3.0 TRAFFIC PROJECTIONS

In order to evaluate the conditions associated with the proposed Fermi 3 expansion, the development of associated traffic projections is a paramount pre-requisite. MSG developed traffic projections which will model the best-anticipated conditions associated with the construction and operation of Fermi 3. A customary traffic projection process was employed and included:

- Identification of Existing Peak Hour Traffic Conditions (Background Traffic)
- Identification of appropriate Study Years
- Determination of anticipated background traffic growth
- Calculation of new traffic generated by the proposed project
- Assignment/ distribution of project-related traffic on the study area roadway network

3.1 Existing ("Background") Traffic

The existing (or "background") traffic is presented in ***Figure 7 (Section 2.5)*** and includes all existing or future traffic within the Fermi study area, not including the additional traffic to be generated by the proposed Fermi 3 construction or operations. The background traffic for this study was identified by actual present-day (2009) data collected for the purposes of this study and presented in ***Section 2***.

In order to project the comprehensive traffic conditions of the Fermi study area, the state of this background traffic during appropriate future years was determined. MSG gave reference and evaluation to two key factors in traffic projection:

- Study Years
- Projected Annual Traffic Growth Rate

3.2 Study Years

There are two distinct time periods associated with the Fermi 3 expansion which are relevant to the traffic evaluation under consideration in this study: a construction phase and normal operations.

The addition of Fermi 3 will occur over a construction phase expected to span from 2013 to 2020. Certain pre-construction activities may occur in advance for Fermi 1 and Fermi 2 facilities; however, are not part of a full-scale construction phase. Beginning in 2013, the contractor population is expected to build to a peak during mid-construction then taper off as work, testing, and fuel loading is completed up to full commercial operation. The ER (Part 3 Section 1.1.7) indicates milestone dates for construction of: First Structural Concrete -2013, Pre-Operational Testing -2018, Fuel Load - 2019, Commercial Operations - 2020. ER (Part 3 Section 4.4.2) indicates a peak construction operation will consist of 2,900 person contractor population. In 2020 commercial operations are anticipated to commence with 900 employees per the ER (Part 3 Section 5.8.2.1).

Study Years

For the purposes of traffic projection for this study, and in keeping with the ER, 2017 will serve as the peak construction year with 2,900 contractors. The year 2020 will begin normal Fermi 3 plant operations with 900 workers.

- **Peak Construction (2017) – 2,900 Contractor Population**
- **Normal Plant Operations (2020) – 900 Operational Employees**

3.3 Background Traffic Growth

MSG researched the anticipated growth of background traffic with primary reference to Southeast Michigan Council of Governments (SEMCOG) regional transportation planning (RTP) data. In addition, secondary reference to existing or historical traffic data along with sound engineering judgment was given. Both are considered on the basis of the best known available data and projections for the region at this current time. It is recognized for the purposes of this traffic study that traffic growth considerations serve as a method of sensitivity testing in the roadway network operations. Over periods of 20 and 30 years, projections of traffic and its causal socioeconomic factors are susceptible to minor or dramatic shifts from the best known current projections. As a result MSG reviewed the available growth factors with a level of conservatism and perspective relative to the study area and objectives of this study.

SEMCOG is the regional planning partnership of Southeast Michigan serving a regional consortium of local governments. As the region's designated Metropolitan Planning Organization (MPO), SEMCOG is responsible for all regional transportation planning, which facilitates the region's vision for a transportation system that is safe, accessible, and reliable, enhancing quality of life across its member borders. More specifically, SEMCOG integrates its administration of the RTP with the coordination of transportation funding conduits available through the State of Michigan, Federal Highway Administration (FHWA) and other federal programs to facilitate the implementation of the regional RTP in a prioritized and strategic program. As such, the FHWA and Federal Transit Administration (FTA) have certified (most recently in 2008) SEMCOG's transportation planning process meets the applicable federal requirements.

The regional planning efforts of SEMCOG entail a host of components beyond the scope or interest of this study; however, it consists of four (4) general components: Corridor Studies, Regional Forecast, Long-Range Transportation Plan, and Short-Range Transportation Program. SEMCOG's Regional forecast provides a long-range and comprehensive view of future demographic and economic changes. It provides base data for updating the long-range transportation plan and other regional planning projects. Member communities use the data in planning for infrastructure and development needs. The most current regional forecast is for 2035, including a host of 2035 regional demographic, socioeconomic, and transportation projections for the year 2035 along with a 2035 RTP. A key transportation-focused element of the 2035 regional forecast is the ***SEMCOG travel demand forecast model-projected volumes***. SEMCOG staff develops and maintains this model using inputs such as projected land use, employment, housing, and other socioeconomic data from the ***SEMCOG 2035 Regional Transportation Plan.***

MSG obtained travel-demand forecast model-projected volumes and traffic growth from SEMCOG for the area of Monroe County and the Fermi study area. (A full copy of this data is provided in ***Appendix E***) **SEMCOG's data reported an overall daily travel growth rate of 7 percent between 2005 and 2035. Assuming straight-line growth, this translates to 0.23 percent growth per year over that 30 year span**. This represents a generally flat projection of growth through 2035.

While this data provides the most in-depth consideration of traffic growth available, it is also noted that SEMCOG develops it for the analysis of traffic patterns and congestion primarily at a regional rather than community level. Despite the extensive factors modeled by SEMCOG regionally to develop this traffic growth projection, a certain level of inaccuracy must be recognized down at the community level considered with the Fermi study area.

To foster additional consideration of the traffic growth rate, SEMCOG also provided a comparative summary of socioeconomic data including population, households, and employment within the study area versus the entire SEMCOG region. These socioeconomic factors are very directly correlated with resulting traffic volumes and growth, and thus provide an excellent secondary barometer of what the anticipated traffic growth may be.

SEMCOG Socioeconomic Growth Factors Comparison				
Factor	**2005**	**2035**	**Total % Growth**	**Avg. Annual % Growth**
Study Area Socioeconomic Data (in 1,000's)				
Population	13.9	15.9	**14%**	**0.47%**
Households	5.2	6.7	**29%**	**0.97%**
Employment	3.3	3.8	**15%**	**0.50%**
SEMCOG Region Socioeconomic Data (in millions)				
Population	4.82	4.96	**3%**	**0.10%**
Households	1.92	2.18	**14%**	**0.46%**
Employment	2.04	2.15	**5%**	**0.17%**

The table above highlights several potential conclusions:

- Generally flat growth (<0.5% per year) is expected for the SEMCOG region on whole; however, pockets of greater growth may occur due to shifts in population, households, and employment within the region.
- The SEMCOG region population, households, and employment data respective growths of 0.10%, 0.46%, and 0.17% average annual growth for a combined average of 0.24% per year. This is consistent with the travel-demand model projected average annual growth of 0.23% per year.
- The Study Area population, households, and employment data respective average annual growths of 0.47%, 0.97%, and 0.50% provide a combined average annual growth of approximately 0.65% per year.
- The Fermi study area socioeconomic data suggests it is a pocket of slightly higher growth potential within the SEMCOG region. This socioeconomic data projection is consistent with a general assessment of the study area as compared with the typical SEMCOG region. Much of the SEMCOG region is developed, or at least more developed than the Fermi study area. Over the next 30 years, this suggests that the Fermi study area may see growth either due to new development in the SEMCOG region on whole or as a result of migrating population, employment, and housing factors.

Fermi Study Projected Annual Traffic Growth Rate

In consideration of the SEMCOG provided travel-demand model projected volumes and socioeconomic data projections, MSG has identified and applied an **average annual straight-line growth rate of 0.75%** in the projection of 2017 and 2020 background traffic associated with the development of Fermi 3 projected traffic conditions. This average annual growth rate produces an applied total growth of 6% from 2009-2017 (growth factor of 1.06) and 8.25% from 2009-2020 (growth factor of 1.0825). Existing 2009 traffic was factored by MSG using this growth for the respective 2017 and 2020 background traffic projections.

3.4 Fermi 3 Generated Traffic

Traffic projections for site development related projects are typically based on an industry standard "trip generation rate". A trip generation rate is the number of vehicle trips generated in a peak hour or over the course of a day based on the anticipated project size. Its methodology accounts for the many factors (i.e. carpooling, etc.) which influence the actual traffic generated to/from a site based on the project size. The project size can be defined in terms of square feet of building expansion, acres of development or number of employees to be added to the site. There are 2 fundamental methods available for projecting additional traffic generated during construction or once Fermi 3 is completed for operations:

3.4.1 Institute of Transportation Engineers (ITE) Method

Empirical traffic generation data models are available for use in calculating a wide range of land use types using the published *ITE Trip Generation, 8th Edition*. The range of land use types, however, remains fairly generic and only general matches are often possible. Several *ITE* data sets were considered for Fermi, with the most applicable available data set being "Industrial Park (130)".

The *ITE* method is widely accepted as the best primary source method for traffic projection in the absence of actual data. Since actual data was collected for Fermi 2, the *ITE* data and method will serve as a relevant reference for perspective only. Additionally, although *ITE* provides traffic projection trip rates for industrial uses, *ITE* does not provide data specific for the specialized conditions involving a nuclear power plant. Since the Fermi site is more specific than the generalized industrial use most closely matching from *ITE,* MSG proposes the following actual data method.

3.4.2 Actual Rate Method (projections based on actual traffic counts for Fermi 2) –

The availability of actual empirical data (i.e. mechanical hose count and manual turn count data) for a particular land use is always an ideal traffic projection method. The ability to identify its rate of traffic generation based on characteristic independent variables such as site acres, facility square footage, employees, etc. is not always available as was the case for this study. MSG collected extensive data for the existing Fermi site, and as a result actual traffic generation rates were able to be calculated.

