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VIA EMAIL AND U.S. MAIL

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Deputy Regional Permit Administrator
NYS Department of Environmental Conservation
Division of Environmental Permits, Region 7
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**RE: Cayuga Operating Company's Application for Modification to the Title V
Operating Permit for Natural Gas Conversion**

Dear Mr. Dlugolenski:

Cayuga Operating Company ("Cayuga") has submitted an application for modification of its Title V permit for the Cayuga Electric Generating Station ("Cayuga Plant") to convert one or both of its units to gas firing from coal firing. Under Cayuga's proposal, Unit 2 of the Cayuga Plant, which has not operated since January 2018 and barely operated for the two years before that, would be converted to gas and, according to Cayuga's projections, emit nearly 600,000 tons of carbon dioxide ("CO₂") and more than 400 tons of nitrogen oxides ("NO_x") per year. Factoring in a possible future conversion of Unit 1 at the plant would lead to projected total emissions from the Cayuga Plant of nearly 900,000 tons of CO₂ and almost 600 tons of NO_x per year. Gas for the converted unit would be transported by between 30 and 120 semi-trailer truck trips per day via an unidentified route from an unidentified natural gas compressor station.

Cayuga's application must be denied, because reviving a non-operating, inefficient coal unit by repowering with natural gas is contrary to New York's climate commitments and efforts to be a national leader on curbing climate change and advancing clean energy. The application is also fatally deficient in a number of ways. First, Cayuga has failed to submit a complete and accurate Full Environmental Assessment Form ("FEAF") required by the State Environmental Quality Review Act ("SEQRA"). Without a complete FEAF, the New York's Department of Conservation ("DEC") cannot properly assess the environmental impact of the proposed gas conversion and cannot issue a declaration under SEQRA. Second, given the significant climate, air pollution, and other impacts of the proposed gas conversion, an Environmental Impact Statement ("EIS") must be required by DEC. Finally, the application itself lacks the information required to properly evaluate the proposed modification and the resulting emissions.

I. Reviving the Cayuga Plant Is Incompatible with New York’s Climate Commitments and Electric Sector Goals; New York State Must Prioritize Renewable Energy

Repowering the Cayuga Plant’s non-operating Unit 2 to natural gas is inconsistent with New York’s climate commitments and undermines New York’s leadership role on climate. Climate change mitigation is an urgent global priority and New York State is at the forefront of efforts to reduce greenhouse gas emissions from electricity generation through a broad array of initiatives including the Clean Energy Standard,¹ the Clean Energy Fund,² NY-Sun,³ and the New York Green Bank.⁴ The Clean Energy Standard formally adopts and implements New York’s State Energy Plan goal that 50% of New York State’s electricity come from renewable sources by 2030, and that greenhouse gas emissions are reduced by 40% by 2030 from a 1990 baseline.⁵ New York has further committed via Executive Order to reduce greenhouse gas emissions 80% by 2050 from a 1990 baseline.⁶ Extending the life of dirty fossil fuel facilities like the Cayuga Plant, while increasing their greenhouse gas emission output, is incompatible with New York’s aggressive climate goals. This is particularly true when the lifecycle climate impacts of the fracked gas used to power those facilities is considered, as methane has a global warming potential at least 84 times greater than carbon dioxide on a 20-year time horizon.⁷

Moreover, through the Reforming the Energy Vision (“REV”) docket,⁸ which implements important aspects of New York’s State Energy Plan, the Public Service Commission has articulated a vision for a cleaner and more distributed electric power sector that fatally conflicts with Cayuga’s repowering proposal. Specifically, though REV, the State is seeking to ensure that “distributed energy resources will become integral tools in the planning, management and operation of the electric system.”⁹ As the PSC explained, “[t]he more efficient system will be designed and operated to make optimal use of cleaner and more efficient generation

¹ PSC Dkt. No. 15-E-0302.

² PSC Dkt. No. 14-M-0094.

³ See <https://www.nysesda.ny.gov/All-Programs/Programs/NY-Sun>.

