Traffic Impact Study

for the proposed

Townhomes at Dryden

Town of Dryden
Tompkins County, New York

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Project No. 38053

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EXECUTIVE SUMMARY

OVERVIEW

The purpose of this report is to evaluate the potential traffic impacts associated with the proposed Townhomes at Dryden project in the Town of Dryden, Tompkins County, New York. Within this report, the operating characteristics of the proposed access drives and impacts to the adjacent roadway network are identified, and mitigating measures, if needed, are provided to minimize capacity or safety concerns.

In an effort to define traffic impact, this analysis establishes existing traffic conditions, projects background traffic flow including area growth, and determines the traffic operations that would result from the proposed project.

The project site is located adjacent the intersection of NYS Route 366/Freese Road/Mt. Pleasant Road in the Town of Dryden, New York with frontage along NYS Route 366 (Dryden Road) and Mt. Pleasant Road. The project site is bounded by residential development and NYS Route 366 to the north; Mt. Pleasant Road and farmland to the east; farmland and forested land to the south; and forest land and a vehicle service center to the west. Land uses within the study area predominately consist of agricultural, residential, and service uses. The project site is currently undeveloped.

The study area, coordinated with the New York State Department of Transportation and Town of Dryden, includes the following existing intersections along NYS Route 366 at:

1. Freese Road/Mt. Pleasant Road
2. Game Farm Road/Arboretum Center

The proposed project consists of constructing:

- 219 units/602 beds of townhomes style housing targeting the college student demographic.
- 2,112± square feet (SF) of retail space conceptually proposed as:
    - 800± SF coffee/donut shop
    - 1,312± SF specialty retail

Access will be provided via three new driveways: one along NYS Route 366 and two along Mt. Pleasant Road. The proposed northerly driveway along Mt. Pleasant Road will be limited access and restrict left-turns from exiting the driveway.

Construction of the proposed project is anticipated to reach full build-out in approximately two years. The Town of Dryden was contacted to discuss any other specific developments that are currently approved or under construction that would generate additional traffic in the study area. Three projects were identified: the Cottages at Fall Creek Crossing, 802 Dryden Road Townhomes, and 1061 Dryden Road Townhomes. Traffic generated by these projects may have a longer timeframe than the proposed build-out of the proposed project. However, to remain conservative, this traffic was added to the study area intersections for the build-out period.

To account for normal increases in background traffic growth, including any unforeseen developments in the project study area aside from the aforesaid developments, a growth rate of 0.5% has been applied to the existing traffic volumes in the study area based on historical traffic volumes.

CONCLUSIONS & RECOMMENDATIONS

This study identifies and evaluates the potential traffic impacts that can be expected from the proposed Townhomes at Dryden project in the Town of Dryden, New York. The results of this study determine that the existing transportation network can adequately accommodate the projected traffic volumes and resulting impacts to study area intersections. The following sets forth the conclusions and recommendations based upon the results of the analyses:

1. The proposed project is expected to generate approximately 59 entering/110 exiting vehicle trips during the AM peak hour and 120 entering/96 exiting vehicle trips during the PM peak hour. Not all these driveway volumes are new, but instead a portion of the proposed volume is reduced considering internal and pass-by adjustments. Thus, the proposed project is expected to generate approximately 25 entering/70 exiting new vehicle trips during the AM peak hour and 91 entering/69 exiting new vehicle trips during the PM peak hour.

2. It is also recognized that there is variability in the trip generation associated with the student housing program. Variables affecting trip generation can be campus parking policies, class schedules, shuttle service, and other demand management strategies (e.g., carpooling). These variables can have the net effect of reducing total site generated trips.

3. Based upon the expected delays under full development, the following is recommended at NYS Route 366/Game Farm Road/Arboretum Center. Periodic snapshots of actual traffic operations at this intersection and proposed site driveways (to determine actual trip generation and distribution rates and patterns) are recommended as part of a Monitoring and Mitigation Plan to determine if/when the identified improvements are justified.
    a. Based on a preliminary Traffic Signal Warrant Investigation using available turning movement count data, conditions for a traffic signal are partially met under existing and full build conditions. A full Traffic Signal Warrant Investigation includes nine warrants, as per the Manual on Uniform Traffic Control Devices (2009), three of which are volume-related warrants: Eight-Hour, Four-Hour, and Peak Hour. This study reviewed the Four-Hour and Peak Hour warrants. The New York State Department of Transportation (NYSDOT) bases justification for installing traffic signals on these strict guidelines as there are pros and cons to installing this traffic control device. This intersection should be monitored as nearby approved development progresses and future traffic volumes materialize.

    b. It is important to note that based on available hourly data obtained by the NYSDOT, conditions will be satisfactory for most hours of the typical day, save for the AM peak hour, as evidenced by the projected capacity analysis results.

    c. More detailed studies, including delay, gap and crash analyses should be performed to fully assess if/when a potential traffic signal is justified.

    d. Any future capacity improvements should be coordinated with the New York State Department of Transportation, Tompkins County, the Towns of Ithaca and Dryden, and project sponsors of future developments to determine if these improvements are necessary.

    e. To note, a 15-20% reduction in student-associated trip generation estimates as a result of demand management strategies (discussed later in this report) can

reduce northbound AM peak hour projected delays at this intersection by up to 45 seconds.

4. An existing Traffic Gap Analysis along NYS Route 366 at the intersections with Freese Road/Mt. Pleasant Road and Game Farm Road showed that there are sufficient gaps during the critical AM peak hour to accommodate the existing left-turn movements exiting the minor side roads onto NYS Route 366.

5. The proposed access drives shall be stop-controlled for their approaches to the adjacent roadways.

6. The results of the Left-Turn Treatment Warrant Investigation at the proposed access driveway along NYS Route 366 show that left-turn treatments are not warranted during the peak hours.

7. Transportation Demand Management (TDM) strategies are recommended to reduce travel and parking demands.
    a. The application of TDM strategies align with the goals and strategies outlined in the June 2008 Cornell University Transportation Impact Mitigation Strategies report.
    b. When taken together and appropriately applied, TDM strategies may result in a travel and parking demand reduction of up to 15-20%.
    c. A monitoring plan can be established to measure the effectiveness of these, or other, strategies in reducing travel demand.

8. The proposed project will result in traffic impacts to the study area intersections that can be appropriately accommodated via TDM strategies and potentially mutually coordinated improvements, as outlined in this study.

I. INTRODUCTION

The purpose of this report is to evaluate the potential traffic impacts associated with the proposed Townhomes at Dryden project in the Town of Dryden, Tompkins County, New York. Within this report, the operating characteristics of the proposed access drives and impacts to the adjacent roadway network are identified, and mitigating measures, if needed, are provided to minimize capacity or safety concerns.

In an effort to define traffic impact, this analysis establishes existing traffic conditions, projects background traffic flow including area growth, and determines the traffic operations that would result from the proposed project.

II. LOCATION

The project site is located adjacent the intersection of NYS Route 366/Freese Road/Mt. Pleasant Road in the Town of Dryden, New York with frontage along NYS Route 366 (Dryden Road) and Mt. Pleasant Road. The project site is bounded by residential development and NYS Route 366 to the north; Mt. Pleasant Road and farmland to the east; farmland and forested land to the south; and forest land and a vehicle service center to the west. Land uses within the study area predominately consist of agricultural, residential, and service uses. The project site is currently undeveloped.

The study area, coordinated with the New York State Department of Transportation and Town of Dryden, includes the following existing intersections along NYS Route 366 at:

1. Freese Road/Mt. Pleasant Road
2. Game Farm Road/Arboretum Center

The site location and study area are illustrated in **Figure 1** (all Figures are included at the end of this report).

III. EXISTING HIGHWAY SYSTEM

The following information outlined in **Table 1** provides a description of the existing roadway network within the project study area. **Figure 2** illustrates the lane geometry at each of the study intersections and the Average Daily Traffic (ADT) volumes on the study roadways.

TABLE 1
EXISTING HIGHWAY SYSTEM

ROADWAY	ROUTE[1]	FUNC. CLASS[2]	JURIS.[3]	SPEED LIMIT[4]	# OF TRAVEL LANES[5]	TRAVEL PATTERN/ DIRECTION	EST. ADT[6]	AADT SOURCE[7]
Dryden Road	NYS Rte 366	Minor Arterial	NYSDOT	30-45	2	Two-way/ East-West	7,126	NYSDOT (2013)
Freese Road	-	Local	Town of Dryden	30	2	Two-way/ North-South	2,500	SRFA (2017)
Mt. Pleasant Road	-	Local	Town of Dryden	30	2	Two-way/ North-South	1,800	SRFA (2017)

ROADWAY	ROUTE[1]	FUNC. CLASS[2]	JURIS.[3]	SPEED LIMIT[4]	# OF TRAVEL LANES[5]	TRAVEL PATTERN/ DIRECTION	EST. ADT[6]	AADT SOURCE[7]
Game Farm Road	CR 173	Major Collector	Tompkins County	45	2	Two-way/ North-South	2,180	NYSDOT (2014)

Notes:

1. "NYS" = New York State; "CR" = County Road.
2. State Functional Classification of Roadway: All are Urban.
3. Jurisdiction: "NYSDOT" = New York State Department of Transportation.
4. Posted or Statewide Limit in Miles per Hour (MPH).
5. Excludes turning/auxiliary lanes developed at intersections.
6. Estimated ADT in Vehicles per Day (VPD).
7. Source (Year). SRF Associates (SRFA) volumes determined via an extrapolation of turning movement counts.

IV. EXISTING TRAFFIC CONDITIONS

A. Peak Intervals for Analysis

Given the functional characteristics of the corridors, adjacent land uses, and the proposed land uses for the project site (residential, coffee/donut shop, small scale retail), the peak hours selected for analysis are the weekday commuter AM and PM peak periods.

B. Existing Traffic Volume Data

Turning movement traffic counts were collected on Wednesday, May 3, 2017 by SRF Associates (SRFA) at the study area intersections. Traffic counts were conducted between 7:00-9:00 AM and 4:00-6:00 PM during the weekday commuter AM and PM peak periods, respectively. The peak hour traffic periods generally occurred between 7:30-8:30 AM and 4:00-5:00 PM.

All turning movement count data was collected on a typical weekday while local schools, universities, and colleges were in session. There were no adverse weather conditions. To obtain the 2018 existing base condition volumes at the study intersections, a conservative growth rate of 1.5% was applied to the collected traffic volume counts for a one-year period. Additionally, the Town of Dryden was consulted to determine if any development had occurred between the time of data collection and established 2018 base condition. No projects were identified. The base weekday AM and PM peak hour volumes are reflected in **Figure 3**.

C. Field Observations

The study intersections were observed during both peak intervals to assess current traffic operations. A Traffic Gap Analysis (described in detail later in this report) was performed. This information was used to support and/or calibrate capacity analysis models described in detail later in this report.

V. FUTURE AREA DEVELOPMENT AND LOCAL GROWTH

Construction of the proposed project is anticipated to reach full build-out in approximately two years. The Town of Dryden was contacted to discuss any other specific developments that are currently approved or under construction that would generate additional traffic in the study area. Three projects were identified: the Cottages at Fall Creek Crossing, 802 Dryden Road Townhomes, and 1061 Dryden Road Townhomes. Traffic generated by these projects may have a longer timeframe than the proposed build-out of the proposed project. However, to remain conservative, this traffic was added to the study area intersections for the build-out period.

To account for normal increases in background traffic growth, including any unforeseen developments in the project study area aside from the aforesaid developments, a growth rate of 0.5% has been applied to the existing traffic volumes in the study area based on historical traffic volumes. The background traffic volumes are depicted in **Figure 4**.

VI. PROPOSED DEVELOPMENT

A. Description

The proposed project consists of constructing:

- 219 units/602 beds of townhomes style housing targeting the college student demographic.
- 2,112± square feet (SF) of retail space conceptually proposed as:
  - 800± SF coffee/donut shop
  - 1,312± SF specialty retail

Access will be provided via three new driveways: one along NYS Route 366 and two along Mt. Pleasant Road. The proposed northerly driveway along Mt. Pleasant Road will be limited access and restrict left-turns from exiting the driveway. **Figure 5** illustrates the proposed concept plan.

B. Site Traffic

The volume of traffic generated by a site is dependent on the intended land use and size of the development. Trip generation is an estimate of the number of trips generated by a specific building or land use. These trips represent the volume of traffic entering and exiting the development. Trip Generation, 10th Edition (2017) published by the Institute of Transportation Engineers (ITE) is used as a reference for this information. The trip rate for the peak hour of the generator may or may not coincide in time or volume with the trip rate for the peak hour of adjacent street traffic. Volumes generated during the peak hour of the adjacent street traffic and proposed land uses, in this case the weekday commuter AM and PM peaks, represent a more critical volume when analyzing the capacity of the system; those intervals will provide the basis of this analysis.

According to the ITE, the following steps are recommended when determining trip generation for proposed land uses:

1. Check for the availability of local trip generation rates for comparable uses.

2. If local trip data for similar developments are not available and time and funding permit, conduct trip generation studies at sites with characteristics similar to those of the proposed development.

Trip generation estimates for the proposed residential units were based on proxy site trip generation rates through data collected at off-campus student housing developments at nearby Ithaca College, University at Buffalo, and SUNY Brockport. Using this information, AM and PM peak hour trip rates were determined based on the number of existing residents (average of 495 residents) living on-site. It should be noted that no trip reduction credits were applied to the projected estimates as the sites are currently serviced by complimentary shuttle service to/from the nearby campuses. Shuttle service is proposed for the proposed project.

The trip rate determined from these sites was compared to ITE data for off-campus student housing projects greater than ½-mile from campus and was found to be comparable, if not slightly more conservative, especially during the PM peak hour.

Table II shows the total site generated trips for the weekday commuter AM and PM peak hours for the proposed project. All trip generation information has been included in the Appendices.

TABLE II
TOTAL SITE GENERATED TRIPS

DESCRIPTION	ITE LAND USE CODE	SIZE	AM PEAK		PM PEAK	
			ENTER	EXIT	ENTER	EXIT
Off-Campus Student Housing	-	602 Beds	16	68	93	69
Coffee/Donut Shop without Drive-Through Window	936	800± SF	41	40	15	14
Specialty Retail	820	1,312± SF	2	2	12	13
Total Site Generated Trips			**59**	**110**	**120**	**96**

A comparison between ITE rates and local rates for off-campus student housing was performed and is shown in the following table.

TABLE III
COMPARISON OF TRIPS FOR OFF-CAMPUS STUDENT HOUSING

DESCRIPTION	ITE LAND USE CODE	SIZE	AM PEAK		PM PEAK	
			ENTER	EXIT	ENTER	EXIT
Off-Campus Student Housing (Proxy)	-	602 Beds	16	68	93	69
Off-Campus Student Housing (ITE)		602 Beds	15	69	75	75
Trip Generation Comparison			**+1**	**-1**	**+18**	**-6**

Compared to using ITE trip rates, the proxy site trip rate generates an equal amount of traffic during the AM peak hour and 12 vehicles trips greater during the PM peak hour. Additionally, proxy site trip rates

C. ***Determination Multi-use (Internal) and Pass-by Trips***

Inherent in the trip generation estimates for the proposed project is the "multi-use" traffic component of traffic entering and exiting the site. According to the Institute of Transportation Engineers Trip Generation Handbook, 3rd Edition (2014), "…a multi-use development is typically a single real-estate project that consists of two or more ITE land use classifications between which trips can be made without using the off-site road system. Because of the nature of these land uses, the trip-making characteristics are interrelated, and some trips are made among the on-site uses. This capture of trips internal to the site has the net effect of reducing vehicle trip generation between the overall development site and the external street system (compared to the total number of trips generated by comparable, standalone sites)." "In some multi-use developments, these internal trips can be made by walking or by vehicles entirely on internal pathways or internal roadways without using streets external to the site."

The ITE Trip Generation Handbook indicates internal capture rates for trips within a multi-use development to vary between residential, office, retail, restaurant, and entertainment and recreational uses during the AM and PM peak hours. Given the area in which the project site is located, the proposed land use components, and interconnection between these components, multi-use (or multiple purpose) total volume trips will likely occur.

Therefore, it is estimated, based on methods in the ITE Trip Generation Handbook using the recommended National Cooperative Highway Research Program (NCHRP) Report 684: Enhancing Internal Trip Capture Estimation for Mixed-use Developments spreadsheet model, that an approximate 12%, and 17% internal reduction credit in total trip generation for the site should be used during the AM and PM peak periods, respectively.

These multi-use trip projection adjustments were applied to the respective site generated trips and subtracted from the traffic entering and exiting the site during the AM and PM peak periods. The interactive spreadsheet considers baseline mode shares and vehicle occupancy factors for the proposed land uses, as described in the Trip Generation Handbook, as well as average land use interchange distances (feet walking distance) to determine the internal capture percentage. This completed spreadsheet model is included in the Appendices.

Additionally, for certain types of developments, the total number of trips generated is different from the amount of new traffic added to the adjacent highway network by the generator. Service-oriented developments (i.e., shopping centers, banks, restaurants, and coffee/donut shops) often locate adjacent to busy streets to attract the motorists already passing the site on the adjacent street; in this case NYS Route 366. These sites attract a portion of their trips from traffic passing the site. The "pass-by" traffic refers to the amount of existing traffic already on the roadway adjacent to the site that, as it "passes by" the site, will enter the site driveways to patronize the project site. The quantifying of "pass-by" trips has the net result of reducing the volume of new traffic that is added to the site driveways and/or adjacent roadways.

This site and proposed land use are likely to exhibit some level of pass-by traffic. The ITE Trip Generation Handbook does not have data for a Coffee/Donut Shop *without* Drive-Through Window. Therefore, the most appropriate pass-by rate for this proposed land use was approximated by evaluating pass-by rates for other similar uses and a general knowledge of coffee/donut shop operations. Pass-by data for a Coffee/Donut Shops *with* Drive-Through Window was consulted and was determined to have an average pass-by rate of 89%. The average pass-by rate for a High-Turnover (Sit-Down) Restaurant is 43% during the PM peak

hour. Given that the proposed coffee/donut shop does not have a drive-thru window, pass-by rates are likely to be somewhat lower than the documented 89% rate for facilities with a drive-thru window. Further, pass-by rates are likely to be higher than the documented 43% rate for a High-Turnover (Sit-Down) Restaurant. As a result, and based on our experience for other coffee/donut shop facilities, pass-by rates of 70% and 50% are assumed for the AM and PM peak hours, respectively.

Pass-by rates during the PM peak period for retail uses based on ITE data range from 8% to 74% for retail uses (average 34%). A conservative pass-by rate of 20% is assumed for the PM peak hour.

Table IV shows the total site generated trips, internal trips, pass-by trips, and resulting primary trips that are added to the existing highway system for full development of the project.

TABLE IV
SITE GENERATED TRIPS AND ADJUSTMENTS

DESCRIPTION	ITE LAND USE CODE	SIZE	AM PEAK		PM PEAK	
			ENTER	EXIT	ENTER	EXIT
Off-Campus Student Housing	-	602 Beds	16	68	93	69
Coffee/Donut Shop without Drive-Through Window	936	800± SF	41	40	15	14
Specialty Retail	820	1,312± SF	2	2	12	13
Total Site Generated Trips			**59**	**110**	**120**	**96**
Internal Adjustment			*-9*	*-11*	*-19*	*-18*
Pass-by Adjustment			*-23*	*-27*	*-5*	*-3*
Total Primary (New) Trips			**25**	**70**	**91**	**69**

The proposed project is expected to generate approximately 59 entering/110 exiting vehicle trips during the AM peak hour and 120 entering/96 exiting vehicle trips during the PM peak hour. Not all these driveway volumes are new, but instead a portion of the proposed volume is reduced considering internal and pass-by adjustments. Thus, the proposed project is expected to generate approximately 25 entering/70 exiting new vehicle trips during the AM peak hour and 91 entering/69 exiting new vehicle trips during the PM peak hour.

It is also recognized that there is variability in the trip generation associated with the student housing program. Variables affecting trip generation can be campus parking policies, class schedules, shuttle service, and other demand management strategies (e.g., carpooling). These variables can have the net effect of reducing total site generated trips.

D. Site Traffic Distribution

The cumulative effect of site-generated traffic on the transportation network is dependent on the origins and destinations of that traffic and the location of the access drives serving the site. The proposed arrival/departure distribution of traffic generated by the proposed project is considered a function of several parameters, including:

- Proximity to Cornell University;
- Site access driveway locations and internal roadway layout;
- Commercial centers in the area;
- Existing traffic patterns; and
- Existing traffic conditions and controls

Figures 6A-6C show the anticipated trip distribution pattern percentages for the traffic from the proposed project; residential, coffee/donut shop, and retail, respectively. **Figures 7A-7C** illustrate the peak hour site-generated traffic based on those percentages, respectively. **Figure 7D** illustrates the total site generated trips.

VII. FULL DEVELOPMENT VOLUMES

The projected design hour traffic volumes were developed for the AM and PM peak hours by combining the background traffic conditions (Figure 4) and the new site-generated traffic volumes (Figure 7D) to yield the total traffic conditions expected at full development. The resulting design hour volumes for the proposed project are illustrated in **Figure 8** under full build-out conditions.

VIII. CAPACITY ANALYSIS

Capacity analysis is a technique used for determining a measure of effectiveness for a section of roadway and/or intersection based on the number of vehicles during a specific time period. The measure of effectiveness used for the capacity analysis is referred to as a Level of Service (LOS). Levels of Service are calculated to provide an indication of the amount of delay that a motorist experiences while traveling along a roadway or through an intersection. Since the most amount of delay to motorists usually occurs at intersections, capacity analysis typically focuses on intersections, as opposed to highway segments.

Six Levels of Service are defined for analysis purposes. They are assigned letter designations, from "A" to "F", with LOS "A" representing the best conditions and LOS "F" the worst. Suggested ranges of service capacity and an explanation of Levels of Service are included in the Appendices.

The standard procedure for capacity analysis of signalized and un-signalized intersections is outlined in the Highway Capacity Manual (HCM) 6th Edition (2016) published by the Transportation Research Board (TRB). Traffic analysis software, SYNCHRO 10, which is based on procedures and methodologies contained in the HCM, was used to analyze operating conditions at study area intersections. The procedure yields a LOS based on the HCM 6th Edition as an indicator of how well intersections operate.

Traffic simulations discussed in this report were performed using an extension of the SYNCHRO intersection analysis software called SimTraffic. SimTraffic is a microscopic, dynamic traffic simulation model that considers the traffic flow and gap conditions at intersections and can more accurately reflect actual operating conditions.

Existing and background operating conditions during the peak study periods are evaluated to determine a basis for comparison with the projected future conditions. The future traffic conditions generated by the project were analyzed to assess the operation of the study area intersections. Capacity results for existing, background, and full development conditions are listed in **Table V**. The discussion following the table summarizes capacity conditions.