Fermi 2 Actual Traffic Generation Rates

From existing traffic operations data, MSG determined the following existing Fermi 2 normal plant and outage operations traffic generation rates:

- **Normal Plant Operations = 0.49 (AM Peak) and 0.44 (PM Peak) veh/ employee**
- **Outage Plant Operations = 0.79 (AM Peak) & 0.65 (PM Peak) veh/ employee**

The following table summarizes:

- MSG's collection of actual existing traffic generated to the site
- Traffic projected during the Peak Construction (2017) and Plant Operations (2020) scenarios.
- Comparison of the Actual Rate and ITE Methods of Traffic Projection

Fermi Expansion Projected Traffic Summary						
SCENARIO	**AM PEAK**			**PM PEAK**		
	Entering Site	**Exiting Site**	**TOTAL**	**Entering Site**	**Exiting Site**	**TOTAL**
Existing Plant Operations – Fermi 2 (Normal Ops) (Actual Existing Data)	**Employees = 800 Operational + 150 Contract Supplement = 950 Total**					
	455 (98%)	11 (2%)	**466**	12 (2%)	406 (98%)	**418**
	Rate = 0.49 peak hr vehicles/ employee			*Rate = 0.44 peak hr vehicles/ employee*		
Peak Construction Phase (2017) (Fermi 3 Contractor Added Traffic)	**Employees = 950 (Fermi 2) + 2900 Contractor Population = 3850 Total**					
	ACTUAL RATE TRAFFIC PROJECTIONS (Based on Trip Generation rates calculated from existing traffic above)					
	+1281	*+140*	***+1421***	*+124*	*+1182*	***+1276*** (added to existing above)
	1736	151	**1887**	136	1588	**1694**
	Rate = 0.49 peak hr vehicles/			*Rate = 0.44 peak hr vehicles/ employee*		
	ITE TRIP GENERATION COMPARABLE (Based on ITE criteria for Industrial land uses)					
	+863	*+104*	***+967***	*+96*	*+825*	***+921*** (added to existing above)
	1318	115	**1433**	108	1231	**1339**
	Rate = 0.37 peak hr vehicles/			*Rate = 0.35 peak hr vehicles/ employee*		
Plant Operations (2020) (Fermi 3 Added Traffic)	**Employees = 950 (Fermi 2) + 900 Fermi 3 = 1850 Total**					
	ACTUAL RATE TRAFFIC PROJECTIONS (Based on Trip Generation rates calculated from existing traffic above)					
	+432	*+9*	***+441***	*+8*	*+388*	***+396*** (added to existing above)
	887	20	**907**	20	794	**814**
	Rate = 0.49 peak hr vehicles/			*Rate = 0.44 peak hr vehicles/ employee*		
	ITE TRIP GENERATION COMPARABLE (Based on ITE criteria for Industrial land uses)					
	+279	*+24*	***+303***	*+25*	*+291*	***+316*** (added to existing above)
	734	35	**769**	37	697	**734**
	Rate = 0.37 peak hr vehicles/			*Rate = 0.35 peak hr vehicles/ employee*		

The table above shows that the ITE method actually provides less conservative projection with lower traffic generated estimates. Given this, the generic applicability of ITE data to Fermi, and availability of actual data, MSG believes the actual traffic rate calculation to be most applicable. The ITE traffic projection method is presented only as a comparable. In addition, the consideration of traffic projections for Fermi must take into account the influence of plant outages (outage/refueling operations). MSG collected 24-hour data on Enrico Fermi Drive during the April 2009 outage operations, and the following chart summarizes the differential between normal and outage operations.

The AM and PM Peak traffic increases due to the plant outage operations are key to note. Traffic generated by the site grows by a factor of 1.66 and 1.90 during the AM and PM peak hours respectively as a result of outage operations.

This traffic expansion is taken into account for the traffic expansions for outage periods. The following tables provide the site generated traffic summaries for existing, peak construction (2017) and Fermi 3 operations (2020) for normal and outage condition. This traffic is provided for both the AM and PM peak hour conditions.

3.4.3 Construction Traffic Projection (2017)

Fermi Peak Construction (2017) Projected Traffic						
SCENARIO	**AM PEAK**			**PM PEAK**		
	IN	**OUT**	**TOTAL**	**IN**	**OUT**	**TOTAL**
Existing Plant Operations – Fermi 2 (Actual Existing Data)	455 (98%)	11 (2%)	**466**	12 (2%)	406 (98%)	**418**
Existing Plant Outage Operations – Fermi 2 (Actual Existing Data)	526 (69%)	232 (31%)	**758**	258 (42%)	357 (58%)	**615**
Peak Construction Phase (2017) Employees = 950 (Fermi 2) + 2900 Contractor Population = 3850 Total	**Fermi 2 Normal Operations + Fermi 3 Contractors**					
	+1281	*+140*	***+1421*** (added to existing above)	*+124*	*+1182*	***+1276*** (added to existing above)
	1736 Total	151 Total	**1887 Total**	136 Total	1588 Total	**1694 Total**
Peak Construction Phase Outage (2017) Employees = 950 (Fermi 2) + 2900 Contractor Population = 3850 Total	**Fermi 2 Outage Operations + Fermi 3 Contractors**					
	+1281	*+140*	***+1421*** (added to existing above)	*+124*	*+1182*	***+1276*** (added to existing above)
	1807 Total	372 Total	**2179 Total**	382 Total	1539 Total	**1891 Total**

3.4.4 Plant Operations (2020) Traffic Projection

Fermi Plant Operations (2020) Projected Traffic						
SCENARIO	**AM PEAK**			**PM PEAK**		
	IN	**OUT**	**TOTAL**	**IN**	**OUT**	**TOTAL**
Existing Plant Operations – Fermi 2 (Actual Existing Data)	455 (98%)	11 (2%)	**466**	12 (2%)	406 (98%)	**418**
Existing Plant Outage Operations – Fermi 2 (Actual Existing Data)	526 (69%)	232 (31%)	**758**	258 (42%)	357 (58%)	**615**
Normal Plant Operations (2020) Employees = 950 (Fermi 2) + 900 Fermi 3 = 1850 Total	**(Fermi 2 + Fermi 3) Normal Operations**					
	+432	*+9*	***+441*** (added to existing above)	*+8*	*+388*	***+396*** (added to existing above)
	887 Total	20 Total	**907 Total**	20 Total	794 Total	**814 Total**
Plant Outage Operations (2020) Employees = 950 (Fermi 2) + 900 Fermi 3 = 1850 Total	**Fermi 2 Outage + Fermi 3 Normal Operations**					
	+432	*+9*	***+441*** (added to existing above)	*+8*	*+388*	***+396*** (added to existing above)
	958 Total	241 Total	**1199 Total**	266 Total	745 Total	**1011 Total**
	Fermi 2 + Fermi 3 Outage					
	+505	*+227*	***+732*** (added to existing above)	*316*	*436*	***+752*** (added to existing above)
	1031 Total	459 Total	**1490 Total**	574 Total	793 Total	**1367 Total**

3.4.5 Fermi 3 Site Generated Traffic Summary & Conclusion

The development of site generated traffic necessary to develop future traffic conditions provides the following general characteristics:

- Existing Normal Operations of the Fermi site generate an inbound and outbound traffic flow heavily skewed to the AM and PM peak hours associated with employee arrival and departure. Closer to the Fermi site the AM inbound and PM outbound traffic is very pronounced. Further from the site, along N. Dixie Highway and to I-75, the pronounced directional influences of the Fermi traffic become diluted with the larger volumes of background traffic.
- Existing Outage Operation of the Fermi site generate inbound and outbound traffic flow much less skewed to the AM and PM peak hours, and more significant bi-directional flow occurs.
- Traffic generated during the Peak Construction Phase is quite substantial due to the expected 2900 contractor employee base, and represents a critical period of "temporary" traffic intensity.
- The convergence of an existing Fermi 2 plant outage with peak construction traffic of Fermi 3 could generate the highest amount of traffic to the Fermi site; the end result is total traffic generation approximately 4.5 times existing normal Fermi plant operations and 3 times existing outage Fermi plant operations.

