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May 11, 2021

Mr. Jason Brenner
Assistant Engineer
New York State Department of Transportation
Traffic & Safety Group
4 Burnett Boulevard
Poughkeepsie, NY 12603

SEQRA # 20-004 Gasland Route 9D
Town of Wappinger, New York
Colliers Engineering & Design Project No. 19005554A

Dear Mr. Brenner:

The following items are in response to comments in your letter dated April 30, 2021. The items are numbered according to your review comments.

1. The intersection of Route 9D and New Hamburg Road/Old Hopewell Road (CR28) suffers poor LOS and long queues on all approaches throughout much of the day, particularly during peak hour periods. As traffic continues to grow, the State will be forced to dedicate additional green time to the Route 9D through traffic and the overall intersection LOS will continue to deteriorate. Additional NB left turns generated by the gas station, and pedestrian phase(s) added at the signal, will contribute to further operational deterioration. Given the existing building constraints on the other three corners of the intersection, the only operational improvement which appears to be feasible would be to shift the New Hamburg Road leg of the intersection to the northeast. This would allow the County Road through movements to operate concurrently and provide some significant operational improvement. The only mitigation available at this intersection is an operational mitigation to maintain or improve the LOS, already at service level D. The other three legs of the intersection may be limited for improvements due to possibility the homes are listed as historic buildings. **For these concerns, the NYSDOT strongly recommends that the proposed gas station building be located further from New Hamburg Road and that an additional property on the northern New Hamburg Road frontage be dedicated to Dutchess County for future intersection realignment.**

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Response: The site plan has been revised to shift the building further north, away from the New Hamburg Road intersection to allow additional widening along the site frontage on New Hamburg Road to provide a separate eastbound left turn lane. The attached plan shows additional widening to provide a better aligned intersection of the County Road approaches which will allow the left turn movements to operate concurrently as requested. The sidewalk and other features have also been shifted. The capacity analysis has also been updated to reflect the modified signal operation allowing the concurrent left turn phase, which results in reduced queues and reduced vehicle delays to mitigate any increased volumes from the project and help improve overall traffic operations (see Attachment A). Vehicle turning tracks for the left turn maneuvers are also included.

The Applicant will coordinate the final design details of these improvements as part of the Highway Work Permit process with NYSDOT and the Dutchess County DPW. Note that if a crosswalk is desired by the Department across the New Hamburg Road approach leg, this realignment would also provide an area for a landing area. This will be coordinated as part of the Highway Work Permit process.

2. Please show on the plans the proposed location of existing right of way (ROW) vs the proposed ROW for the land donation for the sidewalk.

Response: The attached intersection plan clearly labels the existing and proposed right of way lines for the land donation to accommodate the sidewalk and other improvements.

3. Additionally, the highway boundary along CR28 will need to be shown clearly on the plans and verified by a licensed surveyor. CR28 may have been constructed as a turnpike with the 66ft ROW requirement.

Response: The proposed highway boundary along CR 28 has also been shifted further to the north to increase the lands being dedicated to the County to accommodate the additional road widening and the new sidewalk. The final intersection and site construction plans will include the verified survey information, which is being prepared by Chazen, the project surveyor.

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4. The proposed stone wall on the intersection corner and at the seating area should be eliminated.

   Response: The stone wall at the corner has been moved onto the property on the site plan. This is a retaining wall to accommodate the grade change involved with the site and to accommodate the proposed widening. The seating area adjacent to the building has been shifted west and is at a higher elevation and will have appropriate fall protection measures due to the location of the retaining wall. The other seating area shown along Route 9D which has been moved further north of the intersection was requested by the Town of Wappinger and their planning consultant, as well as Dutchess County Planning, to accommodate a potential bus stop area. This will be provided subject to NYSDOT approval.

5. Exit driveway width should be reduced to 16 to 18 ft.

   Response: The right turn exit driveway has been reduced in width and now reflects the recommended 16 to 18 foot width.

6. Cast in Place Curb detail should have a minimum width of 7 in as shown on detail 12 on page C530. Please review standard sheet https://www.dot.ny.gov/main/business-center/engineering/cadd-info/drawings/standard-sheets-us-repository/609-03_010809_e1.pdf

   Response: The cast in place curb detail will be shown on the final construction plans consistent with NYSDOT specifications.

7. Pedestrian curb ramps need to mark with NYSDOT standard curb ramps.

   Response: The pedestrian curb ramps will include NYSDOT standard curb ramps and will be detailed on the permit construction drawings.

8. LS crosswalk does not match NYSDOT standard sheet 685-1, please update to our standard crosswalk detail. https://www.dot.ny.gov/main/business-center/engineering/cadd-info/drawings/standard-sheets-us-repository/685-01_210501.pdf

   Response: Comment noted. The construction plans will include the crosswalk detail if the crosswalk is required by NYSDOT. It has been revised conceptually on the attached plan.

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9. If we do have a crosswalk crossing New Hamburg Road, then we will need Pedestrians timing and pedestrians signal heads.

   Response: As shown on the concept plan, if the Department requires a crosswalk across New Hamburg Road, a landing area could be developed on the southwest corner as a result of the realignment. If required, pedestrian signals will be included as part of the final construction plans at the direction of the Department.

10. Confirm that an appropriate landing area exists at the south side of the proposed crosswalk.

    Response: If the crosswalk is needed, the landing area will be provided in the bump-out area shown on the southwest corner with the new curb line associated with the widening and realignment of New Hamburg Road.

11. Planting within the median should be limited to plants below 2ft from the top of pavement so it will not affect drivers site distance. Preferable no plants should be plant in the median.

    Response: Comment noted. Any plantings will be low in height to provide maximum sight distance. These plantings will be specified on the final landscape plan. The median on Route 9D driveway will not include any plantings.

12. NTSDOT approved items will need to be labeled.

    Response: NYSDOT approved items will be labeled on the final construction plans.

13. Signal equipment improvements are still being discussed and will be determined during the highway work permit process.

    Response: The Applicant will provide the necessary traffic signal hardware and software upgrades as directed by the Department and these will be included in the final permit plans once the proposed intersection alignment has been conceptually approved.

14. When working within 300 ft of a traffic signal: All pullboxes, conduits, and traffic signal equipment must be shown on the plans. Plans shall adhere to requirements for the design and construction of underground utility installations within the state highway right-of way (Blue Book), section 2.03.01.

    Response: A note will be added to the construction plans referencing the protection of all underground utilities relative to the traffic signal equipment as per Section 2.03.01.

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15. Maintaining Traffic Signal Note: Contractor shall adhere to the NYSDOT Standard Specifications Section 619. Per 619-3.17; Maintain or Modify Traffic Signal Equipment, Contractor shall provide a traffic signal repair personnel and telephone number to the Engineer. Additionally, the contractor is required to provide the name and contact information five (5) working days prior to beginning work within 300ft of an existing traffic signal. Work shall not commence until the Engineer has been give the contact information. All requirements under 619 regarding Maintaining or Modify Traffic Signal Equipment and if necessary, Temporary Traffic Signal shall apply to this project.

    Response: The note regarding maintaining the traffic signal will be included on the signal redesign plan which will be included as part of the permit plans once the conceptual improvement plan has been approved by NYSDOT.

Sincerely,

Colliers Engineering & Design CT, P.C.

Philip Grealy, Ph.D., P.E.
Geographic Discipline Leader

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GASLAND NYS ROUTE 9D

ATTATCHMENT A

- UPDATED CONCEPT PLAN

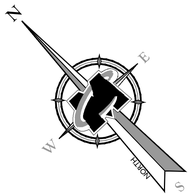
- UPDATED TRIP GENERATION TABLE

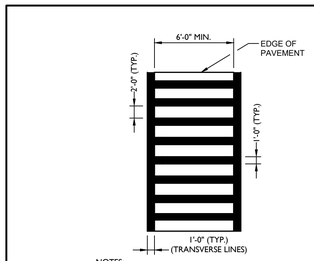
- UPDATED FIGURES

- UPDATED LOS TABLES

- UPDATED SYNCHRO ANALYSIS HCM RESULTS

+ WEEKDAY PEAK PM ANALYSIS W/ LEFT TURN EXIT RESTRICTION (4:00 PM – 6:00 PM)





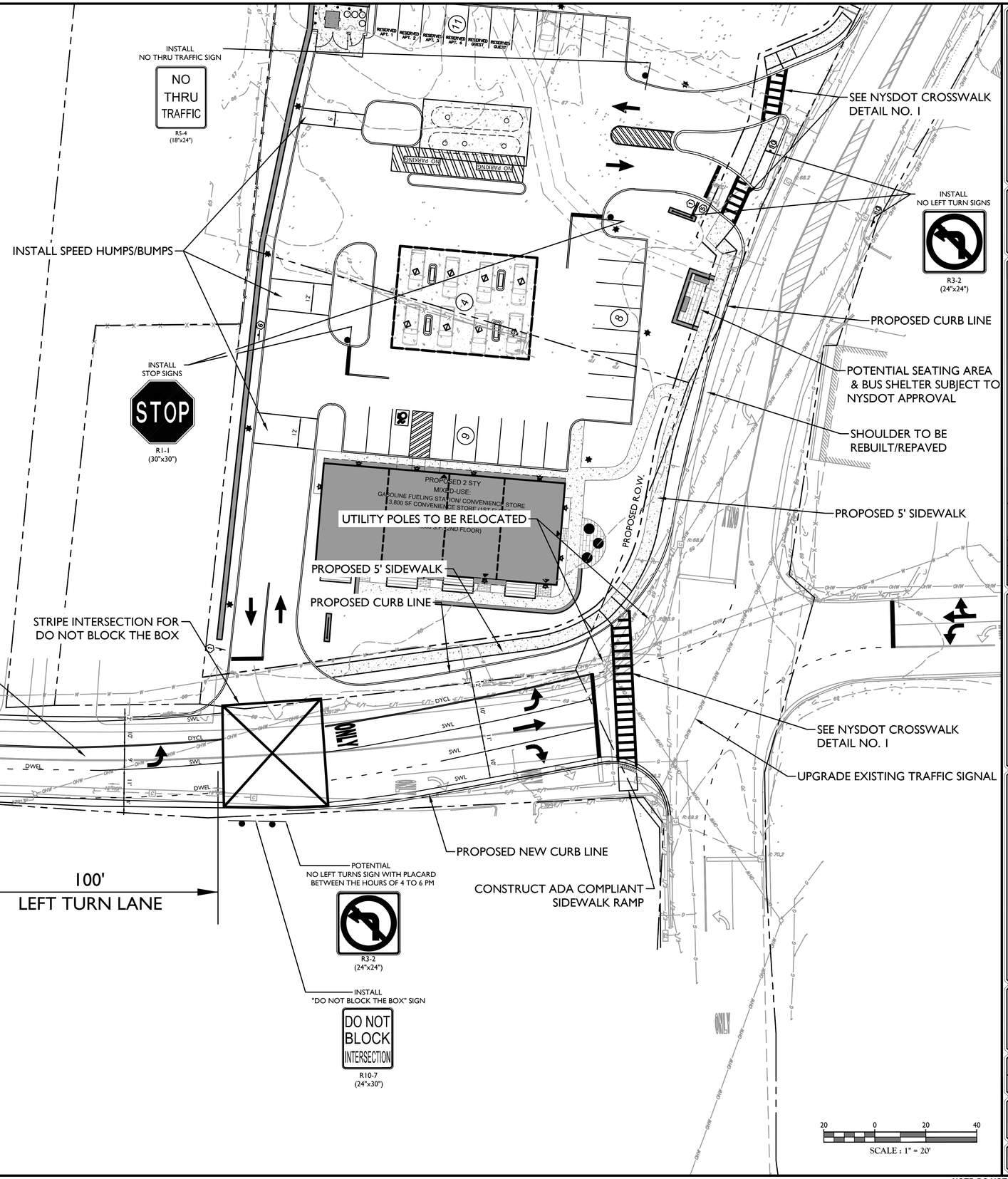
NOTES:

1. ALL CROSSWALK MARKINGS SHALL BE WHITE.
2. TYPE "LS" CROSSWALKS SHALL HAVE THE LONGITUDINAL LINES PARALLEL TO THE LANE LINES.

PER NYSDOT STANDARD SHEET 685-01 (SHEET 2 OF 9)

1 COMBINED TYPE 'LS' CROSSWALK

NOT TO SCALE GNRL-DTLS-STND-GRID 05/02/13



STRIPING NOTES:

1. ALL SIGNS SHALL BE MOUNTED IN ACCORDANCE WITH THE MUTCD.
2. TRAFFIC SIGN SUPPORTS SHALL BE TYPE "A" AND FROM THE STATE APPROVED LIST.
3. THE REMOVAL OF EXISTING PAVEMENT MARKINGS WILL BE UNDER THE FOLLOWING ITEMS:

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   635.0203 - CLEANING AND PREPARATION OF PAVEMENT SURFACE LETTERS (EA)
   635.0303 - CLEANING AND PREPARATION OF PAVEMENT SURFACE SYMBOLS (EA)

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7. SEE STRIPING DETAILS ON SHEET XX OF XX

STRIPING LEGEND:

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FOR

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2357-2365 NYS ROUTE 9D

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DUTCHESS COUNTY
NEW YORK

WESTCHESTER OFFICE
400 Columbus Avenue
Suite 180E
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Phone: 914.347.7500
Fax: 914.347.7266

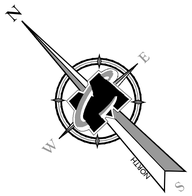
SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	1/14/2021	J.F.M.	P.J.G.

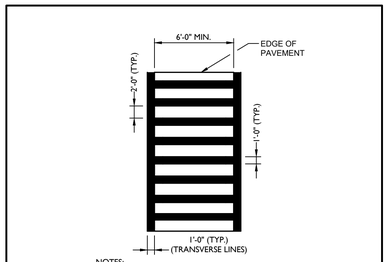
PROJECT NUMBER: 19005554A
DRAWING NAME: R-CNPT-ALT 2

SHEET TITLE: CONCEPT PLAN

SHEET NUMBER: 1 of 1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.





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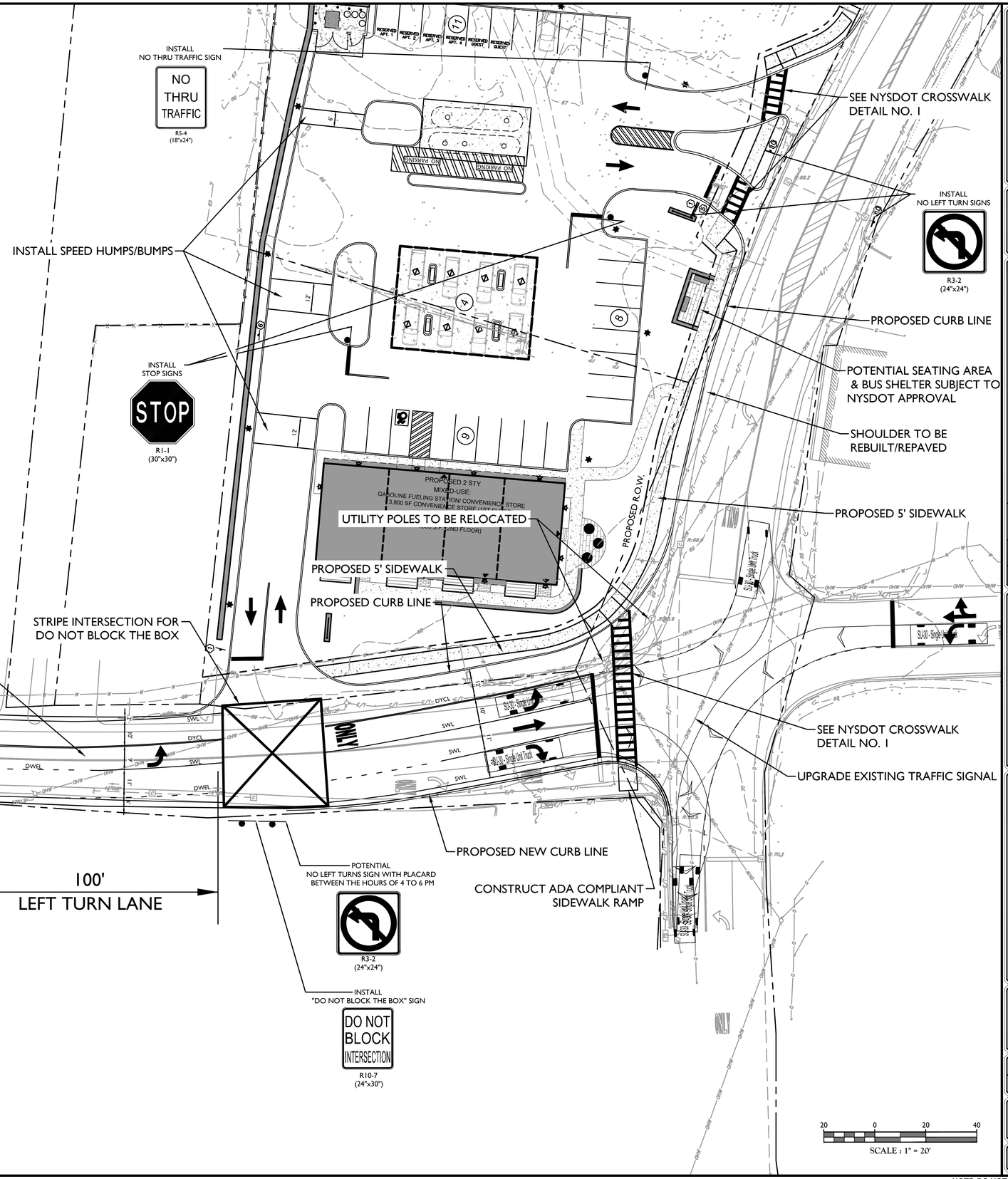

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Fax: 914.347.7266

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	11/4/2021	J.F.M.	P.J.G.

