

June 30, 2020

Ref: 20470.00

Mr. Matthew Huntington, PE Studio A Landscape Architecture & Engineering 480 Broadway, Suite 324 Saratoga Springs, NY 12866

Re: Traffic Impact Evaluation, WL Plastics Pipe Manufacturing Facility, Town and Village of Fort Edward, NY

Dear Mr. Huntington,

VHB has conducted a traffic impact and access study to assess the potential traffic impacts associated with the proposed WL Plastics Pipe Manufacturing Facility located on the east side of Lock 8 Way, south of Lower Maple Street (NY Route 196) in the Town and Village of Fort Edward. The proposed project includes 108,730 square feet (SF) of manufacturing space. The Preliminary Site Plan, prepared by Studio A Landscape Architecture & Engineering, is included in Attachment A. The project is anticipated to be fully constructed and occupied in 2020.

This letter includes an evaluation of the peak hour trip generation anticipated with the proposed project and an assessment of the available sight distance at the existing site access. As detailed herein, the proposed project is expected to have a minor impact on local traffic operations.

Site Location and Proposed Development

The project site, as shown in the following aerial image, is located at the southern end of Lock 8 Way, south of Lower Maple Street (NY Route 196) in the Town of Fort Edward. The project includes occupying an existing 66,615 SF of vacant building space and the construction of an additional 42,115 SF for a total of 108,730 SF of manufacturing space. Access to the site is proposed via the existing roadway network (Lock 8 Way) and full access intersection of Lock 8 Way and NY Route 196. The site was previously occupied with the GE Dewatering Facility but is currently vacant.

100 Great Oaks Boulevard

Suite 118

Albany, New York 12203







Existing Conditions

Study Area Roadways

Lower Maple Street (NY Route 196)

Lower Maple Street, designated as New York Route 196 (NY 196) in the study area. is classified as an urban minor arterial. NY Route 196 provides east-west travel between Hudson Falls and Hartford in Washington County. Near the project site, NY Route 196 is a two-lane roadway with one 11-foot travel lane in each direction with 3-foot paved shoulders and a posted speed limit of 45-mph. There are no sidewalks provided on NY 196, so pedestrians and bicyclists use the narrow shoulders or bicyclists share the road with motor vehicles. The most recent traffic volume data (2016) published by the New York State Department of Transportation (NYSDOT) indicates that near the project site, NY Route 196 serves approximately 7,800 vehicles per day (vpd). Land uses in the project vicinity are primarily residential, agricultural, industrial, or undeveloped.

Lock 8 Way

Lock 8 Way is an access road for the Champlain Canal Lock 8. Lock 8 Way provides north-south travel between NY Route 196 and the project site. Lock 8 Way is currently owned by the Environmental Protection Agency, but ownership is being transitioned to the Warren-Washington IDA. It is our understanding that the plan is for ownership to be further transitioned to the Towns of Fort Edward and Kingsbury. Lock 8 Way is a two-lane roadway with one 12-foot travel lane in each direction with little or no shoulder and a posted speed limit of 20-mph. There is a 200-foot segment of Lock 8 Way where travel is limited to a single travel lane to traverse a one-lane bridge and the posted speed limit is reduced to 10-mph. Southbound vehicles are controlled with a stop sign and wait for northbound vehicles then proceed through the one-lane segment. There are no sidewalks provided on NY Route 196, so pedestrians and bicyclists share the road with motor vehicles. Land uses in the project vicinity are primarily industrial, or undeveloped.

Study Intersection

Lower Maple Street (NY Route 196)/Lock 8 Way/AmeriGas Driveway

This is a four-leg intersection operating under stop sign control on the northbound Lock 8 Way approach to NY Route 196 with flashing red overhead signals on the northbound and southbound approaches and flashing yellow overhead signals on the NY Route 196 approaches. Each approach to the intersection provides a single lane for shared travel movements. There are no marked pedestrian crossings at the intersection. It is noted that Intersection Warning signs are provided on both approaches to Lock 8 Way.