FIGURE 12 Fermi Site Traffic Summary

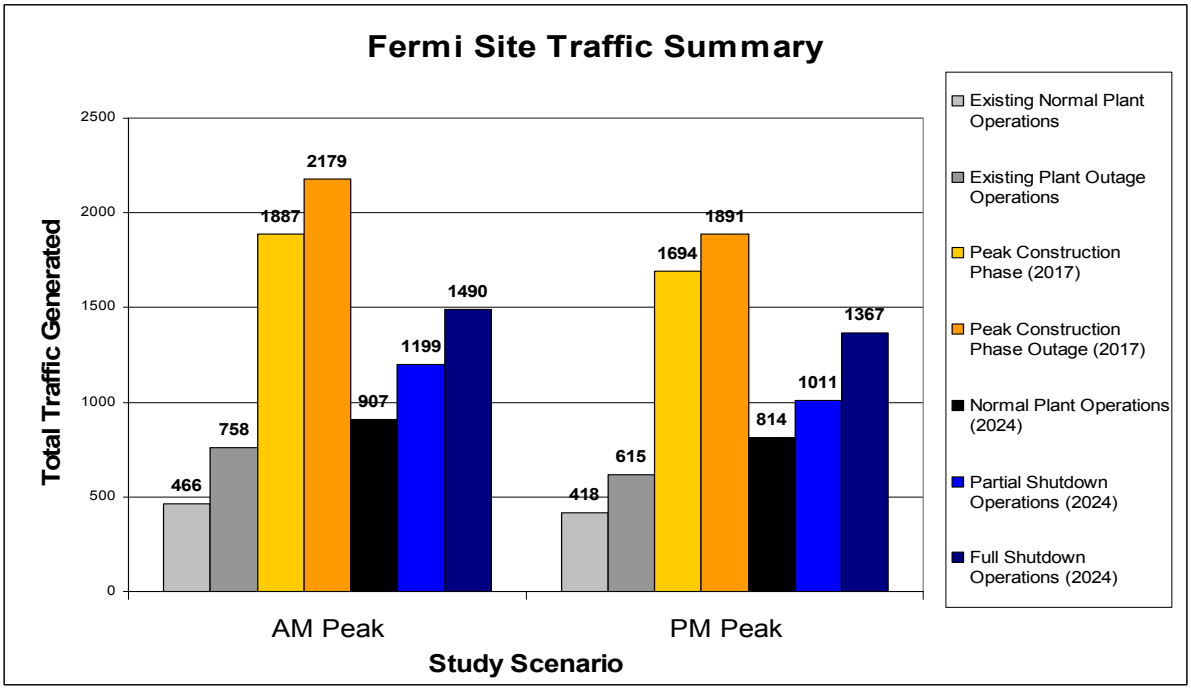


FIGURE 13 AM Peak – Fermi Site Traffic Summary by Direction

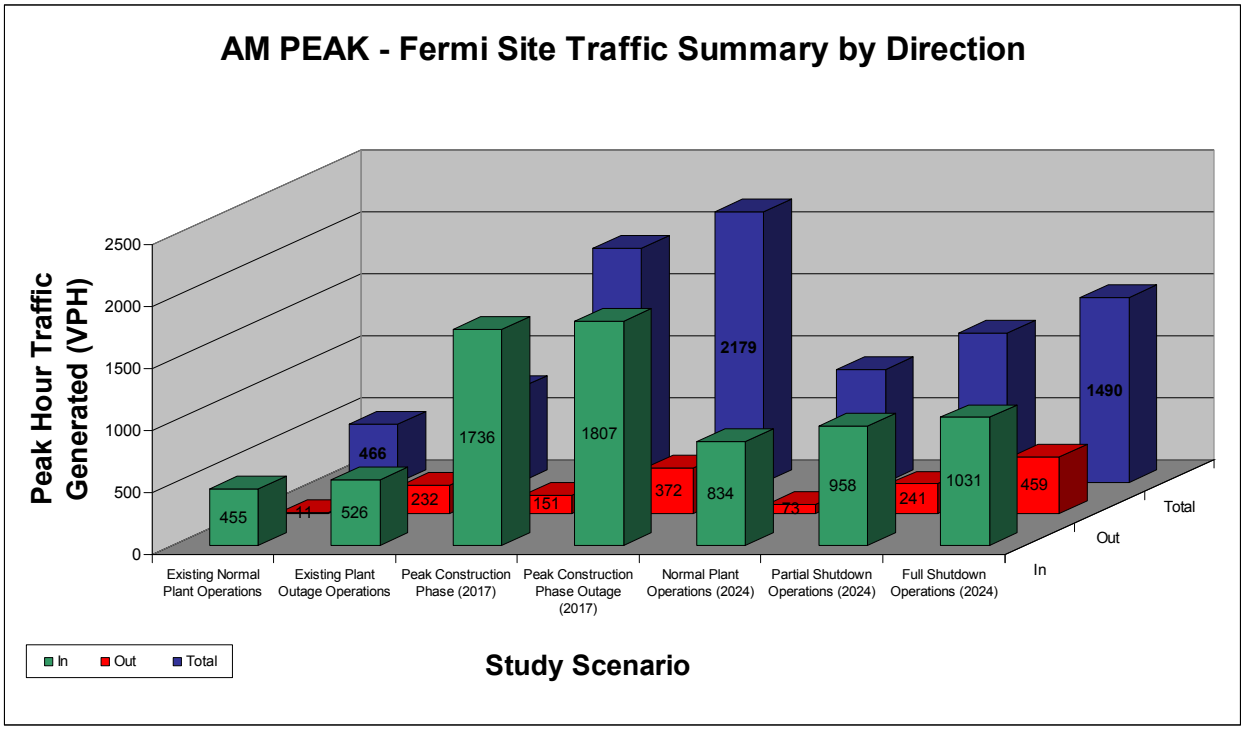
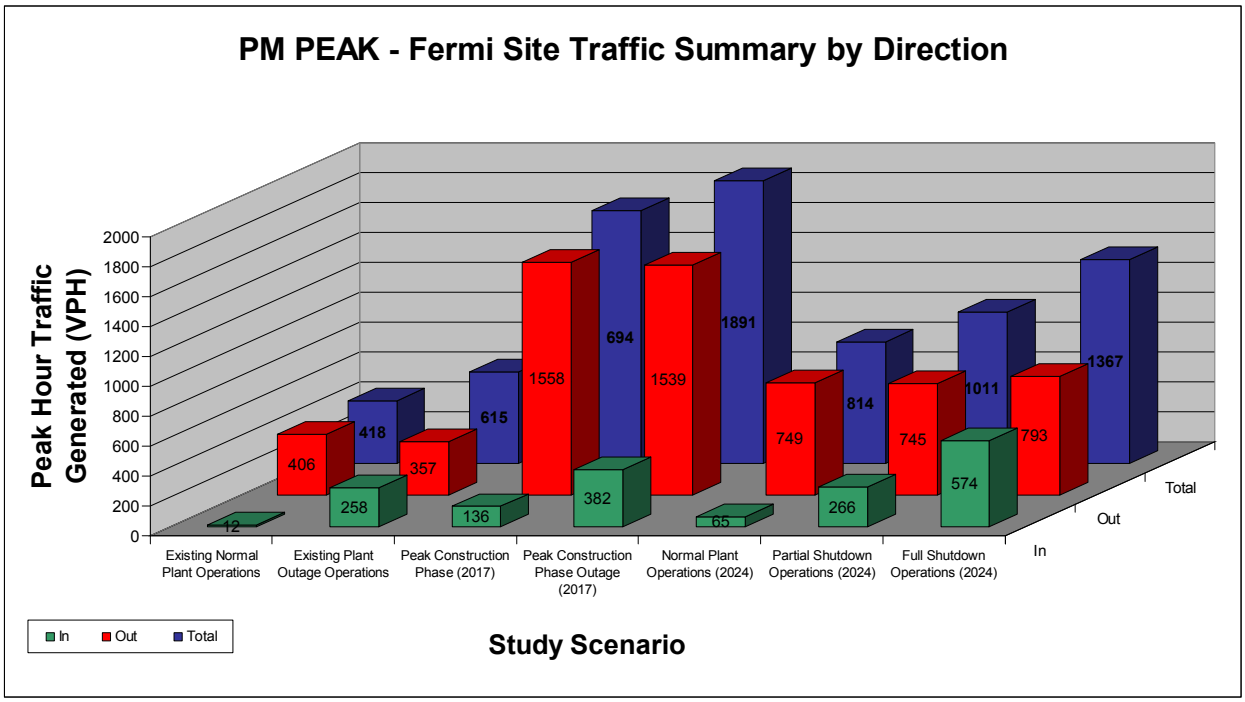


FIGURE 14 PM Peak – Fermi Site Traffic Summary by Direction



3.5 Fermi 3 Plant Expansion Traffic Distribution

The distribution (or assignment) of Fermi 3 site generated traffic on the study area roadway network is a final consideration in the development of Fermi 3 projected traffic conditions. MSG developed traffic distribution assignments indicating the percentage (%) of generated traffic projected to utilize specific routes and traffic movements to and from the Fermi site during each scenario.

3.5.1 Traffic Distribution Methodology

The development of these distributions was based upon an engineering review for the most reasonable anticipated routes and traffic patterns with a basis in detailed considerations including:

- Employment zip code data provided by Detroit Edison (although data was provided for Shut Down conditions, an applicable 60 mile radius of employment was considered applicable to assess probable employee distribution)
- Actual existing traffic data and movement patterns collected for the project.
- Population Centers
- Character & Condition of Routes (i.e. Functional Class, Traffic Volume, Pavement Condition, Adjacent Land Use)
- Less local traffic generation during construction (i.e. more traffic generated to/from interstate due to commuting contractors)

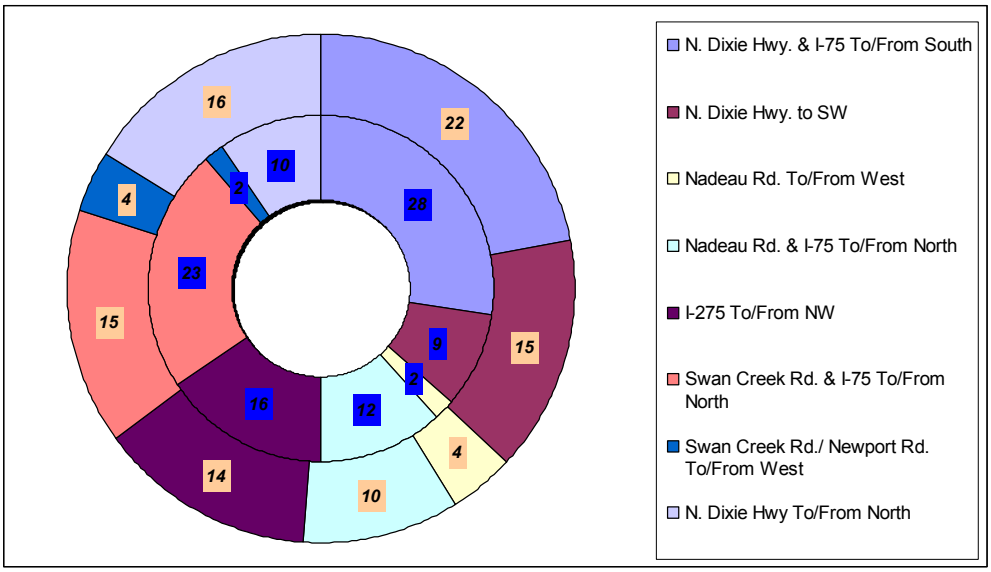
The following summarizes the methodology for generated traffic assignment/ distribution as a process:

1. MSG first evaluated the directional split (north/south) of traffic entering and exiting the Fermi 2 site at Enrico Fermi Drive This north/south directional split exists as 59% to/from the south and 41% to/from the north via N. Dixie Highway. This directional split is a known existing entity based upon actual turning movement counts at Enrico Fermi Drive and N. Dixie Hwy.
2. Moving away from the site, these traffic splits were spread across the network using a combined methodology of logical engineering judgment and a mathematical application of existing proportional traffic movement distributions for Fermi oriented movements.
    a. At each intersection the relative proportion for any left-turn, right-turn or through movement oriented with the associated inbound or outbound traffic was reviewed.
    b. The existing proportional split of traffic movements was considered a starting basis for the distribution of Fermi traffic at the intersection, with additional engineering judgment given to the appropriateness relative to Fermi traffic and the origin-destination and land use connections provided by that movement. (For example, if a side-street turning movement oriented toward the Fermi site showed a higher proportion than could logically be attributed to the Fermi site, then a certain amount of smoothing to was performed with engineering judgment for the most practical projection of Fermi traffic assignment.)
3. At external study area entry/ exit points, the total percentage of entering/ exiting Fermi site generated traffic was reviewed in reference to connecting population centers, Detroit Edison employment zip code data, and the character/ condition of both study area and connecting external routes.
4. This process of traffic distribution assignment continued iteratively, intersection-by-intersection for both inbound and outbound traffic northward and southward of the site until reaching the external study area entry/exit points.

There were two (4) fundamental resulting traffic distributions developed by MSG: an AM and PM Peak Hour distribution for Peak Construction Operations (2017) and Plant Operations (2020) respectively. Each distribution indicates the projected % of site generated traffic for specific inbound and outbound study area traffic movements. A fundamental differentiation between peak construction and plant operations is that a more regionally generated traffic component is anticipated during peak construction operations, which results in a greater portion of Fermi site generated traffic to/from the regional connection points the I-75 interchanges. The following table summarizes a comparison of the key distribution differences between peak construction (2017) and normal plant operations (2020).

Comparative Summary of Key Study Area Traffic Distributions by Scenario		
Intersection	**Peak Construction (2017) Distribution %**	**Plant Operations (2020) Distribution %**
N. Dixie Hwy. & I-75 To/From South	28	22
N. Dixie Hwy. to SW	9	15
Nadeau Road To/From West	2	4
Nadeau Road & I-75 To/From North	12	10
I-275 To/From NW	16	14
Swan Creek Road & I-75 To/From North	23	15
Swan Creek Road/ Newport Road To/From West	2	4
N. Dixie Hwy To/From North	10	16
N. Dixie Hwy. & Enrico Fermi Drive To/From North	41	41
N. Dixie Hwy. & Enrico Fermi Drive To/From South	59	59

FIGURE 15 Graphic Summary of Key Traffic Distributions by Scenario



3.5.2 Traffic Distributions

There are 4 unique resulting Fermi 3 traffic distributions for the respective AM & PM Peak periods of both the Peak Construction Conditions and eventual Fermi 3 Plant Operations. The application of each distribution to the associated Fermi 3 generated traffic provides the 4 (four) assignment/ distributions of AM and PM site generated traffic within the study area. The following is a listing of these traffic distribution and site generated traffic scenarios as follow in the series of figures provided.

Summary of Traffic Generation and Distribution Figures		
Figure Number	**Title**	**Description**
Peak Construction Traffic (2017)		
Figure 16	Fermi 3 Peak Construction Operations (2017) AM Peak Traffic Distribution	Provides AM percent distributions for construction traffic.
Figure 17	Fermi 3 Peak Construction Operations (2017) AM Peak Site Generated Traffic	Distribution of AM site generated traffic based on Figure 16 percent distributions
Figure 18	Fermi 3 Peak Construction Operations (2017) PM Peak Traffic Distribution	Provides PM percent distributions for construction traffic.
Figure 19	Fermi 3 Peak Construction Operations (2017) PM Peak Traffic Distribution	Distribution of PM site generated traffic based on Figure 18 percent distributions
Figure 20	**Fermi 3 Peak Construction Traffic (2017)**	**AM and PM peak hour traffic based site generated traffic (Figures 17 and 19) combined with 2017 background traffic**
Fermi 3 Operations (2020)		
Figure 21	Fermi 3 Plant Operations (2020) AM Peak Traffic Distribution	Provides AM percent distributions based for construction traffic.
Figure 22	Fermi 3 Plant Operations (2020) AM Peak Site Generated Traffic	Distribution of AM site generated traffic based on Figure 21 percent distributions
Figure 23	Fermi 3 Plant Operations (2020) PM Peak Traffic Distribution	Provides PM percent distributions for construction traffic
Figure 24	Fermi 3 Plant Operations (2020) AM Peak Site Generated Traffic	Distribution of PM site generated traffic based on Figure 23 percent distributions
Figure 25	**Fermi 3 Plant Operations Traffic (2020)**	**AM and PM peak hour traffic based site generated traffic (Figures 22 and 24) combined with 2020 background traffic**

With the above understanding of Fermi 3 traffic distributions and site generated traffic conditions, a final projection of the key peak hour traffic scenarios was developed. For each scenario, the final traffic volume projection consists of background traffic expanded to the given study year/scenario in combination with its associated Fermi 3 site generated traffic projection during both AM & PM Peak periods.

Fermi 3 Traffic Volume Projection Figures

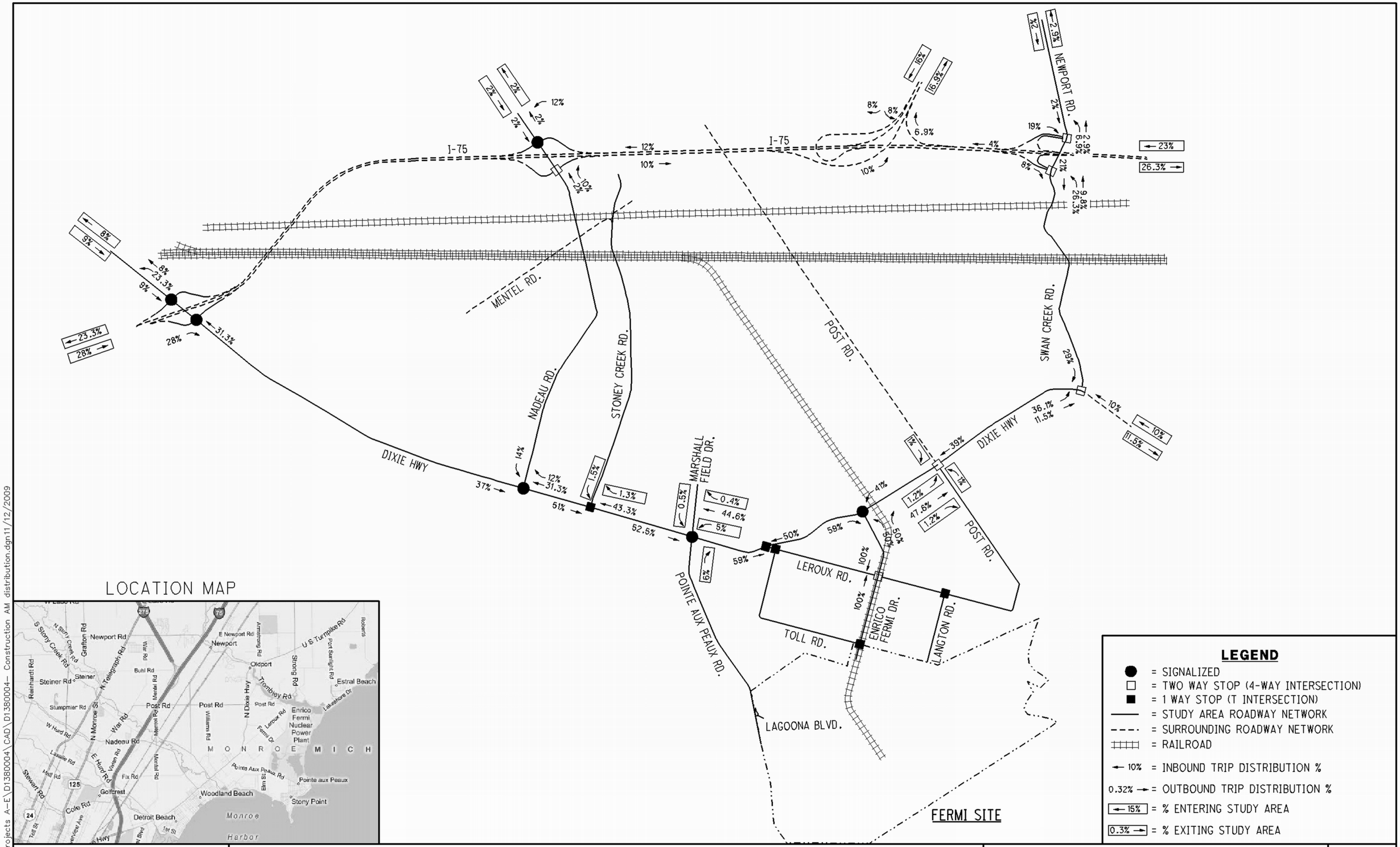
- Fermi 3 Peak Construction Traffic (2017) =

2017 Background Traffic + Peak Construction Operations (2017) Site Generated Traffic

- Plant Operations Traffic (2020) =

2020 Background Traffic + Plant Operations (2020) Site Generated Traffic

The following provides a full presentation of these figures, providing detailed reference for the development of Fermi 3 projected traffic conditions.



