Final Report

Palmyra Route 21 Truck Study

Palmyra, NY 14522

August, 2007

PREPARED FOR:

The Town of Palmyra
The Village of Palmyra
Palmyra, NY 14522

PREPARED BY:

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Planning | Designing | Building

Palmyra Route 21 Truck Study
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Chapter I.   Introduction

A. Study Funding and Report Content

FRA was retained by the Town of Palmyra and Village of Palmyra to conduct the Palmyra Route 21 Truck Study. This study is being funded through the Genesee Transportation Council Unified Planning Work Program (UPWP #6611). The study was initiated in response to concerns within the Town and Village of Palmyra about the deleterious effects of heavy vehicle traffic on its citizens.

The major work efforts of this study include the following:
- Traffic Data Collection
- Review of existing Heavy Truck Legislation
- Review of Air Quality Regulations Related to Particulate Matter
- Review of Noise Regulations
- Evaluation of Potential Alternative Truck Routes
- Development of Study Recommendations

While the RFP initially identified the scope of study to include the Town and Village limits, the scope was subsequently narrowed to focus on Route 21 between the New York State Thruway and Route 31 and on Route 31 between Route 21 and the Macedon/Palmyra Town Line.

B. Background

The Town and Village of Palmyra, New York is situated along the Erie Canal 30 minutes east of Rochester. Palmyra is the only village in the country to have a different branch of a church on each corner at the main intersection (Route 21 and Route 31), showing the diversity within the community and the importance of Palmyra as both a crossroads and cultural center of the region. Home to Canaltown Days, the Hill Cumorah Festival, historic sites of the Church of Latter Day Saints, and

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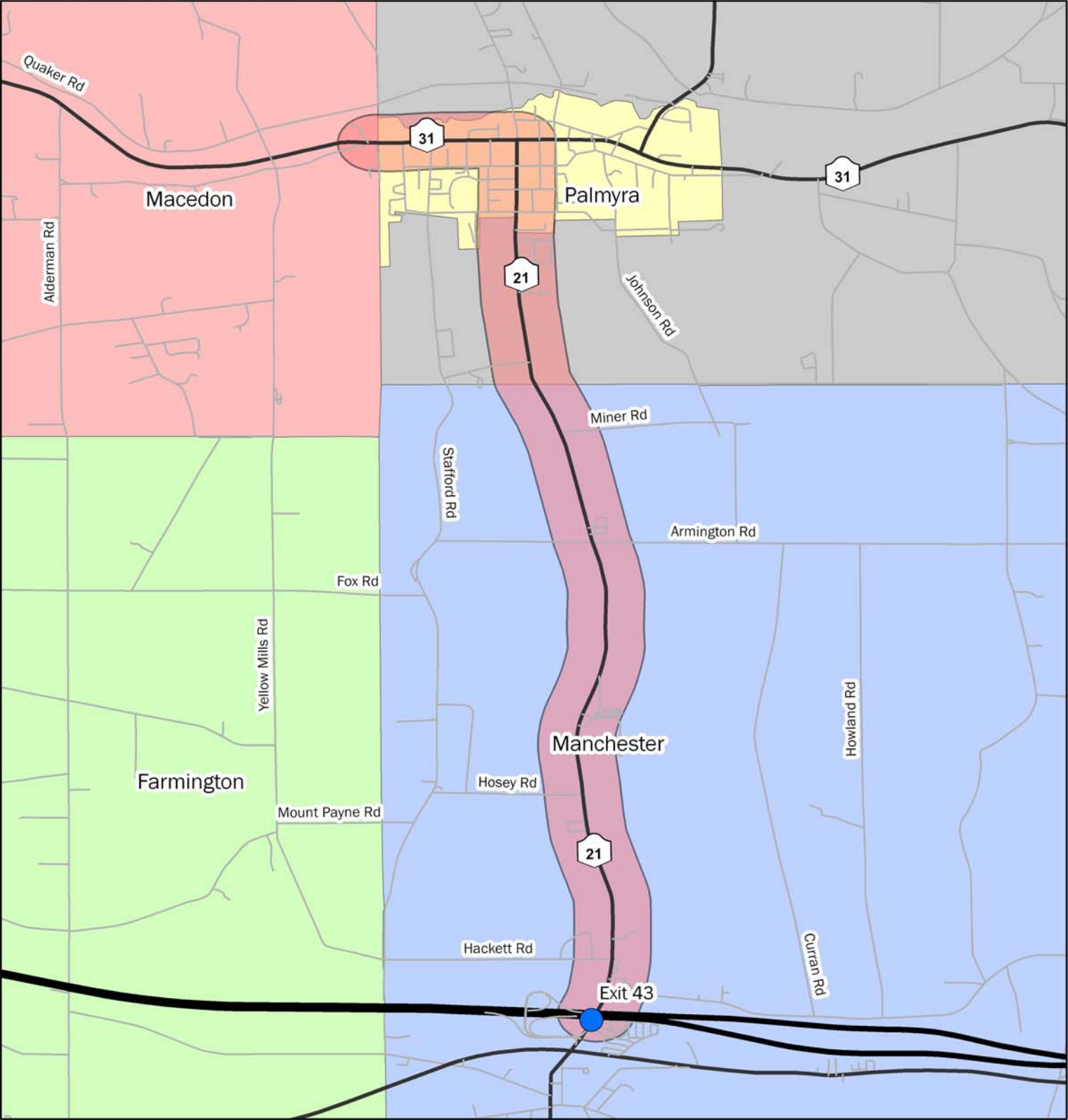
Legend

Streets

Local Roads
County Roads
State Roads
Interstate Roads
Study Area

Palmyra Route 21 Truck Study

Figure 1: Study Area

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the Erie Canal Trail, the Town and Village of Palmyra are together a destination for thousands of people from throughout the world each year.

Residents have been living in Palmyra for over 200 years. According to the 2000 Census, 3490 people reside in the village, with 31.2% of these families having children under the age of 18. 24.4% of the population is under the age of 18. The joint school district of Palmyra-Macedon has its high school located a few blocks to the southwest of the main intersection in the Village of Palmyra at Route 21 and Route 31. The middle school is also located in the same area. The elementary school, Palmyra Elementary, is located one block south of the Route 21/31 intersection in the heart of the village.

With a tight-knit community of residents, many historical assets, and environmental features, Palmyra strives to keep its unique character and features preserved for generations to come.

The Town and Village of Palmyra is situated along two major state routes – Route 21, which runs North/South and Route 31, which runs East/West (see **Figure 1**). Because of the easy accessibility to the New York State Thruway (located approximately six miles to the south) via Route 21 at Exit 43, many cars and trucks use this travel route as the fastest route to areas in western Wayne County.

Concern has been raised in the past about the growing volume, noise and air pollution caused by heavy vehicles on Route 21, and this study was initiated with the intent to document the presence of heavy vehicle traffic on Route 21, and to explore, even if only conceptually, potential solutions to help offset some of the more harmful impacts of truck traffic. It is recognized that Route 21 is a state-designated highway, and that truck traffic is inevitable; however, the local concern is that some of these heavy vehicles are doing more than their fair share of damage to the community without regard or knowledge of community concerns.

Undoubtedly, while many of the heavy vehicles have local origins or destinations, Route 21 provides convenient access for other more regional uses, including trucks traveling to the High Acres Landfill in Perinton/Macedon, local apple farms in Northern Wayne County, industrial development in the outskirts of Rochester, and new construction in Wayne County such as Lowe's and Wal-Mart located along Route 31. The noise, road debris or leaking liquids, and exhaust that these trucks create are perceived as threats to the quality of life in Palmyra. Concerns about the environmental effects of trucks range from damage to homes, excessive damage to the roadway, and more alarmingly, damage to the health of its citizens.

One of the major local concerns in the study area is the danger to school-age children crossing Canandaigua Street (Route 21) to get either to home or to a nearby day-care center. During pre-school and post-school hours, there are two crossing guards who require children to cross the streets at specified intersections with clearly marked crosswalks. In addition to the school children, local motorists, bicyclists, and pedestrians may also be at risk due to the high volume of trucks traveling through Palmyra Village.

C. Study Purpose

The purpose of this study is to evaluate the heavy truck issue within Palmyra, conduct data collection activities and observations to help quantify and clarify the issues, identify the local concerns with truck traffic, quantify existing state of federal regulations that deal with trucks, air quality and noise, identify and evaluate potential strategies to address truck traffic concerns, and develop an action plan to help improve the current situation.

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Chapter 2. Public Involvement

A. Steering Committee

The Route 21 Truck Study was completed with the assistance of a project Steering Committee, which included representatives from the Town of Palmyra, the Village of Palmyra, the Wayne County Planning Department, the New York State Department of Transportation, and local citizen members. A full list of the steering committee members is noted on the acknowledgements pages in the front of this report. This committee met on four occasions at the Town of Palmyra Town Hall:

- October 25, 2006
- December 14, 2006
- January 10, 2007
- February 15, 2007

During these meetings, study progress was discussed, committee and local citizen concerns were raised, and next steps were identified. Handouts were provided at each meeting to provide a summary of ongoing analysis, data collection, or preliminary findings. The fourth meeting was spent reviewing a draft presentation that was subsequently modified slightly and presented at a public meeting on February 28, 2007.

B. Public Meeting

A public presentation was held at the Town of Palmyra Town Hall on February 28, 2007 to present the study findings and to hear public comments. This meeting was held from 7:00 to 9:00 PM, and the meeting was advertised locally with the assistance of the Village of Palmyra, including the preparation and distribution of meeting flyers, the development of a press release, and a meeting advertisement in the local newspapers. A total of 34 people attended this meeting, and the meeting was summarized in the Canandaigua Daily Messenger (a copy of the web article is

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provided in the Technical Appendices to this report). Overall, the turnout was good, and there was significant interest expressed in the study.

Chapter 3. Existing Transportation Conditions

In order to evaluate the effects of heavy vehicles in Palmyra, an assessment of current traffic conditions was conducted. Roadway geometry data, average weekday traffic data, a review of accident history along Route 21, and school-children crossing data was collected in order to get a complete picture of the traffic and safety elements in Palmyra.

A. Roadway Geometry

Route 21 within the Village of Palmyra is approximately 30 feet wide, with one travel lane in each direction. The posted speed limit is 30 miles per hour in the village. In the vicinity of the Palmyra Elementary School, the northbound and southbound directions are equally split with 15 feet of pavement in each direction. During the morning and afternoon school hours, the northbound direction has an inadequate width due to the use of the curb for parking by parents to drop-off and pickup their children. During these time periods, both automobiles and heavy vehicles were observed crossing over the double yellow line.

Per NYSDOT design guidelines, a minimum lane width of ten feet is needed for this type of road, with 12 feet being the design standard. Given the need for approximately eight feet for standard parallel parking, the northbound travel lane is three to five feet too narrow to accommodate both on-street parking and through traffic.

During the study, FRA conducted limited video observations of traffic flow along Route 21 in the vicinity of the Palmyra Elementary School during the morning and afternoon school peak periods. These video observations showed northbound traffic, both cars and heavy trucks, crossing the double yellow line due to the inadequate width of the northbound travel lane.

B. Average Daily Traffic

Existing daily traffic volume data was researched from the records of the New York State Department of Transportation. **Figure 2** provides a summary of average daily traffic volumes on the regional roadway network. As shown, Route 31 experiences the highest overall traffic volumes with roughly 12,000 vehicles per day to the west of Route 21 and 12,875 vehicles per day within downtown Palmyra. Route 21 handles approximately 5,200 vehicles per day.

C. Vehicle Classification

While there was the intent to conduct new vehicle classification counts on both Route 21 and Route 31 to document the most current record of heavy vehicle use on these roads, the traffic counts, conducted in November 2006, experienced technical problems. A subsequent re-count was not able to be collected due to the time of year during which the study was being completed (holiday season traffic and inclement weather). As a result, previous vehicle classification counts, conducted in 2004 by the New York State Department of Transportation (NYSDOT) on Route 21, were used. A copy of the NYSDOT classification counts are provided in Appendix B – Traffic Count Data. A summary of the hourly traffic volumes, by direction, including counts of heavy vehicles, is shown in **Table 1**. In addition, a manual vehicle classification count was also conducted in 2004 by members of the current study's steering committee, and that data matched the NYSDOT classification data fairly closely.

Using the 2004 NYSDOT data, the Route 21 corridor carries approximately 5,300 vehicles per day with 10 percent of the total volume consisting of heavy vehicles. The heavy truck percentage varies throughout the day, with highs near 22 percent in the northbound direction occurring during the morning hours. In the southbound direction, heavy vehicle traffic also peaks during the morning hours with a high of 17 percent.

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Figure 2:
AADT Volumes
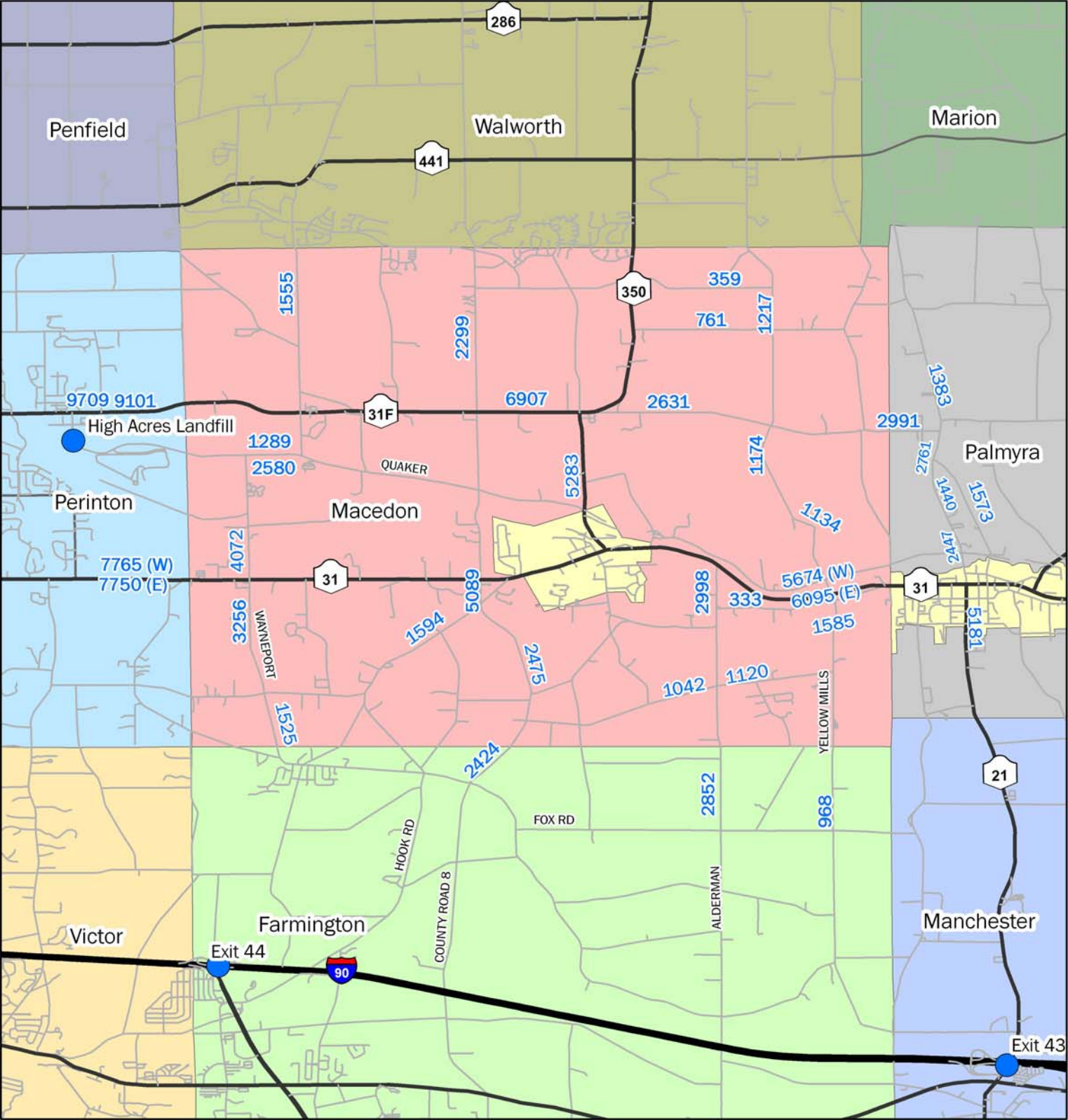
Palmyra
Route 21
Truck Study

Legend
Streets
—— Local Roads
—— County Roads
—— State Roads
━━ Interstate Roads

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**Table 1   Route 21 - 2004 Traffic Volume Summary –
              (April 2004 NYSDOT Classification Count)**

					Northbound			Southbound		
	Time of Day				Hourly Volume	Total HVs*	% HVs	Hourly Volume	Total HVs	% HVs
12	AM	-	1	AM	13	1	8%	7	0	0%
1	AM	-	2	AM	10	4	40%	6	1	17%
2	AM	-	3	AM	4	1	25%	5	0	0%
3	AM	-	4	AM	9	1	11%	4	0	0%
4	AM	-	5	AM	8	1	13%	12	2	17%
5	AM	-	6	AM	52	6	12%	34	1	3%
6	AM	-	7	AM	128	28	22%	128	7	5%
7	AM	-	8	AM	181	31	17%	176	10	6%
8	AM	-	9	AM	171	38	22%	82	8	10%
9	AM	-	10	AM	149	21	14%	159	27	17%
10	AM	-	11	AM	151	29	19%	136	18	13%
11	AM	-	12	PM	172	34	20%	114	14	12%
12	PM	-	1	PM	148	22	15%	154	14	9%
1	PM	-	2	PM	184	34	18%	149	21	14%
2	PM	-	3	PM	191	31	16%	163	19	12%
3	PM	-	4	PM	230	21	9%	161	14	9%
4	PM	-	5	PM	245	18	7%	181	15	8%
5	PM	-	6	PM	224	9	4%	212	9	4%
6	PM	-	7	PM	181	5	3%	166	7	4%
7	PM	-	8	PM	140	1	1%	129	5	4%
8	PM	-	9	PM	115	3	3%	97	4	4%
9	PM	-	10	PM	82	2	2%	78	1	1%
10	PM	-	11	PM	39	3	8%	41	3	7%
11	PM	-	12	PM	25	1	4%	23	3	13%
	Daily Totals				2852	345	12%	2417	203	8%

* HVs = heavy vehicles (FHWA classification codes 4 and higher).

D. Intersection Turning Movement Counts

FRA conducted a turning movement count at the intersection of Route 21 with Route 31 between the hours of 5:00 and 9:00 AM. During this four hour count, a basic classification count was conducted, stratifying the traffic into three classifications, cars, heavy trucks and buses. As shown below in **Table 2**, the hourly volumes on Route 21 varied from a low of approximately 100 vehicles per hour between 5:00 and 6:00 AM, up to roughly 400 vehicles per hour between 7:00 and 8:00 AM and between 8:00 and 9:00 AM. Consistently, the northbound volume was higher than the southbound volume. Heavy vehicles accounted for 11 to 18 percent of hourly traffic flow on Route 21 (both directions), whereas the northbound direction experienced higher overall usage (14 to 18 percent) versus the southbound direction (6 to 20 percent). A copy of the peak hour intersection turning movement count is provided in Technical Appendix B – Traffic Count Data.

Table 2   Morning Peak Period Intersection Count (Route 21 and Route 31) –
           Vehicle Classification Summary

Time Period	Hourly Volume			Hourly Heavy Vehicle Volume			Percent Heavy Vehicles		
	NB	SB	Total	NB	SB	Total	NB	SB	Total
5 AM - 6 AM	61	41	102	10	3	13	16%	7%	13%
6 AM - 7 AM	149	118	267	21	9	30	14%	8%	11%
7 AM - 8 AM	185	205	390	34	13	47	18%	6%	12%
8 AM - 9 AM	223	174	397	37	35	72	17%	20%	18%
Route 21 Volumes	618	538	1156	102	60	162	17%	11%	14%

E. School Activities/Pedestrians

The potential effect of heavy vehicle traffic on school-age pedestrians trying to cross Route 21 was identified as a concern. Therefore, pedestrian crossing data was collected on November 15, 2006 by the crossing guards. This count occurred on the same date as the intersection turning movement counts described in the previous section. As shown in **Table 3**, a total of 47 children were recorded crossing Route 21 at the intersection with Route 31 (16 during the morning and 31 children during the afternoon), where one crossing guard is stationed during the morning (8:10-8:40 AM) and afternoon (2:50 – 3:10 PM) peak periods coinciding with school arrival and dismissal times. A second crossing guard, stationed at the Route 21 and Jackson Road intersection recorded a total of 100 children crossing the street, with exactly half of those being in the morning and half being in the afternoon. Route 21 and Route 31 had 16 children crossing in the morning and 31 children in the afternoon.

Table 3   **School-Age Children Crossing Route 21**
           November 15, 2006 Count Summary

Time Period	Route 21& Route 31	Route 21& Jackson Rd
Up to 8:20 AM	4	14
8:20-8:30 AM	4	28
8:30-8:40 AM	8	8
Total	16	50

PM at Route 21 & Route 31 - 31 children by 3:10 PM
PM at Route 21 & Jackson Road - 50 children crossing by 3PM.

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There is a daycare center located on the southwest corner of the Route 21 and Jackson Road intersection which may help to explain the higher volume of students crossing that intersection, particularly during the afternoon.

F. Accidents

Accident data was obtained from the New York State Department of Transportation in order to assess if any high accident locations existed within the Village of Palmyra along the Route 21/31 Truck Route and the extent to which heavy vehicles might contribute to accident concerns. FRA requested and reviewed accident data from the NYSDOT for a three-year period (2001-2003). In general, the our findings are that neither Route 21 nor the section of Route 31 between Liberty Street and Route 21, were found to experience documented safety concerns (i.e., high number of accidents). A complete summary of the accident data is provided in Technical Appendix D – Accident Data.

Table 4 displays accident data, summarized by severity for the Route 21 corridor between the New York State Thruway and Route 31. A total of 76 accidents were recorded over a three-year period (2001-2003). No fatalities were noted, 20 accidents involved injuries. The sections of Route 21 experiencing the highest number of accidents was Route 21 between Hackett Road and the Town/Village municipal line with a total of 53 accidents (70 percent of the total). Only three accidents were recorded on Route 21 within the Village of Palmyra (not including the intersection of Route 31 with Route 21 which is included in the Route 31 accident summary).

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Table 4   Route 21 Three-Year Accident Summary by Accident Severity (2001 –2003)

Location	Fatalities	Injury	Property Damage	Non-Reportable	Total
Thruway.	0	0	0	0	0
Hackett Rd.	0	1	0	1	2
Armington School Rd.	0	2	0	1	3
Foster Rd.	0	0	1	1	2
NYS Thruway to Thruway Exit	0	0	3	0	3
Thruway Exit to Hackett Rd Midblocks	0	4	3	5	12
Hackett Rd to Armington School Rd Midblocks	0	7	5	17	29
Armington School Rd to Foster Rd Midblock	0	6	5	13	24
Foster Rd to Route 31 Midblock	0	0	0	1	1
TOTAL:	0	20	17	39	76
	0%	26%	22%	52%	

Table 5 displays accident data, summarized by severity for the Route 31 corridor between Route 21 (Canandaigua Street and the Palmyra/Macedon Town Line. A total of 31 accidents were recorded over a three-year period (2001-2003). No fatalities were noted, Nine accidents involved injuries. Five accidents occurred at the intersection of Route 31 with Route 21.

