2.1 Geography and Demography

EF3 COL 2.0-2-A

2.1.1 Site Location and Description

2.1.1.1 Specification of Location

The proposed reactor is designated as Fermi 3. It is located on the same site as Fermi 2. The location of each reactor at the Fermi site is specified by latitude, longitude and Universal Transverse Mercator (UTM) coordinates below.

The Fermi site is located in Stony Point quadrangle, found in the U.S.

Fermi 2	Latitude	Longitude
	41º 57’ 48” North	83º 15’ 31” West
	Zone 17T UTM (NAD83) Coordinates	
	4,647,950 m Northing	312,930 m Easting

Fermi 3	Latitude	Longitude
	41º 57’ 39” North	83º 15’ 43” West
	Zone 17T UTM (NAD83) Coordinates	
	4,647,902 m Northing	312,551 m Easting

Geological Survey (USGS) map index for Michigan. USGS Estral Beach, Michigan, quadrangle brackets the site to the northeast, and USGS Monroe, Michigan, quadrangle brackets the site to the southwest. (Reference 2.1-201, Reference 2.1-202, Reference 2.1-203) The Fermi 3 site grade elevation is at 179.6 m (589.3 ft) NAVD 88[1].

The Fermi site is located in Monroe County in southeastern Michigan, about 32.2 km (20 mi) north of the Michigan/Ohio border. The US/Canada international border runs through Lake Erie about 11.3 km (7 mi) east of Fermi 3. The site is on the west shore of Lake Erie at Lagoona Beach, Frenchtown Township, Monroe County, Michigan, approximately 38.6 km (24 mi) northeast of Toledo, Ohio, and 48.3 km

1. NAVD 88 is the reference datum for use at the Fermi 3 site. The Fermi 3 FSAR may provide elevations in various datums. The following table provides the relationship of other referenced datums to NAVD 88.

	Metric Units (m)	**English Units (ft)**
NAVD 88 (current msl)	100	100
IGLD 55	99.74	99.15
IGLD 85	99.92	99.74
NGVD 29 (old msl)	99.85	99.51
Plant Datum	100.37	101.22

*msl = means sea level elevation

(30 mi) southwest of Detroit, Michigan. Figure 2.1-201 shows the location of Fermi 3 in relation to the counties and larger cities and towns in the region within a radius of 80 km (50 mi) from the center of the Fermi 3 power block.

Figure 2.1-202 shows Fermi 3 in relation to the features of the surrounding 12 km (7.5 mi) vicinity. Prominent natural features include Lake Erie adjacent to the eastern Fermi site property boundary, Swan Creek approximately 1.6 km (1 mi) north, Stony Point about 3.2 km (2 mi) south, Pointe Mouillee State Game Area about 4.8 km (3 mi) northeast, Sterling State Park approximately 8 km (5 mi) southwest, the Huron River about 9.25 km (5.75 mi) north, and River Raisin located 9.6 km (6 mi) southwest. The village of Stony Point is approximately 1.6 km (1 mi) to the south, Estral Beach is approximately 3.2 km (2 mi) north, Woodland Beach is located 4.8 km (3 mi) southwest, Detroit Beach is 6.4 km (4 mi) southwest, and the City of Monroe, Michigan, is approximately 11.3 km (7 mi) southwest of Fermi 3. Prominent manmade features such as industrial, military, and transportation facilities are detailed in Section 2.2.

2.1.1.2 Site Area Map

The property boundary shown on Figure 2.1-203 encompasses approximately 509.9 hectares (1260 acres) that comprise the Fermi site. The site boundary lines are essentially the same as the plant property lines. The site is bounded on the north by Swan Creek, on the east by Lake Erie, on the south by Pointe Aux Peaux Road, and on the west by Toll Road. Entrance to the site is from Dixie Highway to the west along Fermi Drive, a private road, where the applicant maintains control of ingress to and egress from the Fermi site through the main gate. There is an auxiliary gate onsite to the south on Pointe Aux Peaux Road; however, this gate is kept locked at all times and requires a key for entry by authorized Detroit Edison personnel.