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Civil Engineering, Surveying and Environmental Consulting

FIGURE 16
FERMI 3 PEAK CONSTRUCTION OPERATIONS (2017)
AM PEAK TRAFFIC DISTRIBUTION

FERMI NUCLEAR POWER PLANT
UNIT 3 EXPANSION TRAFFIC STUDY
FRENCH TOWNSHIP,
MONROE COUNTY, MI

I-75
I-75
NEWPORT RD.
MENTEL RD.
NADEAU RD.
STONEY CREEK RD.
DIXIE HWY
DIXIE HWY
MARSHALL FIELD DR.
POST RD.
POST RD.
SWAN CREEK RD.
POINTE AUX PEAUX RD.
LEROUX RD.
TOLL RD.
ENRICO FERMI DR.
LANGTON RD.
LAGOONA BLVD.
FERMI SITE

LEGEND

- = SIGNALIZED
- = TWO WAY STOP (4-WAY INTERSECTION)
- = 1 WAY STOP (T INTERSECTION)
- = STUDY AREA ROADWAY NETWORK
- = SURROUNDING ROADWAY NETWORK
- = RAILROAD
- ← 10% = INBOUND TRIP DISTRIBUTION %
- 0.32% → = OUTBOUND TRIP DISTRIBUTION %
- [15%] → = % ENTERING STUDY AREA
- [0.3%] → = % EXITING STUDY AREA

LOCATION MAP

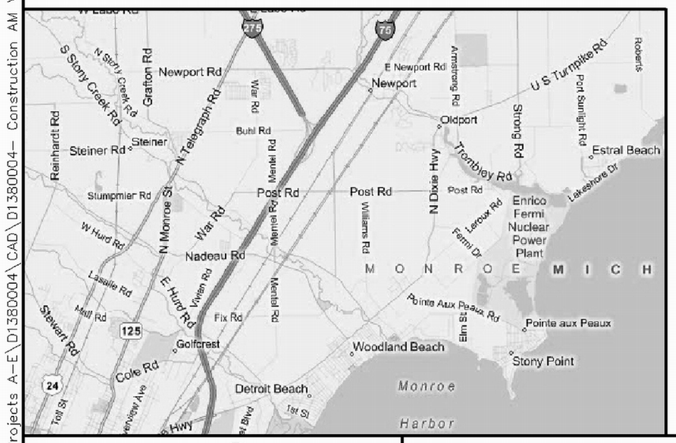

FIGURE 17
FERMI 3 PEAK CONSTRUCTION OPERATIONS (2017)
AM PEAK SITE GENERATED TRAFFIC

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FERMI NUCLEAR POWER PLANT
UNIT 3 EXPANSION TRAFFIC STUDY
FRENCH TOWNSHIP,
MONROE COUNTY, MI

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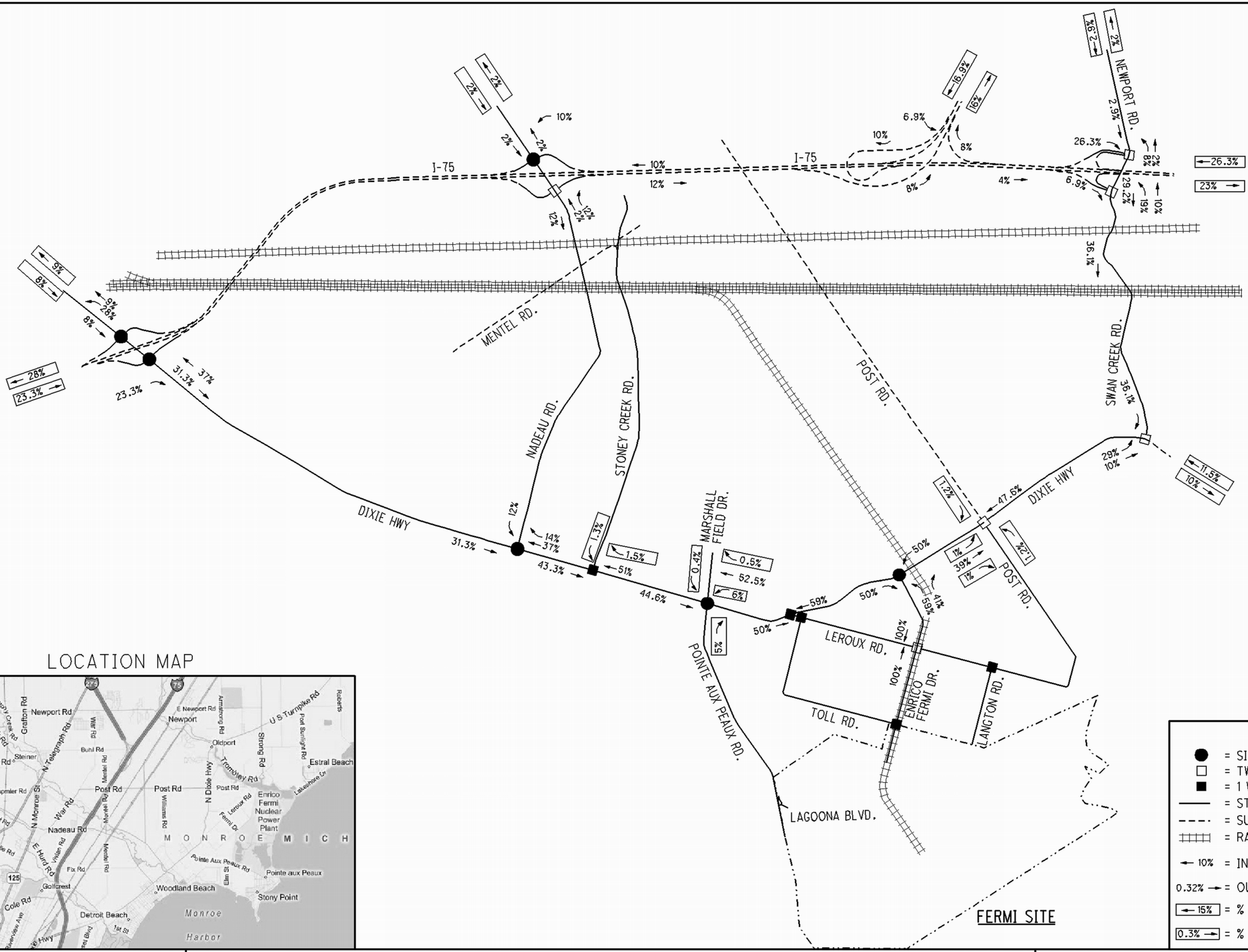

LOCATION MAP

LEGEND

- ● = SIGNALIZED
- □ = TWO WAY STOP (4-WAY INTERSECTION)
- ■ = 1 WAY STOP (T INTERSECTION)
- —— = STUDY AREA ROADWAY NETWORK
- - - - = SURROUNDING ROADWAY NETWORK
- ═══ = RAILROAD
- ← 10% = INBOUND TRIP DISTRIBUTION %
- 0.32% → = OUTBOUND TRIP DISTRIBUTION %
- [← 15%] = % ENTERING STUDY AREA
- [0.3% →] = % EXITING STUDY AREA

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FIGURE 18
FERMI 3 PEAK CONSTRUCTION OPERATIONS (2017)
PM PEAK TRAFFIC DISTRIBUTION

FERMI NUCLEAR POWER PLANT
UNIT 3 EXPANSION TRAFFIC STUDY
FRENCH TOWNSHIP,
MONROE COUNTY, MI

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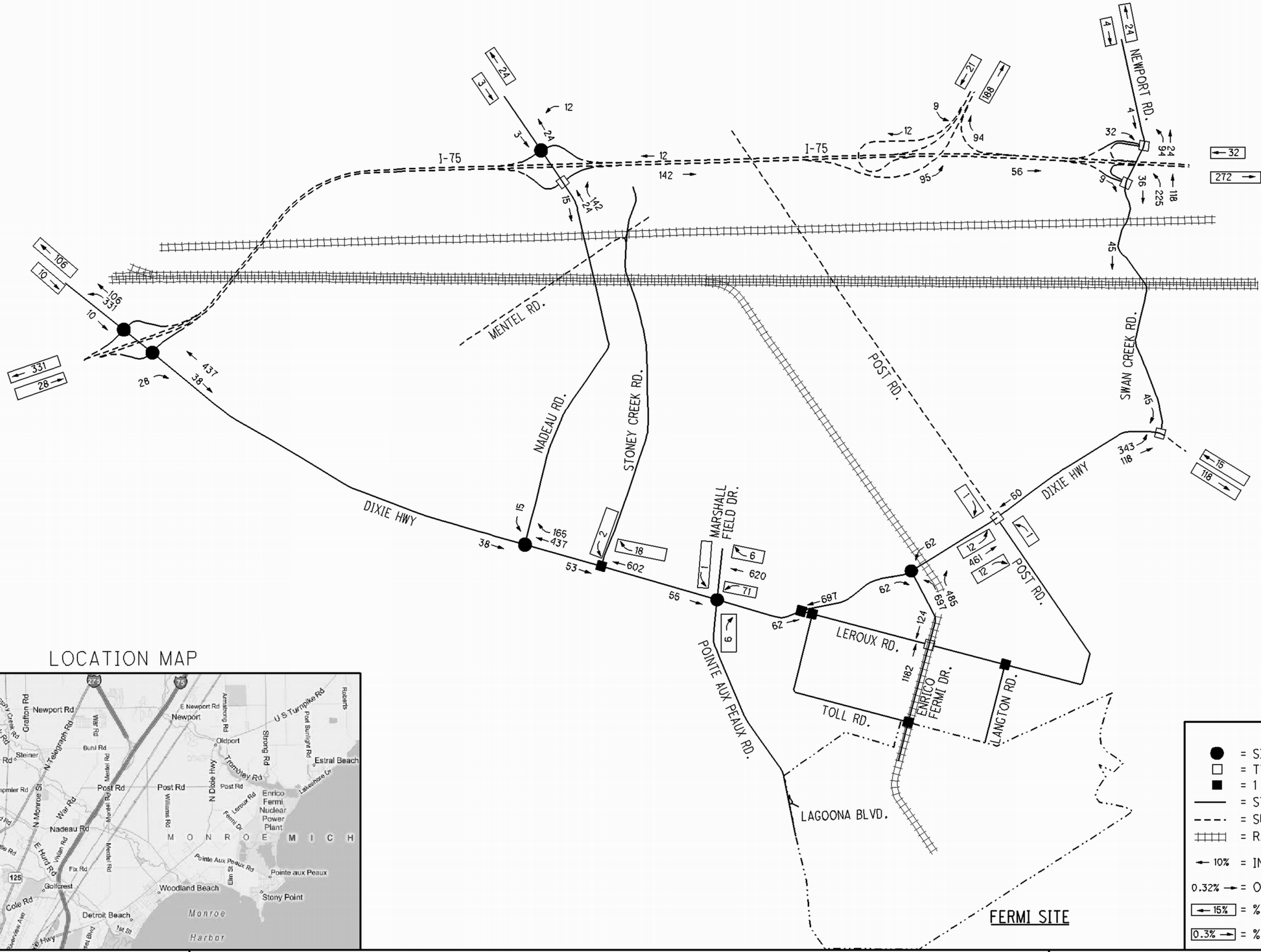

