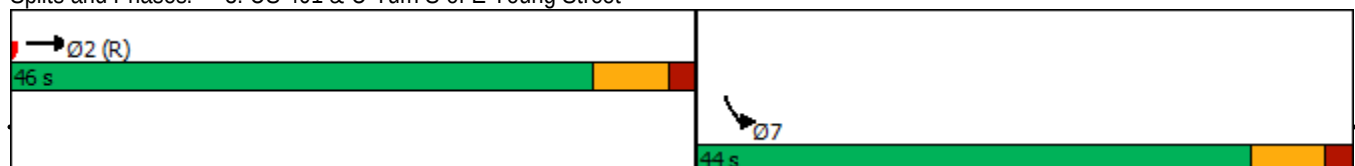


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Initial (s)		14.0			7.0	
Minimum Split (s)		21.0			14.0	
Total Split (s)		46.0			44.0	
Total Split (%)		51.1%			48.9%	
Maximum Green (s)		39.0			37.0	
Yellow Time (s)		5.0			5.0	
All-Red Time (s)		2.0			2.0	
Lost Time Adjust (s)		-2.0			-2.0	
Total Lost Time (s)		5.0			5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0			3.0	
Recall Mode		C-Max			None	
Act Effct Green (s)		50.2			29.8	
Actuated g/C Ratio		0.56			0.33	
v/c Ratio		0.51			0.75	
Control Delay		14.5			23.9	
Queue Delay		0.0			0.0	
Total Delay		14.5			23.9	
LOS		B			C	
Approach Delay		14.5			23.9	
Approach LOS		B			C	
Queue Length 50th (ft)		172			196	
Queue Length 95th (ft)		273			m195	
Internal Link Dist (ft)		910	349		20	
Turn Bay Length (ft)						
Base Capacity (vph)		1962			770	
Starvation Cap Reductn		0			0	
Spillback Cap Reductn		0			0	
Storage Cap Reductn		0			0	
Reduced v/c Ratio		0.51			0.57	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 36 (40%), Referenced to phase 2:EBT, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 17.4
Intersection LOS: B
Intersection Capacity Utilization 86.1%
ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: US 401 & U-Turn S of E Young Street



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	4	53	43	4	146	10	827	79	204	803	91
Future Volume (vph)	83	4	53	43	4	146	10	827	79	204	803	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	0		260	125		155	545		0
Storage Lanes	1		0	0		1	1		1	1		1
Taper Length (ft)	75			25			140			80		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.860				0.850			0.850			0.850
Flt Protected	0.950				0.956		0.950			0.950		
Satd. Flow (prot)	1770	1602	0	0	1781	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.723				0.697		0.255			0.950		
Satd. Flow (perm)	1347	1602	0	0	1298	1583	475	1863	1583	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		1270			1891			2194			1459	
Travel Time (s)		34.6			36.8			42.7			28.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	92	4	59	48	4	162	11	919	88	227	892	101
Shared Lane Traffic (%)												
Lane Group Flow (vph)	92	63	0	0	52	162	11	919	88	227	892	101
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA	Perm	Prot	NA	Perm
Protected Phases		4			8	1		2		1	6	
Permitted Phases	4			8		8	2		2			6

4: E Young Street & The Point North Driveway/Quarry Road

08/18/2025



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	1	2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	12.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	19.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	14.0	14.0		14.0	14.0	20.0	56.0	56.0	56.0	20.0	76.0	76.0
Total Split (%)	15.6%	15.6%		15.6%	15.6%	22.2%	62.2%	62.2%	62.2%	22.2%	84.4%	84.4%
Maximum Green (s)	7.0	7.0		7.0	7.0	13.0	49.0	49.0	49.0	13.0	69.0	69.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0			-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0			5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag						Lag	Lead	Lead	Lead	Lag		
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	C-Max	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	9.0	9.0			9.0	23.4	53.8	53.8	53.8	15.0	74.8	74.8
Actuated g/C Ratio	0.10	0.10			0.10	0.26	0.60	0.60	0.60	0.17	0.83	0.83
v/c Ratio	0.69	0.39			0.40	0.39	0.04	0.83	0.09	0.77	0.58	0.08
Control Delay	66.2	45.8			48.0	28.9	4.6	15.4	4.4	49.0	3.1	1.2
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.2	45.8			48.0	28.9	4.6	15.4	4.4	49.0	3.1	1.2
LOS	E	D			D	C	A	B	A	D	A	A
Approach Delay		57.9			33.5			14.4			11.5	
Approach LOS		E			C			B			B	
Queue Length 50th (ft)	51	34			28	69	1	421	11	122	28	3
Queue Length 95th (ft)	#126	74			65	122	m2	m465	m17	#240	87	m10
Internal Link Dist (ft)		1190			1811			2114			1379	
Turn Bay Length (ft)	275					260	125		155	545		
Base Capacity (vph)	134	160			129	411	284	1113	946	295	1548	1315
Starvation Cap Reductn	0	0			0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0			0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0			0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.39			0.40	0.39	0.04	0.83	0.09	0.77	0.58	0.08

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 69 (77%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 17.2

Intersection LOS: B

Intersection Capacity Utilization 78.6%

ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: E Young Street & The Point North Driveway/Quarry Road



Rolesville Commercial TIA
5: Rolesville High Staff & Bus Driveway & Quarry Road

2027 No-Build AM

08/18/2025

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	51	233	34	55	127	20
Future Volume (vph)	51	233	34	55	127	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		185	0		0	0
Storage Lanes		1	0		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected				0.974	0.950	
Satd. Flow (prot)	1863	1417	0	1778	1467	1162
Flt Permitted				0.974	0.950	
Satd. Flow (perm)	1863	1417	0	1778	1467	1162
Link Speed (mph)	35			35	25	
Link Distance (ft)	1891			1490	1086	
Travel Time (s)	36.8			29.0	29.6	
Peak Hour Factor	0.90	0.50	0.50	0.90	0.50	0.50
Heavy Vehicles (%)	2%	14%	6%	2%	23%	39%
Adj. Flow (vph)	57	466	68	61	254	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	466	0	129	254	40
Enter Blocked Intersection	No	No	No	No	1 veh	1 veh
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	25.9%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	4.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	51	233	34	55	127	20
Future Vol, veh/h	51	233	34	55	127	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	185	-	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	50	50	90	50	50
Heavy Vehicles, %	2	14	6	2	23	39
Mvmt Flow	57	466	68	61	254	40
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	523	0	254	57
Stage 1	-	-	-	-	57	-
Stage 2	-	-	-	-	197	-
Critical Hdwy	-	-	4.16	-	6.63	6.59
Critical Hdwy Stg 1	-	-	-	-	5.63	-
Critical Hdwy Stg 2	-	-	-	-	5.63	-
Follow-up Hdwy	-	-	2.254	-	3.707	3.651
Pot Cap-1 Maneuver	-	-	1023	-	691	914
Stage 1	-	-	-	-	915	-
Stage 2	-	-	-	-	788	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1023	-	643	914
Mov Cap-2 Maneuver	-	-	-	-	643	-
Stage 1	-	-	-	-	915	-
Stage 2	-	-	-	-	734	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		4.6		13.5	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	643	914	-	-	1023	-
HCM Lane V/C Ratio	0.395	0.044	-	-	0.066	-
HCM Control Delay (s)	14.2	9.1	-	-	8.8	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	1.9	0.1	-	-	0.2	-

6: Rolesville Road/E Young Street & The Point South Driveway/Rolesville High Student & Carpool Dwy

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	4	4	105	4	211	4	665	215	348	569	5
Future Volume (vph)	7	4	4	105	4	211	4	665	215	348	569	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		380	90		360	285		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	25			25			100			200		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.973				0.850			0.850		0.999	
Flt Protected		0.980			0.954		0.950			0.950		
Satd. Flow (prot)	0	1776	0	0	1777	1583	1770	1863	1583	1770	1861	0
Flt Permitted		0.504			0.719		0.423			0.950		
Satd. Flow (perm)	0	913	0	0	1339	1583	788	1863	1583	1770	1861	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			15			35			35	
Link Distance (ft)		1316			1290			2126			2194	
Travel Time (s)		35.9			58.6			41.4			42.7	
Peak Hour Factor	0.90	0.50	0.90	0.50	0.50	0.50	0.90	0.90	0.50	0.50	0.90	0.90
Adj. Flow (vph)	8	8	4	210	8	422	4	739	430	696	632	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	20	0	0	218	422	4	739	430	696	638	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			20			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA	Perm	Prot	NA	
Protected Phases		4			8	1		2		1	6	
Permitted Phases	4			8		8	2		2			

6: Rolesville Road/E Young Street & The Point South Driveway/Rolesville High Student & Carpool Dwy

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	1	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	12.0	12.0	12.0	7.0	12.0	
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	19.0	19.0	19.0	14.0	19.0	
Total Split (s)	16.0	16.0		16.0	16.0	35.0	39.0	39.0	39.0	35.0	74.0	
Total Split (%)	17.8%	17.8%		17.8%	17.8%	38.9%	43.3%	43.3%	43.3%	38.9%	82.2%	
Maximum Green (s)	9.0	9.0		9.0	9.0	28.0	32.0	32.0	32.0	28.0	67.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-2.0			-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0			5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag						Lead	Lag	Lag	Lag	Lead		
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max	C-Max	None	C-Max	
Act Effct Green (s)		9.9			11.0	46.0	34.0	34.0	34.0	30.0	69.0	
Actuated g/C Ratio		0.11			0.12	0.51	0.38	0.38	0.38	0.33	0.77	
v/c Ratio		0.20			1.34	0.52	0.01	1.05	0.72	1.18	0.45	
Control Delay		41.1			221.5	17.6	15.5	73.4	27.9	126.4	4.3	
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		41.1			221.5	17.6	15.5	73.4	27.9	126.4	4.3	
LOS		D			F	B	B	E	C	F	A	
Approach Delay		41.1			87.0			56.6			68.0	
Approach LOS		D			F			E			E	
Queue Length 50th (ft)		11			~163	152	1	~468	208	~465	63	
Queue Length 95th (ft)		18			#125	105	m3	#678	109	267	180	
Internal Link Dist (ft)		1236			1210			2046			2114	
Turn Bay Length (ft)						380	90		360	285		
Base Capacity (vph)		111			163	809	297	703	598	590	1426	
Starvation Cap Reductn		0			0	0	0	0	0	0	0	
Spillback Cap Reductn		0			0	0	0	0	0	0	0	
Storage Cap Reductn		0			0	0	0	0	0	0	0	
Reduced v/c Ratio		0.18			1.34	0.52	0.01	1.05	0.72	1.18	0.45	
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 90												
Offset: 16 (18%), Referenced to phase 2:NBTL and 6:SBT, Start of Green												
Natural Cycle: 140												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 1.34												
Intersection Signal Delay: 67.4							Intersection LOS: E					
Intersection Capacity Utilization 77.8%							ICU Level of Service D					
Analysis Period (min) 15												
~ Volume exceeds capacity, queue is theoretically infinite.												
Queue shown is maximum after two cycles.												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

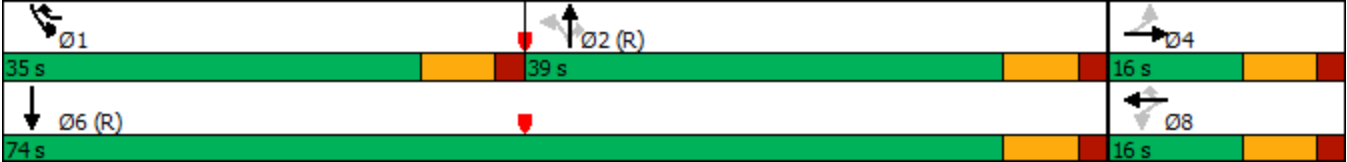
6: Rolesville Road/E Young Street & The Point South Driveway/Rolesville High Student & Carpool Dwy

08/18/2025

m

Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Rolesville Road/E Young Street & The Point South Driveway/Rolesville High Student & Carpool Dwy



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	9	13	9	7	143	13	665	21	61	580	19
Future Volume (vph)	39	9	13	9	7	143	13	665	21	61	580	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		100
Storage Lanes	0		0	0		0	1		0	1		1
Taper Length (ft)	25			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.972			0.879			0.995				0.850
Flt Protected		0.969			0.997		0.950			0.950		
Satd. Flow (prot)	0	1754	0	0	1632	0	1770	1853	0	1770	1863	1583
Flt Permitted		0.613			0.982		0.356			0.291		
Satd. Flow (perm)	0	1110	0	0	1608	0	663	1853	0	542	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		1266			1228			7395			2126	
Travel Time (s)		34.5			18.6			112.0			32.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	43	10	14	10	8	159	14	739	23	68	644	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	67	0	0	177	0	14	762	0	68	644	21
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		12.0	12.0		12.0	12.0	12.0
Minimum Split (s)	14.0	14.0		14.0	14.0		19.0	19.0		19.0	19.0	19.0
Total Split (s)	25.0	25.0		25.0	25.0		65.0	65.0		65.0	65.0	65.0
Total Split (%)	27.8%	27.8%		27.8%	27.8%		72.2%	72.2%		72.2%	72.2%	72.2%
Maximum Green (s)	18.0	18.0		18.0	18.0		58.0	58.0		58.0	58.0	58.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)		-2.0			-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Act Effect Green (s)		16.0			16.5		63.5	63.5		63.5	63.5	63.5
Actuated g/C Ratio		0.18			0.18		0.71	0.71		0.71	0.71	0.71
v/c Ratio		0.34			0.60		0.03	0.58		0.18	0.49	0.02
Control Delay		35.7			42.1		5.2	9.5		3.9	4.7	2.8
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		35.7			42.1		5.2	9.5		3.9	4.7	2.8
LOS		D			D		A	A		A	A	A
Approach Delay		35.7			42.1			9.4			4.6	
Approach LOS		D			D			A			A	
Queue Length 50th (ft)		33			93		2	190		7	93	2
Queue Length 95th (ft)		70			153		9	322		m15	m121	m4
Internal Link Dist (ft)		1186			1148			7315			2046	
Turn Bay Length (ft)							100			100		100
Base Capacity (vph)		246			357		468	1307		382	1315	1117
Starvation Cap Reductn		0			0		0	0		0	0	0
Spillback Cap Reductn		0			0		0	0		0	0	0
Storage Cap Reductn		0			0		0	0		0	0	0
Reduced v/c Ratio		0.27			0.50		0.03	0.58		0.18	0.49	0.02

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 65 (72%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 11.7

Intersection LOS: B

Intersection Capacity Utilization 77.5%

ICU Level of Service D

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Rolesville Road & Merritt Property Southern Driveway/Fowler Road



Rolesville Commercial TIA
8: Rolesville Road & Mitchell Mill Road

2027 No-Build AM
08/18/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	49	4	115	276	20	8	278	24	12	423	212
Future Volume (vph)	127	49	4	115	276	20	8	278	24	12	423	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		325	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997				0.850		0.989			0.956	
Flt Protected		0.966			0.986			0.999			0.999	
Satd. Flow (prot)	0	1794	0	0	1837	1583	0	1840	0	0	1779	0
Flt Permitted		0.365			0.846			0.979			0.991	
Satd. Flow (perm)	0	678	0	0	1576	1583	0	1804	0	0	1765	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1427			1134			1110			7395	
Travel Time (s)		21.6			17.2			16.8			112.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	141	54	4	128	307	22	9	309	27	13	470	236
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	199	0	0	435	22	0	345	0	0	719	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		

Rolesville Commercial TIA
8: Rolesville Road & Mitchell Mill Road

2027 No-Build AM
08/18/2025

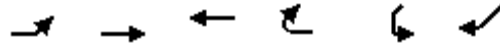


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	12.0	12.0		12.0	12.0	
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	19.0	19.0		19.0	19.0	
Total Split (s)	29.0	29.0		29.0	29.0	29.0	36.0	36.0		36.0	36.0	
Total Split (%)	44.6%	44.6%		44.6%	44.6%	44.6%	55.4%	55.4%		55.4%	55.4%	
Maximum Green (s)	22.0	22.0		22.0	22.0	22.0	29.0	29.0		29.0	29.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0			-2.0	-2.0		-2.0			-2.0	
Total Lost Time (s)		5.0			5.0	5.0		5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Act Effct Green (s)		21.9			21.9	21.9		28.7			28.7	
Actuated g/C Ratio		0.36			0.36	0.36		0.47			0.47	
v/c Ratio		0.82			0.77	0.04		0.40			0.86	
Control Delay		48.0			28.9	13.4		12.6			28.0	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		48.0			28.9	13.4		12.6			28.0	
LOS		D			C	B		B			C	
Approach Delay		48.0			28.1			12.6			28.0	
Approach LOS		D			C			B			C	
Queue Length 50th (ft)		68			146	5		83			236	
Queue Length 95th (ft)		#178			#280	18		140			#442	
Internal Link Dist (ft)		1347			1054			1030			7315	
Turn Bay Length (ft)						325						
Base Capacity (vph)		273			635	638		939			918	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.73			0.69	0.03		0.37			0.78	
Intersection Summary												
Area Type:	Other											
Cycle Length: 65												
Actuated Cycle Length: 60.8												
Natural Cycle: 65												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.86												
Intersection Signal Delay: 27.2												
Intersection LOS: C												
Intersection Capacity Utilization 84.1%												
ICU Level of Service E												
Analysis Period (min) 15												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

Splits and Phases: 8: Rolesville Road & Mitchell Mill Road



	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations			↘	↗↗		
Traffic Volume (vph)	0	0	226	2144	0	0
Future Volume (vph)	0	0	226	2144	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	25		0	0
Storage Lanes		0	1		0	0
Taper Length (ft)			205		25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1770	3539	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1770	3539	0	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	364			423	375	
Travel Time (s)	4.5			5.2	4.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	251	2382	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	251	2382	0	0
Enter Blocked Intersection	No	No	Yes	Yes	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	45		15	9
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	83.1%			ICU Level of Service E		
Analysis Period (min)	15					



Lane Group	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		  				
Traffic Volume (vph)	120	1173	0	0	0	0
Future Volume (vph)	120	1173	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			0	0	0
Storage Lanes	1			0	0	0
Taper Length (ft)	180				25	
Lane Util. Factor	1.00	0.91	1.00	1.00	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1770	5085	0	0	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1770	5085	0	0	0	0
Link Speed (mph)		55	55		45	
Link Distance (ft)		429	389		400	
Travel Time (s)		5.3	4.8		6.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	133	1303	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	133	1303	0	0	0	0
Enter Blocked Intersection	Yes	Yes	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	45			9	15	9
Sign Control		Free	Free		Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	77.6%			ICU Level of Service D		
Analysis Period (min)	15					

Rolesville Commercial TIA
101: E Young Street/US 401 SBL & US 401

2027 No-Build AM
08/18/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑						↑↑		↑	
Traffic Volume (vph)	0	294	879	0	0	0	0	0	1075	0	226	0
Future Volume (vph)	0	294	879	0	0	0	0	0	1075	0	226	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			0%			3%			-1%	
Storage Length (ft)	0		0	0		0	0		600	0		0
Storage Lanes	0		1	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	1.00
Frnt			0.850						0.850			
Flt Protected												
Satd. Flow (prot)	0	3504	1567	0	0	0	0	0	2745	0	1872	0
Flt Permitted												
Satd. Flow (perm)	0	3504	1567	0	0	0	0	0	2745	0	1872	0
Right Turn on Red			No			No			No	No		No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		389			703			1459			375	
Travel Time (s)		4.8			8.7			22.1			5.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	327	977	0	0	0	0	0	1194	0	251	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	327	977	0	0	0	0	0	1194	0	251	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.00	1.00	1.00	1.02	1.02	1.02	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	0						1		2	
Detector Template									Right			
Leading Detector (ft)		100	0						20		100	
Trailing Detector (ft)		0	0						0		0	
Detector 1 Position(ft)		0	0						0		0	
Detector 1 Size(ft)		6	20						20		6	
Detector 1 Type		Cl+Ex	Cl+Ex						Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0						0.0		0.0	
Detector 1 Queue (s)		0.0	0.0						0.0		0.0	
Detector 1 Delay (s)		0.0	0.0						0.0		15.0	
Detector 2 Position(ft)		94									94	
Detector 2 Size(ft)		6									6	
Detector 2 Type		Cl+Ex									Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0									0.0	
Turn Type		NA	Free						Prot		NA	
Protected Phases		2							7		7	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	Free											
Detector Phase		2							7		7	
Switch Phase												
Minimum Initial (s)		14.0							7.0		7.0	
Minimum Split (s)		21.0							14.0		14.0	
Total Split (s)		25.0							65.0		65.0	
Total Split (%)		27.8%							72.2%		72.2%	
Maximum Green (s)		18.0							58.0		58.0	
Yellow Time (s)		5.0							5.0		5.0	
All-Red Time (s)		2.0							2.0		2.0	
Lost Time Adjust (s)		-2.0							-2.0		-2.0	
Total Lost Time (s)		5.0							5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0							3.0		3.0	
Recall Mode		C-Max							None		None	
Act Effect Green (s)		26.1	90.0						53.9		53.9	
Actuated g/C Ratio		0.29	1.00						0.60		0.60	
v/c Ratio		0.32	0.62						0.73		0.22	
Control Delay		23.9	4.5						8.3		7.7	
Queue Delay		0.0	0.0						0.0		0.0	
Total Delay		23.9	4.5						8.3		7.7	
LOS		C	A						A		A	
Approach Delay		9.4						8.3			7.7	
Approach LOS		A						A			A	
Queue Length 50th (ft)		87	111						94		53	
Queue Length 95th (ft)		118	203						109		m55	
Internal Link Dist (ft)		309			623			1379			295	
Turn Bay Length (ft)									600			
Base Capacity (vph)		1016	1567						1830		1248	
Starvation Cap Reductn		0	0						0		0	
Spillback Cap Reductn		0	0						0		0	
Storage Cap Reductn		0	0						0		0	
Reduced v/c Ratio		0.32	0.62						0.65		0.20	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 61 (68%), Referenced to phase 2:EBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 8.8

Intersection LOS: A

Intersection Capacity Utilization 62.6%

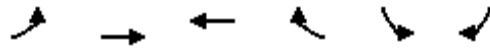
ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 101: E Young Street/US 401 SBL & US 401





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	889	486	0	0	0	0
Future Volume (vph)	889	486	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		0%	0%		2%	
Storage Length (ft)	395			0	0	0
Storage Lanes	2			0	0	0
Taper Length (ft)	200				25	
Lane Util. Factor	0.97	0.95	1.00	1.00	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	3433	3539	0	0	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	3433	3539	0	0	0	0
Link Speed (mph)		55	55		45	
Link Distance (ft)		703	1237		100	
Travel Time (s)		8.7	15.3		1.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	988	540	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	988	540	0	0	0	0
Enter Blocked Intersection	Yes	Yes	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.01	1.01
Turning Speed (mph)	45			9	15	9
Sign Control		Free	Stop		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 73.6%						
ICU Level of Service D						
Analysis Period (min) 15						

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations			↘	↗↗		
Traffic Volume (vph)	0	0	396	1951	0	0
Future Volume (vph)	0	0	396	1951	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	-1%	
Storage Length (ft)		0	345		0	0
Storage Lanes		0	1		0	0
Taper Length (ft)			190		25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1770	3539	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1770	3539	0	0
Link Speed (mph)	55			55	45	
Link Distance (ft)	1037			736	100	
Travel Time (s)	12.9			9.1	1.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	440	2168	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	440	2168	0	0
Enter Blocked Intersection	No	No	Yes	Yes	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (mph)		9	45		15	9
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	44.0%			ICU Level of Service A		
Analysis Period (min)	15					

2027 NO-BUILD PM PEAK HOUR

Rolesville Commercial TIA
1: US 401 NBL/E Young Street & US 401

2027 No-Build PM
08/18/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑		↑				↑↑
Traffic Volume (vph)	0	0	0	0	661	380	0	229	0	0	0	565
Future Volume (vph)	0	0	0	0	661	380	0	229	0	0	0	565
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-1%			2%			-3%	
Storage Length (ft)	0		0	0		240	0		0	0		125
Storage Lanes	0		0	0		1	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.88
Frnt						0.850						0.850
Flt Protected												
Satd. Flow (prot)	0	0	0	0	3557	1591	0	1844	0	0	0	2828
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	3557	1591	0	1844	0	0	0	2828
Right Turn on Red			No			No	No		No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			35	
Link Distance (ft)		736			364			400			1141	
Travel Time (s)		9.1			4.5			6.1			22.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	734	422	0	254	0	0	0	628
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	734	422	0	254	0	0	0	628
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	0.99	0.99	0.99	1.01	1.01	1.01	0.98	0.98	0.98
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors					2	1		2				1
Detector Template					Thru	Right						Right
Leading Detector (ft)					100	20		100				20
Trailing Detector (ft)					0	0		0				0
Detector 1 Position(ft)					0	0		0				0
Detector 1 Size(ft)					6	20		6				20
Detector 1 Type					Cl+Ex	Cl+Ex		Cl+Ex				Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)					0.0	0.0		0.0				0.0
Detector 1 Queue (s)					0.0	0.0		0.0				0.0
Detector 1 Delay (s)					0.0	0.0		0.0				0.0
Detector 2 Position(ft)					94			94				
Detector 2 Size(ft)					6			6				
Detector 2 Type					Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0				
Turn Type					NA	Perm		NA				Prot
Protected Phases					6			3				3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases						6						
Detector Phase					6	6		3				3
Switch Phase												
Minimum Initial (s)					14.0	14.0		7.0				7.0
Minimum Split (s)					21.0	21.0		14.0				14.0
Total Split (s)					39.0	39.0		31.0				31.0
Total Split (%)					55.7%	55.7%		44.3%				44.3%
Maximum Green (s)					32.0	32.0		24.0				24.0
Yellow Time (s)					5.0	5.0		5.0				5.0
All-Red Time (s)					2.0	2.0		2.0				2.0
Lost Time Adjust (s)					-2.0	-2.0		-2.0				-2.0
Total Lost Time (s)					5.0	5.0		5.0				5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)					3.0	3.0		3.0				3.0
Recall Mode					C-Max	C-Max		None				None
Act Effect Green (s)					37.1	37.1		22.9				22.9
Actuated g/C Ratio					0.53	0.53		0.33				0.33
v/c Ratio					0.39	0.50		0.42				0.68
Control Delay					7.8	10.4		18.2				24.1
Queue Delay					0.0	0.0		0.0				0.0
Total Delay					7.8	10.4		18.2				24.1
LOS					A	B		B				C
Approach Delay					8.8			18.2			24.1	
Approach LOS					A			B			C	
Queue Length 50th (ft)					60	91		95				127
Queue Length 95th (ft)					138	199		m94				176
Internal Link Dist (ft)		656			284			320			1061	
Turn Bay Length (ft)						240						125
Base Capacity (vph)					1886	843		684				1050
Starvation Cap Reductn					0	0		0				0
Spillback Cap Reductn					0	0		0				0
Storage Cap Reductn					0	0		0				0
Reduced v/c Ratio					0.39	0.50		0.37				0.60

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 52 (74%), Referenced to phase 6:WBT, Start of Green