⁴ See <https://greenbank.ny.gov/>.

⁵ Order Adopting a Clean Energy Standard, PSC Dkt. No. 15-E-0302 (Aug. 1, 2016), at 2 (adopting 2015 State Energy Plan goals).

⁶ Executive Order No. 24 (2009) [9 N.Y.C.R.R. 7.24; continued, Executive Order No. 2 (2011) 9 N.Y.C.R.R. 8.2].

⁷ Intergovernmental Panel on Climate Change, Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (2014), at 87, Box 3.2, Tbl. 1, available at https://www.ipcc.ch/pdf/assessment-report/ar5/syr/SYR_AR5_FINAL_full.pdf. And even that figure may be too low. See, e.g., M. Etminan et al., Radiative forcing of carbon dioxide, methane, and nitrous oxide: A significant revision of the methane radiative forcing, *Geophysical Research Letters* (Dec. 2016), available at <https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2016GL071930>.

⁸ PSC Dkt. No. 14-M-101.

⁹ Order Adopting a Regulatory Policy Framework and Implementation Plan, Dkt. No. 14-M-0101 (Feb. 26, 2015), at 11.

technologies.”¹⁰ The State’s vision, as articulated through the REV docket, requires New York to move away from, not expand the use of, inflexible and pollution-intense generation resources like the Cayuga Plant.

It bears note that there is no reliability need for the Cayuga Plant. As a result of Cayuga’s July 20, 2012 mothball notice,¹¹ upgrades were completed to the local transmission system that obviated the need for the Cayuga Plant.¹² In denying Cayuga’s proposal for ratepayers to subsidize the addition of gas co-firing at the facility, the Commission found no transmission system benefits from retaining the Cayuga Plant’s inefficient units as gas units.¹³

Cayuga has identified plans for a 75 acre solar farm—one of the largest in the State—to be located at the current facility site. Cayuga and New York State should focus on clean, renewable energy instead of reviving an inefficient, non-operational fossil fuel burning plant.

II. Cayuga’s Proposed Modification Will Result in Significant Adverse Environmental Impacts and Must Be Subject to an Environmental Impact Statement Under SEQRA

Cayuga’s FEAF lacks the information required by DEC to properly assess the environmental impact of Cayuga’s modification and, if complete, would demonstrate that Cayuga’s proposed modification will result in significant adverse environmental impacts and must be subject to an EIS under SEQRA.

(a) Cayuga’s FEAF fails to correctly identify and disclose the air emissions of Unit 2, which will result in a significant adverse impact to the environment

Cayuga’s FEAF fails to correctly identify Unit 2 as an air emission source and fails to identify and disclose the emissions of Unit 2, including nitrogen oxides, greenhouse gas emissions, carbon monoxide, particulate matter, and other pollutants.¹⁴ The potential air

¹⁰ *Id.*

¹¹ Notice of Intent to Mothball Cayuga Units 1 and 2, Lansing, New York, PSC Dkt. No. 12-E-0400 (July 20, 2012).

¹² See Ltr. from David T. Metcalfe, Cullen and Dykman LLP, Counsel for New York State Electric & Gas to Hon. Kathleen H. Burgess, Secretary, State of New York Public Service Commission, PSC Dkt. No. 13-T-0235 (July 12, 2017) (confirming Auburn Transmission Project, which obviated the need for the Cayuga Plant, had been placed in service).

¹³ Order Making Findings on the Repowering of the Cayuga Generating Facility, PSC Dkt. No. 12-E-0577 (Feb. 25, 2016), at 12 (“Cayuga has not shown that its Revised [Co-Firing] Proposal would lead to any additional relief of specific congestion or provide other related benefits arising, for instance, from alleviating transmission constraints.”); *id.* at 13 (“Cayuga’s Revised [Co-Firing] Proposal would simply substitute natural gas for coal as the primary fuel source, while the existing, less-efficient boilers would be retained.”).