Figure 2.1-204 shows the location of principal plant structures onsite, including the reactor building, auxiliary buildings, and turbine building. Other than the Fermi 2 structures, there are no active industrial, military, institutional, recreational, or residential facilities onsite. There is a 150 m (492 ft) communications tower near the north edge of Boomerang Road, south of the power plant area and close to the Lake Erie shoreline, which is owned by the applicant but leased to a private commercial company. A firing range is located off the north end of Doxy Road near Bullit Road.

The station's small heliport is on the east side of Quarry Lake in the southwest part of the site across the lake from the Nuclear Training Center and the Nuclear Operations Center. The applicant's private rail spur is served by Canadian National Railway and parallels Fermi Drive on the north side of the road from Dixie Highway onto the site. The northern and southern areas of the site are dominated by large lagoons. The western areas are dominated by several woodlots and quarry lakes. Site elevation ranges from the level of Lake Erie, on the eastern edge of the site, to approximately 7.6 m (25 ft) above the lake level on the western edge of the site.

EF3 COL 2.0-3-A

2.1.2 Exclusion Area Authority and Control

2.1.2.1 Authority

As shown in Figure 2.1-204, the Fermi 3 Exclusion Area Boundary (EAB) is designated as the area encompassed by an 892.45 m (2928 ft) radius circle around the reactor center. The Fermi 2 and Fermi 3 exclusion areas overlap a significant amount of the same area and are entirely within the 509.9 hectares (1260 acres) owned by Detroit Edison with the exception of a few small areas in Lake Erie to the east. Detroit Edison owns a 16.2 hectare (40 acre) parcel of submerged land in Lake Erie expressly for protection and maintenance of the intake channel. Detroit Edison has fee simple absolute ownership of all the land within the Fermi site property boundary, and therefore the applicant has the authority to determine all activities, including exclusion and removal of personnel and property from the EAB, as specified by 10 CFR 100.21(a). All points of personnel and vehicle access to the site are strictly controlled utilizing methods such as searches, escorts for visitors, and ensuring individuals are evacuated in the event of an emergency.

Detroit Edison owns and controls 99.93 percent of the mineral rights within the Fermi site. One third party, the Michigan Department of Natural Resources (MDNR), owns 0.36 hectare (0.88 acre) of mineral rights in the far southeast portion of the Fermi site (Reference 2.1-204). This very small mineral rights holding by the MDNR is in an area removed from the portions of the site that will be affected by Fermi 3 site preparation, preconstruction, construction, or operation; therefore, Detroit Edison owns and effectively controls the mineral rights in the Fermi 3 power block and associated exclusion area (Reference 2.1-205). There is no activity at the Fermi site or in adjacent areas involving exploration for, drilling for, or otherwise extracting minerals. The geological character of

the subsurface structure and the land use in the vicinity of the Fermi site indicate that commercial mineral production appears unlikely in the foreseeable future. No mineral resources of known commercial value are present within the areas within the site boundary or adjacent to the site. No mineral resources are being exploited on the site or in adjacent areas, nor are these resources expected to be developed in the future.

The Fermi site property is owned by Detroit Edison, while the 345 kV and 120 kV switchyards and transmission equipment onsite as well as outward from the Fermi site is owned, operated and maintained by the International Transmission Company (ITC*Transmission*). There are easements on Fermi property granted to ITC*Transmission* for the 345 kV and 120 kV transmission lines as they leave their respective switchyards. Transmission lines over the Fermi site and along the entire transmission corridor routes run within ITC*Transmission* easements.

Detroit Edison owns the 3.2-km (2-mi) length of railroad coming into the Fermi site from Dixie Highway; the Canadian National Railway has an easement on the rail spur on Fermi property for maintenance. Detroit Edison owns the roads that traverse the exclusion area. No one resides in the exclusion area.