Table 5   Route 31 Three-Year Accident Summary by Accident Severity (2001 –2003)

Location	Fatalities	Injury	Property Damage	Non-Reportable	Total
Route 31 and Liberty St.	0	0	1	1	2
Route 31 and Route 21	0	2	2	1	5
Village Boundary to Liberty Street Midblocks	0	5	3	5	13
Liberty Street to Route 21 Midblocks	0	3	3	3	9
Route 21 to William Street Midblocks	0	2	3	6	11
TOTAL:	0	12	12	16	40
	0%	30%	30%	40%	100%

Chapter 4. Truck Route Alternatives

A. Introduction

On Route 21, the average northbound percentage of heavy vehicles is 12%. The average southbound percentage of heavy vehicles is 8%. The reduction in heavy vehicles heading southbound compared to northbound traffic suggests that these trucks take an alternate route when heading southbound compared to heading northbound. It has been suggested that Alderman Road is the road experiencing this increased southbound heavy vehicle truck load, however, we were unable to document this with available traffic data. One possibility for this imbalance may be that the right-turn movement from eastbound Route 31 onto southbound Route 21 is difficult for heavy trucks to make given the existing intersection geometry. It was noted by members of the steering committee that the curbing on the southwest corner of the intersection of Route 21 with Route 31 is frequently hit by heavy vehicles.

B. Review of NYS and Federal Regulations

Truck routes are protected under federal regulations and apply to local as well as for state highways. Route 21 through the Town of Palmyra is a State Highway, while within the Village of Palmyra, Route 21 is a local street owned and maintained by the Village. It is the policy of the New York State Department of Transportation to allow all legal truck traffic on State highways unless a geometric deficiency (e.g., weight, width or height limitations) prevents otherwise. There are exceptions to the policy based on unusual circumstances (e.g. state highway connects to a highway in New Jersey where commercial vehicles are prohibited (such as the Garden State Parkway, for instance); for continuity, New York implemented a similar ban).

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C. Village Concerns with Heavy Vehicle Traffic Use

The ownership of Route 21 (Canandaigua Street) is primarily a maintenance responsibility, which, according to the Village, is a tremendous burden that is made worse by the physical damage caused by the heavy vehicles using Route 21. The Village has concerns that the structural integrity of the road, which was never designed to accommodate vehicles with the heavy loads that are now traveling on Route 21 on a daily basis, may result in failure of the road, requiring major investments that the Village does not have. Such a failure might require the closure of Route 21 for a considerable time in order to finance the repair of the road.

D. Truck Use Restrictions

FRA, with considerable assistance from the New York State Department of Transportation, conducted a review of NYSDOT policies concerning truck use restrictions to determine the feasibility of either prohibiting heavy vehicles from using Route 21 or potentially imposing a time of day restriction to keep heavy vehicles out of the Village during the early morning hours (between 5:00 and 10:00 AM). Based on discussions with NYSDOT representatives, while time of day restrictions are theoretically allowable by state regulations, the imposition of time of day restrictions is not currently being implemented by the Department by policy on any state highway under the control of the NYSDOT (statewide).

E. Consideration of Long-Term Option – Bypass Roadway

One long-term option to consider is the construction of a bypass roadway for Route 21 traffic to allow for the re-designation of Canandaigua Street as a local street. While this option may be expensive and require significant additional study to determine its feasibility, the inclusion of a future bypass roadway can be incorporated into the long-range transportation plans of both the Town and Village of Palmyra. Given funding priorities in the Genesee Transportation Council's TIP process, this is a necessary first step.

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F. Landfill Truck Traffic

The High Acres Landfill currently directs all trucks destined to its facility from the east to use the New York State Thruway to Exit 43, north on Route 21, west on Route 31, and then north on Route 350/31F, followed by a left turn to the west onto Route 31F. It is the policy of Waste Management for trucks to use state roads in preference to local roads. An Environmental Impact Statement was completed for the High Acres Landfill expansion in 2006. In this document, the origin of current landfill waste was presented by County (within New York State). This information is depicted in **Figure 3**. While some of the other regions in the state, including the Utica area, are expected to reduce their need to export waste due to their own landfill projects, there is still expected to be a significant proportion of waste with an origination from Central or Eastern New York State.

G. Evaluation of Potential Alternative Truck Routes

In order to evaluate potential alternative truck routes to Route 21, a visual "windshield" survey was conducted of several roads within the Towns of Farmington and Macedon. For each road, a purely qualitative score, ranging from poor to excellent, was created to compare the adequacy of these potential alternative truck routes for heavy vehicle traffic. A score of "excellent" was designated for roads with good to excellent pavement condition, with wide shoulders, limited speed reductions zones, and the lack of heavily built-up population concentrations. A score of "poor" was designated for narrow or poorly maintained roads that are obviously unsuitable for use by heavy vehicles. As a result of this scoring, system, as shown in **Figure 4**, Canandaigua Road (CR 28) and Hook Road were both rated as excellent, and Stafford Street and Alderman Road (CR 8) were both rated as good.

Eight alternative truck routes were created to reach a final destination of Route 31 at Canandaigua Road (Route 350), which was determined to be a central location within the Town of Macedon. Admittedly, the focus of this analysis has been for trucks headed to the High Acres Landfill, but this analysis could also be applied to other trucking concerns as well. The current route (Route 21 to Route 31) was also

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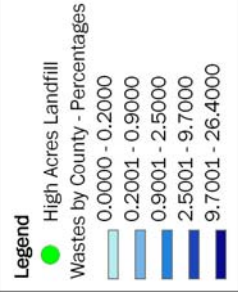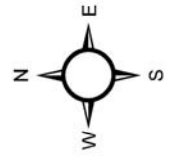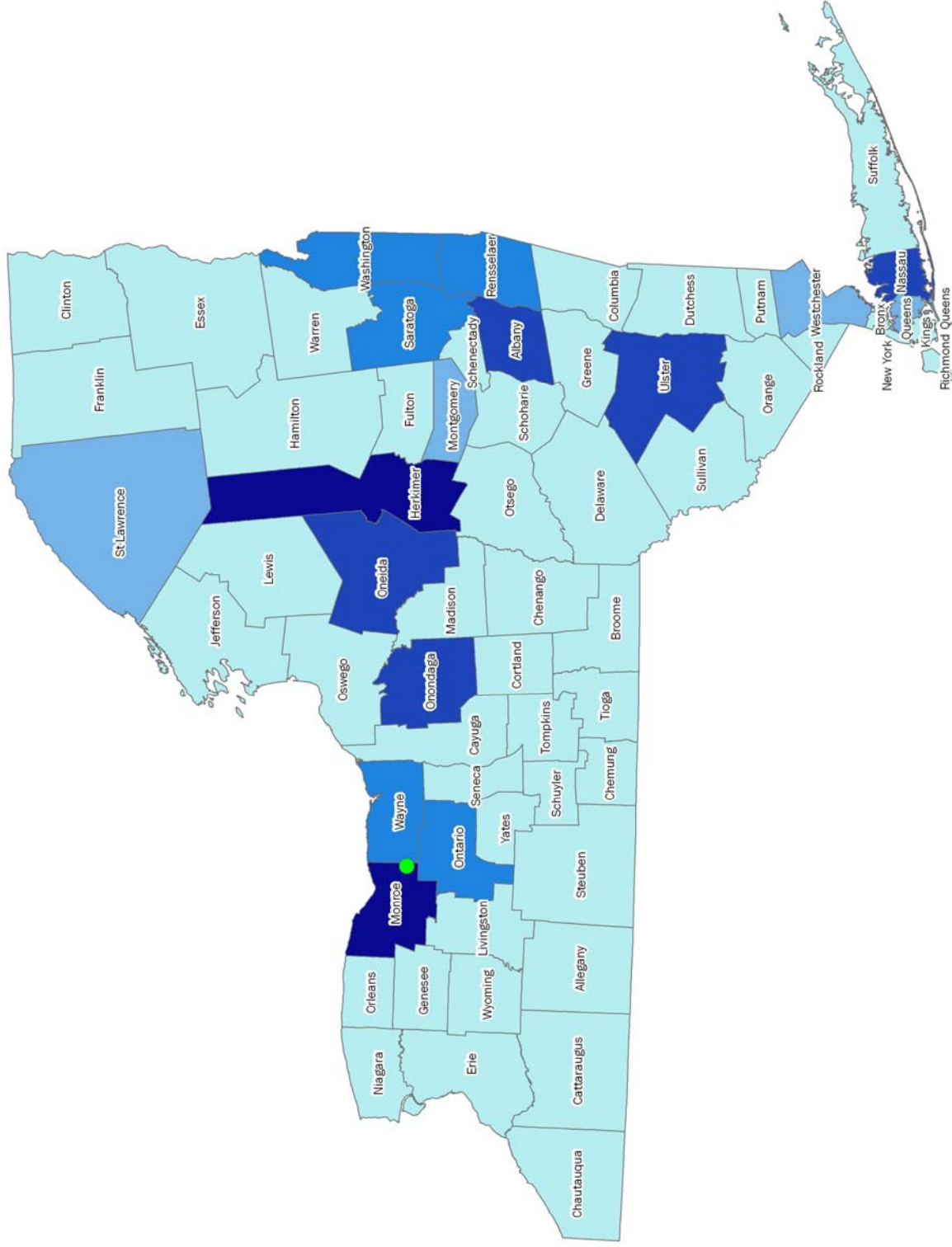
Palmyra Route 21
Truck Study

Figure 3:
Landfill Traffic
Origination of Waste

Legend

● High Acres Landfill

Wastes by County - Percentages

0.0000 - 0.2000
0.2001 - 0.9000
0.9001 - 2.5000
2.5001 - 9.7000
9.7001 - 26.4000

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Penfield

Walworth

Marion

350

Palmyra

31F

High Acres Landfill

Quaker Rd

Macedon

Perinton

Quaker Rd

Wayneport Rd

W Main St   Main St

State Route 31

31   E Main St

31

State Route 31

Victor Rd

Alderman Rd

Canandaigua Rd

Johnson Rd

Miner Rd

Pannell Rd

Allen Padgham Rd

21

Cline Rd

Hook Rd

County Road 8

Yellow Mills Rd

Brownsville Rd

Victor

Farmington

County Road 28

Manchester

Exit 44

90

Stafford Rd

Hackett Rd

State Route 96

Exit 43

State Route 96

Legend

Road Conditions Streets

Road Conditions	Streets
Excellent	Local Roads
Good	County Roads
Fair	State Roads
Poor	Interstate Roads

N
W E
S

0   0.5   1   2   Miles

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Truck Study**

**Figure 4:
Visual Survey**

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analyzed. Four of these routes were from Exit 43 south of Palmyra, four were from Exit 44 in Canandaigua, and one was from Exit 45 in Victor.

The routes that were studied were as follows:

43A: Current truck route, using Exit 43 to Route 21 North to Route 31 West

43B: Exit 43 to Kyte Road to Alderman Road to Route 31

43C: Exit 43 to Route 96 to Alderman Road to Route 31

43D: Exit 43 to Route 96 to Canandaigua Road

44A: Exit 44 to Route 96 to Canandaigua Road

44B: Exit 44 to Collette Road to Canandaigua Road

44C: Exit 44 to Loomis Road to Hook Road to Martz Road to Canandaigua Road

44D Exit 44 to Loomis Road to Hook Rd. to Allen Padgham Road to Canandaigua Rd.

45A: Exit 45 to Route 96 to Route 250 to Route 31

These routes are displayed in **Figure 5**.

The travel time was calculated in three different manners – travel time from the closest thruway exit, travel time from Exit 43 for trucks traveling from the East, and travel time from Exit 45 for trucks traveling from the West. The distance between Exit 43 and 44 is 7.3 miles (6.7 minutes) and the distance between exit 44 and 45 is 3.9 miles (3.6 minutes). The travel times do not account for delays at traffic signals, stop signs and toll booths.

Table 6 provides a summary of the calculated travel times for each of nine alternative routes. Based upon the travel time calculations for both eastbound and westbound trucks, 7 alternate routes were found to be the best. For trucks traveling Eastbound, 43A, 43B, and 43C were determined to be the quickest routes (all with travel times less than 13 minutes). For trucks traveling Eastbound, 44B, 44C, 44D, and 45A were found to be the quickest routes (with travel times between 14 and 16 minutes). However, because traffic signal delays, traffic, stop signs, and other delays were not taken into account, these routes are not completely accurate. Clearly, there are several potential travel routes that are likely to experience similar travel times to the Route 21 travel route. The most obvious alternative to Route 21 is Alderman Road (CR 8) which can be accessed from Route 96 in the Town of Farmington,
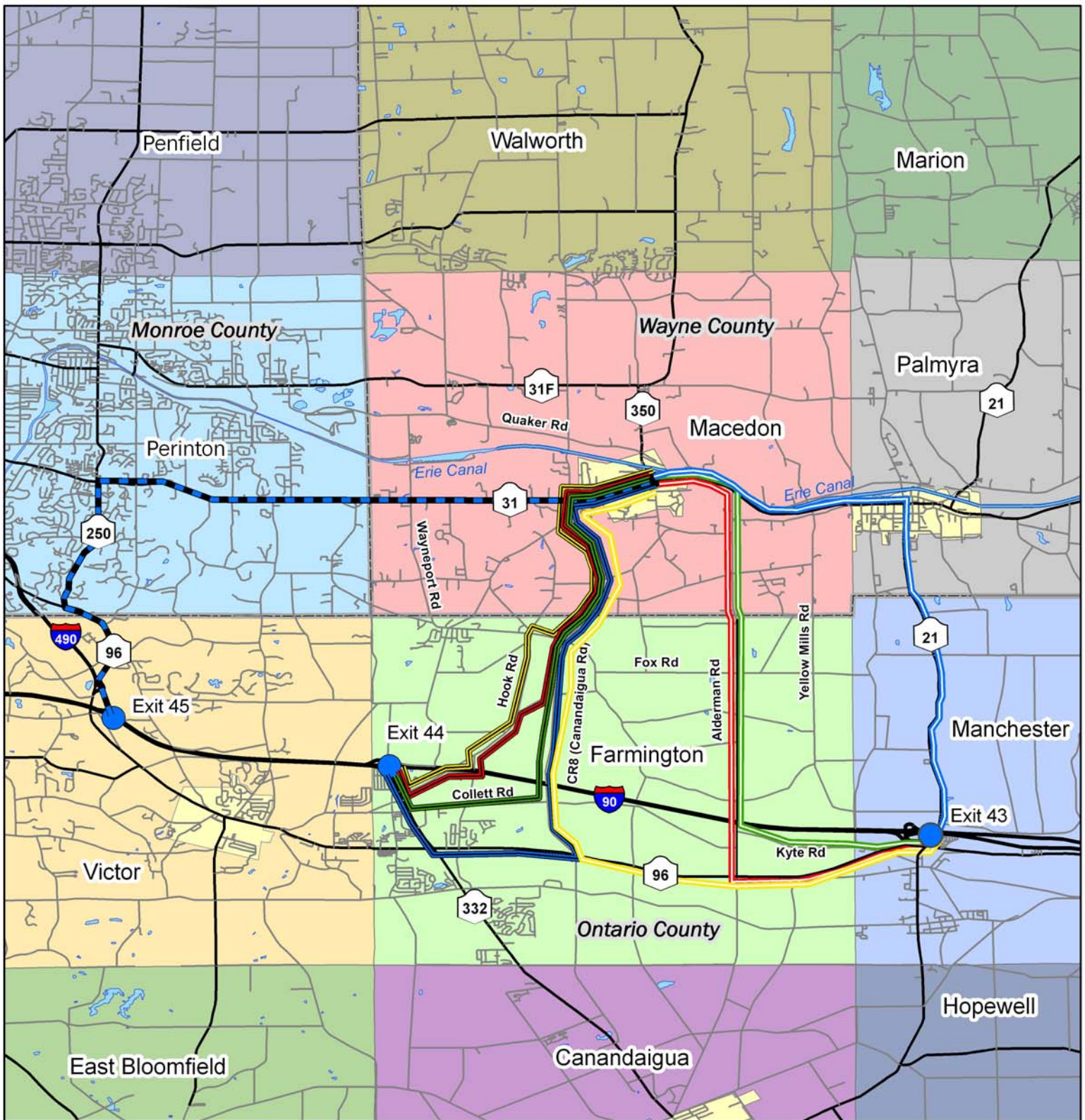
FRA

Penfield

Walworth

Marion

Monroe County

Wayne County

Palmyra

31F

350

Quaker Rd

Perinton

Erie Canal

Macedon

Erie Canal

21

31

250

Wayneport Rd

21

490

96

Hook Rd

Fox Rd

Yellow Mills Rd

Manchester

Exit 45

Exit 44

CR8 (Canandaigua Rd)

Farmington

Alderman Rd

Exit 43

90

Collett Rd

Kyte Rd

Victor

96

332

Hopewell

Ontario County

East Bloomfield

Canandaigua

Legend

Route 43A	
Route 43B	
Route 43C	
Route 43D	
Route 44A	
Route 44B	
Route 44C	
Route 44D	
Route 45A	

N
W   E
S

0 0.5 1   2
Miles

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Truck Study

Figure 5:
Alternative Routes

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connecting to Route 31 in the Town of Macedon. The one disadvantage of this route is the lack of a traffic signal at Alderman Road's termination with Route 31.

Table 6   Travel Time Summary of Potential Alternative Truck Routes

Route	Road Distance	Travel Time (Minutes)	Travel Time from Exit 43 (East)	Travel Time from Exit 45 (West)
43A	9.4	12.4	**12.4**	22.7
43B	10.0	12.4	**12.4**	22.7
43C	10.8	12.6	**12.6**	22.9
43D	13	15.1	15.1	25.4
44A	11.5	13.5	20.2	17.1
44B	9.8	12.3	19	**15.9**
44C	8.7	11.2	17.9	**14.8**
44D	9.0	11.4	18.1	**15**
45A	11.4	15.7	26	**15.7**

It has not been the intent of this study to just try to shift the impacts of heavy vehicles from one community to another. In the past, the impacts of debris trucks have been noticeable to Palmyra residents. While Waste Management has high standards for their own vehicles, non-affiliated trash haulers do not necessarily have the same high level of vehicle maintenance for their debris trucks. As a result, out of region debris (predominantly from the New York City Metropolitan area) headed to the High Acres landfill passes through Palmyra, and these haulers are the primary cause of concern. Poorly maintained vehicles, with loud exhaust, poorly maintained brakes, and vehicles poorly tied down or visibly leaking sewage all contribute negative environmental impacts to the Town and Village of Palmyra without directly contributing to the maintenance of the road system.

Given the urban nature of the village of Palmyra, the proximity of single family homes, and the location of one elementary school and one day-care center, the concern seems understandable that there must be an alternative travel route that would inconvenience its residents to a significantly less degree than on Route 21 through the village, particularly during the early morning hours. The rationale for a potential sharing of Rt. 21's debris truck traffic with Alderman Road, as an example, makes sense in that the High Acres Landfill is partially located in the Town of Macedon, and

therefore the Town receives tax payments from the landfill that could be used to help fund roadway improvements on roads within the Town of Macedon experiencing increased heavy vehicle use. While not trying to pit one community against another, it is worth pointing out the disproportionate impacts of landfill traffic as perceived by many residents within the Town and Village of Palmyra without any visible benefits.

H. Request for Designation of Qualifying Access-Highway

As documented in this study, there are currently no viable truck restriction methods to keep heavy vehicles from using Route 21, even as a time of day restriction. There is, however, a way to give Special Dimension Vehicles (48' x 102" trailers, twin 28'6" tandem trailers, maxicubes, triple saddlemounts, autocarriers, boat transporters, beverage semi-trailers, and 53" trailers with 41' kingpin distance) the option to use an alternative qualifying access highway, including potentially Alderman Road. The Town and/or Village of Palmyra can make an official request to NYSDOT to have any road designated as a Qualifying State Access Route. In fact, this request can come from anybody who has a vested interest in having a highway designated.

The process requires that a requestee submit a letter to NYSDOT stating that they want special dimension vehicles to be allowed to operate on a particular roadway from Point A to Point B. A map of the proposed route also needs to be submitted with this request   NYSDOT will review the request and unless denied, it becomes automatically approved after 90 days. If the route contains local highways, then the jurisdiction has the right to request a public information meeting. For a county road, such as Alderman Road, this would give both the Towns of Farmington and Macedon the right to request such a meeting. The only allowable reasons for denying a designation per NYSDOT policy are insufficient width, significant offtracking, and accident history. While this designation would not necessarily result in the shift of any heavy truck traffic, it certainly gives the regional truck routing system more flexibility and allows for trucks diversions in the event of road construction on Route 21.

Chapter 5. Environmental Concerns

Chapter 5 examines how mobile sources, and heavy vehicles, in particular, contribute to degradation in air and noise quality. There exist today methods to quantify these environmental impacts and to enforce existing regulations.

A. Air Quality - Particulate Matter

Particulate matter is the term used for a mixture of solid particles and liquid droplets found in the air. Fine particles (less than 2.5 micrometers) often come from diesel buses and trucks. Particulate matter (PM) is a health concern because they easily reach the deepest recesses of the lungs. Health problems that can result from particulate matter reaching the lungs include asthma, bronchitis, premature death, and decreased lung function. The ingestion of particulate matter is most dangerous to the elderly, individuals with preexisting heart or lung disease, and children (especially asthmatic children).

The US Environmental Agency provides emissions standards for two categories of particulate matter with a width of 10 micrometers (μm) or less. The two categories that fall within this classification are PM2.5 (fine particles less than 2.5 μm in width) and PM10 (inhalable course particles less than 10μm in width but greater than 2.5 mm). For reference, an average human hair is 70μm in width.

For PM2.5, a 24-hour standard of 35micrograms per cubic meter ($\mu g/m^3$) was adopted by the US EPA in 2006. This is a reduction from the previous standard of 65$\mu g/m^3$. The annual limit is 15 $\mu g/m^3$. For PM10, the standard remained the same at a maximum exposure of 150 $\mu g/m^3$.

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B. PM2.5 Emissions Calculation

FRA conducted an emissions calculation to determine how much PM2.5 is added by existing traffic volumes. In order to determine this, the 2004 vehicle classification data was used with the following additional tools:

1. Mobile 6.2 emissions model – used to determine running emissions per mile for PM2.5 given the vehicles classification breakdown recorded on Route21;
2. ROADMAP software program – a program created by NYSDOT to input spatial and traffic volume data (including the location of air quality receptor locations). This program pre-processes the data into a format acceptable to:
3. CAL3QHC, the software program approved by the USEPA for determining spatial PM 2.5 emissions ($\mu g/m^3$).

Using the programs identified above, emissions calculations were determined for each hour of the day and then summed to provide a daily PM 2.5 emissions ($\mu g/m^3$). This resulted in a calculation of 6.1 $\mu g/m^3$. This is the daily level, which is significantly below the 24-hour EPA designated limit and also below the annual average limit. This volume does not include background concentrations which must be field measured.

The emissions calculation assumed that the vehicles traveling on Route 21 match the regional emissions average, based on regional vehicle registration data from the New York State Department of Motor Vehicles. It does not, therefore, account for high polluting vehicles, which may exist on Route 21. The only way to determine the actual air quality due to mobile sources would be to conduct an air quality measurement using an air quality monitor.

An air quality monitor is a mobile device capable of measuring airborne concentrations of various pollutants. For particulate matter, the costs of monitors can vary greatly depending on the accuracy required and the use of these measurements; however, for the purposes of identifying an emissions problem at the conceptual level, an air quality monitor costing in the $500-$800 range can be acquired.

Image of DustScan Scout® Aerosol Monitor Shown with Permission of Thermo Fischer Scientific

C. Noise

New York State Vehicle and Traffic Law 386 applies to motor vehicle sound level limits. For vehicles traveling 35mph or less and weighing an excess of 10,000 pounds, 86dB (A) is the allowable limit. For vehicles traveling over 35mph, which would apply to Route 21 within the Town of Palmyra, the allowable limit is 90 dB (A). Different standards apply to motorcycles and vehicles with weights less than 10,000 pounds.