LOCATION MAP

LEGEND

- = SIGNALIZED
- = TWO WAY STOP (4-WAY INTERSECTION)
- = 1 WAY STOP (T INTERSECTION)
- = STUDY AREA ROADWAY NETWORK
- = SURROUNDING ROADWAY NETWORK
- = RAILROAD
- ← 10% = INBOUND TRIP DISTRIBUTION %
- 0.32% → = OUTBOUND TRIP DISTRIBUTION %
- [15%] = % ENTERING STUDY AREA
- [0.3%] = % EXITING STUDY AREA

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FIGURE 19
FERMI 3 PEAK CONSTRUCTION OPERATIONS (2017)
PM PEAK SITE GENERATED TRAFFIC

FERMI NUCLEAR POWER PLANT
UNIT 3 EXPANSION TRAFFIC STUDY
FRENCH TOWNSHIP,
MONROE COUNTY, MI

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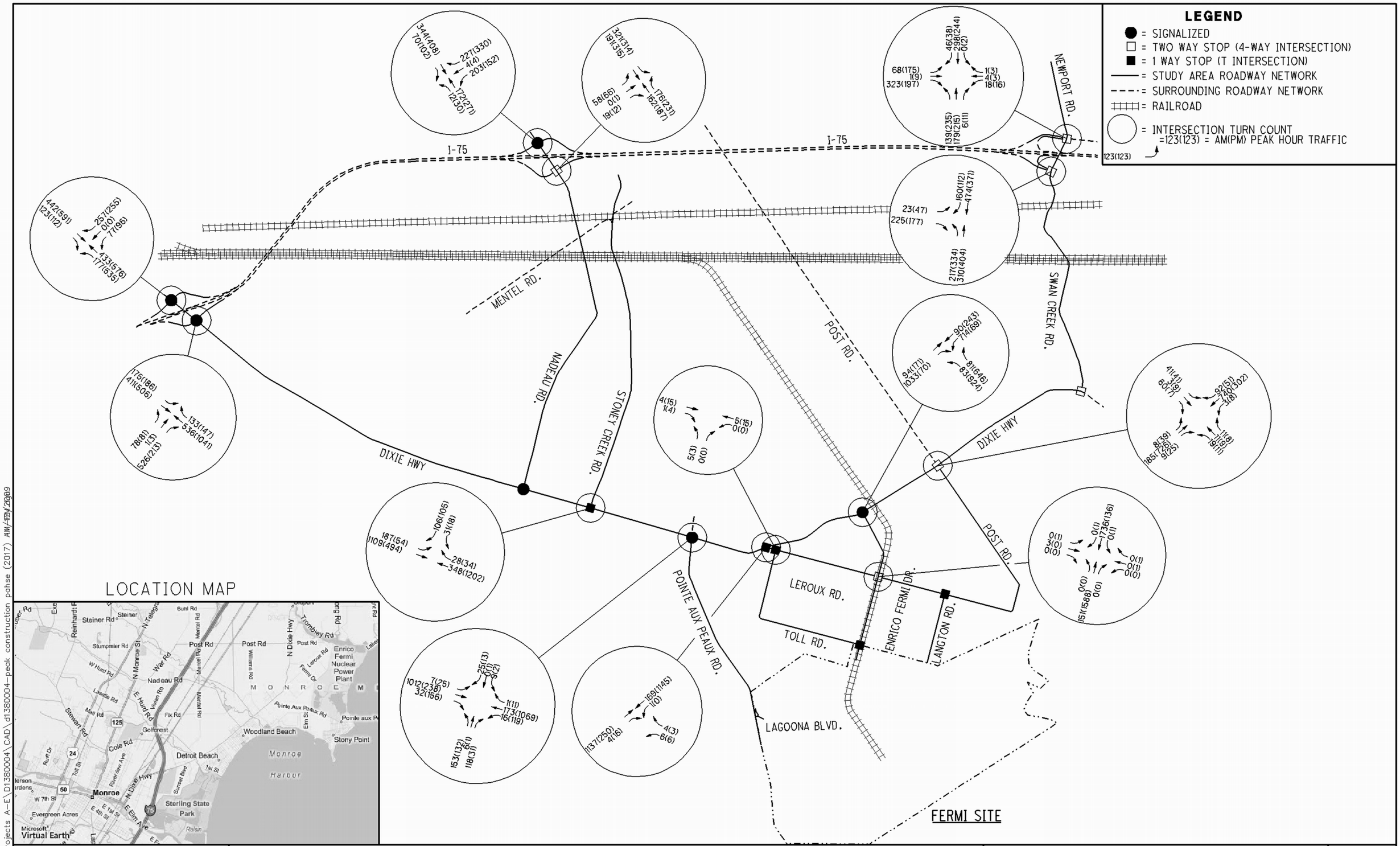

FIGURE 20
FERMI 3
PEAK CONSTRUCTION TRAFFIC (2017)

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FERMI NUCLEAR POWER PLANT
UNIT 3 EXPANSION TRAFFIC STUDY
FRENCH TOWNSHIP,
MONROE COUNTY, MI

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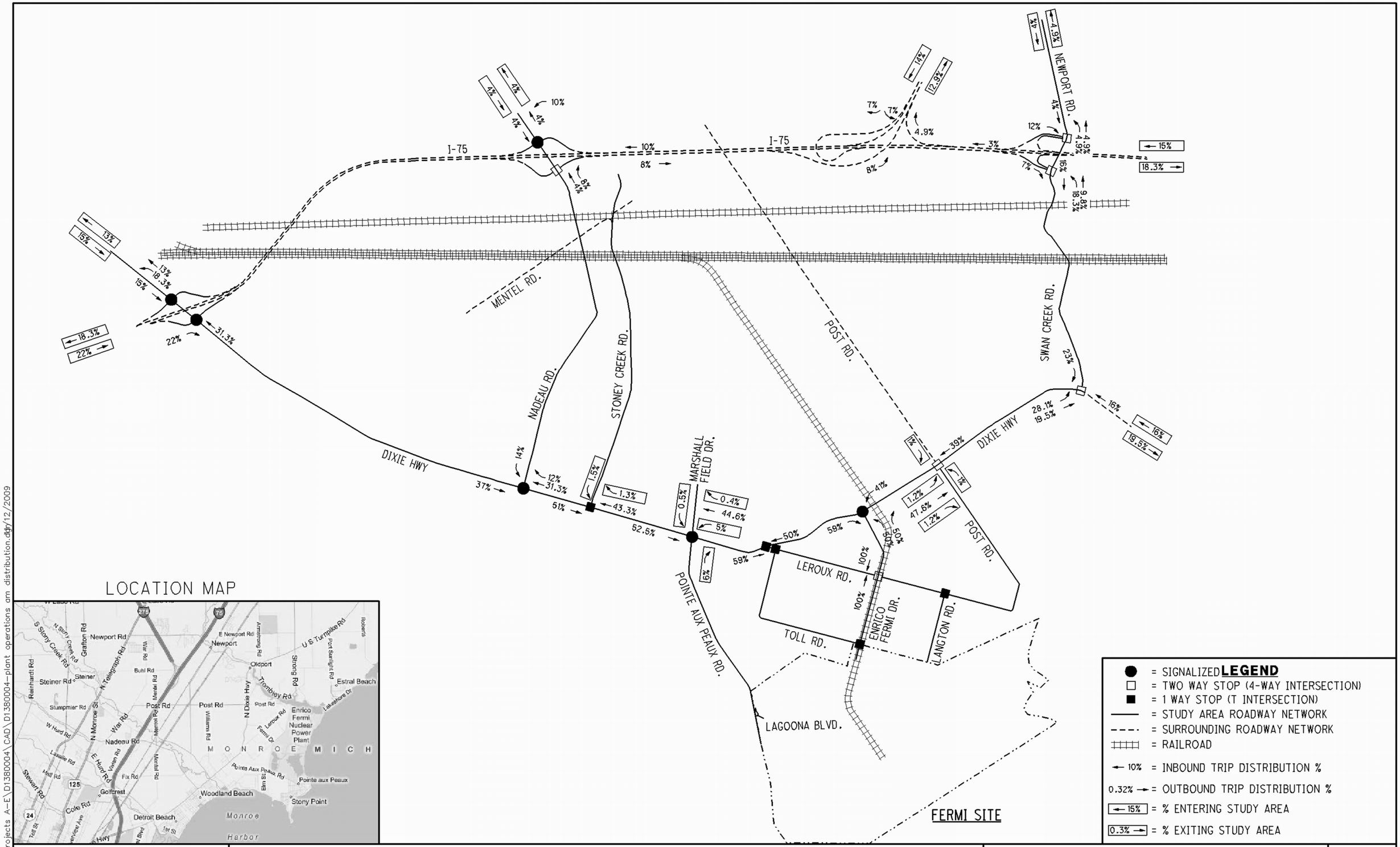