PROJECT NUMBER: 19005554A
DRAWING NAME: R-CNPT-ALT 2

SHEET TITLE: TT-SUT30

SHEET NUMBER: 1 of 2

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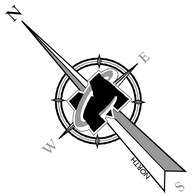

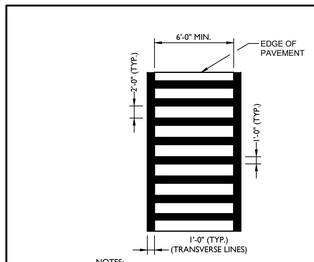

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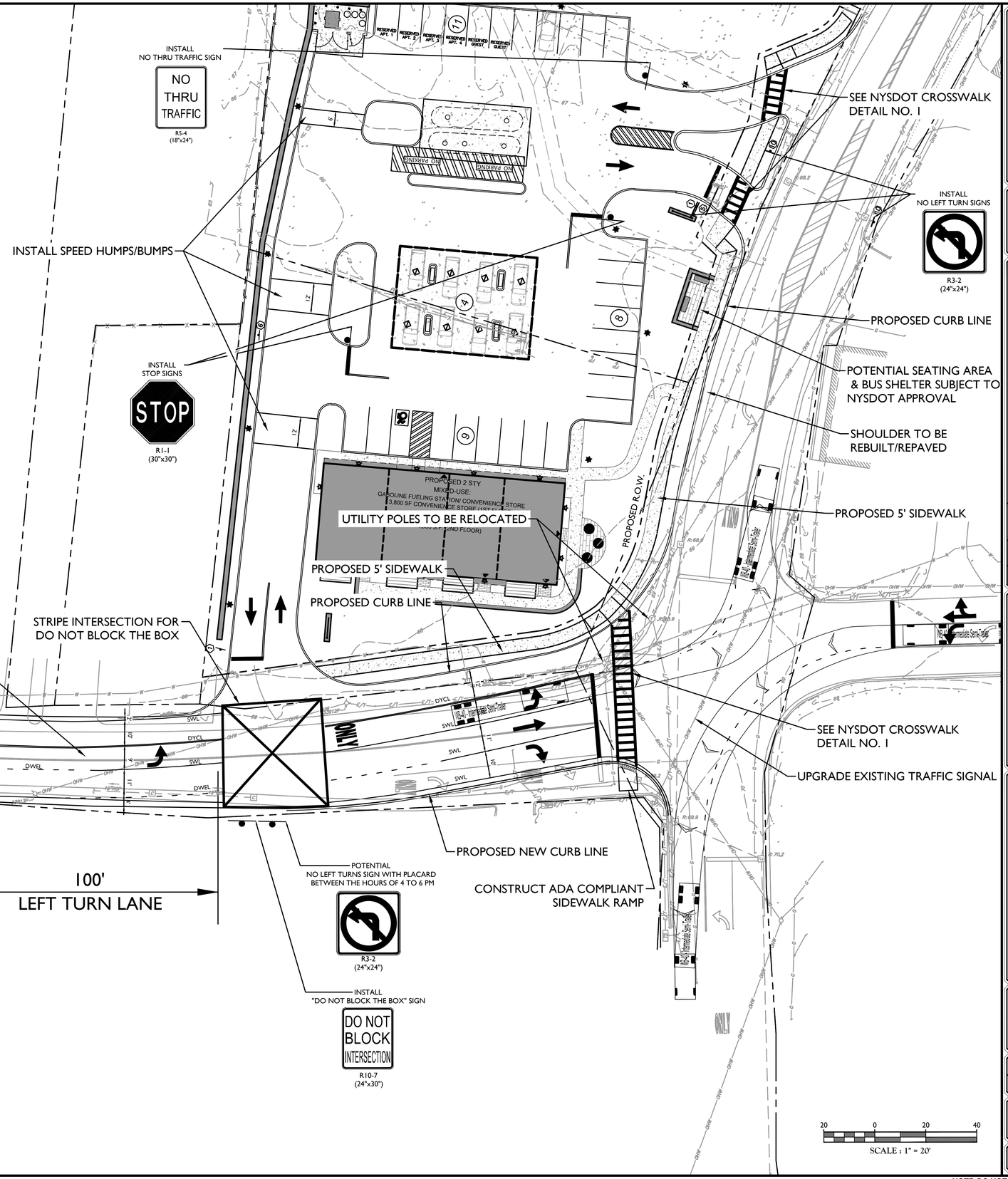

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AS SHOWN	11/4/2021	J.F.M.	P.J.G.

PROJECT NUMBER: 19005554A
DRAWING NAME: R-CNPT-ALT 2

SHEET TITLE: TT-WB40

SHEET NUMBER: 2 of 2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

2019\19005554A\Transportation\Concept\R-CNPT-ALT 2.dwg\WB-40 By: JNUCCIN

TABLE 1-R

HOURLY TRIP GENERATION RATES (HTGR) AND ANTICIPATED SITE GENERATED TRAFFIC VOLUMES

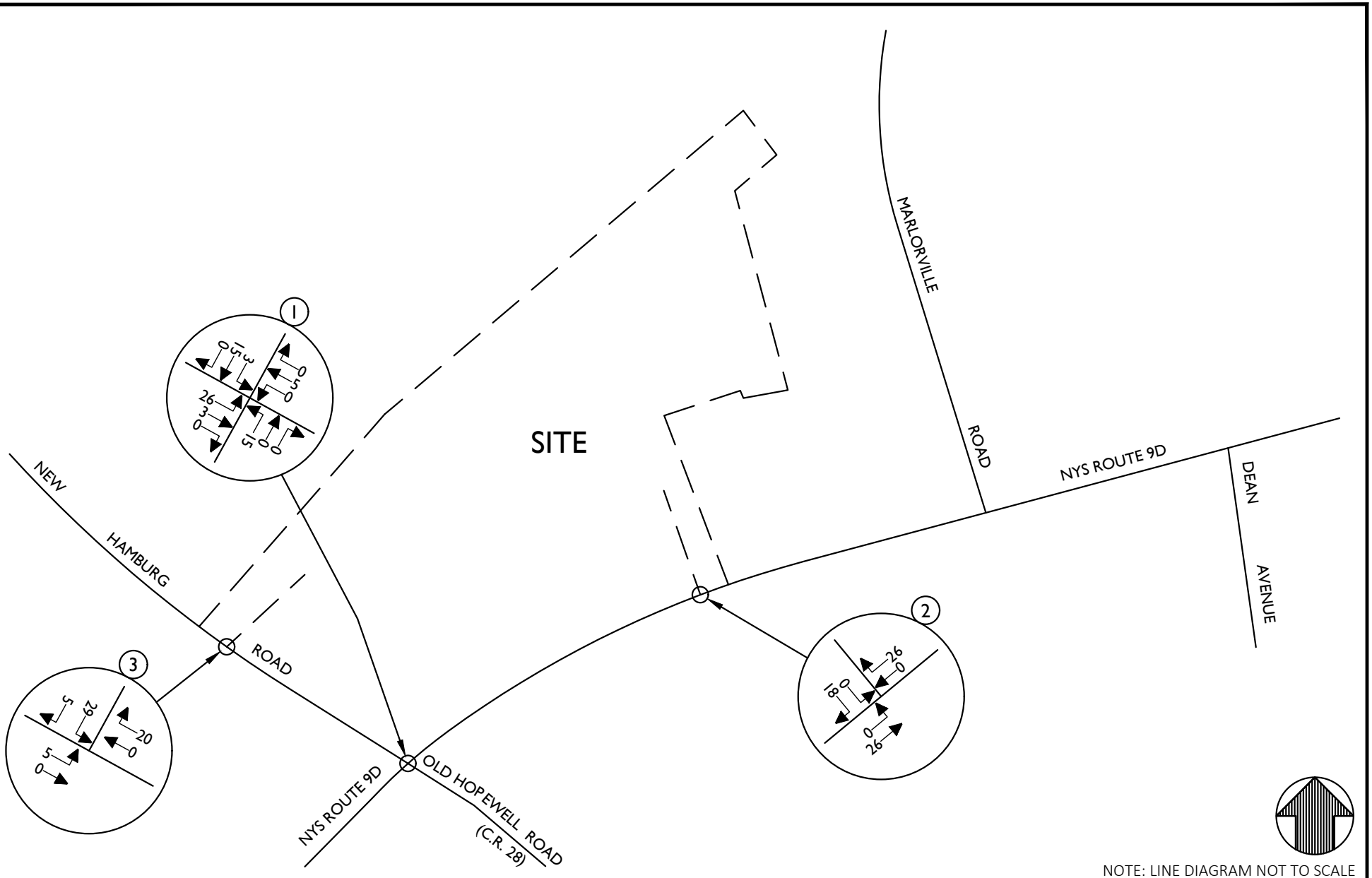
REVISED DEVELOPMENT PLAN

GASLAND NYS ROUTE 9D TOWN OF WAPPINGERS, NY	ENTRY			EXIT		
	HTGR*	VOLUME	NEW TRIPS	HTGR*	VOLUME	NEW TRIPS
CONVENIENCE MARKET with GASOLINE PUMPS (8 FUELING POSITIONS)						
PEAK AM HOUR	10.38	83	50	10.38	83	50
PEAK PM HOUR	12.13	97	58	12.13	97	58
APARTMENT (4 DWELLING UNITS)						
PEAK AM HOUR	0.25	1	1	0.50	2	2
PEAK PM HOUR	0.50	2	2	0.50	2	2
TOTAL		VOLUME			VOLUME	
PEAK AM HOUR	-	-	51	-	-	52
PEAK PM HOUR	-	-	60	-	-	60

NOTES:

1) * HTGR-HOURLY TRIP GENERATION RATES EXPRESSED IN TERMS OF TRIPS PER FUELING POSITION FOR LAND USE - 853 CONVENIENCE MARKET WITH GASOLINE PUMPS,AND PER DWELLING UNIT FOR LAND USE 220 - MULTIFAMILY HOUSING BASED ON THE INSTITUTE OF TRANSPORTATION ENGINEERS (ITE) PUBLICATION ENTITLED "TRIP GENERATION", 10TH EDITION, 2017.

2) NEW TRIPS INCLUDE A PASS-BY CREDIT OF 40% FOR GAS / CONVENIENCE USE.
IT SHOULD BE NOTED THAT THIS IS CONSERVATIVE SINCE DATA PUBLISHED BY ITE INDICATES THAT FOR THIS TYPE OF FACILITY, THE MAJORITY OF TRIPS (TYPICALLY IN EXCESS OF 75% OR MORE ARE ATTRACTED AS "PASS-BY OR DIVERTED LINK TRIPS" AND ARE NOT NEW TO THE SYSTEM



NOTE: LINE DIAGRAM NOT TO SCALE

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- Norfolk, VA
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REV	DATE	DRAWN BY	DESCRIPTION
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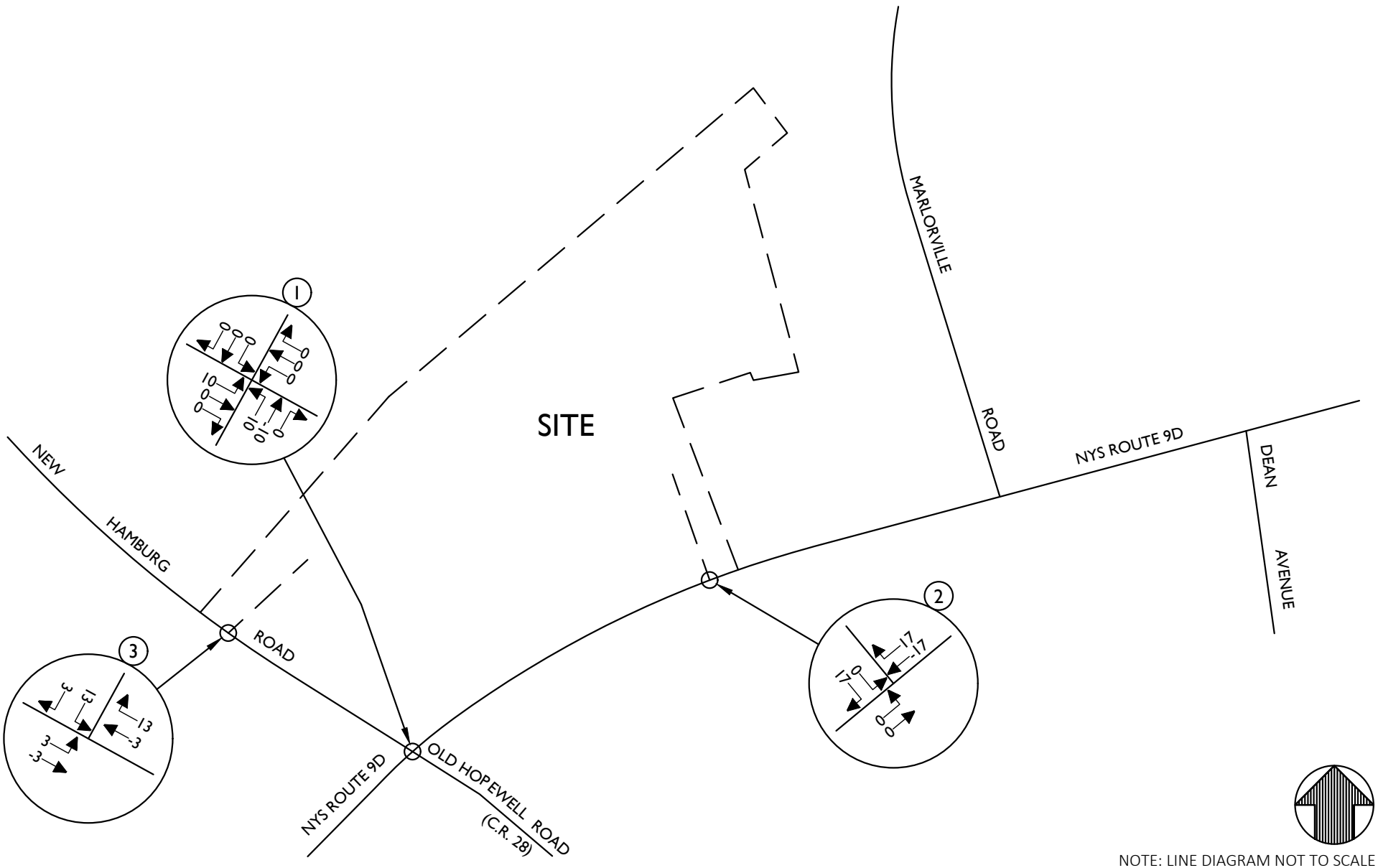
TRAFFIC IMPACT STUDY

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	5/08/2021	R.H.	P.J.G.