Traffic Volumes

As noted, traffic volume data was collected on NY Route 196 in July 2016 by NYSDOT. The 2016 traffic volume data is summarized below in Table 1 and included in Attachment B.



Table 1 Existing Traffic Volume Summary

	Weekday Daily	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
Location	Volume ^a	Vol ^b	K Factor ^c	Dir. Dist.	Volume	K Factor	Dir. Dist.
Lower Maple St (NY Rt 196)	7,833	602	7.7%	71% WB	727	9.3%	65% EB

Source NYSDOT data collected in July 2016.

- a Daily traffic expressed in vehicles per day.
- b Peak hour volumes expressed in vehicles per hour.
- c Percent of daily traffic, which occurs during the peak hour.

As shown in Table 1, NY Route 196 currently serves approximately 7,833 vpd with 7.7% of the daily traffic occurring during the weekday morning peak hour and 9.3% occurring during the weekday evening peak hour. NY Route 196 traffic is heavier in the westbound direction during the weekday morning peak hour and heavier in the eastbound direction during the weekday evening peak hour. Based on a review of the NYSDOT data, the weekday morning peak hour occurs from 7:00 to 8:00 AM and the evening peak hour occurs from 4:00 to 5:00 PM.

Transit and Pedestrian Accommodations

Transit service in the region is provided by Greater Glens Falls Transit (GGFT). There are no bus routes or stops in the project vicinity. As noted, there are no sidewalks or shoulders along the project frontage or on NY Route 196; therefore, pedestrians and bicyclists use the shoulder or bicyclists share the road with motor vehicles.

Site Generated Traffic Volumes

The Applicant provided information regarding site operations as follows:

- At full capacity, the plan will operate 24 hours a day, 7 days a week with 50 employees.
- The employees will work in three shifts from roughly 7:00 AM to 4:00 PM, 4:00 PM to 12:00 AM, and from 12:00 AM to 7:00 AM.
- The maximum number of employees will occur during the daytime shift with 30 employees
- The remaining 20 employees are distributed evenly between the evening and night shifts. All materials will arrive at the site via rail and leave the site via trucks.
- Typically, 8 truckloads of pipe will leave the site on a daily basis resulting in 8 truck trips entering and 8 truck trips exiting the site each day.
 - Initial projections included in a letter submitted by the applicant reported the potential for up to 20 truckloads of pipe leaving the site on a single day. This initial estimate has been further refined and is not anticipated; however, at the request of the Town of Kingsbury, this higher number was included in the trip generation calculations as an upper threshold.



Truck traffic at the site will occur over a 9-hour period between 8:00 AM to 5:00 PM. It is assumed
that the truck traffic will be distributed evenly throughout the day.

Table 2 summarizes the worst-case peak hour trip generation estimate associated with the proposed project and the site-specific operations plan for the morning and afternoon peak hours that coincide with commuter travel periods and would occur when traffic on the adjacent roadway network is the highest. To provide a conservative estimate, it is assumed that all of the daytime shift employees would arrive at the site during the morning peak hour and leave the site during the afternoon peak hour while the night shift traffic would exit during the same hour in the morning and enter during the same hour in the afternoon.

Table 2 Peak Hour Trip Generation Summary

Weekday Time Period	Movement	Passenger Vehicles	Trucks ^a	Total Trips
Morning	Enter	30	1 to 3	31 to 33
Peak Hour	<u>Exit</u>	<u>10</u>	<u>1 to 3</u>	<u>11 to 13</u>
	Total	40	2 to 6	42 to 46
Evening	Enter	10	1 to 3	11 to 13
Peak Hour	<u>Exit</u>	<u>30</u>	<u>1 to 3</u>	31 to 33
	Total	40	3 to 6	42 to 46

a Lower trip generation based on anticipated 8 trucks per day, higher limit based on initial projections of 20 trucks per day which is not anticipated but requested to be maintained in the evaluation.