TABLE V
CAPACITY ANALYSIS RESULTS

INTERSECTION	2018 EXISTING CONDITIONS AM		2018 EXISTING CONDITIONS PM		2020 BACKGROUND CONDITIONS AM		2020 BACKGROUND CONDITIONS PM		2020 FULL BUILD CONDITIONS AM		2020 FULL BUILD CONDITIONS PM	
NYS Route 366/Freese Rd/ Mt Pleasant Rd												
EB - NYS Route 366	A	3.0	A	3.4	A	3.2	A	3.4	A	3.5	A	3.5
WB - NYS Route 366	A	1.2	A	0.6	A	1.5	A	0.6	A	1.4	A	0.9
NB - Mt Pleasant Rd	D	27.8	C	16.8	E	39.7	C	16.6	E	38.9	C	24.6
SB - Freese Rd	C	15.4	C	18.4	C	18.5	C	19.2	C	22.1	E	41.6
Mt Pleasant Rd/ Proposed Northerly Dwy												
EB - Mt Pleasant Rd	NA		NA		NA		NA		A	1.1	A	1.9
WB - Mt Pleasant Rd									A	0.1	A	0.1
NB - Proposed Northerly Dwy									A	1.7	A	2.2
Mt Pleasant Rd/ Proposed Southerly Dwy												
EB - Mt Pleasant Rd	NA		NA		NA		NA		A	0.2	A	0.2
WB - Mt Pleasant Rd									A	0.1	A	0.0
NB - Proposed Southerly Dwy									A	2.0	A	2.7
NYS Route 366/ Proposed Dwy												
EB - NYS Route 366	NA		NA		NA		NA		A	0.5	A	1.3
WB - NYS Route 366									A	1.8	A	1.8
NB - Proposed Dwy									B	14.9	B	12.4
NYS Route 366/ Game Farm Road												
EB - NYS Route 366	A	0.8	A	4.0	A	0.8	A	4.1	A	0.9	A	4.3
WB - NYS Route 366	A	4.8	A	5.4	A	5.3	A	5.4	A	5.3	A	5.6
NB - Game Farm Rd	E	40.7	B	10.4	F	60.1	B	13.6	F	117.6	B	15.0
SB - Arboretum Center	B	13.9	A	0.0	B	15.0	A	0.0	D	25.4	A	0.0

Notes:

1. EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound
2. C (18.1) = Level of Service (Delay in seconds per vehicle)
3. All intersections are unsignalized.
4. NA = Approach not analyzed and/or does not exist under this condition.
5. Green shaded cells indicate low delays, yellow/orange shaded cells indicate moderate delays, red shaded cells indicate longer delays.

Based on observations and gap conditions during the study periods, it was determined that SimTraffic results are more representative of actual operation conditions. Notably, at NYS Route 366/Freese Road/Mt. Pleasant Road, for the northbound Mt. Pleasant Road approach between 7:30-8:00 AM, there were eight occasions where vehicles queued greater than three to four vehicles in length at any one time. On average, these queues cleared in approximately 1.6 minutes

(on average, 2.2 minutes between queuing conditions). The peak 15-minute peak for northbound traffic occurred between 7:45-8:00 AM. Between 8:00-8:30 AM, there were five occasions where the condition occurred, with an approximate average duration of 1.1 minutes (on average, 4.9 minutes between queuing conditions). During the periods between the northbound queuing conditions, gaps in through traffic along NYS Route 366 were observed. Northbound traffic was also sporadic. Vehicles approaching the intersection along NYS Route 366 generally arrived in platoons.

NYS Route 366/Freese Road/Mt. Pleasant Road

All approaches are projected to operate at LOS "D" or better during all peak hours under all conditions. The LOS "D" for the northbound Mt. Pleasant Road approach during the AM peak hour is on the lower end of the delay spectrum for this LOS under existing and conditions, as the threshold between LOS "C" and "D" is 25.0 seconds of delay per vehicle. Under background conditions, the northbound approach changes from LOS "D" to "E". Between background and full build conditions, the southbound approach changes from LOS "C" to "E" during the PM peak hour. These conditions are characteristic of unsignalized minor side roads along moderately trafficked roads, such as NYS Route 366. Traffic conditions will likely be better during the remaining hours of the day.

A preliminary Traffic Signal Warrant Investigation was performed using the available turning movement count data based on the capacity analysis conditions. A full Traffic Signal Warrant Investigation includes nine warrants, as per the Manual on Uniform Traffic Control Devices (2009), three of which are volume-related warrants: Eight-Hour, Four-Hour, and Peak Hour. This study reviewed the Four-Hour and Peak Hour warrants. The NYSDOT bases justification for installing traffic signals on these strict guidelines as there are pros and cons to installing this traffic control device. Based on this data, conditions for a traffic signal are not met under existing nor full build condition for speeds of less than 40 MPH.

No mitigation is warranted or recommended as a result of this project.

Proposed Access Driveway Locations/Mt. Pleasant Road/NYS Route 366

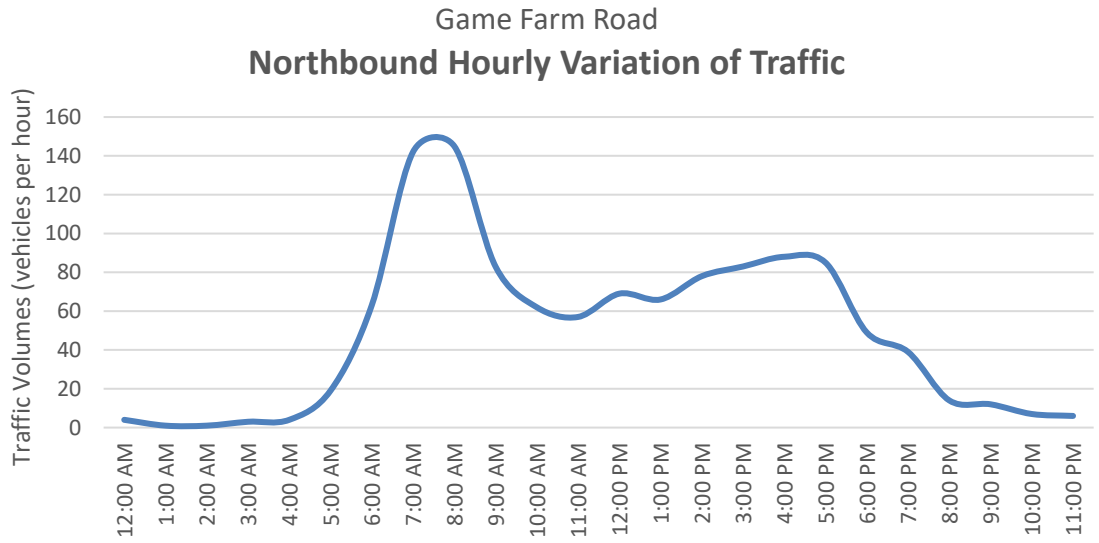
All approaches to the proposed access driveway locations are projected to operate at LOS "B" or better during both peak hours under all conditions. Based upon NYSDOT guidelines for evaluating the need for a left-turn treatment, no left-turn treatments are warranted at the proposed site driveway along NYS Route 366. No mitigation is warranted or recommended.

NYS Route 366/Game Farm Road/Arboretum Center

The northbound Game Farm Road approach during the AM peak hour operates at LOS "E". Between existing and background conditions, the LOS is projected to change from "E" to "F". These conditions are characteristic of unsignalized minor side roads along moderately trafficked roads, such as NYS Route 366. Traffic conditions will likely be better during the remaining hours of the day. With full development of the proposed project, delays are projected to increase.

A preliminary Traffic Signal Warrant Investigation was performed using the available turning movement count data based on the capacity analysis conditions. Based on this data, conditions for a traffic signal are partially met under existing and full build conditions for speeds above 40 MPH (two of the nine warrants). Based on NYSDOT data, 85th percentile speeds in the area of this intersection are above 40 MPH; thus 70% thresholds in Figure 4C-2 and Figure 4C-4 are used as a basis for analysis. Based on a preliminary review of available NYSDOT hourly traffic volume data along NYS Route 366 from 2017 and Game Farm Road from 2014, the Eight-Hour warrant is not likely to be met under existing nor full build conditions. It is important to note that based on this

hourly data, conditions will be satisfactory for most hours of the typical day, save for the AM peak hour, as evidenced by the projected capacity analysis results. The following graphic shows the hourly variation in northbound traffic along Game Farm Road, highlighting the comparison of AM peak hour traffic to the remaining hours of the day.



This intersection should be monitored as nearby approved development progresses. It is recommended that after full development of the proposed project, this intersection (along with the project site driveways) should be re-examined to evaluate actual traffic conditions and determine actual trip generation and distribution rates and patterns. More detailed studies, including delay, gap and crash analyses should be performed to fully assess if/when a potential traffic signal is justified.

Any future capacity improvements should be coordinated with the NYSDOT, Tompkins County, the Towns of Ithaca and Dryden, and project sponsors of future developments to determine if these improvements are necessary.

As stated, there is variability in the trip generation associated with the student housing program. Variables affecting trip generation can be campus parking policies, class schedules, shuttle service, and other demand management strategies (e.g., carpooling). These variables can have the net effect of reducing total site generated trips and projected impacts from the proposed project. For example, Cornell University notes that on-campus parking is "extremely limited" and off-campus students must purchase parking passes.

To note, a 15-20% reduction in student-associated trip generation estimates as a result of demand management strategies (discussed later in this report) can reduce northbound AM peak hour projected delays at this intersection by up to 45 seconds.

IX. TRAFFIC GAP ANALYSIS

A Traffic Gap Analysis was performed along NYS Route 366 at Freese Road/Mt. Pleasant Road and Game Farm Road to determine the availability of gaps for traffic to enter (left-turns) the through traffic stream along NYS Route 366. For unsignalized intersections such as these, gap availability can be used as a surrogate methodology for evaluating the ability of side road traffic to enter and exit the fronting traffic stream.

The availability of gaps within the traffic stream primarily determines the side road driver behavior and delay for both entering and exiting motorists. A gap study counts the actual gaps in existing traffic available for a vehicle to enter or exit the side road. The difference between the actual number of gaps and the projected demand for a particular traffic movement can then be calculated as a reserve or deficit capacity.

The 2016 HCM provides data relative to gap sizes that motorists find acceptable to execute the required maneuver. SRFA performed a Traffic Gap Analysis at the noted intersections along NYS Route 366 during the critical AM peak hour to evaluate existing and potential future operating conditions. **Table VI** indicates the acceptable gap duration, the actual number of gaps based on the duration, the projected traffic volume for the movement, and the resulting reserve (or deficit) capacity during the AM peak hour.

TABLE VI
PEAK HOUR GAP ANALYSIS RESULTS

MOVEMENT	ACCEPTABLE GAP DURATION	ACTUAL EXISTING GAPS BASED ON COLLECTED DATA	EXISTING VOLUME	ACTUAL RESERVE CAPACITY
Left-turns out of Mt. Pleasant Road onto NYS Route 366	7.1 sec	202	48	154
Left-turns out of Game Farm Road onto NYS Route 366	7.1 sec	190	109	81

Based on the field observations and the gap study results, and existing traffic volumes, there are sufficient gaps during the AM peak to accommodate the existing left-turn movements exiting the minor side roads onto NYS Route 366.

There are currently 109 left-turns exiting Game Farm Road during the AM peak hour. The actual reserve capacity allows for 81 additional left-turns under existing conditions. Approved background projects are projected to add approximately 25 vehicles per hour (VPH) to the eastbound direction and six VPH to the eastbound direction. The proposed project is projected to add approximately 61 VPH to the eastbound direction and 19 VPH to the westbound direction. This is one additional vehicle every 45 seconds. These increases in traffic volumes may reduce the number, duration, and/or frequency in gaps. Therefore, it is recommended a future gap study be performed to evaluate actual traffic gaps and determine if/when appropriate capacity improvements are needed.

X. LEFT TURN TREATMENT WARRANT INVESTIGATION

Volume warrants for a left-turn treatment on NYS Route 366 at the proposed access drive was investigated using the TRB's NCHRP Report 279: Intersection Channelization Design Guide (1985). Provisions for left-turn lane facilities should be established where traffic volumes are high enough and safety considerations are sufficient to warrant the additional lane. This investigation analyzes warrants during the AM and PM peak hours.

Based upon the analysis, the combination of proposed traffic volumes turning left onto the proposed access drive from NYS Route 366 indicates a left-turn treatment is not warranted during the peak hours of study. All supporting calculations and charts are included in the Appendices.

XI. TRANSPORTATION DEMAND MANAGEMENT PLAN

TDM or Commute Trip Reduction (CTR) initiatives, if implemented strategically, can have a noticeable impact on reducing trips from a project. TDM is the application of strategies and policies to reduce Single Occupant Vehicle (SOV) travel demand, or to redistribute this demand in space or in time. By definition, TDM includes various strategies that produce a more efficient use of transportation resources and increase the efficiency of a transportation system. This in turn can lead to less traffic congestion, reduce the possibility that system upgrades or new facilities will be required, lower road maintenance costs and improve air quality.

TDM programs have many potential benefits. They can reduce the total number of vehicle miles traveled (VMT) by promoting alternatives to driving alone. Fewer vehicle miles traveled results in less ozone pollution. Employers can use TDM programs to reduce overhead costs, enhance productivity, and reduce employee turnover. TDM programs can also improve the use of public transit services, bikeways, and sidewalks by educating users about their travel options and coordinating trips between users with similar trip patterns. Implementing an effective TDM program may also reduce the required number of parking spaces for a project. **Table VII** summarizes some of the benefits that can be realized from an effective TDM program.

TABLE VII
BENEFITS OF TDM PROGRAMS

BENEFIT	DESCRIPTION
Congestion Reduction	Reduces traffic congestion delays and associated costs.
Road & Parking Savings	Reduces road and parking facility costs, as well as supply needed for parked vehicles.
Consumer Savings	Helps consumers save money by reducing their need to own and operate motor vehicles.
Transport Choice	Improved travel options, particularly for non-drivers.
Road Safety	Reduced crash risk.
Environmental Protection	Reduced air, noise and water pollution, wildlife crashes and other types of environmental damages.

Efficient Land Use	Supports strategic land use planning objectives, such as reduced sprawl, urban redevelopment and reduced habitat fragmentation.
Community Livability	Improved local environmental quality and community cohesion.
Economic Development	Supports a community's economic objectives, such as increased productivity, employment, wealth, property values and tax revenues.
Physical Fitness and Health	Improved public fitness and health due to more physical activity, usually through increased daily walking and cycling.

The following TDM strategies, and associated credit per established guidelines (City of Buffalo TDM Policy Guide), are considered to be feasible for the proposed project in **Table VIII**.

TABLE VIII
TDM STRATEGIES

STRATEGY	DESCRIPTION	REDUCTION CREDIT
Promotion & Education	Information highlighting non-SOV opportunities (transit, bikeshare, carshare, carpool, etc.) should be tailored to the project site and materials be made available online and in-person for new residents, employees, or tenants in highly visible areas of the development.	Up to 2%
Bicycle Facilities and Services	Providing bicycle facilities and services can increase the attractiveness to bike to the project site. Such enhancements are secured parking, shower facilities and lockers, and a repair station	**Parking:** 1 trip per 5 additional spaces above requirement **Repair:** 1%
Transit/Shuttle Facility	An enhanced transit/shuttle facility (e.g., shelter, seating, lighting, etc.) can increase the comfort, accessibility, and safety for riders. Providing convenient and steady service is benefit.	Up to 4%
Carpool	Carpooling can reduce SOV trips. Information regarding the program should be up-to-date and highly accessible online and in-person.	Up to 2%
Unbundled Parking	Parking sold or rented separately from building costs can reduce travel and parking demand. The project site is already implementing this program for the apartment residents.	Up to 10%

The application of TDM strategies align with the goals and strategies outlined in the June 2008 Cornell University Transportation Impact Mitigation Strategies report.

When taken together and appropriately applied, the TDM strategies may result in a travel and parking demand reduction of up to 15-20%. Given that this is student housing, shuttle service

credits may be higher based on university parking policies. As stated, these highlighted credits are based on the City of Buffalo and its inherent characteristics. In no way is this an attempt to correlate a dense urban environment to a suburban/rural setting. However, nearby transit access, ride-hailing companies (e.g., Uber, Lyft), and shuttle service for site residents are similar characteristics. A ridematching service is also recommended.

A monitoring plan can be established to measure the effectiveness of these, or other, strategies in reducing travel demand.

XII. CONCLUSIONS & RECOMMENDATIONS

This study identifies and evaluates the potential traffic impacts that can be expected from the proposed Townhomes at Dryden project in the Town of Dryden, New York. The results of this study determine that the existing transportation network can adequately accommodate the projected traffic volumes and resulting impacts to study area intersections. The following sets forth the conclusions and recommendations based upon the results of the analyses:

1. The proposed project is expected to generate approximately 59 entering/110 exiting vehicle trips during the AM peak hour and 120 entering/96 exiting vehicle trips during the PM peak hour. Not all these driveway volumes are new, but instead a portion of the proposed volume is reduced considering internal and pass-by adjustments. Thus, the proposed project is expected to generate approximately 25 entering/70 exiting new vehicle trips during the AM peak hour and 91 entering/69 exiting new vehicle trips during the PM peak hour.

2. It is also recognized that there is variability in the trip generation associated with the student housing program. Variables affecting trip generation can be campus parking policies, class schedules, shuttle service, and other demand management strategies (e.g., carpooling). These variables can have the net effect of reducing total site generated trips.

3. Based upon the expected delays under full development, the following is recommended at NYS Route 366/Game Farm Road/Arboretum Center. Periodic snapshots of actual traffic operations at this intersection and proposed site driveways (to determine actual trip generation and distribution rates and patterns) are recommended as part of a Monitoring and Mitigation Plan to determine if/when the identified improvements are justified.
    a. Based on a preliminary Traffic Signal Warrant Investigation using available turning movement count data, conditions for a traffic signal are partially met under existing and full build conditions. A full Traffic Signal Warrant Investigation includes nine warrants, as per the Manual on Uniform Traffic Control Devices (2009), three of which are volume-related warrants: Eight-Hour, Four-Hour, and Peak Hour. This study reviewed the Four-Hour and Peak Hour warrants. The New York State Department of Transportation (NYSDOT) bases justification for installing traffic signals on these strict guidelines as there are pros and cons to installing this traffic control device. This intersection should be monitored as nearby approved development progresses and future traffic volumes materialize.

    b. It is important to note that based on available hourly data obtained by the NYSDOT, conditions will be satisfactory for most hours of the typical day, save for the AM peak hour, as evidenced by the projected capacity analysis results.

c. More detailed studies, including delay, gap and crash analyses should be performed to fully assess if/when a potential traffic signal is justified.

d. Any future capacity improvements should be coordinated with the New York State Department of Transportation, Tompkins County, the Towns of Ithaca and Dryden, and project sponsors of future developments to determine if these improvements are necessary.

e. To note, a 15-20% reduction in student-associated trip generation estimates as a result of demand management strategies (discussed later in this report) can reduce northbound AM peak hour projected delays at this intersection by up to 45 seconds.

4. An existing Traffic Gap Analysis along NYS Route 366 at the intersections with Freese Road/Mt. Pleasant Road and Game Farm Road showed that there are sufficient gaps during the critical AM peak hour to accommodate the existing left-turn movements exiting the minor side roads onto NYS Route 366.

5. The proposed access drives shall be stop-controlled for their approaches to the adjacent roadways.

6. The results of the Left-Turn Treatment Warrant Investigation at the proposed access driveway along NYS Route 366 show that left-turn treatments are not warranted during the peak hours.

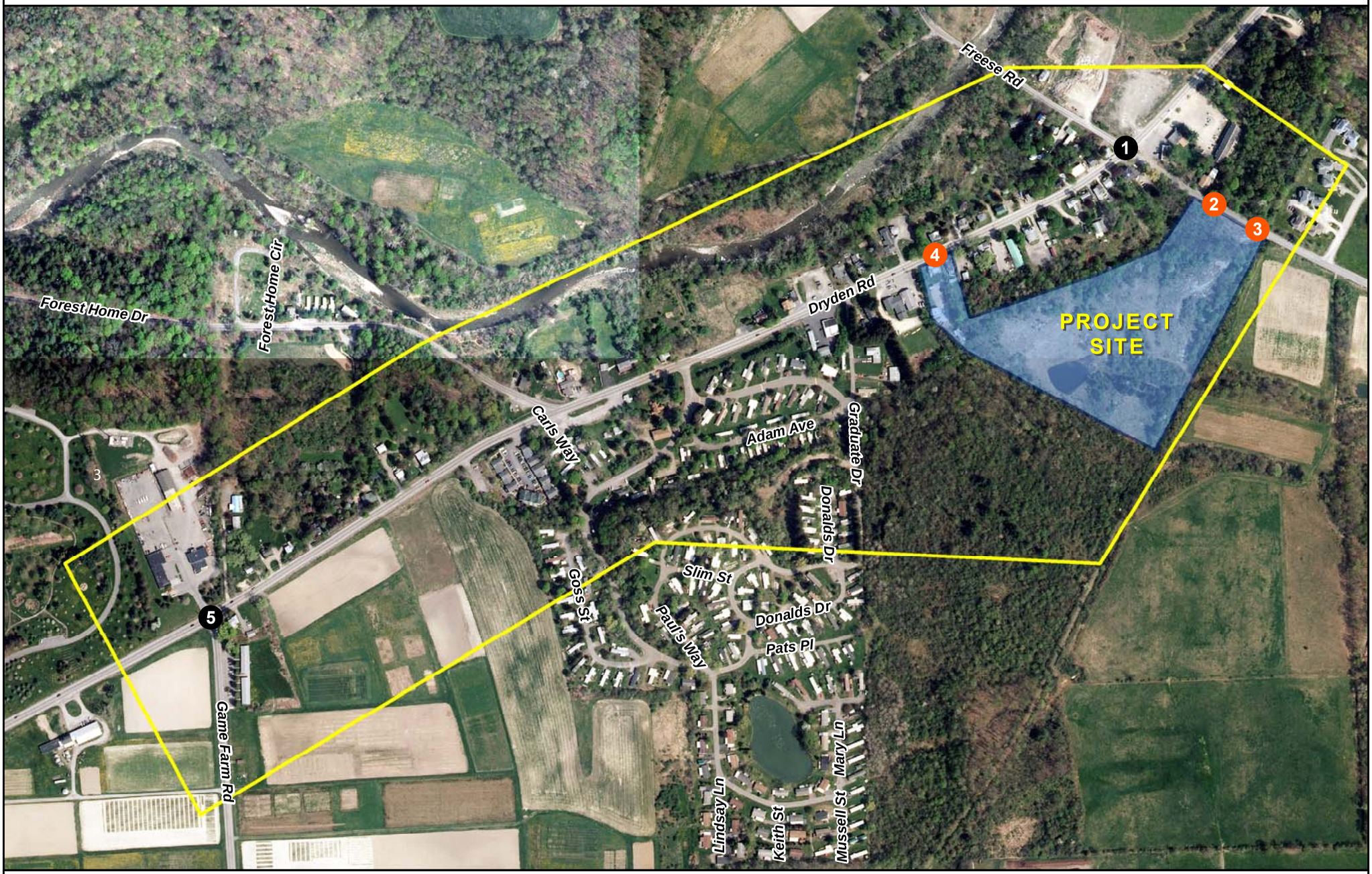
7. Transportation Demand Management (TDM) strategies are recommended to reduce travel and parking demands.
   a. The application of TDM strategies align with the goals and strategies outlined in the June 2008 Cornell University Transportation Impact Mitigation Strategies report.
   b. When taken together and appropriately applied, TDM strategies may result in a travel and parking demand reduction of up to 15-20%.
   c. A monitoring plan can be established to measure the effectiveness of these, or other, strategies in reducing travel demand.

8. The proposed project will result in traffic impacts to the study area intersections that can be appropriately accommodated via TDM strategies and potentially mutually coordinated improvements, as outlined in this study.

XIII. FIGURES

Figures 1 through 8 are included on the following pages.