2.1.2.2 Control of Activities Unrelated to Plant Operation

Permitted activities unrelated to plant operation which take place within the exclusion area are intermittent and short term. All visitors are provided with general safety rules and evacuation instructions.

- U.S. Fish and Wildlife Service (USFWS) personnel access the Fermi site on a limited basis as needed for various projects related to the Lagoona Beach Unit of the Detroit River International Wildlife Refuge (DRIWR) (Reference 2.1-206), which encompasses much of the undeveloped woody wetlands onsite. Detroit Edison has had a cooperative agreement with USFWS since 2003 that allows the USFWS to assist in managing the refuge areas while Detroit Edison retains ownership and control of the entire site. In the past, individuals from conservation organizations have been allowed onto the designated refuge areas to perform specific projects and restore wetland habitat under the supervision of USFWS.
- A commercial telecommunication company accesses the 150 m (492 ft) communications tower as needed to maintain equipment.

- Annually or as needed, two National Oceanic and Atmospheric Administration (NOAA) personnel maintain the lake gauge station on the water intake bay.
- Public relation type tours are given occasionally to government, corporate, and institutional staff. Approximately 25 people on an annual basis may transit the EAB to view site features.
- One day a year in the spring, approximately 20 people access the Lake Erie shoreline areas north and south of the plant to observe or take part in bald eagle banding.
- Approximately 5 personnel from the Audubon Society and Fermi perform an annual Christmas bird count which occurs throughout the Lagoona Beach Unit of the DRIWR onsite.
- Once every year or two, a few people come onto the site for a couple days to maintain the prairie restoration area just inside the main gate and north of Fermi Drive as shown on Figure 2.1-204. This activity includes mowing/haying and applying herbicide to control invasive vegetation.
- Every 3 years, Fermi and Detroit Edison corporate environmental experts perform a site inventory to meet requirements of their Wildlife Habitat Certification. Typically, this activity involves approximately 20 people walking through the Lagoona Beach Unit of DRIWR over two days to count and record types of plants, trees, birds, wildlife, insects, and endangered and threatened species.

2.1.2.3 Arrangements for Traffic Control

The exclusion area for Fermi 3 is not traversed by any highway or public railroad. The closest major shipping lane is the Outer West Channel in Lake Erie which lies 7.2 km (4.5 mi) east and well outside of the Fermi 3 EAB. The access and control practices in effect for onsite private roads, the railroad spur, and the portion of the EAB in Lake Erie for Fermi 2 are also maintained for Fermi 3.

The water portion of Fermi 2 and Fermi 3 EABs in Lake Erie is controlled through security surveillance, use of the public address (PA) system to warn boaters, and placement of buoys which identify the area as restricted. Additional protection is provided by the designation of all waters and adjacent shoreline as a security zone as set forth in 33 CFR 165.915 (Reference 2.1-207). Entry into this zone is prohibited unless authorized by the U.S. Coast Guard. Flyers providing information to

boaters regarding the Fermi security zone and restricted area are posted at nearby marinas and bait shops. The Lake Erie shoreline on the plant site is unsuitable for beach activities, inaccessible to the public from the land side, and posted as private property. Due to poor fishing and the shallow characteristics of Lake Erie in this area, past experience indicates the public attempts to use the shoreline area or approach the site from the lake infrequently.

2.1.2.4 Abandonment or Relocation of Roads

No public roads traverse the proposed Fermi 3 EAB; therefore, no public roads are abandoned or relocated due to construction and operation of Fermi 3. There are private roads inside the EAB as part of this project which are owned by the applicant.