PROJECT NUMBER: 19005554A
DRAWING NAME: 210506RH_FIGURE

SHEET TITLE:
"NEW" SITE GENERATED
TRAFFIC VOLUMES
WEEKDAY PEAK AM HOUR

SHEET NUMBER:
12



NOTE: LINE DIAGRAM NOT TO SCALE

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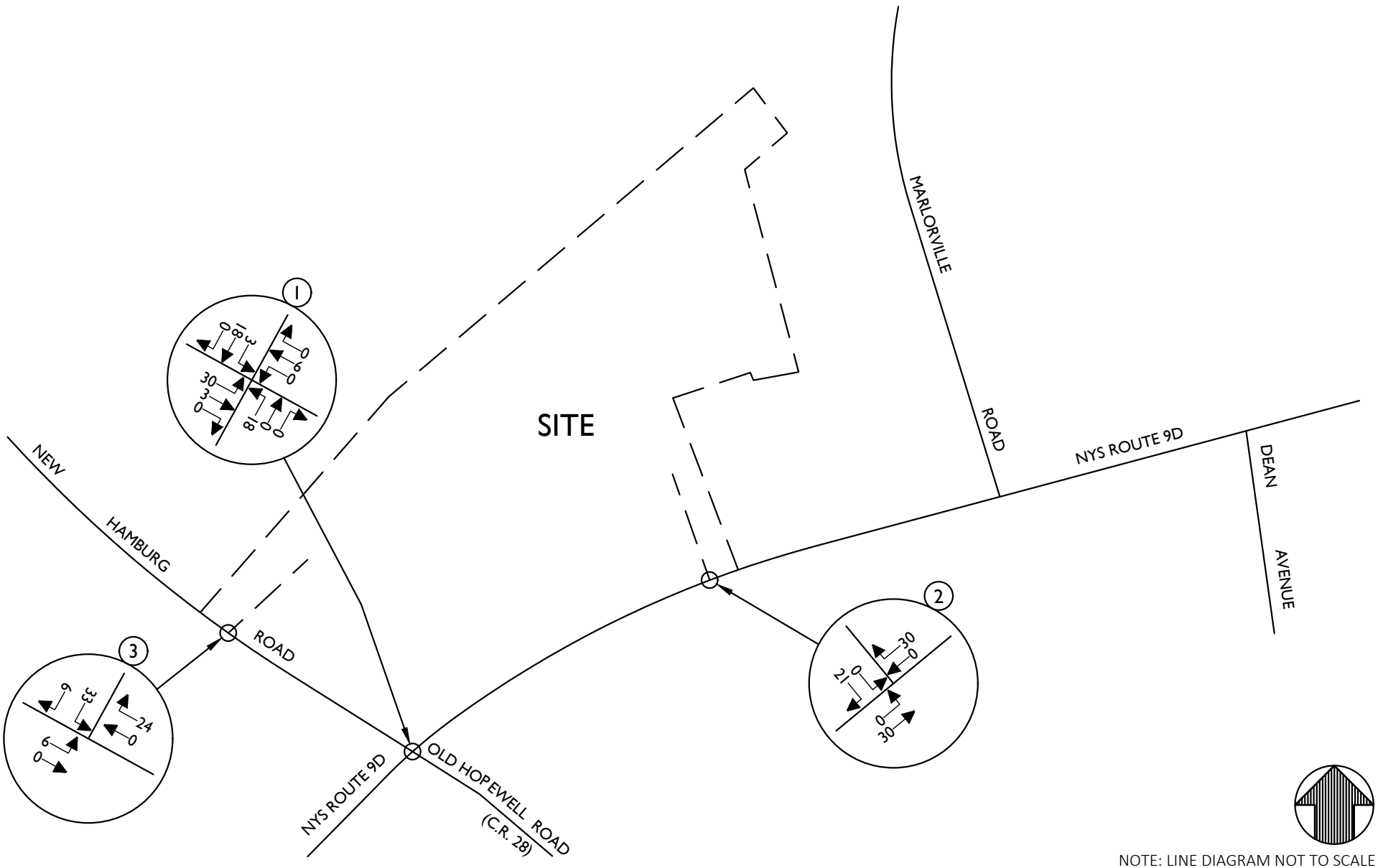
SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	5/08/2021	R.H.	P.J.G.

PROJECT NUMBER:	DRAWING NAME:
19005554A	210506RH_FIGURE

SHEET TITLE:
"PASS-BY" TRIPS
WEEKDAY PEAK AM HOUR

SHEET NUMBER:
12A



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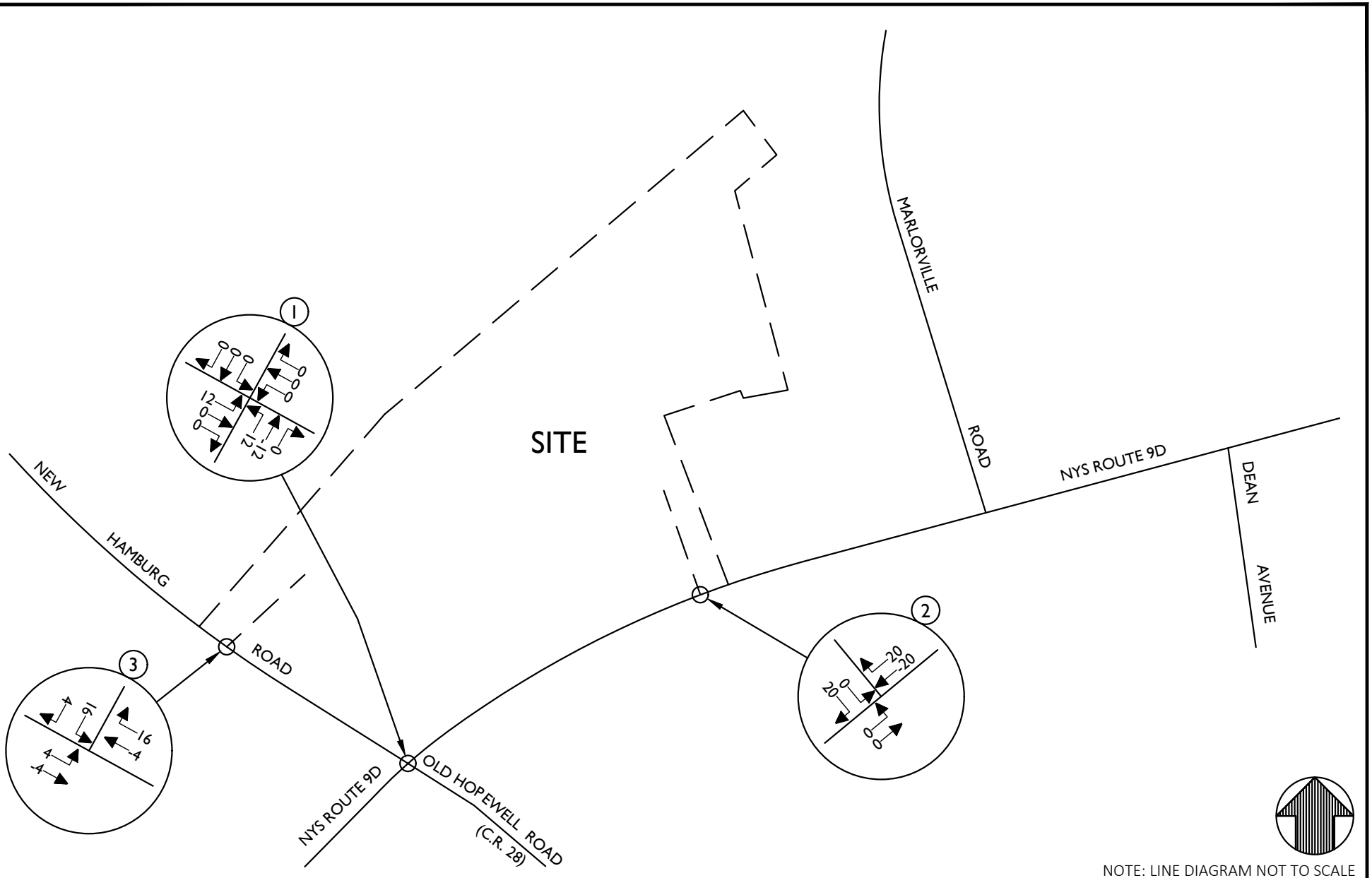
PROJECT NUMBER: 19005554A
DRAWING NAME: 210506RH_FIGURE

SHEET TITLE:
"NEW" SITE GENERATED
TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR

SHEET NUMBER:
13



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PROJECT NUMBER:	DRAWING NAME:
19005554A	210506RH_FIGURE

SHEET TITLE:
"PASS-BY" TRIPS
WEEKDAY PEAK PM HOUR

SHEET NUMBER:
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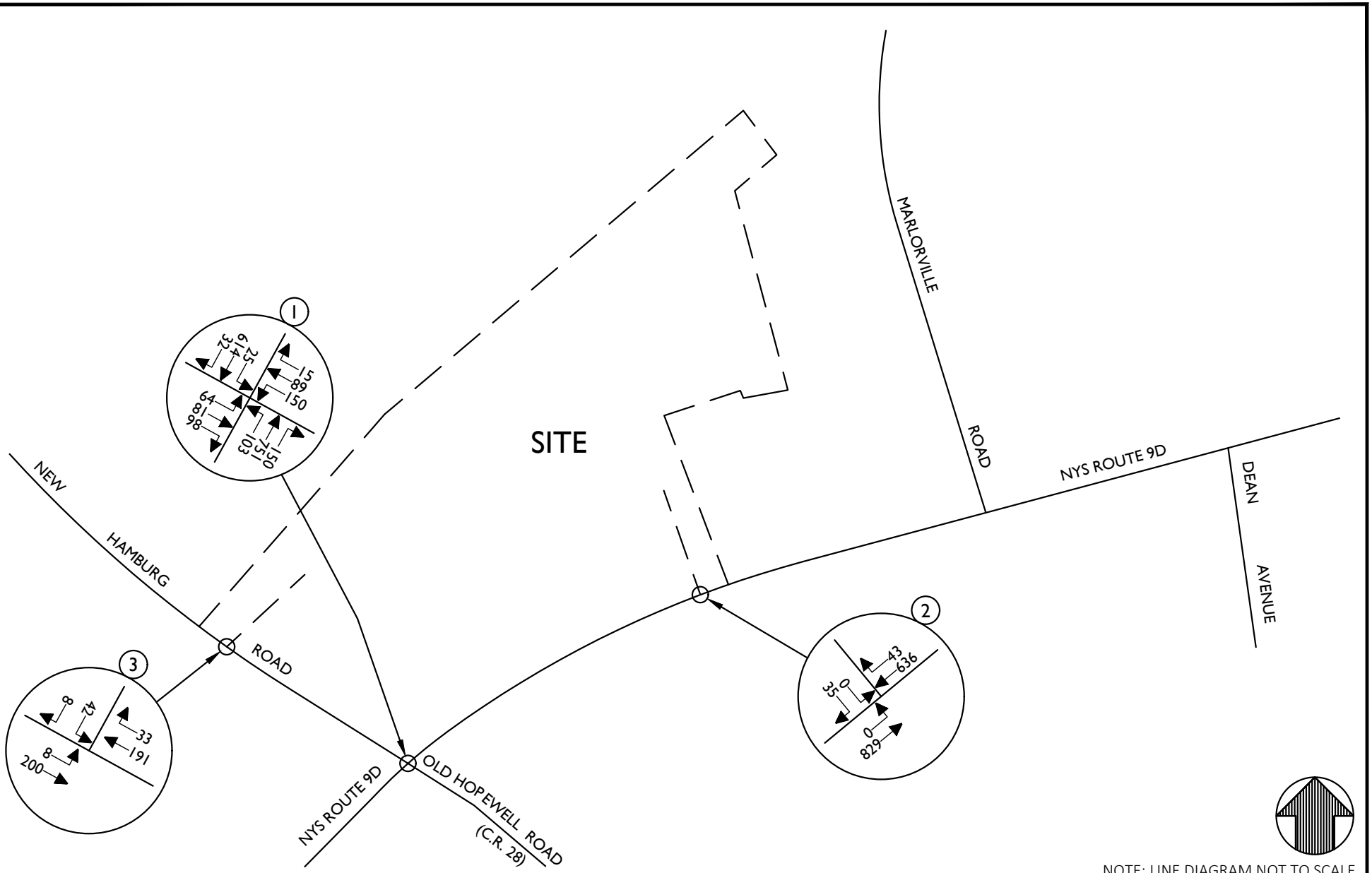

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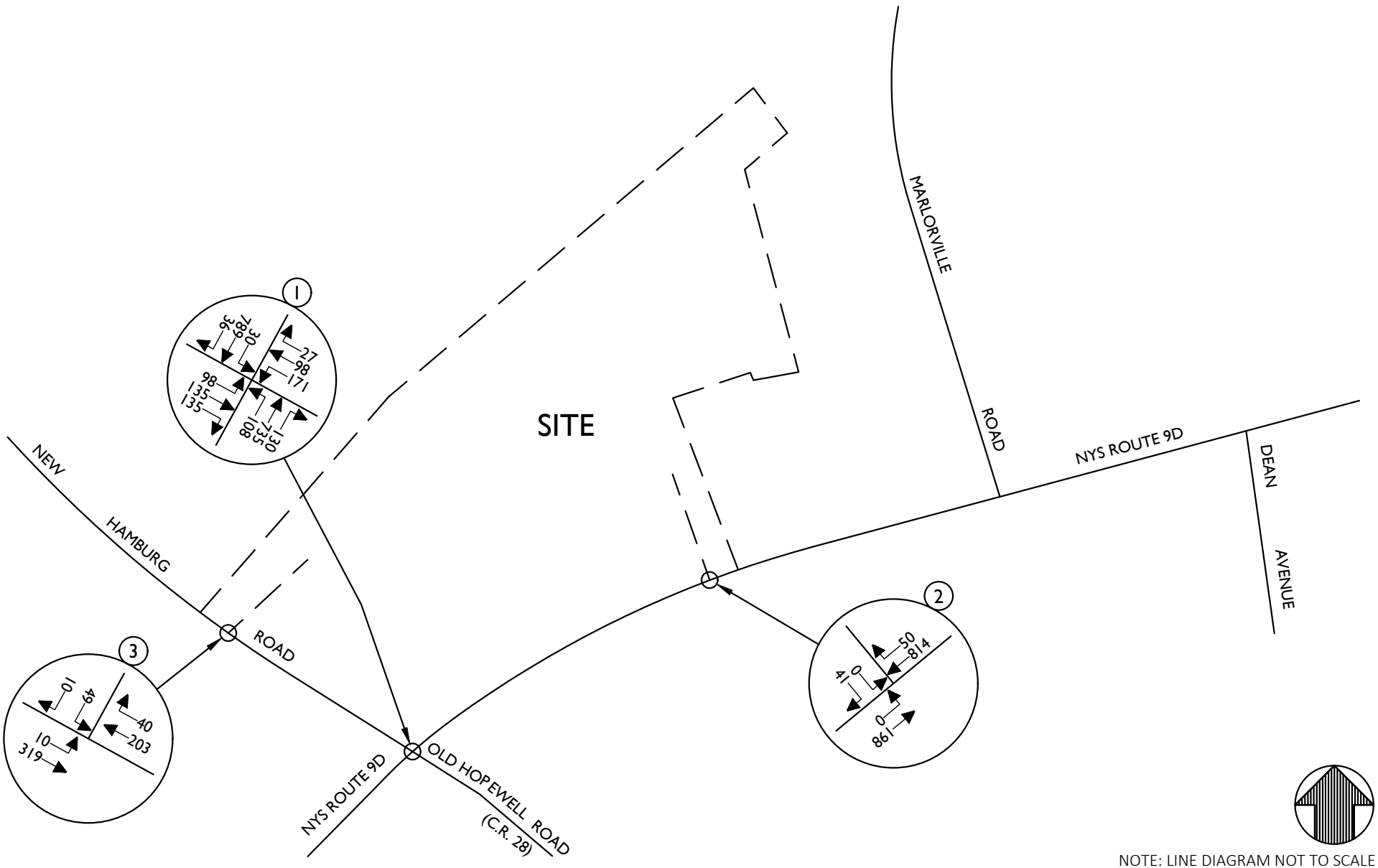
PROJECT NUMBER: 19005554A
DRAWING NAME: 210506RH_FIGURE