FIGURE 1 - SITE LOCATION AND STUDY AREA



Legend

- Existing Study Intersection
- Proposed Intersection
- Site Location
- Study Area

PROPOSED TOWNHOMES AT DRYDEN

TOWN OF DRYDEN, NY

Feet

0 300 600 1,200

N

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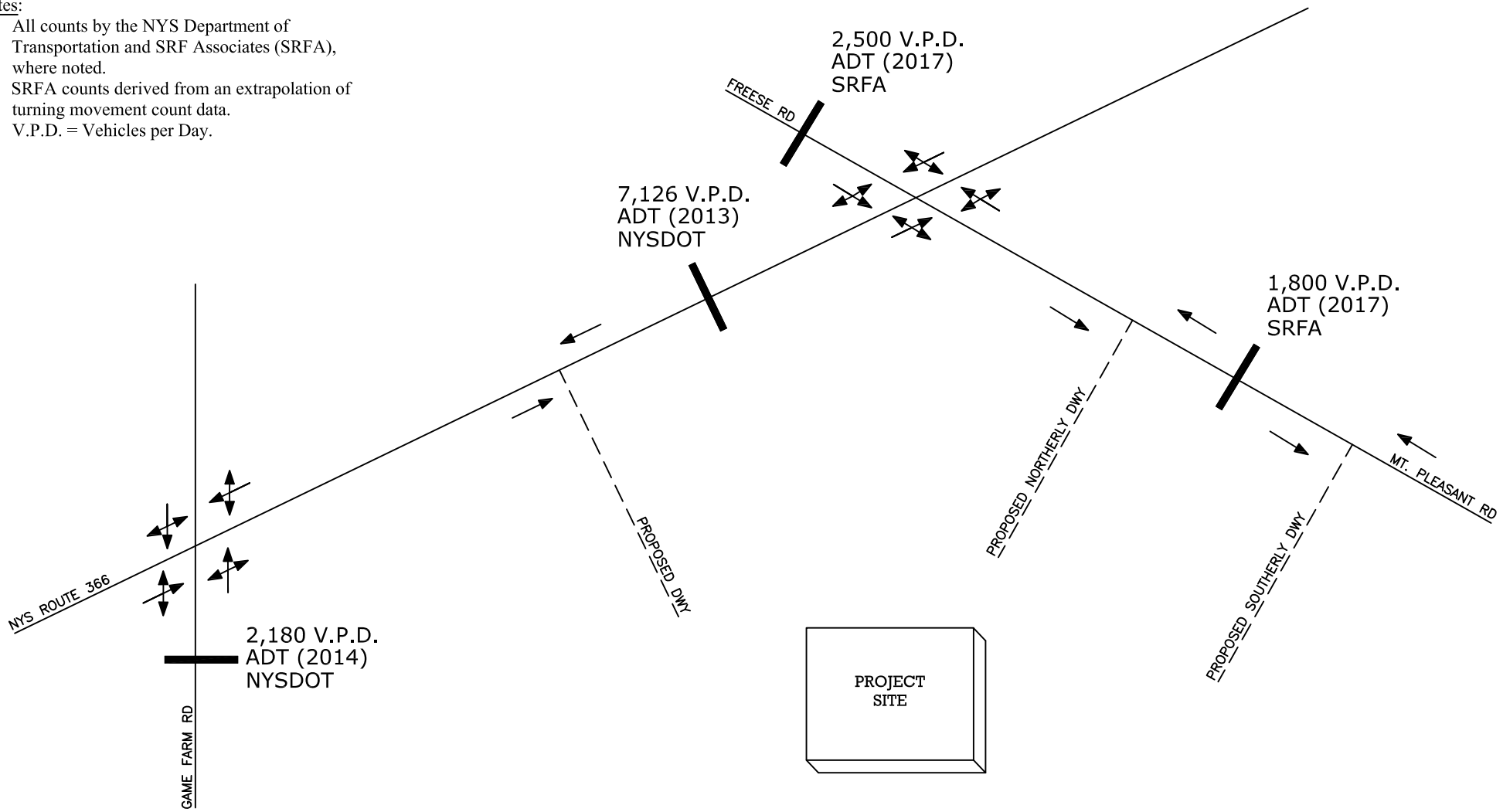
Notes:
1. All counts by the NYS Department of Transportation and SRF Associates (SRFA), where noted.
2. SRFA counts derived from an extrapolation of turning movement count data.
3. V.P.D. = Vehicles per Day.



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NOT TO SCALE

FIGURE 2

LANE GEOMETRY &
AVERAGE DAILY TRAFFIC

PROPOSED TOWNHOMES AT DRYDEN,
TOWN OF DRYDEN, NY

KEY

— — — PROPOSED DWY

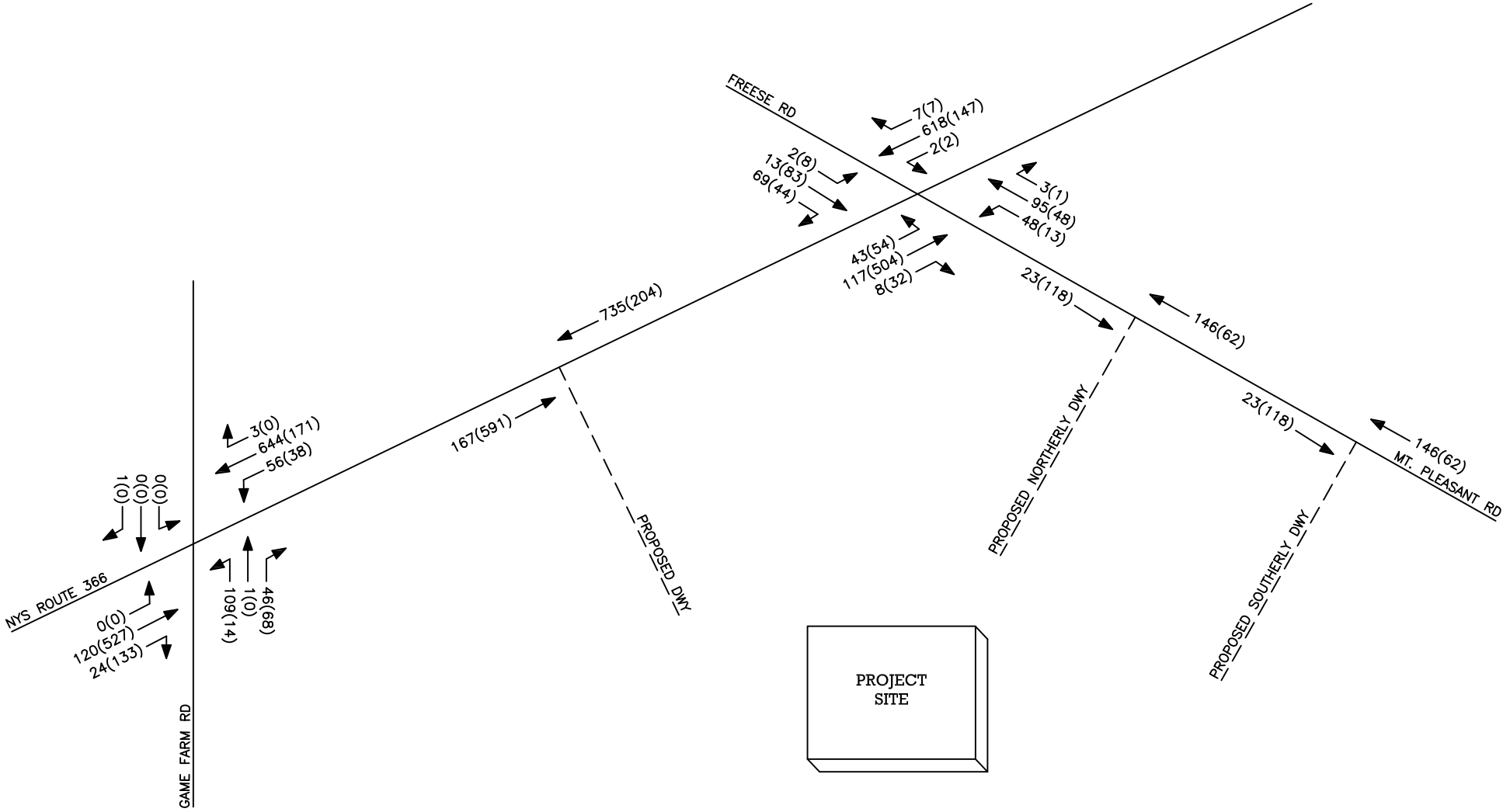

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FIGURE 3

PEAK HOUR VOLUMES
2018 EXISTING BASE CONDITIONS

PROPOSED TOWNHOMES AT DRYDEN,
TOWN OF DRYDEN, NY

KEY

— — — PROPOSED DWY
00(00) = AM(PM)

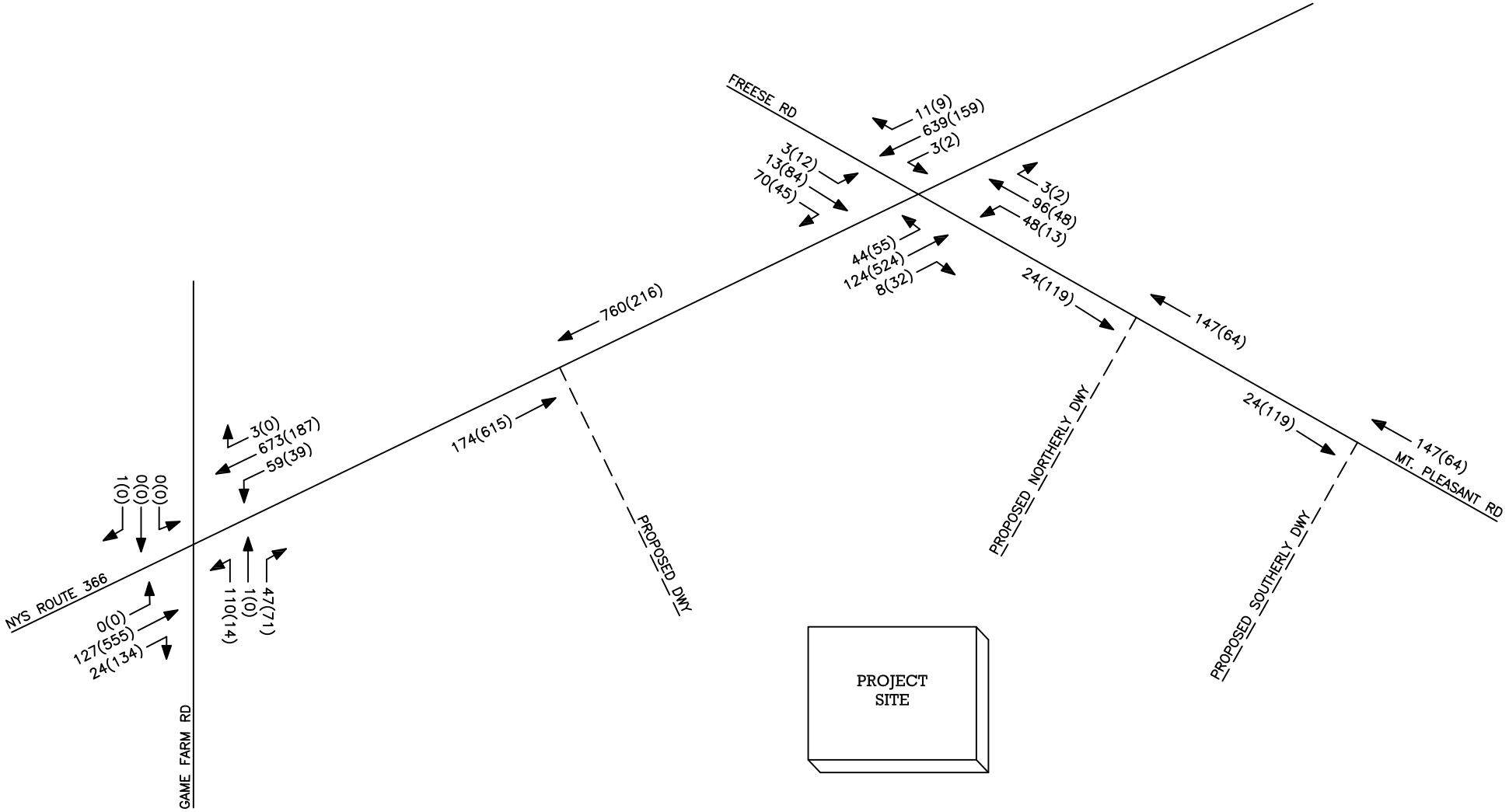

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FIGURE 4

PEAK HOUR VOLUMES
2020 BACKGROUND CONDITIONS

PROPOSED TOWNHOMES AT DRYDEN,
TOWN OF DRYDEN, NY

KEY

— — — PROPOSED DWY

00(00) = AM(PM)

FIGURE 5 CONCEPT SITE PLAN

PROJECT NO: 3177.001

L2.0

SITE IMPROVEMENT PLAN

TOWNHOMES AT DRYDEN

TRINITAS VENTURES

366 DRYDEN ROAD, ITHACA, NY 14850 TOWN OF VARNA, TOMPKINS COUNTY, NY

HUNT ENGINEERS | ARCHITECTS | SURVEYORS

100 Hunt Center, Horseheads, New York 14845 P: 607-358-1000 F: 607-358-1800 Offices: Rochester | Horseheads | Towanda

#	DATE:	DESCRIPTION OF REVISION:	BY:
1	7/06/2018	UPDATED LAYOUT	
2	8/10/2018	UPDATED LAYOUT – ADDED GARAGE	
3			
4			
5			
6			
7			
8			
9			