Noise monitors are commercially available to measure mobile noise emitters. The Village of Albion police department currently uses a noise meter. A meter is fairly affordable ($500-600). Noise enforcement would have to be conducted by either the Village of Palmyra police of the Wayne County Sherriff's Department. Given the concern about the heavy truck activity during the early morning
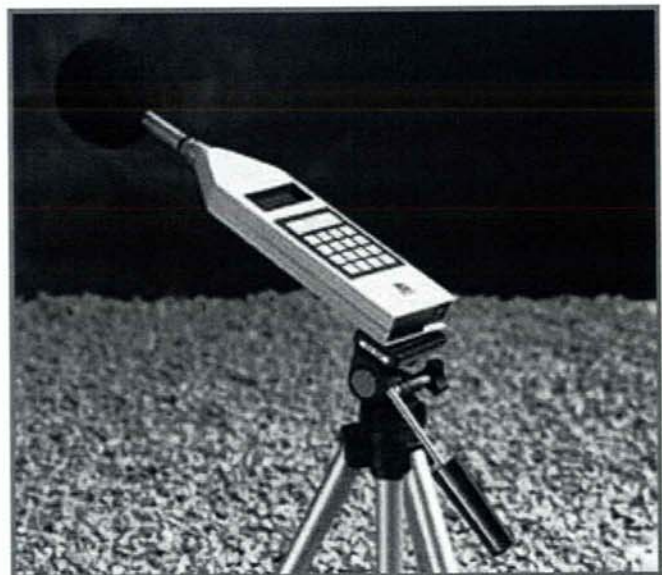

Image of Noise Monitor Shown with Permission of OHD, LLC

hours, the use of noise monitor enforcement should be considered between 5:00 and 10:00 AM.

D. NYSDOT's Role in Air Quality and Noise

There is significant state regulation supporting upper level limits on both the emission of particulate matter from cars and trucks (called mobile sources) and noise level limits. NYSDOT's primary responsibility, however, is to ensure that all projects, both public and private sector development, do not create mobile source air quality or noise impacts. The use of these limits for existing emissions is limited. While this may seem contradictory i.e. why set a standard and then not enforce it for existing conditions, a perfect example is the use of sound walls. Many interstate highways were built well in advance of the development of modern noise barrier design, and as a result, many residents unfortunate to live along the route of an interstate highway, especially in an urban area, were subjected to noise levels that we now recognize as being excessive. Now, if the state were to try to mitigate every interstate highway with noise exceedances, other vital activities, including road and bridge maintenance, would have to suffer and even then it would likely take many years to address all of these noise deficiencies.

Air quality and noise exceedances are used by both the Genesee Transportation Council and NYSDOT to help justify roadway improvement projects, which must be designed to meet all state and federal standards, including air quality and noise standards. A project qualifying for inclusion in the regional Transportation Improvement Program must be scored based on a range of evaluation criteria which includes environmental impacts, such as air quality and noise. Admittedly, based on the scoring system, an air quality or noise problem alone would not likely be enough to merit selection based on this scoring system as congestion and safety-related issues receive considerably more weight.

E. Mobile Source Emissions Enforcement

NYSDOT, the New York State Police and the New York State Department of Environmental Conservation (ENCON) all have a role in the monitoring and

enforcement of mobile sources emissions. Funds for monitoring are quite limited, and as a result, monitoring is typically focused both in air quality exceedances areas (i.e., Downstate New York) and locally in higher-trafficked areas, such as at higher-volume New York State Thruway Exits. Air quality monitoring has been conducted on occasion, but this effort is typically reliant on outside funding (a study is currently being conducted in Tonawanda (Buffalo metropolitan area) that is being funded by a USEPA grant).

Despite the funding limitation, any or all of the three state agencies could help the Town and Village of Palmyra by conducting limited, periodic safety inspections on heavy vehicles along the Route 21 corridor. The support of local legislators might be needed to help prioritize the Route 21 corridor over other locations. These inspections could be as limited as one to two times per year, and the benefits include documentation of repeat emitters, and the development of regional awareness of the heavy vehicle problems in Palmyra. While heavy vehicle issues may not be an isolated issue to Palmyra compared to other rural upstate communities, it is often the hard work and perseverance of local citizens that can result in eventual progress.

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Chapter 6. Action Plan

The results of the technical analyses conducted for this study have been presented in the previous Chapters. Chapter 6 focuses on the development of an Action Plan. It is clear that there is no "panacea" solution that will solve the heavy vehicle problem on Route 21 in Palmyra. What we have found through the review of state regulations, past experience, and current practice is that a wide range of efforts are needed to continue to address heavy vehicle issues. FRA has identified recommendations that we have grouped into the following four broad categories:

A. Capital Improvements
B. Enforcement
C. Persuasion
D. Environmental

Each of these categories is essential to making positive steps toward addressing heavy vehicle use on Route 21 through the Town and Village of Palmyra. This study has not attempted to prioritize these recommendations, instead linking all of the recommendations as equally important. You also cannot focus on one of these categories if you truly want to make progress. The study recommendations are described below, subdivided into the three Action Plan categories.

A. Capital Improvements

1. Improve Northbound Traffic Conflicts Near the Palmyra Elementary School
The northbound travel lane on Canandaigua Street (Route 21) is not wide enough in the vicinity of the Palmyra Elementary School to accommodate both one lane of travel and curbside parking. Potential solutions to this include:
- Restriping the double yellow line to the west by four feet to provide an 11-foot wide southbound travel lane, and a 19-foot wide northbound travel lane (including eight feet for curbside parking), or

- The widening of the eastern curb along the school frontage by two to three feet to provide recessed parking spaces. This would allow for full-width travel lanes (12 feet) plus an eight to nine foot parking area).

2. Pursue State or Federal Funding for Long-Term Transportation Improvements

One long term option to consider is to build a truck bypass route around the Village of Palmyra. This bypass would need to be included in the long-range transportation plans for both the Town and Village of Palmyra. While this option might be very expensive, new roads must first be included on a Local long-range transportation plan before a potential project can be considered for funding by the Genesee Transportation Council and NYSDOT. Significant environmental study would likely be needed to determine the cost, benefits and feasibility of such a bypass.

B. Enforcement

1. Targeted Enforcement

Some of the recommendations for solving the truck problem in Palmyra consist of simple enforcement actions by local police officers and other members of the community. We recognize that the Palmyra police department has limited resources and is currently enforcing the existing speed limits in as an effective manner as possible; however, the police force does have the entire Village to patrol, so constant coverage of the Route 21 corridor is obviously not practical nor cost effective.

Our recommendation is to target early morning hour heavy vehicles that are causing the largest threat to school children and pre-dawn peace and quiet in the village. Targeted hours could be between 5 and 10am. While it is difficult to restrict trucks in all but rare circumstances (for example to prevent further damage to the highway), trucks can be ticketed more frequently for having other problems – such as excessive noise, speed, and vehicle upkeep. The more that

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these trucks are targeted and ticketed for these other problems, the less likely they are to travel through Palmyra to reach their final destination.

2. Request Enforcement Assistance from the State

Periodically, assistance from the state could be requested, such as the New York State Police, the New York State Department of Environmental Conservation or the New York State DOT to help with commercial vehicle enforcement. This may not be an effective deterrent to habitual offenders, but it does increase awareness at the state and regional level of the problem and creates documentation.

3. Consider Using Portions of the Air Quality Grant to Fund State Assistance/Involvement

It was noted that due to limited funding, state forces were focused on either more urban areas or at major interchanges. The partial funding of state forces for commercial vehicle enforcement should be explored, with the emphasis on reducing emissions along the Route 21 corridor.

4. Obtain the Tools and Training Necessary to Enforce Environmental Factors, such as emissions and noise

Specifically, trucks can be ticketed for outputting more than the allowed emissions (particulate matter) if there are proven methods to measure these violations. With emissions, the less costly method is to focus on vehicle maintenance, or to obtain outside assistance, including state forces, to provide equipment and manpower. Air quality monitors and noise monitors guns could be used to help in these efforts and these devices can be fairly affordable (less than $1,000 to purchase each). Wayne County is administering a $20,000 air quality grant to address heavy vehicle issues in Palmyra, and consideration should be given to use a portion of these funds, if possible, for the purchase and training of air quality and noise monitoring equipment.

C. Persuasion

1. Local Vigilance and Communication

By working together as a community, the residents of Palmyra may be able to help document who the offenders are. If an excessive loud, poorly maintained or visibly polluting truck passes by, citizens should be encouraged to write down illegal and unnecessary activity such as excessive air braking and speeding through the village. The Palmyra community needs to use this information to encourage these offenders to be better neighbors. When obvious violators are noticed, the identification of the business name on the heavy vehicle, the license plate number, the time of day, and the observed violation should be noted.

2. Communication with Local Businesses

Another option would be to meet with businesses that attract high truck volumes, such as the High Acres Landfill, the future Wal-Mart and Lowe's on Route 31, and other businesses. Alerting these businesses of the problems that the trucks are causing in Palmyra could lead to an increased awareness and alertness of the problem and could possibly lead to some improvements. Additionally, when meeting with these business owners, an update on local efforts could be provided, such as the increased enforcement, and air quality and noise monitoring studies.

The Village of Palmyra has been actively pursuing this strategy, and as a result of letter writing to both Wal-Mart and Lowes, has obtained a commitment from these two retailers to stock their new Macedon stores from the west (Monroe County), not through Palmyra. In addition, Palmyra is continuing to coordinate with the High Acres Landfill, and should continue to encourage this business to direct their customers to use other access roads, particularly during the early morning hours. Per local experience, landfill-bound trucks that emit louder noise or odors are not trucks operated by the High Acres Landfill (Waste Management, Inc.), but contract debris haulers, typically hauling debris from the New York City Metropolitan area or other parts of the state. Encouraging High Acres to enforce their own rules on

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truck safety and cleanliness to their contract haulers can have benefits to Palmyra.

3. Impact of School Buses to Emissions

In order to continually provide safe air quality in Palmyra, a request for school buses to reduce emissions could also be suggested. This would not only help air quality but show a willingness from the local community to work together to improve the problem. At a minimum, it might be productive simply for there to be an exchange between the Town/Village and the school district to learn about the state or federal requirements that the school district has to comply with, from less-polluting diesel fuels to reduced idling of school buses. It is likely that the school district is in fact currently facing many of these requirements already in meeting their daily responsibilities.

D. Environmental

5. Hire an Air Quality Specialist to Measure the Existing Air Quality

This study prepared an emissions calculation for PM2.5, but this alone is insufficient. Actual air quality measurements are needed to quantify how close the actual emissions are to the US EPA standards for PM2.5. This should be focused not on individual vehicles, but on areawide concentrations of PM2.5. Coordination with an environmental consultant or a University with environmental research and testing capabilities should be pursued.

6. Obtain the Tools and Training Necessary to Enforce Environmental Factors, such as emissions and noise

This recommendation was identified under the enforcement section, but these tools have value not just in identifying and ticketing violators, but also in quantifying the problem.

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7. Pursue State or Federal Funding for Air Quality and/or Noise Mitigation

Increased documentation can only help raise awareness at the regional or state level. This could help in obtaining increased funding or state or federal assistance to address the problems.

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Palmyra Route 21 Truck Study
Technical Appendices

- Appendix A – News Article and Public Meeting Study Presentation
- Appendix B – Traffic Count Data
- Appendix C – Accident Data
- Appendix D – Emissions Worksheets
- Appendix E – Air Quality and Noise References

Appendix A – News Article and Public Meeting Study Presentation

Traffic woes still a worry in Palmyra

By TRACEY CURREY
Courier-Journal Editor
Posted: Mar 1, 01:00 PM EST

Trucks and noise may be annoying, but there's not much recourse for residents on Route 21 South.

PALMYRA — Discovering that their truck traffic woes actually fall within official acceptable levels, state Route 21 South residents now face the question of what — if anything — they can do to next.

At an informational meeting held at the Palmyra Town Hall Wednesday night, about 35 people heard FRA Engineering Consultant Steve Aldrich outline the results of a truck-traffic study.

"Even though the road is owned by the village, it is a touring route," Aldrich said. "Trucks are allowed on this road and cannot be prohibited."

FRA Engineering was hired to perform a traffic count and air quality assessment after an informal grassroots committee, working with town and village officials for about five years, got a $16,000 grant from the Genesee Transportation Council. The town and village both contributed an additional $2,000.

Canandaigua Street residents have counted trucks passing by their doors, and found that on a daily basis between 500 and 600 tractor trailers use that route though Palmyra from Exit 43 on the state Thruway. FRA's estimates confirm that number, as did a state Department of Transportation count taken in 2004. Total traffic is about 5,270 vehicles per day.

Aldrich added that although there have been documented accidents with injury on that stretch of road, the number falls within the state's acceptable range.

"Unfortunately, decisions are most times based on actual accident data," he said. "They haven't happened there yet."

Soot from passing tractor trailers and other vehicles also fell within mandated levels, residents were told. FRA estimated about 6.1 micrograms per cubic meter of "particulate matter" daily, while Environmental Protection Agency standards are 15. And, he added, FRA's study did not factor out school buses and cars idling at the Palmyra Elementary School, or emissions from area businesses and industry.

Early morning noise, although an annoyance to residents, too, fell within required decibel levels.

"It's certainly not conducive to sleeping," Aldrich said, "but if you're in the village, you almost have to put up with it if it's within the law."

There are some measures to be considered at the local level.

As one option for eliminating traffic through the village, various routes through Canandaigua and Farmington as well as on Alderman Road in Macedon were explored, but not necessarily recommended as a solution.

"It's not in anyone's best interest to shift the problem onto someone else," Aldrich said.

A second — further documenting air and noise quality through additional studies — is already in the

works. Requests for bids for an air-quality test, funded by a $20,000 grant from the Griffith-McLouth Foundation, are now being accepted through the Wayne County Planning Department.

Palmyra Mayor Vicky Daly indicated that "good neighbor" communication efforts were being initiated with representatives of nearby Lowes and Wal-Mart stores regarding traffic. A representative from High Acres Landfill in Macedon at the meeting expressed his company's desire to work with local municipalities.

Some residents indicated a desire for Palmyra officials to keep looking for solutions.

"Keep going, but within reason," said Canandaigua Street homeowner Steve Landgrebe. "You can throw a whole lot of money at it, but if the state says you can't do anything, then you're just spending a whole lot of money."

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Palmyra Route 21 Truck Study

February 28, 2007 Public Meeting
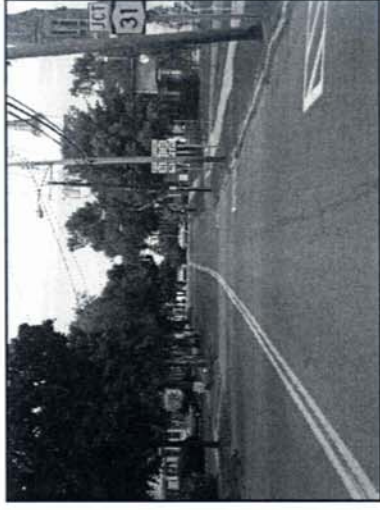
Purpose of Meeting

> Study Team Introduction

> Current Efforts

   – Data Collection & Observations

   – Identification & Evaluation of Strategies

   – Development of Action Plan

> Air Quality Monitoring Study

   – Separate Effort to Begin Later This Year

   – $20,000 Grant

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Current Efforts

> Traffic and Pedestrian Volumes

> Accident Analysis

> Alternative Truck Routes

> Truck Restriction Assessment

> Mobile Source Noise

> Mobile Source Emissions

> Conduct Mobile Source Emissions Estimate

> Prepare Report – Action Plan

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Traffic Counts & Accident Data

> Route 21 Traffic Volumes

– 5,270 vehicles per day – 11% heavy vehicles

– 360 vehicles – 8-9 AM – 18% heavy vehicles

– 355 vehicles – 2-3 PM – 14% heavy vehicles

> School-Age Children Crossing Route 21

– Main Street crosswalks –

- 16 pedestrians – 8-9 AM
- 31 pedestrians – 2:30-3 PM

– Jackson Street crosswalks –

- 50 pedestrians – 8-9 AM
- 50 pedestrians – 2:30-3 PM

> Only one Accident in Village on Route 21 (2001-2003)

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Character of Route 21 in Village

> Concerns in Town and Village about tractor trailers using Route 21 (Canandaigua Street/Road)

> Residential Character of Canandaigua Street

> Palmyra Elementary School and St. Anne's daycare center – school-age pedestrians crossing Canandaigua Street

> The Four Corner Churches

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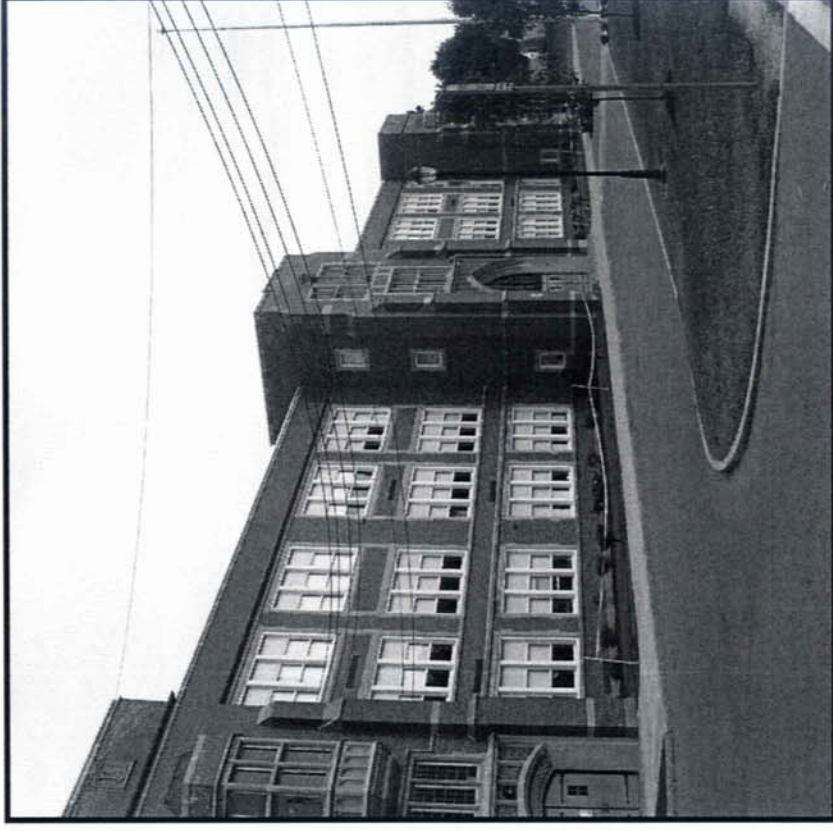
Tractor Trailer Concerns

> Increased Road Maintenance "wear and tear" – Village owns Canandaigua Street

> SW Corner – curb overriding by trucks turning right onto Route 21

> Early Morning Noise – Truck braking using "air brakes" or rattling

> Soot – Particulate matter may be harmful to residents

> Safety concerns with school

> Local versus through trucks

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Alternative Truck Routes

Legend
- Route 43A
- Route 43B
- Route 43C
- Route 43D
- Route 44A
- Route 44B
- Route 44C
- Route 44D
- Route 45A

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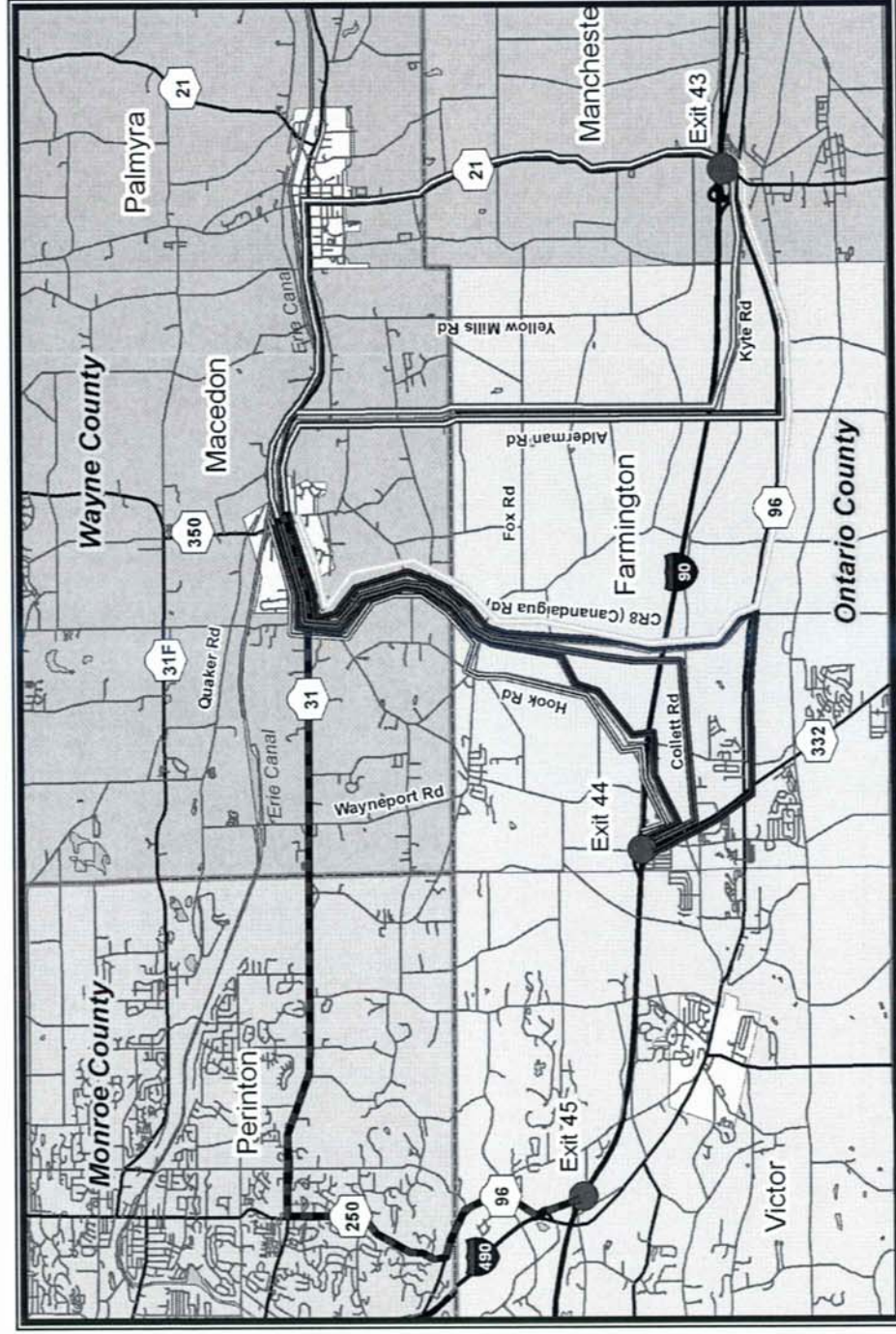
Truck Route Analysis

> Trucks from the NYS Thruway to Macedon Village

> Route from the East – Alderman Road as fast as Route 21 (Exit 43)

> Route from the West similar from Exit 44 or Exit 45

Route	Details	Road Distance (Miles)	Travel Time (Minutes)	Travel Time from Exit 43 (Minutes)	Travel Time from Exit 45 (Minutes)
43A	Exit 43 up Route 21 to Route 31 (current route)	9.4	12.4	12.4	22.7
43B	Exit 43 to Kyte Road to Alderman	10.0	12.4	12.4	22.7
43C	Exit 43 to Route 96 to Alderman	10.8	12.6	12.6	22.9
43D	Exit 43 to Route 96 to Canandaigua Rd	13	15.1	15.1	25.4
44A	Exit 44 to Route 96 to Canandaigua Rd	11.5	13.5	20.2	17.1
44B	Exit 44 to Collette Rd to Canandaigua rd	9.8	12.3	19	15.9
44C	Exit 44 to Loomis Rd to Hook Rd to Martz Rd to Canandaigua Rd	8.7	11.2	17.9	14.8
44D	Exit 44 to Loomis Rd to Hook Rd to Allen Padgham Rd to Canandaigua Rd	9.0	11.4	18.1	15
45A	Exit 45 to Route 96 to 250 to Route 31	11.4	15.7	26	15.7

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Truck Routes

> Protected under Federal legislation for primary state highways

> Route 21 – is a primary state highway (touring route)

> Long-term bypass of Canandaigua Street needs to be considered

> Time of day truck restrictions must be based on documented safety problems

> NYSDOT currently has no time of day restrictions in place statewide

Palmyra Route 21 Truck Study

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Noise

> NYS Vehicle & Traffic Law §386 –

  – 86dB(A) with speed limit of 35 mph or less

  – Applies to motor vehicles > 10,000 lbs.