Natural Cycle: 40

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 14.7

Intersection LOS: B

Intersection Capacity Utilization 46.4%

ICU Level of Service A

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: US 401 NBL/E Young Street & US 401



Rolesville Commercial TIA
2: U-turn North of E Young St & US 401

2027 No-Build PM
08/18/2025

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑	↑↑	
Traffic Volume (vph)	0	0	0	710	596	0
Future Volume (vph)	0	0	0	710	596	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-2%	2%	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.97	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	3575	3399	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	3575	3399	0
Right Turn on Red		No			No	No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	45	
Link Distance (ft)	423			1187	100	
Travel Time (s)	5.2			14.7	1.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	789	662	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	789	662	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	0.99	0.99	1.01	1.01
Turning Speed (mph)		9	15		15	9
Number of Detectors				2	1	
Detector Template				Thru	Left	
Leading Detector (ft)				100	20	
Trailing Detector (ft)				0	0	
Detector 1 Position(ft)				0	0	
Detector 1 Size(ft)				6	20	
Detector 1 Type				CI+Ex	CI+Ex	
Detector 1 Channel						
Detector 1 Extend (s)				0.0	0.0	
Detector 1 Queue (s)				0.0	0.0	
Detector 1 Delay (s)				0.0	0.0	
Detector 2 Position(ft)				94		
Detector 2 Size(ft)				6		
Detector 2 Type				CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)				0.0		
Turn Type				NA	Prot	
Protected Phases				6	3	
Permitted Phases						
Detector Phase				6	3	
Switch Phase						

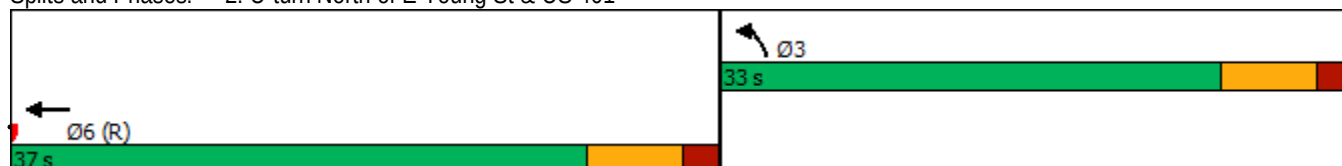


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Initial (s)				14.0	7.0	
Minimum Split (s)				21.0	14.0	
Total Split (s)				37.0	33.0	
Total Split (%)				52.9%	47.1%	
Maximum Green (s)				30.0	26.0	
Yellow Time (s)				5.0	5.0	
All-Red Time (s)				2.0	2.0	
Lost Time Adjust (s)				-2.0	-2.0	
Total Lost Time (s)				5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)				3.0	3.0	
Recall Mode				C-Max	None	
Act Effct Green (s)				38.8	21.2	
Actuated g/C Ratio				0.55	0.30	
v/c Ratio				0.40	0.64	
Control Delay				10.3	21.7	
Queue Delay				0.0	0.0	
Total Delay				10.3	21.7	
LOS				B	C	
Approach Delay				10.3	21.7	
Approach LOS				B	C	
Queue Length 50th (ft)				92	117	
Queue Length 95th (ft)				155	m148	
Internal Link Dist (ft)	343			1107	20	
Turn Bay Length (ft)						
Base Capacity (vph)				1983	1359	
Starvation Cap Reductn				0	0	
Spillback Cap Reductn				0	0	
Storage Cap Reductn				0	0	
Reduced v/c Ratio				0.40	0.49	

Intersection Summary

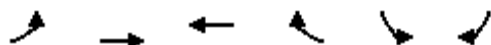
Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 68 (97%), Referenced to phase 6:WBT, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 15.5 Intersection LOS: B
Intersection Capacity Utilization 45.0% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: U-turn North of E Young St & US 401



Rolesville Commercial TIA
3: US 401 & U-Turn S of E Young Street

2027 No-Build PM
08/18/2025

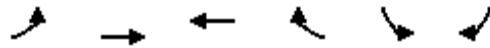


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑			↵	
Traffic Volume (vph)	0	1701	0	0	431	0
Future Volume (vph)	0	1701	0	0	431	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	0%		-1%	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	3522	0	0	1778	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	3522	0	0	1778	0
Right Turn on Red				No	No	No
Satd. Flow (RTOR)						
Link Speed (mph)		55	55		45	
Link Distance (ft)		990	429		100	
Travel Time (s)		12.3	5.3		1.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1890	0	0	479	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1890	0	0	479	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.00	1.00	0.99	0.99
Turning Speed (mph)	15			9	15	9
Number of Detectors		2			1	
Detector Template		Thru			Left	
Leading Detector (ft)		100			20	
Trailing Detector (ft)		0			0	
Detector 1 Position(ft)		0			0	
Detector 1 Size(ft)		6			20	
Detector 1 Type		Cl+Ex			Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)		0.0			0.0	
Detector 1 Queue (s)		0.0			0.0	
Detector 1 Delay (s)		0.0			0.0	
Detector 2 Position(ft)		94				
Detector 2 Size(ft)		6				
Detector 2 Type		Cl+Ex				
Detector 2 Channel						
Detector 2 Extend (s)		0.0				
Turn Type		NA			Prot	
Protected Phases		2			7	
Permitted Phases						
Detector Phase		2			7	
Switch Phase						

Rolesville Commercial TIA
3: US 401 & U-Turn S of E Young Street

2027 No-Build PM

08/18/2025



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Initial (s)		14.0			7.0	
Minimum Split (s)		21.0			14.0	
Total Split (s)		45.0			25.0	
Total Split (%)		64.3%			35.7%	
Maximum Green (s)		38.0			18.0	
Yellow Time (s)		5.0			5.0	
All-Red Time (s)		2.0			2.0	
Lost Time Adjust (s)		-2.0			-2.0	
Total Lost Time (s)		5.0			5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0			3.0	
Recall Mode		C-Max			None	
Act Effct Green (s)		40.0			20.0	
Actuated g/C Ratio		0.57			0.29	
v/c Ratio		0.94			0.94	
Control Delay		25.3			50.2	
Queue Delay		0.0			0.0	
Total Delay		25.3			50.2	
LOS		C			D	
Approach Delay		25.3			50.2	
Approach LOS		C			D	
Queue Length 50th (ft)		358			143	
Queue Length 95th (ft)		#558			#371	
Internal Link Dist (ft)		910	349		20	
Turn Bay Length (ft)						
Base Capacity (vph)		2012			508	
Starvation Cap Reductn		0			0	
Spillback Cap Reductn		0			0	
Storage Cap Reductn		0			0	
Reduced v/c Ratio		0.94			0.94	

Intersection Summary

Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 50 (71%), Referenced to phase 2:EBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 30.4	Intersection LOS: C
Intersection Capacity Utilization 78.4%	ICU Level of Service D
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 3: US 401 & U-Turn S of E Young Street



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	4	72	46	4	56	31	682	39	95	836	182
Future Volume (vph)	91	4	72	46	4	56	31	682	39	95	836	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	0		260	125		155	545		0
Storage Lanes	1		0	0		1	1		1	1		1
Taper Length (ft)	75			25			140			80		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.857				0.850			0.850			0.850
Flt Protected	0.950				0.956		0.950			0.950		
Satd. Flow (prot)	1770	1596	0	0	1781	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.721				0.681		0.218			0.950		
Satd. Flow (perm)	1343	1596	0	0	1269	1583	406	1863	1583	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		1270			1891			2194			1459	
Travel Time (s)		34.6			28.7			33.2			22.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	101	4	80	51	4	62	34	758	43	106	929	202
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	84	0	0	55	62	34	758	43	106	929	202
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA	Perm	Prot	NA	Perm
Protected Phases		4			8	1		2		1	6	
Permitted Phases	4			8		8	2		2			6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	1	2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	12.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	19.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	17.0	17.0		17.0	17.0	15.0	58.0	58.0	58.0	15.0	73.0	73.0
Total Split (%)	18.9%	18.9%		18.9%	18.9%	16.7%	64.4%	64.4%	64.4%	16.7%	81.1%	81.1%
Maximum Green (s)	10.0	10.0		10.0	10.0	8.0	51.0	51.0	51.0	8.0	66.0	66.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0			-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0			5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag						Lag	Lead	Lead	Lead	Lag		
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	C-Max	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	11.4	11.4			11.4	23.4	56.6	56.6	56.6	9.8	68.6	68.6
Actuated g/C Ratio	0.13	0.13			0.13	0.26	0.63	0.63	0.63	0.11	0.76	0.76
v/c Ratio	0.59	0.42			0.34	0.15	0.13	0.65	0.04	0.55	0.65	0.17
Control Delay	52.2	42.8			42.0	24.2	6.2	10.8	4.4	49.5	7.9	3.4
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.2	42.8			42.0	24.2	6.2	10.8	4.4	49.5	7.9	3.4
LOS	D	D			D	C	A	B	A	D	A	A
Approach Delay		47.9			32.6			10.3			10.7	
Approach LOS		D			C			B			B	
Queue Length 50th (ft)	55	44			29	26	7	252	7	58	206	26
Queue Length 95th (ft)	#114	90			66	56	m13	342	m13	111	314	44
Internal Link Dist (ft)		1190			1811			2114			1379	
Turn Bay Length (ft)	275					260	125		155	545		
Base Capacity (vph)	179	212			169	414	255	1172	995	196	1420	1207
Starvation Cap Reductn	0	0			0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0			0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0			0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.40			0.33	0.15	0.13	0.65	0.04	0.54	0.65	0.17

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 28 (31%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 14.6

Intersection LOS: B

Intersection Capacity Utilization 78.2%

ICU Level of Service D

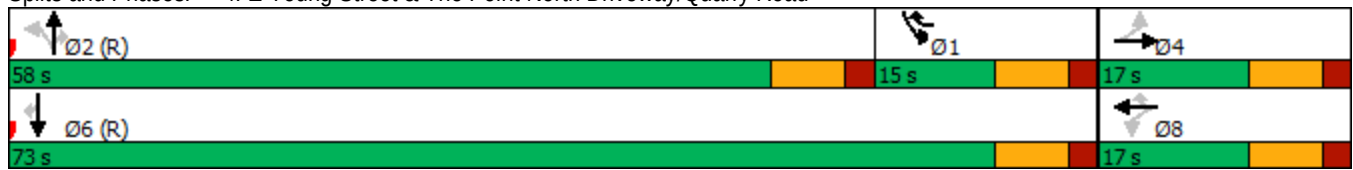
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: E Young Street & The Point North Driveway/Quarry Road



Rolesville Commercial TIA
5: Rolesville High Staff & Bus Driveway & Quarry Road

2027 No-Build PM

08/18/2025

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	88	43	6	75	30	4
Future Volume (vph)	88	43	6	75	30	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		185	0		0	0
Storage Lanes		1	0		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected				0.996	0.950	
Satd. Flow (prot)	1863	1583	0	1855	1770	1583
Flt Permitted				0.996	0.950	
Satd. Flow (perm)	1863	1583	0	1855	1770	1583
Link Speed (mph)	45			45	25	
Link Distance (ft)	1891			1490	1086	
Travel Time (s)	28.7			22.6	29.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	98	48	7	83	33	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	98	48	0	90	33	4
Enter Blocked Intersection	No	No	No	No	1 veh	1 veh
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	18.9%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	1.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	88	43	6	75	30	4
Future Vol, veh/h	88	43	6	75	30	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	185	-	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	98	48	7	83	33	4
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	146	0	195	98
Stage 1	-	-	-	-	98	-
Stage 2	-	-	-	-	97	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1436	-	794	958
Stage 1	-	-	-	-	926	-
Stage 2	-	-	-	-	927	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1436	-	790	958
Mov Cap-2 Maneuver	-	-	-	-	790	-
Stage 1	-	-	-	-	926	-
Stage 2	-	-	-	-	922	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.6		9.7	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	790	958	-	-	1436	-
HCM Lane V/C Ratio	0.042	0.005	-	-	0.005	-
HCM Control Delay (s)	9.8	8.8	-	-	7.5	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-

6: Rolesville Road/E Young Street & The Point South Driveway/Rolesville High Student & Carpool Dwy

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	4	4	51	4	114	4	626	30	67	869	10
Future Volume (vph)	7	4	4	51	4	114	4	626	30	67	869	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		380	90		360	285		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	25			25			100			200		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.966				0.850			0.850		0.998	
Flt Protected		0.976			0.955		0.950			0.950		
Satd. Flow (prot)	0	1756	0	0	1779	1583	1770	1863	1583	1770	1859	0
Flt Permitted		0.810			0.728		0.294			0.950		
Satd. Flow (perm)	0	1458	0	0	1356	1583	548	1863	1583	1770	1859	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			15			45			45	
Link Distance (ft)		1316			1290			2126			2194	
Travel Time (s)		35.9			58.6			32.2			33.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	8	4	4	57	4	127	4	696	33	74	966	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	0	0	61	127	4	696	33	74	977	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			20			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA	Perm	Prot	NA	
Protected Phases		4			8	1		2		1	6	
Permitted Phases	4			8		8	2		2			

6: Rolesville Road/E Young Street & The Point South Driveway/Rolesville High Student & Carpool Dwy

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	1	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	12.0	12.0	12.0	7.0	12.0	
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	19.0	19.0	19.0	14.0	19.0	
Total Split (s)	15.0	15.0		15.0	15.0	14.0	61.0	61.0	61.0	14.0	75.0	
Total Split (%)	16.7%	16.7%		16.7%	16.7%	15.6%	67.8%	67.8%	67.8%	15.6%	83.3%	
Maximum Green (s)	8.0	8.0		8.0	8.0	7.0	54.0	54.0	54.0	7.0	68.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-2.0			-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0			5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag						Lead	Lag	Lag	Lag	Lead		
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max	C-Max	None	C-Max	
Act Effct Green (s)		9.2			9.7	21.1	58.9	58.9	58.9	9.1	74.1	
Actuated g/C Ratio		0.10			0.11	0.23	0.65	0.65	0.65	0.10	0.82	
v/c Ratio		0.11			0.42	0.34	0.01	0.57	0.03	0.41	0.64	
Control Delay		38.3			46.7	30.1	6.0	9.1	5.6	52.2	4.3	
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		38.3			46.7	30.1	6.0	9.1	5.6	52.2	4.3	
LOS		D			D	C	A	A	A	D	A	
Approach Delay		38.3			35.5			8.9			7.7	
Approach LOS		D			D			A			A	
Queue Length 50th (ft)		8			33	58	1	162	5	43	95	
Queue Length 95th (ft)		28			73	107	m2	228	m14	m69	114	
Internal Link Dist (ft)		1236			1210			2046			2114	
Turn Bay Length (ft)						380	90		360	285		
Base Capacity (vph)		162			150	371	358	1219	1035	179	1529	
Starvation Cap Reductn		0			0	0	0	0	0	0	0	
Spillback Cap Reductn		0			0	0	0	0	0	0	0	
Storage Cap Reductn		0			0	0	0	0	0	0	0	
Reduced v/c Ratio		0.10			0.41	0.34	0.01	0.57	0.03	0.41	0.64	
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 90												
Offset: 70 (78%), Referenced to phase 2:NBTL and 6:SBT, Start of Green												
Natural Cycle: 60												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 0.64												
Intersection Signal Delay: 11.0							Intersection LOS: B					
Intersection Capacity Utilization 71.0%							ICU Level of Service C					
Analysis Period (min) 15												
m Volume for 95th percentile queue is metered by upstream signal.												

6: Rolesville Road/E Young Street & The Point South Driveway/Rolesville High Student & Carpool Dwy

08/13/2025

Splits and Phases: 6: Rolesville Road/E Young Street & The Point South Driveway/Rolesville High Student & Carpool Dwy



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	11	29	20	13	53	38	516	14	89	707	51
Future Volume (vph)	62	11	29	20	13	53	38	516	14	89	707	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		100
Storage Lanes	0		0	0		0	1		0	1		1
Taper Length (ft)	25			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.962			0.916			0.996				0.850
Flt Protected		0.970			0.989		0.950			0.950		
Satd. Flow (prot)	0	1738	0	0	1688	0	1770	1855	0	1770	1863	1583
Flt Permitted		0.762			0.904		0.302			0.404		
Satd. Flow (perm)	0	1365	0	0	1542	0	563	1855	0	753	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		1266			1228			7395			2126	
Travel Time (s)		34.5			18.6			112.0			32.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	69	12	32	22	14	59	42	573	16	99	786	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	113	0	0	95	0	42	589	0	99	786	57
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		12.0	12.0		12.0	12.0	12.0
Minimum Split (s)	14.0	14.0		14.0	14.0		19.0	19.0		19.0	19.0	19.0
Total Split (s)	21.0	21.0		21.0	21.0		69.0	69.0		69.0	69.0	69.0
Total Split (%)	23.3%	23.3%		23.3%	23.3%		76.7%	76.7%		76.7%	76.7%	76.7%
Maximum Green (s)	14.0	14.0		14.0	14.0		62.0	62.0		62.0	62.0	62.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)		-2.0			-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Act Effect Green (s)		13.6			13.6		70.2	70.2		70.2	70.2	70.2
Actuated g/C Ratio		0.15			0.15		0.78	0.78		0.78	0.78	0.78
v/c Ratio		0.55			0.41		0.10	0.41		0.17	0.54	0.05
Control Delay		45.1			39.2		4.6	5.6		3.5	4.3	2.9
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		45.1			39.2		4.6	5.6		3.5	4.3	2.9
LOS		D			D		A	A		A	A	A
Approach Delay		45.1			39.2			5.5			4.2	
Approach LOS		D			D			A			A	
Queue Length 50th (ft)		60			49		6	112		11	105	6
Queue Length 95th (ft)		112			94		17	178		m18	132	m10
Internal Link Dist (ft)		1186			1148			7315			2046	
Turn Bay Length (ft)							100			100		100
Base Capacity (vph)		242			274		439	1447		587	1453	1234
Starvation Cap Reductn		0			0		0	0		0	0	0
Spillback Cap Reductn		0			0		0	0		0	0	0
Storage Cap Reductn		0			0		0	0		0	0	0
Reduced v/c Ratio		0.47			0.35		0.10	0.41		0.17	0.54	0.05

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 75 (83%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 9.1

Intersection LOS: A

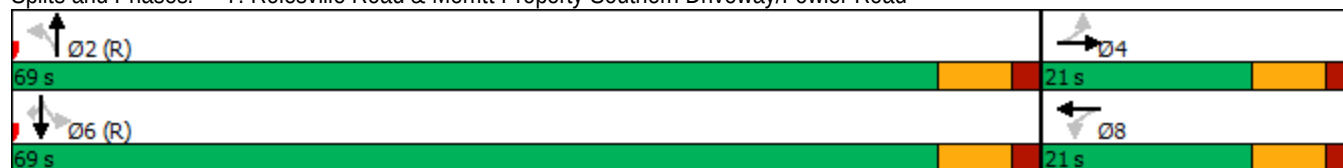
Intersection Capacity Utilization 72.2%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Rolesville Road & Merritt Property Southern Driveway/Fowler Road



Rolesville Commercial TIA
8: Rolesville Road & Mitchell Mill Road

2027 No-Build PM

08/18/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	220	12	43	81	17	10	365	80	12	318	161
Future Volume (vph)	136	220	12	43	81	17	10	365	80	12	318	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		325	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996				0.850		0.976			0.956	
Flt Protected		0.982			0.983			0.999			0.999	
Satd. Flow (prot)	0	1822	0	0	1831	1583	0	1816	0	0	1779	0
Flt Permitted		0.820			0.806			0.984			0.983	
Satd. Flow (perm)	0	1521	0	0	1501	1583	0	1789	0	0	1751	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1427			1134			1110			7395	
Travel Time (s)		21.6			17.2			16.8			112.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	151	244	13	48	90	19	11	406	89	13	353	179
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	408	0	0	138	19	0	506	0	0	545	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		

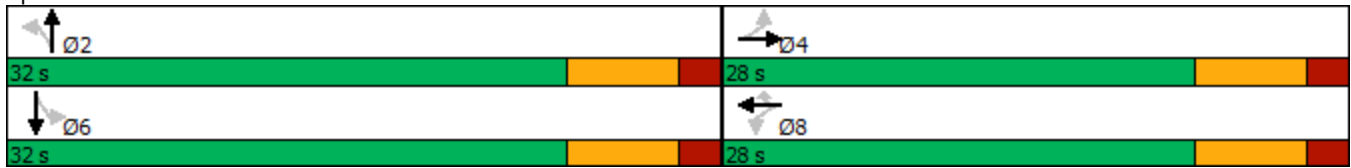
Rolesville Commercial TIA
8: Rolesville Road & Mitchell Mill Road

2027 No-Build PM
08/18/2025

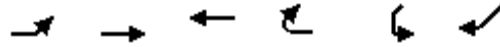


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	12.0	12.0		12.0	12.0	
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	19.0	19.0		19.0	19.0	
Total Split (s)	28.0	28.0		28.0	28.0	28.0	32.0	32.0		32.0	32.0	
Total Split (%)	46.7%	46.7%		46.7%	46.7%	46.7%	53.3%	53.3%		53.3%	53.3%	
Maximum Green (s)	21.0	21.0		21.0	21.0	21.0	25.0	25.0		25.0	25.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0			-2.0	-2.0		-2.0			-2.0	
Total Lost Time (s)		5.0			5.0	5.0		5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Act Effct Green (s)		19.4			18.4	18.4		22.1			22.1	
Actuated g/C Ratio		0.37			0.35	0.35		0.43			0.43	
v/c Ratio		0.72			0.26	0.03		0.66			0.73	
Control Delay		23.4			13.7	11.7		17.4			19.8	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		23.4			13.7	11.7		17.4			19.8	
LOS		C			B	B		B			B	
Approach Delay		23.4			13.5			17.4			19.8	
Approach LOS		C			B			B			B	
Queue Length 50th (ft)		110			30	4		128			144	
Queue Length 95th (ft)		#223			68	15		223			251	
Internal Link Dist (ft)		1347			1054			1030			7315	
Turn Bay Length (ft)						325						
Base Capacity (vph)		699			690	727		966			945	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.58			0.20	0.03		0.52			0.58	
Intersection Summary												
Area Type:	Other											
Cycle Length: 60												
Actuated Cycle Length: 51.9												
Natural Cycle: 55												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.73												
Intersection Signal Delay: 19.3						Intersection LOS: B						
Intersection Capacity Utilization 67.5%						ICU Level of Service C						
Analysis Period (min) 15												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

Splits and Phases: 8: Rolesville Road & Mitchell Mill Road



						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				 		
Traffic Volume (vph)	0	0	263	1041	0	0
Future Volume (vph)	0	0	263	1041	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	25		0	0
Storage Lanes		0	1		0	0
Taper Length (ft)			205		25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1770	3539	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1770	3539	0	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	364			423	375	
Travel Time (s)	4.5			5.2	4.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	292	1157	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	292	1157	0	0
Enter Blocked Intersection	No	No	Yes	Yes	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	45		15	9
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	45.0%			ICU Level of Service A		
Analysis Period (min)	15					



Lane Group	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	229	1901	0	0	0	0
Future Volume (vph)	229	1901	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			0	0	0
Storage Lanes	1			0	0	0
Taper Length (ft)	180				25	
Lane Util. Factor	1.00	0.91	1.00	1.00	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1770	5085	0	0	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1770	5085	0	0	0	0
Link Speed (mph)		55	55		45	
Link Distance (ft)		429	389		400	
Travel Time (s)		5.3	4.8		6.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	254	2112	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	254	2112	0	0	0	0
Enter Blocked Intersection	Yes	Yes	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	45			9	15	9
Sign Control		Free	Free		Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	46.4%			ICU Level of Service A		
Analysis Period (min)	15					

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑						↑↑		↑	
Traffic Volume (vph)	0	1039	862	0	0	0	0	0	855	0	263	0
Future Volume (vph)	0	1039	862	0	0	0	0	0	855	0	263	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			0%			3%			-1%	
Storage Length (ft)	0		0	0		0	0		600	0		0
Storage Lanes	0		1	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	1.00
Frnt			0.850						0.850			
Flt Protected												
Satd. Flow (prot)	0	3504	1567	0	0	0	0	0	2745	0	1872	0
Flt Permitted												
Satd. Flow (perm)	0	3504	1567	0	0	0	0	0	2745	0	1872	0
Right Turn on Red			No			No			No	No		No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		389			703			1459			375	
Travel Time (s)		4.8			8.7			22.1			5.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1154	958	0	0	0	0	0	950	0	292	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1154	958	0	0	0	0	0	950	0	292	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.00	1.00	1.00	1.02	1.02	1.02	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	0						1		2	
Detector Template									Right			
Leading Detector (ft)		100	0						20		100	
Trailing Detector (ft)		0	0						0		0	
Detector 1 Position(ft)		0	0						0		0	
Detector 1 Size(ft)		6	20						20		6	
Detector 1 Type		Cl+Ex	Cl+Ex						Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0						0.0		0.0	
Detector 1 Queue (s)		0.0	0.0						0.0		0.0	
Detector 1 Delay (s)		0.0	0.0						0.0		15.0	
Detector 2 Position(ft)		94									94	
Detector 2 Size(ft)		6									6	
Detector 2 Type		Cl+Ex									Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0									0.0	
Turn Type		NA	Free						Prot		NA	
Protected Phases		2							7		7	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	Free											
Detector Phase		2							7		7	
Switch Phase												
Minimum Initial (s)		14.0							7.0		7.0	
Minimum Split (s)		21.0							14.0		14.0	
Total Split (s)		35.0							35.0		35.0	
Total Split (%)		50.0%							50.0%		50.0%	
Maximum Green (s)		28.0							28.0		28.0	
Yellow Time (s)		5.0							5.0		5.0	
All-Red Time (s)		2.0							2.0		2.0	
Lost Time Adjust (s)		-2.0							-2.0		-2.0	
Total Lost Time (s)		5.0							5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0							3.0		3.0	
Recall Mode		C-Max							None		None	
Act Effect Green (s)		30.8	70.0						29.2		29.2	
Actuated g/C Ratio		0.44	1.00						0.42		0.42	
v/c Ratio		0.75	0.61						0.83		0.37	
Control Delay		12.1	1.1						25.8		14.1	
Queue Delay		0.0	0.0						0.0		0.0	
Total Delay		12.1	1.1						25.8		14.1	
LOS		B	A						C		B	
Approach Delay		7.1						25.8			14.1	
Approach LOS		A						C			B	
Queue Length 50th (ft)		137	0						194		73	
Queue Length 95th (ft)		m174	m0						#281		129	
Internal Link Dist (ft)		309			623			1379			295	
Turn Bay Length (ft)									600			
Base Capacity (vph)		1540	1567						1176		802	
Starvation Cap Reductn		0	0						0		0	
Spillback Cap Reductn		0	0						0		0	
Storage Cap Reductn		0	0						0		0	
Reduced v/c Ratio		0.75	0.61						0.81		0.36	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 65 (93%), Referenced to phase 2:EBT, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 13.0