DRAWN BY: JV

CHECKED BY: MBK

DATE: 6/01/2018

SCALE: AS SHOWN

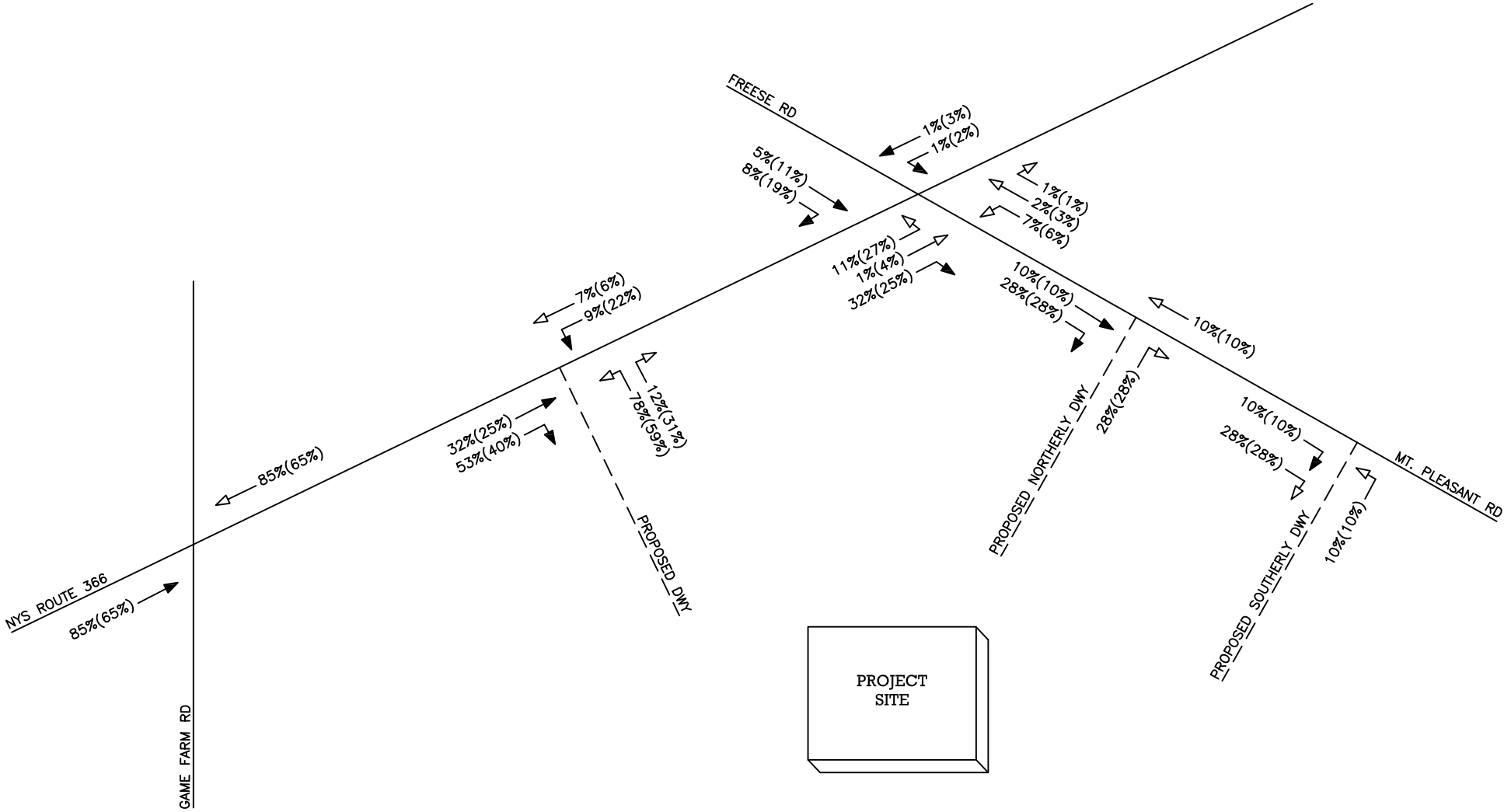

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FIGURE 6A

TRIP DISTRIBUTION
RESIDENTIAL

PROPOSED TOWNHOMES AT DRYDEN,
TOWN OF DRYDEN, NY

KEY

— — — PROPOSED DWY
00(00) = AM(PM)
→ = ENTERING TRIPS
→ = EXITING TRIPS

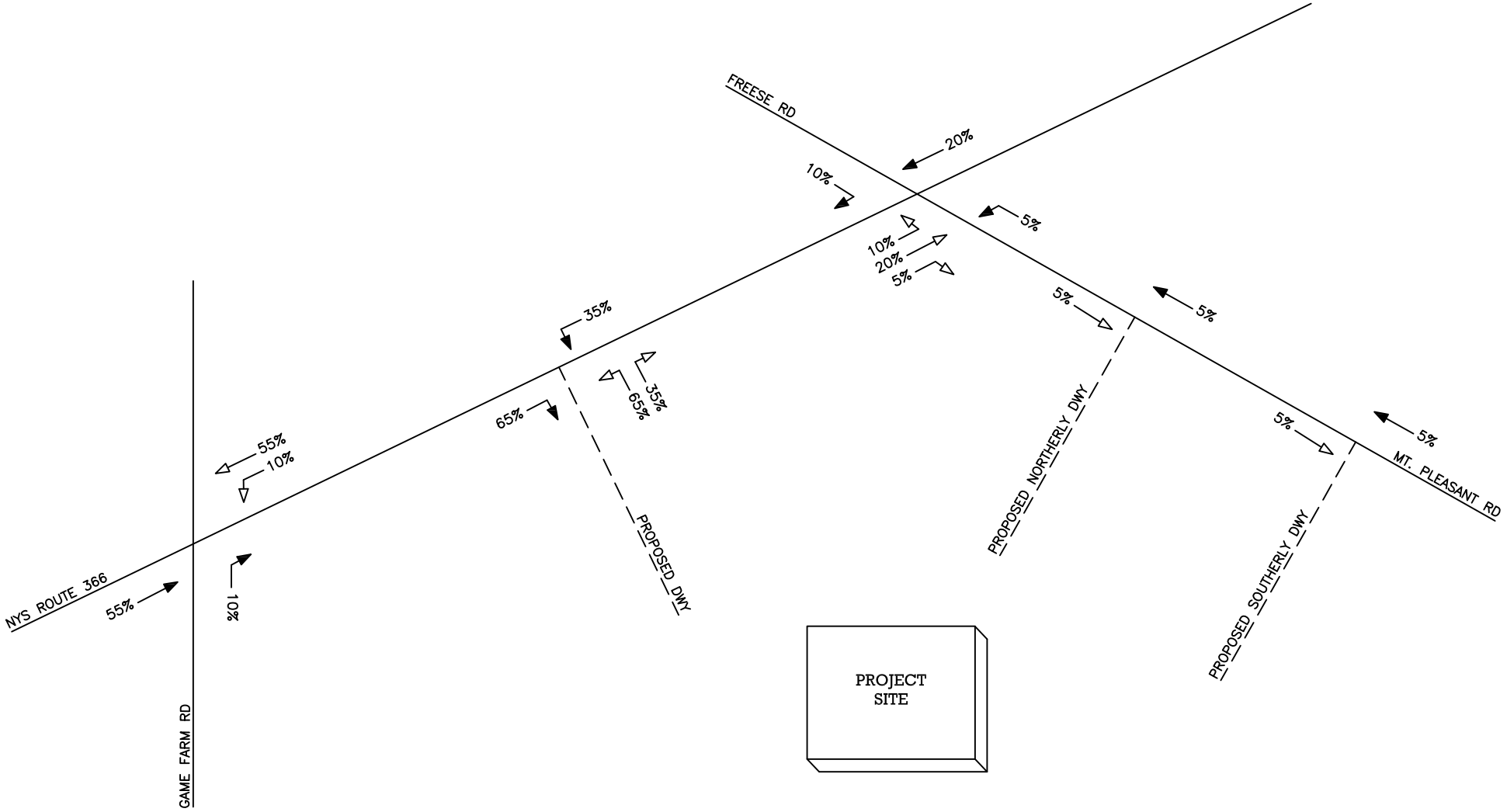

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FIGURE 6B

TRIP DISTRIBUTION
COFFEE/DONUT SHOP

PROPOSED TOWNHOMES AT DRYDEN,
TOWN OF DRYDEN, NY

KEY

— — — PROPOSED DWY
00(00) = AM(PM)
→ = ENTERING TRIPS
→ = EXITING TRIPS

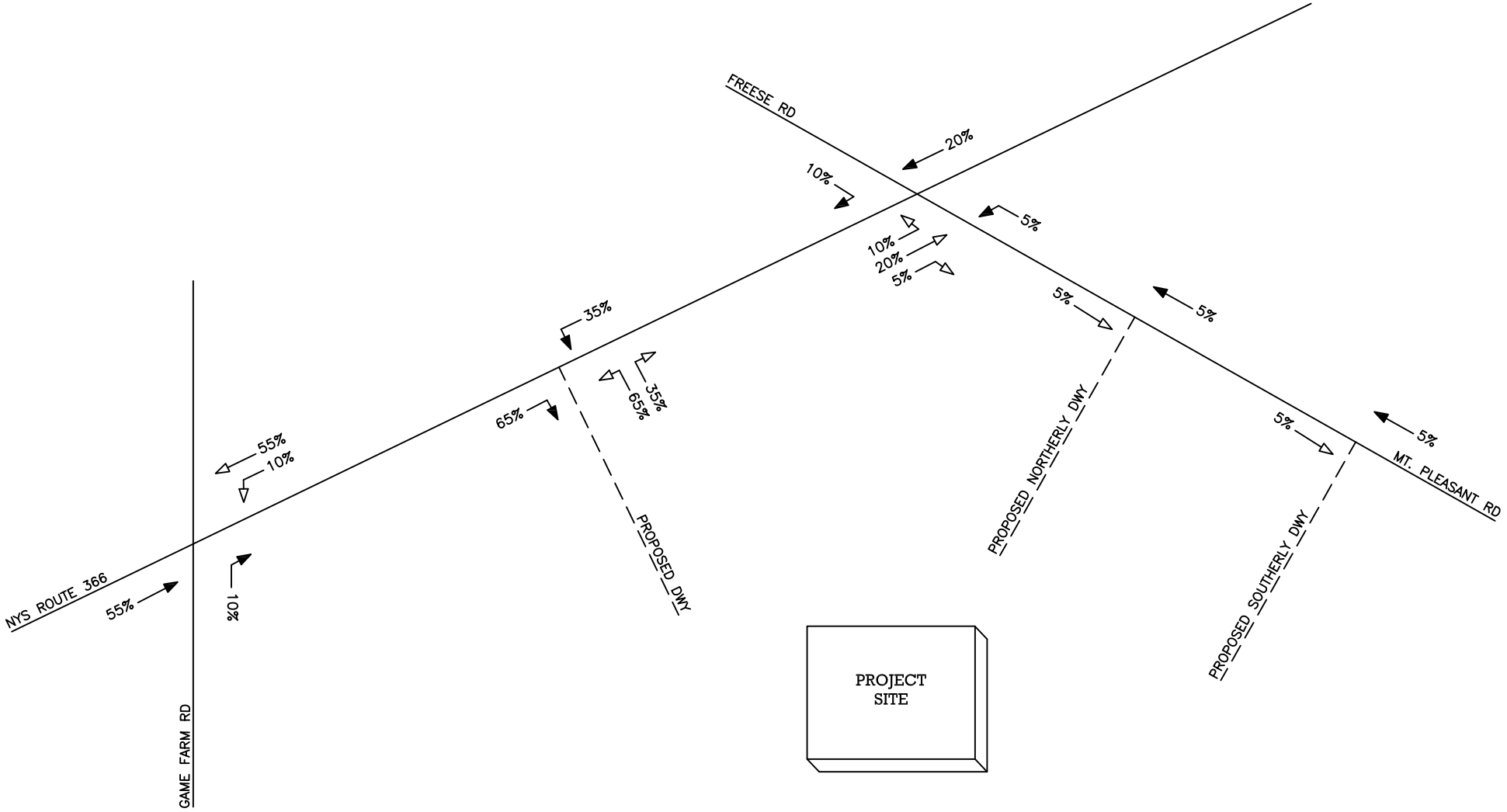

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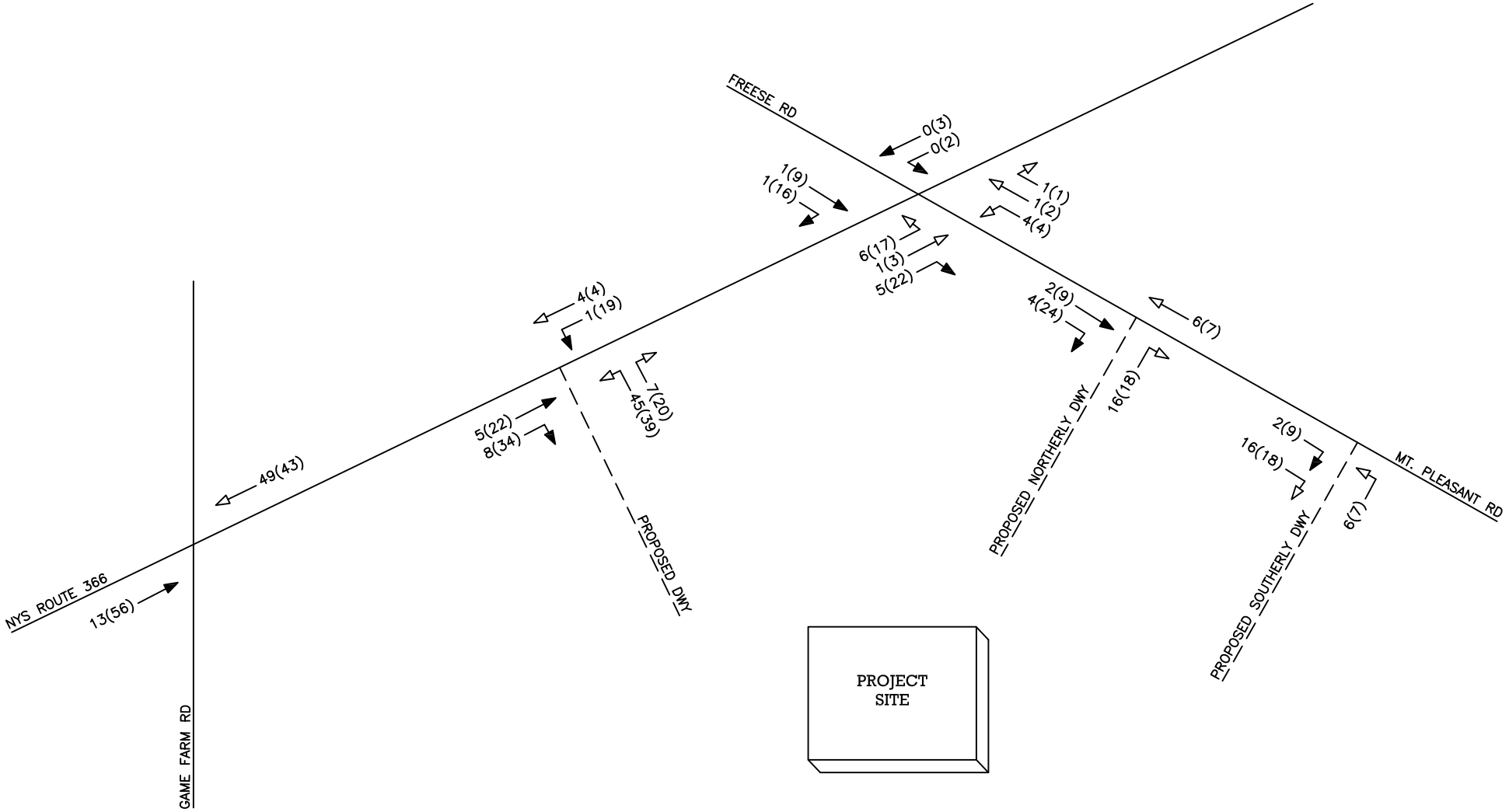
FIGURE 6C

TRIP DISTRIBUTION
RETAIL

PROPOSED TOWNHOMES AT DRYDEN,
TOWN OF DRYDEN, NY

KEY

— — — PROPOSED DWY
00(00) = AM(PM)
→ = ENTERING TRIPS
→ = EXITING TRIPS



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NOT TO SCALE

FIGURE 7A

SITE GENERATED TRIPS
RESIDENTIAL

PROPOSED TOWNHOMES AT DRYDEN,
TOWN OF DRYDEN, NY

KEY

— — — PROPOSED DWY
00(00) = AM(PM)
→ = ENTERING TRIPS
→ = EXITING TRIPS

Notes:
1. [00(00)] = Pass-by trips. Pass-by adjustments are made, where applicable.

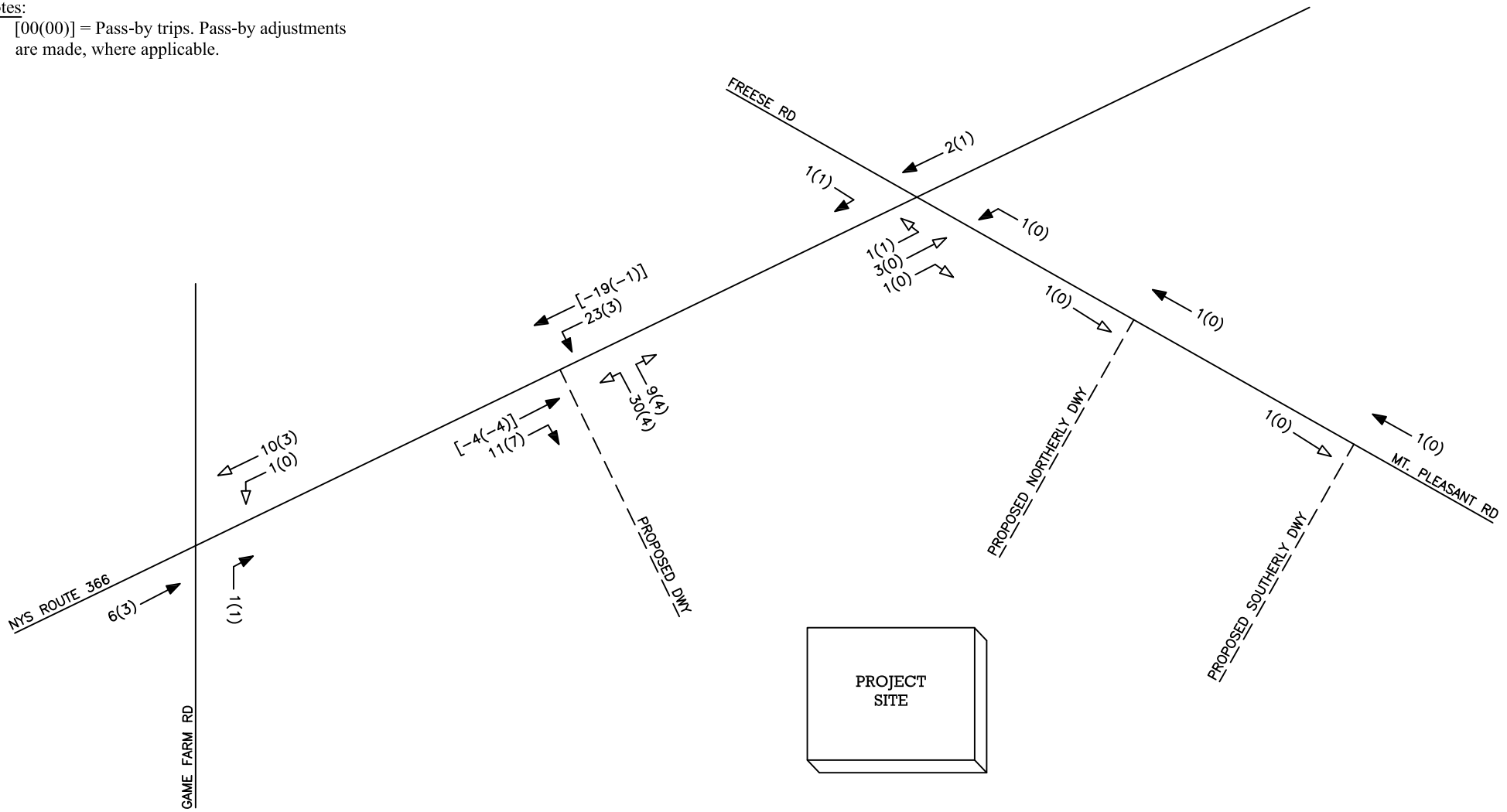

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FIGURE 7B

SITE GENERATED TRIPS
COFFEE/DONUT SHOP

PROPOSED TOWNHOMES AT DRYDEN,
TOWN OF DRYDEN, NY

KEY

— — — PROPOSED DWY
00(00) = AM(PM)
→ = ENTERING TRIPS
→ = EXITING TRIPS

Notes:
1. [00(00)] = Pass-by trips. Pass-by adjustments are made, where applicable.

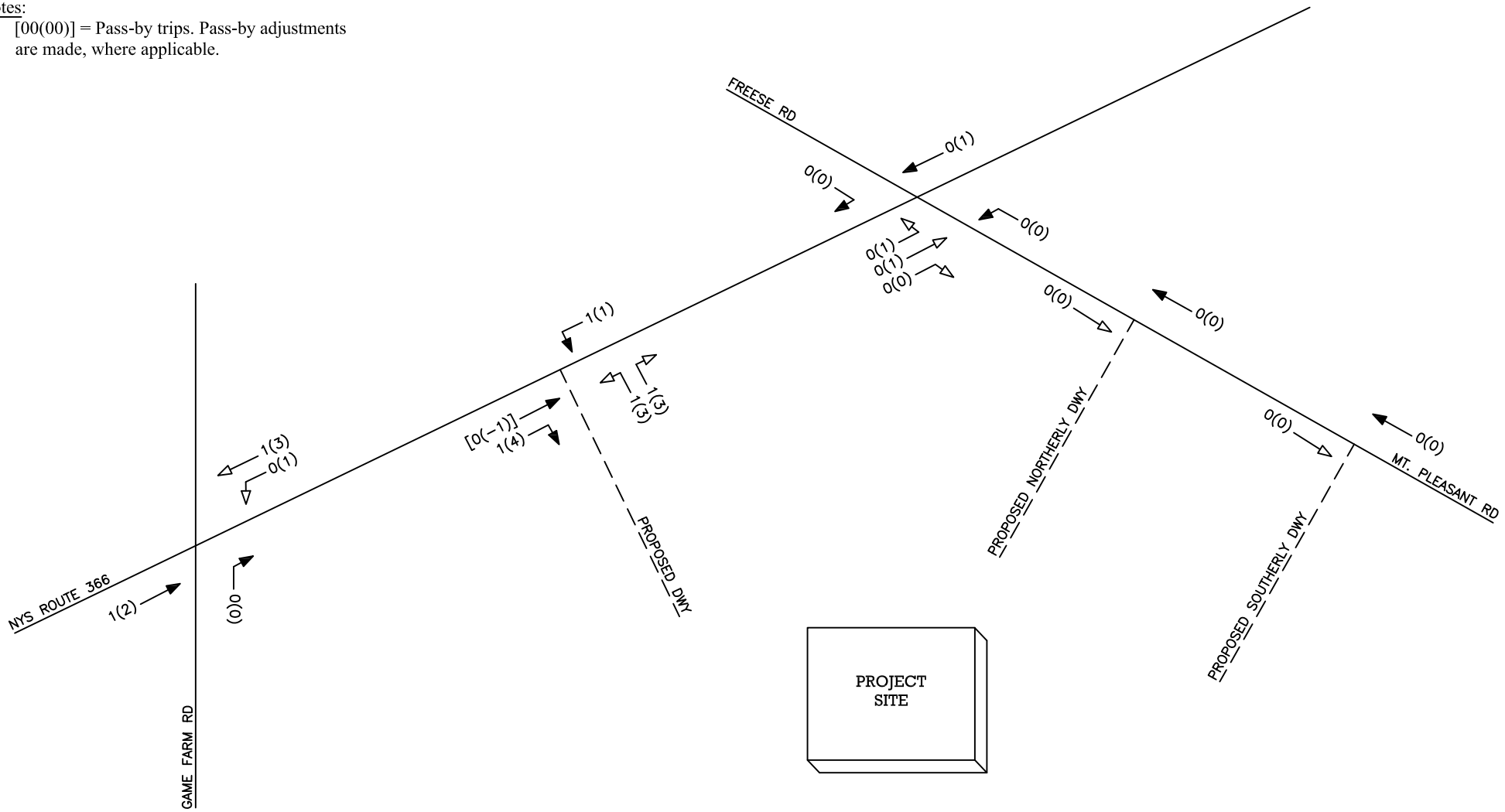

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FIGURE 7C

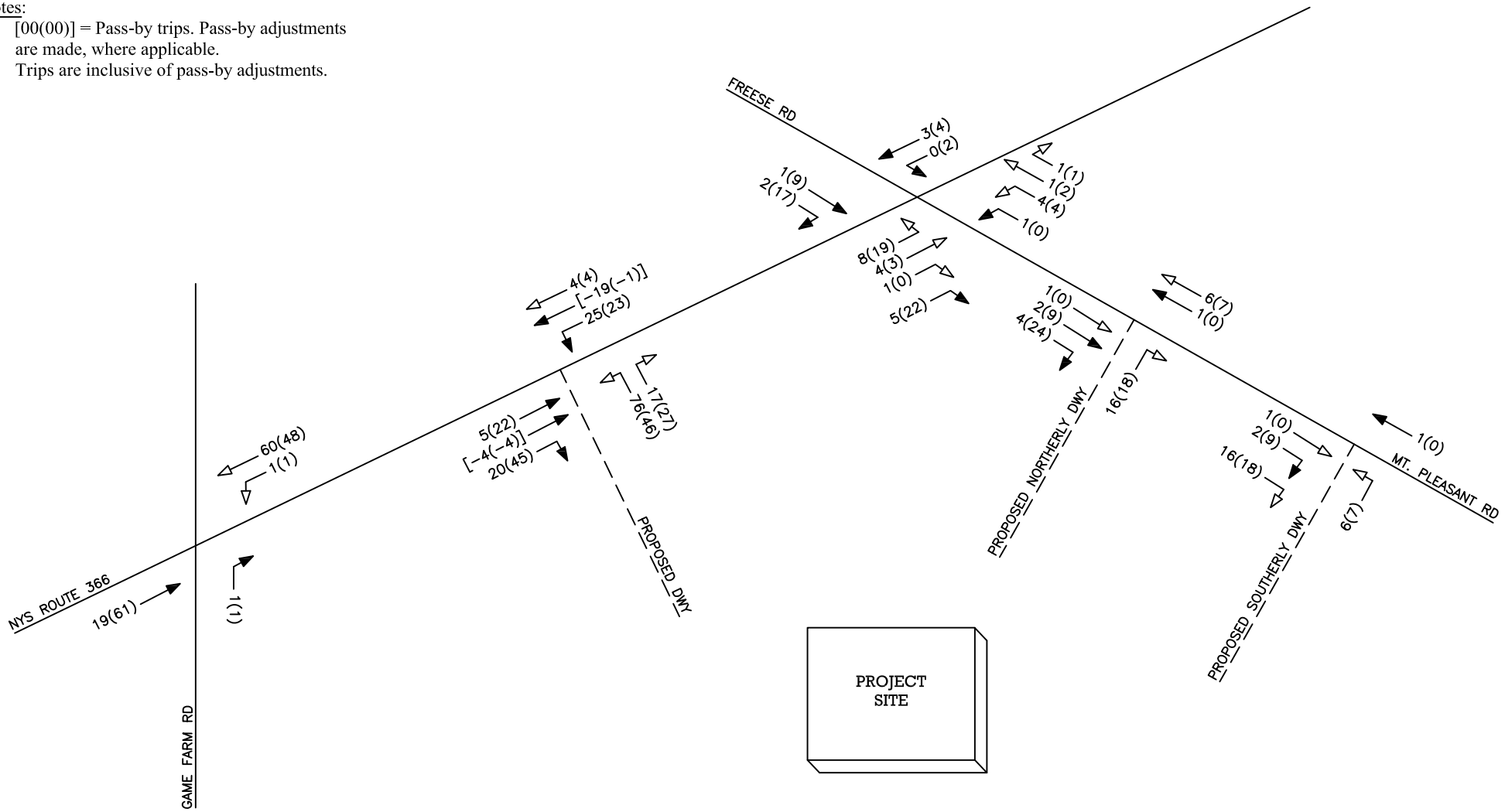
SITE GENERATED TRIPS
RETAIL

PROPOSED TOWNHOMES AT DRYDEN,
TOWN OF DRYDEN, NY

KEY

— — — PROPOSED DWY
00(00) = AM(PM)
→ = ENTERING TRIPS
→ = EXITING TRIPS

Notes:
1. [00(00)] = Pass-by trips. Pass-by adjustments are made, where applicable.
2. Trips are inclusive of pass-by adjustments.



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N
NOT TO SCALE

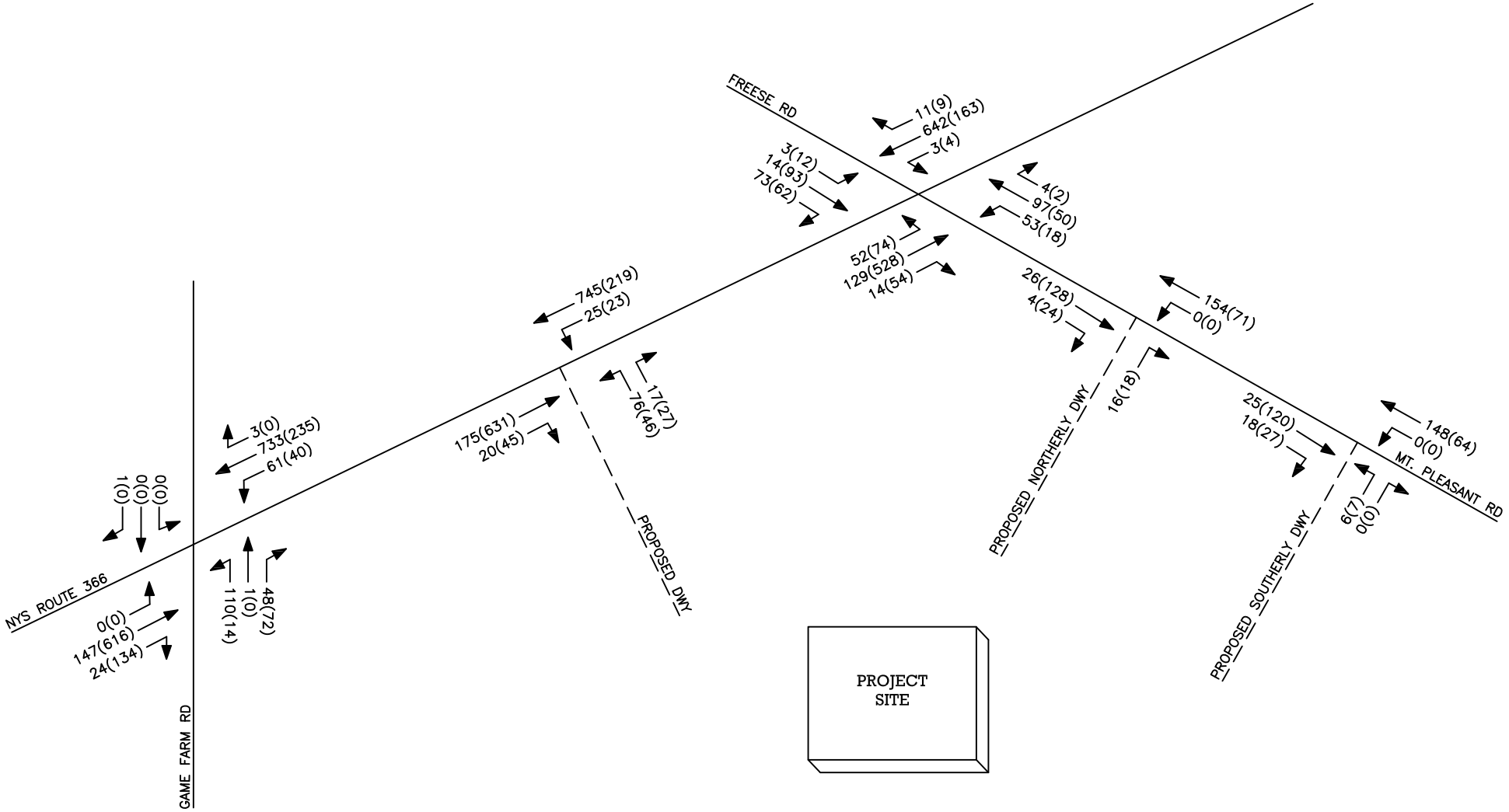
FIGURE 7D

TOTAL SITE GENERATED TRIPS

PROPOSED TOWNHOMES AT DRYDEN,
TOWN OF DRYDEN, NY

KEY

— — — PROPOSED DWY
00(00) = AM(PM)
→ = ENTERING TRIPS
→ = EXITING TRIPS



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N

NOT TO SCALE

FIGURE 8

PEAK HOUR VOLUMES
FULL DEVELOPMENT CONDITIONS

PROPOSED TOWNHOMES AT DRYDEN,
TOWN OF DRYDEN, NY

KEY

— — — PROPOSED DWY

00(00) = AM(PM)

APPENDICES

A1

Collected Traffic Volume Data

Type of peak hour being reported: Intersection Peak

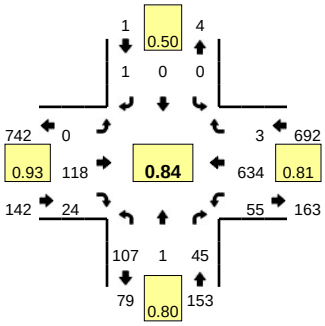
Method for determining peak hour: Total Entering Volume