  – Different standards for motorcycles and vehicles with speed governor

  – Measurements - a distance of 50 ft from sound source or building faces, if closer

> Tractor-trailers typically operate with sound levels in the low to mid 80s dB(A) range

> Noise measurements can be easily conducted in the field

Image of Noise Meter shown with permission of OHD, LLC

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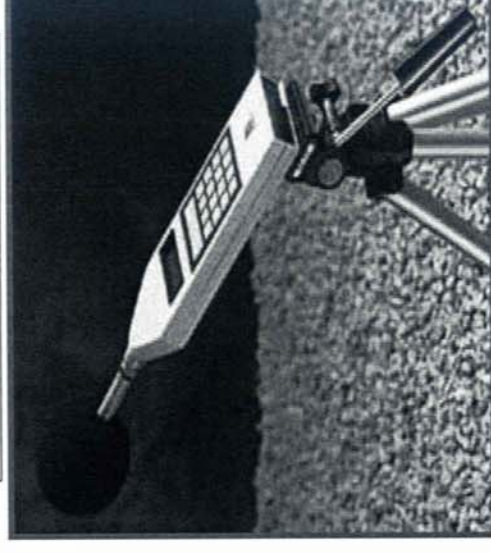
Particulate Matter Emissions

> PM_{10} – Visible – "Soot"

> $PM_{2.5}$ – Microscopic

> $PM_{2.5}$ – health concern – accumulation of particles in lungs – primarily caused by mobile sources (vehicles)

> Populations at risk
 – Elderly
 – Children

> EPA has PM standards

> PM can be measured in the field

Image of DustScan Scout® Aerosol Monitor shown with permission of Thermo Fisher Scientific

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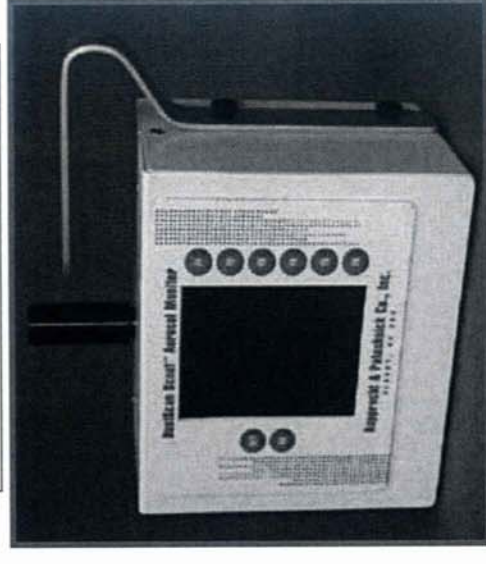
Mobile Source Emissions Estimate

> FRA estimates that existing mobile sources on Route 21 creates 6.1 micrograms/meter^3 (μgm/m^3) of PM$_{2.5}$ on a daily basis

> Lowest PM$_{2.5}$ Standard set by EPA
  - 24-hour standard of 35 μgm/m^3
  - 3 year average - 15 μgm/m^3

> Does not include background concentrations (must be field measured)

> Unless background concentrations are high (due to stationary sources and wind transport), EPA standard is likely not exceeded

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Options to Pursue

> Enforcement

   – Ensure compliance with existing laws

> Persuasion

   – Get business to assist in keeping addressing concerns

> Environmental

   – Document the air quality and/or noise problems and work with State to address

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Enforcement Options

> Aggressive Enforcement on Route 21
  - Target Morning Hours (5-10 AM)

> Request Periodic Assistance from State
  - NYS Police - Commercial Vehicle Enforcement
  - NYSDOT

> Enforcement of Speed, Noise, Emissions
  - Vehicle inspection (poor maintenance = poor emissions)
  - Noise monitor
  - Radar gun – targets speeding trucks (higher speeds =increased noise)

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Persuasion Options

> Meet with Business with High Truck Volumes

  – Landfill

  – Wal-Mart (Future)

  – Lowes (Future)

  – Others

> Provide Update on Efforts to Reduce Pollution

  – Increased enforcement during the morning hours (5-10 AM)

  – Request for school district to consider use of alternative fuels for school buses to reduce idling emissions

> Request Use of Alternative Truck Routes

  – During the morning hours (5-10 AM), or

  – All the time

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Environmental Options

> Conduct Air Quality Measurements

> Conduct Noise Measurements

> Compare Measurements with State Standards

> Prepare Documentation of Measurements

> Coordinate with NYSDOT, NYSDEC and the GTC on Findings

> Pursue State Funding for Air Quality and/or Noise Mitigation

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Conclusions To-Date

> All Three Options Should Be Pursued

  – Enforcement

  – Persuasion

  – Environmental

> Prepare Report Summarizing Effort

> Proceed with Air Quality Monitoring Study

> Obtain Funding for and Initiate Noise Monitoring Study

> Long Term – Add a Route 21 Bypass into Town and Village Comprehensive Plans

> **We Want Your Feedback!**

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Palmyra Route 21 Truck Study

February 28, 2007 Public Meeting
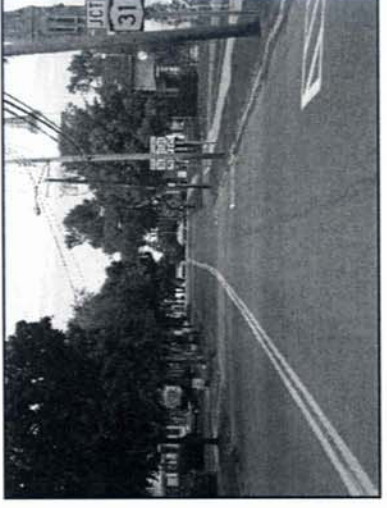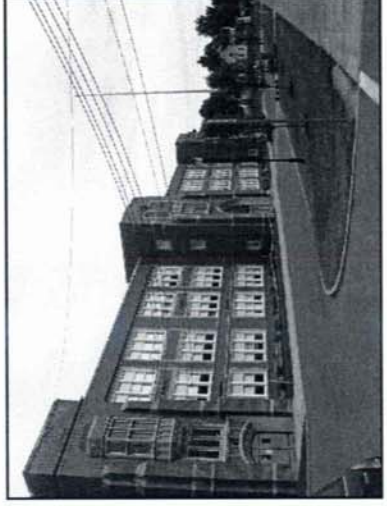
Thank You

Appendix B – Traffic Count Data

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

ROUTE #:	NY 21	ROAD NAME:	YEAR: 2004	STATION	470494
COUNTY NAME:	Wayne		MONTH: April		

	North	South	TOTAL
NUMBER OF VEHICLES	2852	2417	5269
NUMBER OF AXLES	6532	5336	11869
% HEAVY VEHICLES (F4-F13)	12.13%	8.40%	10.42%
% TRUCKS AND BUSES (F3-F13)	29.00%	28.30%	28.68%
AXLE CORRECTION FACTOR	0.87	0.91	0.89

REGION CODE: 4
FROM: TOWN OF PALMYRA VILLAGE OF P
TO: START 31 OLAP PALMYRA
REF-MARKER: 21 37061013
END MILEPOINT: 0610166   NO. OF LANES: 2
FUNC-CLASS: 06   HPMS NO:
STATION NO: 0494
COUNT TAKEN BY: ORG CODE: R04 INITIALS: EKG
PROCESSED BY: ORG CODE: R04 INITIALS: RC   BATCH ID: R04-R04EWW17A

| 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	11	1	0	0	0	0	0	1	0	0	0	0	13
2:00	0	5	1	0	0	0	0	0	4	0	0	0	0	10
3:00	0	2	1	0	0	0	0	0	1	0	0	0	0	4
4:00	0	7	1	0	0	0	0	0	1	0	0	0	0	9
5:00	0	6	1	0	0	0	0	0	1	0	0	0	0	8
6:00	0	36	10	0	0	0	0	1	5	1	0	0	0	52
7:00	0	73	27	0	1	1	0	1	21	3	0	1	0	128
8:00	0	124	26	2	3	3	1	3	14	2	1	1	1	181
9:00	0	103	30	1	5	3	2	2	18	5	0	1	1	171
10:00	0	102	26	0	2	1	1	0	16	1	0	0	0	149
DIRECTION North 11:00	2	98	22	0	4	2	0	2	20	1	0	0	0	151
12:00	2	103	33	0	6	2	2	2	20	2	0	0	0	172
13:00	0	101	25	0	3	2	0	2	13	2	0	0	0	148
14:00	1	118	31	1	2	2	3	4	16	4	0	1	1	184
15:00	1	125	34	1	6	2	0	4	16	2	0	0	0	191
16:00	1	167	41	1	4	3	0	3	8	0	1	0	1	230
17:00	2	183	42	1	3	1	0	3	8	0	1	0	1	245
18:00	0	179	36	1	1	0	0	2	5	0	0	0	0	224
19:00	0	149	27	1	1	0	0	1	2	0	0	0	0	181
20:00	0	107	32	0	0	0	0	0	1	0	0	0	0	140
21:00	1	95	16	0	1	0	0	1	1	0	0	0	0	115
22:00	0	68	11	0	1	0	0	1	1	0	0	0	0	82
23:00	0	32	4	0	1	1	0	0	1	0	0	0	0	39
24:00	0	21	3	0	0	0	0	0	1	0	0	0	0	25
TOTAL VEHICLES	10	2015	481	9	44	23	9	31	195	23	3	4	5	2852
TOTAL AXLES	20	4030	962	22	88	69	36	108	975	138	15	24	44	6532
ENDING HOUR 1:00	0	6	1	0	0	0	0	0	0	0	0	0	0	7
2:00	0	5	0	0	1	0	0	0	0	0	0	0	0	6
3:00	0	3	2	0	0	0	0	0	0	0	0	0	0	5
4:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
5:00	0	8	2	0	0	0	1	0	0	1	0	0	0	12
6:00	0	22	11	0	0	0	0	0	0	1	0	0	0	34
7:00	1	90	30	1	1	1	1	0	1	1	0	0	1	128
8:00	1	133	32	0	1	2	1	1	2	2	0	0	1	176
9:00	2	56	16	1	0	1	0	0	1	4	0	1	0	82
10:00	2	106	24	1	3	2	2	1	7	10	0	1	0	159
11:00	0	92	26	0	3	2	2	1	4	6	0	0	0	136
DIRECTION South 12:00	0	76	24	0	4	2	2	0	2	4	0	0	0	114
13:00	1	106	33	0	2	3	0	0	3	4	0	0	0	149
14:00	2	90	36	1	2	3	1	0	8	5	0	0	0	149
15:00	2	108	34	2	2	4	1	1	7	4	0	1	0	163
16:00	2	116	29	0	4	3	1	0	3	2	0	0	1	161
17:00	1	124	41	1	2	1	1	2	4	3	0	0	1	181
18:00	2	162	39	0	1	2	0	1	2	2	0	0	0	212
19:00	0	130	29	0	0	1	1	0	1	3	0	0	1	166
20:00	1	93	30	0	1	1	1	0	1	1	0	0	0	129
21:00	0	77	16	1	0	1	0	0	1	1	0	0	0	97
22:00	0	65	12	0	0	0	0	0	1	0	0	0	0	78
23:00	0	30	8	1	1	0	0	0	0	0	0	0	1	41
24:00	0	15	5	0	1	0	0	0	0	1	0	0	0	23
TOTAL VEHICLES	17	1716	481	9	30	28	15	7	48	55	0	3	8	2417
TOTAL AXLES	34	3432	962	22	60	84	60	24	240	330	0	18	70	5336
GRAND TOTAL VEHICLES	27	3731	962	18	74	51	24	38	243	78	3	7	13	5269
GRAND TOTAL AXLES	54	7462	1924	45	148	153	96	133	1215	468	15	42	114	11868

TRAFFIC FLOW BY DIRECTION

— North   - -South
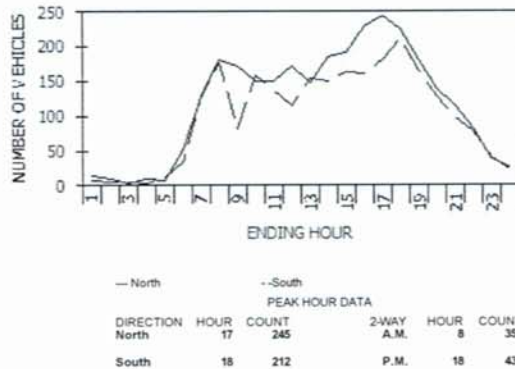
VEHICLE CLASSIFICATION CODES:

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

PEAK HOUR DATA

DIRECTION	HOUR	COUNT	2-WAY	HOUR	COUNT
North	17	245	A.M.	8	357
South	18	212	P.M.	18	436

SOURCE: NYSDOT DATA SERVICES BUREAU

New York State Department of Transportation
Traffic Count Hourly Report

ROUTE #: NY 21	ROAD NAME:	
DIRECTION: Northbound	FACTOR GROUP: 40	
STATE DIR CODE: 1	WK OF YR: 17	
DATE OF COUNT: 04/20/2004		
NOTES LANE 1: NB (1 LANE) CLASS		

FROM: TOWN OF PALMYRA VILLAGE OF P   TO: START 31 OLAP PALMYRA
REC. SERIAL #: 6062   FUNC. CLASS: 06
PLACEMENT: 40' S CHARLOTTE ST   NHS: no
@ REF MARKER: 21 37061013   JURIS: State
ADDL DATA: CC Stn:
COUNT TYPE: AXLE PAIRS   BATCH ID: R04-R04EVWW17A
PROCESSED BY: ORG CODE: R04 INITIALS: RC

COUNTY: Wayne
VILLAGE: PALMYRA
BIN:
RR CROSSING:
HPMS SAMPLE:

COUNT TAKEN BY: ORG CODE: R04 INITIALS: EKG

DATE	DAY	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12 (AM)	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12 (PM)	DAILY TOTAL COUNT	DAILY HIGH COUNT	DAILY HIGH HOUR
1	T																											
2	F																											
3	S																											
4	S																											
5	M																											
6	T																											
7	W																											
8	T																											
9	F																											
10	S																											
11	S																											
12	M																											
13	T																											
14	W																											
15	T																											
16	F																											
17	S																											
18	S																											
19	M																											
20	T	9	7	3	9	5	53	127	173	167	138	139	164	172	193	210	225	227	194	175	108	83	47	31				
21	W	13	11	3	8	11	49	134	202	280	160	153	189	198	189	222	227	214	169	127	114	97	32	17		2774	227	16
22	T	19	13	4	10	9	56	130	174	113	149	172	175	202	217	286	303	247	187	126	124	68	40	29		3217	303	16
23	F																											
24	S																											
25	S																											
26	M																											
27	T																											
28	W																											
29	T																											
30	F																											

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

12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	ADT
14	10	3	9	8	53	130	183	187	152	154	176	191	200	239	252	229	183	143	115	83	40	26	2935

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	% of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor	ADT
4	69	4	69	252	9%	1.000	0.950	2935

ESTIMATED (one way) AADT: 3089

ROUTE #: NY 21	FROM: TOWN OF PALMYRA VILLAGE OF P
STATION: 470494	PLACEMENT: 40' S CHARLOTTE ST
ROAD NAME:	TO: START 31 OLAP PALMYRA
STATE DIR CODE: 1	
	COUNTY: Wayne
	DATE OF COUNT: 04/20/2004

STATION: **470494**

New York State Department of Transportation
Traffic Count Hourly Report

ROUTE #: **NY 21** ROAD NAME:	FROM: **TOWN OF PALMYRA VILLAGE OF P**
DIRECTION: Southbound FACTOR GROUP: 40	REC. SERIAL #: 6009
STATE DIR CODE: 2 WK OF YR: 17	PLACEMENT: 40' S OF CHARLOTTE ST
DATE OF COUNT: 04/20/2004	@ REF MARKER: 21 37061013
NOTES LANE 1: SB (1 LANE) CLASS	ADDL DATA:
	COUNT TYPE: AXLE PAIRS
	PROCESSED BY: ORG CODE: R04 INITIALS: RC

TO: **START 31 OLAP PALMYRA**
FUNC. CLASS: 06
NHS: no
JURIS: State
CC Stn:
BATCH ID: R04-R04EVVN17A

COUNTY: **Wayne**
VILLAGE: **PALMYRA**
BIN:
RR CROSSING:
HPMS SAMPLE:

COUNT TAKEN BY: ORG CODE: R04 INITIALS: EKG

DATE	DAY	12 TO 1	1 TO 2	2 TO 3	3 TO 4	4 TO 5	5 TO 6	6 TO 7	7 TO 8	8 TO 9	9 TO 10	10 TO 11	11 TO 12	12 TO 1	1 TO 2	2 TO 3	3 TO 4	4 TO 5	5 TO 6	6 TO 7	7 TO 8	8 TO 9	9 TO 10	10 TO 11	11 TO 12	DAILY TOTAL COUNT	DAILY HIGH COUNT	DAILY HIGH HOUR
							AM										PM											
1	T																											
2	F																											
3	S																											
4	S																											
5	M																											
6	T																											
7	W																											
8	T																											
9	F																											
10	S																											
11	S																											
12	M																											
13	T																											
14	W																											
15	T																											
16	F																											
17	S																											
18	S																											
19	M																											
20	T	6	5	3	11	36	129	177	145	156	153	145	166	142	184	229	232	213	164	153	100	73	40	25		2639	222	16
21	W	6	7	4	10	41	130	157	23	160	121	88	133	169	195	212	222	212	167	116	86	83	45	23		2030	212	17
22	T	6	7	7	14	31	125	199					163	139	104	42	90	212	170	117	100	79	39	21				
23	F		4																									
24	S																											
25	S																											
26	M																											
27	T																											
28	W																											
29	T																											
30	F																											

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

8	6	5	5	12	36	128	178	84	158	137	116	154	150	161	161	181	212	167	129	95	78	41	23

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours		AVERAGE WEEKDAY		Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
					High Hour	% of day		
4	68	4	68		212	9%	1.000	0.950

ADT 2425

ESTIMATED (one way)
AADT 2553

ROUTE #: **NY 21** ROAD NAME:	FROM: **TOWN OF PALMYRA VILLAGE OF P** PLACEMENT: 40' S OF CHARLOTTE ST
STATION: **470494** STATE DIR CODE: 2	TO: **START 31 OLAP PALMYRA**

COUNTY: **Wayne**
DATE OF COUNT: 04/20/2004

STATION: **440244**

New York State Department of Transportation
Traffic Count Hourly Report

ROUTE #: **NY 21** ROAD NAME:	FROM: **RT 90I IS UNDER WITH CONN**	COUNTY: **Ontario**
DIRECTION: North/Southbound FACTOR GROUP: 30	REC. SERIAL #: 6005	TOWN: **MANCHESTER**
STATE DIR CODE: 3 WK OF YR: 42	PLACEMENT: @Reference Marker	BIN: 1016470
DATE OF COUNT: 10/11/2005	@ REF MARKER: 21 44053082	RR CROSSING:
NOTES LANE 0: NB&SB(2 Lanes)	ADDL DATA:	HPMS SAMPLE:
	COUNT TYPE: VEHICLES	

TO: **WAYNE CO LINE** FUNC. CLASS: 06 NHS: no JURIS: State CC Stn:

COUNT TAKEN BY: ORG CODE: R04 INITIALS: BM
PROCESSED BY: ORG CODE: R04 INITIALS: rhc
BATCH ID: DOT-R04BMWW41

AM hours

DATE	DAY	12 TO 1	1 TO 2	2 TO 3	3 TO 4	4 TO 5	5 TO 6	6 TO 7	7 TO 8	8 TO 9	9 TO 10	10 TO 11	11 TO 12
1	S												
2	S												
3	M												
4	T												
5	W												
6	T												
7	F												
8	S												
9	S												
10	M												
11	T	24	12	10	13	24	121	246	408	351	314	324	328
12	W	25	9	19	14	32	115	265	439	378	325	342	317
13	T	28	24	15	10	25	95	267	371	323	348	333	220
14	F												

PM hours

DATE	DAY	12 TO 1	1 TO 2	2 TO 3	3 TO 4	4 TO 5	5 TO 6	6 TO 7	7 TO 8	8 TO 9	9 TO 10	10 TO 11	11 TO 12	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
11	T	350	350	437	425	423	278	209	147	138	85	46		5324	416	16
12	W	338	351	392	416	377	282	183	175	143	96	46				
13	T	330	349	421	413	385	255	203	176	127	88	57		5401	439	7

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

26	15	15	12	27	110	259	406	351	329	333	288	334	334	350	417	418	395	272	198	166	136	90	50

	DAYS Counted	HOURS Counted	WEEKDAYS WEEKDAY Counted	WEEKDAYS WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
	4	70	4	70	418	8%	1.000	1.029

ADT 5331

ESTIMATED AADT 5181

ROUTE #: **NY 21** ROAD NAME:	FROM: **RT 90I IS UNDER WITH CONN**	COUNTY: Ontario
STATION: **440244** STATE DIR CODE: 3	PLACEMENT: @Reference Marker	DATE OF COUNT: 10/11/2005

TO: **WAYNE CO LINE**

STATION: **470493**

New York State Department of Transportation
Traffic Count Hourly Report

ROUTE #: **NY 31**	ROAD NAME:	COUNTY: **Wayne**
DIRECTION: Eastbound	FACTOR GROUP: 40	VILLAGE: **MACEDON**
STATE DIR CODE: 1	WK OF YR: 37	
DATE OF COUNT: 09/07/2004		
NOTES LANE 1: EB(1 Lane) Approach		

TO: **START 21 OLAP PALMYRA**
FROM: **RTS 350 31F MACEDON**

REC. SERIAL #: 6019   FUNC. CLASS: 02
PLACEMENT: @ Reference Marker   NHS: yes   BIN: RR CROSSING:
@ REF MARKER: 3137041060   JURIS: State   HPMS SAMPLE:
ADDL DATA: CC Stn:
COUNT TYPE: AXLE PAIRS   BATCH ID: DOT-R04BWW37

COUNT TAKEN BY: ORG CODE: R04 INITIALS: BM
PROCESSED BY: ORG CODE: R04 INITIALS: rhc

DATE	DAY	12 TO 1	1 TO 2	2 TO 3	3 TO 4	4 TO 5	5 TO 6	6 TO 7	7 TO 8	8 TO 9	9 TO 10	10 TO 11	11 TO 12	12 TO 1	1 TO 2	2 TO 3	3 TO 4	4 TO 5	5 TO 6	6 TO 7	7 TO 8	8 TO 9	9 TO 10	10 TO 11	11 TO 12	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
						AM												PM									
1	W																											
2	T																											
3	F																											
4	S																											
5	S																											
6	M																											
7	T	38	29	16	11	16	59	228	510	413	328	395	355	397	425	566	734	730	519	440	282	189	127	77		7305	759	16
8	W	51	31	19	16	24	60	235	602	454	373	342	431	455	454	597	759	673	478	392	249	183	119	67		7553	779	17
9	T	53	31	15	20	11	71	251	576	426	420	375	420	454	465	620	688	779	475	410	246	222	115	77				
10	F																											
11	S																											
12	S																											
13	M																											
14	T																											
15	W																											
16	T																											
17	F																											
18	S																											
19	S																											
20	M																											
21	T																											
22	W																											
23	T																											
24	F																											
25	S																											
26	S																											
27	M																											
28	T																											
29	W																											
30	T																											