SHEET TITLE:
2022 BUILD TRAFFIC VOLUMES
WEEKDAY PEAK AM HOUR

SHEET NUMBER:
14



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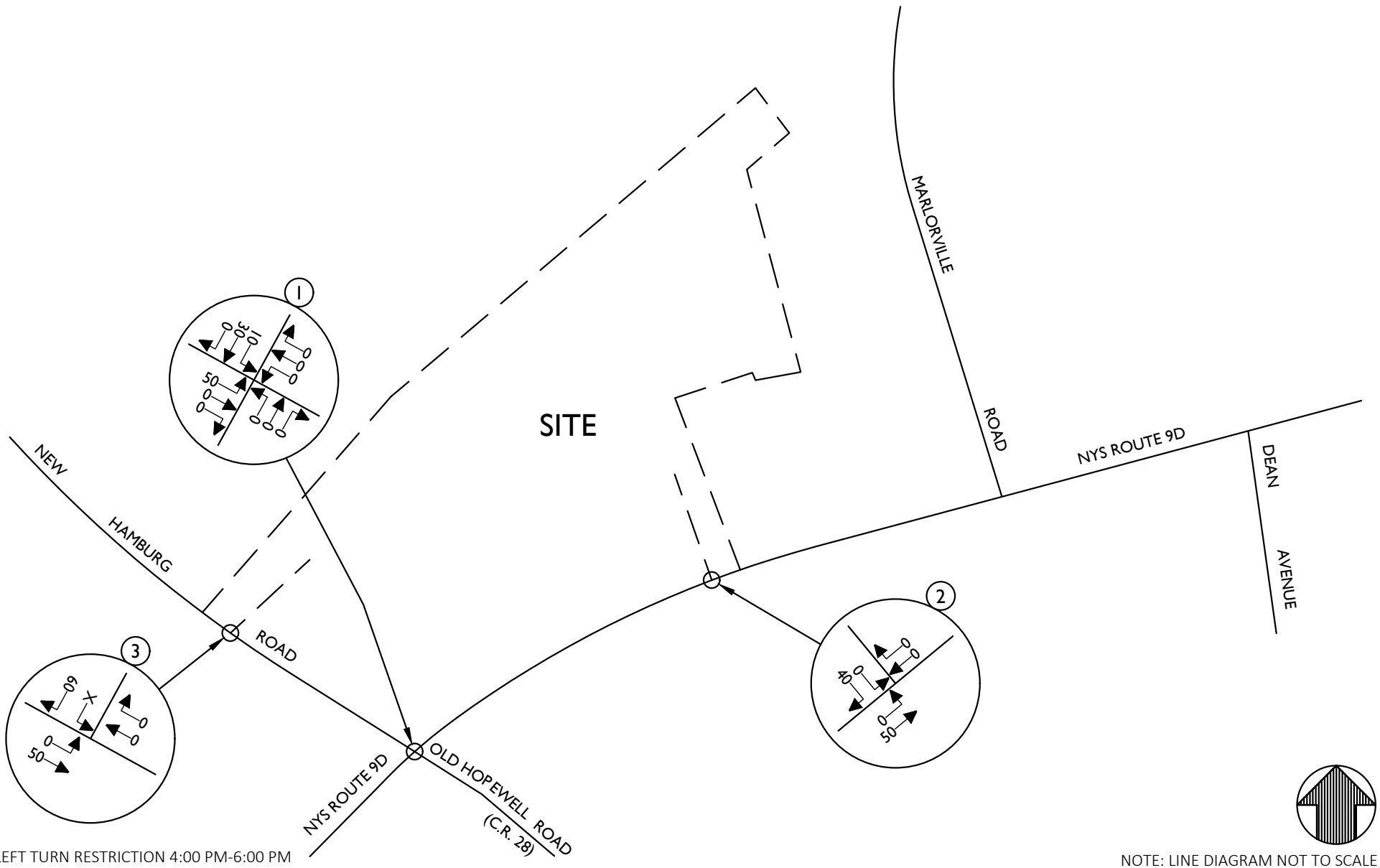
PROJECT NUMBER: 19005554A
DRAWING NAME: 210506RH_FIGURE

SHEET TITLE:
2022 BUILD TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR

SHEET NUMBER:
15



*LEFT TURN RESTRICTION 4:00 PM-6:00 PM

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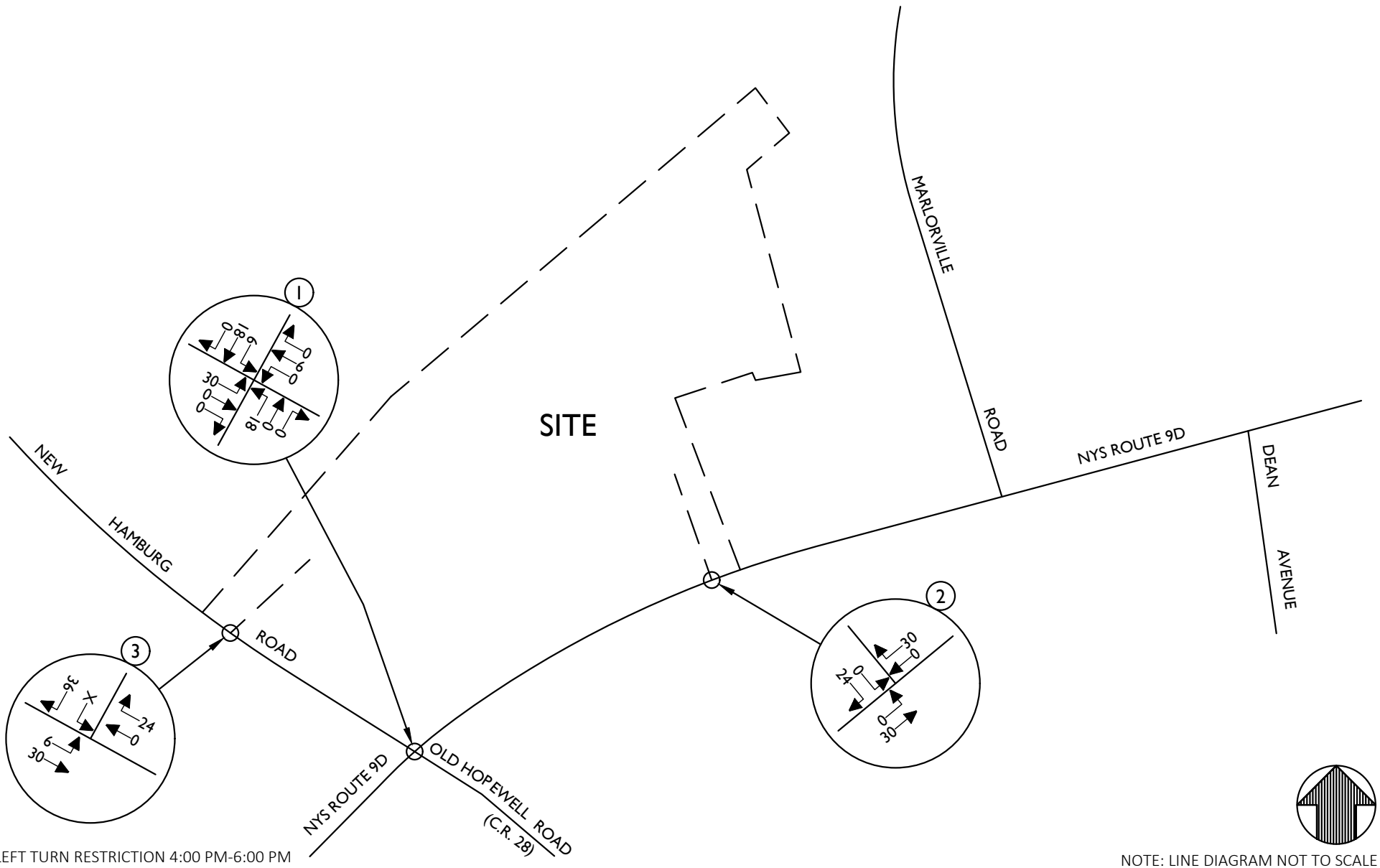
AS SHOWN	5/06/2021	P.W.G.	P.J.G.

PROJECT NUMBER: 19005554A

DRAWING NAME: 210506WG_FIGURE - LEFT TURN RESTRICTION

SHEET TITLE:
DEPARTURE DISTRIBUTION
(ALL VALUES ARE EXPRESSED AS %)

SHEET NUMBER:
11-R



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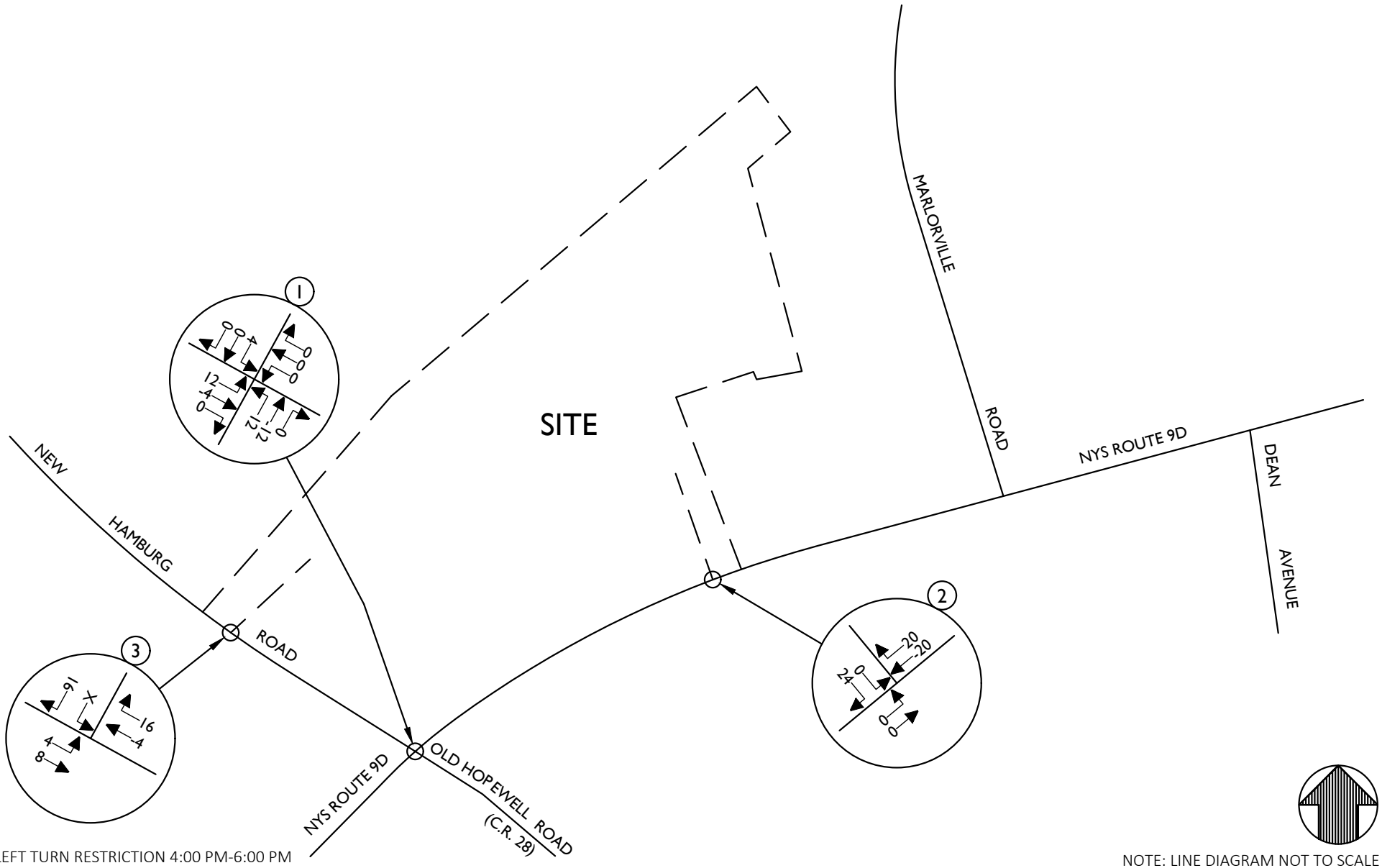
PROJECT NUMBER: 19005554A

DRAWING NAME: 210506WG_FIGURE - LEFT TURN RESTRICTION

SHEET TITLE:
"NEW" SITE GENERATED
TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR

SHEET NUMBER:
13-R



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SHEET NUMBER:
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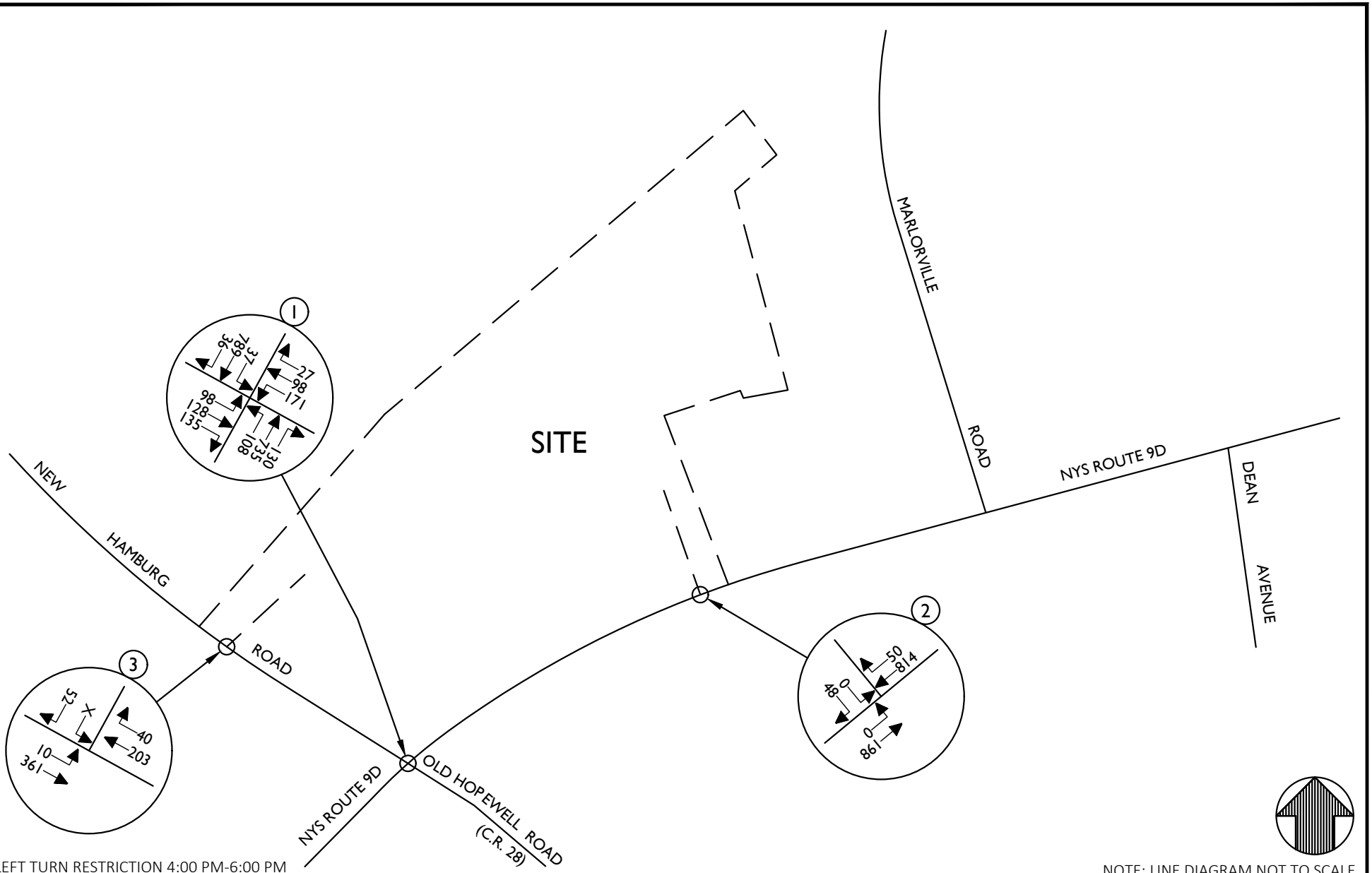