LOCATION: Game Farm Rd -- Dryden Rd

CITY/STATE: Ithaca, NY

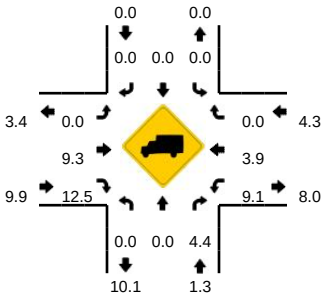
QC JOB #: 14402219

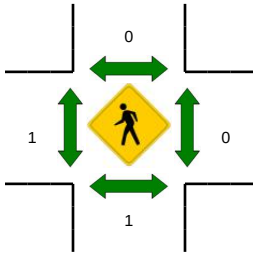
DATE: Wed, May 03 2017

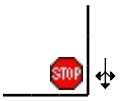


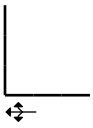
Peak-Hour: 7:30 AM -- 8:30 AM

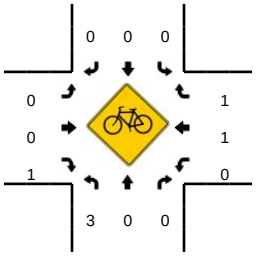
Peak 15-Min: 7:45 AM -- 8:00 AM

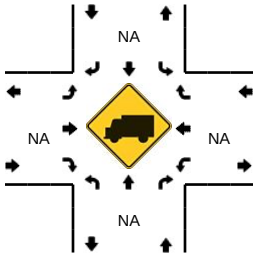


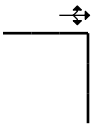


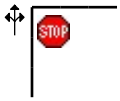


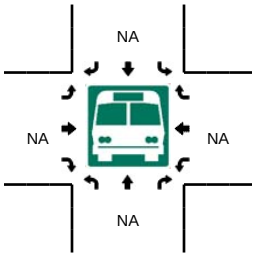












15-Min Count Period Beginning At	Game Farm Rd (Northbound)				Game Farm Rd (Southbound)				Dryden Rd (Eastbound)				Dryden Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	15	0	1	0	0	0	2	0	3	23	5	0	5	85	1	0	140	
7:15 AM	15	0	8	0	0	0	1	0	0	22	2	0	6	118	0	0	172	
7:30 AM	31	0	5	0	0	0	1	0	0	30	8	0	10	147	1	0	233	
7:45 AM	29	0	19	0	0	0	0	0	0	26	7	0	17	196	0	0	294	839
8:00 AM	25	0	12	0	0	0	0	0	0	34	5	0	13	156	1	0	246	945
8:15 AM	22	1	9	0	0	0	0	0	0	28	4	0	15	135	1	0	215	988
8:30 AM	18	0	16	0	0	0	0	0	0	34	4	0	8	115	0	0	195	950
8:45 AM	17	0	12	0	0	0	0	0	1	35	4	0	12	110	0	0	191	847

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	116	0	76	0	0	0	0	0	0	104	28	0	68	784	0	0	1176
Heavy Trucks	0	0	0		0	0	0		0	16	4		8	16	0		44
Pedestrians		0				0				4				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	1		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 5/11/2017 9:56 AM

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

Type of peak hour being reported: Intersection Peak

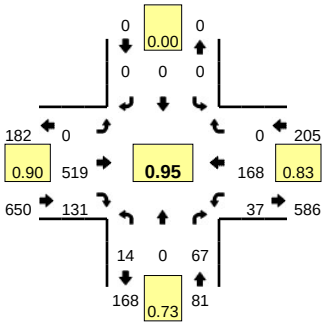
Method for determining peak hour: Total Entering Volume

LOCATION: Game Farm Rd -- Dryden Rd

CITY/STATE: Ithaca, NY

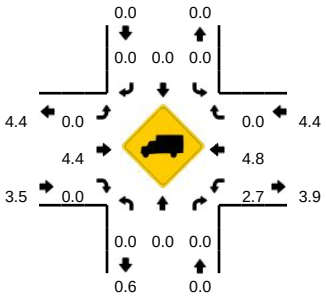
QC JOB #: 14402220

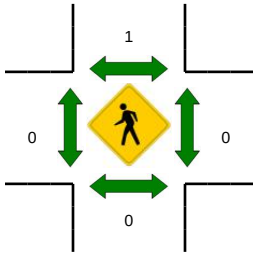
DATE: Wed, May 03 2017

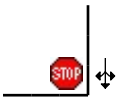


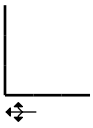
Peak-Hour: 4:00 PM -- 5:00 PM

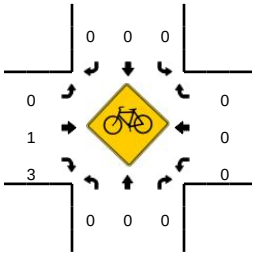
Peak 15-Min: 4:30 PM -- 4:45 PM

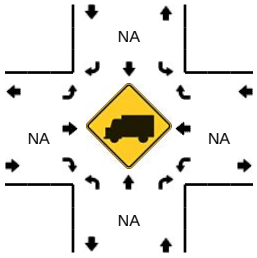


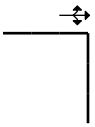


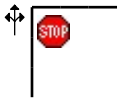


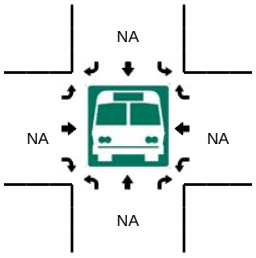












15-Min Count Period Beginning At	Game Farm Rd (Northbound)				Game Farm Rd (Southbound)				Dryden Rd (Eastbound)				Dryden Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	3	0	17	0	0	0	0	0	0	124	30	0	7	48	0	0	229	
4:15 PM	2	0	20	0	0	0	0	0	0	114	29	0	12	45	0	0	222	
4:30 PM	3	0	18	0	0	0	0	0	0	152	29	0	5	40	0	0	247	
4:45 PM	6	0	12	0	0	0	0	0	0	129	43	0	13	35	0	0	238	936
5:00 PM	6	0	13	0	0	0	0	0	0	106	31	0	8	42	0	0	206	913
5:15 PM	4	0	26	0	0	0	0	0	0	122	22	0	4	46	0	0	224	915
5:30 PM	7	0	10	0	0	0	0	0	0	104	23	0	11	55	0	0	210	878
5:45 PM	9	0	11	0	0	0	0	0	0	74	15	0	6	46	0	0	161	801

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	0	72	0	0	0	0	0	0	608	116	0	20	160	0	0	988
Heavy Trucks	0	0	0		0	0	0		0	8	0		0	8	0		16
Pedestrians		0				4				0				0			4
Bicycles	0	0	0		0	0	0		0	0	2		0	0	0		2
Railroad																	
Stopped Buses																	

Comments:

Report generated on 5/11/2017 9:56 AM

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

Type of peak hour being reported: Intersection Peak

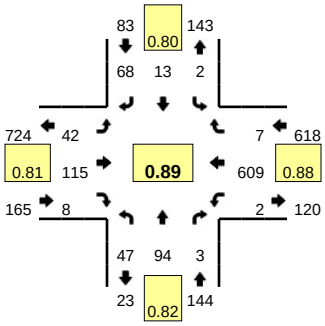
Method for determining peak hour: Total Entering Volume

LOCATION: Freese Rd/Mt Pleasant Rd -- Dryden Rd

QC JOB #: 14402223

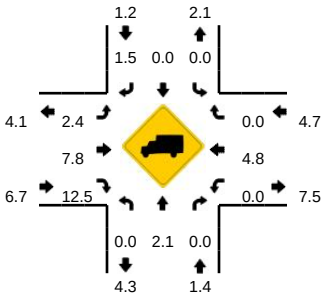
CITY/STATE: Ithaca, NY

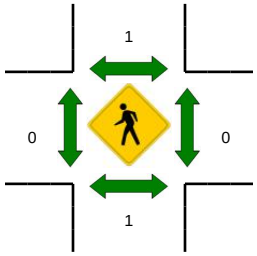
DATE: Wed, May 03 2017

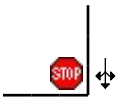


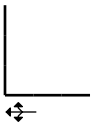
Peak-Hour: 7:30 AM -- 8:30 AM

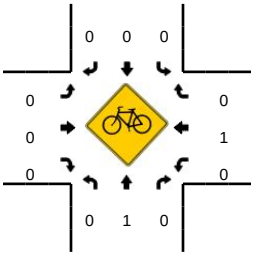
Peak 15-Min: 7:45 AM -- 8:00 AM

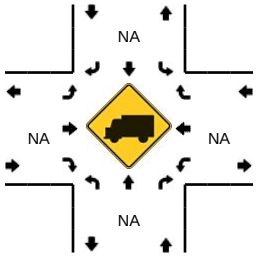


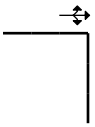


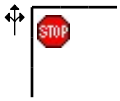


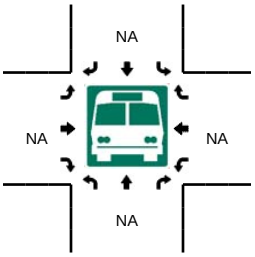












15-Min Count Period Beginning At	Freese Rd/Mt Pleasant Rd (Northbound)				Freese Rd/Mt Pleasant Rd (Southbound)				Dryden Rd (Eastbound)				Dryden Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	4	11	0	0	1	5	3	0	1	24	1	0	0	91	0	0	141	
7:15 AM	3	23	1	0	1	4	10	0	5	19	4	0	0	109	2	0	181	
7:30 AM	11	28	1	0	0	1	19	0	13	34	2	0	1	145	4	0	259	
7:45 AM	21	24	1	0	1	1	23	0	12	27	0	0	0	175	0	0	285	866
8:00 AM	13	24	1	0	1	7	6	0	12	26	4	0	0	152	1	0	247	972
8:15 AM	2	18	0	0	0	4	20	0	5	28	2	0	1	137	2	0	219	1010
8:30 AM	11	25	2	0	1	9	11	0	7	37	4	0	0	98	2	0	207	958
8:45 AM	12	17	1	0	0	10	17	0	18	31	7	0	1	93	3	0	210	883

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	84	96	4	0	4	4	92	0	48	108	0	0	0	700	0	0	1140
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	12	0		12
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 5/11/2017 9:56 AM

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

Type of peak hour being reported: Intersection Peak

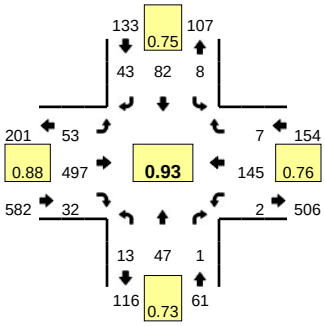
Method for determining peak hour: Total Entering Volume

LOCATION: Freese Rd/Mt Pleasant Rd -- Dryden Rd

QC JOB #: 14402224

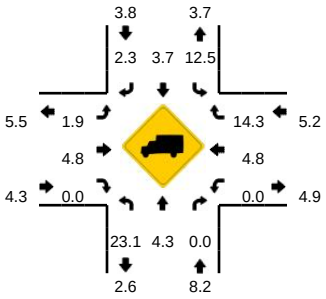
CITY/STATE: Ithaca, NY

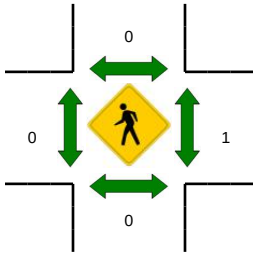
DATE: Wed, May 03 2017

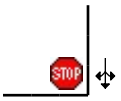


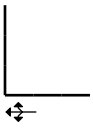
Peak-Hour: 4:00 PM -- 5:00 PM

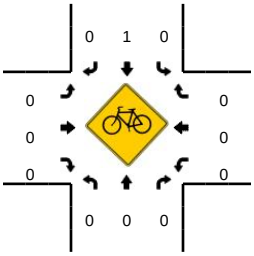
Peak 15-Min: 4:30 PM -- 4:45 PM

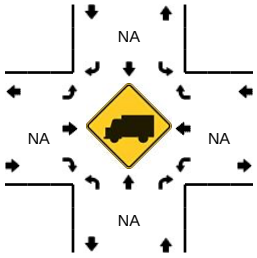


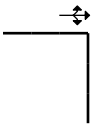


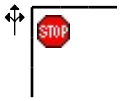


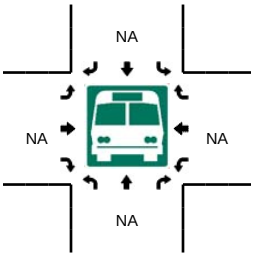












15-Min Count Period Beginning At	Freese Rd/Mt Pleasant Rd (Northbound)				Freese Rd/Mt Pleasant Rd (Southbound)				Dryden Rd (Eastbound)				Dryden Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	7	8	1	0	2	18	8	0	12	132	5	0	0	35	2	0	230	
4:15 PM	1	13	0	0	2	27	9	0	14	110	9	0	1	49	1	0	236	
4:30 PM	3	15	0	0	2	21	12	0	15	141	9	0	0	31	2	0	251	
4:45 PM	2	11	0	0	2	16	14	0	12	114	9	0	1	30	2	0	213	930
5:00 PM	4	8	1	0	2	35	15	0	13	99	11	0	0	36	2	0	226	926
5:15 PM	3	12	1	0	3	16	12	0	13	123	8	0	0	35	3	0	229	919
5:30 PM	7	15	0	0	2	30	0	0	17	92	10	0	0	35	3	0	211	879
5:45 PM	1	12	0	0	0	22	6	0	6	70	5	0	0	26	5	0	153	819

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	60	0	0	8	84	48	0	60	564	36	0	0	124	8	0	1004
Heavy Trucks	0	4	0		0	8	0		0	12	0		0	8	0		32
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	1	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 5/11/2017 9:56 AM

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

A2

Miscellaneous Traffic Data and Calculations

New York State Department of Transportation

Traffic Count Hourly Report

ROUTE #: **NY 366** ROAD NAME:
DIRECTION: Eastbound
STATE DIR CODE: 6
DATE OF COUNT: 10/23/2017
NOTES LANE 1: EB travel lane

FACTOR GROUP: 30
WK OF YR: 43

FROM: **ITHACA TL**
REC. SERIAL #: CF92
PLACEMENT: 164 yds E of Game Farm Rd.
@ REF MARKER:
ADDL DATA: Class Speed
COUNT TYPE: AXLE PAIRS

TO: **FOREST HOME DR**
FUNC. CLASS: 16
NHS: no
JURIS: City
CC Stn:
BATCH ID: DOT-R03C43bTST5195

COUNTY: **Tompkins**
TOWN:
LION#:
BIN: 1046760
RR CROSSING:
HPMS SAMPLE:

COUNT TAKEN BY: ORG CODE: TST INITIALS: HJD
PROCESSED BY: ORG CODE: DOT INITIALS: SJK

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	S																											
2	M																											
3	T																											
4	W																											
5	T																											
6	F																											
7	S																											
8	S																											
9	M																											
10	T																											
11	W																											
12	T																											
13	F																											
14	S																											
15	S																											
16	M																											
17	T																											
18	W																											
19	T																											
20	F																											
21	S																											
22	S																											
23	M											**137**	**157**	**212**	**227**	**285**	**320**	**480**	**447**	**236**	**141**	**135**	**112**	**69**	**54**			
24	T	**24**	**23**	**20**	**11**	**10**	**21**	**56**	**122**	**127**	**146**	**135**	**166**	**195**	**237**	**273**	**347**	**571**	**465**	**241**	**183**	**111**	**100**	**89**	**44**	3717	571	16
25	W	**19**	**21**	**15**	**8**	**9**	**20**	**59**	**96**	**145**	**122**	**145**	**158**	**209**	**225**	**303**	**361**	**520**	**472**	**255**	**170**	**119**	**98**	**89**	**42**	3680	520	16
26	T	**23**	**28**	**17**	**9**	**8**	**22**	**51**	**115**																			
27	F																											
28	S																											
29	S																											
30	M																											
31	T																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

																									ADT
22	**24**	**17**	**9**	**9**	**21**	**55**	**111**	**136**	**134**	**139**	**160**	**205**	**230**	**287**	**343**	**524**	**461**	**244**	**165**	**122**	**103**	**82**	**47**	**3650**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
4	70	4	70	524	14%	1.000	1.078

ESTIMATED

AADT

3386

New York State Department of Transportation

Traffic Count Hourly Report

ROUTE #: **NY 366** ROAD NAME:
DIRECTION: Westbound
STATE DIR CODE: 7
DATE OF COUNT: 10/23/2017
NOTES LANE 1: WB travel lane

COUNT TAKEN BY: ORG CODE: TST INITIALS: HJD

FROM: **ITHACA TL**
REC. SERIAL #: CF92
PLACEMENT: 164 yds E of Game Farm Rd.
@ REF MARKER:
ADDL DATA: Class Speed
COUNT TYPE: AXLE PAIRS

PROCESSED BY: ORG CODE: DOT INITIALS: SJK

TO: **FOREST HOME DR**
FACTOR GROUP: 30
WK OF YR: 43
FUNC. CLASS: 16
NHS: no
JURIS: City
CC Stn:
BATCH ID: DOT-R03C43bTST5195

COUNTY: **Tompkins**
TOWN:
LION#:
BIN: 1046760
RR CROSSING:
HPMS SAMPLE:

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	S																											
2	M																											
3	T																											
4	W																											
5	T																											
6	F																											
7	S																											
8	S																											
9	M																											
10	T																											
11	W																											
12	T																											
13	F																											
14	S																											
15	S																											
16	M																											
17	T																											
18	W																											
19	T																											
20	F																											
21	S																											
22	S																											
23	M											**217**	**207**	**196**	**188**	**194**	**190**	**184**	**212**	**140**	**103**	**73**	**76**	**44**	**26**			
24	T	**17**	**15**	**2**	**20**	**44**	**98**	**280**	**602**	**578**	**307**	**241**	**226**	**204**	**193**	**190**	**212**	**213**	**186**	**159**	**100**	**61**	**42**	**42**	**21**	4053	602	7
25	W	**12**	**12**	**5**	**17**	**49**	**107**	**270**	**611**	**601**	**281**	**209**	**176**	**189**	**196**	**223**	**198**	**217**	**226**	**143**	**90**	**71**	**49**	**61**	**21**	4034	611	7
26	T	**20**	**15**	**8**	**15**	**52**	**106**	**237**	**552**																			
27	F																											
28	S																											
29	S																											
30	M																											
31	T																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	ADT
16	**14**	**5**	**17**	**48**	**104**	**262**	**588**	**590**	**294**	**222**	**203**	**196**	**192**	**202**	**200**	**205**	**208**	**147**	**98**	**68**	**56**	**49**	**23**	**4007**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
4	70	4	70	590	15%	1.000	1.078

ESTIMATED

AADT

3717

STATION: 368220

New York State Department of Transportation
Roadway Traffic Count Hourly Report

ROUTE/ROAD:	GAME FARM RD	FROM:	STEVENSON RD	TO:	NYS RT 366	REGION-COUNTY:	3-TOMPKINS
FED DIR CODE:	1, 5	REF. MARKER:		FUNC. CLASS:	17 - U Major Collector	MUNI:	Ithaca-Town-0423
ST DIR CODE:	6	END MILEPOST:	1.23	FACTOR GROUP:	30	BIN:	
DOT ID:	137834	LANES BY DIR:	1 North 1 South	CC STN:		RR CROSSING:	
BEGIN DATE:	9/15/2014	WEEK OF YEAR:	37	ADDL DATA:		HPMS SAMPLE:	
NOTES 1:		PLACEMENT:	200 YDS N OF STEVENSON RD	JURISDICTION:	02-County	1 WAY CODE:	
NOTES 2:						COUNT TYPE:	Vehicle
TAKEN BY:	TST-BMS	PROCESSED BY:	R03-JAB	BATCH ID:	DOT-R3ww38 Vo	SPEED LIMIT:	

DATE	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	DAILY TOTAL	HIGH COUNT	HIGH HOUR
9/15, Mon													**123**	**151**	**155**	**167**	**230**	**207**	**147**	**73**	**34**	**28**	**18**	**7**	1340		
9/16, Tue	**9**	**1**	**2**	**2**	**12**	**26**	**104**	**189**	**226**	**157**	**127**	**128**	**159**	**142**	**179**	**190**	**232**	**223**	**112**	**74**	**46**	**44**	**14**	**9**	2407	232	16-17
9/17, Wed	**2**	**3**	**3**	**7**	**6**	**30**	**91**	**216**	**213**	**132**	**104**	**98**	**122**	**127**	**146**	**198**	**249**	**226**	**114**	**88**	**45**	**39**	**32**	**14**	2305	249	16-17
9/18, Thu	**7**	**5**	**1**	**6**	**9**	**24**	**89**	**215**	**204**	**119**	**101**														780		
AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6 AM to Fri Noon)																									**AWDT**		
	6	**3**	**2**	**5**	**9**	**27**	**95**	**207**	**214**	**136**	**111**	**113**	**135**	**140**	**160**	**185**	**237**	**219**	**124**	**78**	**42**	**37**	**21**	**10**	2315		

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY Roadway High Hour	Roadway % of day	North High Hour	North % of day	South High Hour	South % of day
3	71	3	71	237	10.2	145	12.3	149	13.1

ESTIMATED AADT		
Roadway	North	South
2180	1110	1070

FACTOR

Month	Seasonal	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Axl
9	1.06		1.00	1.00	1.00	1.00			1.00

STATION: 368220

New York State Department of Transportation
NB Traffic Count Hourly Report

ROUTE/ROAD:	GAME FARM RD	FROM:	STEVENSON RD	TO:	NYS RT 366	REGION-COUNTY:	3-TOMPKINS
FED DIR CODE:	1	REF. MARKER:		FUNC. CLASS:	17 - U Major Collector	MUNI:	Ithaca-Town-0423
ST DIR CODE:	6	END MILEPOST:	1.23	FACTOR GROUP:	30	BIN:	
DOT ID:	137834	LANES BY DIR:	1 North	CC STN:		RR CROSSING:	
BEGIN DATE:	9/15/2014	WEEK OF YEAR:	37	ADDL DATA:		HPMS SAMPLE:	
NOTES 1:		PLACEMENT:	200 YDS N OF STEVENSON RD	JURISDICTION:	02-County	1 WAY CODE:	
NOTES 2:						COUNT TYPE:	Vehicle
TAKEN BY:	TST-BMS	PROCESSED BY:	R03-JAB	BATCH ID:	DOT-R3ww38 Vo	SPEED LIMIT:	

DATE	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	DAILY TOTAL	HIGH COUNT	HIGH HOUR
9/15, Mon													**65**	**82**	**76**	**74**	**84**	**81**	**59**	**42**	**10**	**8**	**7**	**3**	591		
9/16, Tue	**5**	**0**	**1**	**0**	**6**	**18**	**74**	**130**	**154**	**89**	**70**	**64**	**82**	**63**	**88**	**80**	**84**	**81**	**46**	**33**	**18**	**15**	**3**	**4**	1208	154	08-09
9/17, Wed	**2**	**0**	**2**	**5**	**3**	**21**	**60**	**153**	**144**	**84**	**57**	**50**	**61**	**53**	**70**	**95**	**95**	**92**	**42**	**41**	**14**	**13**	**11**	**10**	1178	153	07-08
9/18, Thu	**4**	**2**	**0**	**4**	**4**	**19**	**54**	**143**	**138**	**76**	**59**														503		
AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6 AM to Fri Noon)																									**AWDT**		
	4	**1**	**1**	**3**	**4**	**19**	**63**	**142**	**145**	**83**	**62**	**57**	**69**	**66**	**78**	**83**	**88**	**85**	**49**	**39**	**14**	**12**	**7**	**6**	1179		