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

41	26	15	14	15	55	206	488	373	324	319	338	348	377	388	514	630	425	359	224	171	104	64	ADT 6448

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	% of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
3	70	3	70	727	10%	0.866	1.058

ESTIMATED (one way)

AADT 6095

ROUTE #: **NY 31**   ROAD NAME: FROM: **RTS 350 31F MACEDON**   COUNTY: **Wayne**
STATION: **470493**   STATE DIR CODE: **1**   PLACEMENT: **@ Reference Marker**   DATE OF COUNT: **09/07/2004**
TO: **START 21 OLAP PALMYRA**

New York State Department of Transportation
Traffic Count Hourly Report

STATION: **470493**

ROUTE #: **NY 31**	FROM: **RTS 350 31F MACEDON**	COUNTY: **Wayne**
DIRECTION: Westbound	REC. SERIAL #: 6050	VILLAGE: **MACEDON**
STATE DIR CODE: 2	PLACEMENT: @ Reference Marker	BIN:
DATE OF COUNT: 09/07/2004	@ REF MARKER: 3137041062	RR CROSSING:
NOTES LANE 1: WB(1 Lane) Approach	ADDL DATA:	HPMS SAMPLE:
ROAD NAME:	TO: **START 21 OLAP PALMYRA**	
FACTOR GROUP: 40	FUNC. CLASS: 02	
WK OF YR: 37	NHS: yes	
	JURIS: State	
	CC Stn:	
	COUNT TYPE: AXLE PAIRS	
	BATCH ID: DOT-R04BWW37	

COUNT TAKEN BY: ORG CODE: R04 INITIALS: BM
PROCESSED BY: ORG CODE: R04 INITIALS: rhc

Hourly Counts

DATE	DAY	12-1 AM	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-1 PM	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	DAILY TOTAL COUNT	DAILY HIGH COUNT	DAILY HIGH HOUR
8	W	24	12	9	23	43	237	560	650	470	390	380	390	362	391	448	494	486	538	376	226	198	236	74	43	6801	650	7
9	T												386	376	372	473	508	490	477	374	172	160	104	62	49			

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

12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	ADT
21	10	8	20	37	205	485	563	407	338	329	336	320	331	398	434	423	440	325	172	155	147	59	40	6003

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	% of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
2	37	2	37	650	9%	0.866	1.058

ESTIMATED (one way)

AADT 5674

ROUTE # **NY 31**	FROM: **RTS 350 31F MACEDON**
STATION: **470493**	PLACEMENT: @ Reference Marker
ROAD NAME:	TO: **START 21 OLAP PALMYRA**
STATE DIR CODE: 2	COUNTY: **Wayne**
	DATE OF COUNT: 09/07/2004

Groups Printed- Cars - Trucks - Buses

Start Time	Church Street Southbound					RT31 Westbound					RT21 Northbound					RT31 Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
06:00 AM	0	3	2	0	5	2	17	1	0	20	3	1	3	0	7	0	5	3	0	8	40
06:15 AM	0	2	2	0	4	5	25	0	0	30	5	2	10	0	17	0	5	1	0	6	57
06:30 AM	1	5	1	0	7	6	38	1	0	45	9	7	5	0	21	2	10	0	0	12	85
06:45 AM	0	2	1	0	3	10	56	0	0	66	8	3	5	0	16	1	18	2	0	21	106
Total	1	12	6	0	19	23	136	2	0	161	25	13	23	0	61	3	38	6	0	47	288
07:00 AM	0	9	6	0	15	6	76	3	0	85	14	3	6	0	23	4	28	2	0	34	157
07:15 AM	2	8	2	0	12	14	92	1	0	107	20	7	8	0	35	1	32	4	0	37	191
07:30 AM	3	14	3	0	20	16	100	4	1	121	25	6	12	0	43	13	37	9	0	59	243
07:45 AM	2	14	4	0	20	19	86	2	0	107	22	17	9	0	48	11	50	3	0	64	239
Total	7	45	15	0	67	55	354	10	1	420	81	33	35	0	149	29	147	18	0	194	830
08:00 AM	0	15	10	0	25	16	70	3	0	89	14	11	9	0	34	7	89	14	0	110	258
08:15 AM	5	24	16	0	45	19	101	1	0	121	22	10	6	0	38	8	65	10	0	83	287
08:30 AM	7	24	15	0	46	25	94	3	0	122	20	17	16	0	53	3	83	7	0	93	314
08:45 AM	4	15	6	0	25	18	80	2	0	100	20	26	14	0	60	17	80	18	0	115	300
Total	16	78	47	0	141	78	345	9	0	432	76	64	45	0	185	35	317	49	0	401	1159
09:00 AM	11	13	11	0	35	17	63	1	0	81	16	8	19	0	43	8	71	20	0	99	258
09:15 AM	8	11	10	0	29	23	67	2	0	92	21	15	15	0	51	8	57	14	0	79	251
09:30 AM	1	11	4	0	16	16	75	3	0	94	45	8	33	0	86	6	66	12	0	84	280
09:45 AM	8	7	16	0	31	15	63	8	0	86	22	8	13	0	43	11	68	15	0	94	254
Total	28	42	41	0	111	71	268	14	0	353	104	39	80	0	223	33	262	61	0	356	1043
Grand Total	52	177	109	0	338	227	1103	35	1	1366	286	149	183	0	618	100	764	134	0	998	3320
Apprch %	15.4	52.4	32.2	0		16.6	80.7	2.6	0.1		46.3	24.1	29.6	0		10	76.6	13.4	0		
Total %	1.6	5.3	3.3	0	10.2	6.8	33.2	1.1	0	41.1	8.6	4.5	5.5	0	18.6	3	23	4	0	30.1	
Cars	48	164	100	0	312	197	1029	31	1	1258	206	140	151	0	497	92	713	97	0	902	2969
% Cars	92.3	92.7	91.7	0	92.3	86.8	93.3	88.6	100	92.1	72	94	82.5	0	80.4	92	93.3	72.4	0	90.4	89.4
Trucks	3	7	5	0	15	21	55	3	0	79	64	9	29	0	102	6	29	32	0	67	263
% Trucks	5.8	4	4.6	0	4.4	9.3	5	8.6	0	5.8	22.4	6	15.8	0	16.5	6	3.8	23.9	0	6.7	7.9
Buses	1	6	4	0	11	9	19	1	0	29	16	0	3	0	19	2	22	5	0	29	88
% Buses	1.9	3.4	3.7	0	3.3	4	1.7	2.9	0	2.1	5.6	0	1.6	0	3.1	2	2.9	3.7	0	2.9	2.7

FRA Engineering

530 Summit Point Drive
Henrietta, New Yor 14467

Church Street

Out	In	Total
263	312	575
18	15	33
3	11	14
284	338	622

Right	Thru	Left	Peds
100	164	48	0
5	7	3	0
4	6	1	0
109	177	52	0

RT31 (left)

	Total	In	Out
	2237	902	1335
	191	67	124
	68	29	39
	2496	998	1498

Left	Thru	Right	Peds
92	713	97	0
6	29	32	0
2	22	5	0
100	764	134	0

North

11/15/2006 06:00 AM
11/15/2006 09:45 AM

Cars
Trucks
Buses

RT31 (right)

Right	Thru	Left	Peds
31	1029	197	1
3	55	21	0
1	19	9	0
35	1103	227	1

Out	In	Total
912	1258	2170
61	79	140
26	29	55
999	1366	2365

RT21

Left	Thru	Right	Peds
206	140	151	0
64	9	29	0
16	0	3	0
286	149	183	0

Out	In	Total
458	497	955
60	102	162
20	19	39
538	618	1156

FRA Engineering

530 Summit Point Drive
Henrietta, New Yor 14467

	Church Street Southbound					RT31 Westbound					RT21 Northbound					RT31 Eastbound					
Start Time	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	Int Total
08:00 AM	0	15	10	0	25	16	70	3	0	89	14	11	9	0	34	7	89	14	0	110	258
08:15 AM	5	24	16	0	45	19	101	1	0	121	22	10	6	0	38	8	65	10	0	83	287
08:30 AM	7	24	15	0	46	25	94	3	0	122	20	17	16	0	53	3	83	7	0	93	314
08:45 AM	4	15	6	0	25	18	80	2	0	100	20	26	14	0	60	17	80	18	0	115	300
Total Volume	16	78	47	0	141	78	345	9	0	432	76	64	45	0	185	35	317	49	0	401	1159
% App. Total	11.3	55.3	33.3	0		18.1	79.9	2.1	0		41.1	34.6	24.3	0		8.7	79.1	12.2	0		
PHF	.571	.813	.734	.000	.766	.780	.854	.750	.000	.885	.864	.615	.703	.000	.771	.515	.890	.681	.000	.872	.923

Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 08:00 AM

Peak Hour Data

Peak Hour Begins at 08:00 AM

Cars
Trucks
Buses

FRA Engineering

530 Summit Point Drive
Henrietta, New Yor 14467

Groups Printed- Trucks

Start Time	Church Street Southbound					RT31 Westbound					RT21 Northbound					RT31 Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
06:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	1	0	1	3
06:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	2	0	2	0	0	1	0	1	5
06:30 AM	0	0	0	0	0	0	3	1	0	4	3	0	2	0	5	0	0	0	0	0	9
06:45 AM	0	0	0	0	0	1	2	0	0	3	0	0	1	0	1	0	0	0	0	0	4
Total	0	0	0	0	0	1	7	1	0	9	5	0	5	0	10	0	0	2	0	2	21
07:00 AM	0	0	0	0	0	1	1	0	0	2	4	0	0	0	4	0	1	0	0	1	7
07:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	2	0	2	0	0	0	0	0	4
07:30 AM	0	0	0	0	0	3	3	0	0	6	6	0	1	0	7	0	0	4	0	4	17
07:45 AM	0	0	0	0	0	1	5	0	0	6	5	1	2	0	8	3	2	0	0	5	19
Total	0	0	0	0	0	5	11	0	0	16	15	1	5	0	21	3	3	4	0	10	47
08:00 AM	0	0	0	0	0	0	2	0	0	2	6	0	2	0	8	1	3	1	0	5	15
08:15 AM	0	1	1	0	2	1	1	0	0	2	3	0	2	0	5	0	2	3	0	5	14
08:30 AM	1	0	1	0	2	1	10	0	0	11	5	1	6	0	12	0	7	1	0	8	33
08:45 AM	0	0	0	0	0	1	10	1	0	12	6	2	1	0	9	1	2	4	0	7	28
Total	1	1	2	0	4	3	23	1	0	27	20	3	11	0	34	2	14	9	0	25	90
09:00 AM	0	2	0	0	2	2	2	0	0	4	3	1	1	0	5	0	4	2	0	6	17
09:15 AM	0	1	1	0	2	3	0	1	0	4	6	4	2	0	12	0	2	5	0	7	25
09:30 AM	0	1	1	0	2	2	7	0	0	9	10	0	3	0	13	1	3	5	0	9	33
09:45 AM	2	2	1	0	5	5	5	0	0	10	5	0	2	0	7	0	3	5	0	8	30
Total	2	6	3	0	11	12	14	1	0	27	24	5	8	0	37	1	12	17	0	30	105
Grand Total	3	7	5	0	15	21	55	3	0	79	64	9	29	0	102	6	29	32	0	67	263
Apprch %	20	46.7	33.3	0		26.6	69.6	3.8	0		62.7	8.8	28.4	0		9	43.3	47.8	0		
Total %	1.1	2.7	1.9	0	5.7	8	20.9	1.1	0	30	24.3	3.4	11	0	38.8	2.3	11	12.2	0	25.5	

FRA Engineering

530 Summit Point Drive
Henrietta, New Yor 14467

Church Street

Out	In	Total
18	15	33

Right	Thru	Left	Peds
5	7	3	0

North

11/15/2006 06:00 AM
11/15/2006 09:45 AM

Trucks

RT31 (left)

Total	In	Out
191	67	124

Left	Thru	Right	Peds
6	29	32	0

RT31 (right)

Out	In	Total
61	79	140

Right	Thru	Left	Peds
3	55	21	0

Left	Thru	Right	Peds
64	9	29	0

Out	In	Total
60	102	162

RT21

FRA Engineering

530 Summit Point Drive
Henrietta, New Yor 14467

Start Time	Church Street Southbound					RT31 Westbound					RT21 Northbound					RT31 Eastbound					Int. Total
	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	

Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 09:00 AM

Start Time	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	Int. Total
09:00 AM	0	2	0	0	2	2	2	0	0	4	3	1	1	0	5	0	4	2	0	6	17
09:15 AM	0	1	1	0	2	3	0	1	0	4	6	4	2	0	12	0	2	5	0	7	25
09:30 AM	0	1	1	0	2	2	7	0	0	9	10	0	3	0	13	1	3	5	0	9	33
09:45 AM	2	2	1	0	5	5	5	0	0	10	5	0	2	0	7	0	3	5	0	8	30
Total Volume	2	6	3	0	11	12	14	1	0	27	24	5	8	0	37	1	12	17	0	30	105
% App. Total	18.2	54.5	27.3	0		44.4	51.9	3.7	0		64.9	13.5	21.6	0		3.3	40	56.7	0		
PHF	.250	.750	.750	.000	.550	.600	.500	.250	.000	.675	.600	.313	.667	.000	.712	.250	.750	.850	.000	.833	.795

Peak Hour Data

Peak Hour Begins at 09:00 AM

Trucks

North

Church Street
Out 7 | In 11 | Total 18
Right 3 | Thru 6 | Left 2 | Peds 0

RT31
Total 71 | In 30 | Out 41
Left 1 | Thru 12 | Right 17 | Peds 0

RT31
Right 1 | Thru 14 | Left 12 | Peds 0
Out 22 | In 27 | Total 49

Left 24 | Thru 5 | Right 8 | Peds 0
Out 35 | In 37 | Total 72
RT21
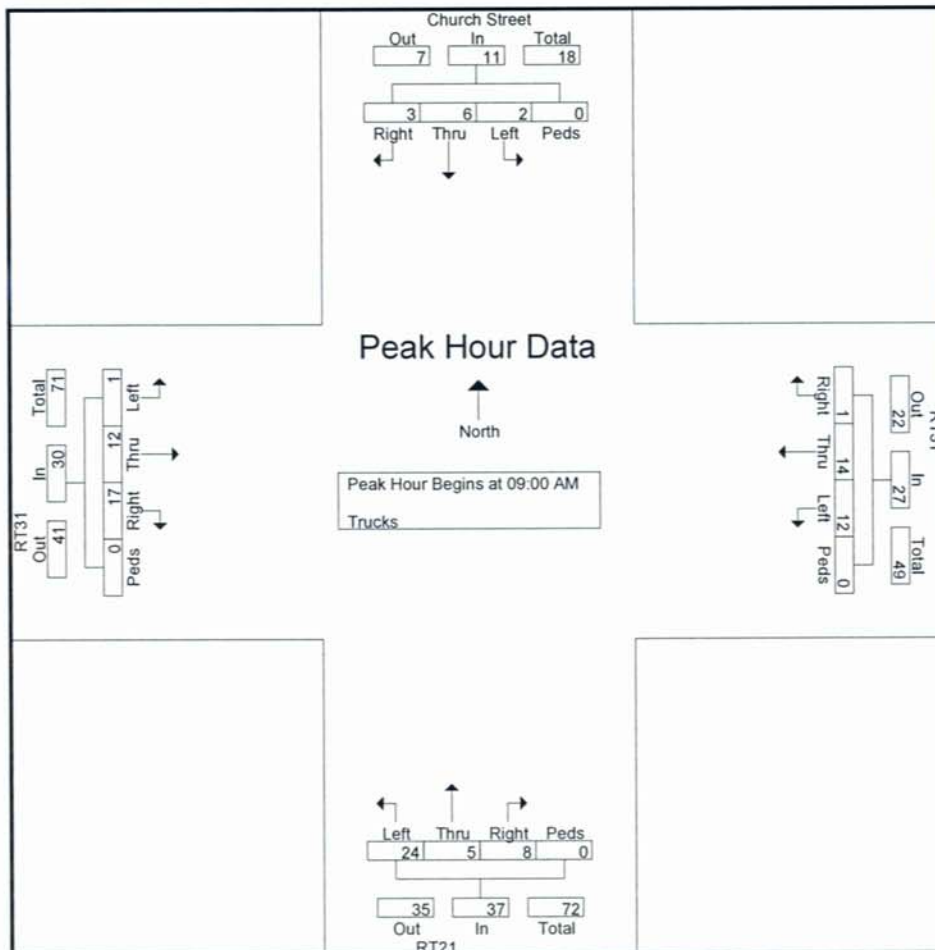
Appendix C – Accident Data

Route 31 Three-Year Accident Summary by Accident Severity (1/1/2001 –12/31/2003)

Location	Fatalities	Injury	Property Damage	Non-Reportable	Total
Route 31 and Liberty St.	0	0	1	1	2
Route 31 and Route 21	0	2	2	1	5
Village Boundary to Liberty Street Midblocks	0	2	2	0	4
Liberty Street to Route 21 Midblocks	0	3	3	3	9
Route 21 to William Street Midblocks	0	2	3	6	11
TOTAL:	0	9	11	11	31
	0%	30%	35%	35%	100%

Route 31 Three-Year Accident Summary by Accident Severity (1/1/2003 –12/31/2003)

Location	Rear End	Fixed Object	Single Vehicle	Deer	Backing	Peds/ Bike	Left Turn	Over- taking	Right Angle	Other	Non-Reportable	Total
Route 31 and Liberty St.	0	0	0	0	0	0	0	0	0	0	1	1
Route 31 and Route 21	2	0	1	0	0	0	0	0	1	0	1	5
Village Boundary to Liberty Street Midblocks	2	2	0	1	1	1	1	0	0	2	4	14
Liberty Street to Route 21 Midblocks	0	2	0	0	0	1	2	0	0	0	3	8
Route 21 to William Street Midblocks	3	0	0	0	0	0	0	1	1	1	6	12
TOTAL:	7	4	1	1	1	2	3	1	2	3	15	40
	17.5%	10%	2.5%	2.5%	2.5%	5%	7.5%	2.5%	5%	7.5%	37%	

Route 21 Three-Year Accident Summary by Accident Severity (*1/1/2001 –12/31/2003*)

Location	Fatalities	Injury	Property Damage	Non-Reportable	Total
Thruway.	0	0	0	0	0
Hackett Rd.	0	1	0	1	2
Armington School Rd.	0	2	0	1	3
Foster Rd.	0	0	1	1	2
NYS Thruway to Thruway Exit	0	0	3	0	3
Thruway Exit to Hackett Rd Midblocks	0	4	3	5	12
Hackett Rd to Armington School Rd Midblocks	0	7	5	17	29
Armington School Rd to Foster Rd Midblock	0	6	5	13	24
Foster Rd to Route 31 Midblock	0	0	0	1	1
TOTAL:	0	20	17	39	76
	0%	26%	22%	52%	

Route 21 Three-Year Accident Summary by Accident Severity (1/1/2001 –12/31/2003)

Location	Rear End	Fixed Object	Single Vehicle	Deer	Backing	Pedestrian/ Bike	Left Turn	Over taking	Right Angle	Other	Non-Reportable	Total
Thruway.	0	0	0	0	0	0	0	0	0	0	0	0
Hackett Rd.	1	0	0	0	0	0	0	0	0	0	1	2
Armington School Rd.	0	0	0	0	0	0	0	0	2	0	1	3
Foster Rd.	0	0	0	0	0	0	1	0	0	0	1	2
NYS Thruway to Thruway Exit	2	0	0	0	0	0	0	0	0	1	0	3
Thruway Exit to Hackett Rd Midblocks	1	5	0	1	0	0	0	1	1	0	3	12
Hackett Rd to Armington School Rd Midblocks	4	2	0	8	0	0	0	1	2	1	11	29
Armington School Rd to Foster Rd Midblock	1	6	0	4	0	0	0	2	2	4	5	24
Foster Rd to Route 31 Midblock	0	0	0	0	0	0	0	0	0	0	1	1
TOTAL:	9	13	0	13	0	0	1	4	7	6	23	76
	12%	17%	0%	17%	0%	0%	1%	5%	9%	8%	31%	

Appendix D – Emissions Worksheets

Palmyra Route 21 Truck Study

Converted Hourly Traffic Volumes on Route 21 in Mobile 6.2 Vehicle Classification Codes

TIME	MC	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV2B	HDGV3	HDGV4	HDGV5	HDGV6	HDGV7	HDGV8A
1:00	0.00	16.80	0.42	1.40	0.05	0.03	0.04	0.00	0.00	0.00	0.00	0.00	0.00
2:00	0.00	9.88	0.23	0.78	0.09	0.04	0.46	0.02	0.01	0.02	0.04	0.02	0.00
3:00	0.00	4.94	0.63	2.09	0.08	0.04	0.05	0.00	0.00	0.00	0.00	0.00	0.00
4:00	0.00	9.88	0.42	1.40	0.05	0.03	0.04	0.00	0.00	0.00	0.00	0.00	0.00
5:00	0.00	13.83	0.63	2.09	0.08	0.04	0.10	0.00	0.00	0.00	0.01	0.00	0.00
6:00	0.00	57.30	4.38	14.65	0.57	0.26	0.36	0.01	0.00	0.01	0.03	0.01	0.00
7:00	1.00	161.04	11.95	39.93	1.81	0.84	2.20	0.08	0.03	0.09	0.19	0.08	0.00
8:00	1.00	253.92	12.21	40.81	2.11	0.98	3.53	0.12	0.04	0.14	0.30	0.12	0.00
9:00	2.00	157.09	9.73	32.52	1.86	0.86	3.63	0.13	0.04	0.14	0.31	0.13	0.00
10:00	2.00	205.50	10.56	35.30	1.83	0.85	3.62	0.13	0.04	0.14	0.31	0.13	0.00
11:00	2.00	187.72	10.20	34.08	1.77	0.82	4.56	0.16	0.05	0.18	0.38	0.16	0.00
12:00	2.00	176.85	12.15	40.61	2.22	1.03	5.96	0.21	0.07	0.23	0.50	0.21	0.00
13:00	1.00	204.52	12.24	40.90	1.91	0.89	3.91	0.14	0.05	0.15	0.33	0.14	0.00
14:00	3.00	205.50	14.12	47.18	2.43	1.13	4.27	0.15	0.05	0.17	0.36	0.15	0.00
15:00	3.00	230.20	14.40	48.11	2.79	1.30	5.30	0.19	0.06	0.21	0.45	0.18	0.00
16:00	3.00	279.60	14.82	49.52	2.57	1.20	5.35	0.19	0.06	0.21	0.45	0.18	0.00
17:00	3.00	303.32	17.45	58.32	2.86	1.33	3.91	0.14	0.05	0.16	0.33	0.14	0.00
18:00	2.00	336.91	15.71	52.49	2.30	1.07	2.37	0.08	0.03	0.09	0.20	0.08	0.00
19:00	0.00	275.65	11.71	39.15	1.72	0.80	1.49	0.05	0.02	0.06	0.13	0.05	0.00
20:00	1.00	197.60	12.97	43.33	1.74	0.81	1.51	0.05	0.02	0.06	0.13	0.05	0.00
21:00	1.00	169.94	6.70	22.41	1.07	0.50	1.07	0.04	0.01	0.04	0.09	0.04	0.00
22:00	0.00	131.40	4.82	16.13	0.69	0.32	0.81	0.03	0.01	0.03	0.07	0.03	0.00
23:00	0.00	61.26	2.56	8.54	0.60	0.28	1.14	0.04	0.01	0.04	0.10	0.04	0.00
0:00	0.00	35.57	1.69	5.66	0.28	0.13	0.55	0.02	0.01	0.02	0.05	0.02	0.00
24-Hour Total	27.00	3686.23	202.69	677.40	33.50	15.58	56.21	1.99	0.68	2.22	4.75	1.94	0.00
% of Total	0.51%	69.96%	3.85%	12.86%	0.64%	0.30%	1.07%	0.04%	0.01%	0.04%	0.09%	0.04%	0.00%