Based on the site-specific operations outlined above, the proposed project is expected to generate a maximum of 46 new vehicle trips (33 entering and 13 exiting) during the AM peak hour and a maximum of 46 new vehicle trips (13 entering and 33 exiting) during the PM peak hour. This is a conservative estimate of the site trip generation as it assumes the daytime and nighttime shift employees and truck traffic enter and exit the site during the same one-hour period that coincides with the peak travel on the adjacent roadway network. The maximum trips also include an over estimate of the anticipated truck traffic at the site to provide a worst case assessment at the request of the Town of Kingsbury. The magnitude of site generated trips is less than the NYSDOT and ITE trip thresholds of the generation of 100 vehicle trips on a single intersection approach for determining the need for detailed off-site intersection analysis. These agency thresholds were developed as a tool to identify locations where the magnitude of traffic generated has the potential to impact operations at off-site intersections and screen out locations that do not meet the threshold and are therefore unlikely to require mitigation. Based on the trip generation and review of the industry guidelines, the traffic evaluation primarily focused on the site access.

Truck traffic on a typical day will account for one entering trip and one exiting trip each hour between 8:00 AM to 5:00 PM resulting in less than one truck trip every half hour. The initial projections of a maximum of 20 truckloads of pipe per day between 8:00 AM to 5:00 PM would result in approximately one truck trip entering or leaving the site every 15 minutes.



Based on a review of existing travel patterns and a review of area destinations, it is expected that approximately 65% of the site-generated traffic will travel to and from the east of NY Route 196 and 35% will travel to and from the west. This distribution of traffic will result in a maximum increase of 30 vehicle trips (21 entering and 9 exiting) traveling to and from east of Lock 8 Way and 16 vehicle trips (10 entering and 6 exiting) traveling to and from west of the Lock 8 Way on NY Route 196 during the AM peak hour. During the PM peak hour this distribution of traffic will result in 9 entering and 21 exiting trips traveling to and from the east and 6 entering and 10 exiting trips traveling to and from the west. This low magnitude of traffic will be accommodated for by the existing roadway network and does not result in the need for off-site mitigation.

Sight Distance

Sight distance analysis, in conformance with guidelines of the American Association of State Highway and Transportation Officials (AASHTO)¹ was performed at the existing NY Route 196/Lock 8 Way intersection. Both stopping sight distance (SSD) for traffic approaching Lock 8 Way and intersection sight distance (ISD) for vehicles turning to and from Lock 8 Way were measured. Since the project will result in an increase in heavy vehicle traffic on Lock 8 Way, the sight distance evaluation focused on heavy vehicle traffic at the NY Route 196 intersection. The posted speed limit on NY Route 196 is 45-mph and the recorded 85th percentile travel speed is 52-mph in the eastbound direction and 55-mph in the westbound direction based on NYSDOT data. Based on the recorded speeds, the measured sight distances were compared to a 55-mph operating speed on NY Route 196.

SSD is the distance along the roadway for a vehicle approaching an intersection from either direction to perceive, react and come to a complete stop before colliding with an object in the road, in this case a vehicle exiting from Lock 8 Way or a vehicle waiting on NY Route 196 to turn into Lock 8 Way. Table 3 summarizes the stopping sight distance for heavy vehicles on NY Route 196 approaching Lock 8 Way.

Table 3 Heavy Vehicle Stopping Sight Distance

Location	Traveling	Guideline (feet) ^a	Measured (feet) b	
NIV Dougle 10C at Loady 0 May	EB	495	650+	
NY Route 196 at Lock 8 Way	WB	495	460	

a Based on standards established in <u>A Policy on the Geometric Design of Highways and Streets.</u> American Association of State Highway and Transportation Officials, 2018 for a 55-mph operating speed.

As shown in Table 3, the available stopping sight distance eastbound on NY Route 196 meets the AASHTO guidelines for a 55-mph operating speed. The available stopping sight distance westbound on NY Route 196 is less than the AASHTO guidelines for a 55-mph operating speed due to existing trees overhanging the road as shown in Photograph 1. The AASHTO guidelines will be met with the clearing of

b Based on field measurements taken by VHB.

A Policy on the Geometric Design of Highways and Streets, 7th Edition, American Association of State Highway and Transportation Officials, 2018



vegetation (trimming the trees) north of the site driveway. Since the trees appear to be overhanging NY Route 196, this trimming is located within the public right-of-way and should be coordinated with the NYSDOT.