Intersection LOS: B

Intersection Capacity Utilization 89.6%

ICU Level of Service E

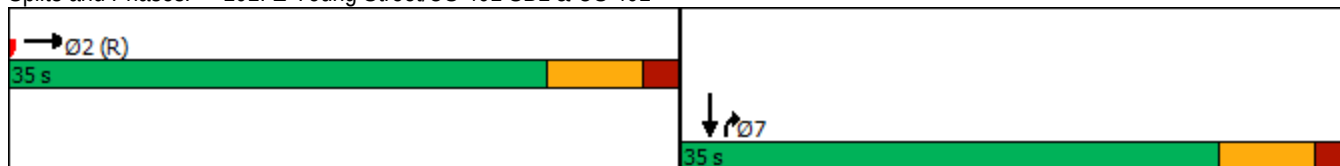
Analysis Period (min) 15

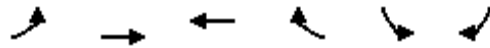
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 101: E Young Street/US 401 SBL & US 401





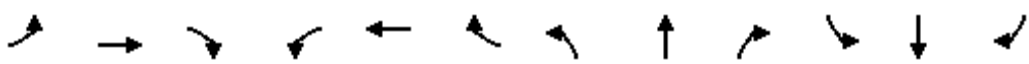
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	596	1289	0	0	0	0
Future Volume (vph)	596	1289	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		0%	0%		2%	
Storage Length (ft)	395			0	0	0
Storage Lanes	2			0	0	0
Taper Length (ft)	200				25	
Lane Util. Factor	0.97	0.95	1.00	1.00	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	3433	3539	0	0	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	3433	3539	0	0	0	0
Link Speed (mph)		55	55		45	
Link Distance (ft)		703	1237		100	
Travel Time (s)		8.7	15.3		1.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	662	1432	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	662	1432	0	0	0	0
Enter Blocked Intersection	Yes	Yes	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.01	1.01
Turning Speed (mph)	45			9	15	9
Sign Control		Free	Stop		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 62.8%						
ICU Level of Service B						
Analysis Period (min) 15						

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations			↘	↗		
Traffic Volume (vph)	0	0	431	807	0	0
Future Volume (vph)	0	0	431	807	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	-1%	
Storage Length (ft)		0	345		0	0
Storage Lanes		0	1		0	0
Taper Length (ft)			190		25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1770	3539	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1770	3539	0	0
Link Speed (mph)	55			55	45	
Link Distance (ft)	1037			736	100	
Travel Time (s)	12.9			9.1	1.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	479	897	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	479	897	0	0
Enter Blocked Intersection	No	No	Yes	Yes	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (mph)		9	45		15	9
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	66.4%			ICU Level of Service C		
Analysis Period (min)	15					

2027 BUILDOUT AM PEAK HOUR

Rolesville Commercial TIA
1: US 401 NBL/E Young Street & US 401

2027 Build AM
12/18/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑		↑				↑↑
Traffic Volume (vph)	0	0	0	0	1726	515	0	120	0	0	0	721
Future Volume (vph)	0	0	0	0	1726	515	0	120	0	0	0	721
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-1%			2%			-3%	
Storage Length (ft)	0		0	0		240	0		0	0		125
Storage Lanes	0		0	0		1	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.88
Frt						0.850						0.850
Flt Protected												
Satd. Flow (prot)	0	0	0	0	3557	1591	0	1844	0	0	0	2828
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	3557	1591	0	1844	0	0	0	2828
Right Turn on Red			No			No	No		No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			35	
Link Distance (ft)		736			364			400			1141	
Travel Time (s)		9.1			4.5			6.1			22.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	1918	572	0	133	0	0	0	801
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	1918	572	0	133	0	0	0	801
Turn Type					NA	Perm		NA				Prot
Protected Phases					6			3				3
Permitted Phases						6						
Detector Phase					6	6		3				3
Switch Phase												
Minimum Initial (s)					14.0	14.0		7.0				7.0
Minimum Split (s)					21.0	21.0		14.0				14.0
Total Split (s)					57.0	57.0		33.0				33.0
Total Split (%)					63.3%	63.3%		36.7%				36.7%
Maximum Green (s)					50.0	50.0		26.0				26.0
Yellow Time (s)					5.0	5.0		5.0				5.0
All-Red Time (s)					2.0	2.0		2.0				2.0
Lost Time Adjust (s)					-2.0	-2.0		-2.0				-2.0
Total Lost Time (s)					5.0	5.0		5.0				5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)					3.0	3.0		3.0				3.0
Recall Mode					C-Max	C-Max		None				None
Act Effect Green (s)					52.1	52.1		27.9				27.9
Actuated g/C Ratio					0.58	0.58		0.31				0.31
v/c Ratio					0.93	0.62		0.23				0.91
Control Delay					20.6	12.2		28.5				46.4
Queue Delay					0.0	0.0		0.0				0.0
Total Delay					20.6	12.2		28.5				46.4
LOS					C	B		C				D
Approach Delay					18.7			28.5			46.4	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	B					C					D	
Queue Length 50th (ft)	475					156	55					247
Queue Length 95th (ft)	m#689					m193	m114					#371
Internal Link Dist (ft)	656					284	320					1061
Turn Bay Length (ft)						240						125
Base Capacity (vph)	2057					920	573					879
Starvation Cap Reductn	0					0	0					0
Spillback Cap Reductn	0					0	0					0
Storage Cap Reductn	0					0	0					0
Reduced v/c Ratio	0.93					0.62	0.23					0.91

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 55 (61%), Referenced to phase 6:WBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 25.5

Intersection LOS: C

Intersection Capacity Utilization 81.3%

ICU Level of Service D

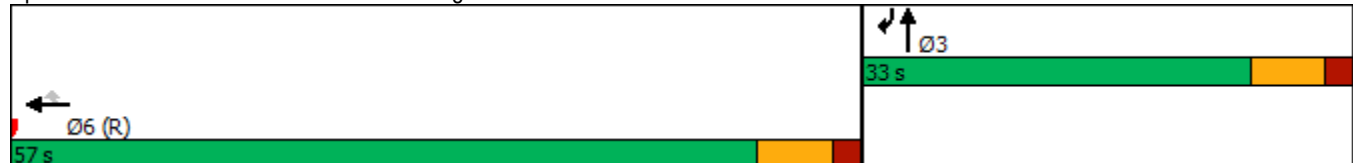
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

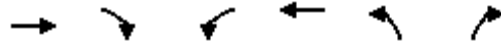
Splits and Phases: 1: US 401 NBL/E Young Street & US 401



Rolesville Commercial TIA
2: U-turn North of E Young St & US 401

2027 Build AM
12/18/2025

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑	↑↑	
Traffic Volume (vph)	0	0	0	1544	986	0
Future Volume (vph)	0	0	0	1544	986	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-2%	2%	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.97	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	3575	3399	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	3575	3399	0
Right Turn on Red		No			No	No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	45	
Link Distance (ft)	423			1187	100	
Travel Time (s)	5.2			14.7	1.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1716	1096	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1716	1096	0
Turn Type				NA	Prot	
Protected Phases				6	3	
Permitted Phases						
Detector Phase				6	3	
Switch Phase						
Minimum Initial (s)				14.0	7.0	
Minimum Split (s)				21.0	14.0	
Total Split (s)				53.0	37.0	
Total Split (%)				58.9%	41.1%	
Maximum Green (s)				46.0	30.0	
Yellow Time (s)				5.0	5.0	
All-Red Time (s)				2.0	2.0	
Lost Time Adjust (s)				-2.0	-2.0	
Total Lost Time (s)				5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)				3.0	3.0	
Recall Mode				C-Max	None	
Act Effct Green (s)				48.2	31.8	
Actuated g/C Ratio				0.54	0.35	
v/c Ratio				0.90	0.91	
Control Delay				26.6	34.8	
Queue Delay				0.0	0.0	
Total Delay				26.6	34.8	
LOS				C	C	
Approach Delay				26.6	34.8	
Approach LOS				C	C	
Queue Length 50th (ft)				434	314	
Queue Length 95th (ft)				#570	#431	

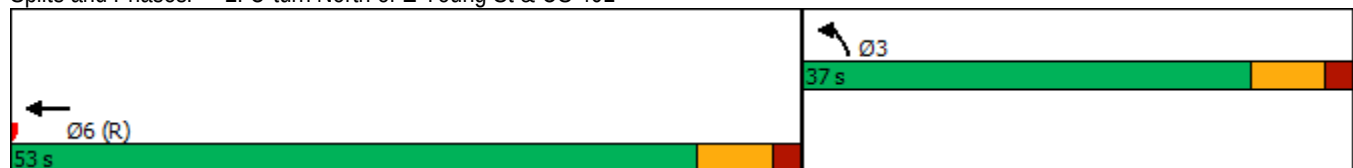


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Internal Link Dist (ft)	343			1107	20	
Turn Bay Length (ft)						
Base Capacity (vph)				1915	1208	
Starvation Cap Reductn				0	0	
Spillback Cap Reductn				0	0	
Storage Cap Reductn				0	0	
Reduced v/c Ratio				0.90	0.91	

Intersection Summary

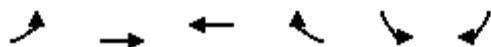
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 51 (57%), Referenced to phase 6:WBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 29.8 Intersection LOS: C
Intersection Capacity Utilization 79.1% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: U-turn North of E Young St & US 401

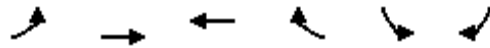


Rolesville Commercial TIA
3: US 401 & U-Turn S of E Young Street

2027 Build AM
12/18/2025



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑			↵	
Traffic Volume (vph)	0	945	0	0	467	0
Future Volume (vph)	0	945	0	0	467	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	0%		-1%	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Fr						
Flt Protected					0.950	
Satd. Flow (prot)	0	3522	0	0	1778	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	3522	0	0	1778	0
Right Turn on Red				No	No	No
Satd. Flow (RTOR)						
Link Speed (mph)		55	55		45	
Link Distance (ft)		990	429		100	
Travel Time (s)		12.3	5.3		1.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1050	0	0	519	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1050	0	0	519	0
Turn Type		NA			Prot	
Protected Phases		2			7	
Permitted Phases						
Detector Phase		2			7	
Switch Phase						
Minimum Initial (s)		14.0			7.0	
Minimum Split (s)		21.0			14.0	
Total Split (s)		44.0			46.0	
Total Split (%)		48.9%			51.1%	
Maximum Green (s)		37.0			39.0	
Yellow Time (s)		5.0			5.0	
All-Red Time (s)		2.0			2.0	
Lost Time Adjust (s)		-2.0			-2.0	
Total Lost Time (s)		5.0			5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0			3.0	
Recall Mode		C-Max			None	
Act Effct Green (s)		46.4			33.6	
Actuated g/C Ratio		0.52			0.37	
v/c Ratio		0.58			0.78	
Control Delay		17.9			22.2	
Queue Delay		0.0			0.0	
Total Delay		17.9			22.2	
LOS		B			C	
Approach Delay		17.9			22.2	
Approach LOS		B			C	
Queue Length 50th (ft)		208			222	
Queue Length 95th (ft)		318			m226	

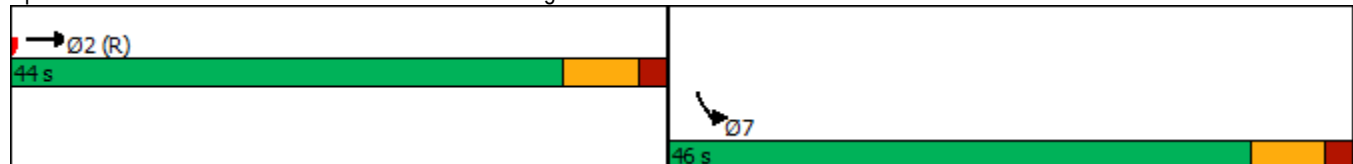


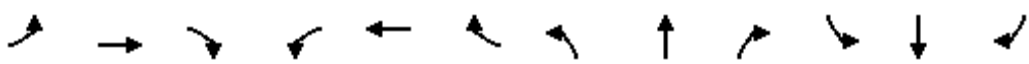
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Internal Link Dist (ft)		910	349		20	
Turn Bay Length (ft)						
Base Capacity (vph)		1816			809	
Starvation Cap Reductn		0			0	
Spillback Cap Reductn		0			0	
Storage Cap Reductn		0			0	
Reduced v/c Ratio		0.58			0.64	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 35 (39%), Referenced to phase 2:EBT, Start of Green
 Natural Cycle: 50
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 19.3
 Intersection LOS: B
 Intersection Capacity Utilization 88.7%
 ICU Level of Service E
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: US 401 & U-Turn S of E Young Street



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	14	53	71	11	244	10	882	115	328	874	91
Future Volume (vph)	83	14	53	71	11	244	10	882	115	328	874	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	0		260	125		155	545		0
Storage Lanes	1		0	0		1	1		1	1		1
Taper Length (ft)	75			25			140			80		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.882				0.850			0.850			0.850
Flt Protected	0.950				0.958		0.950			0.950		
Satd. Flow (prot)	1770	1643	0	0	1785	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.638				0.702		0.310			0.950		
Satd. Flow (perm)	1188	1643	0	0	1308	1583	577	1863	1583	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		1270			651			638			1459	
Travel Time (s)		34.6			12.7			12.4			28.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	92	16	59	79	12	271	11	980	128	364	971	101
Shared Lane Traffic (%)												
Lane Group Flow (vph)	92	75	0	0	91	271	11	980	128	364	971	101
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA	Perm	Prot	NA	Perm
Protected Phases		4			8	1		2		1	6	
Permitted Phases	4			8		8	2		2			6
Detector Phase	4	4		8	8	1	2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	12.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	19.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	15.0	15.0		15.0	15.0	32.0	73.0	73.0	73.0	32.0	105.0	105.0
Total Split (%)	12.5%	12.5%		12.5%	12.5%	26.7%	60.8%	60.8%	60.8%	26.7%	87.5%	87.5%
Maximum Green (s)	8.0	8.0		8.0	8.0	25.0	66.0	66.0	66.0	25.0	98.0	98.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0			-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0			5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag						Lead	Lag	Lag	Lag	Lead		
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	C-Max	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	10.0	10.0			10.0	41.7	68.3	68.3	68.3	26.7	100.0	100.0
Actuated g/C Ratio	0.08	0.08			0.08	0.35	0.57	0.57	0.57	0.22	0.83	0.83
v/c Ratio	0.93	0.55			0.83	0.49	0.03	0.93	0.14	0.92	0.63	0.08
Control Delay	128.1	68.8			104.9	34.5	7.1	25.9	6.8	76.0	5.6	1.9
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	128.1	68.8			104.9	34.5	7.1	25.9	6.8	76.0	5.6	1.9
LOS	F	E			F	C	A	C	A	E	A	A
Approach Delay		101.5			52.2			23.5			23.2	
Approach LOS		F			D			C			C	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	72	57			71	164	2	639	22	277	198	10
Queue Length 95th (ft)	#178	#110			#168	247	m3	m708	m35	#456	279	19
Internal Link Dist (ft)		1190			571			558			1379	
Turn Bay Length (ft)	275					260	125		155	545		
Base Capacity (vph)	99	136			109	554	327	1059	901	398	1552	1319
Starvation Cap Reductn	0	0			0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0			0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0			0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.55			0.83	0.49	0.03	0.93	0.14	0.91	0.63	0.08

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 70 (58%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 30.9

Intersection LOS: C

Intersection Capacity Utilization 88.4%

ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: E Young Street & The Point North Driveway/Quarry Road

			
Ø1	Ø2 (R)		Ø4
32 s	73 s		15 s
			
Ø6 (R)			Ø8
105 s			15 s

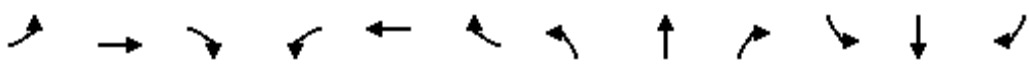
Rolesville Commercial TIA
5: Rolesville High Staff & Bus Driveway & Quarry Road

2027 Build AM
12/18/2025

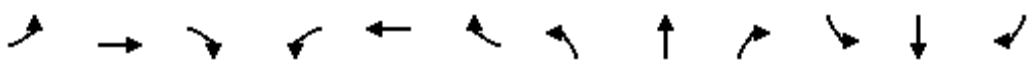
						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	79	233	34	91	127	20
Future Volume (vph)	79	233	34	91	127	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		185	0		0	0
Storage Lanes		1	0		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected				0.980	0.950	
Satd. Flow (prot)	1863	1417	0	1797	1467	1162
Flt Permitted				0.980	0.950	
Satd. Flow (perm)	1863	1417	0	1797	1467	1162
Link Speed (mph)	35			35	25	
Link Distance (ft)	629			1490	1086	
Travel Time (s)	12.3			29.0	29.6	
Peak Hour Factor	0.90	0.50	0.50	0.90	0.50	0.50
Heavy Vehicles (%)	2%	14%	6%	2%	23%	39%
Adj. Flow (vph)	88	466	68	101	254	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	88	466	0	169	254	40
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 27.8%				ICU Level of Service A		
Analysis Period (min) 15						

Intersection						
Int Delay, s/veh	4.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	79	233	34	91	127	20
Future Vol, veh/h	79	233	34	91	127	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	185	-	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	50	50	90	50	50
Heavy Vehicles, %	2	14	6	2	23	39
Mvmt Flow	88	466	68	101	254	40
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	554	0	325	88
Stage 1	-	-	-	-	88	-
Stage 2	-	-	-	-	237	-
Critical Hdwy	-	-	4.16	-	6.63	6.59
Critical Hdwy Stg 1	-	-	-	-	5.63	-
Critical Hdwy Stg 2	-	-	-	-	5.63	-
Follow-up Hdwy	-	-	2.254	-	3.707	3.651
Pot Cap-1 Maneuver	-	-	996	-	628	877
Stage 1	-	-	-	-	885	-
Stage 2	-	-	-	-	755	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	996	-	583	877
Mov Cap-2 Maneuver	-	-	-	-	583	-
Stage 1	-	-	-	-	885	-
Stage 2	-	-	-	-	701	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		3.6		15	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	583	877	-	-	996	-
HCM Lane V/C Ratio	0.436	0.046	-	-	0.068	-
HCM Control Delay (s)	15.9	9.3	-	-	8.9	0
HCM Lane LOS	C	A	-	-	A	A
HCM 95th %tile Q(veh)	2.2	0.1	-	-	0.2	-

6: Rolesville Road/E Young Street & The Point South Driveway/Rolesville High Student & Carpool Dwy

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕	↕	↕	↕	↕	↕	↕
Traffic Volume (vph)	11	4	4	105	4	211	4	772	215	348	651	8
Future Volume (vph)	11	4	4	105	4	211	4	772	215	348	651	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		380	90		360	285		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	25			25			100			200		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.977				0.850			0.850		0.998	
Flt Protected		0.976			0.954		0.950			0.950		
Satd. Flow (prot)	0	1776	0	0	1777	1583	1770	1863	1583	1770	1859	0
Flt Permitted		0.533			0.716		0.290			0.950		
Satd. Flow (perm)	0	970	0	0	1334	1583	540	1863	1583	1770	1859	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			15			35			35	
Link Distance (ft)		1316			1290			2126			1556	
Travel Time (s)		35.9			58.6			41.4			30.3	
Peak Hour Factor	0.90	0.50	0.90	0.50	0.50	0.50	0.90	0.90	0.50	0.50	0.90	0.90
Adj. Flow (vph)	12	8	4	210	8	422	4	858	430	696	723	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	24	0	0	218	422	4	858	430	696	732	0
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA	Perm	Prot	NA	
Protected Phases		4			8	1		2		1	6	
Permitted Phases	4			8		8	2		2			
Detector Phase	4	4		8	8	1	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	12.0	12.0	12.0	7.0	12.0	
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	19.0	19.0	19.0	14.0	19.0	
Total Split (s)	21.0	21.0		21.0	21.0	43.0	56.0	56.0	56.0	43.0	99.0	
Total Split (%)	17.5%	17.5%		17.5%	17.5%	35.8%	46.7%	46.7%	46.7%	35.8%	82.5%	
Maximum Green (s)	14.0	14.0		14.0	14.0	36.0	49.0	49.0	49.0	36.0	92.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-2.0			-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0			5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag						Lag	Lead	Lead	Lead	Lag		
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max	C-Max	None	C-Max	
Act Effect Green (s)		13.2			16.0	59.0	51.0	51.0	51.0	38.0	94.0	
Actuated g/C Ratio		0.11			0.13	0.49	0.42	0.42	0.42	0.32	0.78	
v/c Ratio		0.23			1.23	0.54	0.02	1.08	0.64	1.24	0.50	
Control Delay		52.5			187.1	24.4	23.0	87.3	30.0	156.6	5.4	
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		52.5			187.1	24.4	23.0	87.3	30.0	156.6	5.4	
LOS		D			F	C	C	F	C	F	A	
Approach Delay		52.5			79.8			68.0			79.1	
Approach LOS		D			E			E			E	

6: Rolesville Road/E Young Street & The Point South Driveway/Rolesville High Student & Carpool Dwy

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		17			~208	220	2	~750	216	~676	146	
Queue Length 95th (ft)		24			138	144	m5	#989	177	315	212	
Internal Link Dist (ft)		1236			1210			2046			1476	
Turn Bay Length (ft)						380	90		360	285		
Base Capacity (vph)		129			177	778	229	791	672	560	1456	
Starvation Cap Reductn		0			0	0	0	0	0	0	0	
Spillback Cap Reductn		0			0	0	0	0	0	0	0	
Storage Cap Reductn		0			0	0	0	0	0	0	0	
Reduced v/c Ratio		0.19			1.23	0.54	0.02	1.08	0.64	1.24	0.50	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 18 (15%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.24

Intersection Signal Delay: 74.8

Intersection LOS: E

Intersection Capacity Utilization 81.6%

ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

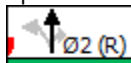
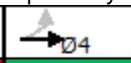
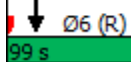
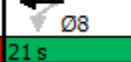
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Rolesville Road/E Young Street & The Point South Driveway/Rolesville High Student & Carpool Dwy

		
56 s	43 s	21 s
		
99 s		21 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	9	13	9	7	161	13	750	21	75	645	22
Future Volume (vph)	43	9	13	9	7	161	13	750	21	75	645	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		100
Storage Lanes	0		0	0		0	1		0	1		1
Taper Length (ft)	25			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.974			0.877			0.996				0.850
Flt Protected		0.968			0.997		0.950			0.950		
Satd. Flow (prot)	0	1756	0	0	1629	0	1770	1855	0	1770	1863	1583
Flt Permitted		0.526			0.985		0.319			0.249		
Satd. Flow (perm)	0	954	0	0	1609	0	594	1855	0	464	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		1266			1228			7395			2126	
Travel Time (s)		34.5			18.6			112.0			32.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	48	10	14	10	8	179	14	833	23	83	717	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	72	0	0	197	0	14	856	0	83	717	24
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		12.0	12.0		12.0	12.0	12.0
Minimum Split (s)	14.0	14.0		14.0	14.0		19.0	19.0		19.0	19.0	19.0
Total Split (s)	61.0	61.0		61.0	61.0		59.0	59.0		59.0	59.0	59.0
Total Split (%)	50.8%	50.8%		50.8%	50.8%		49.2%	49.2%		49.2%	49.2%	49.2%
Maximum Green (s)	54.0	54.0		54.0	54.0		52.0	52.0		52.0	52.0	52.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)		-2.0			-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Act Effct Green (s)		21.3			22.4		87.6	87.6		87.6	87.6	87.6
Actuated g/C Ratio		0.18			0.19		0.73	0.73		0.73	0.73	0.73
v/c Ratio		0.43			0.66		0.03	0.63		0.25	0.53	0.02
Control Delay		49.2			54.9		6.2	11.8		6.0	6.3	4.1
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		49.2			54.9		6.2	11.8		6.0	6.3	4.1
LOS		D			D		A	B		A	A	A
Approach Delay		49.2			54.9			11.7			6.2	
Approach LOS		D			D			B			A	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		50			143		3	292		12	145	3
Queue Length 95th (ft)		90			207		11	526		m31	m234	m7
Internal Link Dist (ft)		1186			1148			7315			2046	
Turn Bay Length (ft)							100			100		100
Base Capacity (vph)		445			750		433	1353		338	1359	1155
Starvation Cap Reductn		0			0		0	0		0	0	0
Spillback Cap Reductn		0			0		0	0		0	0	0
Storage Cap Reductn		0			0		0	0		0	0	0
Reduced v/c Ratio		0.16			0.26		0.03	0.63		0.25	0.53	0.02

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 30 (25%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 15.1

Intersection LOS: B

Intersection Capacity Utilization 84.1%

ICU Level of Service E

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Rolesville Road & Merritt Property Southern Driveway/Fowler Road

59 s	61 s
59 s	61 s

Rolesville Commercial TIA
8: Rolesville Road & Mitchell Mill Road

2027 Build AM

12/18/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	49	4	115	276	27	8	313	24	18	449	226
Future Volume (vph)	145	49	4	115	276	27	8	313	24	18	449	226
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		325	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998				0.850		0.991			0.956	
Flt Protected		0.965			0.986			0.999			0.999	
Satd. Flow (prot)	0	1794	0	0	1837	1583	0	1844	0	0	1779	0
Flt Permitted		0.360			0.840			0.980			0.985	
Satd. Flow (perm)	0	669	0	0	1565	1583	0	1809	0	0	1754	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1427			1134			1110			7395	
Travel Time (s)		21.6			17.2			16.8			112.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	161	54	4	128	307	30	9	348	27	20	499	251
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	219	0	0	435	30	0	384	0	0	770	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	12.0	12.0		12.0	12.0	
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	19.0	19.0		19.0	19.0	
Total Split (s)	36.0	36.0		36.0	36.0	36.0	39.0	39.0		39.0	39.0	
Total Split (%)	48.0%	48.0%		48.0%	48.0%	48.0%	52.0%	52.0%		52.0%	52.0%	
Maximum Green (s)	29.0	29.0		29.0	29.0	29.0	32.0	32.0		32.0	32.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0			-2.0	-2.0		-2.0			-2.0	
Total Lost Time (s)		5.0			5.0	5.0		5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Act Effect Green (s)		26.4			26.4	26.4		33.4			33.4	
Actuated g/C Ratio		0.38			0.38	0.38		0.48			0.48	
v/c Ratio		0.87			0.74	0.05		0.44			0.92	
Control Delay		53.9			27.1	13.6		15.3			37.6	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		53.9			27.1	13.6		15.3			37.6	
LOS		D			C	B		B			D	
Approach Delay		53.9			26.2			15.3			37.6	
Approach LOS		D			C			B			D	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		86			159	8		119			333	
Queue Length 95th (ft)		#208			262	23		190			#572	
Internal Link Dist (ft)		1347			1054			1030			7315	
Turn Bay Length (ft)						325						
Base Capacity (vph)		300			702	711		891			864	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.73			0.62	0.04		0.43			0.89	

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 69.9

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 32.0

Intersection LOS: C

Intersection Capacity Utilization 90.7%

ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 8: Rolesville Road & Mitchell Mill Road