F|R|A

Palmyra Route 21 Truck Study
Converted Hourly Traffic Volumes on Route 21 in Mobile 6.2 Vehicle Classification Codes

TIME	LDDV	LDDT12	LDDT34	HDDV2B	HDDV3	HDDV4	HDDV5	HDDV6	HDDV7	HDDV8A	HDDV8B	HDGB	HDDBT	HDDBS	TOTAL
1:00	0.204	0	0.0602	0.1956	0.0588	0.0558	0.0264	0.11248	0.161	0.09587	0.2228	0.00013	0.06412	0.0099	20
2:00	0.12	0	0.04972	0.8262	0.2483	0.2353	0.11138	0.47514	0.68055	0.40538	0.9417	0.00167	0.27366	0.0393	16
3:00	0.06	0	0.0902	0.1969	0.0592	0.0562	0.0266	0.11322	0.162	0.09647	0.2242	0.00018	0.06418	0.0103	9
4:00	0.12	0	0.0602	0.1956	0.0588	0.0558	0.0264	0.11248	0.161	0.09587	0.2228	0.00013	0.06412	0.0099	13
5:00	0.168	0	0.0938	0.5739	0.1722	0.1632	0.0776	0.33022	0.4728	0.28264	0.6544	0.00035	0.18938	0.0281	20
6:00	0.696	0	0.631	1.3783	0.4144	0.3934	0.1862	0.79254	1.134	0.67629	1.5694	0.00126	0.44926	0.0721	86
7:00	1.956	0	2.55514	6.2875	1.8893	1.7906	0.84956	3.61538	5.1743	3.08782	7.1622	0.00787	2.06706	0.3158	256
8:00	3.084	0	3.42498	6.8616	2.0608	1.9498	0.92832	3.94442	5.6448	3.3746	7.8157	0.01283	2.26104	0.3432	357
9:00	1.908	0	3.0842	7.7126	2.3168	2.1939	1.0422	4.43474	6.34815	3.79336	8.7875	0.01312	2.54584	0.3793	253
10:00	2.496	0	2.4094	8.3196	2.4993	2.3685	1.1236	4.7844	6.84975	4.09078	9.4802	0.01299	2.74304	0.4093	308
11:00	2.28	0	1.58514	8.0003	2.4034	2.2765	1.08046	4.59972	6.58625	3.93277	9.1155	0.01651	2.6374	0.3935	287
12:00	2.148	0	1.9186	7.7747	2.3352	2.2118	1.0508	4.47058	6.4005	3.82296	8.8588	0.02145	2.5595	0.386	286
13:00	2.484	0	1.8386	6.1432	1.8458	1.7487	0.8304	3.53162	5.05495	3.02104	6.9969	0.01416	2.01856	0.3093	302
14:00	2.496	0	3.7227	9.4134	2.8273	2.6773	1.2723	5.41228	7.74795	4.62931	10.725	0.01545	3.10198	0.4666	333
15:00	2.796	0	4.59746	7.8792	2.3673	2.2414	1.06464	4.52892	6.484	3.87203	8.9748	0.01921	2.59028	0.3945	354
16:00	3.396	0	3.05706	5.3393	1.6038	1.5172	0.72334	3.0689	4.3904	2.62651	6.0794	0.01933	1.75052	0.2755	391
17:00	3.684	0	4.1893	5.2919	1.5899	1.5037	0.7168	3.04092	4.34995	2.59985	6.0239	0.01414	1.72978	0.2776	426
18:00	4.092	0	3.08874	3.021	0.908	0.8598	0.40966	1.7356	2.4815	1.48323	3.4364	0.00852	0.97642	0.1678	436
19:00	3.348	0	2.50232	2.013	0.6049	0.5733	0.27328	1.15704	1.65355	0.98922	2.29	0.00527	0.6486	0.1139	347
20:00	2.4	0	1.88302	1.0619	0.3193	0.3037	0.14498	0.61038	0.87055	0.52081	1.2058	0.00528	0.32952	0.0711	269
21:00	2.064	0	1.77852	1.0239	0.3078	0.2917	0.13898	0.58818	0.84075	0.50281	1.1642	0.00384	0.32816	0.0591	212
22:00	1.596	0	0.70942	0.6538	0.1966	0.1861	0.08878	0.37542	0.53655	0.32024	0.7431	0.00291	0.20862	0.0386	160
23:00	0.744	0	1.19714	0.6747	0.2027	0.1916	0.09166	0.38788	0.5543	0.33207	0.7679	0.00408	0.22072	0.0359	80
0:00	0.432	0	0.25932	0.6442	0.1936	0.1831	0.08728	0.37042	0.52955	0.31624	0.7335	0.00196	0.21188	0.0331	48
24-Hour	44.772	0	44.78618	91.4823	27.4835	26.0284	12.37162	52.59288	75.2691	44.96817	104.1961	0.20264	30.03364	4.6397	5269
% of Total	0.85%	0.00%	0.85%	1.74%	0.52%	0.49%	0.23%	1.00%	1.43%	0.85%	1.98%	0.00%	0.57%	0.09%	

Mobile 6 Vehicle Classification Descriptions
Excerpt from EPA User's Guide to Mobile 6.1 and 6.2*

Number	Abbreviation	Description
		MOBILE6 Vehicle Classifications
1	LDGV	Light-Duty Gasoline Vehicles (Passenger Cars)
2	LDGT1	Light-Duty Gasoline Trucks 1 (0-6,000 lbs. GVWR, 0-3,750 lbs. LVW)
3	LDGT2	Light-Duty Gasoline Trucks 2 (0-6,000 lbs. GVWR, 3,751-5,750 lbs. LVW)
4	LDGT3	Light-Duty Gasoline Trucks 3 (6,001-8,500 lbs. GVWR, 0-5,750 lbs. ALVW)
5	LDGT4	Light-Duty Gasoline Trucks 4 (6,001-8,500 lbs. GVWR, greater than 5,751 lbs. ALVW)
6	HDGV2b	Class 2b Heavy-Duty Gasoline Vehicles (8,501-10,000 lbs. GVWR)
7	HDGV3	Class 3 Heavy-Duty Gasoline Vehicles (10,001-14,000 lbs. GVWR)
8	HDGV4	Class 4 Heavy-Duty Gasoline Vehicles (14,001-16,000 lbs. GVWR)
9	HDGV5	Class 5 Heavy-Duty Gasoline Vehicles (16,001-19,500 lbs. GVWR)
10	HDGV6	Class 6 Heavy-Duty Gasoline Vehicles (19,501-26,000 lbs. GVWR)
11	HDGV7	Class 7 Heavy-Duty Gasoline Vehicles (26,001-33,000 lbs. GVWR)
12	HDGV8a	Class 8a Heavy-Duty Gasoline Vehicles (33,001-60,000 lbs. GVWR)
13	HDGV8b	Class 8b Heavy-Duty Gasoline Vehicles (>60,000 lbs. GVWR)
14	LDDV	Light-Duty Diesel Vehicles (Passenger Cars)
15	LDDT12	Light-Duty Diesel Trucks 1 and 2 (0-6,000 lbs. GVWR)
16	HDDV2b	Class 2b Heavy-Duty Diesel Vehicles (8,501-10,000 lbs. GVWR)
17	HDDV3	Class 3 Heavy-Duty Diesel Vehicles (10,001-14,000 lbs. GVWR)
18	HDDV4	Class 4 Heavy-Duty Diesel Vehicles (14,001-16,000 lbs. GVWR)
19	HDDV5	Class 5 Heavy-Duty Diesel Vehicles (16,001-19,500 lbs. GVWR)
20	HDDV6	Class 6 Heavy-Duty Diesel Vehicles (19,501-26,000 lbs. GVWR)
21	HDDV7	Class 7 Heavy-Duty Diesel Vehicles (26,001-33,000 lbs. GVWR)
22	HDDV8a	Class 8a Heavy-Duty Diesel Vehicles (33,001-60,000 lbs. GVWR)
23	HDDV8b	Class 8b Heavy-Duty Diesel Vehicles (>60,000 lbs. GVWR)
24	MC	Motorcycles (Gasoline)
25	HDGB	Gasoline Buses (School, Transit and Urban)
26	HDDBT	Diesel Transit and Urban Buses
27	HDDBS	Diesel School Buses
28	LDDT34	Light-Duty Diesel Trucks 3 and 4 (6,001-8,500 lbs. GVWR)

* US EPA, User's Guide to MOBILE6.1 and MOBILE6.2, Mobile Source Emission Factor Model, Document No. EPA420-R-03-010, August 2003.

F|R|A

The department is moving content from this page into its new Web design.
Thank you for your patience.

MOBILE6.2 PM Emission Factor Tables Look Up and Calculation Program

Please Select

County: Wayne   Analysis Year: 2007   Road Functional Class: 02/06

NYSDOT Default Vehicle Mix? No   If no, please specify and click [ok] . The sum of the vehicle mix has to be 100%

Veh. Type	Veh. %	Non-Idle Emis. (g/mi) PM2.5	PM10	Idle Emis. (g/hour) PM2.5	PM10	Veh. Type	Veh. %	Non-Idle Emis. (g/mi) PM2.5	PM10	Idle Emis. (g/hour) PM2.5	PM10
LDGV	69.96	0.01	0.03	0.00	0.00	LDDT34	0.85	0.08	0.09	0.00	0.00
LDGT1	3.85	0.01	0.03	0.00	0.00	HDDV2B	1.74	0.10	0.12	1.00	1.08
LDGT2	12.86	0.01	0.03	0.00	0.00	HDDV3	0.52	0.10	0.12	0.99	1.08
LDGT3	0.64	0.01	0.03	0.00	0.00	HDDV4	0.49	0.10	0.12	1.01	1.09
LDGT4	0.3	0.01	0.03	0.00	0.00	HDDV5	0.23	0.12	0.15	1.15	1.25
HDGV2B	1.07	0.06	0.08	0.00	0.00	HDDV6	1	0.22	0.26	1.11	1.20
HDGV3	0.04	0.06	0.09	0.00	0.00	HDDV7	1.43	0.22	0.25	1.09	1.18
HDGV4	0.01	0.06	0.08	0.00	0.00	HDDV8A	0.85	0.41	0.47	1.36	1.48
HDGV5	0.04	0.08	0.11	0.00	0.00	HDDV8B	1.98	0.35	0.41	1.23	1.33
HDGV6	0.09	0.09	0.13	0.00	0.00	HDGB	0	0.10	0.15	0.00	0.00
HDGV7	0.04	0.09	0.13	0.00	0.00	HDDBT	0.57	0.95	1.05	1.98	2.15
HDGV8A	0	0.12	0.19	0.00	0.00	HDDBS	0.09	0.46	0.52	1.22	1.33
LDDV	0.85	0.11	0.13	0.00	0.00	MC	.51	0.02	0.04	0.00	0.00
LDDT12	0	0.12	0.14	0.00	0.00	Total	100.0	0.0359	0.0579	0.1051	0.1139

Note: For vehicles that MOBILE6.2 does not provide idle emission factors, zero is assumed.
Project Descriptions (limited to 140 characters):
Palmyra Truck Study - Emissions Factors Using Actual Veh Classification Values

[click here to print]   Please select landscape layout option for proper print.

Department Of Transportation

Eliot Spitzer, Governor   Thomas J. Madison Jr., Commissioner

The department is moving content from this page into its new Web design.

Thank you for your patience.

MOBILE6.2 PM Emission Factor Tables Look Up and Calculation Program

Please Select

County: Wayne   Analysis Year: 2007   Road Functional Class: 02/06

NYSDOT Default Vehicle Mix? Yes   If no, please specify and click [ok] . The sum of the vehicle mix has to be 100%

Veh. Type	Veh. %	Non-Idle Emis. (g/mi) PM2.5	PM10	Idle Emis. (g/hour) PM2.5	PM10	Veh. Type	Veh. %	Non-Idle Emis. (g/mi) PM2.5	PM10	Idle Emis. (g/hour) PM2.5	PM10
LDGV	44.38	0.01	0.03	0.00	0.00	LDDT34	0.89	0.08	0.09	0.00	0.00
LDGT1	6.34	0.01	0.03	0.00	0.00	HDDV2B	0.23	0.10	0.12	1.00	1.08
LDGT2	21.15	0.01	0.03	0.00	0.00	HDDV3	0.17	0.10	0.12	0.99	1.08
LDGT3	12.14	0.01	0.03	0.00	0.00	HDDV4	0.16	0.10	0.12	1.01	1.09
LDGT4	5.57	0.01	0.03	0.00	0.00	HDDV5	0.13	0.12	0.15	1.15	1.25
HDGV2B	1.82	0.06	0.08	0.00	0.00	HDDV6	0.24	0.22	0.26	1.11	1.20
HDGV3	0.78	0.06	0.09	0.00	0.00	HDDV7	0.59	0.22	0.25	1.09	1.18
HDGV4	0.31	0.06	0.08	0.00	0.00	HDDV8A	0.95	0.41	0.47	1.36	1.48
HDGV5	0.34	0.08	0.11	0.00	0.00	HDDV8B	1.30	0.35	0.41	1.23	1.33
HDGV6	0.23	0.09	0.13	0.00	0.00	HDGB	0.32	0.10	0.15	0.00	0.00
HDGV7	0.36	0.09	0.13	0.00	0.00	HDDBT	0.47	0.95	1.05	1.98	2.15
HDGV8A	0.43	0.12	0.19	0.00	0.00	HDDBS	0.47	0.46	0.52	1.22	1.33
LDDV	0.10	0.11	0.13	0.00	0.00	MC	0.00	0.02	0.04	0.00	0.00
LDDT12	0.13	0.12	0.14	0.00	0.00	Total	100.0	0.0309	0.0530	0.0601	0.0652

Note: For vehicles that MOBILE6.2 does not provide idle emission factors, zero is assumed.
Project Descriptions (limited to 140 characters):

Palmyra Truck Study - Emissions Factors Using Default Veh Classification Values

[click here to print]   Please select landscape layout option for proper print.

⬇   ◀

Last Update: August 10, 2004

Palmyra Route 21 Truck Study
CALC3HC PM2.5 Emissions Results

Hour Ending	Hourly Volume	PM2.5 Emissions (micrograms/cubic meter)			
		Receptor 1	Receptor 2	Receptor 3	Receptor 4
1:00	20	0	0	0	0
2:00	16	0	0	0	0
3:00	9	0	0	0	0
4:00	13	0	0	0	0
5:00	20	0	0	0	0
6:00	86	0	0	0.1	0.1
7:00	256	0.1	0	0.2	0.3
8:00	357	0.2	0	0.3	0.4
9:00	253	0.1	0	0.2	0.3
10:00	308	0.1	0	0.3	0.4
11:00	287	0.1	0	0.3	0.3
12:00	286	0.1	0	0.3	0.3
13:00	302	0.1	0	0.3	0.4
14:00	333	0.2	0	0.3	0.4
15:00	354	0.2	0	0.3	0.4
16:00	391	0.2	0	0.3	0.5
17:00	426	0.2	0	0.4	0.5
18:00	436	0.2	0	0.4	0.5
19:00	347	0.2	0	0.3	0.4
20:00	269	0.1	0	0.2	0.3
21:00	212	0.1	0	0.2	0.2
22:00	160	0.1	0	0.1	0.2
23:00	80	0	0	0.1	0.1
0:00	48	0	0	0	0.1
Daily Totals	5269	2.3	0	4.6	6.1

Receptor 1 =   House on West Side opposite School
Receptor 2 =   Palmyra Elementary School
Receptor 3 =   House on West Side Near Jackson Street
Receptor 4 =   House on East Side Near Jackson Street

JOB: Route 21   RUN: 12PM - 1AM

DATE: 02/12/07   TIME: 10:23

      The MODE flag has been set to P for calculating PM averages.

      SITE & METEOROLOGICAL VARIABLES

      VS =   0.0 CM/S   VD =   0.0 CM/S   Z0 = 108. CM
       U =   1.0 M/S   CLAS =   5 (E)   ATIM = 60. MINUTES   MIXH = 1000. M
AMB = 0.0 ug/m**3 BRG =   0. DEGREES

      LINK VARIABLES

| LINK DESCRIPTION | * | LINK COORDINATES (M) | | | | * | LENGTH | BRG | TYPE |
| VPH   EF   H   W   V/C QUEUE | * | X1 | Y1 | X2 | Y2 | * | (M) | (DEG) | |
(G/MI) (M) (M) (VEH)									
1. Route 21	*	0.0	609.6	0.0	0.0	*	610.	180.	AG
20. 0.0 0.0 13.4									

JOB: Route 21   RUN: AM PEAK HOUR

DATE: 02/12/07   TIME: 10:23

      RECEPTOR LOCATIONS

| | * | COORDINATES (M) | | | * |
RECEPTOR	*	X	Y	Z	*
1. House 1	*	-15.2	499.9	1.8	*
2. School	*	34.7	499.9	1.8	*
3. House 2	*	-15.2	359.7	1.8	*
4. House 3	*	15.2	94.5	1.8	*

      MODEL RESULTS

      REMARKS : In search of the angle corresponding to
                the maximum concentration, only the first
                angle, of the angles with same maximum
                concentrations, is indicated as maximum.

| WIND | * | CONCENTRATION | | | |
| ANGLE | * | (ug/m**3) | | | |
(DEGR)	*	REC1	REC2	REC3	REC4
0.	*	0.	0.	0.	0.

THE HIGHEST CONCENTRATION OF   0. ug/m**3 OCCURRED AT RECEPTOR -   .

JOB: Route 21   RUN: AM PEAK HOUR

DATE: 02/12/07   TIME: 10:23

      RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
      THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

	*	PM/LNK(ug/m**3)			
	*	ANGLE (DEGREES)			
	*	REC1	REC2	REC3	REC4
LINK #	*	0	0	0	0
1	*	0.0	0.0	0.0	0.0

JOB: Route 21   RUN: 1-2 AM

DATE: 02/12/07   TIME: 10:16

       The MODE flag has been set to P for calculating PM averages.

       SITE & METEOROLOGICAL VARIABLES

       VS =   0.0 CM/S   VD =   0.0 CM/S   Z0 = 108. CM
        U =   1.0 M/S   CLAS =   5 (E)   ATIM = 60. MINUTES   MIXH = 1000. M
AMB = 0.0 ug/m**3 BRG =   0. DEGREES

       LINK VARIABLES

         LINK DESCRIPTION   *   LINK COORDINATES (M)   *   LENGTH BRG TYPE
   VPH   EF   H   W   V/C QUEUE *   X1   Y1   X2   Y2   *   (M)   (DEG)
        (G/MI) (M) (M)   (VEH)
-----------------------------------*--*---------------------------
----
       1. Route 21   *   0.0   609.6   0.0   0.0 *   610.   180. AG
   16.   0.0   0.0 13.4

DATE: 02/12/07   TIME: 10:16

       RECEPTOR LOCATIONS
       ----
                              *   COORDINATES (M)   *
          RECEPTOR   *   X   Y   Z   *
   -------------------------*------------------------------------*
       1. House 1   *   -15.2   499.9   1.8   *
       2. School   *   34.7   499.9   1.8   *
       3. House 2   *   -15.2   359.7   1.8   *
       4. House 3   *   15.2   94.5   1.8   *

       MODEL RESULTS

       REMARKS : In search of the angle corresponding to
                 the maximum concentration, only the first
                 angle, of the angles with same maximum
                 concentrations, is indicated as maximum.

WIND * CONCENTRATION
ANGLE *   (ug/m**3)
(DEGR)* REC1 REC2 REC3 REC4
------*------------------------
   0. *   0.   0.   0.   0.
------*------------------------
THE HIGHEST CONCENTRATION OF   0. ug/m**3 OCCURRED AT RECEPTOR REC4 .

DATE: 02/12/07   TIME: 10:16

       RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
       THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

          *   PM/LNK(ug/m**3)
          *   ANGLE (DEGREES)
          * REC1 REC2 REC3 REC4
   LINK # *   0   0   0   0
   -------*------------------------
       1 *   0.0   0.0   0.0   0.0

JOB: Route 21   RUN: 2-3 AM

DATE: 02/12/07   TIME: 10:16

     The MODE flag has been set to P for calculating PM averages.

     SITE & METEOROLOGICAL VARIABLES

     VS =   0.0 CM/S   VD =   0.0 CM/S   Z0 = 108. CM
      U =   1.0 M/S   CLAS =   5 (E)   ATIM = 60. MINUTES   MIXH = 1000. M
AMB = 0.0 ug/m**3 BRG =   0. DEGREES

     LINK VARIABLES

       LINK DESCRIPTION   *   LINK COORDINATES (M)   *   LENGTH BRG TYPE
 VPH   EF   H   W   V/C QUEUE *   X1   Y1   X2   Y2   *   (M)   (DEG)
       (G/MI) (M) (M)   (VEH)

----------------------*--*---------------------------
----
      1. Route 21   *   0.0   609.6   0.0   0.0 *   610.   180. AG
  9.   0.0   0.0 13.4

JOB: Route 21   RUN: AM PEAK HOUR

DATE: 02/12/07   TIME: 10:16

     RECEPTOR LOCATIONS
     ----
                            *   COORDINATES (M)   *
        RECEPTOR   *   X   Y   Z   *
-----------------------*--*
   1. House 1   *   -15.2   499.9   1.8   *
   2. School   *   34.7   499.9   1.8   *
   3. House 2   *   -15.2   359.7   1.8   *
   4. House 3   *   15.2   94.5   1.8   *

     MODEL RESULTS

     REMARKS : In search of the angle corresponding to
               the maximum concentration, only the first
               angle, of the angles with same maximum
               concentrations, is indicated as maximum.

WIND   * CONCENTRATION
ANGLE *   (ug/m**3)
(DEGR)* REC1 REC2 REC3 REC4
------*------------------------
  0. *   0.   0.   0.   0.
------*------------------------
THE HIGHEST CONCENTRATION OF   0. ug/m**3 OCCURRED AT RECEPTOR REC4 .

JOB: Route 21   RUN: AM PEAK HOUR

DATE: 02/12/07   TIME: 10:16

     RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
     THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

         *   PM/LNK(ug/m**3)
         *   ANGLE (DEGREES)
         * REC1 REC2 REC3 REC4
  LINK # *   0   0   0   0
  ------*------------------------
     1 *   0.0   0.0   0.0   0.0

JOB: Route 21   RUN: 3-4 AM

DATE: 02/12/07   TIME: 10:17

The MODE flag has been set to P for calculating PM averages.