Photograph 1: Vegetation clearing to meet stopping sight distance guidelines.

ISD is based on the time required for perception, reaction, and completion of the desired turning maneuver into or out of Lock 8 Way. Calculation of the ISD includes the time to (1) turn and clear the intersection without conflicting with approaching vehicles; and (2) upon turning, to accelerate to the operating speed on the roadway without causing approaching vehicles on the main road to unduly reduce their speed. ISD was measured for the Lock 8 Way/NY Route 196 intersection.



Table 4 Heavy Vehicle Intersection Sight Distance

	Field Mea	AASHTO Guideline (feet) ^b			
Location	View	Distance (feet) ^a	Left-turn Out	Right-turn Out	Left-turn In
Lock 8 Way at NY Route 196	Looking Left	930	930	850	Na
	Looking Right	500	930	Na	Na
	Looking Straight	650+	Na	Na	610

Based on field measurements taken by VHB.

Table 4 summarizes the intersection sight distance evaluation and shows that the ISD for movements at the Lock 8 Way intersection with NY Route 196 meet the AASHTO recommended guidelines for a 55-mph operating speed except for looking right for a vehicle to turn left out Lock 8 Way onto NY Route 196. The sight distance looking right for a heavy vehicle to turn left out of the site is less than the AASHTO guidelines due to the horizontal alignment of NY Route 196 and existing vegetation along the north side of the roadway noted in the SSD evaluation. To maximize the sight line it is recommended that vegetation on the north side of the roadway be cleared (as shown in photograph 1). With clearing, the sight distance for a heavy vehicle looking right to turn left from the Lock 8 Way to NY Route 196 will still be less than the AASHTO guideline. Although an Intersection Warning sign is provided on the westbound approach to the intersection, it is recommended that heavy vehicle traffic be directed to the east on NY Route 96 when exiting the site.

Lock 8 One-Way Section

As noted, there is a 200 foot section of Lock 8 Way that is restricted to a single lane of travel. Southbound traffic is required to stop at the stop sign and wait for northbound traffic to clear the one-lane segment prior to continuing south. Photograph 2 shows Lock 8 Way at the one-lane segment.

b Based on standards established in <u>A Policy on the Geometric Design of Highways and Streets.</u> American Association of State Highway and Transportation Officials, 2018 for a 55-mph operating speed.

Na Not applicable





Photograph 2: Lock 8 Way southbound at one-lane segment.

Greenman Pedersen, Inc. (GPI) completed an evaluation of this segment of Lock 8 Way in March 2016. The GPI traffic assessment estimated that this roadway section could accommodate a peak hour design capacity of 250 to 465 vehicles per hour. Review of the trip generation estimate indicates that the maximum peak hour traffic associated with the site will be 46 trips which is less than 20% of the lower threshold of the peak hour design capacity. In addition to the design capacity, the GPI evaluation identified that the time gap needed for a heavy vehicle to traverse the one lane segment is between 23.4 and 27.2 seconds. Typical site operations will result in one heavy vehicle entering and one exiting the site an hour indicating heavy vehicle traffic will consume approximately 46.8 to 54.4 seconds of the 3,600 seconds in an hour on the one-way roadway segment. With a maximum of 20 heavy vehicle trips per day, a total of 6 heavy vehicles would travel on the one-way segment in an hour encompassing between 140.4 and 163.2 seconds of the 3,600 seconds in an hour. This small amount of heavy vehicle traffic will have very little impact on the operation of the one-way roadway segment. Based on a review of the GPI



evaluation and the anticipated travel to and from the site, the one lane segment is not expected to adversely impact the site's accessibility.