¹⁴ See Cayuga’s FEAF, Question D2f, D2g, and D2h. In the response to Question D2h regarding methane emissions, the FEAF references the project emissions summary in the Air Permit Modification (which, incidentally does not appear to isolate methane emissions from the project), but the responses to Questions D2f and g omit reference to Unit 2 and do not disclose any emissions from that unit for purposes of the SEQRA review.

emissions of the proposed modification are critical to assess the environmental impact of the modification and, in this case, result in a significant adverse impact to the environment when compared to an appropriate baseline. 6 N.Y.C.R.R. 617.7(c).

Specifically, in its air permit application, Cayuga projects emissions of 600,000 tons per year of CO₂—*a ten-fold increase* over the annual emission rates during the preceding 24-month period—and emissions of more than 400 tons per year of NO_x, up from 71 tons per year in the preceding 24 month period. These data are presented in Table 1 below.

Table 1: Comparison of Cayuga Unit 2 Emissions from Preceding 24 Months Cayuga to Projected Emissions

Pollutant	Emissions from July 2016 to June 2018	Projected Emissions
CO ₂	52,417 tons/yr	596,099 tons/yr
NO _x	71 tons/yr	404 tons/yr

Emissions Data from EPA’s Air Markets Program Data, July 2016 to June 2018.

Consideration of the most recent 24-month period of emissions is appropriate for establishing the relevant baseline under SEQRA. First, prior to July 2017, there was determined to be a local reliability need for the facility.¹⁵ As noted above, this reliability need was fully addressed by transmission upgrades that went into service at the end of June 2017.¹⁶ Consequently, operations and emissions post-dating the implementation of the transmission upgrades are likely to be most representative of expected future operations. Second, Unit 2 is aging, having come online 60 years ago in October 1958, and increasingly uncompetitive and unlikely to operate.¹⁷ Despite receiving tens of millions of dollars from New York State Electric and Gas ratepayers for capital upgrades pursuant to a series of Reliability Support Services Agreements between January 2013 and June 2017, Unit 2 operated at an approximately 5% capacity factor in both 2016 and 2017 before ceasing operation altogether after January 2018.¹⁸

Given the largely non-operating status of the facility during the years immediately preceding this application, the projected emissions increases identified above will result in a

¹⁵ See Ltr. from Mary R. Smith, Vice President – Engineering and Asset, Iberdrola USA Management Corp., to Thomas Dvorsky, Director, Office of Electric, Gas and Water, State of New York Department of Public Service, Dkt. 12-E-0400 (Aug. 24, 2012).

¹⁶ See *supra* note 11.

¹⁷ According to the New York Independent System Operator’s 2018 Power Trends report, 95 percent of steam turbine generating capacity 62.5 years of age or older nationally has retired. NYISO, Power Trends 2018, at 16 (2018), available at https://home.nyiso.com/wp-content/uploads/2018/05/2018-Power-Trends_050318.pdf.

¹⁸ Based on generation data from EPA’s Air Markets Program Database, <https://ampd.epa.gov/ampd/>. According to AMPD data, Unit 2 generated 71,489 MWh in 2016 and 71,618 MWh in 2017. Based on a nameplate capacity of 167.2 MW, this represents a capacity factor of 4.9% in each year. Based on the unit’s winter and summer rated net capacity factor of approximately 150 MW, the capacity factor would be 5.4% in each year.

“substantial adverse change in existing air quality,” 6 N.Y.C.R.R. 617.7(c)(1)(i). Cayuga must be required to complete an EIS under SEQRA.

(b) Cayuga’s FEAF does not contain the information necessary to understand the impacts of its proposed “virtual pipeline,” which will result in a significant adverse impact

Cayuga’s FEAF lacks the information necessary to understand the impacts the proposed “virtual pipeline” of trucks carrying compressed gas to the facility every day. This “virtual pipeline” is likely to significantly impact the communities surrounding the facility, requiring an EIS for Cayuga’s proposed modification. 6 N.Y.C.R.R. 617(c)(1).