					
Ø2			Ø4		
39 s			36 s		
					
Ø6			Ø8		
39 s			36 s		

Rolesville Commercial TIA
 9: Proposed RIRO/Left-Out Site Driveway & Quarry Road

2027 Build AM
 12/18/2025

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations					 	
Traffic Volume (vph)	294	39	0	218	31	17
Future Volume (vph)	294	39	0	218	31	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.984				0.952	
Flt Protected					0.969	
Satd. Flow (prot)	1833	0	0	1863	1718	0
Flt Permitted					0.969	
Satd. Flow (perm)	1833	0	0	1863	1718	0
Link Speed (mph)	35			35	25	
Link Distance (ft)	600			629	1096	
Travel Time (s)	11.7			12.3	29.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	327	43	0	242	34	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	370	0	0	242	53	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	27.8%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	294	39	0	218	31	17
Future Vol, veh/h	294	39	0	218	31	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	327	43	0	242	34	19
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	591	349
Stage 1	-	-	-	-	349	-
Stage 2	-	-	-	-	242	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	0	-	470	694
Stage 1	-	-	0	-	714	-
Stage 2	-	-	0	-	798	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	470	694
Mov Cap-2 Maneuver	-	-	-	-	470	-
Stage 1	-	-	-	-	714	-
Stage 2	-	-	-	-	798	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		12.5	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	531	-	-	-		
HCM Lane V/C Ratio	0.1	-	-	-		
HCM Control Delay (s)	12.5	-	-	-		
HCM Lane LOS	B	-	-	-		
HCM 95th %tile Q(veh)	0.3	-	-	-		

10: Proposed Full Movement Site Driveway & Quarry Road

12/18/2025

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	312	145	45	204	115	21
Future Volume (vph)	312	145	45	204	115	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.957				0.979	
Flt Protected				0.991	0.959	
Satd. Flow (prot)	1783	0	0	1846	1749	0
Flt Permitted				0.991	0.959	
Satd. Flow (perm)	1783	0	0	1846	1749	0
Link Speed (mph)	35			35	25	
Link Distance (ft)	651			600	1103	
Travel Time (s)	12.7			11.7	30.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	347	161	50	227	128	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	508	0	0	277	151	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	56.1%			ICU Level of Service B		
Analysis Period (min)	15					

10: Proposed Full Movement Site Driveway & Quarry Road

12/18/2025

Intersection

Int Delay, s/veh 3.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	312	145	45	204	115	21
Future Vol, veh/h	312	145	45	204	115	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	347	161	50	227	128	23

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	508
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1057
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1057
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	20.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	381	-	-	1057	-
HCM Lane V/C Ratio	0.397	-	-	0.047	-
HCM Control Delay (s)	20.5	-	-	8.6	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.9	-	-	0.1	-

Rolesville Commercial TIA
 11: E Young Street & Proposed Site Driveway

2027 Build AM
 12/18/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	101	102	905	122	115	881
Future Volume (vph)	101	102	905	122	115	881
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.932		0.984			
Flt Protected	0.976					0.994
Satd. Flow (prot)	1694	0	1833	0	0	1852
Flt Permitted	0.976					0.994
Satd. Flow (perm)	1694	0	1833	0	0	1852
Link Speed (mph)	25		35			35
Link Distance (ft)	1154		1556			638
Travel Time (s)	31.5		30.3			12.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	112	113	1006	136	128	979
Shared Lane Traffic (%)						
Lane Group Flow (vph)	225	0	1142	0	0	1107
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	129.6%			ICU Level of Service H		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	30					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	101	102	905	122	115	881
Future Vol, veh/h	101	102	905	122	115	881
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	112	113	1006	136	128	979
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	2309	1074	0	0	1142	0
Stage 1	1074	-	-	-	-	-
Stage 2	1235	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 42	267	-	-	612	-
Stage 1	328	-	-	-	-	-
Stage 2	274	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 23	267	-	-	612	-
Mov Cap-2 Maneuver	~ 102	-	-	-	-	-
Stage 1	328	-	-	-	-	-
Stage 2	149	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	322.1	0		1.4		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	148	612	-	
HCM Lane V/C Ratio	-	-	1.524	0.209	-	
HCM Control Delay (s)	-	-	322.1	12.4	-	
HCM Lane LOS	-	-	F	B	-	
HCM 95th %tile Q(veh)	-	-	15.2	0.8	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				 		
Traffic Volume (vph)	0	0	297	2241	0	0
Future Volume (vph)	0	0	297	2241	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	25		0	0
Storage Lanes		0	1		0	0
Taper Length (ft)			205		25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1770	3539	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1770	3539	0	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	364			423	375	
Travel Time (s)	4.5			5.2	4.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	330	2490	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	330	2490	0	0
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	87.8%			ICU Level of Service E		
Analysis Period (min)	15					



Lane Group	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	120	1297	0	0	0	0
Future Volume (vph)	120	1297	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			0	0	0
Storage Lanes	1			0	0	0
Taper Length (ft)	180				25	
Lane Util. Factor	1.00	0.91	1.00	1.00	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1770	5085	0	0	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1770	5085	0	0	0	0
Link Speed (mph)		55	55		45	
Link Distance (ft)		429	389		400	
Travel Time (s)		5.3	4.8		6.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	133	1441	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	133	1441	0	0	0	0
Sign Control		Free	Free		Free	

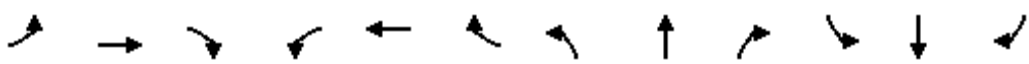
Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 81.3% ICU Level of Service D

Analysis Period (min) 15

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗						↖↖		↑	
Traffic Volume (vph)	0	294	1003	0	0	0	0	0	1228	0	297	0
Future Volume (vph)	0	294	1003	0	0	0	0	0	1228	0	297	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			0%			3%			-1%	
Storage Length (ft)	0		0	0		0	0		600	0		0
Storage Lanes	0		1	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	1.00
Frnt			0.850						0.850			
Flt Protected												
Satd. Flow (prot)	0	3504	1567	0	0	0	0	0	2745	0	1872	0
Flt Permitted												
Satd. Flow (perm)	0	3504	1567	0	0	0	0	0	2745	0	1872	0
Right Turn on Red			No			No			No	No		No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		389			703			1459			375	
Travel Time (s)		4.8			8.7			22.1			5.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	327	1114	0	0	0	0	0	1364	0	330	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	327	1114	0	0	0	0	0	1364	0	330	0
Turn Type		NA	Free						Prot		NA	
Protected Phases		2							7		7	
Permitted Phases			Free									
Detector Phase		2							7		7	
Switch Phase												
Minimum Initial (s)		14.0							7.0		7.0	
Minimum Split (s)		21.0							14.0		14.0	
Total Split (s)		22.0							68.0		68.0	
Total Split (%)		24.4%							75.6%		75.6%	
Maximum Green (s)		15.0							61.0		61.0	
Yellow Time (s)		5.0							5.0		5.0	
All-Red Time (s)		2.0							2.0		2.0	
Lost Time Adjust (s)		-2.0							-2.0		-2.0	
Total Lost Time (s)		5.0							5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0							3.0		3.0	
Recall Mode		C-Max							None		None	
Act Effect Green (s)		20.0	90.0						60.0		60.0	
Actuated g/C Ratio		0.22	1.00						0.67		0.67	
v/c Ratio		0.42	0.71						0.75		0.26	
Control Delay		26.7	6.6						12.7		5.0	
Queue Delay		0.0	0.0						0.0		0.0	
Total Delay		26.7	6.6						12.7		5.0	
LOS		C	A						B		A	
Approach Delay		11.1						12.7			5.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B						B			A	
Queue Length 50th (ft)		93	173						227		49	
Queue Length 95th (ft)		108	235						306		m59	
Internal Link Dist (ft)		309			623			1379			295	
Turn Bay Length (ft)									600			
Base Capacity (vph)		779	1567						1921		1310	
Starvation Cap Reductn		0	0						0		0	
Spillback Cap Reductn		0	0						0		0	
Storage Cap Reductn		0	0						0		0	
Reduced v/c Ratio		0.42	0.71						0.71		0.25	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 55 (61%), Referenced to phase 2:EBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 11.2

Intersection LOS: B

Intersection Capacity Utilization 118.7%

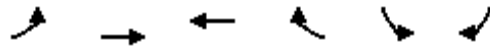
ICU Level of Service H

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 101: E Young Street/US 401 SBL & US 401





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	986	542	0	0	0	0
Future Volume (vph)	986	542	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		0%	0%		2%	
Storage Length (ft)	395			0	0	0
Storage Lanes	2			0	0	0
Taper Length (ft)	200				25	
Lane Util. Factor	0.97	0.95	1.00	1.00	1.00	1.00
Friction						
Flt Protected	0.950					
Satd. Flow (prot)	3433	3539	0	0	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	3433	3539	0	0	0	0
Link Speed (mph)		55	55		45	
Link Distance (ft)		703	1237		100	
Travel Time (s)		8.7	15.3		1.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1096	602	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1096	602	0	0	0	0
Sign Control		Free	Stop		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	78.3%
Analysis Period (min)	15
	ICU Level of Service D

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				 		
Traffic Volume (vph)	0	0	467	1992	0	0
Future Volume (vph)	0	0	467	1992	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	-1%	
Storage Length (ft)		0	345		0	0
Storage Lanes		0	1		0	0
Taper Length (ft)			190		25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Flt						
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1770	3539	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1770	3539	0	0
Link Speed (mph)	55			55	45	
Link Distance (ft)	1037			736	100	
Travel Time (s)	12.9			9.1	1.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	519	2213	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	519	2213	0	0
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 45.5%						
ICU Level of Service A						
Analysis Period (min) 15						

2027 BUILDOUT PM PEAK HOUR

Rolesville Commercial TIA
1: US 401 NBL/E Young Street & US 401

2027 Build PM
12/18/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑		↑				↑↑
Traffic Volume (vph)	0	0	0	0	699	431	0	229	0	0	0	610
Future Volume (vph)	0	0	0	0	699	431	0	229	0	0	0	610
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-1%			2%			-3%	
Storage Length (ft)	0		0	0		240	0		0	0		125
Storage Lanes	0		0	0		1	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.88
Frnt						0.850						0.850
Flt Protected												
Satd. Flow (prot)	0	0	0	0	3557	1591	0	1844	0	0	0	2828
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	3557	1591	0	1844	0	0	0	2828
Right Turn on Red			No			No	No		No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			35	
Link Distance (ft)		736			364			400			1141	
Travel Time (s)		9.1			4.5			6.1			22.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	777	479	0	254	0	0	0	678
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	777	479	0	254	0	0	0	678
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	0.99	0.99	0.99	1.01	1.01	1.01	0.98	0.98	0.98
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors					2	1		2				1
Detector Template					Thru	Right						Right
Leading Detector (ft)					100	20		100				20
Trailing Detector (ft)					0	0		0				0
Detector 1 Position(ft)					0	0		0				0
Detector 1 Size(ft)					6	20		6				20
Detector 1 Type					Cl+Ex	Cl+Ex		Cl+Ex				Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)					0.0	0.0		0.0				0.0
Detector 1 Queue (s)					0.0	0.0		0.0				0.0
Detector 1 Delay (s)					0.0	0.0		0.0				0.0
Detector 2 Position(ft)					94			94				
Detector 2 Size(ft)					6			6				
Detector 2 Type					Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0				
Turn Type					NA	Perm		NA				Prot
Protected Phases					6			3				3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases						6						
Detector Phase					6	6		3				3
Switch Phase												
Minimum Initial (s)					14.0	14.0		7.0				7.0
Minimum Split (s)					21.0	21.0		14.0				14.0
Total Split (s)					44.0	44.0		46.0				46.0
Total Split (%)					48.9%	48.9%		51.1%				51.1%
Maximum Green (s)					37.0	37.0		39.0				39.0
Yellow Time (s)					5.0	5.0		5.0				5.0
All-Red Time (s)					2.0	2.0		2.0				2.0
Lost Time Adjust (s)					-2.0	-2.0		-2.0				-2.0
Total Lost Time (s)					5.0	5.0		5.0				5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)					3.0	3.0		3.0				3.0
Recall Mode					C-Max	C-Max		None				None
Act Effect Green (s)					48.6	48.6		31.4				31.4
Actuated g/C Ratio					0.54	0.54		0.35				0.35
v/c Ratio					0.40	0.56		0.40				0.69
Control Delay					10.7	14.2		15.4				28.4
Queue Delay					0.0	0.0		0.0				0.0
Total Delay					10.7	14.2		15.4				28.4
LOS					B	B		B				C
Approach Delay					12.0			15.4			28.4	
Approach LOS					B			B			C	
Queue Length 50th (ft)					145	175		79				184
Queue Length 95th (ft)					187	240		m67				218
Internal Link Dist (ft)		656			284			320			1061	
Turn Bay Length (ft)						240						125
Base Capacity (vph)					1922	859		840				1288
Starvation Cap Reductn					0	0		0				0
Spillback Cap Reductn					0	0		0				0
Storage Cap Reductn					0	0		0				0
Reduced v/c Ratio					0.40	0.56		0.30				0.53

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 82 (91%), Referenced to phase 6:WBT, Start of Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 17.5

Intersection LOS: B

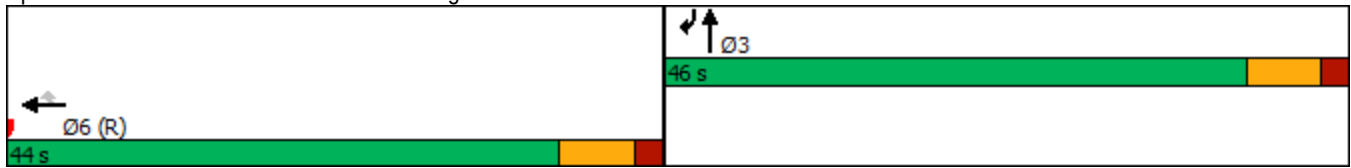
Intersection Capacity Utilization 49.0%

ICU Level of Service A

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: US 401 NBL/E Young Street & US 401



Rolesville Commercial TIA
2: U-turn North of E Young St & US 401

2027 Build PM
12/18/2025

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑	↑↑	
Traffic Volume (vph)	0	0	0	754	685	0
Future Volume (vph)	0	0	0	754	685	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-2%	2%	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.97	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	3575	3399	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	3575	3399	0
Right Turn on Red		No			No	No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	45	
Link Distance (ft)	423			1187	100	
Travel Time (s)	5.2			14.7	1.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	838	761	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	838	761	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	0.99	0.99	1.01	1.01
Turning Speed (mph)		9	15		15	9
Number of Detectors				2	1	
Detector Template				Thru	Left	
Leading Detector (ft)				100	20	
Trailing Detector (ft)				0	0	
Detector 1 Position(ft)				0	0	
Detector 1 Size(ft)				6	20	
Detector 1 Type				CI+Ex	CI+Ex	
Detector 1 Channel						
Detector 1 Extend (s)				0.0	0.0	
Detector 1 Queue (s)				0.0	0.0	
Detector 1 Delay (s)				0.0	0.0	
Detector 2 Position(ft)				94		
Detector 2 Size(ft)				6		
Detector 2 Type				CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)				0.0		
Turn Type				NA	Prot	
Protected Phases				6	3	
Permitted Phases						
Detector Phase				6	3	
Switch Phase						

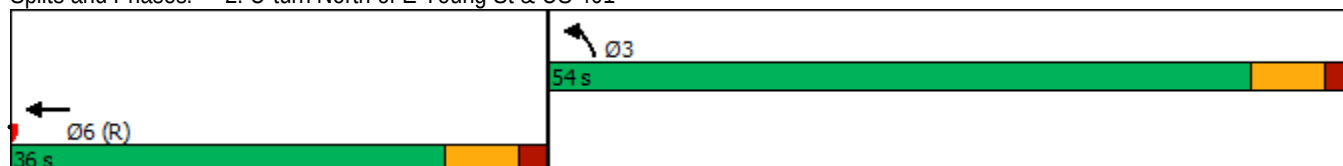


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Initial (s)				14.0	7.0	
Minimum Split (s)				21.0	14.0	
Total Split (s)				36.0	54.0	
Total Split (%)				40.0%	60.0%	
Maximum Green (s)				29.0	47.0	
Yellow Time (s)				5.0	5.0	
All-Red Time (s)				2.0	2.0	
Lost Time Adjust (s)				-2.0	-2.0	
Total Lost Time (s)				5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)				3.0	3.0	
Recall Mode				C-Max	None	
Act Effct Green (s)				50.8	29.2	
Actuated g/C Ratio				0.56	0.32	
v/c Ratio				0.42	0.69	
Control Delay				12.8	27.1	
Queue Delay				0.0	0.0	
Total Delay				12.8	27.1	
LOS				B	C	
Approach Delay				12.8	27.1	
Approach LOS				B	C	
Queue Length 50th (ft)				134	195	
Queue Length 95th (ft)				210	m223	
Internal Link Dist (ft)	343			1107	20	
Turn Bay Length (ft)						
Base Capacity (vph)				2018	1850	
Starvation Cap Reductn				0	0	
Spillback Cap Reductn				0	0	
Storage Cap Reductn				0	0	
Reduced v/c Ratio				0.42	0.41	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 12 (13%), Referenced to phase 6:WBT, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 19.6
Intersection LOS: B
Intersection Capacity Utilization 48.7%
ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

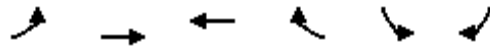
Splits and Phases: 2: U-turn North of E Young St & US 401



Rolesville Commercial TIA
3: US 401 & U-Turn S of E Young Street

2027 Build PM

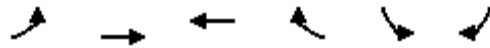
12/18/2025



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑			↵	
Traffic Volume (vph)	0	1734	0	0	476	0
Future Volume (vph)	0	1734	0	0	476	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	0%		-1%	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	3522	0	0	1778	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	3522	0	0	1778	0
Right Turn on Red				No	No	No
Satd. Flow (RTOR)						
Link Speed (mph)		55	55		45	
Link Distance (ft)		990	429		100	
Travel Time (s)		12.3	5.3		1.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1927	0	0	529	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1927	0	0	529	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.00	1.00	0.99	0.99
Turning Speed (mph)	15			9	15	9
Number of Detectors		2			1	
Detector Template		Thru			Left	
Leading Detector (ft)		100			20	
Trailing Detector (ft)		0			0	
Detector 1 Position(ft)		0			0	
Detector 1 Size(ft)		6			20	
Detector 1 Type		Cl+Ex			Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)		0.0			0.0	
Detector 1 Queue (s)		0.0			0.0	
Detector 1 Delay (s)		0.0			0.0	
Detector 2 Position(ft)		94				
Detector 2 Size(ft)		6				
Detector 2 Type		Cl+Ex				
Detector 2 Channel						
Detector 2 Extend (s)		0.0				
Turn Type		NA			Prot	
Protected Phases		2			7	
Permitted Phases						
Detector Phase		2			7	
Switch Phase						

Rolesville Commercial TIA
3: US 401 & U-Turn S of E Young Street

2027 Build PM
12/18/2025



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Initial (s)		14.0			7.0	
Minimum Split (s)		21.0			14.0	
Total Split (s)		57.0			33.0	
Total Split (%)		63.3%			36.7%	
Maximum Green (s)		50.0			26.0	
Yellow Time (s)		5.0			5.0	
All-Red Time (s)		2.0			2.0	
Lost Time Adjust (s)		-2.0			-2.0	
Total Lost Time (s)		5.0			5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0			3.0	
Recall Mode		C-Max			None	
Act Effct Green (s)		52.0			28.0	
Actuated g/C Ratio		0.58			0.31	
v/c Ratio		0.95			0.96	
Control Delay		29.6			54.9	
Queue Delay		0.0			0.0	
Total Delay		29.6			54.9	
LOS		C			D	
Approach Delay		29.6			54.9	
Approach LOS		C			D	
Queue Length 50th (ft)		498			261	
Queue Length 95th (ft)		#710			#482	
Internal Link Dist (ft)		910	349		20	
Turn Bay Length (ft)						
Base Capacity (vph)		2034			553	
Starvation Cap Reductn		0			0	
Spillback Cap Reductn		0			0	
Storage Cap Reductn		0			0	
Reduced v/c Ratio		0.95			0.96	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 15 (17%), Referenced to phase 2:EBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 35.1 Intersection LOS: D
Intersection Capacity Utilization 81.8% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: US 401 & U-Turn S of E Young Street



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	9	72	72	10	145	31	731	61	173	880	182
Future Volume (vph)	91	9	72	72	10	145	31	731	61	173	880	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	0		260	125		155	545		0
Storage Lanes	1		0	0		1	1		1	1		1
Taper Length (ft)	75			25			140			80		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.867				0.850			0.850			0.850
Flt Protected	0.950				0.958		0.950			0.950		
Satd. Flow (prot)	1770	1615	0	0	1785	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.698				0.689		0.195			0.950		
Satd. Flow (perm)	1300	1615	0	0	1283	1583	363	1863	1583	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		1270			651			638			1459	
Travel Time (s)		34.6			9.9			9.7			22.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	101	10	80	80	11	161	34	812	68	192	978	202
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	90	0	0	91	161	34	812	68	192	978	202
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA	Perm	Prot	NA	Perm
Protected Phases		4			8	1		2		1	6	
Permitted Phases	4			8		8	2		2			6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	1	2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	12.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	19.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	15.0	15.0		15.0	15.0	19.0	56.0	56.0	56.0	19.0	75.0	75.0
Total Split (%)	16.7%	16.7%		16.7%	16.7%	21.1%	62.2%	62.2%	62.2%	21.1%	83.3%	83.3%
Maximum Green (s)	8.0	8.0		8.0	8.0	12.0	49.0	49.0	49.0	12.0	68.0	68.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0			-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0			5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag						Lag	Lead	Lead	Lead	Lag		
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	C-Max	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	9.9	9.9			9.8	26.0	51.1	51.1	51.1	14.0	70.1	70.1
Actuated g/C Ratio	0.11	0.11			0.11	0.29	0.57	0.57	0.57	0.16	0.78	0.78
v/c Ratio	0.71	0.51			0.65	0.35	0.17	0.77	0.08	0.70	0.67	0.16
Control Delay	66.5	48.5			61.6	26.5	8.2	17.7	6.1	48.2	8.6	3.8
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.5	48.5			61.6	26.5	8.2	17.7	6.1	48.2	8.6	3.8
LOS	E	D			E	C	A	B	A	D	A	A
Approach Delay		58.0			39.2			16.5			13.4	
Approach LOS		E			D			B			B	
Queue Length 50th (ft)	56	49			50	68	6	315	10	100	210	23
Queue Length 95th (ft)	#135	98			#119	121	m11	393	m17	m#179	367	m58
Internal Link Dist (ft)		1190			571			558			1379	
Turn Bay Length (ft)	275					260	125		155	545		
Base Capacity (vph)	144	179			142	457	206	1058	899	275	1451	1233
Starvation Cap Reductn	0	0			0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0			0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0			0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.50			0.64	0.35	0.17	0.77	0.08	0.70	0.67	0.16

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 27 (30%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 20.0

Intersection LOS: B

Intersection Capacity Utilization 80.5%

ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: E Young Street & The Point North Driveway/Quarry Road



Rolesville Commercial TIA
5: Rolesville High Staff & Bus Driveway & Quarry Road

2027 Build PM
12/18/2025

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	113	43	6	97	30	4
Future Volume (vph)	113	43	6	97	30	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		185	0		0	0
Storage Lanes		1	0		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected				0.997	0.950	
Satd. Flow (prot)	1863	1583	0	1857	1770	1583
Flt Permitted				0.997	0.950	
Satd. Flow (perm)	1863	1583	0	1857	1770	1583
Link Speed (mph)	45			45	25	
Link Distance (ft)	629			1490	1086	
Travel Time (s)	9.5			22.6	29.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	126	48	7	108	33	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	126	48	0	115	33	4
Enter Blocked Intersection	No	No	No	No	1 veh	1 veh
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	20.0%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	1.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑		↑	↑	↑
Traffic Vol, veh/h	113	43	6	97	30	4
Future Vol, veh/h	113	43	6	97	30	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	185	-	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	126	48	7	108	33	4
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	174	0	248	126
Stage 1	-	-	-	-	126	-
Stage 2	-	-	-	-	122	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1403	-	740	924
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	903	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1403	-	736	924
Mov Cap-2 Maneuver	-	-	-	-	736	-
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	898	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0.4		10		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	736	924	-	-	1403	-
HCM Lane V/C Ratio	0.045	0.005	-	-	0.005	-
HCM Control Delay (s)	10.1	8.9	-	-	7.6	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-

6: Rolesville Road/E Young Street & The Point South Driveway/Rolesville High Student & Carpool Dwy

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	4	4	51	4	112	4	692	30	67	942	13
Future Volume (vph)	9	4	4	51	4	112	4	692	30	67	942	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		380	90		360	285		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	25			25			100			200		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.970				0.850			0.850		0.998	
Flt Protected		0.973			0.955		0.950			0.950		
Satd. Flow (prot)	0	1758	0	0	1779	1583	1770	1863	1583	1770	1859	0
Flt Permitted		0.794			0.727		0.249			0.950		
Satd. Flow (perm)	0	1435	0	0	1354	1583	464	1863	1583	1770	1859	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			15			45			45	
Link Distance (ft)		1316			1290			2126			1556	
Travel Time (s)		35.9			58.6			32.2			23.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	10	4	4	57	4	124	4	769	33	74	1047	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	18	0	0	61	124	4	769	33	74	1061	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			20			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane											Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA	Perm	Prot	NA	
Protected Phases		4			8	1		2		1	6	
Permitted Phases	4			8		8	2		2			

6: Rolesville Road/E Young Street & The Point South Driveway/Rolesville High Student & Carpool Dwy

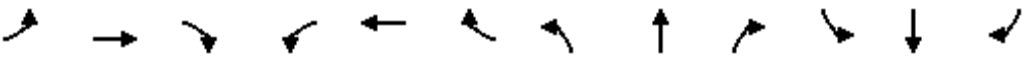
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	1	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	12.0	12.0	12.0	7.0	12.0	
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	19.0	19.0	19.0	14.0	19.0	
Total Split (s)	15.0	15.0		15.0	15.0	14.0	61.0	61.0	61.0	14.0	75.0	
Total Split (%)	16.7%	16.7%		16.7%	16.7%	15.6%	67.8%	67.8%	67.8%	15.6%	83.3%	
Maximum Green (s)	8.0	8.0		8.0	8.0	7.0	54.0	54.0	54.0	7.0	68.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-2.0			-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0			5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag						Lead	Lag	Lag	Lag	Lead		
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max	C-Max	None	C-Max	
Act Effct Green (s)		9.4			9.7	21.1	58.9	58.9	58.9	9.1	74.1	
Actuated g/C Ratio		0.10			0.11	0.23	0.65	0.65	0.65	0.10	0.82	
v/c Ratio		0.12			0.42	0.34	0.01	0.63	0.03	0.41	0.69	
Control Delay		38.4			46.7	29.9	6.0	9.9	5.6	46.6	7.1	
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		38.4			46.7	29.9	6.0	9.9	5.6	46.6	7.1	
LOS		D			D	C	A	A	A	D	A	
Approach Delay		38.4			35.5			9.7			9.7	
Approach LOS		D			D			A			A	
Queue Length 50th (ft)		10			33	56	1	178	5	38	306	
Queue Length 95th (ft)		30			73	104	m2	222	m12	m62	416	
Internal Link Dist (ft)		1236			1210			2046			1476	
Turn Bay Length (ft)						380	90		360	285		
Base Capacity (vph)		159			150	370	303	1220	1036	179	1529	
Starvation Cap Reductn		0			0	0	0	0	0	0	0	
Spillback Cap Reductn		0			0	0	0	0	0	0	0	
Storage Cap Reductn		0			0	0	0	0	0	0	0	
Reduced v/c Ratio		0.11			0.41	0.34	0.01	0.63	0.03	0.41	0.69	
Intersection Summary												
Area Type: Other												
Cycle Length: 90												
Actuated Cycle Length: 90												
Offset: 75 (83%), Referenced to phase 2:NBTL and 6:SBT, Start of Green												
Natural Cycle: 60												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 0.69												
Intersection Signal Delay: 12.2 Intersection LOS: B												
Intersection Capacity Utilization 71.6% ICU Level of Service C												
Analysis Period (min) 15												
m Volume for 95th percentile queue is metered by upstream signal.												