Conclusions

VHB has conducted a traffic impact evaluation for the proposed WL Plastics Pipe Manufacturing Facility project located on the east side of Lock 8 Way, south of Lower Maple Street (NY Route 196) in the Town and Village of Fort Edward at the former GE Dewatering Facility. The proposed project will include occupying 66,615 SF of existing space and building 42,115 SF of additional space for a total of 108,730 SF of manufacturing space. Access to the site is proposed via the existing full access road, Lock 8 Way. The following is noted in summary of the completed evaluation:

- Based on operations information provided by the Applicant, the proposed project is expected to generate a maximum of 46 new vehicle trips during the AM and PM peak hours. During the AM peak hour there would be 33 entering and 13 exiting trips and during the PM peak hour there would be 13 entering and 33 exiting trips.
- Based on a review of existing travel patterns and a review of area destinations, it is expected that approximately 65% of the site-generated traffic will travel to and from the east of NY Route 196 and 35% will travel to and from the west. This distribution of traffic will result in a maximum increase of 30 vehicle trips to and from the east and 16 trips to and from the west on NY Route 196. This low magnitude of traffic will be accommodated for by the existing roadway network and does not result in the need for off-site mitigation.
- Truck traffic to and from the site will account for one entering trip and one exiting trip from 8:00
 AM to 5:00 PM resulting in approximately one heavy vehicle trip every half hour. The initial
 projections of 20 truckloads of pipe leaving the site from 8:00 AM to 5:00 PM would result in
 approximately one truck trip entering or leaving the site every 15 minutes.
- The available stopping sight distance eastbound on NY Route 196 meets the AASHTO guideline
 for a 55-mph operating speed at Lock 8 Way. The westbound stopping sight distance is less than
 the guideline due to tree limbs overhanging the roadway. To maximize the sight lines to meet the
 AASHTO guidelines, the applicant should coordinate with the NYSDOT to trim the existing
 vegetation.
- The intersection sight distance looking right for a heavy vehicle to turn left out of the site is less than the AASHTO guideline due to the horizontal curvature of the roadway and roadside vegetation. The clearing of vegetation on the north side of the roadway will improve the sight lines, but the visibility will remain less than the AASHTO guidelines for a heavy vehicle due to the roadway geometry. Therefore, it is recommended that heavy vehicle traffic exiting Lock 8 Way be directed to the right to exit the site via NY Route 196 eastbound.
- Based on a review of the GPI evaluation completed in March 2016 and the anticipated peak hour traffic associated with the proposed project, the 200-foot one lane segment of Lock 8 Way is not expected to adversely impact travel to and from the site.



Based on the above evaluation, the site will be adequately serviced by the adjacent roadway network. Clearing of vegetation along NY Route 196 and restricting heavy vehicle traffic turning left out of Lock 8 Way is recommended to improve sight distance and best serve the heavy vehicle traffic at the site.

If you have any questions concerning the above evaluation, please contact our office.

Sincerely,

VHB Engineering, Surveying and Landscape Architecture, P.C.