Understanding the demands that new development would place on a community’s street network is key to evaluating the overall impacts of that development. FEAF Workbook, Question D2. However, DEC does not have enough information to determine how many truck trips will be required to fuel the facility. Cayuga’s FEAF estimates a need for 30 semi-trailer truck trips per day, but it is unclear how this number was calculated, or whether this number was roundtrip. Cayuga’s estimate allegedly represents a net increase of 6 trucks per day, but does not indicate what baseline period was used or whether this number of trucks reflects actual trips occurring currently or some unidentified peak number of trips. Cayuga’s estimate in the FEAF also falls far short of the truck estimates the company provided in its own June 21, 2018 press release regarding the repowering proposal, which projected up to 120 truck trips per day.¹⁹ Based on 2015 data from the New York State Department of Transportation, an increase of 120 trucks per day on New York 34B south of the Cayuga Plant would represent a 67 percent increase in trips of vehicles with more than two axels on this road²⁰ and an even greater increase in heavy duty truck trips and must be more fully and accurately analyzed.

Cayuga’s application further fails to specify what routes will be taken by the semi-trailer trucks and what communities will be affected by these truck trips. Accurate information on the “virtual pipeline” Cayuga seeks to create through the area is critical, because trucking gas through a community is especially risky. Natural gas is highly flammable and explosive, and rollovers can and do occur. Otsego County has seen several rollovers in less than two years from a similar “virtual pipeline” of 40 trucks per day. Substantially more information is needed to

¹⁹ The press release states that “[d]epending on market conditions, Cayuga estimates the number of trucks transporting CNG to the facility could be anywhere between 25 and 60 a day,” indicating that truck trips to and from the facility could be between 50 and 120 per day. See Press Release: Cayuga Continues to Pursue Renewables and Repowering (June 21, 2018), available at <https://waterfrontonline.files.wordpress.com/2018/07/cayugapressreleaselink1.pdf>,

²⁰ New York State Department of Transportation, Classification Count Average Weekday Data Report for October 2015 for New York 34B between East Shore/Ridge and CR 155, attached as Exhibit 1. Total daily truck trips for class F6-F13 vehicles (i.e., those with more than two axels) would increase from 180 to 300 with an additional 120 truck trips.

properly understand the increase in dangerous truck traffic resulting from this project, including a traffic and risk analysis for all affected local communities.²¹

- (c) Cayuga's FEAF fails to address any of the impacts of constructing an actual pipeline, which Cayuga has indicated would be required to repower Unit 1

Cayuga has indicated repowering both units would require an actual pipeline,²² which is not discussed in Cayuga's FEAF or permit. A pipeline would result in very different environmental impacts requiring its own independent FEAF, SEQRA review, and EIS. DEC cannot approve the repowering of Unit 1 on the present application because, as the applicant concedes, repowering Unit 1 would produce a host of new environmental impacts, including construction of a gas pipeline, which are not discussed in its current FEAF or permit.

- (d) Potential significant environmental impacts must be considered together and, in this case, warrant an EIS for Cayuga's proposed modification

As described above, for the proposed repowering of Unit 2, while the significant adverse impacts to existing air quality, traffic, and neighborhood character warrant an EIS individually, 6 N.Y.C.R.R. 617.7(c)(1), the impacts of a proposed modification are considered *together* in determining significance. 6 N.Y.C.R.R. 617.7(c)(1)(xi). Cayuga's proposed modification has the potential to significantly and adversely impact the environment and, once Cayuga's FEAF is amended and accurate, DEC should issue a positive declaration. 6 N.Y.C.R.R. 617.17(a). Cayuga must draft an EIS to identify and mitigate the significant environmental impacts of this proposed modification.