LOCATION MAP

LEGEND

- ● = SIGNALIZED
- □ = TWO WAY STOP (4-WAY INTERSECTION)
- ■ = 1 WAY STOP (T INTERSECTION)
- ——— = STUDY AREA ROADWAY NETWORK
- - - - = SURROUNDING ROADWAY NETWORK
- ╫╫╫ = RAILROAD
- ← 10% = INBOUND TRIP DISTRIBUTION %
- 0.32% → = OUTBOUND TRIP DISTRIBUTION %
- [← 15%] = % ENTERING STUDY AREA
- [0.3% →] = % EXITING STUDY AREA

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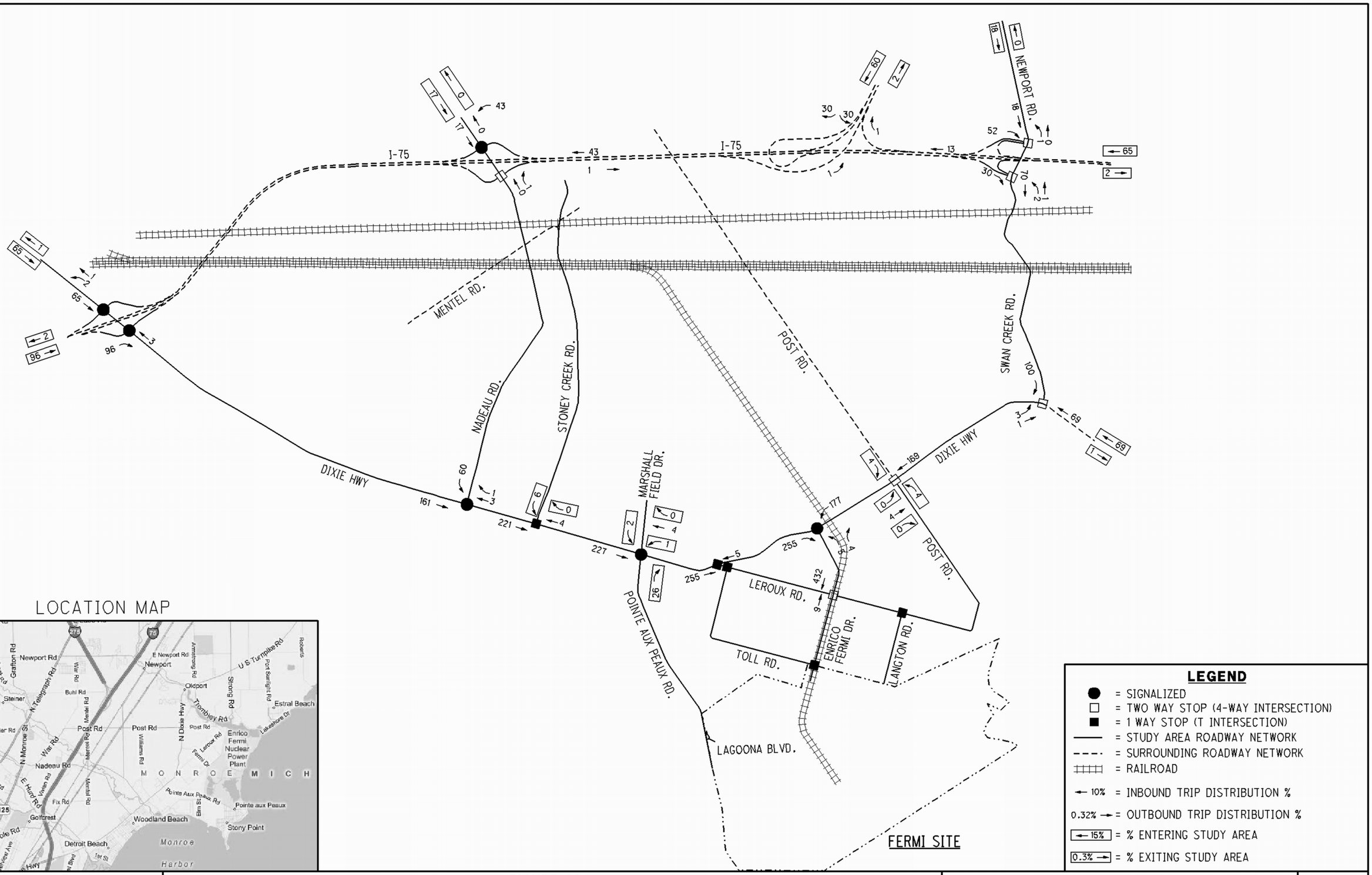
FIGURE 21
FERMI 3 PLANT OPERATIONS (2020)
AM PEAK TRAFFIC DISTRIBUTION

FERMI NUCLEAR POWER PLANT
UNIT 3 EXPANSION TRAFFIC STUDY
FRENCH TOWNSHIP,
MONROE COUNTY, MI

W:\Projects\Projects A-E\D1380004\CAD\D1380004-plant operations am distribution.dgn 12/2009



LOCATION MAP

LEGEND

- ● = SIGNALIZED
- □ = TWO WAY STOP (4-WAY INTERSECTION)
- ■ = 1 WAY STOP (T INTERSECTION)
- ——— = STUDY AREA ROADWAY NETWORK
- - - - = SURROUNDING ROADWAY NETWORK
- ╫╫╫ = RAILROAD
- ← 10% = INBOUND TRIP DISTRIBUTION %
- 0.32% → = OUTBOUND TRIP DISTRIBUTION %
- ← 15% → = % ENTERING STUDY AREA
- 0.3% → = % EXITING STUDY AREA

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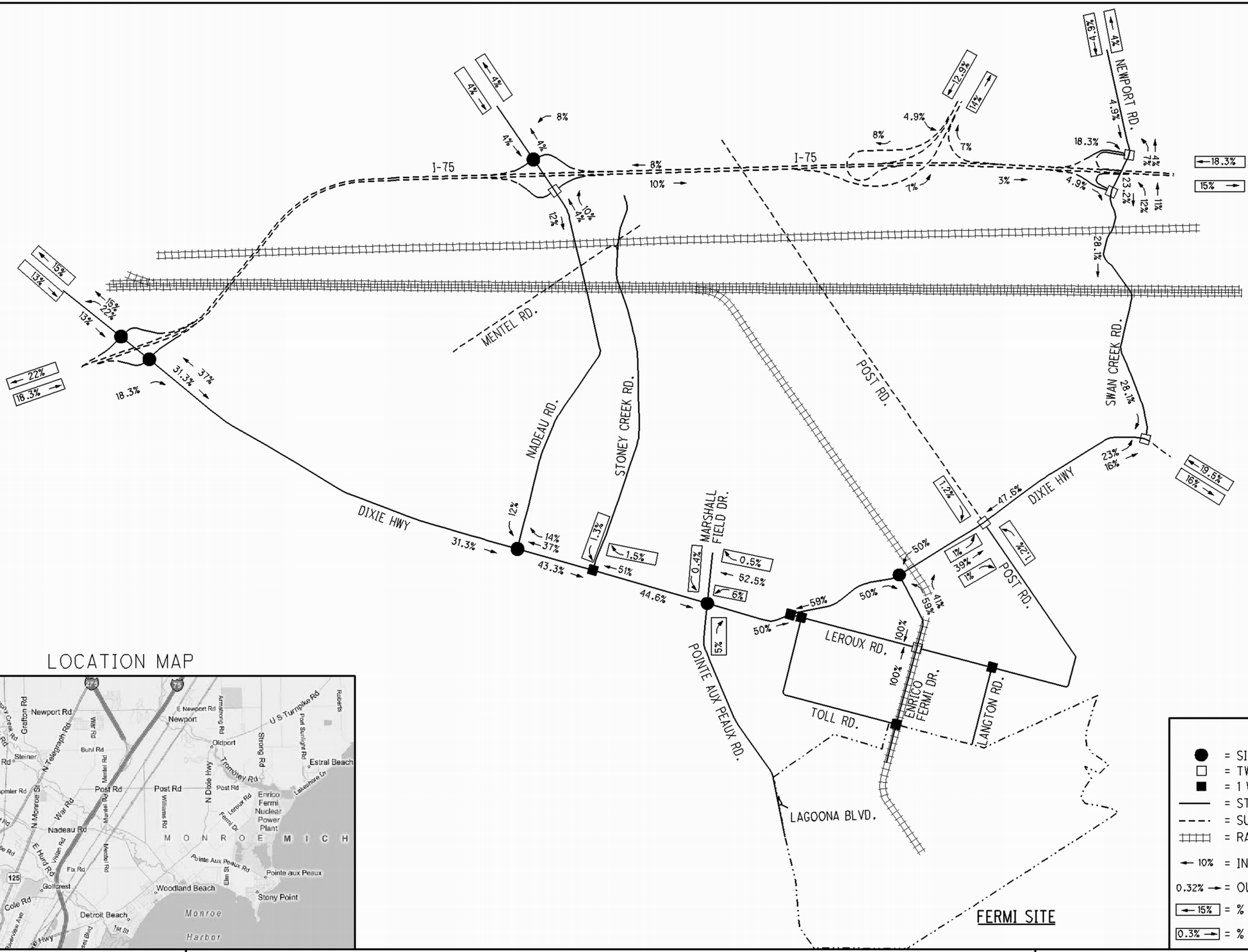
FIGURE 22
FERMI 3 PLANT OPERATIONS (2020)
AM PEAK SITE GENERATED TRAFFIC