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY Roadway High Hour	Roadway % of day	North High Hour	North % of day	South High Hour	South % of day
3	71	3	71	237	10.2	145	12.3	149	13.1

ESTIMATED AADT		
Roadway	North	South
2180	1110	1070

FACTOR

Month	Seasonal	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Axl
9	1.06		1.00	1.00	1.00	1.00			1.00

STATION: 368220

New York State Department of Transportation
SB Traffic Count Hourly Report

ROUTE/ROAD:	GAME FARM RD	FROM:	STEVENSON RD	TO:	NYS RT 366	REGION-COUNTY:	3-TOMPKINS
FED DIR CODE:	5	REF. MARKER:		FUNC. CLASS:	17 - U Major Collector	MUNI:	Ithaca-Town-0423
ST DIR CODE:	6	END MILEPOST:	1.23	FACTOR GROUP:	30	BIN:	
DOT ID:	137834	LANES BY DIR:	1 South	CC STN:		RR CROSSING:	
BEGIN DATE:	9/15/2014	WEEK OF YEAR:	37	ADDL DATA:		HPMS SAMPLE:	
NOTES 1:		PLACEMENT:	200 YDS N OF STEVENSON RD	JURISDICTION:	02-County	1 WAY CODE:	
NOTES 2:						COUNT TYPE:	Vehicle
TAKEN BY:	TST-BMS	PROCESSED BY:	R03-JAB	BATCH ID:	DOT-R3ww38 Vo	SPEED LIMIT:	

DATE	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	DAILY TOTAL	HIGH COUNT	HIGH HOUR
9/15, Mon													**58**	**69**	**79**	**93**	**146**	**126**	**88**	**31**	**24**	**20**	**11**	**4**	749		
9/16, Tue	**4**	**1**	**1**	**2**	**6**	**8**	**30**	**59**	**72**	**68**	**57**	**64**	**77**	**79**	**91**	**110**	**148**	**142**	**66**	**41**	**28**	**29**	**11**	**5**	1199	148	16-17
9/17, Wed	**0**	**3**	**1**	**2**	**3**	**9**	**31**	**63**	**69**	**48**	**47**	**48**	**61**	**74**	**76**	**103**	**154**	**134**	**72**	**47**	**31**	**26**	**21**	**4**	1127	154	16-17
9/18, Thu	**3**	**3**	**1**	**2**	**5**	**5**	**35**	**72**	**66**	**43**	**42**														277		
AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6 AM to Fri Noon)																									**AWDT**		
	2	**2**	**1**	**2**	**5**	**7**	**32**	**65**	**69**	**53**	**49**	**56**	**65**	**74**	**82**	**102**	**149**	**134**	**75**	**40**	**28**	**25**	**14**	**4**	1136		

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY Roadway High Hour	Roadway % of day	North High Hour	North % of day	South High Hour	South % of day
3	71	3	71	237	10.2	145	12.3	149	13.1

ESTIMATED AADT		
Roadway	North	South
2180	1110	1070

FACTOR

Month	Seasonal	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Axl
9	1.06		1.00	1.00	1.00	1.00			1.00

Project Information	
Project Name:	Townhomes at Dryden
No:	38053
Date:	8/28/2018
City:	Dryden
State/Province:	New York
Zip/Postal Code:	
Country:	
Client Name:	Trinitas Ventures
Analyst's Name:	David Kruse, AICP, PTP
Edition:	ITE-TGM 10th Edition, SRFA

Land Use	Size	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.		Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.	
		Entry	Exit	Entry	Exit
Student Housing - Local Rates (see calculations)	602 Beds	16	68	93	69
Internal (see NCHRP 684 spreadsheet model)		-1	-10	-7	-3
Pass-by		0	0	0	0
Non-pass-by		**15**	**58**	**86**	**66**
820 - Shopping Center	1.31 1000 Sq. Ft. GFA	2	2	12	13
Internal (see NCHRP 684 spreadsheet model)		0	0	-7	-7
Pass-by (0% AM; 20% PM)		0	0	-1	-1
Non-pass-by		**2**	**2**	**4**	**5**
936 - Coffee/Donut Shop without Drive-Through Window	.8 1000 Sq. Ft. GFA	41	40	15	14
Internal (see NCHRP 684 spreadsheet model)		-8	-1	-5	-8
Pass-by (70% AM; 50% PM)		-23	-27	-5	-3
Non-pass-by		**10**	**12**	**5**	**3**
Total		**59**	**110**	**120**	**96**
Total Internal		-9	-11	-19	-18
Total Pass-by		-23	-27	-5	-3
Total Non-pass-by		**25**	**70**	**91**	**69**

Trip Generation Rates

Proposed Townhomes at Dryden
Town of Dryden, NY

College Circle
324 beds

		Rate
AM Enter	8	0.02
AM Exit	37	0.11
PM Enter	92	0.28
PM Exit	54	0.17

Suny Brockport
340 beds

		Rate
AM Enter	10	0.03
AM Exit	38	0.11
PM Enter	50	0.15
PM Exit	35	0.10

University Village
820 beds

		Rate
AM Enter	21	0.03
AM Exit	91	0.11
PM Enter	84	0.10
PM Exit	79	0.10

Average Rates
495 beds

		Rate
AM Enter	13	0.03
AM Exit	55	0.11
PM Enter	75	0.15
PM Exit	56	0.11

ITE Rates
- beds

		Rate	Dir. Dist.	Avg. Rate
AM Enter	-	0.04	28%	0.16
AM Exit	-	0.12	72%	
PM Enter	-	0.13	50%	0.25
PM Exit	-	0.13	50%	

Proposed Project (Local Rates)
602 beds

AM Enter	16
AM Exit	68
PM Enter	93
PM Exit	69

Proposed Project (ITE)
602 beds

AM Enter	15
AM Exit	69
PM Enter	75
PM Exit	75

SRF ASSOCIATES
WWW.SRFA.NET
Transportation Planning // Engineering // Design

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	Townhomes at Dryden	**Organization:**	SRF Associates, D.P.C.
Project Location:	NYS Route 366/Mt. Pleasant Road	**Performed By:**	David Kruse, AICP, PTP
Scenario Description:	Full Build	**Date:**	29-Aug
Analysis Year:	2020	**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	820	1,312	SF	4	2	2
Restaurant	936	800	SF	81	41	40
Cinema/Entertainment				0		
Residential		602	Beds	80	14	66
Hotel				0		
All Other Land Uses[2]				0		
Total				165	57	108

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail	1.17	0%	0%	1.16	0%	0%
Restaurant	1.40	0%	0%	1.40	0%	0%
Cinema/Entertainment						
Residential	1.13	1%	3%	1.09	0%	2%
Hotel						
All Other Land Uses[2]						

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

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	0	0
Restaurant	0	0		0	1	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	11	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	205	75	130
Internal Capture Percentage	12%	16%	9%
External Vehicle-Trips[3]	144	48	96
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	1	0	1

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	0%	0%
Restaurant	19%	2%
Cinema/Entertainment	N/A	N/A
Residential	6%	15%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	Townhomes at Dryden
Analysis Period:	**AM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.17	2	2	1.16	2	2
Restaurant	1.40	41	57	1.40	40	56
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.13	14	16	1.09	66	72
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	1		0	0	0	0
Restaurant	17	8		0	2	2
Cinema/Entertainment	0	0	0		0	0
Residential	1	1	14	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1	13	0	0	0
Retail	0		29	0	0	0
Restaurant	0	0		0	1	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	11	0		0
Hotel	0	0	3	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	0	2	2	2	0	0
Restaurant	11	46	57	33	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	15	16	13	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	0	2	2	2	0	0
Restaurant	1	55	56	39	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	11	61	72	55	0	1
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	Townhomes at Dryden	**Organization:**	SRF Associates, D.P.C.
Project Location:	NYS Route 366/Mt. Pleasant Road	**Performed By:**	David Kruse, AICP, PTP
Scenario Description:	Full Build	**Date:**	29-Aug
Analysis Year:	2020	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	820	1,312	SF	25	12	13
Restaurant	936	800	SF	29	15	14
Cinema/Entertainment				0		
Residential		602	Beds	157	91	66
Hotel				0		
All Other Land Uses[2]				0		
Total				211	118	93

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail	1.21	0%	0%	1.18	0%	0%
Restaurant	1.33	0%	0%	1.34	0%	0%
Cinema/Entertainment						
Residential	1.15	1%	3%	1.21	0%	4%
Hotel						
All Other Land Uses[2]						

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

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail					500	
Restaurant					500	
Cinema/Entertainment						
Residential		500	500			
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		4	0	4	0
Restaurant	0	8		0	3	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	1	3	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	254	140	114
Internal Capture Percentage	18%	16%	20%
External Vehicle-Trips[3]	169	97	72
External Transit-Trips[4]	1	1	0
External Non-Motorized Trips[4]	6	3	3

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	60%	53%
Restaurant	35%	58%
Cinema/Entertainment	N/A	N/A
Residential	7%	5%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	Townhomes at Dryden
Analysis Period:	**PM Street Peak Hour**

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.21	12	15	1.18	13	15
Restaurant	1.33	15	20	1.34	14	19
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.15	91	105	1.21	66	80
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		4	1	4	1
Restaurant	1	8		2	3	1
Cinema/Entertainment	0	0	0		0	0
Residential	3	31	15	0		2
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1	0	0	4	0
Retail	0		6	0	48	0
Restaurant	0	8		0	17	0
Cinema/Entertainment	0	1	1		4	0
Residential	0	1	3	0		0
Hotel	0	0	1	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	9	6	15	5	0	0
Restaurant	7	13	20	10	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	7	98	105	82	1	3
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	8	7	15	6	0	0
Restaurant	11	8	19	6	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	4	76	80	60	0	3
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

Table 7.1a Adjusted Internal Trip Capture Rates for Trip Origins within a Multi-Use Development			
Land Use Pairs		Weekday	
		AM Peak Hour	PM Peak Hour
From OFFICE	To Office	0.0%	0.0%
	To Retail	28.0%	20.0%
	To Restaurant	63.0%	4.0%
	To Cinema/Entertainment	0.0%	0.0%
	To Residential	1.0%	2.0%
	To Hotel	0.0%	0.0%
From RETAIL	To Office	29.0%	2.0%
	To Retail	0.0%	0.0%
	To Restaurant	13.0%	29.0%
	To Cinema/Entertainment	0.0%	4.0%
	To Residential	14.0%	26.0%
	To Hotel	0.0%	5.0%
From RESTAURANT	To Office	31.0%	3.0%
	To Retail	14.0%	41.0%
	To Restaurant	0.0%	0.0%
	To Cinema/Entertainment	0.0%	8.0%
	To Residential	4.0%	18.0%
	To Hotel	3.0%	7.0%
From CINEMA/ENTERTAINMENT	To Office	0.0%	2.0%
	To Retail	0.0%	21.0%
	To Restaurant	0.0%	31.0%
	To Cinema/Entertainment	0.0%	0.0%
	To Residential	0.0%	8.0%
	To Hotel	0.0%	2.0%
From RESIDENTIAL	To Office	2.0%	4.0%
	To Retail	1.0%	38.2%
	To Restaurant	20.0%	19.1%
	To Cinema/Entertainment	0.0%	0.0%
	To Residential	0.0%	0.0%
	To Hotel	0.0%	3.0%
From HOTEL	To Office	75.0%	0.0%
	To Retail	14.0%	16.0%
	To Restaurant	9.0%	68.0%
	To Cinema/Entertainment	0.0%	0.0%
	To Residential	0.0%	2.0%
	To Hotel	0.0%	0.0%

Table 7.2a Adjusted Internal Trip Capture Rates for Trip Destinations within a Multi-Use Development			
Land Use Pairs		Weekday	
		AM Peak Hour	PM Peak Hour
To OFFICE	From Office	0.0%	0.0%
	From Retail	4.0%	31.0%
	From Restaurant	14.0%	30.0%
	From Cinema/Entertainment	0.0%	6.0%
	From Residential	3.0%	57.0%
	From Hotel	3.0%	0.0%
To RETAIL	From Office	32.0%	8.0%
	From Retail	0.0%	0.0%
	From Restaurant	8.0%	50.0%
	From Cinema/Entertainment	0.0%	4.0%
	From Residential	17.0%	9.1%
	From Hotel	4.0%	2.0%
To RESTAURANT	From Office	23.0%	2.0%
	From Retail	50.0%	29.0%
	From Restaurant	0.0%	0.0%
	From Cinema/Entertainment	0.0%	3.0%
	From Residential	20.0%	12.7%
	From Hotel	6.0%	5.0%
To CINEMA/ENTERTAINMENT	From Office	0.0%	1.0%
	From Retail	0.0%	26.0%
	From Restaurant	0.0%	32.0%
	From Cinema/Entertainment	0.0%	0.0%
	From Residential	0.0%	0.0%
	From Hotel	0.0%	0.0%
To RESIDENTIAL	From Office	0.0%	4.0%
	From Retail	2.0%	46.0%
	From Restaurant	5.0%	16.0%
	From Cinema/Entertainment	0.0%	4.0%
	From Residential	0.0%	0.0%
	From Hotel	0.0%	0.0%
To HOTEL	From Office	0.0%	0.0%
	From Retail	0.0%	17.0%
	From Restaurant	4.0%	71.0%
	From Cinema/Entertainment	0.0%	1.0%
	From Residential	0.0%	12.0%
	From Hotel	0.0%	0.0%

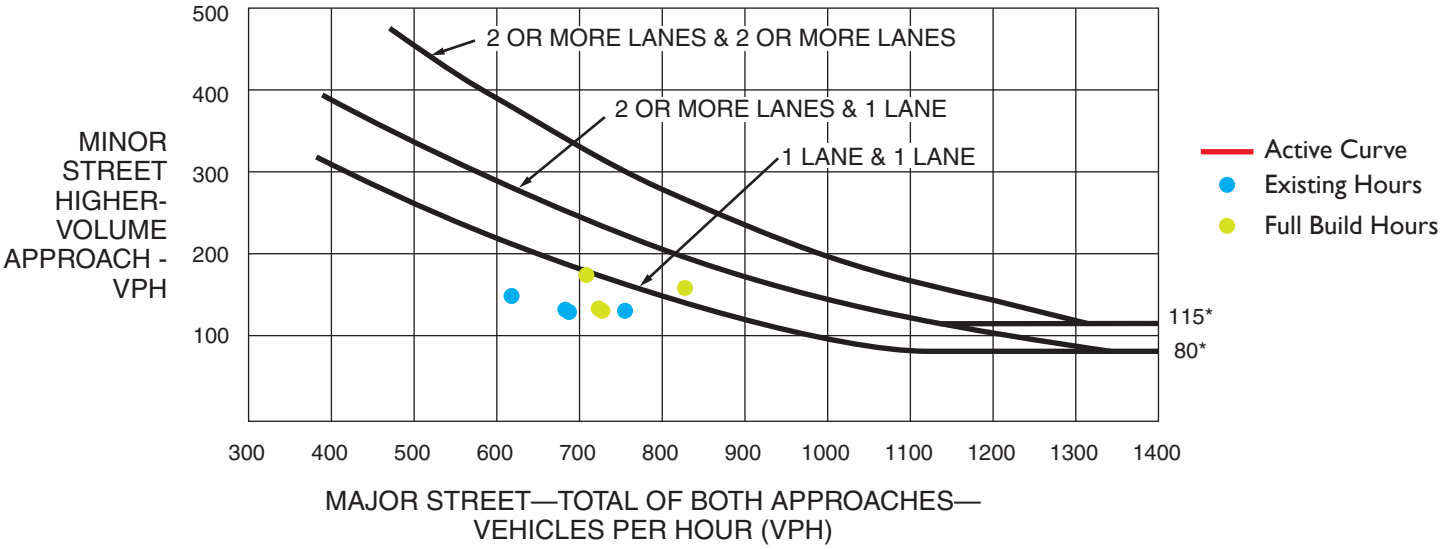
PROPOSED TOWNHOMES AT DRYDEN
TOWN OF DRYDEN, NY
AM PEAK

LOCATION NUMBER	INTERSECTION DESCRIPTION	2017 Existing Volume	2018 Base Vol 1.50% (Num of yrs 1)	2020 Bkgd Vol 0.50% (Num of yrs 2)	the Cottages at Fall Creek Crossing (15 DU) Enter Dist. %	Exit Dist. %	Trips IN 3	Trips OUT 8	802 Dryden Road Townhomes (42 DU) Enter Dist. %	Exit Dist. %	Trips IN 4	Trips OUT 15	1061 Dryden Road Townhomes (36 DU) Enter Dist. %	Exit Dist. %	Trips IN 4	Trips OUT 19	Total Bkgd Trips	Total Bkgd Volume	Proposed Residential (602 Beds) Enter Dist. %	Exit Dist. %	Trips IN 15	Trips OUT 58	Proposed Coffee Shop (800 SF) Enter Dist. %	Exit Dist. %	Trips IN 10	Trips OUT 12	Pass-by Trips	Proposed Retail (1,312 SF) Enter Dist. %	Exit Dist. %	Trips IN 2	Trips OUT 2	Total Site Trips	Full Build Volumes
1	NYS Route 366 (Dryden Road)/ Freese Road/Mt. Pleasant Road																																	
	SR	68	69	70					5%		0						0	70	8%		1		10%		1			10%		0		2	73
	ST	13	13	13														13	5%		1										1	14
	SL	2	2	2	15%		0						15%		1		1	3															3
	WR	7	7	7		15%		1						15%		3	4	11															11
	WT	609	618	624		53%		4	18%		1			53%		10	15	639	1%		0		20%		2			20%		0		3	642
	WL	2	2	2		2%		0						2%		0	1	3	1%		0										0	3
	NR	3	3	3	2%		0						2%		0		0	3		1%		1									1	4
	NT	94	95	96														96		2%		1									1	97
	NL	47	48	48					2%		0						0	48		7%		4	5%		1			5%		0		5	53
	ER	8	8	8						2%		0					0	8	32%		5			5%		1			5%		0	6	14
	ET	115	117	118	53%		2			18%		3	53%		2		6	124		1%		1		20%		2	1		20%		0	4	129
	EL	42	43	43						5%		1					1	44		11%		6		10%		1			10%		0	8	52
2	Mt. Pleasant Road/ Proposed Northerly Dwy (Garage)																																	
	SR																		28%		4											4	4
	ST	23	23	23		2%		0		2%		0		2%		0	1	24	10%		2			5%		1			5%		0	2	26
	SL																																	
	WR																																	
	WT																																	
	WL																																	
	NR																																	
	NT	144	146	147	2%		0		2%		0		2%		0		0	147		10%		6	5%		1			5%		0		6	154
	NL																																	
	ER																			28%		16										16	16
	ET																																	
	EL																																	
3	Mt. Pleasant Road/ Proposed Southerly Dwy (Surface)																																	
	SR																		10%	28%	2	16										18	18
	ST	23	23	23		2%		0		2%		0		2%		0	1	24						5%		1			5%		0	1	25
	SL																																	
	WR																																	
	WT																																	
	WL																																	
	NR																																	
	NT	144	146	147	2%		0		2%		0		2%		0		0	147					5%		1			5%		0		1	148
	NL																																	
	ER																																	
	ET																																	
	EL																			10%		6										6	6
4	NYS Route 366/ Proposed Driveway																																	
	SR																																	
	ST																																	
	SL																																	
	WR																																	
	WT	724	735	742		53%		4		25%		4		53%		10	18	760		7%		4					-19					-15	745
	WL																		9%		1		35%		4		19	35%		1		25	25
	NR																			12%		7		35%		4	5		35%		1	17	17
	NT																																	
	NL																			78%		45		65%		8	22		65%		1	76	76
	ER																		53%		8		65%		7		4	65%		1		20	20
	ET	165	167	169	53%		2		25%		1		53%		2		5	174	32%		5						-4					1	175
	EL																																	
5	NYS Route 366/ Game Farm Road/Arboretum Center																																	
	SR	1	1	1														1																1
	ST																																	
	SL																																	
	WR	3	3	3														3																3
	WT	634	644	650		48%		4		70%		11		48%		9	23	673		85%		49		55%		7	3		55%		1	60	733
	WL	55	56	57		5%		0		5%		1		5%		1	2	59						10%		1			10%		0	1	61
	NR	45	46	46	5%		0		5%		0		5%		0		1	47					10%		1			10%		0		1	48
	NT	1	1	1														1																1
	NL	107	109	110														110																110
	ER	24	24	24														24																24
	ET	118	120	121	48%		1		70%		3		48%		2		6	127	85%		13		55%		6			55%		1		19	147
	EL																																	

PROPOSED TOWNHOMES AT DRYDEN
TOWN OF DRYDEN, NY
PM PEAK

			Num of yrs 1	Num of yrs 2																														
LOCATION NUMBER	INTERSECTION DESCRIPTION	2017 Existing Volume	2018 Base Vol 1.50%	2020 Bkgd Vol 0.50%	the Cottages at Fall Creek Crossing (15 DU)				802 Dryden Road Townhomes (42 DU)				1061 Dryden Road Townhomes (36 DU)				Total Bkgd Trips	Total Bkgd Volume	Proposed Residential (602 Beds)				Proposed Coffee Shop (800 SF)				Pass-by Trips	Proposed Retail (1,312 SF)				Pass-by Trips	Total Site Trips	Full Build Volumes
					Enter Dist. %	Exit Dist. %	Trips IN 9	Trips OUT 6	Enter Dist. %	Exit Dist. %	Trips IN 15	Trips OUT 9	Enter Dist. %	Exit Dist. %	Trips IN 17	Trips OUT 9			Enter Dist. %	Exit Dist. %	Trips IN 86	Trips OUT 66	Enter Dist. %	Exit Dist. %	Trips IN 5	Trips OUT 3		Enter Dist. %	Exit Dist. %	Trips IN 4	Trips OUT 5			
1	NYS Route 366 (Dryden Road)/ Freese Road/Mt. Pleasant Road																																	
	SR	43	44	44					5%		1						1	45	19%		16		10%		1			10%		0			17	62
	ST	82	83	84														84	11%		9											9	93
	SL	8	8	8	15%		1						15%		3		4	12																12
	WR	7	7	7		15%		1						15%		1	2	9																9
	WT	145	147	148		53%		3	18%		3			53%		5	11	159	3%		3		20%		1			20%		1			4	163
	WL	2	2	2		2%		0						2%		0	0	2	2%		2												2	4
	NR	1	1	1	2%		0						2%		0		1	2		1%		1											1	2
	NT	47	48	48														48		3%		2											2	50
	NL	13	13	13					2%		0						0	13		6%		4	5%		0			5%		0			4	18
	ER	32	32	32						2%		0					0	32	25%		22			5%		0							22	54
	ET	497	504	509	53%		5			18%		2	53%		9		15	524		4%		3		20%		1	-1		20%		1		3	528
	EL	53	54	55						5%		0					0	55		27%		18		10%		0			10%		1		19	74
2	Mt. Pleasant Road/ Proposed Northerly Dwy (Garage)																																	
	SR																		28%		24												24	24
	ST	116	118	119		2%		0		2%		0		2%		0	0	119	10%		9			5%		0			5%		0		9	128
	SL																																	
	WR																																	
	WT																																	
	WL																																	
	NR																																	
	NT	61	62	63	2%		0		2%		0		2%		0		1	64		10%		7	5%		0			5%		0			7	71
	NL																																	
	ER																			28%		18											18	18
	ET																																	
	EL																																	
3	Mt. Pleasant Road/ Proposed Southerly Dwy (Surface)																																	
	SR																		10%	28%	9	18											27	27
	ST	116	118	119		2%		0		2%		0		2%		0	0	119						5%		0			5%		0		0	120
	SL																																	
	WR																																	
	WT																																	
	WL																																	
	NR																																	
	NT	61	62	63	2%		0		2%		0		2%		0		1	64					5%		0			5%		0			0	64
	NL																																	
	ER																																	
	ET																																	
	EL																			10%		7											7	7
4	NYS Route 366/ Proposed Driveway																																	
	SR																																	
	ST																																	
	SL																																	
	WR																																	
	WT	201	204	206		53%		3		25%		2		53%		5	10	216		6%		4					-1						3	219
	WL																		22%		19		35%		2		1	35%		1			23	23
	NR																			31%		20		35%		1	3		35%		2	1	27	27
	NT																																	
	NL																			59%		39		65%		2	2		65%		3		46	46
	ER																		40%		34		65%		3		4	65%		3		45	45
	ET	582	591	597	53%		5		25%		4		53%		9		18	615	25%		22						-4					-1	17	631
	EL																																	
5	NYS Route 366/ Game Farm Road/Arboretum Center																																	
	SR																																	
	ST																																	
	SL																																	
	WR																																	
	WT	168	171	173		48%		3		70%		6		48%		4	14	187		65%		43		55%		2	1		55%		3		48	235
	WL	37	38	38		5%		0		5%		0		5%		0	1	39						10%		0			10%		1		1	40
	NR	67	68	69	5%		0		5%		1		5%		1		2	71					10%		1			10%		0			1	72
	NT																																	
	NL	14	14	14														14																14
	ER	131	133	134														134																134
	ET	519	527	532	48%		4		70%		11		48%		8		23	555	65%		56		55%		3			55%		2			61	616
	EL																																	