III. The Information Cayuga Provided Does Not Support Its Chosen Emission Factors

Cayuga may be using incorrect and significantly lower values for the emissions factors for several air pollutants, necessitating a resubmission of its application. Although Cayuga claims that it is relying on EPA-approved emission factors published in AP-42,²³ emission rate guarantees provided by equipment suppliers, and recent allegedly comparable Title V Air Permits issued by DEC, the factors it employed are inconsistent with AP-42 and the emission rates of other units converted to natural gas from coal. DEC should request more information from Cayuga on their emission factor calculation that resolves these discrepancies and results in an accurate calculation of its projected emissions.

²¹ DEC FEAF Workbook, <https://www.dec.ny.gov/permits/91660.html>.

²² Letter from Cayuga to DEC (May 3, 2018) ("Conversion of Boiler 1 would only potentially be economically viable if natural gas were delivered to the Facility via a pipeline (which currently does not exist).").

²³ EPA, AP42: Compilation of Air Emission Factors, Chap. 1.4 Natural Gas Combustion, Table 1.4-1 and 1.4-2, <https://www3.epa.gov/ttn/chief/ap42/ch01/final/c01s04.pdf>.

(a) Cayuga’s CO and NOx emissions factors are inconsistent with AP-42

The emission factors Cayuga used for carbon monoxide (“CO”) and NOx are inconsistent with the emissions factors published by EPA in AP-42. Emission rates of NOx and CO are related in that controls on NOx emissions, such as low NOx burners and flue gas recirculation, may reduce combustion efficiency and result in higher CO emissions relative to uncontrolled boilers. As such, EPA calculates emissions factors of 0.0745 lb/MMBtu for NOx and 0.0960 lb/MMBtu for CO for controlled tangential-fired boilers, and 0.1667 lb/MMBtu NOx and 0.0235 lb/MMBtu CO for uncontrolled tangential-fired boilers. EPA AP-42, Table 1.4-1.

The Cayuga Plant’s boilers are tangentially fired and currently controlled with low NOx firing systems.²⁴ While Cayuga’s application uses a NOx emission factor consistent with AP-42’s factor for controlled, tangential-fired boilers, it uses a *lower* CO emission factor, similar to that of *uncontrolled*, tangential-fired boilers. See Table 2 below. Cayuga cannot pick and choose the lowest factors for each category, but must use the factors most applicable to its Unit; if the Unit will be controlled, the controlled factors should be used, and if the Unit will be uncontrolled, the uncontrolled factors should be used.

Table 2: Emission Factors from EPA AP-42 and Cayuga’s Application

Tangential-Fired Boilers	EPA AP-42 NOx Emission Factor	Cayuga Application Emission Factor	EPA CO Emission Factor	Cayuga Application Emission Factor
Uncontrolled	0.1667 lb/MMBtu	0.08 lb/MMBtu	0.0235 lb/MMBtu	0.0245 lb/MMBtu
Controlled	0.0745 lb/MMBtu		0.0960 lb/MMBtu	

Data from the EPA AP-42 publication, and the Cayuga application.

Cayuga’s application does state that “[a]dditional NOx emissions controls with the conversion of Boiler #2 to natural gas firing is also planned,” but does not expand on what these may be or how they would result in the emission factors used. If Cayuga is attempting to use these planned NOx controls to justify using a lower NOx emission factor, it must also consider the resulting increase in CO emission factor. This information is critical to evaluating the emissions and environmental impact of Cayuga’s proposed modification. Moreover, any planned NOx controls must be disclosed in the permit application so DEC can evaluate the efficacy of the controls and collateral impacts of using these controls on emissions of other pollutants.

(b) Cayuga’s emissions factors are too low for a boiler retrofitted to fire natural gas

²⁴ Cayuga’s Application, at 32.

The emissions factors in Cayuga’s application are not sufficiently supported and may be significantly lower than what is reasonable for a converted boiler. Cayuga does not justify its use of AP-42 factors for a converted boiler and uses emissions factors that are substantially lower than comparable facilities.

