TRAFFIC STUDY

FERMI NUCLEAR POWER PLANT
UNIT 3 EXPANSION

NOVEMBER 10, 2009

PREPARED FOR:
DETROIT EDISON
ONE ENERGY PLAZA
DETROIT, MI 48226

EXECUTIVE SUMMARY

This traffic study is conducted for the purpose of evaluating traffic impacts associated with an expansion of the Fermi Nuclear Power plant to add an additional reactor. This project is known as "Fermi 3". The traffic study encompassed a large study area involving several local collector roads and including their tie in points to I-75. In all, eleven (11) intersections plus three I-75 interchanges were studied. The details of the study included existing and proposed traffic conditions, safety assessment (crash analysis), and operational performance (level of service). Intersections with deficient operations were identified with various mitigation measures to improve traffic operations to an acceptable level of service.

The traffic study evaluated three scenarios:

1. Existing Conditions (2009) which includes existing Fermi 2 traffic,

2. Peak Construction Period estimated to occur in 2017, and

3. Operation of Fermi 3 estimated to occur in 2020.

Each study scenario was evaluated for both the AM and PM peak hours of traffic.

The peak construction period is estimated to involve an addition of 2,900 contract workers to the site. The operation of the Fermi 3 reactor is estimated to add 900 permanent jobs to the site. These traffic additions are the focus of the traffic study. Extensive traffic counts were conducted on the study area roadway network and included weeklong bi-directional machine counts (for weekday and weekend traffic) and AM and PM peak hour intersection manual turn counts. Traffic counts were conducted for both a Fermi 2 outage period (April 2009) and normal Fermi 2 operations (May 2009). Historic data and additional current data from both the Michigan Department of Transportation (MDOT) and Southeast Michigan Council of Government (SEMCOG) was also obtained to verify that seasonal variations were accounted for. Additionally, traffic projection growth rates were developed from SEMCOG's traffic forecasting model to expand existing background traffic to the required scenarios of 2017 and 2020.

In evaluating the required improvement consideration was given for:

- The degree of deficiency as to whether the impacts was moderate or severe,
- Whether the impact was a temporary condition related to peak traffic conditions that might occur with the construction of Fermi 3
- Evaluating easily implemented solutions first (signal timing revisions, construction logistic/staggered shifts) as a means to reduce project impacts
- Evaluating the effectiveness of a solution
- Review of potential impacts relating to property, social, environmental, utility, etc
- Jurisdictional agency requirements with the project study area involving both the MDOT and the Monroe County Road Commission

The results of the traffic study indicated the following impacts and recommended improvements:

1. I-75 & N. Dixie Highway Interchange – monitor traffic prior to the peak construction period to identify if operational deficiencies are expected with any further traffic increase. If traffic congestion appears to be emerging, implement additional construction shift staggering to lessen peak traffic conditions. Signal timing optimization (to better address the emerging temporary traffic demands) could also be coordinated with the MDOT.

2. I-75 & Swan Creek Road Interchange - consider the addition of traffic signals at each ramp intersection. There is an existing operational deficiency which is compounded with the peak construction traffic and persists with the Fermi 3 operations. The signal met the required traffic signal warrant as provided in the *Michigan Manual of Uniform Traffic Control Devices (MMUTCD).* MDOT's approval will be required for this signalization.

3. I-75 & Nadeau Road Interchange – consider the addition of a traffic signal for the northbound on/off ramps (east ramps) to address peak construction and Fermi 3 operational needs. The southbound on/off ramps (west ramps) are currently signalized. This intersection did not met MMUTCD warrant and signalization will also require MDOT approval. Since the warrant was not met based on the traffic projections, the intersection should be re-evaluated to confirm a warrant when, and if, traffic conditions dictate a need for signalization.

4. N. Dixie Hwy & N. Stoney Creek Road – consider the addition of a traffic signal and an addition of eastbound lane to Stoney Creek Road. The peak construction period creates a severe operational deficiency at this intersection with a moderate deficiency persisting after construction during the operations of Fermi 3. This intersection also met MMUTCD warrant and signalization will also require Monroe County Road Commission (MCRC) approval. There is also a high school and middle school located on Stoney Creek Road that would benefit from this improvement.