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PROJECT NUMBER: 19005554A

DRAWING NAME: 210506WG_FIGURE - LEFT TURN RESTRICTION

SHEET TITLE:
2022 BUILD TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR

SHEET NUMBER:
15-R

TABLE NO. 2-R

LEVEL OF SERVICE SUMMARY TABLE - PEAK AM HOUR
(HCM RESULTS)

				2019 EXISTING			2022 NO-BUILD			2022 BUILD			CHANGE IN DELAY NO-BUILD TO BUILD
		AM		V/C	LOS	DELAY	V/C	LOS	DELAY	V/C	LOS	DELAY	
1	NYS ROUTE 9D & NEW HAMBURG ROAD/ OLD HOPEWELL ROAD (C.R. 28)	**SIGNALIZED**											
	NEW HAMBURG ROAD	EB	LT	0.70	D	50.6	0.74	E	58.4	0.82	E	61.1	2.7
			R	0.53	D	45.9	0.57	D	52.8	0.45	D	51.7	-1.1
		EB OVERALL		***-***	***D***	***48.3***	***-***	***E***	***55.7***	***-***	***E***	***57.3***	***1.6***
	OLD HOPEWELL ROAD (C.R. 28)	WB	L	0.81	D	50.1	0.84	E	57.5	0.85	E	61.0	3.5
			TR	0.48	D	45.7	0.51	D	52.3	0.54	E	55.8	3.5
		WB OVERALL		***-***	***D***	***48.4***	***-***	***E***	***55.4***	***-***	***E***	***58.8***	***3.4***
	NYS ROUTE 9D	NB	L	0.23	B	14.1	0.25	B	15.5	0.35	B	18.4	2.9
			TR	0.93	C	30.1	0.95	D	37.6	0.95	D	41.9	4.3
		NB OVERALL		***-***	***C***	***28.8***	***-***	***D***	***35.9***	***-***	***D***	***39.5***	***3.6***
	NYS ROUTE 9D	SB	L	0.16	C	22.7	0.20	C	27.5	0.24	C	29.8	2.3
			TR	0.66	B	17.9	0.67	B	19.5	0.71	C	23.1	3.6
		SB OVERALL		***-***	***B***	***18.1***	***-***	***B***	***19.8***	***-***	***C***	***23.4***	***3.6***
		OVERALL		**-**	**C**	**29.6**	**-**	**D**	**35.1**	**-**	**D**	**38.8**	**3.7**
	W/ GEOMETRIC IMPROVEMENTS W/ 184 SEC CYCLE												
	NEW HAMBURG ROAD	EB	L	-	-	-	-	-	-	0.29	D	44.8	-13.6
			T							0.56	D	51.8	-6.6
			R	-	-	-	-	-	-	0.53	D	47.7	-5.1
		EB OVERALL		-	-	-	-	-	-	***-***	***D***	***48.3***	***-7.4***
	OLD HOPEWELL ROAD (C.R. 28)	WB	L	-	-	-	-	-	-	0.62	D	45.7	-11.8
			TR	-	-	-	-	-	-	0.50	D	47.5	-4.8
		WB OVERALL		-	-	-	-	-	-	***-***	***E***	***46.5***	***-8.9***
	NYS ROUTE 9D	NB	L	-	-	-	-	-	-	0.32	B	14.7	-0.8
			TR	-	-	-	-	-	-	0.93	C	26.0	-11.6
		NB OVERALL		-	-	-	-	-	-	***-***	***C***	***24.8***	***-11.1***
	NYS ROUTE 9D	SB	L	-	-	-	-	-	-	0.19	C	23.9	-3.6
			TR	-	-	-	-	-	-	0.69	B	18.0	-1.5
		SB OVERALL		-	-	-	-	-	-	***-***	***B***	***18.2***	***-1.6***
		OVERALL		-	-	-	-	-	-	***-***	***C***	***28.0***	***-7.1***
2	NYS ROUTE 9D & SITE ACCESS	**UNSIGNALIZED**											
	SITE ACCESS	SB	LR	-	-	-	-	-	-	0.089	B	14.3	-
3	NEW HAMBURG ROAD & SITE ACCESS	**UNSIGNALIZED**											
	NEW HAMBURG ROAD	EB	L	-	-	-	-	-	-	0.007	A	7.8	-
	SITE ACCESS	SB	LR	-	-	-	-	-	-	0.094	B	11.9	-

NOTES:

1) THE ABOVE REPRESENTS THE LEVEL OF SERVICE, VEHICLE DELAY AND VOLUME TO CAPACITY RATIOS FOR EACH APPROACH AND THE OVERALL INTERSECTION FOR THE SIGNALIZED INTERSECTION BASED ON THE SYNCHRO RESULTS.

2) OTHER SIGNAL UPGRADES REQUIRED BY NYSDOT INCLUDING A POTENTIAL ADADPTIVE SIGNAL WILL FURTHER IMPROVE THE OPERATION OF THIS INTERSECTION

TABLE NO. 2-R

LEVEL OF SERVICE SUMMARY TABLE - PEAK PM HOUR
(HCM RESULTS)

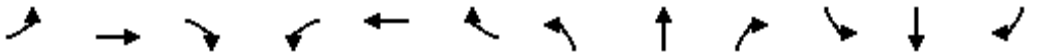
				2019 EXISTING			2022 NO-BUILD			2022 BUILD			CHANGE IN DELAY NO-BUILD TO BUILD	2022 BUILD * W/ LEFT TURN RESTRICTION			CHANGE IN DELAY NO-BUILD TO BUILD
		PM		V/C	LOS	DELAY	V/C	LOS	DELAY	V/C	LOS	DELAY		V/C	LOS	DELAY	
1	NYS ROUTE 9D & NEW HAMBURG ROAD/ OLD HOPEWELL ROAD (C.R. 28)	**SIGNALIZED**															
	NEW HAMBURG ROAD	EB	LT	0.80	D	48.8	0.84	E	57.0	0.88	E	67.6	10.6	0.87	E	66.5	9.5
			R	0.52	D	42.3	0.55	D	49.3	0.45	D	48.6	-0.7	0.46	D	49.0	-0.3
		EB OVERALL		**-**	***D***	***46.1***	**-**	***D***	***53.8***	**-**	***E***	***60.6***	***6.8***	**-**	***E***	***60.0***	***6.2***
	OLD HOPEWELL ROAD (C.R. 28)	WB	L	0.82	D	49.4	0.85	E	57.7	0.86	E	62.4	4.7	0.86	E	62.3	4.6
			TR	0.52	D	45.3	0.56	D	52.8	0.59	E	57.3	4.5	0.59	E	57.2	4.4
		WB OVERALL		**-**	***D***	***47.8***	**-**	***E***	***55.7***	**-**	***E***	***60.3***	***4.6***	**-**	***E***	***60.2***	***4.5***
	NYS ROUTE 9D	NB	L	0.37	C	21.8	0.42	C	25.6	0.66	C	32.3	6.7	0.64	C	31.8	6.2
			TR	0.92	C	30.9	0.94	D	38.9	0.94	D	44.2	5.3	0.94	D	44.1	5.2
		NB OVERALL		**-**	***C***	***30.1***	**-**	***D***	***37.8***	**-**	***D***	***42.9***	***5.1***	**-**	***D***	***42.7***	***4.9***
	NYS ROUTE 9D	SB	L	0.17	C	23.1	0.22	C	27.8	0.27	C	30.7	2.9	0.31	C	30.7	2.9
			TR	0.87	C	26.5	0.88	C	32.3	0.94	D	43.2	10.9	0.93	D	42.0	9.7
		SB OVERALL		**-**	***C***	***26.4***	**-**	***C***	***32.1***	**-**	***D***	***42.8***	***10.7***	**-**	***D***	***41.5***	***9.4***
		OVERALL		**-**	**C**	**33.1**	**-**	**D**	**40.1**	**-**	**D**	**47.5**	**7.4**	**-**	**D**	**46.9**	**6.8**
	W/ GEOMETRIC IMPROVEMENTS W/ 184 SEC CYCLE																
	NEW HAMBURG ROAD	EB	L	-	-	-	-	-	-	0.36	D	40.6	-16.4	0.39	D	41.0	-16.0
			T							0.70	D	49.2	-7.8	0.64	D	49.2	-7.8
			R	-	-	-	-	-	-	0.57	D	43.9	-5.4	0.31	D	44.4	-4.9
		EB OVERALL		**-**	**-**	**-**	**-**	**-**	**-**	**-**	***D***	***45.0***	***-8.8***	**-**	***D***	***45.2***	***-8.6***
	OLD HOPEWELL ROAD (C.R. 28)	WB	L	-	-	-	-	-	-	0.62	D	39.7	-18.0	0.66	D	39.9	-17.8
			TR	-	-	-	-	-	-	0.48	D	43.2	-9.6	0.52	D	43.7	-9.1
		WB OVERALL		**-**	**-**	**-**	**-**	**-**	**-**	**-**	***D***	***41.2***	***-14.5***	**-**	***D***	***41.5***	***-14.2***
	NYS ROUTE 9D	NB	L	-	-	-	-	-	-	0.55	C	24.5	-1.1	0.58	C	24.5	-1.1
			TR	-	-	-	-	-	-	0.92	C	26.9	-12.0	0.86	C	27.1	-11.8
		NB OVERALL		**-**	**-**	**-**	**-**	**-**	**-**	**-**	***C***	***26.6***	***-11.2***	**-**	***C***	***26.8***	***-11.0***
	NYS ROUTE 9D	SB	L	-	-	-	-	-	-	0.21	C	23.1	-4.7	0.26	C	23.5	-4.3
			TR	-	-	-	-	-	-	0.91	C	26.5	-5.8	0.92	C	26.5	-5.8
		SB OVERALL		**-**	**-**	**-**	**-**	**-**	**-**	**-**	***C***	***26.4***	***-5.7***	**-**	***C***	***26.3***	***-5.8***
		OVERALL		-	-	-	-	-	-	**-**	**C**	**31.0**	***-9.1***	**-**	**C**	**31.1**	***-9.0***
2	NYS ROUTE 9D & SITE ACCESS	**UNSIGNALIZED**															
	SITE ACCESS	SB	LR	-	-	-	-	-	-	0.136	C	17.7	-	0.159	C	18.0	-
3	NEW HAMBURG ROAD & SITE ACCESS	**UNSIGNALIZED**															
	NEW HAMBURG ROAD	EB	L	-	-	-	-	-	-	0.008	A	7.8	-	0.008	A	7.8	-
	SITE ACCESS	SB	LR	-	-	-	-	-	-	0.133	B	13.6	-	0.072	A	9.9	-

NOTES:

* W/ LEFT TURN RESTRICTION 4:00 PM - 6:00 PM

1) THE ABOVE REPRESENTS THE LEVEL OF SERVICE, VEHICLE DELAY AND VOLUME TO CAPACITY RATIOS FOR EACH APPROACH AND THE OVERALL INTERSECTION FOR THE SIGNALIZED INTERSECTION BASED ON THE SYNCHRO RESULTS.

2) OTHER SIGNAL UPGRADES REQUIRED BY NYSDOT INCLUDING A POTENTIAL ADADPTIVE SIGNAL WILL FURTHER IMPROVE THE OPERATION OF THIS INTERSECTION



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	81	98	150	89	15	103	751	150	25	614	32
Future Volume (vph)	64	81	98	150	89	15	103	751	150	25	614	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	9	10	12	11	12	12	11	12	12
Grade (%)		0%			2%			0%			0%	
Storage Length (ft)	0		80	45		0	60		0	55		0
Storage Lanes	0		1	1		0	1		0	1		0
Taper Length (ft)	25			86			86			86		
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			0.850		0.979			0.975			0.993	
Flt Protected		0.978		0.950			0.950			0.950		
Satd. Flow (prot)	0	1802	1568	1517	1630	0	1694	1764	0	1586	1782	0
Flt Permitted		0.978		0.950			0.189			0.054		
Satd. Flow (perm)	0	1802	1568	1517	1630	0	337	1764	0	90	1782	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			77		4			7			2	
Link Speed (mph)		35			40			35			35	
Link Distance (ft)		339			341			372			279	
Travel Time (s)		6.6			5.8			7.2			5.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	4%	3%	6%	5%	8%	3%	5%	5%	10%	6%	3%
Adj. Flow (vph)	70	88	107	163	97	16	112	816	163	27	667	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	158	107	163	113	0	112	979	0	27	702	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)		9			9			11			11	
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	1.16	1.11	1.01	1.04	1.00	1.00	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	2	2	2	2		2	2		2	2	
Detector Template												
Leading Detector (ft)	83	83	83	83	83		83	83		83	83	
Trailing Detector (ft)	-5	-5	-5	-5	-5		-5	-5		-5	-5	
Detector 1 Position(ft)	-5	-5	-5	-5	-5		-5	-5		-5	-5	
Detector 1 Size(ft)	40	40	40	40	40		40	40		40	40	
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)	43	43	43	43	43		43	43		43	43	
Detector 2 Size(ft)	40	40	40	40	40		40	40		40	40	
Detector 2 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Split	NA	pm+ov	Split	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	4	4	5	8	8		5	2		1	6	
Permitted Phases			4				2			6		
Detector Phase	4	4	5	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0		3.0	12.0		3.0	12.0	
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0		9.0	18.0		9.0	18.0	
Total Split (s)	36.0	36.0	21.0	36.0	36.0		21.0	91.0		21.0	91.0	
Total Split (%)	19.6%	19.6%	11.4%	19.6%	19.6%		11.4%	49.5%		11.4%	49.5%	
Maximum Green (s)	30.0	30.0	15.0	30.0	30.0		15.0	85.0		15.0	85.0	
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)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag			Lead				Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes				Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	3.0		2.0	2.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
v/c Ratio		0.73	0.26	0.78	0.50		0.38	0.96		0.25	0.76	
Control Delay		86.4	18.7	90.5	68.1		17.3	52.2		20.1	37.6	
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		86.4	18.7	90.5	68.1		17.3	52.2		20.1	37.6	
Queue Length 50th (ft)		156	24	161	103		43	~952		10	530	
Queue Length 95th (ft)		263	83	272	187		91	#1559		29	907	
Internal Link Dist (ft)		259			261			292			199	
Turn Bay Length (ft)			80	45			60			55		
Base Capacity (vph)		362	465	305	331		346	1022		205	1017	
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		0.44	0.23	0.53	0.34		0.32	0.96		0.13	0.69	

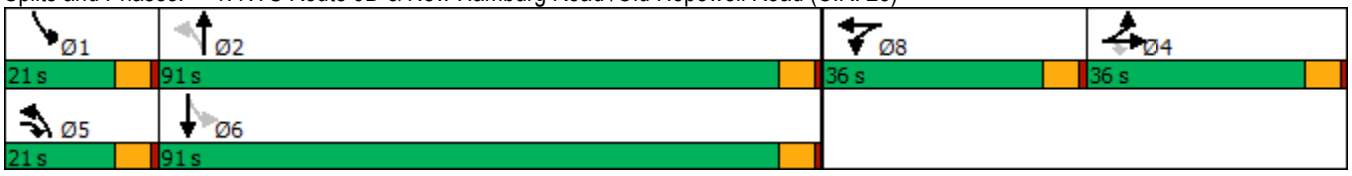
Intersection Summary

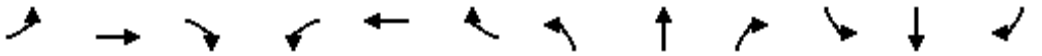
Area Type: Other
Cycle Length: 184
Actuated Cycle Length: 151.4
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

~ 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.