6: Rolesville Road/E Young Street & The Point South Driveway/Rolesville High Student & Carpool Dwy

12/18/2025

Splits and Phases: 6: Rolesville Road/E Young Street & The Point South Driveway/Rolesville High Student & Carpool Dwy



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↘		↗	↘	↗
Traffic Volume (vph)	64	11	29	20	13	64	38	569	14	102	764	54
Future Volume (vph)	64	11	29	20	13	64	38	569	14	102	764	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		100
Storage Lanes	0		0	0		0	1		0	1		1
Taper Length (ft)	25			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.962			0.910			0.996				0.850
Flt Protected		0.970			0.990		0.950			0.950		
Satd. Flow (prot)	0	1738	0	0	1678	0	1770	1855	0	1770	1863	1583
Flt Permitted		0.728			0.917		0.268			0.370		
Satd. Flow (perm)	0	1305	0	0	1554	0	499	1855	0	689	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		1266			1228			7395			2126	
Travel Time (s)		34.5			18.6			112.0			32.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	71	12	32	22	14	71	42	632	16	113	849	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	115	0	0	107	0	42	648	0	113	849	60
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		12.0	12.0		12.0	12.0	12.0
Minimum Split (s)	14.0	14.0		14.0	14.0		19.0	19.0		19.0	19.0	19.0
Total Split (s)	22.0	22.0		22.0	22.0		68.0	68.0		68.0	68.0	68.0
Total Split (%)	24.4%	24.4%		24.4%	24.4%		75.6%	75.6%		75.6%	75.6%	75.6%
Maximum Green (s)	15.0	15.0		15.0	15.0		61.0	61.0		61.0	61.0	61.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)		-2.0			-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Act Effect Green (s)		14.2			14.1		69.7	69.7		69.7	69.7	69.7
Actuated g/C Ratio		0.16			0.16		0.77	0.77		0.77	0.77	0.77
v/c Ratio		0.56			0.44		0.11	0.45		0.21	0.59	0.05
Control Delay		45.3			39.4		5.0	6.3		4.8	5.7	3.9
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		45.3			39.4		5.0	6.3		4.8	5.7	3.9
LOS		D			D		A	A		A	A	A
Approach Delay		45.3			39.4			6.2			5.5	
Approach LOS		D			D			A			A	
Queue Length 50th (ft)		61			55		6	131		16	132	7
Queue Length 95th (ft)		113			103		18	216		m28	209	m14
Internal Link Dist (ft)		1186			1148			7315			2046	
Turn Bay Length (ft)							100			100		100
Base Capacity (vph)		246			293		386	1436		533	1443	1226
Starvation Cap Reductn		0			0		0	0		0	0	0
Spillback Cap Reductn		0			0		0	0		0	0	0
Storage Cap Reductn		0			0		0	0		0	0	0
Reduced v/c Ratio		0.47			0.37		0.11	0.45		0.21	0.59	0.05

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 76 (84%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 10.0

Intersection LOS: A

Intersection Capacity Utilization 75.3%

ICU Level of Service D

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Rolesville Road & Merritt Property Southern Driveway/Fowler Road



Rolesville Commercial TIA
8: Rolesville Road & Mitchell Mill Road

2027 Build PM
12/18/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	220	12	43	81	21	10	387	80	17	339	174
Future Volume (vph)	147	220	12	43	81	21	10	387	80	17	339	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		325	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996				0.850		0.977			0.956	
Flt Protected		0.981			0.983			0.999			0.998	
Satd. Flow (prot)	0	1820	0	0	1831	1583	0	1818	0	0	1777	0
Flt Permitted		0.813			0.798			0.984			0.975	
Satd. Flow (perm)	0	1508	0	0	1486	1583	0	1791	0	0	1736	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1427			1134			1110			7395	
Travel Time (s)		21.6			17.2			16.8			112.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	163	244	13	48	90	23	11	430	89	19	377	193
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	420	0	0	138	23	0	530	0	0	589	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		

Rolesville Commercial TIA
8: Rolesville Road & Mitchell Mill Road

2027 Build PM
12/18/2025



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	12.0	12.0		12.0	12.0	
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	19.0	19.0		19.0	19.0	
Total Split (s)	27.0	27.0		27.0	27.0	27.0	33.0	33.0		33.0	33.0	
Total Split (%)	45.0%	45.0%		45.0%	45.0%	45.0%	55.0%	55.0%		55.0%	55.0%	
Maximum Green (s)	20.0	20.0		20.0	20.0	20.0	26.0	26.0		26.0	26.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0			-2.0	-2.0		-2.0			-2.0	
Total Lost Time (s)		5.0			5.0	5.0		5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Act Effect Green (s)		19.6			18.4	18.4		23.8			23.8	
Actuated g/C Ratio		0.36			0.34	0.34		0.44			0.44	
v/c Ratio		0.76			0.27	0.04		0.67			0.77	
Control Delay		27.4			14.8	12.5		17.1			21.0	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		27.4			14.8	12.5		17.1			21.0	
LOS		C			B	B		B			C	
Approach Delay		27.4			14.4			17.1			21.0	
Approach LOS		C			B			B			C	
Queue Length 50th (ft)		127			33	5		136			161	
Queue Length 95th (ft)		#262			70	18		228			273	
Internal Link Dist (ft)		1347			1054			1030			7315	
Turn Bay Length (ft)						325						
Base Capacity (vph)		636			626	668		962			932	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.66			0.22	0.03		0.55			0.63	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 53.7

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 20.7

Intersection LOS: C

Intersection Capacity Utilization 72.8%

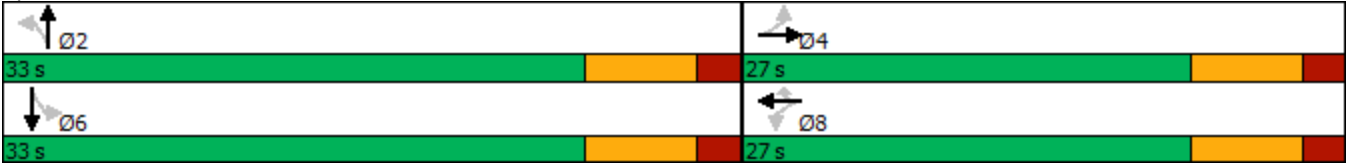
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 8: Rolesville Road & Mitchell Mill Road



Rolesville Commercial TIA
 9: Proposed RIRO/Left-Out Site Driveway & Quarry Road

2027 Build PM
 12/18/2025

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	142	24	0	126	29	14
Future Volume (vph)	142	24	0	126	29	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.980				0.955	
Flt Protected					0.968	
Satd. Flow (prot)	1825	0	0	1863	1722	0
Flt Permitted					0.968	
Satd. Flow (perm)	1825	0	0	1863	1722	0
Link Speed (mph)	45			45	25	
Link Distance (ft)	600			629	1096	
Travel Time (s)	9.1			9.5	29.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	158	27	0	140	32	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	185	0	0	140	48	0
Enter Blocked Intersection	No	No	No	No	1 veh	1 veh
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	18.9%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	1.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	142	24	0	126	29	14
Future Vol, veh/h	142	24	0	126	29	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	158	27	0	140	32	16
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	-	-	312	172
Stage 1	-	-	-	-	172	-
Stage 2	-	-	-	-	140	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	0	-	681	872
Stage 1	-	-	0	-	858	-
Stage 2	-	-	0	-	887	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	681	872
Mov Cap-2 Maneuver	-	-	-	-	681	-
Stage 1	-	-	-	-	858	-
Stage 2	-	-	-	-	887	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0		10.3		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	733	-	-	-		
HCM Lane V/C Ratio	0.065	-	-	-		
HCM Control Delay (s)	10.3	-	-	-		
HCM Lane LOS	B	-	-	-		
HCM 95th %tile Q(veh)	0.2	-	-	-		

10: Proposed Full Movement Site Driveway & Quarry Road

12/18/2025

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	149	91	28	127	102	16
Future Volume (vph)	149	91	28	127	102	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.949				0.981	
Flt Protected				0.991	0.959	
Satd. Flow (prot)	1768	0	0	1846	1752	0
Flt Permitted				0.991	0.959	
Satd. Flow (perm)	1768	0	0	1846	1752	0
Link Speed (mph)	45			45	25	
Link Distance (ft)	651			600	1103	
Travel Time (s)	9.9			9.1	30.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	166	101	31	141	113	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	267	0	0	172	131	0
Enter Blocked Intersection	No	No	No	No	1 veh	1 veh
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	38.3%			ICU Level of Service A		
Analysis Period (min)	15					

Rolesville Commercial TIA
 10: Proposed Full Movement Site Driveway & Quarry Road

2027 Build PM
 12/18/2025

Intersection						
Int Delay, s/veh	3.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	149	91	28	127	102	16
Future Vol, veh/h	149	91	28	127	102	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	166	101	31	141	113	18
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	267	0	420	217
Stage 1	-	-	-	-	217	-
Stage 2	-	-	-	-	203	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1297	-	590	823
Stage 1	-	-	-	-	819	-
Stage 2	-	-	-	-	831	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1297	-	575	823
Mov Cap-2 Maneuver	-	-	-	-	575	-
Stage 1	-	-	-	-	819	-
Stage 2	-	-	-	-	809	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	1.4		12.7		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	599	-	-	1297	-	
HCM Lane V/C Ratio	0.219	-	-	0.024	-	
HCM Control Delay (s)	12.7	-	-	7.8	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.8	-	-	0.1	-	

Rolesville Commercial TIA
11: E Young Street & Proposed Site Driveway

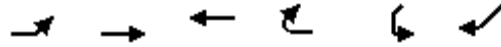
2027 Build PM

12/18/2025

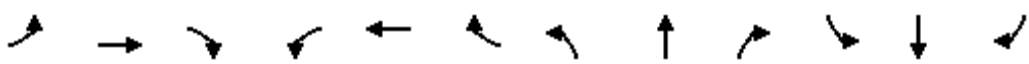
						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	97	88	734	85	91	930
Future Volume (vph)	97	88	734	85	91	930
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.936		0.986			
Flt Protected	0.974					0.996
Satd. Flow (prot)	1698	0	1837	0	0	1855
Flt Permitted	0.974					0.996
Satd. Flow (perm)	1698	0	1837	0	0	1855
Link Speed (mph)	25		45			45
Link Distance (ft)	1154		1556			638
Travel Time (s)	31.5		23.6			9.7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	108	98	816	94	101	1033
Shared Lane Traffic (%)						
Lane Group Flow (vph)	206	0	910	0	0	1134
Enter Blocked Intersection	1 veh	1 veh	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 118.5%			ICU Level of Service H			
Analysis Period (min) 15						

Intersection						
Int Delay, s/veh	13.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	97	88	734	85	91	930
Future Vol, veh/h	97	88	734	85	91	930
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	108	98	816	94	101	1033
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	2098	863	0	0	910	0
Stage 1	863	-	-	-	-	-
Stage 2	1235	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 57	354	-	-	748	-
Stage 1	413	-	-	-	-	-
Stage 2	274	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 39	354	-	-	748	-
Mov Cap-2 Maneuver	132	-	-	-	-	-
Stage 1	413	-	-	-	-	-
Stage 2	187	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	144.5	0		0.9		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	188	748	-	
HCM Lane V/C Ratio	-	-	1.093	0.135	-	
HCM Control Delay (s)	-	-	144.5	10.6	-	
HCM Lane LOS	-	-	F	B	-	
HCM 95th %tile Q(veh)	-	-	9.9	0.5	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations			↘	↖↖		
Traffic Volume (vph)	0	0	307	1130	0	0
Future Volume (vph)	0	0	307	1130	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	25		0	0
Storage Lanes		0	1		0	0
Taper Length (ft)			205		25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1770	3539	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1770	3539	0	0
Link Speed (mph)	55			55	55	
Link Distance (ft)	364			423	375	
Travel Time (s)	4.5			5.2	4.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	341	1256	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	341	1256	0	0
Enter Blocked Intersection	No	No	Yes	Yes	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	45		15	9
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	57.4%			ICU Level of Service B		
Analysis Period (min)	15					

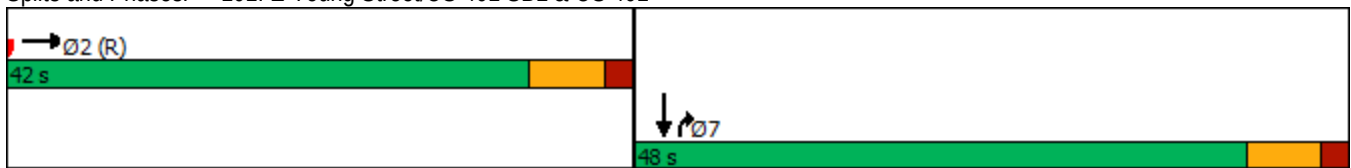


Lane Group	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		  				
Traffic Volume (vph)	229	1979	0	0	0	0
Future Volume (vph)	229	1979	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			0	0	0
Storage Lanes	1			0	0	0
Taper Length (ft)	180				25	
Lane Util. Factor	1.00	0.91	1.00	1.00	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1770	5085	0	0	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1770	5085	0	0	0	0
Link Speed (mph)		55	55		45	
Link Distance (ft)		429	389		400	
Travel Time (s)		5.3	4.8		6.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	254	2199	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	254	2199	0	0	0	0
Enter Blocked Intersection	Yes	Yes	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	45			9	15	9
Sign Control		Free	Free		Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	49.0%			ICU Level of Service A		
Analysis Period (min)	15					

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗						↖↖		↑	
Traffic Volume (vph)	0	1039	940	0	0	0	0	0	993	0	307	0
Future Volume (vph)	0	1039	940	0	0	0	0	0	993	0	307	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			0%			3%			-1%	
Storage Length (ft)	0		0	0		0	0		600	0		0
Storage Lanes	0		1	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	1.00
Frnt			0.850						0.850			
Flt Protected												
Satd. Flow (prot)	0	3504	1567	0	0	0	0	0	2745	0	1872	0
Flt Permitted												
Satd. Flow (perm)	0	3504	1567	0	0	0	0	0	2745	0	1872	0
Right Turn on Red			No			No			No	No		No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		389			703			1459			375	
Travel Time (s)		4.8			8.7			22.1			5.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1154	1044	0	0	0	0	0	1103	0	341	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1154	1044	0	0	0	0	0	1103	0	341	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.00	1.00	1.00	1.02	1.02	1.02	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	0						1		2	
Detector Template									Right			
Leading Detector (ft)		100	0						20		100	
Trailing Detector (ft)		0	0						0		0	
Detector 1 Position(ft)		0	0						0		0	
Detector 1 Size(ft)		6	20						20		6	
Detector 1 Type		Cl+Ex	Cl+Ex						Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0						0.0		0.0	
Detector 1 Queue (s)		0.0	0.0						0.0		0.0	
Detector 1 Delay (s)		0.0	0.0						0.0		15.0	
Detector 2 Position(ft)		94									94	
Detector 2 Size(ft)		6									6	
Detector 2 Type		Cl+Ex									Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0									0.0	
Turn Type		NA	Free						Prot		NA	
Protected Phases		2							7		7	

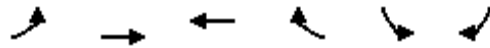
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	Free											
Detector Phase	2						7			7		
Switch Phase												
Minimum Initial (s)	14.0						7.0			7.0		
Minimum Split (s)	21.0						14.0			14.0		
Total Split (s)	42.0						48.0			48.0		
Total Split (%)	46.7%						53.3%			53.3%		
Maximum Green (s)	35.0						41.0			41.0		
Yellow Time (s)	5.0						5.0			5.0		
All-Red Time (s)	2.0						2.0			2.0		
Lost Time Adjust (s)	-2.0						-2.0			-2.0		
Total Lost Time (s)	5.0						5.0			5.0		
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0						3.0			3.0		
Recall Mode	C-Max						None			None		
Act Effct Green (s)	38.1		90.0					41.9		41.9		
Actuated g/C Ratio	0.42		1.00					0.47		0.47		
v/c Ratio	0.78		0.67					0.86		0.39		
Control Delay	17.9		1.4					27.0		12.8		
Queue Delay	0.0		0.0					0.0		0.0		
Total Delay	17.9		1.4					27.0		12.8		
LOS	B		A					C		B		
Approach Delay	10.1						27.0				12.8	
Approach LOS	B						C				B	
Queue Length 50th (ft)	226		0					344		118		
Queue Length 95th (ft)	m266		m0					417		187		
Internal Link Dist (ft)	309				623				1379		295	
Turn Bay Length (ft)									600			
Base Capacity (vph)	1483		1567					1311		894		
Starvation Cap Reductn	0		0					0		0		
Spillback Cap Reductn	0		0					0		0		
Storage Cap Reductn	0		0					0		0		
Reduced v/c Ratio	0.78		0.67					0.84		0.38		
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 90												
Offset: 30 (33%), Referenced to phase 2:EBT, Start of Green												
Natural Cycle: 60												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 0.86												
Intersection Signal Delay: 15.4					Intersection LOS: B							
Intersection Capacity Utilization 96.9%					ICU Level of Service F							
Analysis Period (min) 15												
m Volume for 95th percentile queue is metered by upstream signal.												

Splits and Phases: 101: E Young Street/US 401 SBL & US 401



Rolesville Commercial TIA
201: US 401 & U-turn North of E Young St

2027 Build PM
12/18/2025

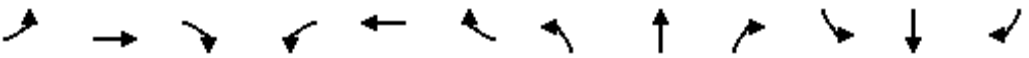


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	685	1338	0	0	0	0
Future Volume (vph)	685	1338	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		0%	0%		2%	
Storage Length (ft)	395			0	0	0
Storage Lanes	2			0	0	0
Taper Length (ft)	200				25	
Lane Util. Factor	0.97	0.95	1.00	1.00	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	3433	3539	0	0	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	3433	3539	0	0	0	0
Link Speed (mph)		55	55		45	
Link Distance (ft)		703	1237		100	
Travel Time (s)		8.7	15.3		1.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	761	1487	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	761	1487	0	0	0	0
Enter Blocked Intersection	Yes	Yes	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.01	1.01
Turning Speed (mph)	45			9	15	9
Sign Control		Free	Stop		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 65.3%						
ICU Level of Service C						
Analysis Period (min) 15						

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	476	845	0	0
Future Volume (vph)	0	0	476	845	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	-1%	
Storage Length (ft)		0	345		0	0
Storage Lanes		0	1		0	0
Taper Length (ft)			190		25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1770	3539	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1770	3539	0	0
Link Speed (mph)	55			55	45	
Link Distance (ft)	1037			736	100	
Travel Time (s)	12.9			9.1	1.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	529	939	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	529	939	0	0
Enter Blocked Intersection	No	No	Yes	Yes	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (mph)		9	45		15	9
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 67.3%				ICU Level of Service C		
Analysis Period (min) 15						

2027 BUILDOUT AM PEAK HOUR
WITH IMPROVEMENTS

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	14	53	71	11	244	10	882	115	328	874	91
Future Volume (vph)	83	14	53	71	11	244	10	882	115	328	874	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	0		260	125		155	545		0
Storage Lanes	1		1	0		1	1		1	1		1
Taper Length (ft)	75			100			140			80		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected		0.959			0.958		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	1785	1583	1770	3539	1583	1770	1863	1583
Flt Permitted		0.672			0.612		0.310			0.950		
Satd. Flow (perm)	0	1252	1583	0	1140	1583	577	3539	1583	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		1270			651			300			1459	
Travel Time (s)		34.6			12.7			5.8			28.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	92	16	59	79	12	271	11	980	128	364	971	101
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	108	59	0	91	271	11	980	128	364	971	101
Turn Type	Perm	NA	Perm	Perm	NA	pm+ov	Perm	NA	Perm	Prot	NA	Perm
Protected Phases		4			8	1		2		1	6	
Permitted Phases	4		4	8		8	2		2			6
Detector Phase	4	4	4	8	8	1	2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	12.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	14.0	19.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	24.0	24.0	24.0	24.0	24.0	44.0	52.0	52.0	52.0	44.0	96.0	96.0
Total Split (%)	20.0%	20.0%	20.0%	20.0%	20.0%	36.7%	43.3%	43.3%	43.3%	36.7%	80.0%	80.0%
Maximum Green (s)	17.0	17.0	17.0	17.0	17.0	37.0	45.0	45.0	45.0	37.0	89.0	89.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag						Lead	Lag	Lag	Lag	Lead		
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)		16.2	16.2		16.2	52.9	57.1	57.1	57.1	31.7	93.8	93.8
Actuated g/C Ratio		0.14	0.14		0.14	0.44	0.48	0.48	0.48	0.26	0.78	0.78
v/c Ratio		0.64	0.28		0.59	0.39	0.04	0.58	0.17	0.78	0.67	0.08
Control Delay		66.2	48.9		64.4	23.1	17.9	20.3	16.9	52.3	9.2	3.6
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		66.2	48.9		64.4	23.1	17.9	20.3	16.9	52.3	9.2	3.6
LOS		E	D		E	C	B	C	B	D	A	A
Approach Delay		60.1			33.5			19.9			19.8	
Approach LOS		E			C			B			B	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		79	41		66	135	3	203	37	261	302	16
Queue Length 95th (ft)		141	82		122	175	m5	m290	m57	345	458	31
Internal Link Dist (ft)		1190			571			220			1379	
Turn Bay Length (ft)						260	125		155	545		
Base Capacity (vph)		198	250		180	793	274	1684	753	575	1456	1237
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.55	0.24		0.51	0.34	0.04	0.58	0.17	0.63	0.67	0.08

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 79 (66%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 23.6

Intersection LOS: C

Intersection Capacity Utilization 80.5%

ICU Level of Service D

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: E Young Street & The Point North Driveway/Quarry Road

 Ø1 44 s	 Ø2 (R) 52 s	 Ø4 24 s
 Ø6 (R) 96 s	 Ø8 24 s	

Rolesville Commercial TIA
 9: Proposed RIRO/Left-Out Site Driveway & Quarry Road

2027 Build AM Improved

12/18/2025

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	294	39	0	218	31	17
Future Volume (vph)	294	39	0	218	31	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		50	0		0	0
Storage Lanes		1	0		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.952	
Flt Protected					0.969	
Satd. Flow (prot)	1863	1583	0	1863	1718	0
Flt Permitted					0.969	
Satd. Flow (perm)	1863	1583	0	1863	1718	0
Link Speed (mph)	35			35	25	
Link Distance (ft)	600			629	1096	
Travel Time (s)	11.7			12.3	29.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	327	43	0	242	34	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	327	43	0	242	53	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 25.5%				ICU Level of Service A		
Analysis Period (min) 15						

Intersection						
Int Delay, s/veh	1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↑	↘	
Traffic Vol, veh/h	294	39	0	218	31	17
Future Vol, veh/h	294	39	0	218	31	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	50	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	327	43	0	242	34	19
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	569	327
Stage 1	-	-	-	-	327	-
Stage 2	-	-	-	-	242	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	0	-	484	714
Stage 1	-	-	0	-	731	-
Stage 2	-	-	0	-	798	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	484	714
Mov Cap-2 Maneuver	-	-	-	-	484	-
Stage 1	-	-	-	-	731	-
Stage 2	-	-	-	-	798	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		12.3	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	546	-	-	-		
HCM Lane V/C Ratio	0.098	-	-	-		
HCM Control Delay (s)	12.3	-	-	-		
HCM Lane LOS	B	-	-	-		
HCM 95th %tile Q(veh)	0.3	-	-	-		

10: Proposed Full Movement Site Driveway & Quarry Road

12/18/2025

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	312	145	45	204	115	21
Future Volume (vph)	312	145	45	204	115	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		125	50		0	0
Storage Lanes		1	1		1	0
Taper Length (ft)			100		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.979	
Flt Protected			0.950		0.959	
Satd. Flow (prot)	1863	1583	1770	1863	1749	0
Flt Permitted			0.950		0.959	
Satd. Flow (perm)	1863	1583	1770	1863	1749	0
Link Speed (mph)	35			35	25	
Link Distance (ft)	651			600	1103	
Travel Time (s)	12.7			11.7	30.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	347	161	50	227	128	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	347	161	50	227	151	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	37.4%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection

Int Delay, s/veh 3.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	312	145	45	204	115	21
Future Vol, veh/h	312	145	45	204	115	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	125	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	347	161	50	227	128	23

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	508
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1057
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1057
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	17.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	428	-	-	1057	-
HCM Lane V/C Ratio	0.353	-	-	0.047	-
HCM Control Delay (s)	17.9	-	-	8.6	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.6	-	-	0.1	-

Rolesville Commercial TIA
11: E Young Street & Proposed Site Driveway

2027 Build AM Improved

12/18/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	101	102	905	122	115	881
Future Volume (vph)	101	102	905	122	115	881
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1863	1583	1770	1863
Link Speed (mph)	25		35			35
Link Distance (ft)	1154		1556			332
Travel Time (s)	31.5		30.3			6.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	112	113	1006	136	128	979
Shared Lane Traffic (%)						
Lane Group Flow (vph)	112	113	1006	136	128	979
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	69.6%			ICU Level of Service C		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	6.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	101	102	905	122	115	881
Future Vol, veh/h	101	102	905	122	115	881
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	150	-	100	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	112	113	1006	136	128	979
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	2241	1006	0	0	1142	0
Stage 1	1006	-	-	-	-	-
Stage 2	1235	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 46	293	-	-	612	-
Stage 1	353	-	-	-	-	-
Stage 2	274	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 36	293	-	-	612	-
Mov Cap-2 Maneuver	138	-	-	-	-	-
Stage 1	353	-	-	-	-	-
Stage 2	217	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	59.9	0		1.4		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	138	293	612	-
HCM Lane V/C Ratio	-	-	0.813	0.387	0.209	-
HCM Control Delay (s)	-	-	95.4	24.8	12.4	-
HCM Lane LOS	-	-	F	C	B	-
HCM 95th %tile Q(veh)	-	-	5.1	1.8	0.8	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