5. N. Dixie Hwy & Pointe Aux Peaux Road – Consider signal phasing and timing optimization for the existing signal to better balance the signal timing to the traffic demands for construction traffic conditions. Post construction, under the Fermi 3 operations only a mild operational deficiency occurs with signal timing modifications a prudent mitigation. The signal modification at this intersection will also require Monroe County Road Commission (MCRC) approval.

6. N. Dixie Hwy & Enrico Fermi Drive – Provide intersection improvements to include a signal upgrade (phasing and timing optimization), addition of a northbound N. Dixie Hwy right turn lane and a southbound N. Dixie Hwy left turn lane and widening of Enrico Fermi Drive to four (4) lanes for a distance of approximately 1,500 feet. The intersection improvements will also require Monroe County Road Commission (MCRC) approval. Additionally, stringent enforced contractor shift staggering will also address moderate operational deficiencies for the very peak construction period with lighter construction periods adequately accommodated by the aforementioned improvements.

Items 1 through 5 all involve only signal modifications or upgrades with the exception of Item 4 which also recommends a turn lane addition. The signal only improvements (1, 2, 3, and 5) would have negligible social or economic impacts and involve negligible, if any, right-of-way acquisition. The turn lane addition on Stoney Creek Road may involve a small right-of-way take, but social and environmental impacts would be negligible.

The four (4) recommendations for new signal installations; I-75 Northbound On/Off Ramps & Nadeau Road, I-75 & Swan Creek Road (both ramp intersections) and N. Dixie Hwy & Stoney Creek Road were evaluated for signal installations consistent with the requirements of the *MMUTCD*. The warrant analyses were based on the traffic projections for the peak construction period 2017 and Fermi 3 operations 2020. Warrants were met for three of the four intersections (I-75 & Nadeau Road Northbound On/Off Ramps, I-75 & Swan Creek Road - both ramp intersections) for both the 2017 and 2020 traffic projections. The intersection of I-75 Northbound On/Off Ramps & Nadeau Road did not meet any of the tested signal warrants. Regardless, since the warrants were based on projections, the warrants should be revisited with updated traffic data as traffic increases with the construction of Fermi 3. Traffic conditions may vary from the 2017 and 2020 projections to result in a change in the warrant condition.

The improvements at N. Dixie Hwy & Enrico Fermi Drive involve intersection lane additions and signal improvements and may require some right-of-way acquisition. Relocations or extensive right-of-way impacts are not expected.

Overall, the traffic impacts expected by the Fermi 3 expansion project were generally minor. The existing traffic volumes on the roadways are generally below the capacity capability of the roads. Thus, the roadway network has considerable capability to accept additional traffic. The peak construction period is expected to have some more pronounced impacts to the roadway network that would be lessened with increased use of construction shift staggering in which 25% of the work force is released in fifteen minute intervals. Additionally, very peak construction periods could also utilize bussing from a remote site to reduce trips to and from the site.

Post construction, and with the traffic additions expected by the Fermi 3 operations, traffic impacts remained at N. Dixie Hwy. & Enrico Fermi Drive, I-75 & Swan Creek Interchange (both ramp intersections) and I-75 Northbound On/Off & Nadeau Road. The improvements recommended above increased the level of service (LOS) for theses intersections to acceptable conditions (LOS C or better). The anticipated social and environmental impacts associated with the recommended roadway improvements are negligible to minimal. The signal only additions to the three I-75 interchanges would be seamless with little or no property impacts. The N. Dixie Hwy and Enrico Fermi Drive intersection and signal improvements might require right-of-way, however, these property impacts would be adjacent to the existing roadway and are expected to involve little to no disturbances to the environment. Additionally, these intersection improvements will aid in improving traffic flow and safety at each of these locations.

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1.0 INTRODUCTION

Detroit Edison (DECo), a subsidiary of Detroit Edison, is considering the possible construction of a new nuclear power plant (Fermi 3) on its existing 1250 acre Fermi 2 site near Newport, MI.

A Combined Operating License Application Environmental Report (ER) was submitted to the U.S. Nuclear Regulatory Commission (NRC) on September 18, 2008 and is in continued review with the NRC. The ER includes full and comprehensive documentation of the proposed Fermi 3 power plant as required by the NRC and the applicable Code of Federal Regulations. It should be referenced for a proper perspective and contextual basis to the proposed Fermi 3 project.