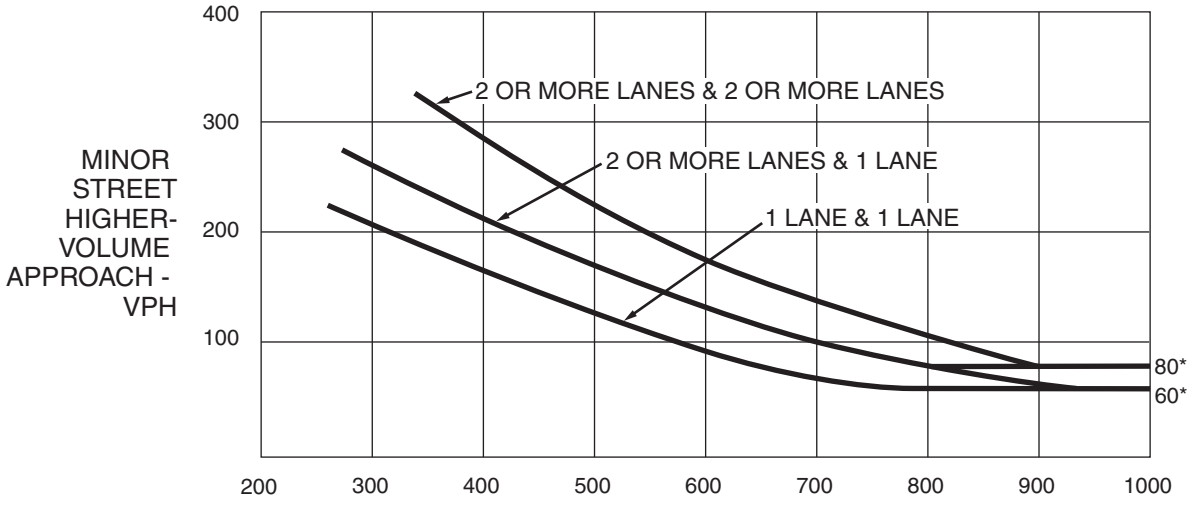
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

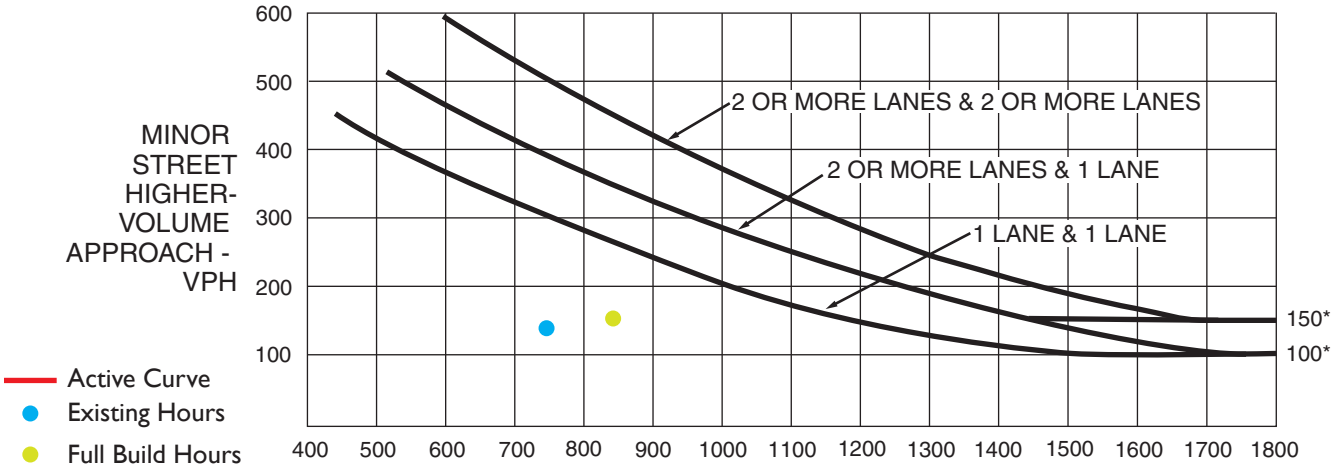
Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

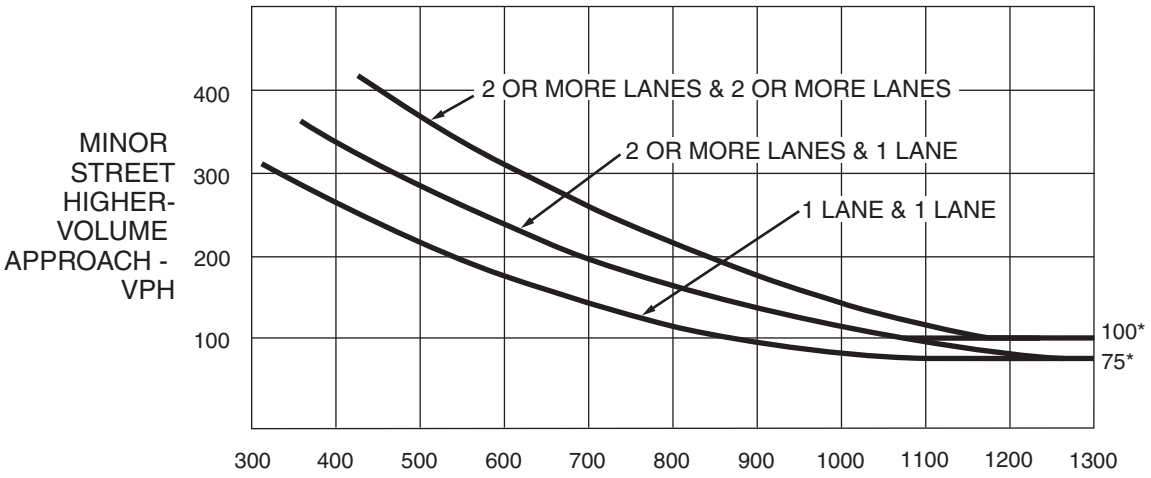
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

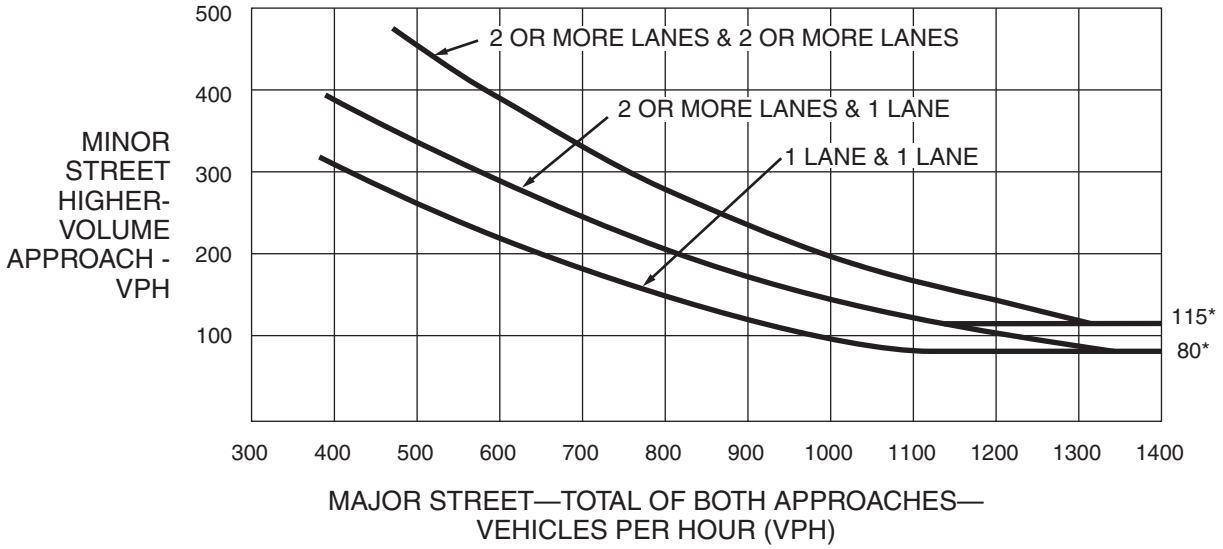
Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

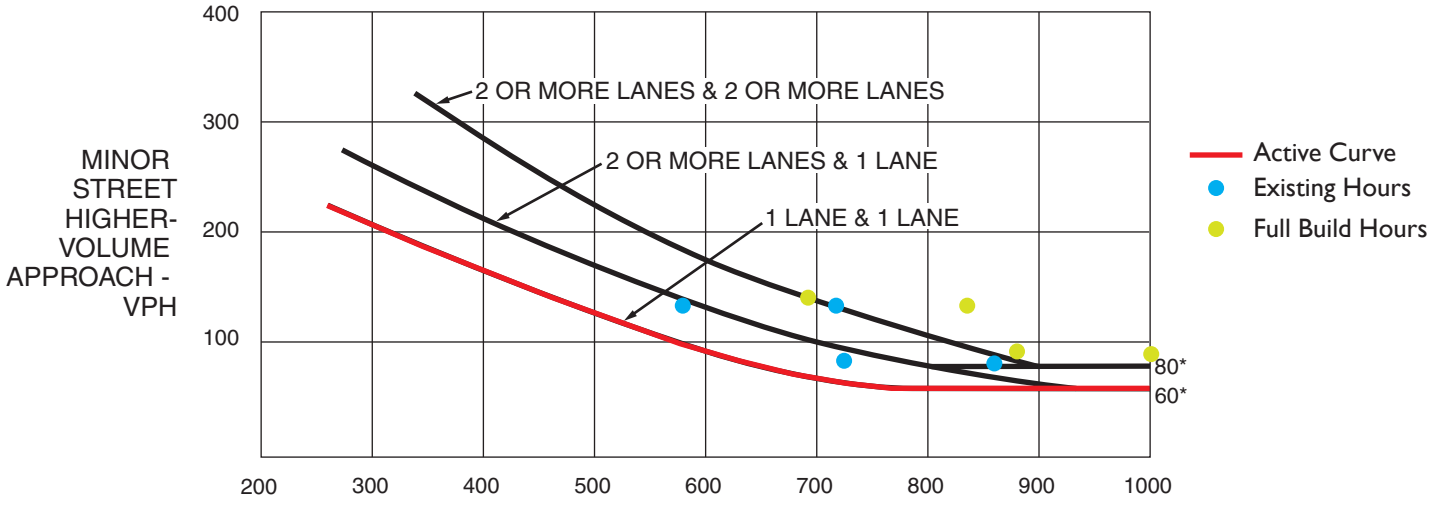
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

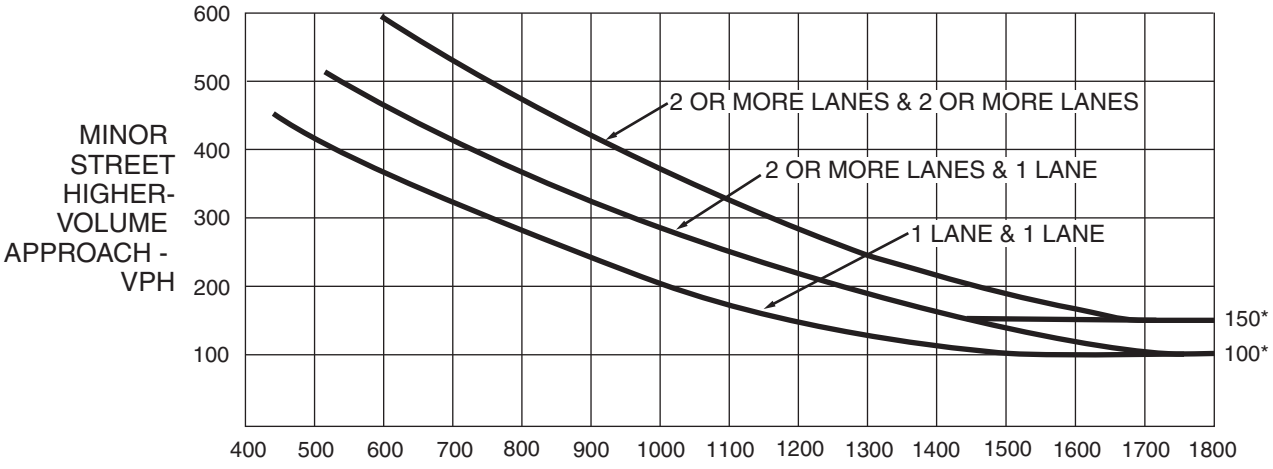
Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

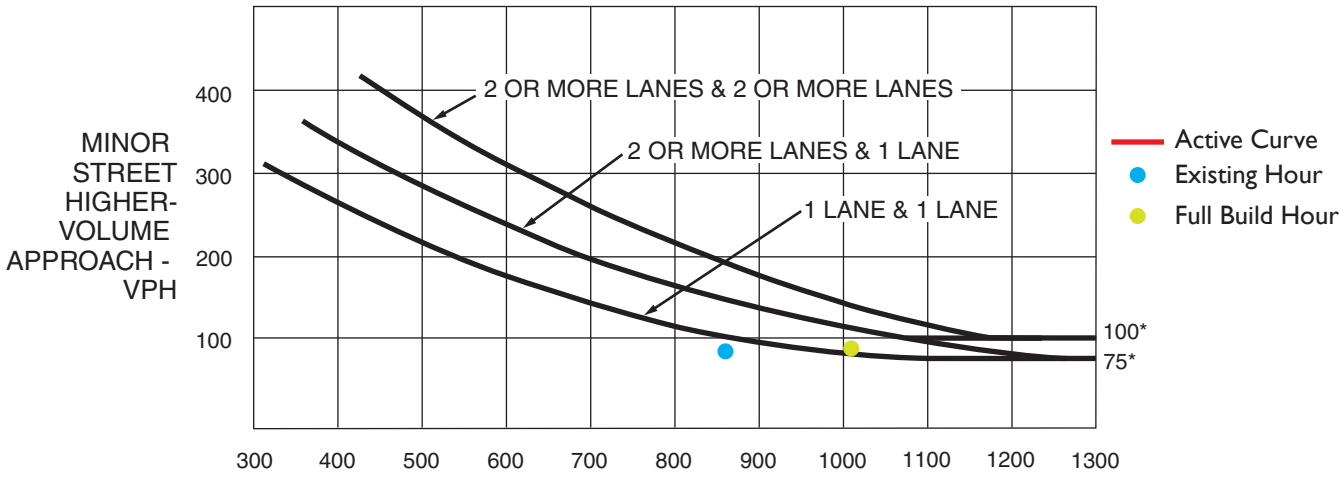
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

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

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Guideline for determining left-turn Lane at a two-way stop-controlled intersection

TWO LANE ROADWAY

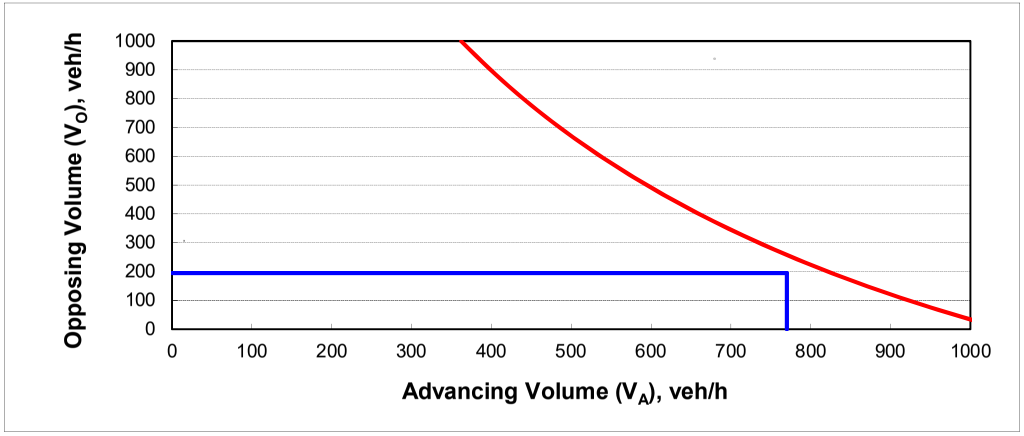
INPUT

Variable	Value
Major Approach	NYS Route 366/Proposed Driveway
Approach	WB - AM Peak Hour
Design Speed Limit - MPH	35
Percent of left-turns in advancing volume (V_A), %:	3%
Advancing volume (V_A), veh/h:	770
Opposing volume (V_O), veh/h:	195

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

PLOT - LINE 1		PLOT - LINE 2	
0	195	770	0
770	195	770	195



OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	826
Guidance for determining the need for a major-road left-turn bay:	
WB - AM Peak Hour Left-turn treatment NOT warranted at NYS Route 366/Proposed Driveway Intersecti	

ρ	0.0225	
f =	0.79	
Wait Time	0.743	s
Service Rate	1050	veh/h
Arrival Rate	826	veh/h

Vo	Time_tw
0	0.0
100	0.4
200	0.8
300	1.2
400	1.7
500	2.2
600	2.8
700	3.5
800	4.2
900	5.0
1000	5.8

Vo	Serv_rate
0	1200
100	1121
200	1046
300	976
400	910
500	848
600	789
700	735
800	683
900	635
1000	590

% LT veh.	3%	10%	15%	20%	40%
Vo	V_A	V_A	V_A	V_A	V_A
0	1042	616	517	462	377
100	922	545	458	409	334
200	822	485	408	364	297
300	735	434	365	326	266
400	660	390	328	293	239
500	595	351	295	264	215
600	537	317	267	238	194
700	486	287	241	215	176
800	440	260	218	195	159
900	399	236	198	177	144
1000	362	214	180	160	131

Guideline for determining left-turn Lane at a two-way stop-controlled intersection

TWO LANE ROADWAY

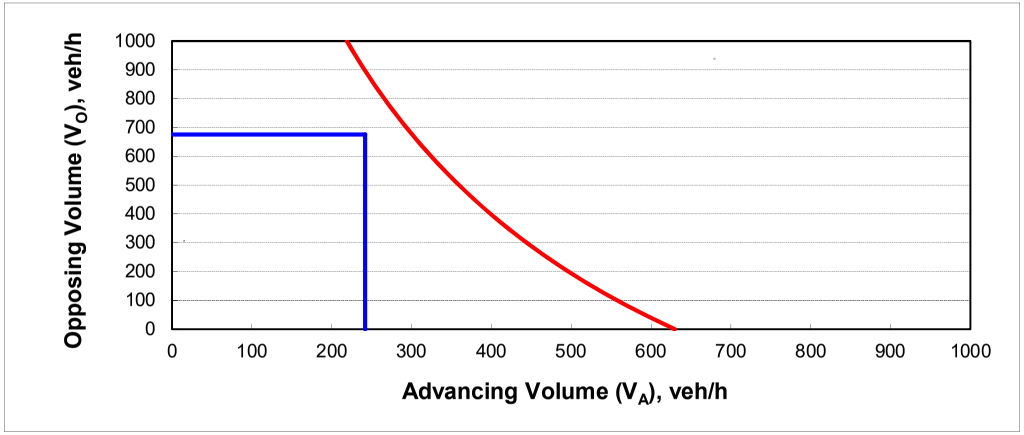
INPUT

Variable	Value
Major Approach	NYS Route 366/Proposed Driveway
Approach	WB - PM Peak Hour
Design Speed Limit - MPH	35
Percent of left-turns in advancing volume (V_A), %:	10%
Advancing volume (V_A), veh/h:	242
Opposing volume (V_O), veh/h:	676

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

PLOT - LINE 1		PLOT - LINE 2	
0	676	242	0
242	676	242	676



OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	301
Guidance for determining the need for a major-road left-turn bay:	
WB - PM Peak Hour Left-turn treatment NOT warranted at NYS Route 366/Proposed Driveway Intersecti	

ρ	0.0225	
f =	0.79	
Wait Time	3.292	s
Service Rate	748	veh/h
Arrival Rate	301	veh/h

Vo	Time_tw
0	0.0
100	0.4
200	0.8
300	1.2
400	1.7
500	2.2
600	2.8
700	3.5
800	4.2
900	5.0
1000	5.8

Vo	Serv_rate
0	1200
100	1121
200	1046
300	976
400	910
500	848
600	789
700	735
800	683
900	635
1000	590

% LT veh.	10%	10%	15%	20%	40%
Vo	V_A	V_A	V_A	V_A	V_A
0	630	616	517	462	377
100	558	545	458	409	334
200	497	485	408	364	297
300	444	434	365	326	266
400	399	390	328	293	239
500	359	351	295	264	215
600	325	317	267	238	194
700	294	287	241	215	176
800	266	260	218	195	159
900	241	236	198	177	144
1000	219	214	180	160	131