2027 BUILDOUT PM PEAK HOUR
WITH IMPROVEMENTS

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	9	72	72	10	145	31	731	61	173	880	182
Future Volume (vph)	91	9	72	72	10	145	31	731	61	173	880	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	0		260	125		155	545		0
Storage Lanes	1		1	0		1	1		1	1		1
Taper Length (ft)	75			100			140			80		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected		0.956			0.958		0.950			0.950		
Satd. Flow (prot)	0	1781	1583	0	1785	1583	1770	3539	1583	1770	1863	1583
Flt Permitted		0.681			0.673		0.146			0.950		
Satd. Flow (perm)	0	1269	1583	0	1254	1583	272	3539	1583	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		1270			651			300			1459	
Travel Time (s)		34.6			9.9			4.5			22.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	101	10	80	80	11	161	34	812	68	192	978	202
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	111	80	0	91	161	34	812	68	192	978	202
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	pm+ov	Perm	NA	Perm	Prot	NA	Perm
Protected Phases		4			8	1		2		1	6	
Permitted Phases	4		4	8		8	2		2			6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	1	2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	12.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	14.0	19.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	20.0	20.0	20.0	20.0	20.0	23.0	47.0	47.0	47.0	23.0	70.0	70.0
Total Split (%)	22.2%	22.2%	22.2%	22.2%	22.2%	25.6%	52.2%	52.2%	52.2%	25.6%	77.8%	77.8%
Maximum Green (s)	13.0	13.0	13.0	13.0	13.0	16.0	40.0	40.0	40.0	16.0	63.0	63.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		-2.0	0.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)		5.0	7.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag						Lag	Lead	Lead	Lead	Lag		
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)		13.4	11.4		13.3	33.5	43.6	43.6	43.6	18.0	66.6	66.6
Actuated g/C Ratio		0.15	0.13		0.15	0.37	0.48	0.48	0.48	0.20	0.74	0.74
v/c Ratio		0.59	0.40		0.49	0.27	0.26	0.47	0.09	0.54	0.71	0.17
Control Delay		48.6	41.7		44.0	19.5	15.4	12.1	9.3	34.8	8.1	3.3
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		48.6	41.7		44.0	19.5	15.4	12.1	9.3	34.8	8.1	3.3
LOS		D	D		D	B	B	B	A	C	A	A
Approach Delay		45.7			28.4			12.0			11.1	
Approach LOS		D			C			B			B	
Queue Length 50th (ft)		58	42		47	57	7	123	12	90	257	25
Queue Length 95th (ft)		113	85		95	101	m18	170	m24	m149	314	m40
Internal Link Dist (ft)		1190			571			220			1379	
Turn Bay Length (ft)						260	125		155	545		
Base Capacity (vph)		211	228		209	589	131	1715	767	354	1379	1171
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.53	0.35		0.44	0.27	0.26	0.47	0.09	0.54	0.71	0.17

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 47 (52%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 15.4

Intersection LOS: B

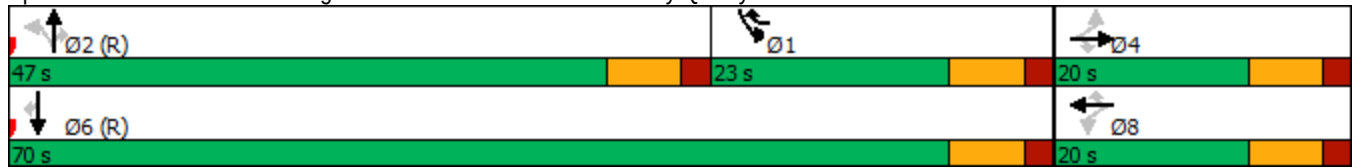
Intersection Capacity Utilization 81.0%

ICU Level of Service D

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: E Young Street & The Point North Driveway/Quarry Road



Rolesville Commercial TIA
9: Proposed RIRO/Left-Out Site Driveway & Quarry Road

2027 Build PM Improved

12/18/2025

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	142	24	0	126	29	14
Future Volume (vph)	142	24	0	126	29	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		50	0		0	0
Storage Lanes		1	0		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.955	
Flt Protected					0.968	
Satd. Flow (prot)	1863	1583	0	1863	1722	0
Flt Permitted					0.968	
Satd. Flow (perm)	1863	1583	0	1863	1722	0
Link Speed (mph)	45			45	25	
Link Distance (ft)	600			629	1096	
Travel Time (s)	9.1			9.5	29.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	158	27	0	140	32	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	158	27	0	140	48	0
Enter Blocked Intersection	No	No	No	No	1 veh	1 veh
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	17.5%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	1.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↑	↘	
Traffic Vol, veh/h	142	24	0	126	29	14
Future Vol, veh/h	142	24	0	126	29	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	50	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	158	27	0	140	32	16
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	298	158
Stage 1	-	-	-	-	158	-
Stage 2	-	-	-	-	140	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	0	-	693	887
Stage 1	-	-	0	-	871	-
Stage 2	-	-	0	-	887	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	693	887
Mov Cap-2 Maneuver	-	-	-	-	693	-
Stage 1	-	-	-	-	871	-
Stage 2	-	-	-	-	887	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		10.2	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	746	-	-	-		
HCM Lane V/C Ratio	0.064	-	-	-		
HCM Control Delay (s)	10.2	-	-	-		
HCM Lane LOS	B	-	-	-		
HCM 95th %tile Q(veh)	0.2	-	-	-		

10: Proposed Full Movement Site Driveway & Quarry Road

12/18/2025

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations					 	
Traffic Volume (vph)	149	91	28	127	102	16
Future Volume (vph)	149	91	28	127	102	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		125	50		0	0
Storage Lanes		1	1		1	0
Taper Length (ft)			100		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.981	
Flt Protected			0.950		0.959	
Satd. Flow (prot)	1863	1583	1770	1863	1752	0
Flt Permitted			0.950		0.959	
Satd. Flow (perm)	1863	1583	1770	1863	1752	0
Link Speed (mph)	45			45	25	
Link Distance (ft)	651			600	1103	
Travel Time (s)	9.9			9.1	30.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	166	101	31	141	113	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	166	101	31	141	131	0
Enter Blocked Intersection	No	No	No	No	1 veh	1 veh
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	27.8%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection

Int Delay, s/veh 3.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	149	91	28	127	102	16
Future Vol, veh/h	149	91	28	127	102	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	125	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	166	101	31	141	113	18

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	267
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1297
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1297
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.4	12
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	642	-	-	1297	-
HCM Lane V/C Ratio	0.204	-	-	0.024	-
HCM Control Delay (s)	12	-	-	7.8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.8	-	-	0.1	-

Rolesville Commercial TIA
11: E Young Street & Proposed Site Driveway

2027 Build PM Improved

12/18/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	97	88	734	85	91	930
Future Volume (vph)	97	88	734	85	91	930
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1863	1583	1770	1863
Link Speed (mph)	25		45			45
Link Distance (ft)	1154		1556			332
Travel Time (s)	31.5		23.6			5.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	108	98	816	94	101	1033
Shared Lane Traffic (%)						
Lane Group Flow (vph)	108	98	816	94	101	1033
Enter Blocked Intersection	1 veh	1 veh	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	61.0%			ICU Level of Service B		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	4.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	97	88	734	85	91	930
Future Vol, veh/h	97	88	734	85	91	930
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	150	-	100	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	108	98	816	94	101	1033
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	2051	816	0	0	910	0
Stage 1	816	-	-	-	-	-
Stage 2	1235	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 61	377	-	-	748	-
Stage 1	435	-	-	-	-	-
Stage 2	274	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 53	377	-	-	748	-
Mov Cap-2 Maneuver	162	-	-	-	-	-
Stage 1	435	-	-	-	-	-
Stage 2	237	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	41.5	0		0.9		
HCM LOS	E					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	162	377	748	-
HCM Lane V/C Ratio	-	-	0.665	0.259	0.135	-
HCM Control Delay (s)	-	-	62.9	17.9	10.6	-
HCM Lane LOS	-	-	F	C	B	-
HCM 95th %tile Q(veh)	-	-	3.8	1	0.5	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

2027 BUILDOUT AM PEAK HOUR
WITH IMPROVEMENTS AND DIVERSION

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	14	53	124	11	244	10	882	115	328	874	91
Future Volume (vph)	83	14	53	124	11	244	10	882	115	328	874	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	0		260	125		155	545		0
Storage Lanes	1		1	0		1	1		1	1		1
Taper Length (ft)	75			100			140			80		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected		0.959			0.956		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	1781	1583	1770	3539	1583	1770	1863	1583
Flt Permitted		0.532			0.625		0.310			0.950		
Satd. Flow (perm)	0	991	1583	0	1164	1583	577	3539	1583	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		1270			651			300			1459	
Travel Time (s)		34.6			12.7			5.8			28.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	92	16	59	138	12	271	11	980	128	364	971	101
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	108	59	0	150	271	11	980	128	364	971	101
Turn Type	Perm	NA	Perm	Perm	NA	pm+ov	Perm	NA	Perm	Prot	NA	Perm
Protected Phases		4			8	1		2		1	6	
Permitted Phases	4		4	8		8	2		2			6
Detector Phase	4	4	4	8	8	1	2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	12.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	14.0	19.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	30.0	30.0	30.0	30.0	30.0	44.0	46.0	46.0	46.0	44.0	90.0	90.0
Total Split (%)	25.0%	25.0%	25.0%	25.0%	25.0%	36.7%	38.3%	38.3%	38.3%	36.7%	75.0%	75.0%
Maximum Green (s)	23.0	23.0	23.0	23.0	23.0	37.0	39.0	39.0	39.0	37.0	83.0	83.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag						Lead	Lag	Lag	Lag	Lead		
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)		21.0	21.0		21.0	57.7	52.3	52.3	52.3	31.7	89.0	89.0
Actuated g/C Ratio		0.18	0.18		0.18	0.48	0.44	0.44	0.44	0.26	0.74	0.74
v/c Ratio		0.62	0.21		0.74	0.36	0.04	0.64	0.19	0.78	0.70	0.09
Control Delay		61.2	42.7		67.7	19.6	19.6	22.0	18.4	52.3	12.7	5.1
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		61.2	42.7		67.7	19.6	19.6	22.0	18.4	52.3	12.7	5.1
LOS		E	D		E	B	B	C	B	D	B	A
Approach Delay		54.7			36.7			21.5			22.2	
Approach LOS		D			D			C			C	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		77	39		110	124	3	204	40	261	371	20
Queue Length 95th (ft)		138	77		181	155	m6	m300	m60	345	576	39
Internal Link Dist (ft)		1190			571			220			1379	
Turn Bay Length (ft)						260	125		155	545		
Base Capacity (vph)		206	329		242	857	251	1542	689	575	1381	1174
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.52	0.18		0.62	0.32	0.04	0.64	0.19	0.63	0.70	0.09

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 78 (65%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 25.6

Intersection LOS: C

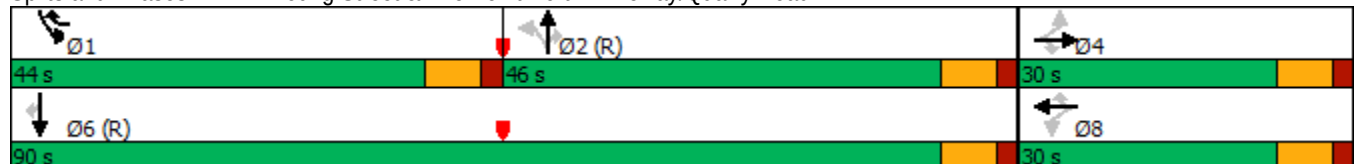
Intersection Capacity Utilization 82.6%

ICU Level of Service E

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: E Young Street & The Point North Driveway/Quarry Road



Rolesville Commercial TIA
10: Proposed Full Movement Site Driveway & Quarry Road

2027 Build AM Imp Diversion

12/18/2025

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	312	145	45	204	168	21
Future Volume (vph)	312	145	45	204	168	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		125	50		0	0
Storage Lanes		1	1		1	0
Taper Length (ft)			100		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.985	
Flt Protected			0.950		0.957	
Satd. Flow (prot)	1863	1583	1770	1863	1756	0
Flt Permitted			0.950		0.957	
Satd. Flow (perm)	1863	1583	1770	1863	1756	0
Link Speed (mph)	35			35	25	
Link Distance (ft)	651			600	1103	
Travel Time (s)	12.7			11.7	30.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	347	161	50	227	187	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	347	161	50	227	210	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 40.3%				ICU Level of Service A		
Analysis Period (min) 15						

Rolesville Commercial TIA
10: Proposed Full Movement Site Driveway & Quarry Road

2027 Build AM Imp Diversion

12/18/2025

Intersection						
Int Delay, s/veh	5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↖	↖	↑	↖↗	
Traffic Vol, veh/h	312	145	45	204	168	21
Future Vol, veh/h	312	145	45	204	168	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	125	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	347	161	50	227	187	23
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	508	0	674	347
Stage 1	-	-	-	-	347	-
Stage 2	-	-	-	-	327	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1057	-	420	696
Stage 1	-	-	-	-	716	-
Stage 2	-	-	-	-	731	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1057	-	400	696
Mov Cap-2 Maneuver	-	-	-	-	400	-
Stage 1	-	-	-	-	716	-
Stage 2	-	-	-	-	697	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	1.5		21.8		
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	420	-	-	1057	-	
HCM Lane V/C Ratio	0.5	-	-	0.047	-	
HCM Control Delay (s)	21.8	-	-	8.6	-	
HCM Lane LOS	C	-	-	A	-	
HCM 95th %tile O(veh)	2.7	-	-	0.1	-	

Rolesville Commercial TIA
11: E Young Street & Proposed Site Driveway

2027 Build AM Imp Diversion

12/18/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	48	102	905	122	115	934
Future Volume (vph)	48	102	905	122	115	934
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1863	1583	1770	1863
Link Speed (mph)	25		35			35
Link Distance (ft)	1154		1556			332
Travel Time (s)	31.5		30.3			6.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	53	113	1006	136	128	1038
Shared Lane Traffic (%)						
Lane Group Flow (vph)	53	113	1006	136	128	1038
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	67.3%			ICU Level of Service C		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	2.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	48	102	905	122	115	934
Future Vol, veh/h	48	102	905	122	115	934
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	150	-	100	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	53	113	1006	136	128	1038
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	2300	1006	0	0	1142	0
Stage 1	1006	-	-	-	-	-
Stage 2	1294	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 43	293	-	-	612	-
Stage 1	353	-	-	-	-	-
Stage 2	257	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 34	293	-	-	612	-
Mov Cap-2 Maneuver	132	-	-	-	-	-
Stage 1	353	-	-	-	-	-
Stage 2	203	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	32.7	0		1.4		
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	132	293	612	-
HCM Lane V/C Ratio	-	-	0.404	0.387	0.209	-
HCM Control Delay (s)	-	-	49.6	24.8	12.4	-
HCM Lane LOS	-	-	E	C	B	-
HCM 95th %tile Q(veh)	-	-	1.7	1.8	0.8	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

2027 BUILDOUT PM PEAK HOUR
WITH IMPROVEMENTS AND DIVERSION

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖	↗	↗	↖	↖	↗	↖	↗
Traffic Volume (vph)	91	9	72	96	10	145	31	731	61	173	880	182
Future Volume (vph)	91	9	72	96	10	145	31	731	61	173	880	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	0		260	125		155	545		0
Storage Lanes	1		1	0		1	1		1	1		1
Taper Length (ft)	75			100			140			80		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected		0.956			0.957		0.950			0.950		
Satd. Flow (prot)	0	1781	1583	0	1783	1583	1770	3539	1583	1770	1863	1583
Flt Permitted		0.648			0.668		0.138			0.950		
Satd. Flow (perm)	0	1207	1583	0	1244	1583	257	3539	1583	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			45			45			45	
Link Distance (ft)		1270			651			300			1459	
Travel Time (s)		34.6			9.9			4.5			22.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	101	10	80	107	11	161	34	812	68	192	978	202
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	111	80	0	118	161	34	812	68	192	978	202
Turn Type	Perm	NA	Perm	Perm	NA	pm+ov	Perm	NA	Perm	Prot	NA	Perm
Protected Phases		4			8	1		2		1	6	
Permitted Phases	4		4	8		8	2		2			6
Detector Phase	4	4	4	8	8	1	2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	12.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	14.0	19.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	21.0	21.0	21.0	21.0	21.0	23.0	46.0	46.0	46.0	23.0	69.0	69.0
Total Split (%)	23.3%	23.3%	23.3%	23.3%	23.3%	25.6%	51.1%	51.1%	51.1%	25.6%	76.7%	76.7%
Maximum Green (s)	14.0	14.0	14.0	14.0	14.0	16.0	39.0	39.0	39.0	16.0	62.0	62.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		-2.0	0.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)		5.0	7.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag						Lag	Lead	Lead	Lead	Lag		
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)		14.1	12.1		14.1	37.1	42.9	42.9	42.9	18.0	65.9	65.9
Actuated g/C Ratio		0.16	0.13		0.16	0.41	0.48	0.48	0.48	0.20	0.73	0.73
v/c Ratio		0.59	0.38		0.61	0.25	0.28	0.48	0.09	0.54	0.72	0.17
Control Delay		47.9	40.0		48.5	18.0	16.3	12.7	9.0	35.4	8.9	3.6
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		47.9	40.0		48.5	18.0	16.3	12.7	9.0	35.4	8.9	3.6
LOS		D	D		D	B	B	B	A	D	A	A
Approach Delay		44.6			30.9			12.6			11.8	
Approach LOS		D			C			B			B	

4: E Young Street & The Point North Driveway/Quarry Road

12/18/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		58	41		62	56	10	162	16	92	268	27
Queue Length 95th (ft)		113	84		118	99	m19	183	m26	m157	352	m48
Internal Link Dist (ft)		1190			571			220			1379	
Turn Bay Length (ft)						260	125		155	545		
Base Capacity (vph)		214	246		221	652	122	1687	754	354	1364	1158
Starvation Cap Reductn		0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.52	0.33		0.53	0.25	0.28	0.48	0.09	0.54	0.72	0.17

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 51 (57%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 16.3

Intersection LOS: B

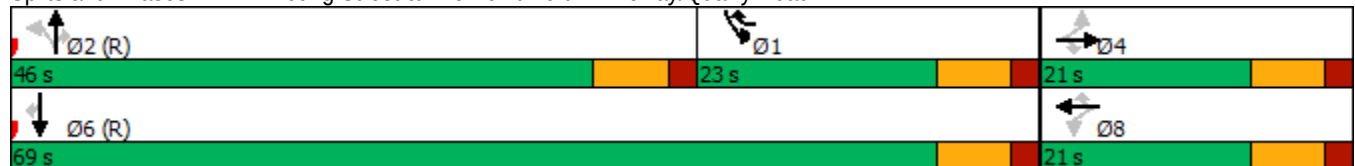
Intersection Capacity Utilization 81.3%

ICU Level of Service D

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: E Young Street & The Point North Driveway/Quarry Road



Rolesville Commercial TIA
 10: Proposed Full Movement Site Driveway & Quarry Road

2027 Build PM Imp Diversion

12/18/2025

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations					 	
Traffic Volume (vph)	149	91	28	127	126	16
Future Volume (vph)	149	91	28	127	126	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		125	50		0	0
Storage Lanes		1	1		1	0
Taper Length (ft)			100		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.985	
Flt Protected			0.950		0.958	
Satd. Flow (prot)	1863	1583	1770	1863	1758	0
Flt Permitted			0.950		0.958	
Satd. Flow (perm)	1863	1583	1770	1863	1758	0
Link Speed (mph)	45			45	25	
Link Distance (ft)	651			600	1103	
Travel Time (s)	9.9			9.1	30.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	166	101	31	141	140	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	166	101	31	141	158	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 29.1%				ICU Level of Service A		
Analysis Period (min) 15						

Intersection

Int Delay, s/veh 3.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	149	91	28	127	126	16
Future Vol, veh/h	149	91	28	127	126	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	125	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	166	101	31	141	140	18

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	267
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1297
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1297
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.4	12.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	637	-	-	1297	-
HCM Lane V/C Ratio	0.248	-	-	0.024	-
HCM Control Delay (s)	12.5	-	-	7.8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	1	-	-	0.1	-

Rolesville Commercial TIA
11: E Young Street & Proposed Site Driveway

2027 Build PM Imp Diversion

12/18/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	73	88	734	85	91	954
Future Volume (vph)	73	88	734	85	91	954
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		100	200	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1863	1583	1770	1863
Link Speed (mph)	25		45			45
Link Distance (ft)	1154		1556			332
Travel Time (s)	31.5		23.6			5.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	81	98	816	94	101	1060
Shared Lane Traffic (%)						
Lane Group Flow (vph)	81	98	816	94	101	1060
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	60.9%			ICU Level of Service B		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	73	88	734	85	91	954
Future Vol, veh/h	73	88	734	85	91	954
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	150	-	100	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	81	98	816	94	101	1060
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	2078	816	0	0	910	0
Stage 1	816	-	-	-	-	-
Stage 2	1262	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 59	377	-	-	748	-
Stage 1	435	-	-	-	-	-
Stage 2	266	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 51	377	-	-	748	-
Mov Cap-2 Maneuver	158	-	-	-	-	-
Stage 1	435	-	-	-	-	-
Stage 2	230	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	32.3	0		0.9		
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	158	377	748	-
HCM Lane V/C Ratio	-	-	0.513	0.259	0.135	-
HCM Control Delay (s)	-	-	49.6	17.9	10.6	-
HCM Lane LOS	-	-	E	C	B	-
HCM 95th %tile Q(veh)	-	-	2.5	1	0.5	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

SIMTRAFFIC PRINTOUTS

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	4164	4251	4226	4063	4169	4249	4149
Vehs Exited	4184	4254	4208	4078	4120	4222	4159
Starting Vehs	203	204	213	198	178	220	214
Ending Vehs	183	201	231	183	227	247	204
Travel Distance (mi)	4791	4843	4774	4556	4760	4927	4837
Travel Time (hr)	195.2	205.6	211.3	183.8	201.7	229.3	208.3
Total Delay (hr)	63.9	72.3	80.2	59.0	70.4	93.8	75.2
Total Stops	5089	5246	5205	4762	5379	5334	5120
Fuel Used (gal)	178.0	183.5	180.7	170.3	179.4	189.8	181.8

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	4270	4272	4214	4204
Vehs Exited	4244	4234	4198	4190
Starting Vehs	188	183	175	191
Ending Vehs	214	221	191	202
Travel Distance (mi)	4750	4922	4825	4798
Travel Time (hr)	208.0	212.5	201.9	205.8
Total Delay (hr)	77.4	77.0	70.2	73.9
Total Stops	5236	5325	5252	5197
Fuel Used (gal)	181.5	185.9	180.9	181.2

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	4164	4251	4226	4063	4169	4249	4149
Vehs Exited	4184	4254	4208	4078	4120	4222	4159
Starting Vehs	203	204	213	198	178	220	214
Ending Vehs	183	201	231	183	227	247	204
Travel Distance (mi)	4791	4843	4774	4556	4760	4927	4837
Travel Time (hr)	195.2	205.6	211.3	183.8	201.7	229.3	208.3
Total Delay (hr)	63.9	72.3	80.2	59.0	70.4	93.8	75.2
Total Stops	5089	5246	5205	4762	5379	5334	5120
Fuel Used (gal)	178.0	183.5	180.7	170.3	179.4	189.8	181.8

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	4270	4272	4214	4204
Vehs Exited	4244	4234	4198	4190
Starting Vehs	188	183	175	191
Ending Vehs	214	221	191	202
Travel Distance (mi)	4750	4922	4825	4798
Travel Time (hr)	208.0	212.5	201.9	205.8
Total Delay (hr)	77.4	77.0	70.2	73.9
Total Stops	5236	5325	5252	5197
Fuel Used (gal)	181.5	185.9	180.9	181.2

Intersection: 1: US 401 NBL/E Young Street & US 401

Movement	WB	WB	WB	NB	SB	SB
Directions Served	T	T	R	T	R	R
Maximum Queue (ft)	206	230	94	134	294	262
Average Queue (ft)	115	142	3	56	195	144
95th Queue (ft)	182	206	48	112	272	244
Link Distance (ft)	258	258		293	1088	
Upstream Blk Time (%)		0	0			
Queuing Penalty (veh)		0	0			
Storage Bay Dist (ft)			240			125
Storage Blk Time (%)		0	0		26	3
Queuing Penalty (veh)		0	0		74	10

Intersection: 2: U-turn North of E Young St & US 401

Movement	WB	WB	NB
Directions Served	T	T	L
Maximum Queue (ft)	390	361	154
Average Queue (ft)	233	203	105
95th Queue (ft)	370	339	156
Link Distance (ft)	1159	1159	50
Upstream Blk Time (%)			42
Queuing Penalty (veh)			210
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: US 401 & U-Turn S of E Young Street

Movement	EB	EB	SB
Directions Served	T	T	L
Maximum Queue (ft)	124	213	145
Average Queue (ft)	45	82	116
95th Queue (ft)	99	167	140
Link Distance (ft)	962	962	51
Upstream Blk Time (%)			48
Queuing Penalty (veh)			153
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: E Young Street & The Point North Driveway/Quarry Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	LT	R	L	T	R	L	T
Maximum Queue (ft)	26	37	91	100	20	6	12	100	5
Average Queue (ft)	3	9	24	31	1	0	1	40	0
95th Queue (ft)	17	28	63	73	10	5	6	77	5
Link Distance (ft)		1223	1776			2085			1360
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	275			260	125		155	545	
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 5: Rolesville High Staff & Bus Driveway & Quarry Road

Movement	EB	WB	NB	NB
Directions Served	R	LT	L	R
Maximum Queue (ft)	6	14	97	56
Average Queue (ft)	0	1	42	13
95th Queue (ft)	5	8	75	42
Link Distance (ft)		1457	1043	1043
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	185			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Rolesville Road/E Young Street & The Point South Driveway/Rolesville High Student & C

Movement	EB	WB	WB	NB	NB	SB
Directions Served	LTR	LT	R	L	T	L
Maximum Queue (ft)	40	132	124	10	2	92
Average Queue (ft)	10	59	62	1	0	37
95th Queue (ft)	35	108	100	6	2	75
Link Distance (ft)	1282	1252			2072	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			380	90		285
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 7: Rolesville Road & Fowler Road

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	56	78
Average Queue (ft)	21	17
95th Queue (ft)	41	54
Link Distance (ft)	1176	2072
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: Rolesville Road & Mitchell Mill Road

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	LT	R	LTR	LTR
Maximum Queue (ft)	110	560	281	152	529
Average Queue (ft)	53	271	43	56	272
95th Queue (ft)	91	629	237	117	577
Link Distance (ft)	1364	1033		1031	7256
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			325		
Storage Blk Time (%)		28			
Queuing Penalty (veh)		4			