Splits and Phases: 1: NYS Route 9D & New Hamburg Road /Old Hopewell Road (C.R. 28)

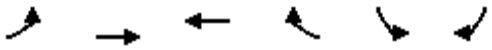




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	81	98	150	89	15	103	751	150	25	614	32
Future Volume (veh/h)	64	81	98	150	89	15	103	751	150	25	614	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1856	1716	1802	1802	1856	1826	1826	1752	1811	1811
Adj Flow Rate, veh/h	70	88	107	163	97	16	112	816	163	27	667	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	3	6	5	5	3	5	5	10	6	6
Cap, veh/h	85	107	236	193	178	29	324	856	171	111	939	49
Arrive On Green	0.11	0.11	0.11	0.12	0.12	0.12	0.04	0.58	0.58	0.01	0.55	0.55
Sat Flow, veh/h	798	1003	1572	1634	1509	249	1767	1478	295	1668	1705	89
Grp Volume(v), veh/h	158	0	107	163	0	113	112	0	979	27	0	702
Grp Sat Flow(s),veh/h/ln	1801	0	1572	1634	0	1758	1767	0	1773	1668	0	1795
Q Serve(g_s), s	11.4	0.0	8.2	12.9	0.0	8.0	3.6	0.0	68.5	0.9	0.0	38.1
Cycle Q Clear(g_c), s	11.4	0.0	8.2	12.9	0.0	8.0	3.6	0.0	68.5	0.9	0.0	38.1
Prop In Lane	0.44		1.00	1.00		0.14	1.00		0.17	1.00		0.05
Lane Grp Cap(c), veh/h	192	0	236	193	0	207	324	0	1027	111	0	988
V/C Ratio(X)	0.82	0.00	0.45	0.85	0.00	0.54	0.35	0.00	0.95	0.24	0.00	0.71
Avail Cap(c_a), veh/h	409	0	425	371	0	399	449	0	1141	277	0	1155
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.8	0.0	51.2	57.1	0.0	54.9	18.1	0.0	26.1	29.4	0.0	21.9
Incr Delay (d2), s/veh	3.4	0.0	0.5	3.9	0.0	0.8	0.2	0.0	15.8	0.4	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	0.0	3.2	5.5	0.0	3.6	1.4	0.0	31.5	0.4	0.0	15.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.1	0.0	51.7	61.0	0.0	55.8	18.4	0.0	41.9	29.8	0.0	23.1
LnGrp LOS	E	A	D	E	A	E	B	A	D	C	A	C
Approach Vol, veh/h		265			276			1091			729	
Approach Delay, s/veh		57.3			58.8			39.5			23.4	
Approach LOS		E			E			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.9	82.6		20.1	11.7	78.7		21.6				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	15.0	85.0		30.0	15.0	85.0		30.0				
Max Q Clear Time (g_c+I1), s	2.9	70.5		13.4	5.6	40.1		14.9				
Green Ext Time (p_c), s	0.0	6.0		0.7	0.2	2.7		0.7				

Intersection Summary			
HCM 6th Ctrl Delay		38.8	
HCM 6th LOS		D	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	829	636	43	0	35
Future Volume (vph)	0	829	636	43	0	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	12	12	12	16
Storage Length (ft)	40			0	0	0
Storage Lanes	0			0	0	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.991			0.865
Flt Protected						
Satd. Flow (prot)	0	1810	1793	0	0	1774
Flt Permitted						
Satd. Flow (perm)	0	1810	1793	0	0	1774
Link Speed (mph)		35	35		30	
Link Distance (ft)		279	286		98	
Travel Time (s)		5.4	5.6		2.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	0	901	691	47	0	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	901	738	0	0	38
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		11	11		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.09	1.00	1.00	1.00	1.00	0.85
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	829	636	43	0	35
Future Vol, veh/h	0	829	636	43	0	35
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	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	0	901	691	47	0	38

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	715
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.345
Pot Cap-1 Maneuver	0	-	-	-	0	426
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	426
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	14.3
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	426
HCM Lane V/C Ratio	-	-	-	0.089
HCM Control Delay (s)	-	-	-	14.3
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.3

Lane Group	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	8	200	191	33	42	8
Future Volume (vph)	8	200	191	33	42	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	11	12	12	12	12
Grade (%)		-1%	0%		0%	
Storage Length (ft)	100			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			0.980		0.978	
Flt Protected	0.950				0.960	
Satd. Flow (prot)	1555	1758	1773	0	1699	0
Flt Permitted	0.950				0.960	
Satd. Flow (perm)	1555	1758	1773	0	1699	0
Link Speed (mph)		35	35		30	
Link Distance (ft)		204	339		154	
Travel Time (s)		4.0	6.6		3.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	9	217	208	36	46	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	217	244	0	55	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		9	9		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.14	1.04	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

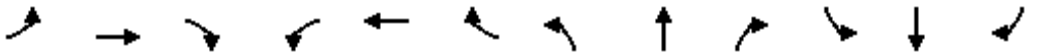
Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	8	200	191	33	42	8
Future Vol, veh/h	8	200	191	33	42	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	9	217	208	36	46	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	244	0	-	0	461	226
Stage 1	-	-	-	-	226	-
Stage 2	-	-	-	-	235	-
Critical Hdwy	4.15	-	-	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	2.245	-	-	-	3.545	3.345
Pot Cap-1 Maneuver	1305	-	-	-	553	806
Stage 1	-	-	-	-	805	-
Stage 2	-	-	-	-	797	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1305	-	-	-	549	806
Mov Cap-2 Maneuver	-	-	-	-	549	-
Stage 1	-	-	-	-	799	-
Stage 2	-	-	-	-	797	-

Approach	EB	WB	SW
HCM Control Delay, s	0.3	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SWLn1
Capacity (veh/h)	1305	-	-	-	579
HCM Lane V/C Ratio	0.007	-	-	-	0.094
HCM Control Delay (s)	7.8	-	-	-	11.9
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3



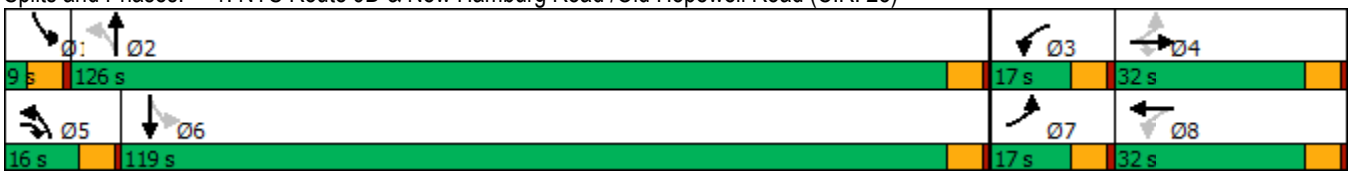
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	81	98	150	89	15	103	751	150	25	614	32
Future Volume (vph)	64	81	98	150	89	15	103	751	150	25	614	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	10	9	10	12	11	12	12	11	12	12
Grade (%)		0%			2%			0%			0%	
Storage Length (ft)	100		100	45		0	60		0	55		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			86			86			86		
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			0.850		0.979			0.975			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1652	1766	1463	1517	1630	0	1694	1764	0	1586	1782	0
Flt Permitted	0.684			0.564			0.205			0.102		
Satd. Flow (perm)	1189	1766	1463	901	1630	0	366	1764	0	170	1782	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			107		4			11			3	
Link Speed (mph)		35			40			35			35	
Link Distance (ft)		339			341			372			279	
Travel Time (s)		6.6			5.8			7.2			5.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	4%	3%	6%	5%	8%	3%	5%	5%	10%	6%	3%
Adj. Flow (vph)	70	88	107	163	97	16	112	816	163	27	667	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	88	107	163	113	0	112	979	0	27	702	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)		10			10			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.04	1.09	1.16	1.11	1.01	1.04	1.00	1.00	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	2	2	2	2		2	2		2	2	
Detector Template												
Leading Detector (ft)	83	83	83	83	83		83	83		83	83	
Trailing Detector (ft)	-5	-5	-5	-5	-5		-5	-5		-5	-5	
Detector 1 Position(ft)	-5	-5	-5	-5	-5		-5	-5		-5	-5	
Detector 1 Size(ft)	40	40	40	40	40		40	40		40	40	
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)	43	43	43	43	43		43	43		43	43	
Detector 2 Size(ft)	40	40	40	40	40		40	40		40	40	
Detector 2 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	

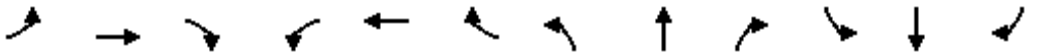
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	5	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0		3.0	12.0		3.0	12.0	
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0		9.0	18.0		9.0	18.0	
Total Split (s)	17.0	32.0	16.0	17.0	32.0		16.0	126.0		9.0	119.0	
Total Split (%)	9.2%	17.4%	8.7%	9.2%	17.4%		8.7%	68.5%		4.9%	64.7%	
Maximum Green (s)	11.0	26.0	10.0	11.0	26.0		10.0	120.0		3.0	113.0	
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)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	3.0		2.0	2.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
v/c Ratio	0.28	0.47	0.26	0.66	0.45		0.34	0.89		0.21	0.74	
Control Delay	53.5	73.3	11.4	66.5	68.3		10.6	32.5		11.6	26.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	53.5	73.3	11.4	66.5	68.3		10.6	32.5		11.6	26.7	
Queue Length 50th (ft)	47	71	0	118	89		32	724		7	441	
Queue Length 95th (ft)	119	162	57	#289	198		61	1074		20	634	
Internal Link Dist (ft)		259			261			292			199	
Turn Bay Length (ft)	100		100	45			60			55		
Base Capacity (vph)	283	392	438	252	365		352	1500		131	1470	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.25	0.22	0.24	0.65	0.31		0.32	0.65		0.21	0.48	

Intersection Summary

Area Type: Other
Cycle Length: 184
Actuated Cycle Length: 132.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: NYS Route 9D & New Hamburg Road /Old Hopewell Road (C.R. 28)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	81	98	150	89	15	103	751	150	25	614	32
Future Volume (veh/h)	64	81	98	150	89	15	103	751	150	25	614	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1841	1856	1716	1802	1802	1856	1826	1826	1752	1811	1811
Adj Flow Rate, veh/h	70	88	107	163	97	16	112	816	163	27	667	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	4	3	6	5	5	3	5	5	10	6	6
Cap, veh/h	244	157	203	262	193	32	353	880	176	140	968	51
Arrive On Green	0.05	0.09	0.09	0.10	0.13	0.13	0.04	0.60	0.60	0.02	0.57	0.57
Sat Flow, veh/h	1781	1841	1572	1634	1509	249	1767	1478	295	1668	1705	89
Grp Volume(v), veh/h	70	88	107	163	0	113	112	0	979	27	0	702
Grp Sat Flow(s),veh/h/ln	1781	1841	1572	1634	0	1758	1767	0	1773	1668	0	1795
Q Serve(g_s), s	4.1	5.3	7.3	10.4	0.0	6.9	3.0	0.0	57.4	0.8	0.0	32.0
Cycle Q Clear(g_c), s	4.1	5.3	7.3	10.4	0.0	6.9	3.0	0.0	57.4	0.8	0.0	32.0
Prop In Lane	1.00		1.00	1.00		0.14	1.00		0.17	1.00		0.05
Lane Grp Cap(c), veh/h	244	157	203	262	0	225	353	0	1056	140	0	1019
V/C Ratio(X)	0.29	0.56	0.53	0.62	0.00	0.50	0.32	0.00	0.93	0.19	0.00	0.69
Avail Cap(c_a), veh/h	319	415	423	262	0	397	430	0	1846	158	0	1760
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	44.5	50.6	46.9	42.3	0.0	46.8	14.6	0.0	21.0	23.6	0.0	17.7
Incr Delay (d2), s/veh	0.2	1.2	0.8	3.4	0.0	0.6	0.2	0.0	5.0	0.2	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	2.5	2.9	4.3	0.0	3.0	1.1	0.0	22.9	0.3	0.0	12.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.8	51.8	47.7	45.7	0.0	47.5	14.7	0.0	26.0	23.9	0.0	18.0
LnGrp LOS	D	D	D	D	A	D	B	A	C	C	A	B
Approach Vol, veh/h		265			276			1091			729	
Approach Delay, s/veh		48.3			46.5			24.8			18.2	
Approach LOS		D			D			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.7	74.6	17.0	15.8	11.0	71.4	12.1	20.7
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	3.0	120.0	11.0	26.0	10.0	113.0	11.0	26.0
Max Q Clear Time (g_c+I1), s	2.8	59.4	12.4	9.3	5.0	34.0	6.1	8.9
Green Ext Time (p_c), s	0.0	9.2	0.0	0.5	0.1	2.7	0.1	0.2

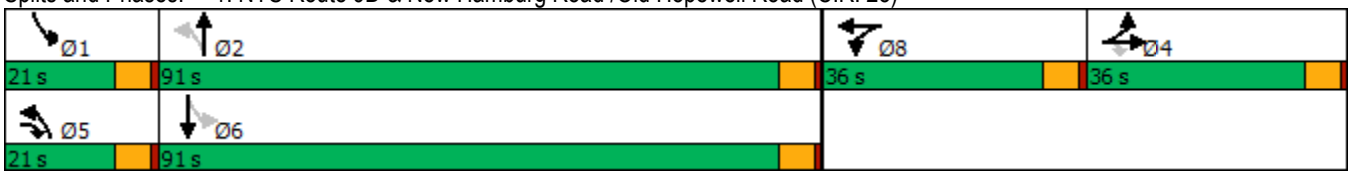
Intersection Summary	
HCM 6th Ctrl Delay	28.0
HCM 6th LOS	C

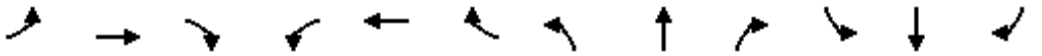
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	135	135	171	98	27	108	735	130	30	789	36
Future Volume (vph)	98	135	135	171	98	27	108	735	130	30	789	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	9	10	12	11	12	12	11	12	12
Grade (%)		0%			2%			0%			0%	
Storage Length (ft)	0		80	45		0	60		0	55		0
Storage Lanes	0		1	1		0	1		0	1		0
Taper Length (ft)	25			86			86			86		
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			0.850		0.968			0.977			0.993	
Flt Protected		0.979		0.950			0.950			0.950		
Satd. Flow (prot)	0	1809	1583	1561	1666	0	1711	1820	0	1711	1850	0
Flt Permitted		0.979		0.950			0.050			0.071		
Satd. Flow (perm)	0	1809	1583	1561	1666	0	90	1820	0	128	1850	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			66		6			6			2	
Link Speed (mph)		35			40			35			35	
Link Distance (ft)		339			341			372			279	
Travel Time (s)		6.6			5.8			7.2			5.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	103	142	142	180	103	28	114	774	137	32	831	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	245	142	180	131	0	114	911	0	32	869	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)		9			9			11			11	
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	1.16	1.11	1.01	1.04	1.00	1.00	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	2	2	2	2		2	2		2	2	
Detector Template												
Leading Detector (ft)	83	83	83	83	83		83	83		83	83	
Trailing Detector (ft)	-5	-5	-5	-5	-5		-5	-5		-5	-5	
Detector 1 Position(ft)	-5	-5	-5	-5	-5		-5	-5		-5	-5	
Detector 1 Size(ft)	40	40	40	40	40		40	40		40	40	
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)	43	43	43	43	43		43	43		43	43	
Detector 2 Size(ft)	40	40	40	40	40		40	40		40	40	
Detector 2 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Split	NA	pm+ov	Split	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	4	4	5	8	8		5	2		1	6	
Permitted Phases			4				2			6		
Detector Phase	4	4	5	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0		3.0	12.0		3.0	5.0	
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0		9.0	18.0		9.0	18.0	
Total Split (s)	36.0	36.0	21.0	36.0	36.0		21.0	91.0		21.0	91.0	
Total Split (%)	19.6%	19.6%	11.4%	19.6%	19.6%		11.4%	49.5%		11.4%	49.5%	
Maximum Green (s)	30.0	30.0	15.0	30.0	30.0		15.0	85.0		15.0	85.0	
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)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag			Lead				Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes				Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	3.0		2.0	2.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
v/c Ratio		0.88	0.31	0.84	0.56		0.71	0.91		0.26	0.94	
Control Delay		102.2	28.9	104.1	76.0		57.9	51.1		21.8	58.8	
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		102.2	28.9	104.1	76.0		57.9	51.1		21.8	58.8	
Queue Length 50th (ft)		275	68	203	135		72	977		15	950	
Queue Length 95th (ft)		#439	139	306	217		155	#1398		34	#1370	
Internal Link Dist (ft)		259			261			292			199	
Turn Bay Length (ft)			80	45			60			55		
Base Capacity (vph)		320	487	276	300		198	997		215	931	
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		0.77	0.29	0.65	0.44		0.58	0.91		0.15	0.93	

Intersection Summary	
Area Type:	Other
Cycle Length: 184	
Actuated Cycle Length: 170.2	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 1: NYS Route 9D & New Hamburg Road /Old Hopewell Road (C.R. 28)