Emission profiles from a boiler designed to fire coal but retrofitted to fire natural gas may differ from the profile that EPA’s AP-42 factors represent, resulting in increased emissions.²⁵ In recognition of this fact, Cayuga claims to incorporate a “compliance margin” into its emission factors, but it is unclear how Cayuga calculated this “compliance margin” or how it applied it to the AP-42 factors. For example, for sulfur dioxide, Cayuga calculates an emission factor of 0.012 lb/MMBtu—nearly 20 times the factor of 0.0006 lb/MMBtu in AP-42.²⁶ However, for CO₂, Cayuga calculates an emission factor nearly identical to that of the AP-42. There is no explanation or rationale provided for the vast difference in compliance margins between pollutants.

Further, many of the emission factors used by Cayuga in its application are out of step with the emission rates of other plants converted to natural gas from coal such as WS Lee (SC), units 7C and 8C; Urquhart (SC), units 3 and 4; BreMO (VA), units 3 and 4; and even facilities in New York such as Danskammer, units 1, 2, and 3. These units emit at rates in excess of the emission factors used in Cayuga’s application. Emission rates from these facilities are listed in Table 3 below, as well as Cayuga’s chosen emission factor:

Table 3: Actual Emissions Rates from Comparable Natural Gas Facilities from Q1 of 2018

Facility		NOx Rate in lb/MMBtu
BreMO (VA)	Unit 3	0.132
	Unit 4	0.124
WS Lee (SC)	Unit 7C	0.119
	Unit 8C	0.124
Urquhart (SC)	Unit 3	0.087
	Unit 4	0.103
Danskammer (NY)	Unit 1	0.098
	Unit 2	0.131
	Unit 3	0.097
		NOx Emission Factor in lb/MMBtu
Cayuga	Unit 2	0.080

Emissions Data from EPA’s Air Markets Program Data, Q1 of 2018.

Cayuga’s potential underprediction of its emissions compared to other similarly retrofitted plants is critical, given that using the actual emissions rates of other plants in Cayuga’s

²⁵ See Cayuga’s application at 6; see also AP-42, Chap. 1.4.3.

²⁶ EPA, AP42: Compilation of Air Emission Factors, Chap. 1.4 Natural Gas Combustion, Table 1.4-2, <https://www3.epa.gov/ttn/chief/ap42/ch01/final/c01s04.pdf>.

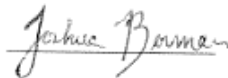
calculations could trigger New Source Review/Prevention of Significant Deterioration (“NSR/PSD”), 6 N.Y.C.R.R. 231, for Cayuga’s proposed modification without hitting any permit limits. For example, if Cayuga’s NOx emission rate was 0.12, more similar to Bremono, WS Lee, or unit 2 of Danskammer, Cayuga’s NOx emissions for the conversion of Unit 2 would be over 600 tons per year—1.5 times what Cayuga’s application estimates. If volatile organic compounds, CO, or fine particulate matter were similarly underestimated, Cayuga’s emissions would far exceed NSR/PSD thresholds for those pollutants, all while operating at the calculated 77% capacity and within the proposed permit limit for CO2 equivalents. Accurate emission factors and permit limits for *multiple* pollutants are critical to ensure NSR/PSD limits are not exceeded and to protect New York’s air quality.

IV. Conclusion

Cayuga’s application must be denied, because reviving a non-operating, inefficient coal unit by repowering with natural gas is contrary to New York’s goals. Moreover, given the deficiencies in Cayuga’s application and FEAF, DEC cannot consider Cayuga’s application or FEAF in their current form. DEC should require Cayuga to remedy the deficiencies identified above and should require a full EIS before taking any action on Cayuga’s permit request.

Thank you for your consideration.