Intersection: 21: US 401 SBL & US 401

Movement	WB
Directions Served	T
Maximum Queue (ft)	7
Average Queue (ft)	0
95th Queue (ft)	5
Link Distance (ft)	368
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 25: US 401 & US 401 NBL

Movement	EB	EB	EB
Directions Served	L	T	T
Maximum Queue (ft)	7	7	4
Average Queue (ft)	0	0	0
95th Queue (ft)	6	7	4
Link Distance (ft)		375	375
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	100		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 101: E Young Street/US 401 SBL & US 401

Movement	EB	EB	EB	NB	NB	SB
Directions Served	T	T	R	R	R	T
Maximum Queue (ft)	105	252	271	398	290	146
Average Queue (ft)	38	21	56	221	123	68
95th Queue (ft)	85	132	221	362	241	125
Link Distance (ft)	280	280		1360		256
Upstream Blk Time (%)		0	0			
Queuing Penalty (veh)		1	0			
Storage Bay Dist (ft)			255		280	
Storage Blk Time (%)		0	1	5	0	
Queuing Penalty (veh)		1	1	15	0	

Intersection: 201: US 401 & U-turn North of E Young St

Movement	EB	EB	EB
Directions Served	L	T	T
Maximum Queue (ft)	397	60	36
Average Queue (ft)	83	2	1
95th Queue (ft)	277	41	35
Link Distance (ft)		631	631
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	490		
Storage Blk Time (%)	0		
Queuing Penalty (veh)	0		

Intersection: 301: U-Turn S of E Young Street & US 401

Movement	WB
Directions Served	L
Maximum Queue (ft)	230
Average Queue (ft)	66
95th Queue (ft)	164
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	345
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 470

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	3359	3379	3283	3286	3318	3351	3297
Vehs Exited	3346	3379	3244	3294	3295	3354	3295
Starting Vehs	123	133	101	145	110	135	120
Ending Vehs	136	133	140	137	133	132	122
Travel Distance (mi)	3775	3753	3662	3729	3695	3802	3642
Travel Time (hr)	131.2	128.7	126.0	128.2	127.3	130.6	123.9
Total Delay (hr)	39.6	38.1	37.6	37.9	37.2	39.0	36.0
Total Stops	3864	3704	3686	3743	3682	3792	3496
Fuel Used (gal)	138.5	137.3	133.8	136.6	133.6	138.6	132.2

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	3312	3344	3306	3323
Vehs Exited	3315	3340	3274	3316
Starting Vehs	132	134	113	119
Ending Vehs	129	138	145	136
Travel Distance (mi)	3742	3644	3689	3713
Travel Time (hr)	129.4	126.7	127.3	127.9
Total Delay (hr)	38.4	38.7	38.7	38.1
Total Stops	3739	3775	3681	3715
Fuel Used (gal)	136.6	133.8	135.2	135.6

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	3359	3379	3283	3286	3318	3351	3297
Vehs Exited	3346	3379	3244	3294	3295	3354	3295
Starting Vehs	123	133	101	145	110	135	120
Ending Vehs	136	133	140	137	133	132	122
Travel Distance (mi)	3775	3753	3662	3729	3695	3802	3642
Travel Time (hr)	131.2	128.7	126.0	128.2	127.3	130.6	123.9
Total Delay (hr)	39.6	38.1	37.6	37.9	37.2	39.0	36.0
Total Stops	3864	3704	3686	3743	3682	3792	3496
Fuel Used (gal)	138.5	137.3	133.8	136.6	133.6	138.6	132.2

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	3312	3344	3306	3323
Vehs Exited	3315	3340	3274	3316
Starting Vehs	132	134	113	119
Ending Vehs	129	138	145	136
Travel Distance (mi)	3742	3644	3689	3713
Travel Time (hr)	129.4	126.7	127.3	127.9
Total Delay (hr)	38.4	38.7	38.7	38.1
Total Stops	3739	3775	3681	3715
Fuel Used (gal)	136.6	133.8	135.2	135.6

Intersection: 1: US 401 NBL/E Young Street & US 401

Movement	WB	WB	NB	SB	SB
Directions Served	T	T	T	R	R
Maximum Queue (ft)	126	140	206	282	242
Average Queue (ft)	61	73	114	165	101
95th Queue (ft)	112	125	186	249	214
Link Distance (ft)	258	258	293	1088	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					125
Storage Blk Time (%)				19	1
Queuing Penalty (veh)				38	3

Intersection: 2: U-turn North of E Young St & US 401

Movement	WB	WB	NB
Directions Served	T	T	L
Maximum Queue (ft)	136	114	141
Average Queue (ft)	57	40	114
95th Queue (ft)	112	88	143
Link Distance (ft)	1159	1159	50
Upstream Blk Time (%)			55
Queuing Penalty (veh)			164
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: US 401 & U-Turn S of E Young Street

Movement	EB	EB	SB
Directions Served	T	T	L
Maximum Queue (ft)	226	192	148
Average Queue (ft)	112	81	116
95th Queue (ft)	195	157	146
Link Distance (ft)	962	962	51
Upstream Blk Time (%)			38
Queuing Penalty (veh)			105
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: E Young Street & The Point North Driveway/Quarry Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB
Directions Served	L	TR	LT	R	L	T	R	L
Maximum Queue (ft)	40	46	26	34	12	2	3	61
Average Queue (ft)	8	12	6	7	1	0	0	19
95th Queue (ft)	29	34	19	21	6	1	2	45
Link Distance (ft)		1223	1776			2085		
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	275			260	125		155	545
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 5: Rolesville High Staff & Bus Driveway & Quarry Road

Movement	WB	NB	NB
Directions Served	LT	L	R
Maximum Queue (ft)	20	54	17
Average Queue (ft)	1	16	2
95th Queue (ft)	11	40	12
Link Distance (ft)	1457	1043	1043
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Rolesville Road/E Young Street & The Point South Driveway/Rolesville High Student & C

Movement	EB	WB	WB	NB	NB	SB
Directions Served	LTR	LT	R	L	T	L
Maximum Queue (ft)	33	63	89	15	2	40
Average Queue (ft)	10	27	43	1	0	7
95th Queue (ft)	33	55	73	6	2	26
Link Distance (ft)	1282	1252			2072	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			380	90		285
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 7: Rolesville Road & Fowler Road

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	38	98
Average Queue (ft)	11	21
95th Queue (ft)	24	65
Link Distance (ft)	1176	2072
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: Rolesville Road & Mitchell Mill Road

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	LT	R	LTR	LTR
Maximum Queue (ft)	138	42	19	128	170
Average Queue (ft)	63	6	3	44	81
95th Queue (ft)	105	25	14	99	133
Link Distance (ft)	1364	1033		1031	7256
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			325		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 21: US 401 SBL & US 401

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 25: US 401 & US 401 NBL

Movement

Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 101: E Young Street/US 401 SBL & US 401

Movement	EB	EB	EB	NB	NB	SB
Directions Served	T	T	R	R	R	T
Maximum Queue (ft)	202	182	65	213	208	173
Average Queue (ft)	99	75	3	122	117	94
95th Queue (ft)	166	146	42	185	179	160
Link Distance (ft)	280	280		1360		256
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			255		280	
Storage Blk Time (%)			0	0	0	
Queuing Penalty (veh)			0	0	0	

Intersection: 201: US 401 & U-turn North of E Young St

Movement	EB	EB
Directions Served	L	T
Maximum Queue (ft)	184	18
Average Queue (ft)	56	1
95th Queue (ft)	142	13
Link Distance (ft)		631
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	490	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 301: U-Turn S of E Young Street & US 401

Movement	WB
Directions Served	L
Maximum Queue (ft)	186
Average Queue (ft)	61
95th Queue (ft)	143
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	345
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 310

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	5315	5292	5415	5443	5246	5434	5401
Vehs Exited	5281	5322	5417	5310	5220	5454	5360
Starting Vehs	316	345	312	296	310	339	301
Ending Vehs	350	315	310	429	336	319	342
Travel Distance (mi)	6936	6976	7190	6851	6804	7034	7087
Travel Time (hr)	334.8	319.1	351.4	355.7	317.1	327.9	342.7
Total Delay (hr)	146.1	129.1	155.0	168.3	132.3	135.6	149.1
Total Stops	8707	8348	8852	8952	8017	8636	8799
Fuel Used (gal)	265.7	264.2	275.3	269.5	258.6	268.3	271.5

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	5413	5398	5392	5375
Vehs Exited	5377	5356	5330	5342
Starting Vehs	319	311	322	313
Ending Vehs	355	353	384	346
Travel Distance (mi)	7113	7026	6955	6997
Travel Time (hr)	339.3	320.0	338.0	334.6
Total Delay (hr)	145.4	128.9	147.1	143.7
Total Stops	9110	8248	8723	8637
Fuel Used (gal)	271.4	265.4	266.4	267.6

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	5315	5292	5415	5443	5246	5434	5401
Vehs Exited	5281	5322	5417	5310	5220	5454	5360
Starting Vehs	316	345	312	296	310	339	301
Ending Vehs	350	315	310	429	336	319	342
Travel Distance (mi)	6936	6976	7190	6851	6804	7034	7087
Travel Time (hr)	334.8	319.1	351.4	355.7	317.1	327.9	342.7
Total Delay (hr)	146.1	129.1	155.0	168.3	132.3	135.6	149.1
Total Stops	8707	8348	8852	8952	8017	8636	8799
Fuel Used (gal)	265.7	264.2	275.3	269.5	258.6	268.3	271.5

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	5413	5398	5392	5375
Vehs Exited	5377	5356	5330	5342
Starting Vehs	319	311	322	313
Ending Vehs	355	353	384	346
Travel Distance (mi)	7113	7026	6955	6997
Travel Time (hr)	339.3	320.0	338.0	334.6
Total Delay (hr)	145.4	128.9	147.1	143.7
Total Stops	9110	8248	8723	8637
Fuel Used (gal)	271.4	265.4	266.4	267.6

Intersection: 1: US 401 NBL/E Young Street & US 401

Movement	WB	WB	WB	NB	SB	SB
Directions Served	T	T	R	T	R	R
Maximum Queue (ft)	363	372	258	134	366	316
Average Queue (ft)	230	234	98	60	239	194
95th Queue (ft)	345	355	303	114	332	293
Link Distance (ft)	258	258		299	1088	
Upstream Blk Time (%)	4	4	0			
Queuing Penalty (veh)	41	38	0			
Storage Bay Dist (ft)			240			125
Storage Blk Time (%)		5	0		43	11
Queuing Penalty (veh)		22	3		140	36

Intersection: 2: U-turn North of E Young St & US 401

Movement	WB	WB	NB	NB
Directions Served	T	T	L	L
Maximum Queue (ft)	367	351	113	125
Average Queue (ft)	226	192	92	99
95th Queue (ft)	331	307	103	112
Link Distance (ft)	1136	1136	22	22
Upstream Blk Time (%)			60	62
Queuing Penalty (veh)			267	277
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: US 401 & U-Turn S of E Young Street

Movement	EB	EB	SB
Directions Served	T	T	L
Maximum Queue (ft)	158	299	143
Average Queue (ft)	65	150	118
95th Queue (ft)	128	264	138
Link Distance (ft)	962	962	51
Upstream Blk Time (%)			54
Queuing Penalty (veh)			215
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: E Young Street & The Point North Driveway/Quarry Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LT	R	L	T	R	L	T	R
Maximum Queue (ft)	164	106	89	142	104	444	248	348	446	123
Average Queue (ft)	64	36	30	61	9	180	34	136	116	17
95th Queue (ft)	127	79	71	120	60	370	142	270	312	70
Link Distance (ft)		1223	1776			2084			1354	1354
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	275			260	125		155	545		
Storage Blk Time (%)						11			0	
Queuing Penalty (veh)						10			1	

Intersection: 5: Rolesville High Staff & Bus Driveway & Quarry Road

Movement	WB	NB	NB
Directions Served	LT	L	R
Maximum Queue (ft)	31	97	54
Average Queue (ft)	2	45	16
95th Queue (ft)	17	79	43
Link Distance (ft)	1457	1043	1043
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Rolesville Road/E Young Street & The Point South Driveway/Rolesville High Student & C

Movement	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	TR
Maximum Queue (ft)	64	169	202	92	843	410	313	242
Average Queue (ft)	17	76	98	6	356	108	177	64
95th Queue (ft)	50	136	177	51	726	405	274	165
Link Distance (ft)	1282	1251			2058			2084
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			380	90		360	285	
Storage Blk Time (%)					44	0	1	0
Queuing Penalty (veh)					95	0	5	0

Intersection: 7: Rolesville Road & Merritt Property Southern Driveway/Fowler Road

Movement	EB	WB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	TR	L	T	R
Maximum Queue (ft)	100	175	49	298	109	246	72
Average Queue (ft)	39	82	6	131	29	92	6
95th Queue (ft)	82	150	31	254	74	188	38
Link Distance (ft)	1215	1172		7258		2058	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			100		100		100
Storage Blk Time (%)				8	0	5	
Queuing Penalty (veh)				1	0	4	

Intersection: 8: Rolesville Road & Mitchell Mill Road

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	LT	R	LTR	LTR
Maximum Queue (ft)	241	316	35	796	1075
Average Queue (ft)	114	138	8	257	549
95th Queue (ft)	203	254	23	761	1048
Link Distance (ft)	1364	1033		1031	7258
Upstream Blk Time (%)				5	
Queuing Penalty (veh)				0	
Storage Bay Dist (ft)			325		
Storage Blk Time (%)		1			
Queuing Penalty (veh)		0			

Intersection: 21: US 401 SBL & US 401

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	50	79
Average Queue (ft)	3	5
95th Queue (ft)	24	39
Link Distance (ft)	356	356
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)	0	
Queuing Penalty (veh)	1	

Intersection: 25: US 401 & US 401 NBL

Movement

Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 101: E Young Street/US 401 SBL & US 401

Movement	EB	EB	NB	NB	SB
Directions Served	T	T	R	R	T
Maximum Queue (ft)	214	132	461	273	155
Average Queue (ft)	104	47	230	97	60
95th Queue (ft)	181	100	411	202	129
Link Distance (ft)	284	284	1354		256
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	0				
Storage Bay Dist (ft)			600		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 201: US 401 & U-turn North of E Young St

Movement	EB	EB
Directions Served	L	L
Maximum Queue (ft)	250	250
Average Queue (ft)	117	115
95th Queue (ft)	217	216
Link Distance (ft)		
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	395	395
Storage Blk Time (%)	0	0
Queuing Penalty (veh)	0	0

Intersection: 301: U-Turn S of E Young Street & US 401

Movement	WB
Directions Served	L
Maximum Queue (ft)	259
Average Queue (ft)	97
95th Queue (ft)	213
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	345
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Network Summary

Network wide Queuing Penalty: 1156

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	4830	4661	4777	4667	4726	4869	4704
Vehs Exited	4802	4659	4719	4644	4715	4835	4687
Starting Vehs	275	235	239	247	259	270	244
Ending Vehs	303	237	297	270	270	304	261
Travel Distance (mi)	6555	6386	6425	6320	6414	6543	6537
Travel Time (hr)	271.9	250.6	257.6	249.1	252.1	287.9	261.7
Total Delay (hr)	110.1	92.6	99.4	92.9	93.7	126.6	100.8
Total Stops	7597	6878	7198	6809	7088	7942	7402
Fuel Used (gal)	244.1	234.3	237.8	232.9	236.2	247.8	242.2

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	4786	4734	4801	4754
Vehs Exited	4772	4665	4749	4724
Starting Vehs	238	213	248	242
Ending Vehs	252	282	300	274
Travel Distance (mi)	6480	6453	6457	6457
Travel Time (hr)	259.1	256.1	272.6	261.9
Total Delay (hr)	99.1	96.7	113.0	102.5
Total Stops	7306	7014	7199	7245
Fuel Used (gal)	240.3	237.4	243.4	239.6

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	4830	4661	4777	4667	4726	4869	4704
Vehs Exited	4802	4659	4719	4644	4715	4835	4687
Starting Vehs	275	235	239	247	259	270	244
Ending Vehs	303	237	297	270	270	304	261
Travel Distance (mi)	6555	6386	6425	6320	6414	6543	6537
Travel Time (hr)	271.9	250.6	257.6	249.1	252.1	287.9	261.7
Total Delay (hr)	110.1	92.6	99.4	92.9	93.7	126.6	100.8
Total Stops	7597	6878	7198	6809	7088	7942	7402
Fuel Used (gal)	244.1	234.3	237.8	232.9	236.2	247.8	242.2

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	4786	4734	4801	4754
Vehs Exited	4772	4665	4749	4724
Starting Vehs	238	213	248	242
Ending Vehs	252	282	300	274
Travel Distance (mi)	6480	6453	6457	6457
Travel Time (hr)	259.1	256.1	272.6	261.9
Total Delay (hr)	99.1	96.7	113.0	102.5
Total Stops	7306	7014	7199	7245
Fuel Used (gal)	240.3	237.4	243.4	239.6

Intersection: 1: US 401 NBL/E Young Street & US 401

Movement	WB	WB	NB	SB	SB
Directions Served	T	T	T	R	R
Maximum Queue (ft)	148	133	146	331	281
Average Queue (ft)	79	53	74	195	126
95th Queue (ft)	132	108	122	286	249
Link Distance (ft)	258	258	299	1088	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					125
Storage Blk Time (%)				27	2
Queuing Penalty (veh)				75	5

Intersection: 2: U-turn North of E Young St & US 401

Movement	WB	WB	NB	NB
Directions Served	T	T	L	L
Maximum Queue (ft)	177	139	108	126
Average Queue (ft)	83	57	90	95
95th Queue (ft)	147	109	104	117
Link Distance (ft)	1136	1136	22	22
Upstream Blk Time (%)			57	58
Queuing Penalty (veh)			170	172
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: US 401 & U-Turn S of E Young Street

Movement	EB	EB	SB
Directions Served	T	T	L
Maximum Queue (ft)	430	544	145
Average Queue (ft)	214	264	121
95th Queue (ft)	374	469	135
Link Distance (ft)	962	962	51
Upstream Blk Time (%)			62
Queuing Penalty (veh)			269
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: E Young Street & The Point North Driveway/Quarry Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LT	R	L	T	R	L	T	R
Maximum Queue (ft)	152	131	86	80	67	270	124	143	362	134
Average Queue (ft)	65	50	29	22	17	142	12	63	124	38
95th Queue (ft)	126	102	67	61	49	242	67	119	250	97
Link Distance (ft)		1223	1776			2084			1354	1354
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	275			260	125		155	545		
Storage Blk Time (%)					0	7				
Queuing Penalty (veh)					0	5				

Intersection: 5: Rolesville High Staff & Bus Driveway & Quarry Road

Movement	WB	NB	NB
Directions Served	LT	L	R
Maximum Queue (ft)	11	41	17
Average Queue (ft)	0	15	3
95th Queue (ft)	5	35	13
Link Distance (ft)	1457	1043	1043
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Rolesville Road/E Young Street & The Point South Driveway/Rolesville High Student & C

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	T	L	TR
Maximum Queue (ft)	53	99	174	40	305	107	134
Average Queue (ft)	14	44	77	4	133	38	37
95th Queue (ft)	42	85	141	26	253	84	103
Link Distance (ft)	1282	1251			2058		2084
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			380	90		285	
Storage Blk Time (%)					12		
Queuing Penalty (veh)					4		

Intersection: 7: Rolesville Road & Merritt Property Southern Driveway/Fowler Road

Movement	EB	WB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	TR	L	T	R
Maximum Queue (ft)	147	120	52	209	107	257	125
Average Queue (ft)	65	46	15	76	33	100	15
95th Queue (ft)	124	99	40	168	82	202	63
Link Distance (ft)	1215	1172		7258		2058	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			100		100		100
Storage Blk Time (%)				3	0	6	0
Queuing Penalty (veh)				1	1	8	0

Intersection: 8: Rolesville Road & Mitchell Mill Road

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	LT	R	LTR	LTR
Maximum Queue (ft)	313	101	44	740	626
Average Queue (ft)	148	30	9	236	234
95th Queue (ft)	251	77	30	688	515
Link Distance (ft)	1364	1033		1031	7258
Upstream Blk Time (%)				5	
Queuing Penalty (veh)				0	
Storage Bay Dist (ft)			325		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 21: US 401 SBL & US 401

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 25: US 401 & US 401 NBL

Movement

Directions Served

Maximum Queue (ft)

Average Queue (ft)

95th Queue (ft)

Link Distance (ft)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (ft)

Storage Blk Time (%)

Queuing Penalty (veh)

Intersection: 101: E Young Street/US 401 SBL & US 401

Movement	EB	EB	NB	NB	SB
Directions Served	T	T	R	R	T
Maximum Queue (ft)	187	174	267	274	196
Average Queue (ft)	113	105	166	167	107
95th Queue (ft)	171	161	247	255	169
Link Distance (ft)	284	284	1354		256
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				600	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 201: US 401 & U-turn North of E Young St

Movement	EB	EB
Directions Served	L	L
Maximum Queue (ft)	141	126
Average Queue (ft)	48	45
95th Queue (ft)	115	98
Link Distance (ft)		
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	395	395
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 301: U-Turn S of E Young Street & US 401

Movement	WB	WB	WB
Directions Served	L	T	T
Maximum Queue (ft)	339	27	18
Average Queue (ft)	152	1	1
95th Queue (ft)	284	20	13
Link Distance (ft)		673	673
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	345		
Storage Blk Time (%)	1		
Queuing Penalty (veh)	3		

Network Summary

Network wide Queuing Penalty: 714

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	5930	5929	5861	6097	5948	6050	5951
Vehs Exited	5850	5798	5678	5855	5667	5823	5722
Starting Vehs	407	378	356	362	359	355	346
Ending Vehs	487	509	539	604	640	582	575
Travel Distance (mi)	7523	7504	7251	7553	7366	7563	7478
Travel Time (hr)	491.9	554.6	551.4	506.7	524.8	517.7	573.4
Total Delay (hr)	284.3	347.9	351.6	299.3	322.1	309.9	367.3
Total Stops	11880	11305	9895	11467	10104	13134	13442
Fuel Used (gal)	317.1	332.7	322.1	322.1	322.5	323.6	332.0

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	6016	5950	5990	5969
Vehs Exited	5825	5794	5780	5780
Starting Vehs	378	371	365	360
Ending Vehs	569	527	575	559
Travel Distance (mi)	7641	7477	7519	7487
Travel Time (hr)	554.1	472.8	523.0	527.0
Total Delay (hr)	344.3	266.2	316.1	320.9
Total Stops	11946	10936	12000	11610
Fuel Used (gal)	333.7	312.8	324.3	324.3

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	5930	5929	5861	6097	5948	6050	5951
Vehs Exited	5850	5798	5678	5855	5667	5823	5722
Starting Vehs	407	378	356	362	359	355	346
Ending Vehs	487	509	539	604	640	582	575
Travel Distance (mi)	7523	7504	7251	7553	7366	7563	7478
Travel Time (hr)	491.9	554.6	551.4	506.7	524.8	517.7	573.4
Total Delay (hr)	284.3	347.9	351.6	299.3	322.1	309.9	367.3
Total Stops	11880	11305	9895	11467	10104	13134	13442
Fuel Used (gal)	317.1	332.7	322.1	322.1	322.5	323.6	332.0

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	6016	5950	5990	5969
Vehs Exited	5825	5794	5780	5780
Starting Vehs	378	371	365	360
Ending Vehs	569	527	575	559
Travel Distance (mi)	7641	7477	7519	7487
Travel Time (hr)	554.1	472.8	523.0	527.0
Total Delay (hr)	344.3	266.2	316.1	320.9
Total Stops	11946	10936	12000	11610
Fuel Used (gal)	333.7	312.8	324.3	324.3

Intersection: 1: US 401 NBL/E Young Street & US 401

Movement	WB	WB	WB	NB	SB	SB
Directions Served	T	T	R	T	R	R
Maximum Queue (ft)	372	373	258	133	399	321
Average Queue (ft)	236	240	105	56	257	210
95th Queue (ft)	344	346	312	110	362	318
Link Distance (ft)	258	258		299	1088	
Upstream Blk Time (%)	4	3	1			
Queuing Penalty (veh)	46	38	0			
Storage Bay Dist (ft)			240			125
Storage Blk Time (%)		5	0		46	15
Queuing Penalty (veh)		25	4		166	54

Intersection: 2: U-turn North of E Young St & US 401

Movement	WB	WB	NB	NB
Directions Served	T	T	L	L
Maximum Queue (ft)	452	421	111	112
Average Queue (ft)	264	225	89	95
95th Queue (ft)	398	364	111	117
Link Distance (ft)	1136	1136	22	22
Upstream Blk Time (%)			58	61
Queuing Penalty (veh)			285	300
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: US 401 & U-Turn S of E Young Street

Movement	EB	EB	SB
Directions Served	T	T	L
Maximum Queue (ft)	226	467	143
Average Queue (ft)	72	215	120
95th Queue (ft)	181	446	135
Link Distance (ft)	962	962	51
Upstream Blk Time (%)		1	54
Queuing Penalty (veh)		0	254
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: E Young Street & The Point North Driveway/Quarry Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LT	R	L	T	R	L	T	R
Maximum Queue (ft)	350	1001	195	255	26	344	193	606	1149	816
Average Queue (ft)	304	536	80	128	5	147	29	374	440	230
95th Queue (ft)	418	1253	173	220	21	290	113	654	1123	990
Link Distance (ft)		1223	551			564			1354	1354
Upstream Blk Time (%)		10				0			0	5
Queuing Penalty (veh)		0				0			3	29
Storage Bay Dist (ft)	275			260	125		155	545		
Storage Blk Time (%)	74	0	1	0		9		1	14	
Queuing Penalty (veh)	50	0	3	0		11		10	46	

Intersection: 5: Rolesville High Staff & Bus Driveway & Quarry Road

Movement	WB	NB	NB
Directions Served	LT	L	R
Maximum Queue (ft)	39	117	51
Average Queue (ft)	3	46	14
95th Queue (ft)	19	84	40
Link Distance (ft)	1457	1043	1043
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Rolesville Road/E Young Street & The Point South Driveway/Rolesville High Student & C

Movement	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	TR
Maximum Queue (ft)	68	185	230	92	1698	410	312	272
Average Queue (ft)	21	99	103	5	1009	224	158	47
95th Queue (ft)	57	165	187	46	2066	560	280	166
Link Distance (ft)	1282	1251			2058			1465
Upstream Blk Time (%)					1			
Queuing Penalty (veh)					10			
Storage Bay Dist (ft)			380	90		360	285	
Storage Blk Time (%)					52	0	1	0
Queuing Penalty (veh)					113	0	7	1

Intersection: 7: Rolesville Road & Merritt Property Southern Driveway/Fowler Road

Movement	EB	WB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	TR	L	T	R
Maximum Queue (ft)	115	236	146	696	178	387	102
Average Queue (ft)	42	99	12	269	47	160	9
95th Queue (ft)	91	191	74	583	120	302	51
Link Distance (ft)	1215	1172		7258		2058	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			100		100		100
Storage Blk Time (%)				19	2	11	
Queuing Penalty (veh)				2	12	11	