The following traffic study report is provided as a supplemental document to the ER. Its scope of study has been developed to satisfy elements of transportation and traffic flow assessment required by the NRC as part of the ER review process, as well as in the best interests of the proposed project, Detroit Edison, and general public.

1.1 Objectives

Primary Project Objective

To conduct a traffic study that addresses the NRC requirement to evaluate plant traffic increases resulting from the addition of the planned Fermi 3 expansion, identify impacts and appropriate countermeasures as needed.

Toward this end, the traffic study will focus to:

- Evaluate construction traffic on the adjacent roadway network and identify traffic impacts involving congestion or safety
- Evaluate traffic conditions on the adjacent roadway network expected from increased employment under the operational expansion of Fermi 3.
- Identify roadway improvements necessary to facilitate construction traffic or permanent operation traffic
- Coordinate local agency reviews to obtain an understanding and agreement for transportation needs for the Fermi 3 expansion

1.2 Key Study Components

In support of these primary objectives, the traffic study entails the following key components as relevant areas of information and assessment.

- Existing Traffic Conditions
- Traffic History & Seasonal Fluctuation
- Crash History & Safety Analysis
- Roadway/ Intersection Operational Analyses
- Emergency Evacuation Routes
- Pavement Condition & Impact Assessment
- Adjacent Land-Use Traffic Impacts

1.3 Project Site

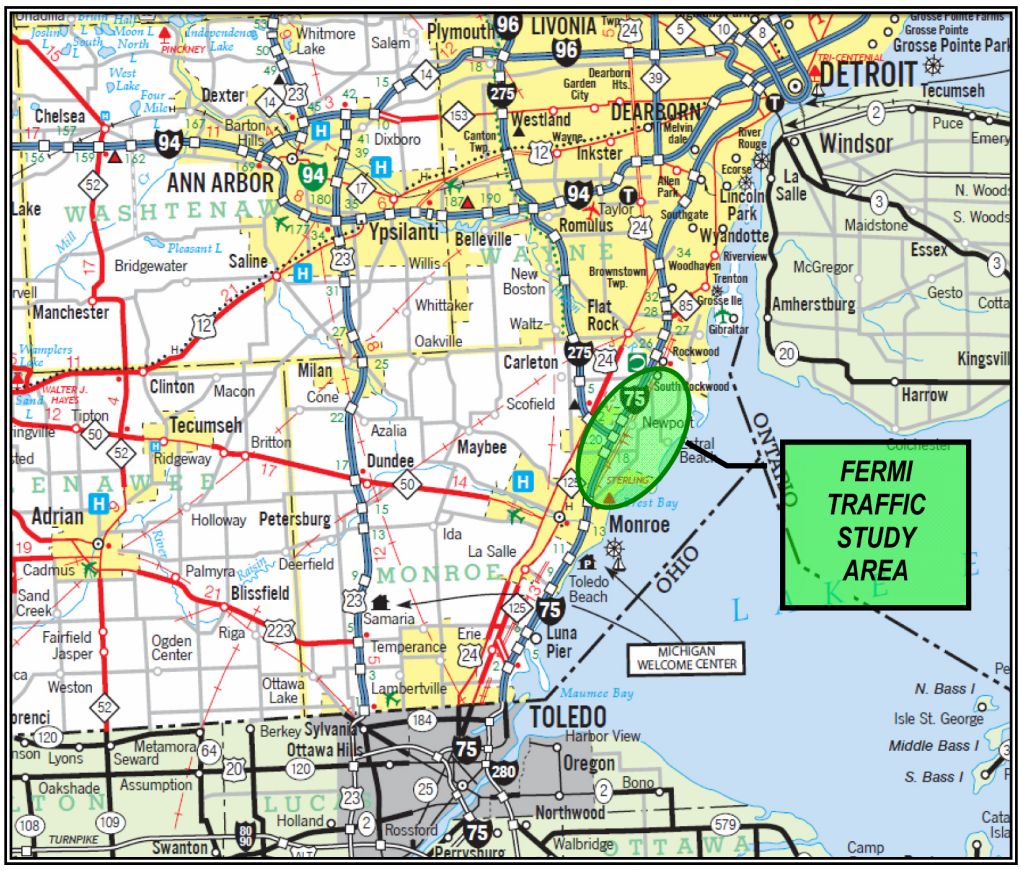
The existing site is located in Monroe County along the SE Michigan coast of Lake Erie approximately 5 miles east of interstate I-75, 30 miles north of the Ohio state line and 25 miles south of Detroit. It is accessible via surface roadways, a rail spur, and the Great Lakes Waterways. While each of these transportation modes serve the site, the primary transportation mode for daily operations to and from Fermi involves operational staff and contractors who travel via surface roads. Enrico Fermi Drive is the main existing site access point from N. Dixie Highway into the site crossing Leroux Road and Toll Road prior to a gated entrance.