SITE & METEOROLOGICAL VARIABLES

VS =   0.0 CM/S   VD =   0.0 CM/S   Z0 = 108. CM
U = 1.0 M/S   CLAS =   5 (E)   ATIM = 60. MINUTES   MIXH = 1000. M
AMB = 0.0 ug/m**3 BRG =   0. DEGREES

LINK VARIABLES

	LINK DESCRIPTION	*		LINK COORDINATES (M)			*	LENGTH	BRG	TYPE
VPH	EF H W V/C	QUEUE	X1	Y1	X2	Y2	*	(M)	(DEG)	
	(G/MI) (M) (M)	(VEH)								

-----------------------*---*----------------------------
----
  1. Route 21   *   0.0   609.6   0.0   0.0 *   610.   180. AG
13.   0.0   0.0 13.4

JOB: Route 21   RUN: AM PEAK HOUR

DATE: 02/12/07   TIME: 10:17

RECEPTOR LOCATIONS
----

	*		COORDINATES (M)		*
RECEPTOR	*	X	Y	Z	*
1. House 1	*	-15.2	499.9	1.8	*
2. School	*	34.7	499.9	1.8	*
3. House 2	*	-15.2	359.7	1.8	*
4. House 3	*	15.2	94.5	1.8	*

MODEL RESULTS

REMARKS : In search of the angle corresponding to
          the maximum concentration, only the first
          angle, of the angles with same maximum
          concentrations, is indicated as maximum.

WIND   * CONCENTRATION
ANGLE *   (ug/m**3)
(DEGR)* REC1   REC2   REC3   REC4
------*-------------------------
  0. *   0.   0.   0.   0.
------*-------------------------
THE HIGHEST CONCENTRATION OF   0. ug/m**3 OCCURRED AT RECEPTOR REC4 .

JOB: Route 21   RUN: AM PEAK HOUR

DATE: 02/12/07   TIME: 10:17

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

         *   PM/LNK(ug/m**3)
         *   ANGLE (DEGREES)
         * REC1   REC2   REC3   REC4
LINK # *   0   0   0   0
-------*-------------------------
  1   *   0.0   0.0   0.0   0.0

JOB: Route 21   RUN: 4-5 AM

DATE: 02/12/07   TIME: 10:17

   The MODE flag has been set to P for calculating PM averages.

   SITE & METEOROLOGICAL VARIABLES

   VS =   0.0 CM/S   VD =   0.0 CM/S   Z0 = 108. CM
    U = 1.0 M/S   CLAS =   5 (E)   ATIM = 60. MINUTES   MIXH = 1000. M
AMB = 0.0 ug/m**3 BRG =   0. DEGREES

   LINK VARIABLES

        LINK DESCRIPTION   *   LINK COORDINATES (M)   *   LENGTH BRG TYPE
  VPH   EF   H   W   V/C QUEUE *   X1   Y1   X2   Y2   *   (M)   (DEG)
       (G/MI)   (M) (M)   (VEH)
----------------------*---*-------------------------
----
      1. Route 21   *   0.0   609.6   0.0   0.0 *   610.   180. AG
  20.   0.0   0.0 13.4

JOB: Route 21   RUN: AM PEAK HOUR

DATE: 02/12/07   TIME: 10:17

   RECEPTOR LOCATIONS
   ----
                          *   COORDINATES (M)   *
        RECEPTOR   *   X   Y   Z   *
------------------------*--*
    1. House 1   *   -15.2   499.9   1.8   *
    2. School   *   34.7   499.9   1.8   *
    3. House 2   *   -15.2   359.7   1.8   *
    4. House 3   *   15.2   94.5   1.8   *

   MODEL RESULTS

   REMARKS : In search of the angle corresponding to
             the maximum concentration, only the first
             angle, of the angles with same maximum
             concentrations, is indicated as maximum.

WIND   * CONCENTRATION
ANGLE *   (ug/m**3)
(DEGR)* REC1 REC2 REC3 REC4
------*-------------------------
  0. *   0.   0.   0.   0.
------*-------------------------
THE HIGHEST CONCENTRATION OF   0. ug/m**3 OCCURRED AT RECEPTOR REC4 .

JOB: Route 21   RUN: AM PEAK HOUR

DATE: 02/12/07   TIME: 10:17

   RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
   THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

        *   PM/LNK(ug/m**3)
        *   ANGLE (DEGREES)
        * REC1 REC2 REC3 REC4
  LINK # *   0   0   0   0
-------*-------------------------
   1 *   0.0   0.0   0.0   0.0

JOB: Route 21   RUN: 5-6 AM

DATE: 02/12/07   TIME: 10:17

    The MODE flag has been set to P for calculating PM averages.

    SITE & METEOROLOGICAL VARIABLES

    VS =   0.0 CM/S   VD =   0.0 CM/S   Z0 = 108. CM
     U = 1.0 M/S   CLAS =   5 (E)   ATIM = 60. MINUTES   MIXH = 1000. M
AMB = 0.0 ug/m**3 BRG =   0. DEGREES

    LINK VARIABLES

       LINK DESCRIPTION   *   LINK COORDINATES (M)   *   LENGTH BRG TYPE
 VPH   EF   H   W   V/C QUEUE
                             *   X1   Y1   X2   Y2   *   (M)   (DEG)
      (G/MI) (M) (M)   (VEH)

------------------------------*--*--------------------------
----
      1. Route 21   *   0.0   609.6   0.0   0.0 *   610.   180. AG
  86.   0.0   0.0 13.4

JOB: Route 21   RUN: AM PEAK HOUR

DATE: 02/12/07   TIME: 10:17

    RECEPTOR LOCATIONS
    ----
                          *   COORDINATES (M)   *
       RECEPTOR   *   X   Y   Z   *
----------------------------*--*
    1. House 1   *   -15.2   499.9   1.8   *
    2. School   *   34.7   499.9   1.8   *
    3. House 2   *   -15.2   359.7   1.8   *
    4. House 3   *   15.2   94.5   1.8   *

    MODEL RESULTS

    REMARKS : In search of the angle corresponding to
              the maximum concentration, only the first
              angle, of the angles with same maximum
              concentrations, is indicated as maximum.

WIND   * CONCENTRATION
ANGLE *   (ug/m**3)
(DEGR)* REC1   REC2   REC3   REC4
------*------------------------
  0. *   0.   0.   0.   0.
------*------------------------
THE HIGHEST CONCENTRATION OF   0. ug/m**3 OCCURRED AT RECEPTOR REC3 .

JOB: Route 21   RUN: AM PEAK HOUR

DATE: 02/12/07   TIME: 10:17

    RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
    THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

          *   PM/LNK(ug/m**3)
          *   ANGLE (DEGREES)
          * REC1 REC2 REC3 REC4
   LINK # *   0   0   0   0
  ------*------------------------
     1 *   0.0   0.0   0.1   0.1

JOB: Route 21   RUN: 6-7 AM

DATE: 02/12/07   TIME: 10:17

The MODE flag has been set to P for calculating PM averages.

SITE & METEOROLOGICAL VARIABLES

VS =   0.0 CM/S   VD =   0.0 CM/S   Z0 = 108. CM
 U = 1.0 M/S   CLAS =   5 (E)   ATIM = 60. MINUTES   MIXH = 1000. M
AMB = 0.0 ug/m**3 BRG =   0. DEGREES

LINK VARIABLES

	LINK DESCRIPTION			*	LINK COORDINATES (M)				*	LENGTH	BRG	TYPE
VPH	EF	H	W	V/C	QUEUE								
					*	X1	Y1	X2	Y2	*	(M)	(DEG)	
	(G/MI)	(M)	(M)	(VEH)									

----------------------------*--*---------------------------

| | 1. Route 21 | | | * | 0.0 | 609.6 | 0.0 | 0.0 | * | 610. | 180. | AG |
256.   0.0   0.0 13.4

JOB: Route 21   RUN: AM PEAK HOUR

DATE: 02/12/07   TIME: 10:17

RECEPTOR LOCATIONS
----

	*	COORDINATES (M)			*
RECEPTOR	*	X	Y	Z	*
1. House 1	*	-15.2	499.9	1.8	*
2. School	*	34.7	499.9	1.8	*
3. House 2	*	-15.2	359.7	1.8	*
4. House 3	*	15.2	94.5	1.8	*

MODEL RESULTS

REMARKS : In search of the angle corresponding to
          the maximum concentration, only the first
          angle, of the angles with same maximum
          concentrations, is indicated as maximum.

WIND	*	CONCENTRATION			
ANGLE	*	(ug/m**3)			
(DEGR)	*	REC1	REC2	REC3	REC4
0.	*	0.	0.	0.	0.

THE HIGHEST CONCENTRATION OF   0. ug/m**3 OCCURRED AT RECEPTOR REC4 .

JOB: Route 21   RUN: AM PEAK HOUR

DATE: 02/12/07   TIME: 10:17

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

	*	PM/LNK(ug/m**3)			
	*	ANGLE (DEGREES)			
	*	REC1	REC2	REC3	REC4
LINK #	*	0	0	0	0
1	*	0.1	0.0	0.2	0.3

JOB: Route 21   RUN: 7-8 AM

DATE: 02/12/07   TIME: 11:26

The MODE flag has been set to P for calculating PM averages.

SITE & METEOROLOGICAL VARIABLES

VS =   0.0 CM/S   VD =   0.0 CM/S   Z0 = 108. CM
 U =   1.0 M/S   CLAS =   4 (D)   ATIM = 60. MINUTES   MIXH = 1000. M
AMB = 0.0 ug/m**3 BRG =   5. DEGREES

LINK VARIABLES

LINK DESCRIPTION				*	LINK COORDINATES (M)				*	LENGTH	BRG	TYPE
VPH EF	H	W	V/C	QUEUE		X1	Y1	X2	Y2	*	(M)	(DEG)	
(G/MI)	(M)	(M)		(VEH)	*					*			

-------------------------------------*------------------------------------*--------------------------
----
    1. Route 21   *   0.0   609.6   0.0   0.0 *   610.   180. AG
 357. 0.0 0.0 13.4

JOB: Route 21   RUN: AM PEAK HOUR

DATE: 02/12/07   TIME: 11:26

RECEPTOR LOCATIONS
----

	*	COORDINATES (M)			*
RECEPTOR	*	X	Y	Z	*
1. House 1	*	-15.2	499.9	1.8	*
2. School	*	34.7	499.9	1.8	*
3. House 2	*	-15.2	359.7	1.8	*
4. House 3	*	15.2	94.5	1.8	*

MODEL RESULTS

REMARKS : In search of the angle corresponding to
          the maximum concentration, only the first
          angle, of the angles with same maximum
          concentrations, is indicated as maximum.

WIND * CONCENTRATION
ANGLE *   (ug/m**3)
(DEGR)* REC1 REC2 REC3 REC4
------*-----------------------
  5. *   0.   0.   0.   0.
------*-----------------------
THE HIGHEST CONCENTRATION OF   0. ug/m**3 OCCURRED AT RECEPTOR REC3 .

JOB: Route 21   RUN: AM PEAK HOUR

DATE: 02/12/07   TIME: 11:26

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

        *   PM/LNK(ug/m**3)
        *   ANGLE (DEGREES)
        * REC1 REC2 REC3 REC4
 LINK # *   5   5   5   5
-------*-----------------------
   1 *   0.2   0.0   0.4   0.2

JOB: Route 21   RUN: 8-9 AM

DATE: 02/12/07   TIME: 10:17

        The MODE flag has been set to P for calculating PM averages.

    SITE & METEOROLOGICAL VARIABLES

    VS =   0.0 CM/S   VD =   0.0 CM/S   Z0 = 108. CM
    U =   1.0 M/S   CLAS =   5 (E)   ATIM = 60. MINUTES   MIXH = 1000. M
AMB = 0.0 ug/m**3 BRG =   0. DEGREES

    LINK VARIABLES

      LINK DESCRIPTION   *   LINK COORDINATES (M)   *   LENGTH BRG TYPE
VPH   EF   H   W   V/C QUEUE   * X1   Y1   X2   Y2   *   (M)   (DEG)
     (G/MI)   (M) (M)   (VEH)

------------------------*---*------------------------
----
      1. Route 21   *   0.0   609.6   0.0   0.0 *   610.   180. AG
253.   0.0   0.0 13.4

DATE: 02/12/07   TIME: 10:17

    RECEPTOR LOCATIONS
    ----
                           *   COORDINATES (M)   *
        RECEPTOR   *   X   Y   Z   *
---------------------------*-------------------------------------*--
    1. House 1   *   -15.2   499.9   1.8   *
    2. School   *   34.7   499.9   1.8   *
    3. House 2   *   -15.2   359.7   1.8   *
    4. House 3   *   15.2   94.5   1.8   *

    MODEL RESULTS

    REMARKS : In search of the angle corresponding to
              the maximum concentration, only the first
              angle, of the angles with same maximum
              concentrations, is indicated as maximum.

WIND   * CONCENTRATION
ANGLE *   (ug/m**3)
(DEGR)* REC1 REC2 REC3 REC4
------*-------------------------
  0. *   0.   0.   0.   0.
------*-------------------------
THE HIGHEST CONCENTRATION OF   0. ug/m**3 OCCURRED AT RECEPTOR REC4 .

DATE: 02/12/07   TIME: 10:17

    RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
    THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

         *   PM/LNK(ug/m**3)
         *   ANGLE (DEGREES)
         * REC1 REC2 REC3 REC4
   LINK # *   0   0   0   0
  -------*-------------------------
     1 *   0.1   0.0   0.2   0.3

JOB: Route 21   RUN: 9-10 AM

DATE: 02/12/07   TIME: 10:17

The MODE flag has been set to P for calculating PM averages.

SITE & METEOROLOGICAL VARIABLES

VS =   0.0 CM/S   VD =   0.0 CM/S   Z0 = 108. CM
U =   1.0 M/S   CLAS =   5 (E)   ATIM = 60. MINUTES   MIXH = 1000. M
AMB = 0.0 ug/m**3 BRG =   0. DEGREES

LINK VARIABLES

LINK DESCRIPTION	*		LINK COORDINATES (M)			*	LENGTH	BRG	TYPE
VPH EF H W V/C QUEUE	*	X1	Y1	X2	Y2	*	(M)	(DEG)	
(G/MI) (M) (M) (VEH)									

--------------------------------*--*----------------------------
----

| 1. Route 21 | * | 0.0 | 609.6 | 0.0 | 0.0 | * | 610. | 180. | AG |
| 308.   0.0   0.0 13.4 | | | | | | | | | |

JOB: Route 21   RUN: AM PEAK HOUR

DATE: 02/12/07   TIME: 10:17

RECEPTOR LOCATIONS

| | * | COORDINATES (M) | | | * |
RECEPTOR	*	X	Y	Z	*
1. House 1	*	-15.2	499.9	1.8	*
2. School	*	34.7	499.9	1.8	*
3. House 2	*	-15.2	359.7	1.8	*
4. House 3	*	15.2	94.5	1.8	*

MODEL RESULTS

REMARKS : In search of the angle corresponding to
          the maximum concentration, only the first
          angle, of the angles with same maximum
          concentrations, is indicated as maximum.

WIND   * CONCENTRATION
ANGLE *   (ug/m**3)
(DEGR)* REC1   REC2   REC3   REC4
------*-------------------------
  0. *   0.   0.   0.   0.
------*-------------------------
THE HIGHEST CONCENTRATION OF   0. ug/m**3 OCCURRED AT RECEPTOR REC4 .

JOB: Route 21   RUN: AM PEAK HOUR

DATE: 02/12/07   TIME: 10:17

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

	*	PM/LNK(ug/m**3)			
	*	ANGLE (DEGREES)			
	*	REC1	REC2	REC3	REC4
LINK #	*	0	0	0	0
1	*	0.1	0.0	0.3	0.4

JOB: Route 21   RUN: 10-11 AM

DATE: 02/12/07   TIME: 10:18

    The MODE flag has been set to P for calculating PM averages.

    SITE & METEOROLOGICAL VARIABLES

    VS =   0.0 CM/S   VD =   0.0 CM/S   Z0 = 108. CM
     U = 1.0 M/S   CLAS =   5 (E)   ATIM = 60. MINUTES   MIXH = 1000. M
AMB = 0.0 ug/m**3 BRG =   0. DEGREES

    LINK VARIABLES

       LINK DESCRIPTION   *   LINK COORDINATES (M)   *   LENGTH BRG TYPE
VPH   EF   H   W   V/C QUEUE   *
                            * X1   Y1   X2   Y2   *   (M)   (DEG)
    (G/MI) (M) (M)   (VEH)

----------------------*---*----------------------
------------------------------*-------------------
    1. Route 21   *   0.0   609.6   0.0   0.0 *   610.   180. AG
287.   0.0   0.0 13.4

JOB: Route 21   RUN: AM PEAK HOUR

DATE: 02/12/07   TIME: 10:18

    RECEPTOR LOCATIONS
    ----
                           *   COORDINATES (M)   *
       RECEPTOR   *   X   Y   Z   *
-------------------------*---*
    1. House 1   *   -15.2   499.9   1.8   *
    2. School   *   34.7   499.9   1.8   *
    3. House 2   *   -15.2   359.7   1.8   *
    4. House 3   *   15.2   94.5   1.8   *

    MODEL RESULTS

    REMARKS : In search of the angle corresponding to
              the maximum concentration, only the first
              angle, of the angles with same maximum
              concentrations, is indicated as maximum.

WIND * CONCENTRATION
ANGLE *   (ug/m**3)
(DEGR)* REC1 REC2 REC3 REC4
------*-------------------------
  0. *   0.   0.   0.   0.
------*-------------------------
THE HIGHEST CONCENTRATION OF   0. ug/m**3 OCCURRED AT RECEPTOR REC3 .

JOB: Route 21   RUN: AM PEAK HOUR

DATE: 02/12/07   TIME: 10:18

    RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
    THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

          *   PM/LNK(ug/m**3)
          *   ANGLE (DEGREES)
          * REC1 REC2 REC3 REC4
   LINK # *   0   0   0   0
   -------*-------------------------
      1 *   0.1   0.0   0.3   0.3

JOB: Route 21   RUN: 11AM - 12PM

DATE: 02/12/07   TIME: 10:18

The MODE flag has been set to P for calculating PM averages.

SITE & METEOROLOGICAL VARIABLES

VS =   0.0 CM/S   VD =   0.0 CM/S   Z0 = 108. CM
 U =   1.0 M/S   CLAS =   5 (E)   ATIM = 60. MINUTES   MIXH = 1000. M
AMB = 0.0 ug/m**3 BRG =   0. DEGREES

LINK VARIABLES

        LINK DESCRIPTION   *   LINK COORDINATES (M)   *   LENGTH BRG TYPE
VPH   EF   H   W   V/C QUEUE
                        *   X1   Y1   X2   Y2   *   (M)   (DEG)
       (G/MI) (M) (M)   (VEH)

----------------------*---*--------------------------
----
      1. Route 21   *   0.0   609.6   0.0   0.0 *   610.   180. AG
286.   0.0   0.0 13.4

JOB: Route 21   RUN: AM PEAK HOUR

DATE: 02/12/07   TIME: 10:18

RECEPTOR LOCATIONS
----
                          *   COORDINATES (M)   *
        RECEPTOR   *   X   Y   Z   *
------------------------*------------------------------------*
 1. House 1   *   -15.2   499.9   1.8 *
 2. School   *   34.7   499.9   1.8 *
 3. House 2   *   -15.2   359.7   1.8 *
 4. House 3   *   15.2   94.5   1.8 *

MODEL RESULTS

REMARKS : In search of the angle corresponding to
          the maximum concentration, only the first
          angle, of the angles with same maximum
          concentrations, is indicated as maximum.

WIND * CONCENTRATION
ANGLE *   (ug/m**3)
(DEGR)* REC1 REC2 REC3 REC4
------*-----------------------
 0. *   0.   0.   0.   0.
------*-----------------------
THE HIGHEST CONCENTRATION OF   0. ug/m**3 OCCURRED AT RECEPTOR REC3 .

JOB: Route 21   RUN: AM PEAK HOUR

DATE: 02/12/07   TIME: 10:18

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

        *   PM/LNK(ug/m**3)
        *   ANGLE (DEGREES)
        * REC1 REC2 REC3 REC4
LINK # *   0   0   0   0
-------*-----------------------
   1 *   0.1   0.0   0.3   0.3

The MODE flag has been set to P for calculating PM averages.

SITE & METEOROLOGICAL VARIABLES

VS =   0.0 CM/S   VD =   0.0 CM/S   Z0 = 108. CM
 U =   1.0 M/S   CLAS =   5 (E)   ATIM = 60. MINUTES   MIXH = 1000. M
AMB = 0.0 ug/m**3 BRG =   0. DEGREES

LINK VARIABLES

LINK DESCRIPTION				*	LINK COORDINATES (M)				*	LENGTH	BRG	TYPE
VPH	EF	H	W	V/C	QUEUE							
					*	X1	Y1	X2	Y2	*	(M)	(DEG)
(G/MI)	(M)	(M)		(VEH)								

1. Route 21				*	0.0	609.6	0.0	0.0 *	610. 180. AG
302. 0.0 0.0 13.4									

RECEPTOR LOCATIONS
----

	*	COORDINATES (M)			*
RECEPTOR	*	X	Y	Z	*
1. House 1	*	-15.2	499.9	1.8	*
2. School	*	34.7	499.9	1.8	*
3. House 2	*	-15.2	359.7	1.8	*
4. House 3	*	15.2	94.5	1.8	*

MODEL RESULTS

REMARKS : In search of the angle corresponding to
          the maximum concentration, only the first
          angle, of the angles with same maximum
          concentrations, is indicated as maximum.

WIND	*	CONCENTRATION			
ANGLE	*	(ug/m**3)			
(DEGR)	*	REC1	REC2	REC3	REC4
0.	*	0.	0.	0.	0.

THE HIGHEST CONCENTRATION OF   0. ug/m**3 OCCURRED AT RECEPTOR REC4 .

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

	*	PM/LNK(ug/m**3)			
	*	ANGLE (DEGREES)			
	*	REC1	REC2	REC3	REC4
LINK #	*	0	0	0	0
1	*	0.1	0.0	0.3	0.4

JOB: Route 21   RUN: 1-2 PM

DATE: 02/12/07   TIME: 10:18

     The MODE flag has been set to P for calculating PM averages.

     SITE & METEOROLOGICAL VARIABLES

     VS =   0.0 CM/S   VD =   0.0 CM/S   Z0 = 108. CM
      U = 1.0 M/S   CLAS =   5 (E)   ATIM = 60. MINUTES   MIXH = 1000. M
AMB = 0.0 ug/m**3 BRG =   0. DEGREES

     LINK VARIABLES

      LINK DESCRIPTION   *   LINK COORDINATES (M)   *   LENGTH BRG TYPE
 VPH   EF   H   W   V/C QUEUE
                         * X1   Y1   X2   Y2   *   (M)   (DEG)
      (G/MI) (M) (M)   (VEH)

----------------------------*---------------------------------------*---------------------------
----
      1. Route 21   *   0.0   609.6   0.0   0.0 *   610.   180. AG
 333.   0.0   0.0 13.4

JOB: Route 21   RUN: 1-2 PM

DATE: 02/12/07   TIME: 10:18

     RECEPTOR LOCATIONS
     ----
                          *   COORDINATES (M)   *
       RECEPTOR   *   X   Y   Z   *
---------------------------*---------------------------------------*
      1. House 1   *   -15.2   499.9   1.8   *
      2. School   *   34.7   499.9   1.8   *
      3. House 2   *   -15.2   359.7   1.8   *
      4. House 3   *   15.2   94.5   1.8   *

     MODEL RESULTS

     REMARKS : In search of the angle corresponding to
               the maximum concentration, only the first
               angle, of the angles with same maximum
               concentrations, is indicated as maximum.

WIND * CONCENTRATION
ANGLE *   (ug/m**3)
(DEGR)* REC1   REC2   REC3   REC4
------*--------------------------
  0. *   0.   0.   0.   0.
------*--------------------------
THE HIGHEST CONCENTRATION OF   0. ug/m**3 OCCURRED AT RECEPTOR REC4 .

JOB: Route 21   RUN: 1-2 PM

DATE: 02/12/07   TIME: 10:18

     RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
     THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

           *   PM/LNK(ug/m**3)
           *   ANGLE (DEGREES)
           * REC1   REC2   REC3   REC4
  LINK # * *   0   0   0   0
  -------*--------------------------
      1 *   0.2   0.0   0.3   0.4

JOB: Route 21   RUN: 2-3 PM

DATE: 02/12/07   TIME: 10:18

    The MODE flag has been set to P for calculating PM averages.