Intersection: 8: Rolesville Road & Mitchell Mill Road

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	LT	R	LTR	LTR
Maximum Queue (ft)	241	244	54	895	1263
Average Queue (ft)	124	126	10	411	698
95th Queue (ft)	222	214	33	1017	1349
Link Distance (ft)	1364	1033		1031	7258
Upstream Blk Time (%)				12	
Queuing Penalty (veh)				0	
Storage Bay Dist (ft)			325		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 9: Proposed RIRO/Left-Out Site Driveway & Quarry Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	60
Average Queue (ft)	29
95th Queue (ft)	54
Link Distance (ft)	1068
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 10: Proposed Full Movement Site Driveway & Quarry Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	88	103
Average Queue (ft)	19	50
95th Queue (ft)	61	85
Link Distance (ft)	542	1074
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: E Young Street & Proposed Site Driveway

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	1148	22	590
Average Queue (ft)	965	1	394
95th Queue (ft)	1425	18	702
Link Distance (ft)	1120	1465	564
Upstream Blk Time (%)	64		5
Queuing Penalty (veh)	0		46
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 21: US 401 SBL & US 401

Movement	WB	WB	WB
Directions Served	L	T	T
Maximum Queue (ft)	4	62	84
Average Queue (ft)	0	3	6
95th Queue (ft)	6	34	51
Link Distance (ft)		356	356
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	25		
Storage Blk Time (%)	0	0	
Queuing Penalty (veh)	0	1	

Intersection: 25: US 401 & US 401 NBL

Movement	EB	EB
Directions Served	T	T
Maximum Queue (ft)	152	44
Average Queue (ft)	22	8
95th Queue (ft)	167	56
Link Distance (ft)	375	
Upstream Blk Time (%)	1	
Queuing Penalty (veh)	7	
Storage Bay Dist (ft)		11
Storage Blk Time (%)		2
Queuing Penalty (veh)		7

Intersection: 101: E Young Street/US 401 SBL & US 401

Movement	EB	EB	EB	NB	NB	SB
Directions Served	T	T	R	R	R	T
Maximum Queue (ft)	197	127	159	488	299	207
Average Queue (ft)	96	41	37	244	112	65
95th Queue (ft)	170	93	221	407	228	144
Link Distance (ft)	284	284	284	1354		256
Upstream Blk Time (%)			4			0
Queuing Penalty (veh)			19			1
Storage Bay Dist (ft)					600	
Storage Blk Time (%)				0		
Queuing Penalty (veh)				1		

Intersection: 201: US 401 & U-turn North of E Young St

Movement	EB	EB
Directions Served	L	L
Maximum Queue (ft)	229	246
Average Queue (ft)	97	100
95th Queue (ft)	199	203
Link Distance (ft)		
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	395	395
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 301: U-Turn S of E Young Street & US 401

Movement	WB	WB	WB
Directions Served	L	T	T
Maximum Queue (ft)	313	58	62
Average Queue (ft)	117	2	2
95th Queue (ft)	242	57	61
Link Distance (ft)		673	673
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	345		
Storage Blk Time (%)	0		
Queuing Penalty (veh)	3		

Network Summary

Network wide Queuing Penalty: 1566

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	5194	5306	5273	5222	5273	5295	5219
Vehs Exited	5135	5252	5222	5138	5208	5233	5148
Starting Vehs	293	284	324	304	282	276	282
Ending Vehs	352	338	375	388	347	338	353
Travel Distance (mi)	6940	7072	6955	7028	6812	6894	6956
Travel Time (hr)	364.6	397.4	366.4	390.3	374.1	314.5	317.5
Total Delay (hr)	190.1	219.9	191.4	213.7	202.4	140.7	142.6
Total Stops	9044	8522	8340	9568	8563	8253	8392
Fuel Used (gal)	277.4	288.7	278.7	287.0	276.9	265.9	267.7

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	5338	5212	5226	5255
Vehs Exited	5231	5132	5158	5184
Starting Vehs	274	267	302	283
Ending Vehs	381	347	370	351
Travel Distance (mi)	7108	6799	6787	6935
Travel Time (hr)	384.1	391.1	360.7	366.1
Total Delay (hr)	205.1	219.7	189.3	191.5
Total Stops	9019	8169	8356	8619
Fuel Used (gal)	286.0	281.3	273.6	278.3

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	5194	5306	5273	5222	5273	5295	5219
Vehs Exited	5135	5252	5222	5138	5208	5233	5148
Starting Vehs	293	284	324	304	282	276	282
Ending Vehs	352	338	375	388	347	338	353
Travel Distance (mi)	6940	7072	6955	7028	6812	6894	6956
Travel Time (hr)	364.6	397.4	366.4	390.3	374.1	314.5	317.5
Total Delay (hr)	190.1	219.9	191.4	213.7	202.4	140.7	142.6
Total Stops	9044	8522	8340	9568	8563	8253	8392
Fuel Used (gal)	277.4	288.7	278.7	287.0	276.9	265.9	267.7

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	5338	5212	5226	5255
Vehs Exited	5231	5132	5158	5184
Starting Vehs	274	267	302	283
Ending Vehs	381	347	370	351
Travel Distance (mi)	7108	6799	6787	6935
Travel Time (hr)	384.1	391.1	360.7	366.1
Total Delay (hr)	205.1	219.7	189.3	191.5
Total Stops	9019	8169	8356	8619
Fuel Used (gal)	286.0	281.3	273.6	278.3

Intersection: 1: US 401 NBL/E Young Street & US 401

Movement	WB	WB	WB	NB	SB	SB
Directions Served	T	T	R	T	R	R
Maximum Queue (ft)	230	225	50	165	328	309
Average Queue (ft)	110	89	2	79	208	144
95th Queue (ft)	194	174	35	142	299	266
Link Distance (ft)	258	258		299	1088	
Upstream Blk Time (%)	0	0	0			
Queuing Penalty (veh)	0	0	0			
Storage Bay Dist (ft)			240			125
Storage Blk Time (%)		0	0		28	2
Queuing Penalty (veh)		0	0		87	7

Intersection: 2: U-turn North of E Young St & US 401

Movement	WB	WB	NB	NB
Directions Served	T	T	L	L
Maximum Queue (ft)	230	192	104	118
Average Queue (ft)	117	83	88	92
95th Queue (ft)	197	159	106	117
Link Distance (ft)	1136	1136	22	22
Upstream Blk Time (%)			52	53
Queuing Penalty (veh)			178	180
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: US 401 & U-Turn S of E Young Street

Movement	EB	EB	SB
Directions Served	T	T	L
Maximum Queue (ft)	653	749	146
Average Queue (ft)	285	344	122
95th Queue (ft)	533	647	134
Link Distance (ft)	962	962	51
Upstream Blk Time (%)	0	0	65
Queuing Penalty (veh)	0	0	308
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: E Young Street & The Point North Driveway/Quarry Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LT	R	L	T	R	L	T	R
Maximum Queue (ft)	154	122	124	146	121	347	182	417	976	505
Average Queue (ft)	75	51	53	59	23	156	23	130	239	89
95th Queue (ft)	143	100	105	119	73	280	93	324	651	355
Link Distance (ft)		1223	551			564			1354	1354
Upstream Blk Time (%)										0
Queuing Penalty (veh)										0
Storage Bay Dist (ft)	275			260	125		155	545		
Storage Blk Time (%)					0	10			3	
Queuing Penalty (veh)					3	9			5	

Intersection: 5: Rolesville High Staff & Bus Driveway & Quarry Road

Movement	WB	NB	NB
Directions Served	LT	L	R
Maximum Queue (ft)	10	49	18
Average Queue (ft)	0	14	2
95th Queue (ft)	5	36	10
Link Distance (ft)	1457	1043	1043
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Rolesville Road/E Young Street & The Point South Driveway/Rolesville High Student & C

Movement	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	TR
Maximum Queue (ft)	59	104	160	42	333	41	105	220
Average Queue (ft)	17	42	74	3	144	1	38	66
95th Queue (ft)	47	84	133	24	281	40	83	170
Link Distance (ft)	1282	1251			2058			1465
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			380	90		360	285	
Storage Blk Time (%)					12			0
Queuing Penalty (veh)					4			0

Intersection: 7: Rolesville Road & Merritt Property Southern Driveway/Fowler Road

Movement	EB	WB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	TR	L	T	R
Maximum Queue (ft)	155	128	84	226	147	277	128
Average Queue (ft)	68	49	17	91	38	123	15
95th Queue (ft)	131	98	52	193	92	226	64
Link Distance (ft)	1215	1172		7258		2058	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			100		100		100
Storage Blk Time (%)				5	0	8	0
Queuing Penalty (veh)				2	2	12	0

Intersection: 8: Rolesville Road & Mitchell Mill Road

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	LT	R	LTR	LTR
Maximum Queue (ft)	306	116	41	744	908
Average Queue (ft)	157	35	9	245	404
95th Queue (ft)	256	87	27	663	1037
Link Distance (ft)	1364	1033		1031	7258
Upstream Blk Time (%)				2	
Queuing Penalty (veh)				0	
Storage Bay Dist (ft)			325		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 9: Proposed RIRO/Left-Out Site Driveway & Quarry Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	57
Average Queue (ft)	27
95th Queue (ft)	54
Link Distance (ft)	1068
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 10: Proposed Full Movement Site Driveway & Quarry Road

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	9	51	87
Average Queue (ft)	0	7	42
95th Queue (ft)	6	33	69
Link Distance (ft)	551	542	1074
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: E Young Street & Proposed Site Driveway

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	1154	28	562
Average Queue (ft)	912	2	194
95th Queue (ft)	1448	15	473
Link Distance (ft)	1120	1465	564
Upstream Blk Time (%)	58		1
Queuing Penalty (veh)	0		6
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 21: US 401 SBL & US 401

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 25: US 401 & US 401 NBL

Movement

Directions Served

Maximum Queue (ft)

Average Queue (ft)

95th Queue (ft)

Link Distance (ft)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (ft)

Storage Blk Time (%)

Queuing Penalty (veh)

Intersection: 101: E Young Street/US 401 SBL & US 401

Movement	EB	EB	NB	NB	SB
Directions Served	T	T	R	R	T
Maximum Queue (ft)	247	226	242	248	213
Average Queue (ft)	156	138	164	160	99
95th Queue (ft)	223	204	228	224	183
Link Distance (ft)	284	284	1354		256
Upstream Blk Time (%)	0	0			0
Queuing Penalty (veh)	0	0			0
Storage Bay Dist (ft)			600		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 201: US 401 & U-turn North of E Young St

Movement	EB	EB	EB
Directions Served	L	L	T
Maximum Queue (ft)	150	135	10
Average Queue (ft)	49	41	0
95th Queue (ft)	120	102	10
Link Distance (ft)			645
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	395	395	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 301: U-Turn S of E Young Street & US 401

Movement	WB	WB	WB
Directions Served	L	T	T
Maximum Queue (ft)	410	153	66
Average Queue (ft)	188	14	3
95th Queue (ft)	368	131	68
Link Distance (ft)		673	673
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	345		
Storage Blk Time (%)	4		
Queuing Penalty (veh)	17		

Network Summary

Network wide Queuing Penalty: 822

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	5940	6084	6038	6182	6080	6233	6214
Vehs Exited	5815	6031	5798	6042	5880	6008	5932
Starting Vehs	356	367	358	365	360	367	354
Ending Vehs	481	420	598	505	560	592	636
Travel Distance (mi)	7531	7706	7732	7876	7524	7813	7917
Travel Time (hr)	437.5	401.7	486.9	445.6	495.5	481.1	529.0
Total Delay (hr)	230.1	188.1	273.5	229.2	287.0	265.3	311.0
Total Stops	10305	10753	12428	12069	10700	11281	13874
Fuel Used (gal)	305.2	302.1	320.1	316.7	319.2	324.1	334.6

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	6129	5958	6099	6094
Vehs Exited	5977	5972	5890	5934
Starting Vehs	408	366	380	361
Ending Vehs	560	352	589	527
Travel Distance (mi)	7794	7342	7893	7713
Travel Time (hr)	522.4	380.6	480.5	466.1
Total Delay (hr)	306.1	176.5	263.2	253.0
Total Stops	12797	9533	12456	11620
Fuel Used (gal)	332.5	290.5	322.6	316.8

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	5940	6084	6038	6182	6080	6233	6214
Vehs Exited	5815	6031	5798	6042	5880	6008	5932
Starting Vehs	356	367	358	365	360	367	354
Ending Vehs	481	420	598	505	560	592	636
Travel Distance (mi)	7531	7706	7732	7876	7524	7813	7917
Travel Time (hr)	437.5	401.7	486.9	445.6	495.5	481.1	529.0
Total Delay (hr)	230.1	188.1	273.5	229.2	287.0	265.3	311.0
Total Stops	10305	10753	12428	12069	10700	11281	13874
Fuel Used (gal)	305.2	302.1	320.1	316.7	319.2	324.1	334.6

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	6129	5958	6099	6094
Vehs Exited	5977	5972	5890	5934
Starting Vehs	408	366	380	361
Ending Vehs	560	352	589	527
Travel Distance (mi)	7794	7342	7893	7713
Travel Time (hr)	522.4	380.6	480.5	466.1
Total Delay (hr)	306.1	176.5	263.2	253.0
Total Stops	12797	9533	12456	11620
Fuel Used (gal)	332.5	290.5	322.6	316.8

Intersection: 4: E Young Street & The Point North Driveway/Quarry Road

Movement	EB	EB	WB	WB	NB	NB	NB	NB	B28	SB	SB	SB
Directions Served	LT	R	LT	R	L	T	T	R	T	L	T	R
Maximum Queue (ft)	183	120	180	241	56	290	223	112	85	502	912	597
Average Queue (ft)	92	54	67	121	7	151	105	33	3	251	296	127
95th Queue (ft)	162	102	130	208	35	246	206	82	35	477	839	687
Link Distance (ft)		1224	551			222	222		273		1372	1372
Upstream Blk Time (%)						2	0	0			0	2
Queuing Penalty (veh)						8	1	0			1	10
Storage Bay Dist (ft)	275			260	125			155		545		
Storage Blk Time (%)				0		18	2			0	6	
Queuing Penalty (veh)				0		2	2			0	18	

Intersection: 9: Proposed RIRO/Left-Out Site Driveway & Quarry Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	53
Average Queue (ft)	20
95th Queue (ft)	43
Link Distance (ft)	1048
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 10: Proposed Full Movement Site Driveway & Quarry Road

Movement	EB	WB	NB
Directions Served	T	L	LR
Maximum Queue (ft)	2	50	99
Average Queue (ft)	0	13	41
95th Queue (ft)	3	41	74
Link Distance (ft)	551		1056
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		50	
Storage Blk Time (%)		0	
Queuing Penalty (veh)		1	

Intersection: 11: E Young Street & Proposed Site Driveway

Movement	WB	WB	NB	NB	SB
Directions Served	L	R	T	R	L
Maximum Queue (ft)	357	190	25	9	127
Average Queue (ft)	177	76	2	0	59
95th Queue (ft)	444	208	12	7	111
Link Distance (ft)	1107		1465		
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		150		100	200
Storage Blk Time (%)	30	0			
Queuing Penalty (veh)	30	0			

Zone Summary

Zone wide Queuing Penalty: 74

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	5221	5228	5323	5228	5129	5442	5339
Vehs Exited	5183	5228	5278	5203	5076	5322	5287
Starting Vehs	279	302	289	273	280	282	274
Ending Vehs	317	302	334	298	333	402	326
Travel Distance (mi)	6916	6982	7119	7001	6935	7135	7002
Travel Time (hr)	309.1	352.7	327.6	291.2	288.0	361.9	296.0
Total Delay (hr)	134.2	176.1	148.1	114.5	113.1	181.8	119.6
Total Stops	7891	8292	8439	7872	7467	8569	7819
Fuel Used (gal)	262.7	275.7	275.4	263.1	259.1	281.6	264.2

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	5339	5305	5263	5284
Vehs Exited	5318	5333	5281	5252
Starting Vehs	293	296	326	283
Ending Vehs	314	268	308	314
Travel Distance (mi)	7156	7058	7088	7039
Travel Time (hr)	320.3	299.3	307.7	315.4
Total Delay (hr)	139.7	120.9	129.3	137.7
Total Stops	8601	8186	7924	8105
Fuel Used (gal)	273.3	266.3	269.0	269.0

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	5221	5228	5323	5228	5129	5442	5339
Vehs Exited	5183	5228	5278	5203	5076	5322	5287
Starting Vehs	279	302	289	273	280	282	274
Ending Vehs	317	302	334	298	333	402	326
Travel Distance (mi)	6916	6982	7119	7001	6935	7135	7002
Travel Time (hr)	309.1	352.7	327.6	291.2	288.0	361.9	296.0
Total Delay (hr)	134.2	176.1	148.1	114.5	113.1	181.8	119.6
Total Stops	7891	8292	8439	7872	7467	8569	7819
Fuel Used (gal)	262.7	275.7	275.4	263.1	259.1	281.6	264.2

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	5339	5305	5263	5284
Vehs Exited	5318	5333	5281	5252
Starting Vehs	293	296	326	283
Ending Vehs	314	268	308	314
Travel Distance (mi)	7156	7058	7088	7039
Travel Time (hr)	320.3	299.3	307.7	315.4
Total Delay (hr)	139.7	120.9	129.3	137.7
Total Stops	8601	8186	7924	8105
Fuel Used (gal)	273.3	266.3	269.0	269.0

Intersection: 4: E Young Street & The Point North Driveway/Quarry Road

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	LT	R	L	T	T	R	L	T	R
Maximum Queue (ft)	134	115	122	152	100	197	190	79	299	738	301
Average Queue (ft)	70	51	52	65	33	97	77	16	106	197	61
95th Queue (ft)	120	99	99	123	78	161	144	52	205	437	204
Link Distance (ft)		1224	551			222	222			1372	1372
Upstream Blk Time (%)					0	0	0	0			0
Queuing Penalty (veh)					0	0	0	0			0
Storage Bay Dist (ft)	275			260	125			155	545		
Storage Blk Time (%)						3	0			0	
Queuing Penalty (veh)						1	0			1	

Intersection: 9: Proposed RIRO/Left-Out Site Driveway & Quarry Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	63
Average Queue (ft)	20
95th Queue (ft)	44
Link Distance (ft)	1048
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 10: Proposed Full Movement Site Driveway & Quarry Road

Movement	EB	WB	NB
Directions Served	R	L	LR
Maximum Queue (ft)	6	33	72
Average Queue (ft)	0	5	35
95th Queue (ft)	5	23	59
Link Distance (ft)			1056
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	125	50	
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Intersection: 11: E Young Street & Proposed Site Driveway

Movement	WB	WB	NB	SB
Directions Served	L	R	R	L
Maximum Queue (ft)	580	233	18	82
Average Queue (ft)	275	93	1	32
95th Queue (ft)	724	261	10	64
Link Distance (ft)	1107			
Upstream Blk Time (%)	2			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)		150	100	200
Storage Blk Time (%)	49	0		
Queuing Penalty (veh)	43	0		

Zone Summary

Zone wide Queuing Penalty: 45

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	6062	6003	6028	6089	5968	6020	5900
Vehs Exited	5879	5735	5924	5911	5823	5821	5780
Starting Vehs	357	350	356	374	345	371	384
Ending Vehs	540	618	460	552	490	570	504
Travel Distance (mi)	7785	7552	7563	7662	7685	7596	7636
Travel Time (hr)	475.3	499.4	442.2	485.8	448.5	501.0	494.0
Total Delay (hr)	261.0	290.7	232.9	273.6	236.1	291.2	282.4
Total Stops	12344	10539	10526	11879	11745	11231	11331
Fuel Used (gal)	317.7	319.3	308.1	319.8	310.0	322.6	320.6

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	6097	6008	6251	6038
Vehs Exited	5936	5870	6042	5873
Starting Vehs	351	366	378	359
Ending Vehs	512	504	587	530
Travel Distance (mi)	7844	7621	7922	7687
Travel Time (hr)	434.5	437.8	506.6	472.5
Total Delay (hr)	217.0	228.2	288.7	260.2
Total Stops	11879	10367	12227	11404
Fuel Used (gal)	313.2	308.4	331.4	317.1

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	6062	6003	6028	6089	5968	6020	5900
Vehs Exited	5879	5735	5924	5911	5823	5821	5780
Starting Vehs	357	350	356	374	345	371	384
Ending Vehs	540	618	460	552	490	570	504
Travel Distance (mi)	7785	7552	7563	7662	7685	7596	7636
Travel Time (hr)	475.3	499.4	442.2	485.8	448.5	501.0	494.0
Total Delay (hr)	261.0	290.7	232.9	273.6	236.1	291.2	282.4
Total Stops	12344	10539	10526	11879	11745	11231	11331
Fuel Used (gal)	317.7	319.3	308.1	319.8	310.0	322.6	320.6

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	6097	6008	6251	6038
Vehs Exited	5936	5870	6042	5873
Starting Vehs	351	366	378	359
Ending Vehs	512	504	587	530
Travel Distance (mi)	7844	7621	7922	7687
Travel Time (hr)	434.5	437.8	506.6	472.5
Total Delay (hr)	217.0	228.2	288.7	260.2
Total Stops	11879	10367	12227	11404
Fuel Used (gal)	313.2	308.4	331.4	317.1

Intersection: 4: E Young Street & The Point North Driveway/Quarry Road

Movement	EB	EB	WB	WB	NB	NB	NB	NB	B28	SB	SB	SB
Directions Served	LT	R	LT	R	L	T	T	R	T	L	T	R
Maximum Queue (ft)	174	108	203	231	72	304	229	180	219	513	886	675
Average Queue (ft)	85	53	105	118	7	186	137	46	21	237	254	68
95th Queue (ft)	148	95	179	197	42	293	248	121	124	422	644	385
Link Distance (ft)		1224	551			222	222		273		1372	1372
Upstream Blk Time (%)						6	1	0	0			
Queuing Penalty (veh)						32	3	0	3			
Storage Bay Dist (ft)	275			260	125			155		545		
Storage Blk Time (%)			0	0		30	6	0		0	3	
Queuing Penalty (veh)			0	0		3	6	1		0	9	

Intersection: 9: Proposed RIRO/Left-Out Site Driveway & Quarry Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	56
Average Queue (ft)	21
95th Queue (ft)	42
Link Distance (ft)	1048
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 10: Proposed Full Movement Site Driveway & Quarry Road

Movement	EB	WB	NB
Directions Served	T	L	LR
Maximum Queue (ft)	2	50	155
Average Queue (ft)	0	12	54
95th Queue (ft)	2	41	112
Link Distance (ft)	551		1056
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		50	
Storage Blk Time (%)		0	
Queuing Penalty (veh)		1	

Intersection: 11: E Young Street & Proposed Site Driveway

Movement	WB	WB	NB	SB
Directions Served	L	R	T	L
Maximum Queue (ft)	149	102	46	116
Average Queue (ft)	52	41	2	54
95th Queue (ft)	119	81	24	101
Link Distance (ft)	1107		1465	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		150		200
Storage Blk Time (%)	2		0	
Queuing Penalty (veh)	2		0	

Zone Summary

Zone wide Queuing Penalty: 62

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	5123	5275	5302	5363	5160	5337	5269
Vehs Exited	5114	5233	5299	5258	5120	5297	5225
Starting Vehs	287	263	286	303	263	280	297
Ending Vehs	296	305	289	408	303	320	341
Travel Distance (mi)	6950	6952	7186	7112	6948	7161	7126
Travel Time (hr)	286.0	294.4	307.1	345.6	301.0	307.5	313.7
Total Delay (hr)	109.2	118.0	125.0	164.7	124.6	125.1	132.5
Total Stops	7458	8006	8507	8538	7856	8448	8348
Fuel Used (gal)	257.8	263.8	272.3	279.3	263.0	271.7	272.3

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	5221	5313	5326	5267
Vehs Exited	5217	5277	5286	5231
Starting Vehs	273	296	291	283
Ending Vehs	277	332	331	315
Travel Distance (mi)	6978	6910	7035	7036
Travel Time (hr)	293.7	300.9	330.2	308.0
Total Delay (hr)	115.3	124.4	150.6	128.9
Total Stops	7964	8052	8384	8155
Fuel Used (gal)	262.5	263.9	271.7	267.8

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	5123	5275	5302	5363	5160	5337	5269
Vehs Exited	5114	5233	5299	5258	5120	5297	5225
Starting Vehs	287	263	286	303	263	280	297
Ending Vehs	296	305	289	408	303	320	341
Travel Distance (mi)	6950	6952	7186	7112	6948	7161	7126
Travel Time (hr)	286.0	294.4	307.1	345.6	301.0	307.5	313.7
Total Delay (hr)	109.2	118.0	125.0	164.7	124.6	125.1	132.5
Total Stops	7458	8006	8507	8538	7856	8448	8348
Fuel Used (gal)	257.8	263.8	272.3	279.3	263.0	271.7	272.3

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	5221	5313	5326	5267
Vehs Exited	5217	5277	5286	5231
Starting Vehs	273	296	291	283
Ending Vehs	277	332	331	315
Travel Distance (mi)	6978	6910	7035	7036
Travel Time (hr)	293.7	300.9	330.2	308.0
Total Delay (hr)	115.3	124.4	150.6	128.9
Total Stops	7964	8052	8384	8155
Fuel Used (gal)	262.5	263.9	271.7	267.8

Intersection: 4: E Young Street & The Point North Driveway/Quarry Road

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	LT	R	L	T	T	R	L	T	R
Maximum Queue (ft)	134	118	149	141	83	196	180	80	227	501	176
Average Queue (ft)	66	55	66	62	32	109	95	20	96	201	54
95th Queue (ft)	118	101	123	119	74	178	165	57	179	375	131
Link Distance (ft)		1224	551			222	222			1372	1372
Upstream Blk Time (%)						0	0				
Queuing Penalty (veh)						0	0				
Storage Bay Dist (ft)	275			260	125			155	545		
Storage Blk Time (%)					0	4	1			0	
Queuing Penalty (veh)					1	1	1			0	

Intersection: 9: Proposed RIRO/Left-Out Site Driveway & Quarry Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	56
Average Queue (ft)	19
95th Queue (ft)	40
Link Distance (ft)	1048
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 10: Proposed Full Movement Site Driveway & Quarry Road

Movement	EB	WB	NB
Directions Served	R	L	LR
Maximum Queue (ft)	7	33	85
Average Queue (ft)	0	6	37
95th Queue (ft)	4	24	65
Link Distance (ft)			1056
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	125	50	
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Intersection: 11: E Young Street & Proposed Site Driveway

Movement	WB	WB	NB	SB
Directions Served	L	R	R	L
Maximum Queue (ft)	213	151	25	94
Average Queue (ft)	97	39	2	34
95th Queue (ft)	197	111	15	72
Link Distance (ft)	1107			
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		150	100	200
Storage Blk Time (%)	13			
Queuing Penalty (veh)	12			

Zone Summary

Zone wide Queuing Penalty: 15