FIGURE 1 Fermi Project Site

1.4 Study Area

Detroit Edison has identified a need for a traffic study to evaluate traffic and safety issues related to the influence area of the Fermi 2 plant and the Fermi 3 proposed plant expansion. The study area was identified by The Mannik & Smith Group (MSG) in cooperation and concurrence with Detroit Edison, the U.S. NRC, and other local agencies including the Monroe County Road Commission (MCRC) and Michigan Department of Transportation (MDOT).

FIGURE 2 General Study Area



1.4.1 Methodology of Study Area Limits

Selection of the study area took into primary account what the limits of transportation influence will be for the proposed Fermi 3 expansion. The "limits" of the influence area does not imply that no traffic generated by the site will extend beyond that point, but rather that beyond that point the traffic is generally negligible on a relative scale to other background traffic conditions beyond the selected influence area limits. More specifically, there were several dynamic factors referenced in this consideration, including:

- Total New Site Generated Traffic
  The total amount of traffic which a proposed site adds to the network is important because generally the influence area of site generated traffic is directly proportional with the traffic it generates. With more generated traffic, the further reaching its influences on the adjacent roadway network become.

- Adjacent Roadway Network:
  The specific location of any given site and the resulting connectivity with the adjacent roadway network provide a unique consideration of traffic influence area. If a given site generates significant traffic and is poorly connected with the regional transportation system then traffic influence area may be extremely large. On the contrary, if that same site is located such that multiple points of local and regional transportation connectivity are afforded, then its traffic may disburse down to negligible amounts relative to other background traffic conditions much more closely to the site.

- Background Traffic:
  The volume of pre-existing or non-site (background) traffic is also important because of relative scale. The influence area of the site is indirectly proportional to the volume of background traffic and quality of background traffic operations. That is, the higher volume and capacity of background traffic conditions on adjacent roadway networks, the less generally influential a site may be with traffic it generates. For example, a site generating several hundred peak hour vehicles on small, local 2-lane roadways already servicing traffic near capacity is much more influential than the same site's traffic generated onto a major multi-lane highway operating with excess capacity.

1.4.2 Fermi 3 Study Area Limits

The proposed Fermi 3 site was determined to generate notable traffic exceeding 900 total vehicles per hour (vph) during the AM and PM peak hours at peak construction in 2017 and at approximately a sustained future 400 vph during normal plant operations to begin in 2020. (See ***Section 3.4***) This level of traffic generation relative to adjacent roadways supported the consideration of a study area extending beyond the immediate local roadways adjacent to the Fermi project site. Additional consideration was given for the existing peak hour traffic, average daily traffic and operational conditions of roadways extending north, south, and west from the site toward the regional connection of interstate I-75. These conditions in conjunction with the projected Fermi 3 site generated traffic distribution (see ***Section 3.5***) support the need to incorporate study of Fermi 3 projected traffic outward to these regional connection points at interstate I-75.

Figure 3 - Project Location Map & Study Area Limits, on the following page, summarizes the study area limits identified for this project. The immediate traffic influence area first involves local roadways adjacent to the site and bounded by N. Dixie Highway to the west, Pointe Aux Peaux Road to the south and Post Road to the north. Within this area there are several local roads carrying mostly residential and local traffic. Lake Erie exists to the east. Extending north, south, and west from the site via N. Dixie Highway there are three key regional connections with I-75:

- N. Dixie Highway & I-75 Interchange
- Nadeau Road & I-75 Interchange
- Swan Creek Road/ Newport Road & I-75 Interchange

N. Dixie Highway extends south connecting to I-75 with Nadeau Road and Swan Creek Road providing additional westward connection with I-75.