Respectfully submitted,



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EXHIBIT 1

New York State Department of Transportation
Classification Count Average Weekday Data Report

ROUTE #: NY 34B ROAD NAME:
 COUNTY NAME: Tompkins
 REGION CODE: 3
 FROM: 34/34B OLAP - E Shore/Ridge
 TO: CR 155 LANSINGVILLE
 REF-MARKER:
 END MILEPOINT: 1030 NO. OF LANES: 2
 FUNC-CLASS: 07 HPMS NO:
 STATION NO: 0456 LION#:
 COUNT TAKEN BY: ORG CODE: TST INITIALS: MCM
 PROCESSED BY: ORG CODE: DOT INITIALS: SJW

YEAR: 2015
 MONTH: October

STATION: 360456

DIRECTION	East	West	TOTAL
NUMBER OF VEHICLES	3933	3551	7484
NUMBER OF AXLES	8189	7239	15427
% HEAVY VEHICLES (F4-F13)	6.69%	4.98%	5.88%
% TRUCKS AND BUSES (F3-F13)	21.97%	20.90%	21.46%
AXLE CORRECTION FACTOR	0.96	0.98	0.97

BATCH ID: DOT-R3C41aTST5195

VEHICLE CLASS	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	TOTAL
NO. OF AXLES	2	2	2	2.5	2	3	4	3.5	5	6	5	6	8.75	
ENDING HOUR	1:00	0	4	0	0	0	0	0	0	0	0	0	0	4
	2:00	0	4	1	0	0	0	1	0	1	0	0	0	7
	3:00	0	4	1	0	0	0	0	0	0	0	0	0	5
	4:00	0	4	0	0	0	0	0	0	0	0	0	0	4
	5:00	0	20	4	0	2	0	0	0	2	0	0	0	28
	6:00	0	51	20	0	1	0	0	1	2	0	0	0	76
	7:00	1	119	45	5	3	0	0	1	1	0	0	0	176
	8:00	1	412	52	7	7	2	0	1	2	3	0	0	487
	9:00	0	289	49	7	6	3	0	1	6	3	0	0	364
	10:00	1	217	37	2	7	4	0	1	3	2	0	0	274
DIRECTION	11:00	0	149	34	3	4	2	0	0	9	2	0	0	203
East	12:00	0	130	31	2	11	3	0	2	4	2	0	0	185
	13:00	3	154	35	2	4	3	0	2	4	1	0	0	208
	14:00	1	136	27	3	6	5	0	1	3	1	0	0	184
	15:00	1	187	47	12	8	2	0	2	4	2	0	0	265
	16:00	2	262	52	11	4	3	0	2	3	1	0	0	340
	17:00	3	233	42	1	7	1	0	2	0	0	0	0	289
	18:00	1	272	50	2	8	0	0	3	1	0	0	0	337
	19:00	0	178	31	1	3	0	0	3	0	1	0	0	217
	20:00	0	86	21	1	3	0	0	1	0	0	0	0	112
	21:00	0	61	7	0	1	0	0	0	0	0	0	0	69
	22:00	0	47	10	0	0	0	0	0	0	0	0	0	57
	23:00	0	24	4	0	0	0	0	0	0	0	0	0	28
	24:00	0	12	1	0	0	0	0	0	1	0	0	0	14
TOTAL VEHICLES	14	3055	601	59	85	28	0	24	42	24	0	0	1	3933
TOTAL AXLES	28	6110	1202	148	170	84	0	84	210	144	0	0	9	8189
ENDING HOUR	1:00	0	13	2	0	0	0	0	0	0	0	0	0	15
	2:00	0	6	1	0	0	0	0	0	0	0	0	0	7
	3:00	0	6	1	0	0	0	0	1	0	0	0	0	8
	4:00	0	4	1	0	0	0	0	0	1	0	0	0	6
	5:00	0	2	0	0	0	0	0	0	1	0	0	0	3
	6:00	0	25	15	0	0	0	0	1	1	0	0	0	42
	7:00	1	51	17	1	4	1	1	2	1	0	0	0	79
	8:00	0	261	35	8	7	1	0	1	1	0	0	0	314
	9:00	0	104	31	7	7	2	0	1	1	0	0	0	153
	10:00	0	107	31	1	6	2	0	2	2	0	0	0	151
	11:00	0	100	30	2	6	2	0	2	2	0	0	0	144
DIRECTION	12:00	1	108	34	0	7	1	0	2	1	0	0	0	154
West	13:00	2	152	33	2	5	1	1	2	1	0	0	0	199
	14:00	2	131	31	3	5	1	0	2	1	0	0	0	176
	15:00	2	180	40	2	4	1	0	1	1	0	0	0	231
	16:00	2	227	51	11	6	2	0	3	2	0	0	0	304
	17:00	3	304	66	5	3	1	0	1	1	1	0	0	385
	18:00	2	360	48	3	4	0	0	2	0	0	0	0	419
	19:00	0	222	32	1	1	0	0	2	0	0	0	0	258
	20:00	1	173	25	1	2	0	0	1	0	0	0	0	203
	21:00	0	106	18	0	1	0	0	0	0	0	0	0	125
	22:00	0	79	11	0	1	0	0	0	0	0	0	0	91
	23:00	0	39	6	0	0	0	0	0	0	0	0	0	45
	24:00	0	33	6	0	0	0	0	0	0	0	0	0	39
TOTAL VEHICLES	16	2793	565	47	69	15	2	26	17	1	0	0	0	3551
TOTAL AXLES	32	5586	1130	118	138	45	8	91	85	6	0	0	0	7239
GRAND TOTAL VEHICLES	30	5848	1166	106	154	43	2	50	59	25	0	0	1	7484
GRAND TOTAL AXLES	60	11696	2332	265	308	129	8	175	295	150	0	0	9	15428