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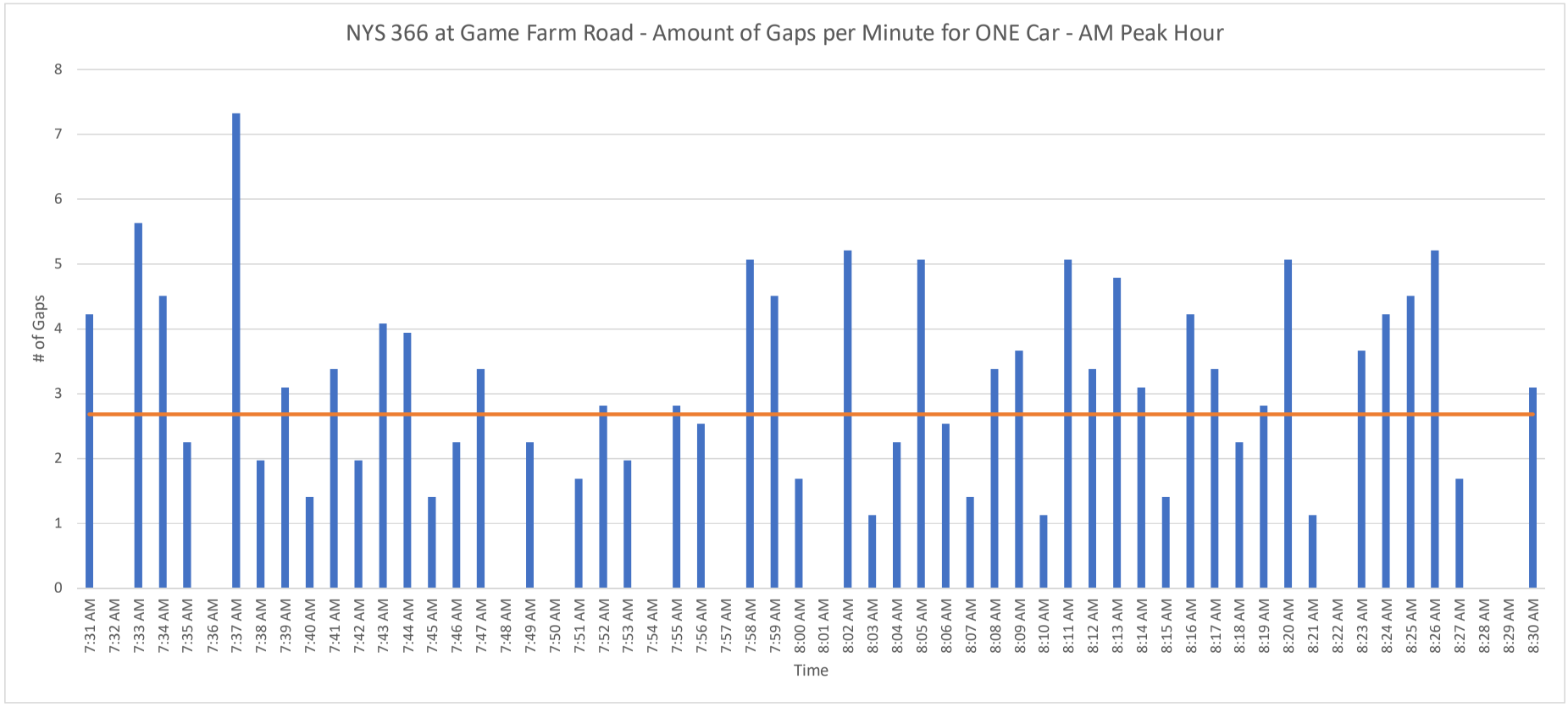
Game Farm Road - Left-out (onto NYS Route 366)

Proposed Townhomes at Dryden, Town of Dryden, NY

AM Peak Hour # of *two-way* gaps (in seconds) between:

7.1	**10.6**	**14.1**	**17.6**	**21.1**	**24.6**	**28.1**	**or greater**	**Left Turn Capacity**
43								43
	12							24
		16						48
			4					16
				2				10
					0			0
						7		49
								190


NYS 366 at Game Farm Road - Amount of Gaps per Minute for ONE Car - AM Peak Hour
# of Gaps
0
1
2
3
4
5
6
7
8
Time
7:31 AM
7:32 AM
7:33 AM
7:34 AM
7:35 AM
7:36 AM
7:37 AM
7:38 AM
7:39 AM
7:40 AM
7:41 AM
7:42 AM
7:43 AM
7:44 AM
7:45 AM
7:46 AM
7:47 AM
7:48 AM
7:49 AM
7:50 AM
7:51 AM
7:52 AM
7:53 AM
7:54 AM
7:55 AM
7:56 AM
7:57 AM
7:58 AM
7:59 AM
8:00 AM
8:01 AM
8:02 AM
8:03 AM
8:04 AM
8:05 AM
8:06 AM
8:07 AM
8:08 AM
8:09 AM
8:10 AM
8:11 AM
8:12 AM
8:13 AM
8:14 AM
8:15 AM
8:16 AM
8:17 AM
8:18 AM
8:19 AM
8:20 AM
8:21 AM
8:22 AM
8:23 AM
8:24 AM
8:25 AM
8:26 AM
8:27 AM
8:28 AM
8:29 AM
8:30 AM

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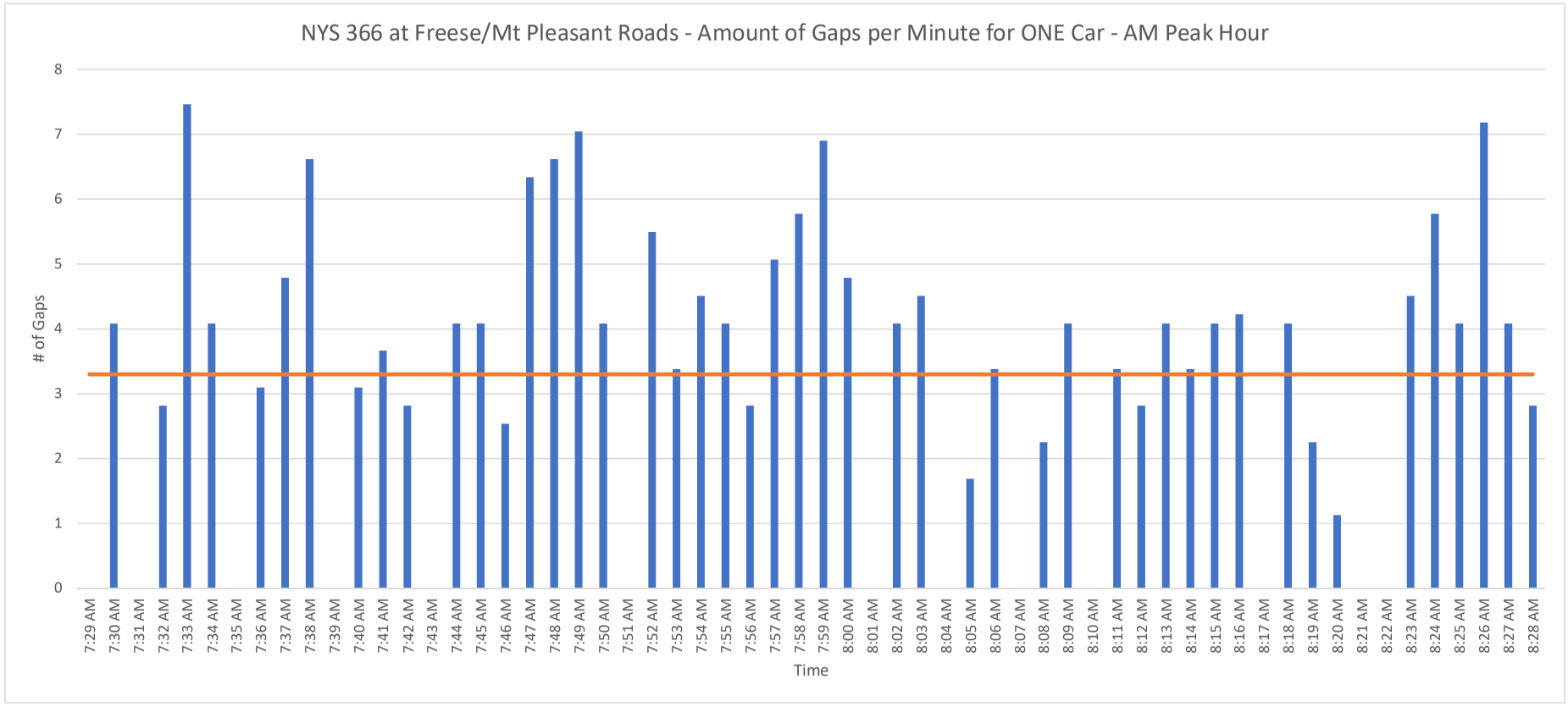
Mt. Pleasant Road - Left-out (onto NYS Route 366)

Proposed Townhomes at Dryden, Town of Dryden, NY

AM Peak Hour # of *two-way* gaps (in seconds) between:

7.1	**10.6**	**14.1**	**17.6**	**21.1**	**24.6**	**28.1**	**or greater**	**Left Turn Capacity**
32								32
	26							52
		12						36
			5					20
				3				15
					2			12
						5		35
								202


NYS 366 at Freese/Mt Pleasant Roads - Amount of Gaps per Minute for ONE Car - AM Peak Hour
# of Gaps
0
1
2
3
4
5
6
7
8
Time
7:29 AM
7:30 AM
7:31 AM
7:32 AM
7:33 AM
7:34 AM
7:35 AM
7:36 AM
7:37 AM
7:38 AM
7:39 AM
7:40 AM
7:41 AM
7:42 AM
7:43 AM
7:44 AM
7:45 AM
7:46 AM
7:47 AM
7:48 AM
7:49 AM
7:50 AM
7:51 AM
7:52 AM
7:53 AM
7:54 AM
7:55 AM
7:56 AM
7:57 AM
7:58 AM
7:59 AM
8:00 AM
8:01 AM
8:02 AM
8:03 AM
8:04 AM
8:05 AM
8:06 AM
8:07 AM
8:08 AM
8:09 AM
8:10 AM
8:11 AM
8:12 AM
8:13 AM
8:14 AM
8:15 AM
8:16 AM
8:17 AM
8:18 AM
8:19 AM
8:20 AM
8:21 AM
8:22 AM
8:23 AM
8:24 AM
8:25 AM
8:26 AM
8:27 AM
8:28 AM

A3

Level of Service:
Criteria and Definitions

Level of Service Criteria

Highway Capacity Manual 2016

SIGNALIZED INTERSECTIONS

Level of Service is a qualitative measure describing operational conditions within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience. Level of Service for signalized intersections is defined in terms of delay specifically, average total delay per vehicle for a 15 minute analysis period. The ranges are as follows:

Level of Service	Control Delay per vehicle (seconds)
A	< 10
B	10 – 20
C	20 – 35
D	35 – 55
E	55 – 80
F	>80

UNSIGNALIZED INTERSECTIONS

Level of Service for unsignalized intersections is also defined in terms of delay. However, the delay criteria are different from a signalized intersection. The primary reason for this is driver expectation that a signalized intersection is designed to carry higher volumes than an unsignalized intersection. The total delay threshold for any given Level of Service is less for an unsignalized intersection than for a signalized intersection. The ranges are as follows:

Level of Service	Control Delay per vehicle (seconds)
A	< 10
B	10 – 15
C	15 – 25
D	25 – 35
E	35 - 50
F	>50

A4

Level of Service Calculations: Existing Conditions

SimTraffic Performance Report
2018 Existing Base Conditions - AM Peak Hour 08/28/2018

1: Mt. Pleasant Road/Freese Road & NYS Route 366 (Dryden Road) Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.1	0.0	0.0	0.1
Denied Del/Veh (s)	0.0	0.6	0.2	0.2	0.4
Total Delay (hr)	0.2	0.2	1.4	0.4	2.3
Total Del/Veh (s)	3.0	1.2	27.8	15.4	6.9
Stop Delay (hr)	0.1	0.0	1.2	0.4	1.7
Stop Del/Veh (s)	1.4	0.0	24.5	14.2	5.3

5: Game Farm Road/Arboretum Center & NYS Route 366 (Dryden Road) Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.0	0.2	0.1	0.1
Total Delay (hr)	0.0	1.1	2.2	0.0	3.4
Total Del/Veh (s)	0.8	4.8	40.7	13.9	10.3
Stop Delay (hr)	0.0	0.0	2.1	0.0	2.1
Stop Del/Veh (s)	0.0	0.1	38.0	14.2	6.4

Total Network Performance

Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.4
Total Delay (hr)	7.3
Total Del/Veh (s)	18.6
Stop Delay (hr)	4.0
Stop Del/Veh (s)	10.2

Queuing and Blocking Report
2018 Existing Base Conditions - AM Peak Hour 08/28/2018

Intersection: 1: Mt. Pleasant Road/Freese Road & NYS Route 366 (Dryden Road)

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	86	11	203	105
Average Queue (ft)	18	1	80	43
95th Queue (ft)	56	5	151	80
Link Distance (ft)	1110	725	599	659
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Game Farm Road/Arboretum Center & NYS Route 366 (Dryden Road)

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	19	95	283	23
Average Queue (ft)	1	16	92	3
95th Queue (ft)	10	62	215	15
Link Distance (ft)	1118	1350	886	355
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 0

SimTraffic Performance Report
2018 Existing Base Conditions - PM Peak Hour 08/28/2018

1: Mt. Pleasant Road/Freese Road & NYS Route 366 (Dryden Road) Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.2	0.1	0.2	0.1
Total Delay (hr)	0.7	0.0	0.4	0.9	2.0
Total Del/Veh (s)	3.4	0.6	16.8	18.4	6.2
Stop Delay (hr)	0.0	0.0	0.3	0.8	1.1
Stop Del/Veh (s)	0.1	0.1	13.5	15.6	3.4

5: Game Farm Road/Arboretum Center & NYS Route 366 (Dryden Road) Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.1	0.0	0.0	0.1
Denied Del/Veh (s)	0.7	0.0	0.2	0.5
Total Delay (hr)	0.8	0.4	0.3	1.6
Total Del/Veh (s)	4.0	5.4	10.4	5.0
Stop Delay (hr)	0.0	0.2	0.3	0.5
Stop Del/Veh (s)	0.0	2.8	9.3	1.6

Total Network Performance

Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.5
Total Delay (hr)	5.0
Total Del/Veh (s)	13.1
Stop Delay (hr)	1.7
Stop Del/Veh (s)	4.4

Queuing and Blocking Report
2018 Existing Base Conditions - PM Peak Hour 08/28/2018

Intersection: 1: Mt. Pleasant Road/Freese Road & NYS Route 366 (Dryden Road)

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	89	23	102	166
Average Queue (ft)	16	1	43	65
95th Queue (ft)	58	10	79	126
Link Distance (ft)	1110	725	599	659
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Game Farm Road/Arboretum Center & NYS Route 366 (Dryden Road)

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	20	179	83
Average Queue (ft)	1	37	29
95th Queue (ft)	10	110	60
Link Distance (ft)	1118	1350	886
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 0

A5

Level of Service Calculations: Background Conditions

SimTraffic Performance Report
2020 Background Conditions - AM Peak Hour 08/28/2018

1: Mt. Pleasant Road/Freese Road & NYS Route 366 (Dryden Road) Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.1	0.0	0.0	0.2
Denied Del/Veh (s)	0.0	0.7	0.2	0.2	0.5
Total Delay (hr)	0.2	0.3	2.1	0.6	3.1
Total Del/Veh (s)	3.2	1.5	39.7	18.5	9.0
Stop Delay (hr)	0.1	0.0	1.9	0.5	2.5
Stop Del/Veh (s)	1.6	0.0	36.6	17.3	7.3

5: Game Farm Road/Arboretum Center & NYS Route 366 (Dryden Road) Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.1	0.2	0.1	0.1
Total Delay (hr)	0.0	1.3	3.3	0.0	4.7
Total Del/Veh (s)	0.8	5.3	60.1	15.0	13.4
Stop Delay (hr)	0.0	0.0	3.2	0.0	3.2
Stop Del/Veh (s)	0.0	0.1	57.4	15.3	9.1

Total Network Performance

Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.5
Total Delay (hr)	9.6
Total Del/Veh (s)	23.2
Stop Delay (hr)	5.9
Stop Del/Veh (s)	14.1

Queuing and Blocking Report
2020 Background Conditions - AM Peak Hour 08/28/2018

Intersection: 1: Mt. Pleasant Road/Freese Road & NYS Route 366 (Dryden Road)

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	76	47	260	117
Average Queue (ft)	19	2	97	46
95th Queue (ft)	55	22	196	90
Link Distance (ft)	1110	725	599	659
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Game Farm Road/Arboretum Center & NYS Route 366 (Dryden Road)

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	16	106	292	23
Average Queue (ft)	1	18	117	3
95th Queue (ft)	10	69	252	15
Link Distance (ft)	1118	1350	886	355
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 0

SimTraffic Performance Report
2020 Background Conditions - PM Peak Hour 08/28/2018

1: Mt. Pleasant Road/Freese Road & NYS Route 366 (Dryden Road) Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.2	0.1	0.2	0.1
Total Delay (hr)	0.7	0.0	0.4	1.0	2.1
Total Del/Veh (s)	3.4	0.6	16.6	19.2	6.2
Stop Delay (hr)	0.0	0.0	0.3	0.9	1.2
Stop Del/Veh (s)	0.1	0.1	13.3	16.4	3.5

5: Game Farm Road/Arboretum Center & NYS Route 366 (Dryden Road) Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.1	0.0	0.0	0.2
Denied Del/Veh (s)	0.7	0.0	0.2	0.5
Total Delay (hr)	0.9	0.4	0.4	1.7
Total Del/Veh (s)	4.1	5.4	13.6	5.3
Stop Delay (hr)	0.0	0.2	0.4	0.6
Stop Del/Veh (s)	0.0	2.8	12.6	1.8

Total Network Performance

Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.5
Total Delay (hr)	5.4
Total Del/Veh (s)	13.6
Stop Delay (hr)	1.9
Stop Del/Veh (s)	4.7

Queuing and Blocking Report
2020 Background Conditions - PM Peak Hour 08/28/2018

Intersection: 1: Mt. Pleasant Road/Freese Road & NYS Route 366 (Dryden Road)

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	80	38	111	174
Average Queue (ft)	12	2	45	69
95th Queue (ft)	47	18	85	135
Link Distance (ft)	1110	725	599	659
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Game Farm Road/Arboretum Center & NYS Route 366 (Dryden Road)

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	22	181	106
Average Queue (ft)	1	40	32
95th Queue (ft)	9	114	78
Link Distance (ft)	1118	1350	886
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 0

A6

Level of Service Calculations: Full Development Conditions

1: Mt. Pleasant Road/Freese Road & NYS Route 366 (Dryden Road) Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.1	0.0	0.0	0.1
Denied Del/Veh (s)	0.0	0.6	0.0	0.2	0.4
Total Delay (hr)	0.2	0.3	2.1	0.7	3.3
Total Del/Veh (s)	3.5	1.4	38.9	22.1	9.4
Stop Delay (hr)	0.1	0.0	2.0	0.7	2.8
Stop Del/Veh (s)	1.8	0.0	36.8	21.0	7.9

2: Proposed Northerly Driveway & Mt. Pleasant Road Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.1	0.1	1.7	0.4
Stop Delay (hr)	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	0.3	0.0	2.6	0.2

3: Proposed Southerly Driveway & Mt. Pleasant Road Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.2	0.1	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.2	0.1	2.0	0.2
Stop Delay (hr)	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	0.1	0.0	2.9	0.1

4: Proposed Driveway & NYS Route 366 (Dryden Road) Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.2	0.0
Total Delay (hr)	0.0	0.4	0.5	0.9
Total Del/Veh (s)	0.5	1.8	14.9	2.8
Stop Delay (hr)	0.0	0.1	0.5	0.6
Stop Del/Veh (s)	0.0	0.2	16.4	1.7

5: Game Farm Road/Arboretum Center & NYS Route 366 (Dryden Road) Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.1	0.3	0.1	0.1
Total Delay (hr)	0.0	1.4	6.7	0.0	8.2
Total Del/Veh (s)	0.9	5.3	117.6	25.4	21.7
Stop Delay (hr)	0.0	0.0	6.6	0.0	6.7
Stop Del/Veh (s)	0.0	0.1	116.1	25.8	17.7

Total Network Performance

Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.4
Total Delay (hr)	13.9
Total Del/Veh (s)	30.2
Stop Delay (hr)	10.1
Stop Del/Veh (s)	22.0

Intersection: 1: Mt. Pleasant Road/Freese Road & NYS Route 366 (Dryden Road)

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	92	9	243	124
Average Queue (ft)	23	0	99	50
95th Queue (ft)	64	4	188	96
Link Distance (ft)	722	725	319	659
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Proposed Northerly Driveway & Mt. Pleasant Road

Movement	NB
Directions Served	R
Maximum Queue (ft)	44
Average Queue (ft)	14
95th Queue (ft)	41
Link Distance (ft)	329
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Proposed Southerly Driveway & Mt. Pleasant Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	10
95th Queue (ft)	33
Link Distance (ft)	299
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Proposed Driveway & NYS Route 366 (Dryden Road)

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	90	121
Average Queue (ft)	12	53
95th Queue (ft)	54	95
Link Distance (ft)	722	342
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Game Farm Road/Arboretum Center & NYS Route 366 (Dryden Road)

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	3	123	438	23
Average Queue (ft)	0	21	204	2
95th Queue (ft)	2	75	467	13
Link Distance (ft)	1118	1350	886	355
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 0

1: Mt. Pleasant Road/Freese Road & NYS Route 366 (Dryden Road) Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.2	0.0	0.3	0.1
Total Delay (hr)	0.7	0.1	0.7	2.6	4.1
Total Del/Veh (s)	3.5	0.9	24.6	41.6	11.3
Stop Delay (hr)	0.0	0.0	0.6	2.5	3.2
Stop Del/Veh (s)	0.2	0.2	22.1	39.4	8.7

2: Proposed Northerly Driveway & Mt. Pleasant Road Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Delay (hr)	0.1	0.0	0.0	0.1
Total Del/Veh (s)	1.9	0.1	2.2	1.4
Stop Delay (hr)	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	0.4	0.0	3.1	0.5

3: Proposed Southerly Driveway & Mt. Pleasant Road Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.1	0.1	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.2	0.0	2.7	0.2
Stop Delay (hr)	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	0.0	0.0	3.5	0.1

4: Proposed Driveway & NYS Route 366 (Dryden Road) Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.2	0.0
Total Delay (hr)	0.3	0.2	0.3	0.7
Total Del/Veh (s)	1.3	1.8	12.4	2.1
Stop Delay (hr)	0.0	0.1	0.3	0.4
Stop Del/Veh (s)	0.0	0.8	13.6	1.1

5: Game Farm Road/Arboretum Center & NYS Route 366 (Dryden Road) Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.2	0.0	0.0	0.2
Denied Del/Veh (s)	0.7	0.0	0.2	0.5
Total Delay (hr)	1.0	0.5	0.5	2.0
Total Del/Veh (s)	4.3	5.6	15.0	5.6
Stop Delay (hr)	0.0	0.3	0.5	0.7
Stop Del/Veh (s)	0.0	2.8	14.0	2.0

Total Network Performance

Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.5
Total Delay (hr)	8.6
Total Del/Veh (s)	18.6
Stop Delay (hr)	4.4
Stop Del/Veh (s)	9.4

Intersection: 1: Mt. Pleasant Road/Freese Road & NYS Route 366 (Dryden Road)

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	95	58	130	292
Average Queue (ft)	20	4	59	119
95th Queue (ft)	63	31	109	254
Link Distance (ft)	731	726	317	659
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Proposed Northerly Driveway & Mt. Pleasant Road

Movement	NB
Directions Served	R
Maximum Queue (ft)	39
Average Queue (ft)	16
95th Queue (ft)	42
Link Distance (ft)	276
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Proposed Southerly Driveway & Mt. Pleasant Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	7
95th Queue (ft)	28
Link Distance (ft)	266
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Proposed Driveway & NYS Route 366 (Dryden Road)

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	96	92
Average Queue (ft)	22	40
95th Queue (ft)	68	75
Link Distance (ft)	731	334
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Game Farm Road/Arboretum Center & NYS Route 366 (Dryden Road)

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	19	162	105
Average Queue (ft)	2	45	35
95th Queue (ft)	13	121	74
Link Distance (ft)	1118	1350	886
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 0