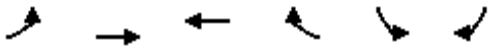




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	98	135	135	171	98	27	108	735	130	30	789	36
Future Volume (veh/h)	98	135	135	171	98	27	108	735	130	30	789	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1759	1847	1847	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	142	142	180	103	28	114	774	137	32	831	38
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	3	2	2	2	2	2	2	2	2
Cap, veh/h	117	162	315	210	175	48	173	820	145	119	888	41
Arrive On Green	0.15	0.15	0.15	0.13	0.13	0.13	0.05	0.53	0.53	0.02	0.50	0.50
Sat Flow, veh/h	770	1062	1585	1675	1398	380	1781	1547	274	1781	1775	81
Grp Volume(v), veh/h	245	0	142	180	0	131	114	0	911	32	0	869
Grp Sat Flow(s),veh/h/ln	1832	0	1585	1675	0	1778	1781	0	1821	1781	0	1856
Q Serve(g_s), s	17.9	0.0	10.8	14.4	0.0	9.5	4.2	0.0	64.3	1.2	0.0	60.1
Cycle Q Clear(g_c), s	17.9	0.0	10.8	14.4	0.0	9.5	4.2	0.0	64.3	1.2	0.0	60.1
Prop In Lane	0.42		1.00	1.00		0.21	1.00		0.15	1.00		0.04
Lane Grp Cap(c), veh/h	279	0	315	210	0	223	173	0	965	119	0	929
V/C Ratio(X)	0.88	0.00	0.45	0.86	0.00	0.59	0.66	0.00	0.94	0.27	0.00	0.94
Avail Cap(c_a), veh/h	402	0	421	368	0	390	287	0	1133	285	0	1154
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.7	0.0	48.2	58.6	0.0	56.4	30.7	0.0	30.2	30.3	0.0	32.1
Incr Delay (d2), s/veh	10.9	0.0	0.4	3.9	0.0	0.9	1.6	0.0	14.0	0.4	0.0	11.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.1	0.0	4.3	6.2	0.0	4.3	1.9	0.0	30.6	0.5	0.0	28.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.6	0.0	48.6	62.4	0.0	57.3	32.3	0.0	44.2	30.7	0.0	43.2
LnGrp LOS	E	A	D	E	A	E	C	A	D	C	A	D
Approach Vol, veh/h		387			311			1025			901	
Approach Delay, s/veh		60.6			60.3			42.9			42.8	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.3	78.4		26.8	12.3	74.4		23.1				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	15.0	85.0		30.0	15.0	85.0		30.0				
Max Q Clear Time (g_c+I1), s	3.2	66.3		19.9	6.2	62.1		16.4				
Green Ext Time (p_c), s	0.0	6.1		0.9	0.2	3.6		0.8				

Intersection Summary												
HCM 6th Ctrl Delay			47.5									
HCM 6th LOS			D									



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	861	814	50	0	41
Future Volume (vph)	0	861	814	50	0	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	12	12	12	16
Storage Length (ft)	40			0	0	0
Storage Lanes	0			0	0	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.992			0.865
Flt Protected						
Satd. Flow (prot)	0	1810	1795	0	0	1774
Flt Permitted						
Satd. Flow (perm)	0	1810	1795	0	0	1774
Link Speed (mph)		35	35		30	
Link Distance (ft)		279	286		98	
Travel Time (s)		5.4	5.6		2.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	0	936	885	54	0	45
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	936	939	0	0	45
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		11	11		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.09	1.00	1.00	1.00	1.00	0.85
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↱			↱
Traffic Vol, veh/h	0	861	814	50	0	41
Future Vol, veh/h	0	861	814	50	0	41
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	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	0	936	885	54	0	45

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	912
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.345
Pot Cap-1 Maneuver	0	-	-	-	0	328
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	328
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	17.7
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	328
HCM Lane V/C Ratio	-	-	-	0.136
HCM Control Delay (s)	-	-	-	17.7
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.5

Lane Group	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	10	319	203	40	49	10
Future Volume (vph)	10	319	203	40	49	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		0%	
Storage Length (ft)	100			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			0.978		0.977	
Flt Protected	0.950				0.960	
Satd. Flow (prot)	1728	1819	1770	0	1697	0
Flt Permitted	0.950				0.960	
Satd. Flow (perm)	1728	1819	1770	0	1697	0
Link Speed (mph)		35	35		30	
Link Distance (ft)		204	339		154	
Travel Time (s)		4.0	6.6		3.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	11	347	221	43	53	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	347	264	0	64	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	0.99	0.99	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	10	319	203	40	49	10
Future Vol, veh/h	10	319	203	40	49	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	11	347	221	43	53	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	264	0	-	0	612	243
Stage 1	-	-	-	-	243	-
Stage 2	-	-	-	-	369	-
Critical Hdwy	4.15	-	-	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	2.245	-	-	-	3.545	3.345
Pot Cap-1 Maneuver	1283	-	-	-	452	788
Stage 1	-	-	-	-	790	-
Stage 2	-	-	-	-	693	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1283	-	-	-	448	788
Mov Cap-2 Maneuver	-	-	-	-	448	-
Stage 1	-	-	-	-	783	-
Stage 2	-	-	-	-	693	-

Approach	EB	WB	SW
HCM Control Delay, s	0.2	0	13.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SWLn1
Capacity (veh/h)	1283	-	-	-	483
HCM Lane V/C Ratio	0.008	-	-	-	0.133
HCM Control Delay (s)	7.8	-	-	-	13.6
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.5

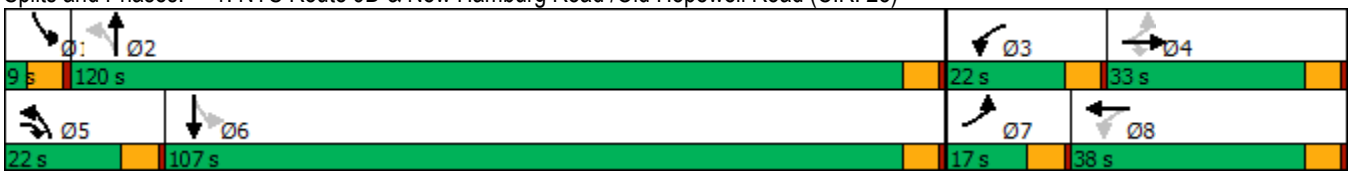
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	135	135	171	98	27	108	735	130	30	789	36
Future Volume (vph)	98	135	135	171	98	27	108	735	130	30	789	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	10	9	10	12	11	12	12	11	12	12
Grade (%)		0%			2%			0%			0%	
Storage Length (ft)	100		100	45		0	60		0	55		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			86			86			86		
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			0.850		0.968			0.977			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1620	1801	1478	1561	1666	0	1711	1820	0	1711	1850	0
Flt Permitted	0.673			0.393			0.073			0.117		
Satd. Flow (perm)	1148	1801	1478	646	1666	0	131	1820	0	211	1850	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			133		6			9			2	
Link Speed (mph)		35			40			35			35	
Link Distance (ft)		339			341			372			279	
Travel Time (s)		6.6			5.8			7.2			5.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	103	142	142	180	103	28	114	774	137	32	831	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	103	142	142	180	131	0	114	911	0	32	869	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)		10			10			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.04	1.09	1.16	1.11	1.01	1.04	1.00	1.00	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	2	2	2	2		2	2		2	2	
Detector Template												
Leading Detector (ft)	83	83	83	83	83		83	83		83	83	
Trailing Detector (ft)	-5	-5	-5	-5	-5		-5	-5		-5	-5	
Detector 1 Position(ft)	-5	-5	-5	-5	-5		-5	-5		-5	-5	
Detector 1 Size(ft)	40	40	40	40	40		40	40		40	40	
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)	43	43	43	43	43		43	43		43	43	
Detector 2 Size(ft)	40	40	40	40	40		40	40		40	40	
Detector 2 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	

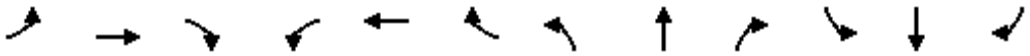
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	5	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	3.0	3.0	5.0	3.0		3.0	12.0		3.0	12.0	
Minimum Split (s)	11.0	9.0	9.0	11.0	9.0		9.0	18.0		9.0	18.0	
Total Split (s)	17.0	33.0	22.0	22.0	38.0		22.0	120.0		9.0	107.0	
Total Split (%)	9.2%	17.9%	12.0%	12.0%	20.7%		12.0%	65.2%		4.9%	58.2%	
Maximum Green (s)	11.0	27.0	16.0	16.0	32.0		16.0	114.0		3.0	101.0	
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)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	2.0	2.0	3.0	2.0		2.0	3.0		2.0	2.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
v/c Ratio	0.39	0.65	0.31	0.67	0.51		0.58	0.86		0.22	0.92	
Control Delay	48.9	76.3	11.3	58.2	62.2		29.6	34.4		14.0	46.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	48.9	76.3	11.3	58.2	62.2		29.6	34.4		14.0	46.2	
Queue Length 50th (ft)	68	119	6	126	100		37	665		10	675	
Queue Length 95th (ft)	158	244	72	#274	216		108	996		26	1023	
Internal Link Dist (ft)		259			261			292			199	
Turn Bay Length (ft)	100		100	45			60			55		
Base Capacity (vph)	278	379	526	290	420		279	1527		147	1425	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.37	0.37	0.27	0.62	0.31		0.41	0.60		0.22	0.61	

Intersection Summary

Area Type: Other
Cycle Length: 184
Actuated Cycle Length: 135.7
Natural Cycle: 90
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: NYS Route 9D & New Hamburg Road /Old Hopewell Road (C.R. 28)

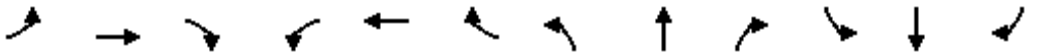




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	98	135	135	171	98	27	108	735	130	30	789	36
Future Volume (veh/h)	98	135	135	171	98	27	108	735	130	30	789	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1870	1870	1759	1847	1847	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	142	142	180	103	28	114	774	137	32	831	38
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	2	2	3	2	2	2	2	2	2	2	2
Cap, veh/h	290	202	248	290	214	58	206	843	149	150	911	42
Arrive On Green	0.07	0.11	0.11	0.11	0.15	0.15	0.05	0.54	0.54	0.02	0.51	0.51
Sat Flow, veh/h	1753	1870	1585	1675	1398	380	1781	1547	274	1781	1775	81
Grp Volume(v), veh/h	103	142	142	180	0	131	114	0	911	32	0	869
Grp Sat Flow(s),veh/h/ln	1753	1870	1585	1675	0	1778	1781	0	1821	1781	0	1856
Q Serve(g_s), s	5.7	8.1	9.2	10.2	0.0	7.4	3.3	0.0	50.3	0.9	0.0	47.3
Cycle Q Clear(g_c), s	5.7	8.1	9.2	10.2	0.0	7.4	3.3	0.0	50.3	0.9	0.0	47.3
Prop In Lane	1.00		1.00	1.00		0.21	1.00		0.15	1.00		0.04
Lane Grp Cap(c), veh/h	290	202	248	290	0	273	206	0	992	150	0	953
V/C Ratio(X)	0.36	0.70	0.57	0.62	0.00	0.48	0.55	0.00	0.92	0.21	0.00	0.91
Avail Cap(c_a), veh/h	346	457	464	344	0	515	377	0	1879	168	0	1697
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.9	47.5	43.2	37.2	0.0	42.7	23.7	0.0	22.9	22.9	0.0	24.6
Incr Delay (d2), s/veh	0.7	1.7	0.8	2.5	0.0	0.5	0.9	0.0	4.0	0.3	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	3.8	3.6	4.3	0.0	3.2	1.4	0.0	20.9	0.4	0.0	19.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.6	49.2	43.9	39.7	0.0	43.2	24.5	0.0	26.9	23.1	0.0	26.5
LnGrp LOS	D	D	D	D	A	D	C	A	C	C	A	C
Approach Vol, veh/h		387			311			1025			901	
Approach Delay, s/veh		45.0			41.2			26.6			26.4	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	66.2	18.4	18.0	11.3	62.7	13.5	22.9
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	3.0	114.0	16.0	27.0	16.0	101.0	11.0	32.0
Max Q Clear Time (g_c+I1), s	2.9	52.3	12.2	11.2	5.3	49.3	7.7	9.4
Green Ext Time (p_c), s	0.0	7.9	0.2	0.8	0.2	3.8	0.1	0.3

Intersection Summary	
HCM 6th Ctrl Delay	31.0
HCM 6th LOS	C



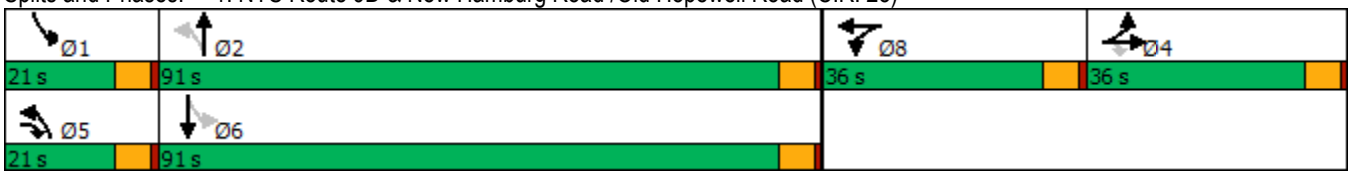
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	128	135	171	98	27	108	735	130	37	789	36
Future Volume (vph)	98	128	135	171	98	27	108	735	130	37	789	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	9	10	12	11	12	12	11	12	12
Grade (%)		0%			2%			0%			0%	
Storage Length (ft)	0		80	45		0	60		0	55		0
Storage Lanes	0		1	1		0	1		0	1		0
Taper Length (ft)	25			86			86			86		
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			0.850		0.968			0.977			0.993	
Flt Protected		0.979		0.950			0.950			0.950		
Satd. Flow (prot)	0	1808	1583	1561	1666	0	1711	1820	0	1711	1850	0
Flt Permitted		0.979		0.950			0.052			0.071		
Satd. Flow (perm)	0	1808	1583	1561	1666	0	94	1820	0	128	1850	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			68		6			6			2	
Link Speed (mph)		35			40			35			35	
Link Distance (ft)		339			341			372			279	
Travel Time (s)		6.6			5.8			7.2			5.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	103	135	142	180	103	28	114	774	137	39	831	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	238	142	180	131	0	114	911	0	39	869	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)		9			9			11			11	
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	1.16	1.11	1.01	1.04	1.00	1.00	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	2	2	2	2		2	2		2	2	
Detector Template												
Leading Detector (ft)	83	83	83	83	83		83	83		83	83	
Trailing Detector (ft)	-5	-5	-5	-5	-5		-5	-5		-5	-5	
Detector 1 Position(ft)	-5	-5	-5	-5	-5		-5	-5		-5	-5	
Detector 1 Size(ft)	40	40	40	40	40		40	40		40	40	
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)	43	43	43	43	43		43	43		43	43	
Detector 2 Size(ft)	40	40	40	40	40		40	40		40	40	
Detector 2 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	

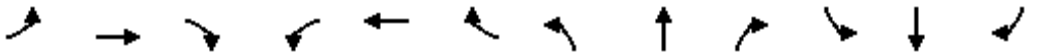
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Split	NA	pm+ov	Split	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	4	4	5	8	8		5	2		1	6	
Permitted Phases			4				2			6		
Detector Phase	4	4	5	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0		3.0	12.0		3.0	5.0	
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0		9.0	18.0		9.0	18.0	
Total Split (s)	36.0	36.0	21.0	36.0	36.0		21.0	91.0		21.0	91.0	
Total Split (%)	19.6%	19.6%	11.4%	19.6%	19.6%		11.4%	49.5%		11.4%	49.5%	
Maximum Green (s)	30.0	30.0	15.0	30.0	30.0		15.0	85.0		15.0	85.0	
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)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag			Lead				Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes				Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	3.0		2.0	2.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
v/c Ratio		0.88	0.32	0.84	0.56		0.70	0.91		0.31	0.93	
Control Delay		101.4	28.3	103.6	75.7		55.2	51.0		22.9	58.0	
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		101.4	28.3	103.6	75.7		55.2	51.0		22.9	58.0	
Queue Length 50th (ft)		266	66	202	134		69	967		18	938	
Queue Length 95th (ft)		#419	137	306	217		152	#1406		40	#1370	
Internal Link Dist (ft)		259			261			292			199	
Turn Bay Length (ft)			80	45			60			55		
Base Capacity (vph)		322	484	278	301		200	998		216	935	
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		0.74	0.29	0.65	0.44		0.57	0.91		0.18	0.93	