FERMI NUCLEAR POWER PLANT
UNIT 3 EXPANSION TRAFFIC STUDY
FRENCH TOWNSHIP,
MONROE COUNTY, MI

W:\Projects\Projects A-E\D1380004\CAD\D1380004-plant operations am volumes(2020).dgn 9/9/2009



LOCATION MAP

LEGEND

- ● = SIGNALIZED
- □ = TWO WAY STOP (4-WAY INTERSECTION)
- ■ = 1 WAY STOP (T INTERSECTION)
- —— = STUDY AREA ROADWAY NETWORK
- - - - = SURROUNDING ROADWAY NETWORK
- ╫╫ = RAILROAD
- ← 10% = INBOUND TRIP DISTRIBUTION %
- 0.32% → = OUTBOUND TRIP DISTRIBUTION %
- [← 15%] = % ENTERING STUDY AREA
- [0.3% →] = % EXITING STUDY AREA

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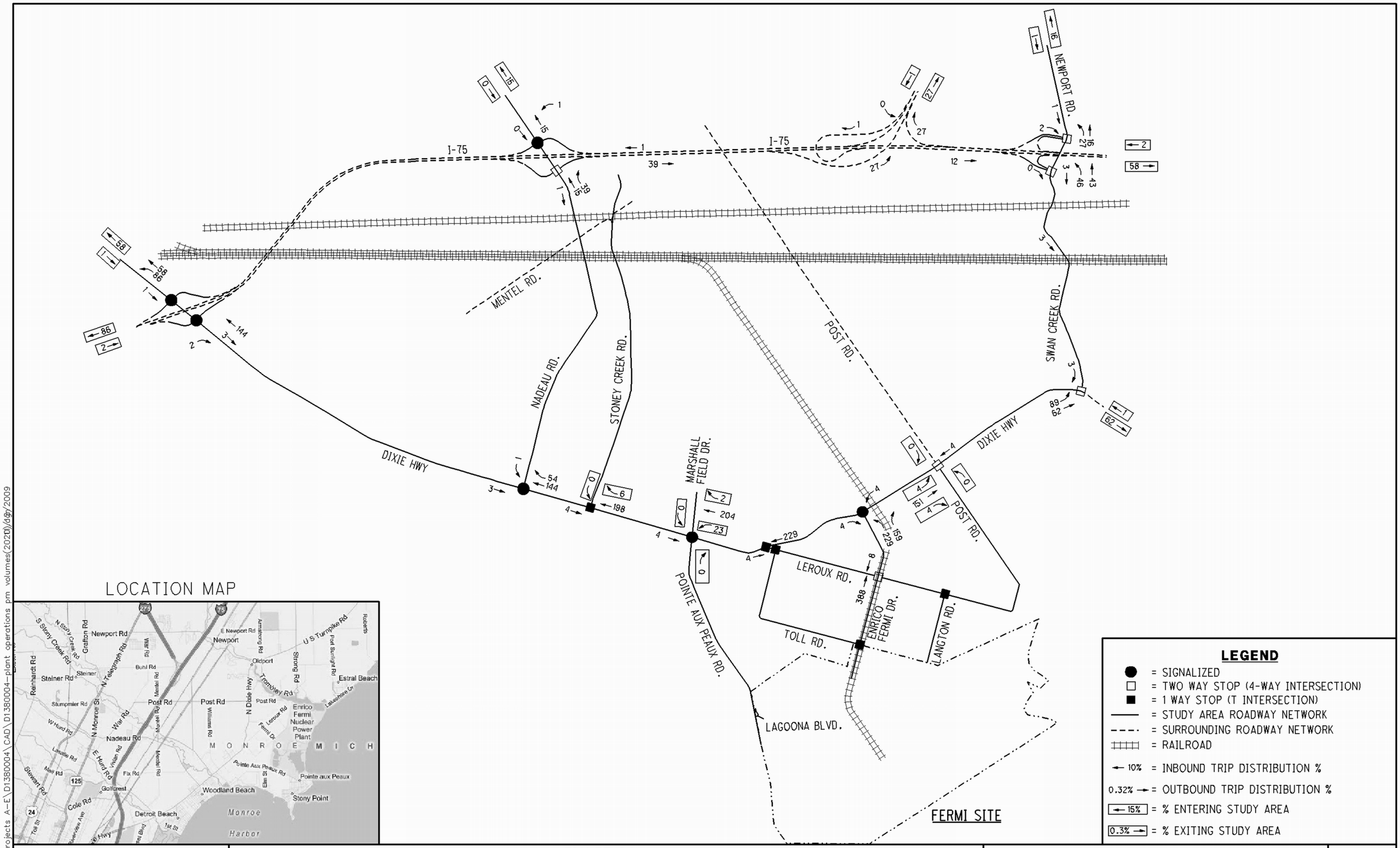
FIGURE 23
FERMI 3 PLANT OPERATIONS (2020)
PM PEAK TRAFFIC DISTRIBUTION

FERMI NUCLEAR POWER PLANT
UNIT 3 EXPANSION TRAFFIC STUDY
FRENCH TOWNSHIP,
MONROE COUNTY, MI

W:\Projects\Projects A-E\D1380004\CAD\D1380004-plant operations pm distribution.dgn 12/2009



LOCATION MAP

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FIGURE 24
FERMI 3 PLANT OPERATIONS (2020)
PM PEAK SITE GENERATED TRAFFIC

FERMI NUCLEAR POWER PLANT
UNIT 3 EXPANSION TRAFFIC STUDY
FRENCH TOWNSHIP,
MONROE COUNTY, MI

LEGEND

- = SIGNALIZED
- = TWO WAY STOP (4-WAY INTERSECTION)
- = 1 WAY STOP (T INTERSECTION)
- = STUDY AREA ROADWAY NETWORK
- = SURROUNDING ROADWAY NETWORK
- = RAILROAD
- = INTERSECTION TURN COUNT
- 123(123) =123(123) = AM(PM) PEAK HOUR TRAFFIC

I-75
NEWPORT RD.
MENTEL RD.
NADEAU RD.
STONEY CREEK RD.
POST RD.
SWAN CREEK RD.
DIXIE HWY
POINTE AUX REAUX RD.
LEROUX RD.
TOLL RD.
ENRICO FERMI DR.
LANGTON RD.
LAGOONA BLVD.
FERMI SITE

LOCATION MAP

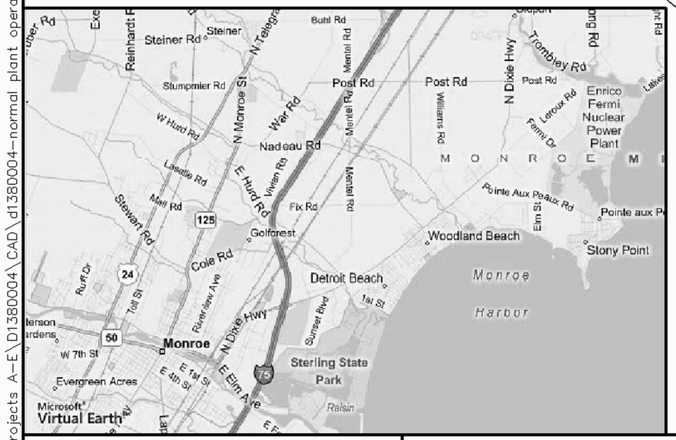

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FIGURE 25

FERMI 3
PLANT OPERATIONS TRAFFIC (2020)

FERMI NUCLEAR POWER PLANT
UNIT 3 EXPANSION TRAFFIC STUDY
FRENCH TOWNSHIP,
MONROE COUNTY, MI

3.5.3 Heavy Vehicle Projections

The proportion of heavy vehicles within study area traffic flows is anticipated to remain consistent with existing conditions through the 2017 and 2020 projected years. Detroit Edison anticipates that delivery for a large portion of the major equipment and materials required for Fermi 3 construction will come by ship through the Great Lakes seaway or rail via the existing Fermi 2 railroad spur. As a result, heavy vehicle percentages are anticipated to remain level on a proportional basis. Overall traffic increases associated with construction and the addition of Fermi 3 will produce a net increase of heavy vehicles on the roadway network; however, the proportionate heavy vehicles in the traffic stream are expected remain similar to existing. The increases of truck traffic accounts for any remaining construction, material, or other operational delivery related truck traffic which will still utilize surface roads to access the site.

The heavy vehicle influences within the project study area were identified from project data collection efforts and summarized in section 2.5.3. The following table provides a summary of the proportionate increases to heavy vehicle traffic accounted for in the projected analysis year traffic scenarios, modeling, and operational analyses.

The heavy vehicle influences within the project study area were identified from project data collection efforts and summarized in section 2.5.3. The following table provides a sample summary along N. Dixie Hwy. of the proportionate increases to heavy vehicle traffic accounted for in the projected analysis year traffic scenarios, modeling, and operational analyses.

Projected Heavy Vehicle Increase Summary			
Intersection	**Existing 2009** Total Volume (% Trucks, Truck Volume)	**Peak Construction 2017** Total Volume (% Trucks, Truck Volume)	**Plant Operations 2020** Total Volume (% Trucks, Truck Volume)
N. Dixie Hwy. AM Peak			
Northbound	319 (2%, 7)	1012 (2%, 21)	573 (2%, 12)
Southbound	104 (2%, 3)	173 (2%, 5)	115 (2%, 3)
N. Dixie Hwy. PM Peak			
Northbound	172 (2%, 4)	238 (2%, 6)	191 (2%, 4)
Southbound	423 (2%, 9)	1069 (2%, 21)	653 (2%, 13)

For any major construction activities which do require use of heavy or over-sized vehicles on surface streets, it will be critical that specific consideration is given to the routes of travel, and more specifically to any roadway load limits or structure height clearances available through the maintaining agencies (MDOT, MCRC, City of Monroe, etc.)