Wendy 4. Holsberger, PE, PTOE

Transportation Director wholsberger@vhb.com

Alanna M/Moran

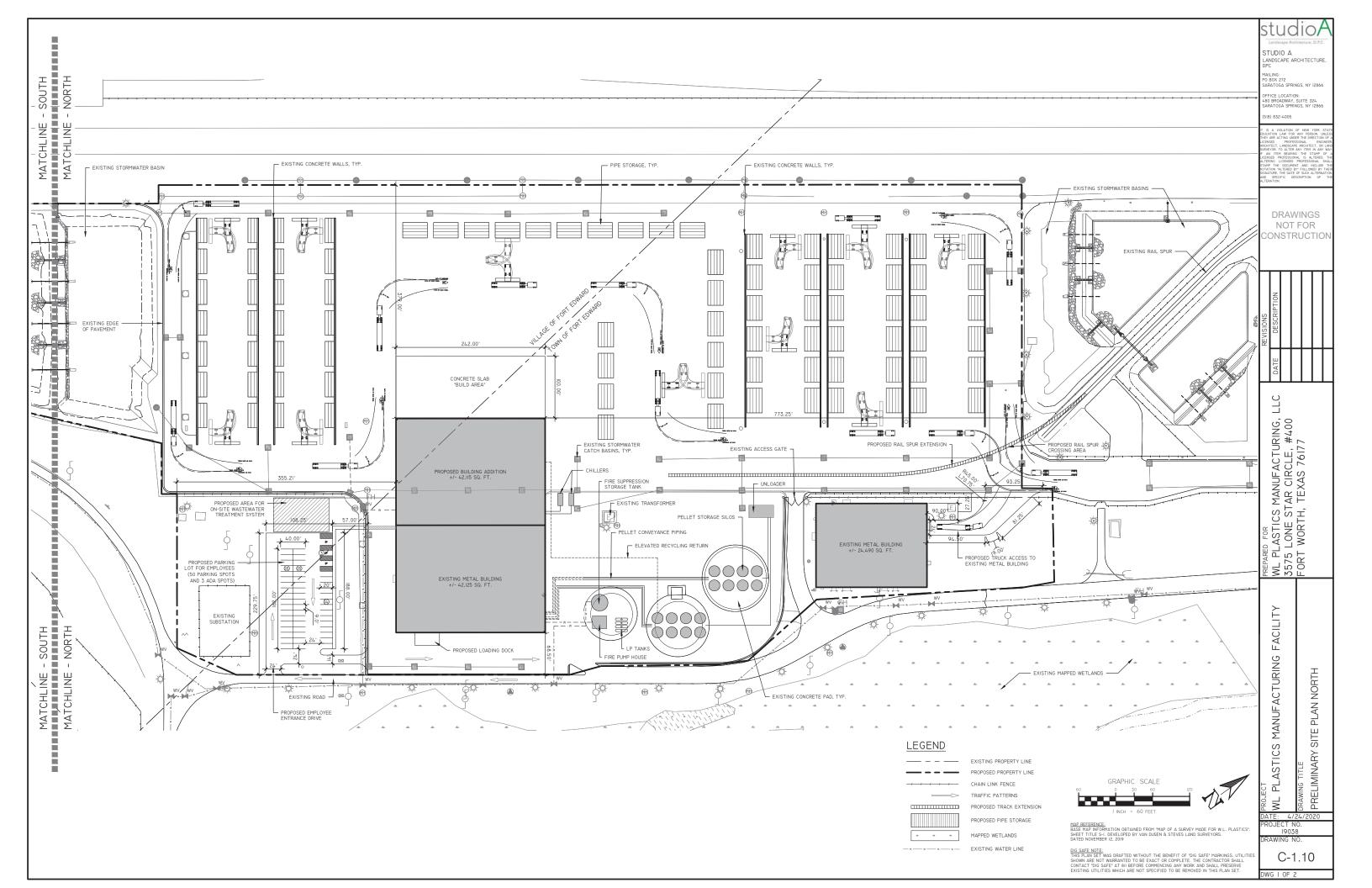
Senior Traffic Designer amoran@vhb.com

Attachments

Attachments

- A. Preliminary Site Plan
- B. NYSDOT Traffic Volume Data

Attachment A – Preliminary Site Plan



Attachment B – NYSDOT Traffic Volume Data

New York State Department of Transportation

Traffic Count Hourly Report

ROUTE #: ROAD NAME: FROM: NY 32/CR 37 (BURGOYNE AVE) TO: CR 42 COUNTY: NY 196 Washington DIRECTION: Eastbound FACTOR GROUP: 30 REC. SERIAL #: CN65 FUNC. CLASS: 16 TOWN: STATE DIR CODE: 6 NHS: no LION#: WK OF YR: 31 PLACEMENT: 425' W of Rabideau Ln DATE OF COUNT: 07/26/2016 @ REF MARKER: JURIS: City BIN: 1095780 NOTES LANE 1: EB travel lane ADDL DATA: Class Speed CC Stn: RR CROSSING: COUNT TYPE: AXLE PAIRS BATCH ID: DOT-R01C31aTST5195HPMS SAMPLE: 2015015 COUNT TAKEN BY: ORG CODE: TST INITIALS: BEK PROCESSED BY: ORG CODE: DOT INITIALS: KCF 12 2 5 8 9 10 3 6 10 11 6 11 12 5 TO **DAILY** DAILY 4 5 6 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 DAILY HIGH HIGH DAY F ΑM PM DATE TOTAL COUNT HOUR S 2 3 4 5 Μ Т W Т 8 F 9 S 10 S M 11 12 Т 13 W Т 14 F 15 16 S Š 17 18 Μ Т 19 20 W 21 Т 22 F 23 S 24 S 25 M 26 Т 55 503 69 244 383 153 27 W 28 20 11 12 11 50 133 163 139 161 201 235 247 262 296 382 442 419 261 219 214 155 79 63 4203 442 16 28 Т 59 16 21 18 11 9 16 120 181 161 168 230 216 261 229 275 376 465 424 279 199 197 149 73 68 4205 465 29 F 24 16 16 9 13 48 S S 30 31 AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon) ADT 172 150 164 216 222 251 258 295 380 470 24 18 13 10 13 52 126 420 265 221 196 152 62 4224 AVERAGE WEEKDAY **HOURS** WEEKDAYS WEEKDAY DAYS Axle Adj. Seasonal/Weekday **ESTIMATED** Adjustment Factor Counted Counted Counted High Hour % of day **Factor Hours AADT** 4 67 67 470 11% 1.000 1.083 4