Intersection Summary

Area Type: Other
Cycle Length: 184
Actuated Cycle Length: 169.6
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: NYS Route 9D & New Hamburg Road /Old Hopewell Road (C.R. 28)

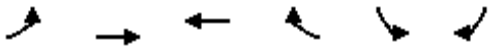




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	98	128	135	171	98	27	108	735	130	37	789	36
Future Volume (veh/h)	98	128	135	171	98	27	108	735	130	37	789	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1759	1847	1847	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	135	142	180	103	28	114	774	137	39	831	38
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	3	2	2	2	2	2	2	2	2
Cap, veh/h	118	154	309	210	175	48	177	820	145	125	894	41
Arrive On Green	0.15	0.15	0.15	0.13	0.13	0.13	0.05	0.53	0.53	0.02	0.50	0.50
Sat Flow, veh/h	792	1038	1585	1675	1398	380	1781	1547	274	1781	1775	81
Grp Volume(v), veh/h	238	0	142	180	0	131	114	0	911	39	0	869
Grp Sat Flow(s),veh/h/ln	1831	0	1585	1675	0	1778	1781	0	1821	1781	0	1856
Q Serve(g_s), s	17.4	0.0	10.8	14.4	0.0	9.5	4.2	0.0	64.2	1.5	0.0	59.6
Cycle Q Clear(g_c), s	17.4	0.0	10.8	14.4	0.0	9.5	4.2	0.0	64.2	1.5	0.0	59.6
Prop In Lane	0.43		1.00	1.00		0.21	1.00		0.15	1.00		0.04
Lane Grp Cap(c), veh/h	272	0	309	210	0	223	177	0	965	125	0	935
V/C Ratio(X)	0.87	0.00	0.46	0.86	0.00	0.59	0.64	0.00	0.94	0.31	0.00	0.93
Avail Cap(c_a), veh/h	403	0	422	368	0	391	291	0	1135	285	0	1156
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.8	0.0	48.6	58.4	0.0	56.3	30.4	0.0	30.1	30.2	0.0	31.6
Incr Delay (d2), s/veh	9.7	0.0	0.4	3.9	0.0	0.9	1.5	0.0	13.9	0.5	0.0	10.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	0.0	4.3	6.2	0.0	4.3	1.9	0.0	30.6	0.6	0.0	28.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.5	0.0	49.0	62.3	0.0	57.2	31.8	0.0	44.1	30.7	0.0	42.0
LnGrp LOS	E	A	D	E	A	E	C	A	D	C	A	D
Approach Vol, veh/h		380			311			1025			908	
Approach Delay, s/veh		60.0			60.2			42.7			41.5	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.7	78.3		26.3	12.3	74.7		23.1				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	15.0	85.0		30.0	15.0	85.0		30.0				
Max Q Clear Time (g_c+I1), s	3.5	66.2		19.4	6.2	61.6		16.4				
Green Ext Time (p_c), s	0.0	6.1		0.9	0.2	3.6		0.8				

Intersection Summary												
HCM 6th Ctrl Delay			46.9									
HCM 6th LOS			D									



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	861	814	50	0	48
Future Volume (vph)	0	861	814	50	0	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	12	12	12	16
Storage Length (ft)	40			0	0	0
Storage Lanes	0			0	0	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.992			0.865
Flt Protected						
Satd. Flow (prot)	0	1810	1795	0	0	1774
Flt Permitted						
Satd. Flow (perm)	0	1810	1795	0	0	1774
Link Speed (mph)		35	35		30	
Link Distance (ft)		279	286		98	
Travel Time (s)		5.4	5.6		2.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	0	936	885	54	0	52
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	936	939	0	0	52
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		11	11		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.09	1.00	1.00	1.00	1.00	0.85
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

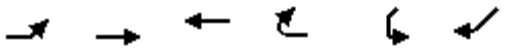
Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	861	814	50	0	48
Future Vol, veh/h	0	861	814	50	0	48
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	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	0	936	885	54	0	52

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	912
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.345
Pot Cap-1 Maneuver	0	-	-	-	0	328
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	328
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	18
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	328
HCM Lane V/C Ratio	-	-	-	0.159
HCM Control Delay (s)	-	-	-	18
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.6



Lane Group	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	10	361	203	40	0	52
Future Volume (vph)	10	361	203	40	0	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	11	12	12	12	12
Grade (%)		-1%	0%		0%	
Storage Length (ft)	100			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			0.978		0.865	
Flt Protected	0.950					
Satd. Flow (prot)	1555	1758	1770	0	1565	0
Flt Permitted	0.950					
Satd. Flow (perm)	1555	1758	1770	0	1565	0
Link Speed (mph)		35	35		30	
Link Distance (ft)		204	339		154	
Travel Time (s)		4.0	6.6		3.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	11	392	221	43	0	57
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	392	264	0	57	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		9	9		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.14	1.04	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

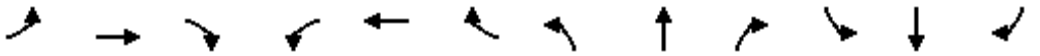
Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	10	361	203	40	0	52
Future Vol, veh/h	10	361	203	40	0	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	11	392	221	43	0	57

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	264	0	-	0	657	243
Stage 1	-	-	-	-	243	-
Stage 2	-	-	-	-	414	-
Critical Hdwy	4.15	-	-	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	2.245	-	-	-	3.545	3.345
Pot Cap-1 Maneuver	1283	-	-	-	425	788
Stage 1	-	-	-	-	790	-
Stage 2	-	-	-	-	661	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1283	-	-	-	421	788
Mov Cap-2 Maneuver	-	-	-	-	421	-
Stage 1	-	-	-	-	783	-
Stage 2	-	-	-	-	661	-

Approach	EB	WB	SW
HCM Control Delay, s	0.2	0	9.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SWLn1
Capacity (veh/h)	1283	-	-	-	788
HCM Lane V/C Ratio	0.008	-	-	-	0.072
HCM Control Delay (s)	7.8	-	-	-	9.9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2



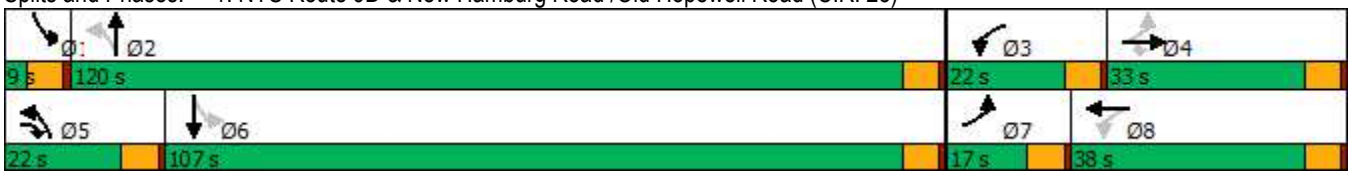
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	128	135	171	98	27	108	735	130	37	789	36
Future Volume (vph)	98	128	135	171	98	27	108	735	130	37	789	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	10	9	10	12	11	12	12	11	12	12
Grade (%)		0%			2%			0%			0%	
Storage Length (ft)	100		100	45		0	60		0	55		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			86			86			86		
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			0.850		0.968			0.977			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1620	1801	1478	1561	1666	0	1711	1820	0	1711	1850	0
Flt Permitted	0.673			0.409			0.074			0.119		
Satd. Flow (perm)	1148	1801	1478	672	1666	0	133	1820	0	214	1850	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140		6			9			2	
Link Speed (mph)		35			40			35			35	
Link Distance (ft)		339			341			372			279	
Travel Time (s)		6.6			5.8			7.2			5.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	103	135	142	180	103	28	114	774	137	39	831	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	103	135	142	180	131	0	114	911	0	39	869	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)		10			10			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.04	1.09	1.16	1.11	1.01	1.04	1.00	1.00	1.04	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	2	2	2	2		2	2		2	2	
Detector Template												
Leading Detector (ft)	83	83	83	83	83		83	83		83	83	
Trailing Detector (ft)	-5	-5	-5	-5	-5		-5	-5		-5	-5	
Detector 1 Position(ft)	-5	-5	-5	-5	-5		-5	-5		-5	-5	
Detector 1 Size(ft)	40	40	40	40	40		40	40		40	40	
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)	43	43	43	43	43		43	43		43	43	
Detector 2 Size(ft)	40	40	40	40	40		40	40		40	40	
Detector 2 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	

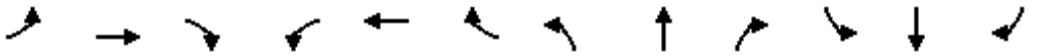
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	5	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	3.0	3.0	5.0	3.0		3.0	12.0		3.0	12.0	
Minimum Split (s)	11.0	9.0	9.0	11.0	9.0		9.0	18.0		9.0	18.0	
Total Split (s)	17.0	33.0	22.0	22.0	38.0		22.0	120.0		9.0	107.0	
Total Split (%)	9.2%	17.9%	12.0%	12.0%	20.7%		12.0%	65.2%		4.9%	58.2%	
Maximum Green (s)	11.0	27.0	16.0	16.0	32.0		16.0	114.0		3.0	101.0	
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)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	2.0	2.0	3.0	2.0		2.0	3.0		2.0	2.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
v/c Ratio	0.39	0.64	0.31	0.66	0.52		0.58	0.86		0.26	0.92	
Control Delay	49.0	75.9	9.8	57.9	62.9		28.5	33.9		14.7	45.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	49.0	75.9	9.8	57.9	62.9		28.5	33.9		14.7	45.6	
Queue Length 50th (ft)	68	112	1	125	99		37	657		12	668	
Queue Length 95th (ft)	158	233	64	#271	216		105	981		29	1010	
Internal Link Dist (ft)		259			261			292			199	
Turn Bay Length (ft)	100		100	45			60			55		
Base Capacity (vph)	275	383	529	293	424		282	1538		149	1436	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.37	0.35	0.27	0.61	0.31		0.40	0.59		0.26	0.61	

Intersection Summary

Area Type: Other
Cycle Length: 184
Actuated Cycle Length: 134.5
Natural Cycle: 90
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: NYS Route 9D & New Hamburg Road /Old Hopewell Road (C.R. 28)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	98	128	135	171	98	27	108	735	130	37	789	36
Future Volume (veh/h)	98	128	135	171	98	27	108	735	130	37	789	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1870	1870	1759	1847	1847	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	135	142	180	103	28	114	774	137	39	831	38
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	2	2	3	2	2	2	2	2	2	2	2
Cap, veh/h	289	202	247	293	214	58	208	842	149	154	916	42
Arrive On Green	0.07	0.11	0.11	0.11	0.15	0.15	0.05	0.54	0.54	0.02	0.52	0.52
Sat Flow, veh/h	1753	1870	1585	1675	1398	380	1781	1547	274	1781	1775	81
Grp Volume(v), veh/h	103	135	142	180	0	131	114	0	911	39	0	869
Grp Sat Flow(s),veh/h/ln	1753	1870	1585	1675	0	1778	1781	0	1821	1781	0	1856
Q Serve(g_s), s	5.7	7.7	9.3	10.3	0.0	7.5	3.3	0.0	50.8	1.2	0.0	47.5
Cycle Q Clear(g_c), s	5.7	7.7	9.3	10.3	0.0	7.5	3.3	0.0	50.8	1.2	0.0	47.5
Prop In Lane	1.00		1.00	1.00		0.21	1.00		0.15	1.00		0.04
Lane Grp Cap(c), veh/h	289	202	247	293	0	272	208	0	992	154	0	958
V/C Ratio(X)	0.36	0.67	0.57	0.61	0.00	0.48	0.55	0.00	0.92	0.25	0.00	0.91
Avail Cap(c_a), veh/h	344	453	460	345	0	511	378	0	1863	167	0	1682
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.3	47.8	43.6	37.5	0.0	43.2	23.6	0.0	23.1	23.1	0.0	24.5
Incr Delay (d2), s/veh	0.7	1.4	0.8	2.4	0.0	0.5	0.8	0.0	4.0	0.3	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	3.6	3.6	4.3	0.0	3.3	1.4	0.0	21.1	0.5	0.0	19.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.0	49.2	44.4	39.9	0.0	43.7	24.5	0.0	27.1	23.5	0.0	26.5
LnGrp LOS	D	D	D	D	A	D	C	A	C	C	A	C
Approach Vol, veh/h		380			311			1025			908	
Approach Delay, s/veh		45.2			41.5			26.8			26.3	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.2	66.7	18.5	18.0	11.4	63.6	13.5	23.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	3.0	114.0	16.0	27.0	16.0	101.0	11.0	32.0
Max Q Clear Time (g_c+I1), s	3.2	52.8	12.3	11.3	5.3	49.5	7.7	9.5
Green Ext Time (p_c), s	0.0	7.9	0.2	0.8	0.2	3.8	0.1	0.3

Intersection Summary	
HCM 6th Ctrl Delay	31.1
HCM 6th LOS	C

LEVEL OF SERVICE STANDARDS

LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS

Level of Service (LOS) can be characterized for the entire intersection, each intersection approach, and each lane group. Control delay alone is used to characterize LOS for the entire intersection or an approach. Control delay and volume-to-capacity (v/c) ratio are used to characterize LOS for a lane group. Delay quantifies the increase in travel time due to traffic signal control. It is also a measure of driver discomfort and fuel consumption. The volume-to-capacity ratio quantifies the degree to which a phase's capacity is utilized by a lane group.

LOS A describes operations with a control delay of 10 s/veh or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is exceptionally favorable or the cycle length is very short. If it is due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.

LOS B describes operations with control delay between 10 and 20 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.

LOS C describes operations with control delay between 20 and 35 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when progression is favorable or the cycle length is moderate.

LOS D describes operations with control delay between 35 and 55 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long.
LOS E describes operations with control delay between 55 and 80 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long.

LOS F describes operations with control delay exceeding 80 s/veh or a volume-to-capacity ratio greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long.

A lane group can incur a delay less than 80 s/veh when the volume-to-capacity ratio exceeds 1.0. This condition typically occurs when the cycle length is short, the signal progression is favorable, or both. As a result, both the delay and volume-to-capacity ratio are considered when lane group LOS is established. A ratio of 1.0 or more indicates that cycle capacity is fully utilized and represents failure from a capacity perspective (just as delay in excess of 80 s/veh represents failure from a delay perspective).

The Level of Service Criteria for signalized intersections are given in Exhibit 19-8 from the *Highway Capacity Manual, 6th Edition* published by the Transportation Research Board.

Exhibit 19-8

	LOS by Volume-to-Capacity Ratio	
Control Delay (s/veh)	**v/c ≤1.0**	**v/c >1.0**
≤10	A	F
>10-20	B	F
>20-35	C	F
>35-55	D	F
>55-80	E	F
>80	F	F

For approach-based and intersection wide assessments, LOS is defined solely by control delay

LEVEL OF SERVICE CRITERIA
FOR TWO-WAY STOP-CONTROLLED (TWSC) UNSIGNALIZED INTERSECTIONS

Level of Service (LOS) for a two-way stop-controlled (TWSC) intersection is determined by the computed or measured control delay. For motor vehicles, LOS is determined for each minor-street movement (or shared movement) as well as major-street left turns. LOS is not defined for the intersection as a whole or for major-street approaches.

The Level of Service Criteria for TWSC unsignalized intersections are given in Exhibit 20-2 from the *Highway Capacity Manual*, *6th Edition* published by the Transportation Research Board.

Exhibit 20-2

	LOS by Volume-to-Capacity Ratio	
Control Delay (s/veh)	**v/c ≤1.0**	**v/c >1.0**
0-10	A	F
>10-15	B	F
>15-25	C	F
>25-35	D	F
>35-50	E	F
>50	F	F

The LOS criteria apply to each lane on a given approach and to each approach on the minor street.
LOS is not calculated for major-street approaches or for the intersection as a whole.

As Exhibit 20-2 notes, LOS F is assigned to the movement if the volume-to-capacity ratio for the movement exceeds 1.0, regardless of the control delay.

The Level of Service Criteria for unsignalized intersections are somewhat different from the criteria for signalized intersections.