LEGEND

- ● = SIGNALIZED
- □ = TWO WAY STOP (4-WAY INTERSECTION)
- ■ = 1 WAY STOP (T INTERSECTION)
- ——— = STUDY AREA ROADWAY NETWORK
- - - - = SURROUNDING ROADWAY NETWORK
- ╫╫╫ = RAILROAD

I-75

I-75

NEWPORT RD.

MENTEL RD.

NADEAU RD.

STONEY CREEK RD.

POST RD.

SWAN CREEK RD.

DIXIE HWY

DIXIE HWY

POST RD.

LEROUX RD.

POINTE AUX PEAUX RD.

TOLL RD.

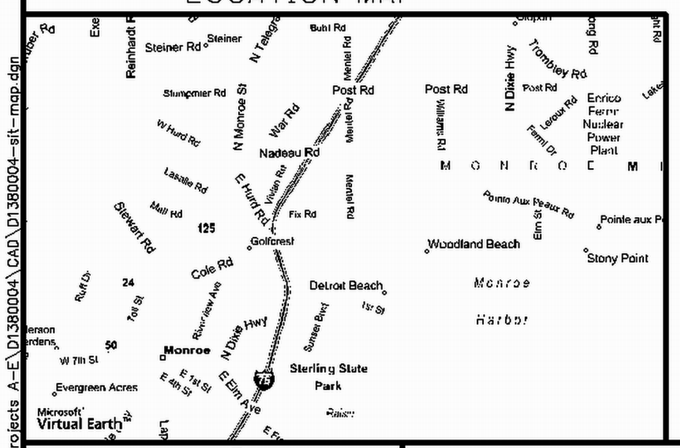
ENRICO FERMI DR.

LANGTON RD.

LAGOONA BLVD.

FERMI SITE

LOCATION MAP



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The Mannik & Smith Group, Inc.
Civil Engineering, Surveying and Environmental Consulting

FIGURE 3
PROJECT LOCATION MAP & STUDY AREA LIMITS

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

In summary of the defined study area limits, the following roadway segments, interchanges, and intersections are of specific interest and assessment in this study.

1.4.3 Roadway Segments

- N. Dixie Highway from I-75 to Swan Creek Road
- Nadeau Road from I-75 to N. Dixie Highway
- Swan Creek Road from I-75 to N. Dixie Highway
- Pointe Aux Peaux Road from N. Dixie Highway to Lagoona Blvd.
- Enrico Fermi Road from N. Dixie Highway to the Fermi Plant
- Toll Road from Enrico Fermi Road to Langton Road
- Langton Road from Toll Road to Leroux Road
- Leroux Road from N. Dixie Highway to Post Road
- Post Road from N. Dixie Highway to Leroux Road

1.4.4 Interchanges

- N. Dixie Highway & I-75 (NB and SB Ramps)
- Nadeau Road & I-75 (NB and SB Ramps)
- Swan Creek Road/Newport Road & I-75 (NB and SB Ramps)

1.4.5 Intersections

- N. Dixie Highway & SB I-75 Ramps
- N. Dixie Highway & NB I-75 Ramps
- Nadeau Road & SB I-75 Ramp
- Nadeau Road & NB I-75 Ramp
- N. Dixie Highway & Stoney Creek Road
- N. Dixie Highway & Pointe Aux Peaux Road/ Marshall Field Drive
- N. Dixie Highway & Leroux Road
- N. Dixie Highway & Enrico Fermi Drive
- N. Dixie Highway & Post Road
- Swan Creek Road/Newport Road & SB I-75 Ramps
- Swan Creek Road & NB I-75 Ramps
- Leroux Road & Toll Road
- Leroux Road & Langton Road
- Toll Road & Enrico Fermi Drive
- Toll Road, Fisher St. & Langton Road
- Enrico Fermi Drive & South Plant Gate
- Pointe Aux Peaux Road & Lagoona Blvd.