    SITE & METEOROLOGICAL VARIABLES

    VS =   0.0 CM/S   VD =   0.0 CM/S   Z0 = 108. CM
     U = 1.0 M/S   CLAS =   5 (E)   ATIM = 60. MINUTES   MIXH = 1000. M
AMB = 0.0 ug/m**3 BRG =   0. DEGREES

    LINK VARIABLES

      LINK DESCRIPTION   *   LINK COORDINATES (M)   *   LENGTH BRG TYPE
 VPH   EF   H   W   V/C QUEUE   *   X1   Y1   X2   Y2   *   (M)   (DEG)
      (G/MI) (M) (M)   (VEH)

----------------------*---*-------------------------
----
       1. Route 21   *   0.0   609.6   0.0   0.0 *   610.   180. AG
 354.   0.0   0.0 13.4

    DATE: 02/12/07   TIME: 10:18

    RECEPTOR LOCATIONS
    ----
                          *   COORDINATES (M)   *
       RECEPTOR   *   X   Y   Z   *
    --------------------*--------------------------------------*
    1. House 1   *   -15.2   499.9   1.8   *
    2. School   *   34.7   499.9   1.8   *
    3. House 2   *   -15.2   359.7   1.8   *
    4. House 3   *   15.2   94.5   1.8   *

    MODEL RESULTS

    REMARKS : In search of the angle corresponding to
              the maximum concentration, only the first
              angle, of the angles with same maximum
              concentrations, is indicated as maximum.

WIND * CONCENTRATION
ANGLE *   (ug/m**3)
(DEGR)* REC1 REC2 REC3 REC4
------*------------------------
  0. *   0.   0.   0.   0.
------*------------------------
THE HIGHEST CONCENTRATION OF   0. ug/m**3 OCCURRED AT RECEPTOR REC4 .

    DATE: 02/12/07   TIME: 10:18

    RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
    THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

         *   PM/LNK(ug/m**3)
         *   ANGLE (DEGREES)
         * REC1 REC2 REC3 REC4
   LINK # *   0   0   0   0
   ------*------------------------
     1 *   0.2   0.0   0.3   0.4

JOB: Route 21   RUN: 3-4 PM

DATE: 02/12/07   TIME: 10:18

      The MODE flag has been set to P for calculating PM averages.

      SITE & METEOROLOGICAL VARIABLES

      VS =   0.0 CM/S   VD =   0.0 CM/S   Z0 = 108. CM
      U = 1.0 M/S   CLAS =   5 (E)   ATIM = 60. MINUTES   MIXH = 1000. M
AMB = 0.0 ug/m**3 BRG =   0. DEGREES

      LINK VARIABLES

	LINK DESCRIPTION	*		LINK COORDINATES (M)		*	LENGTH	BRG	TYPE
VPH EF	H W V/C QUEUE	*	X1	Y1	X2	Y2	*	(M)	(DEG)	
(G/MI)	(M) (M) (VEH)									

-----------------------*---*----------------------------
----
      1. Route 21   *   0.0   609.6   0.0   0.0 *   610.   180. AG
 391.   0.0   0.0 13.4

DATE: 02/12/07   TIME: 10:18

      RECEPTOR LOCATIONS
      ----

	*		COORDINATES (M)		*
RECEPTOR	*	X	Y	Z	*
1. House 1	*	-15.2	499.9	1.8	*
2. School	*	34.7	499.9	1.8	*
3. House 2	*	-15.2	359.7	1.8	*
4. House 3	*	15.2	94.5	1.8	*

      MODEL RESULTS

      REMARKS : In search of the angle corresponding to
                the maximum concentration, only the first
                angle, of the angles with same maximum
                concentrations, is indicated as maximum.

WIND	*	CONCENTRATION			
ANGLE	*	(ug/m**3)			
(DEGR)	*	REC1	REC2	REC3	REC4
0.	*	0.	0.	0.	1.

THE HIGHEST CONCENTRATION OF   1. ug/m**3 OCCURRED AT RECEPTOR REC4 .

DATE: 02/12/07   TIME: 10:18

      RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
      THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

	*	PM/LNK(ug/m**3)			
	*	ANGLE (DEGREES)			
	*	REC1	REC2	REC3	REC4
LINK #	*	0	0	0	0
1	*	0.2	0.0	0.3	0.5

JOB: Route 21   RUN: 4-5 PM

DATE: 02/12/07   TIME: 10:18

     The MODE flag has been set to P for calculating PM averages.

     SITE & METEOROLOGICAL VARIABLES

     VS =   0.0 CM/S   VD =   0.0 CM/S   Z0 = 108. CM
      U =   1.0 M/S   CLAS =   5 (E)   ATIM = 60. MINUTES   MIXH = 1000. M
AMB = 0.0 ug/m**3 BRG =   0. DEGREES

     LINK VARIABLES

          LINK DESCRIPTION   *   LINK COORDINATES (M)   *   LENGTH BRG TYPE
 VPH   EF   H   W   V/C QUEUE
                                 *   X1   Y1   X2   Y2   *   (M)   (DEG)
      (G/MI)   (M) (M)   (VEH)

------------------------------*---*---------------------------
----
     1. Route 21   *   0.0   609.6   0.0   0.0 *   610.   180. AG
 426.   0.0   0.0 13.4

JOB: Route 21   RUN: 4-5 PM

DATE: 02/12/07   TIME: 10:18

     RECEPTOR LOCATIONS
     ----
                            *   COORDINATES (M)   *
          RECEPTOR   *   X   Y   Z   *
     ---------------------------*-------------------------------------*
     1. House 1   *   -15.2   499.9   1.8   *
     2. School   *   34.7   499.9   1.8   *
     3. House 2   *   -15.2   359.7   1.8   *
     4. House 3   *   15.2   94.5   1.8   *

     MODEL RESULTS

     REMARKS : In search of the angle corresponding to
               the maximum concentration, only the first
               angle, of the angles with same maximum
               concentrations, is indicated as maximum.

WIND * CONCENTRATION
ANGLE *   (ug/m**3)
(DEGR)* REC1 REC2 REC3 REC4
------*-----------------------
  0. * 0.   0.   0.   1.
------*-----------------------
THE HIGHEST CONCENTRATION OF   1. ug/m**3 OCCURRED AT RECEPTOR REC4 .

JOB: Route 21   RUN: 4-5 PM

DATE: 02/12/07   TIME: 10:18

     RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
     THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

          *   PM/LNK(ug/m**3)
          *   ANGLE (DEGREES)
          * REC1 REC2 REC3 REC4
  LINK # *   0   0   0   0
  -------*-----------------------
     1 *   0.2   0.0   0.4   0.5

        JOB: Route 21   RUN: 5-6 PM

        DATE: 02/12/07   TIME: 10:18

            The MODE flag has been set to P for calculating PM averages.

            SITE & METEOROLOGICAL VARIABLES

            VS =   0.0 CM/S   VD =   0.0 CM/S   Z0 = 108. CM
             U =   1.0 M/S   CLAS =   5 (E)   ATIM = 60. MINUTES   MIXH = 1000. M
     AMB = 0.0 ug/m**3 BRG =   0. DEGREES

            LINK VARIABLES

            LINK DESCRIPTION   *   LINK COORDINATES (M)   *   LENGTH BRG TYPE
     VPH   EF   H   W   V/C QUEUE *   X1   Y1   X2   Y2   *   (M)   (DEG)
                                        *
          (G/MI)   (M) (M)   (VEH)

     ----------------------------*---*------------------------
     ----
            1. Route 21   *   0.0   609.6   0.0   0.0 *   610.   180. AG
      436.   0.0   0.0 13.4

        JOB: Route 21   RUN: 5-6 PM

        DATE: 02/12/07   TIME: 10:18

            RECEPTOR LOCATIONS
            ----
                                  *   COORDINATES (M)   *
                  RECEPTOR   *   X   Y   Z   *
     ---------------------------*---*-
            1. House 1   *   -15.2   499.9   1.8   *
            2. School   *   34.7   499.9   1.8   *
            3. House 2   *   -15.2   359.7   1.8   *
            4. House 3   *   15.2   94.5   1.8   *

            MODEL RESULTS

            REMARKS : In search of the angle corresponding to
                      the maximum concentration, only the first
                      angle, of the angles with same maximum
                      concentrations, is indicated as maximum.

     WIND   * CONCENTRATION
     ANGLE *   (ug/m**3)
     (DEGR)* REC1   REC2   REC3   REC4
     ------*-------------------------
       0. *   0.   0.   0.   1.
     ------*-------------------------
     THE HIGHEST CONCENTRATION OF   1. ug/m**3 OCCURRED AT RECEPTOR REC4 .

        JOB: Route 21   RUN: 5-6 PM

        DATE: 02/12/07   TIME: 10:18

            RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
            THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

                  *   PM/LNK(ug/m**3)
                  *   ANGLE (DEGREES)
                  * REC1   REC2   REC3   REC4
        LINK # *   0   0   0   0
     -------*-------------------------
            1 *   0.2   0.0   0.4   0.5

JOB: Route 21   RUN: 6-7 PM

DATE: 02/12/07   TIME: 10:18

    The MODE flag has been set to P for calculating PM averages.

    SITE & METEOROLOGICAL VARIABLES

    VS =   0.0 CM/S   VD =   0.0 CM/S   Z0 = 108. CM
    U = 1.0 M/S   CLAS =   5 (E)   ATIM = 60. MINUTES   MIXH = 1000. M
AMB = 0.0 ug/m**3 BRG =   0. DEGREES

    LINK VARIABLES

       LINK DESCRIPTION   *   LINK COORDINATES (M)   *   LENGTH BRG TYPE
  VPH   EF   H   W   V/C QUEUE   *   (M)   (DEG)
                              *   X1   Y1   X2   Y2   *
      (G/MI) (M) (M)   (VEH)
----------------------*---*-------------------------
------------------------------*----------
      1. Route 21   *   0.0   609.6   0.0   0.0 *   610.   180. AG
 347.   0.0   0.0 13.4

JOB: Route 21   RUN: 6-7 PM

DATE: 02/12/07   TIME: 10:18

    RECEPTOR LOCATIONS
    ----
                             *   COORDINATES (M)   *
       RECEPTOR   *   X   Y   Z   *
-----------------------------*-------------------------------------*--
    1. House 1   *   -15.2   499.9   1.8   *
    2. School   *   34.7   499.9   1.8   *
    3. House 2   *   -15.2   359.7   1.8   *
    4. House 3   *   15.2   94.5   1.8   *

    MODEL RESULTS

    REMARKS : In search of the angle corresponding to
              the maximum concentration, only the first
              angle, of the angles with same maximum
              concentrations, is indicated as maximum.

WIND   * CONCENTRATION
ANGLE *   (ug/m**3)
(DEGR) * REC1   REC2   REC3   REC4
-------*---------------------------
  0.   *   0.   0.   0.   0.
-------*---------------------------
THE HIGHEST CONCENTRATION OF   0. ug/m**3 OCCURRED AT RECEPTOR REC4 .

JOB: Route 21   RUN: 6-7 PM

DATE: 02/12/07   TIME: 10:18

    RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
    THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

         *   PM/LNK(ug/m**3)
         *   ANGLE (DEGREES)
         * REC1   REC2   REC3   REC4
  LINK # *   0   0   0   0
--------*---------------------------
    1   *   0.2   0.0   0.3   0.4

JOB: Route 21   RUN: 7-8 PM

DATE: 02/12/07   TIME: 10:20

The MODE flag has been set to P for calculating PM averages.

SITE & METEOROLOGICAL VARIABLES

VS =   0.0 CM/S   VD =   0.0 CM/S   Z0 = 108. CM
 U =   1.0 M/S   CLAS =   5 (E)   ATIM = 60. MINUTES   MIXH = 1000. M
AMB = 0.0 ug/m**3 BRG =   0. DEGREES

LINK VARIABLES

LINK DESCRIPTION	*				LINK COORDINATES (M)			*	LENGTH	BRG	TYPE
VPH EF H W	V/C	QUEUE	X1	Y1	X2	Y2	*	(M)	(DEG)	
(G/MI) (M) (M)	(VEH)									

----------------------*---*-------------------------

| 1. Route 21 | * | 0.0 | 609.6 | 0.0 | 0.0 * | 610. | 180. | AG |
| 269.   0.0   0.0 13.4 | | | | | | | | |

JOB: Route 21   RUN: 7-8 PM

DATE: 02/12/07   TIME: 10:20

RECEPTOR LOCATIONS
----

	*	COORDINATES (M)			*
RECEPTOR	*	X	Y	Z	*
1. House 1	*	-15.2	499.9	1.8	*
2. School	*	34.7	499.9	1.8	*
3. House 2	*	-15.2	359.7	1.8	*
4. House 3	*	15.2	94.5	1.8	*

MODEL RESULTS

REMARKS : In search of the angle corresponding to
          the maximum concentration, only the first
          angle, of the angles with same maximum
          concentrations, is indicated as maximum.

WIND	*	CONCENTRATION			
ANGLE	*	(ug/m**3)			
(DEGR)	*	REC1	REC2	REC3	REC4
0.	*	0.	0.	0.	0.

THE HIGHEST CONCENTRATION OF   0. ug/m**3 OCCURRED AT RECEPTOR REC4 .

JOB: Route 21   RUN: 7-8 PM

DATE: 02/12/07   TIME: 10:20

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

	*	PM/LNK(ug/m**3)			
	*	ANGLE (DEGREES)			
	*	REC1	REC2	REC3	REC4
LINK #	*	0	0	0	0
1	*	0.1	0.0	0.2	0.3

JOB: Route 21   RUN: 8-9 PM

DATE: 02/12/07   TIME: 10:20

    The MODE flag has been set to P for calculating PM averages.

    SITE & METEOROLOGICAL VARIABLES

    VS =   0.0 CM/S   VD =   0.0 CM/S   Z0 = 108. CM
     U =   1.0 M/S   CLAS =   5 (E)   ATIM = 60. MINUTES   MIXH = 1000. M
AMB = 0.0 ug/m**3 BRG =   0. DEGREES

    LINK VARIABLES

        LINK DESCRIPTION   *   LINK COORDINATES (M)   *   LENGTH BRG TYPE
 VPH   EF   H   W   V/C QUEUE
                               *   X1   Y1   X2   Y2   *   (M)   (DEG)
       (G/MI) (M) (M)   (VEH)

-------------------------*---*----------------------
----
       1. Route 21   *   0.0   609.6   0.0   0.0 *   610.   180. AG
 212.   0.0   0.0 13.4

JOB: Route 21   RUN: 8-9 PM

DATE: 02/12/07   TIME: 10:20

    RECEPTOR LOCATIONS
    ----
                          *   COORDINATES (M)   *
         RECEPTOR   *   X   Y   Z   *
    ----------------------*------------------------------------*
    1. House 1   *   -15.2   499.9   1.8   *
    2. School   *   34.7   499.9   1.8   *
    3. House 2   *   -15.2   359.7   1.8   *
    4. House 3   *   15.2   94.5   1.8   *

    MODEL RESULTS

    REMARKS : In search of the angle corresponding to
              the maximum concentration, only the first
              angle, of the angles with same maximum
              concentrations, is indicated as maximum.

WIND * CONCENTRATION
ANGLE *   (ug/m**3)
(DEGR)* REC1 REC2 REC3 REC4
------*------------------------
  0. * 0.   0.   0.   0.
------*------------------------
THE HIGHEST CONCENTRATION OF   0. ug/m**3 OCCURRED AT RECEPTOR REC3 .

JOB: Route 21   RUN: 8-9 PM

DATE: 02/12/07   TIME: 10:20

    RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
    THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

         *   PM/LNK(ug/m**3)
         *   ANGLE (DEGREES)
         * REC1 REC2 REC3 REC4
 LINK # *   0   0   0   0
 ------*------------------------
     1 *   0.1   0.0   0.2   0.2

JOB: Route 21   RUN: 9-10 PM

DATE: 02/12/07   TIME: 10:20

The MODE flag has been set to P for calculating PM averages.

SITE & METEOROLOGICAL VARIABLES

VS =   0.0 CM/S   VD =   0.0 CM/S   Z0 = 108. CM
 U = 1.0 M/S   CLAS =   5 (E)   ATIM = 60. MINUTES   MIXH = 1000. M
AMB = 0.0 ug/m**3 BRG =   0. DEGREES

LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M)			*	LENGTH	BRG	TYPE
VPH EF H W V/C QUEUE	*	X1	Y1	X2	Y2	*	(M)	(DEG)	
(G/MI) (M) (M) (VEH)									

-----------------------------*---*----------------------------
----
    1. Route 21   *   0.0   609.6   0.0   0.0 *   610.   180. AG
 160.   0.0   0.0 13.4

JOB: Route 21   RUN: 9-10 PM

DATE: 02/12/07   TIME: 10:20

RECEPTOR LOCATIONS
----

	*	COORDINATES (M)			*
RECEPTOR	*	X	Y	Z	*
1. House 1	*	-15.2	499.9	1.8	*
2. School	*	34.7	499.9	1.8	*
3. House 2	*	-15.2	359.7	1.8	*
4. House 3	*	15.2	94.5	1.8	*

MODEL RESULTS

REMARKS : In search of the angle corresponding to
          the maximum concentration, only the first
          angle, of the angles with same maximum
          concentrations, is indicated as maximum.

WIND * CONCENTRATION
ANGLE *   (ug/m**3)
(DEGR)* REC1 REC2 REC3 REC4
------*------------------------
  0. *   0.   0.   0.   0.
------*------------------------
THE HIGHEST CONCENTRATION OF   0. ug/m**3 OCCURRED AT RECEPTOR REC4 .

JOB: Route 21   RUN: 9-10 PM

DATE: 02/12/07   TIME: 10:20

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

         *   PM/LNK(ug/m**3)
         *   ANGLE (DEGREES)
         * REC1 REC2 REC3 REC4
 LINK # *   0   0   0   0
-------*------------------------
   1 *   0.1   0.0   0.1   0.2

JOB: Route 21   RUN: 10-11 PM

DATE: 02/12/07   TIME: 10:20

     The MODE flag has been set to P for calculating PM averages.

     SITE & METEOROLOGICAL VARIABLES

     VS =   0.0 CM/S   VD =   0.0 CM/S   Z0 = 108. CM
     U = 1.0 M/S   CLAS =   5 (E)   ATIM = 60. MINUTES   MIXH = 1000. M
AMB = 0.0 ug/m**3 BRG =   0. DEGREES

     LINK VARIABLES

         LINK DESCRIPTION   *   LINK COORDINATES (M)   *   LENGTH BRG TYPE
VPH   EF   H   W   V/C QUEUE * X1   Y1   X2   Y2   *   (M)   (DEG)
    (G/MI) (M) (M)   (VEH)

----------------------*--*---------------------------
------------------------------*--------------------
    1. Route 21   *   0.0   609.6   0.0   0.0 *   610.   180. AG
 80.   0.0   0.0 13.4

JOB: Route 21   RUN: 10-11 PM

DATE: 02/12/07   TIME: 10:20

     RECEPTOR LOCATIONS
     ----
                          *   COORDINATES (M)   *
         RECEPTOR   *   X   Y   Z   *
-------------------------*----------------------------------*--
    1. House 1   *   -15.2   499.9   1.8   *
    2. School   *   34.7   499.9   1.8   *
    3. House 2   *   -15.2   359.7   1.8   *
    4. House 3   *   15.2   94.5   1.8   *

     MODEL RESULTS

     REMARKS : In search of the angle corresponding to
               the maximum concentration, only the first
               angle, of the angles with same maximum
               concentrations, is indicated as maximum.

WIND * CONCENTRATION
ANGLE *   (ug/m**3)
(DEGR)* REC1   REC2   REC3   REC4
------*-----------------------
  0. *   0.   0.   0.   0.
------*-----------------------
THE HIGHEST CONCENTRATION OF   0. ug/m**3 OCCURRED AT RECEPTOR REC3 .

JOB: Route 21   RUN: 10-11 PM

DATE: 02/12/07   TIME: 10:20

     RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
     THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

          *   PM/LNK(ug/m**3)
          *   ANGLE (DEGREES)
          * REC1 REC2 REC3 REC4
   LINK # *   0   0   0   0
-------*-----------------------
    1 *   0.0   0.0   0.1   0.1

JOB: Route 21   RUN: 11PM-12AM

DATE: 02/12/07   TIME: 10:20

The MODE flag has been set to P for calculating PM averages.

SITE & METEOROLOGICAL VARIABLES

VS =   0.0 CM/S   VD =   0.0 CM/S   Z0 = 108. CM
 U =   1.0 M/S   CLAS =   5 (E)   ATIM = 60. MINUTES   MIXH = 1000. M
AMB = 0.0 ug/m**3 BRG =   0. DEGREES

LINK VARIABLES

	LINK DESCRIPTION	*		LINK COORDINATES (M)			*	LENGTH	BRG	TYPE
VPH	EF H W V/C	QUEUE	X1	Y1	X2	Y2	*	(M)	(DEG)	
	(G/MI) (M) (M)	(VEH)								

-----------------------*---*----------------------------
----
      1. Route 21   *   0.0   609.6   0.0   0.0 *   610.   180. AG
 48.   0.0   0.0 13.4

JOB: Route 21   RUN: 11PM-12AM

DATE: 02/12/07   TIME: 10:20

RECEPTOR LOCATIONS
----

	*		COORDINATES (M)		*
RECEPTOR	*	X	Y	Z	*
1. House 1	*	-15.2	499.9	1.8	*
2. School	*	34.7	499.9	1.8	*
3. House 2	*	-15.2	359.7	1.8	*
4. House 3	*	15.2	94.5	1.8	*

MODEL RESULTS

REMARKS : In search of the angle corresponding to
          the maximum concentration, only the first
          angle, of the angles with same maximum
          concentrations, is indicated as maximum.

WIND	*	CONCENTRATION			
ANGLE	*	(ug/m**3)			
(DEGR)	*	REC1	REC2	REC3	REC4
0.	*	0.	0.	0.	0.

THE HIGHEST CONCENTRATION OF   0. ug/m**3 OCCURRED AT RECEPTOR REC4 .

JOB: Route 21   RUN: 11PM-12AM

DATE: 02/12/07   TIME: 10:20

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

	*	PM/LNK(ug/m**3)			
	*	ANGLE (DEGREES)			
	*	REC1	REC2	REC3	REC4
LINK #	*	0	0	0	0
1	*	0.0	0.0	0.0	0.1

Appendix E – Air Quality and Noise References

References

1. New York State Department of Transportation Environmental Analysis Bureau, Mobile 6.2 PM10/PM2.5 Emission Factors for Regional, Mesoscale, CMAQ, and Microscale Air Quality Analysis, July 2004.
2. US EPA – Office of Air Quality Planning and Standards, User's Guide to CAL3QHC Version 2.0: A Modeling Methodology for Predicting Pollutant Concentrations Near Roadway Intersections, September 1995.
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4. NYSDOT Traffic Engineering & Highway Safety Division, Official Description of Designated Qualifying and Access Highways in New York State, April 2006.
5. NYSDOT, New York State Department of Transportation Project Level Particulate Matter Analysis, Final Policy, September 2004.
6. US EPA Office of Air Quality Planning and Standards, Website Fact Sheet titled "Health and Environmental Effects of Particulate Matter," July 17, 1997.
7. US EPA Office of Air Quality Planning and Standards, Website Document titled "September 2006 Revisions to the National Ambient Air Quality Standards for Particle Pollution- Overview," September 2006.
8. New York State Vehicle & Traffic Law Section 386, Motor Vehicle Sound Level Limits.