ROUTE #:NY 196 STATION: 180042 ROAD NAME: STATE DIR CODE: 6 FROM: NY 32/CR 37 (BURGOYNE AVE)
PLACEMENT: 425' W of Rabideau Ln

TO: CR 42

COUNTY: Washington DATE OF COUNT: 07/26/2016

3900

New York State Department of Transportation

Traffic Count Hourly Report

ROUTE #: ROAD NAME: FROM: NY 32/CR 37 (BURGOYNE AVE) TO: CR 42 COUNTY: NY 196 Washington Westbound DIRECTION: FACTOR GROUP: 30 REC. SERIAL #: CN65 FUNC. CLASS: 16 TOWN: STATE DIR CODE: 7 WK OF YR: PLACEMENT: 425' W of Rabideau Ln NHS: no LION#: 31 DATE OF COUNT: 07/26/2016 @ REF MARKER: JURIS: City BIN: 1095780 NOTES LANE 1: Wb travel lane ADDL DATA: Class Speed CC Stn: RR CROSSING: COUNT TYPE: AXLE PAIRS BATCH ID: DOT-R01C31aTST5195HPMS SAMPLE: 2015015 COUNT TAKEN BY: ORG CODE: TST INITIALS: BEK PROCESSED BY: ORG CODE: DOT INITIALS: KCF 12 2 5 8 9 10 11 3 6 10 11 6 12 5 TO **DAILY** DAILY 4 5 6 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 **DAILY** HIGH HIGH DAY F ΑM PM DATE TOTAL COUNT HOUR S 2 3 4 5 Μ Т W Т 8 F 9 S 10 S M 11 12 Т 13 W Т 14 F 15 16 S Š 17 18 Μ Т 19 20 W 21 Т 22 F 23 S S 24 25 M 26 Т 233 256 146 51 26 269 278 111 27 87 57 24 W 20 15 18 23 76 157 271 431 334 287 237 265 256 265 246 283 241 237 194 159 114 4297 431 7 28 Т 58 27 7 23 18 13 13 86 146 264 430 336 267 264 283 255 230 264 283 256 249 203 124 103 70 4265 430 29 F 13 19 10 21 65 132 30 S 31 **AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)** ADT 430 335 277 250 261 248 255 255 280 257 255 19 17 14 19 76 145 268 188 143 109 77 26 4259 AVERAGE WEEKDAY **HOURS** WEEKDAYS WEEKDAY DAYS Axle Adj. Seasonal/Weekday **ESTIMATED** Adjustment Factor Counted Counted Counted High Hour % of day **Factor Hours AADT** 4 67 67 430 10% 1.000 1.083 4 3933

ROUTE #:NY 196 STATION: 180042 ROAD NAME: STATE DIR CODE: **7** FROM: NY 32/CR 37 (BURGOYNE AVE)
PLACEMENT: 425' W of Rabideau Ln

TO: CR 42

COUNTY: Washington DATE OF COUNT: 07/26/2016