VEHICLE CLASSIFICATION CODES:

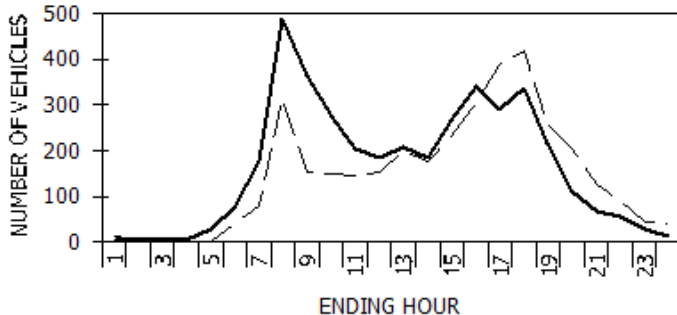
- F1. Motorcycles
- F2. Autos*
- F3. 2 Axle, 4-Tire Pickups, Vans, Motorhomes*
- F4. Buses
- F5. 2 Axle, 6-Tire Single Unit Trucks
- F6. 3 Axle Single Unit Trucks
- F7. 4 or More Axle Single Unit Trucks
- F8. 4 or Less Axle Vehicles, One Unit is a Truck
- F9. 5 Axle Double Unit Vehicles, One Unit is a Truck
- F10. 6 or More Double Unit Vehicles, One Unit is a Truck
- F11. 5 or Less Axle Multi-Unit Trucks
- F12. 6 Axle Multi-Unit Trucks
- F13. 7 or More Axle Multi-Unit Trucks

* INCLUDING THOSE HAULING TRAILERS

FUNCTIONAL CLASS CODES:

- | RURAL | URBAN | SYSTEM |
|-------|-------|-------------------------------|
| 01 | 11 | PRINCIPAL ARTERIAL-INTERSTATE |
| 02 | 12 | PRINCIPAL ARTERIAL-EXPRESSWAY |
| 02 | 14 | PRINCIPAL ARTERIAL-OTHER |
| 06 | 16 | MINOR ARTERIAL |
| 07 | 17 | MAJOR COLLECTOR |
| 08 | 17 | MINOR COLLECTOR |
| 09 | 19 | LOCAL SYSTEM |

TRAFFIC FLOW BY DIRECTION



--- East - - West

PEAK HOUR DATA

DIRECTION	HOUR	COUNT	2-WAY	HOUR	COUNT
East	8	487	A.M.	8	801
West	18	419	P.M.	18	756