EF3 COL 2.0-4-A

2.1.3 Population Distribution

The permanent population data presented in this section are primarily derived from the 2000 U.S. Census information contained in LandView® 6[2]. This software is a flexible tool capable of identifying economic and demographic information in a selected geographic area. Sources for population data and projections, as well as information on seasonal variations (transient) population in the area around the Fermi site are identified and referenced in this section, as appropriate. The population data and general descriptions of human activity and seasonal variations are provided to comply with Regulatory Guide 1.206. In general, the Fermi 3 Environmental Report was the basis for the information included in this section. This information was updated with data obtained by research, as cited. Also, census data was augmented by information from other agencies and public organizations from the States of Michigan and Ohio and from Canada. This augmented information includes descriptions and data for facilities, schools, parks, recreational areas, etc.

The region, defined as the area encompassed by a 80-km (50-mi) radius from the center of the Fermi 3 power block, includes all or a portion of 16 counties in Michigan and Ohio and 3 counties in Ontario, Canada, which

2. LandView® 6 software is the result of a collaborative effort among the U.S. Environmental Protection Agency (EPA), the U.S. Census Bureau, the National Oceanic and Atmospheric Administration (NOAA), and the U.S. Geological Survey (USGS) to provide the public readily accessible published federal spatial and demographic data. It is composed of two software programs: the LandView® 6 database manager and the MARPLOT® map viewer. These two programs work in tandem to create a computer mapping system that displays individual map layers and the associated demographic and spatial data.

are listed in Table 2.1-201[3]. These areas are also shown in Figure 2.1-205 where an 80-km (50-mi) circle from Fermi 3 is also drawn.

2.1.3.1 Population Data

2.1.3.1.1 Permanent Population within 16 km (10 mi) and 80 km (50 mi)

Figure 2.1-206 is a map of the area within 16 km (10 mi) of the Fermi site with concentric circles of 1.6, 3.2, 4.8, 6.4, and 8 km (1, 2, 3, 4, 5, and 10 mi). The circles are divided into 22.5-degree segments with each segment centered on one of the 16 compass points (e.g., north, north-northeast). Within each area formed by the concentric circles and radial lines, the estimated permanent (resident) population for 2000 is listed, per LandView® 6.

The resulting population statistics are also listed in Table 2.1-202. The population within 8 km (10 mi) of the Fermi 3 power block was 89,198 in 2000. The largest population segment lies west-southwest of the site in the City of Monroe. The largest population areas, according to LandView® 6, and their relative location and distance to the Fermi 3 power block are listed in Table 2.1-203.

Figure 2.1-207 illustrates the segment population in the 80-km (50-mi) radius around Fermi 3. The population statistics are also listed in Table 2.1-204. The segment population was derived from LandView® 6 using Census Block Points, which represent a small population for a limited but unspecified area around the block point and are the most accurate method of estimating segment population. Figure 2.1-208 shows all the Census Block Points for Monroe County and the demographic information that each block point represents. To develop the population for each segment the following methodology was used. For the 0 to 1.6-km (0 to 1-mi) distance from the plant, the population for all Census Block Points lying within the 1.6-km (1-mi) radius was summed. For other distances beyond the 1.6-km (1-mi) radius, Census Block Point populations were allocated in their entirety to the segment in which it was reported in LandView® 6, see Figure 2.1-209. Even though a portion of the Census Block Point population around the edge of a segment could lie in an adjacent segment, this methodology was deemed reasonable,

3. Generally, Canadian provinces are equivalent to U.S. states, Canadian divisions (many divisions make up a province) are equivalent to U.S. counties, and Canadian subdivisions (many subdivisions make up a division) are equivalent to U.S. tracts (many tracts make up a county).

since the net effect of these adjustments would tend to cancel out. For the segments in Canada, ArcGIS[4] software was used to find the percentage of each segment lying within a Canadian county, this percentage was then multiplied by the population in each county.

2.1.3.1.2 Transient Population

Transient populations include those populations that do not reside permanently in an area but are there instead on a temporary basis. There are a large number of categories that can potentially be considered as part of the transient population. Such categories include employees at businesses located outside the workers' area of residence, hotel and motel guests, and patrons of sporting events and recreational facilities. There are also special facilities whose populations can be counted as transient and these include schools, hospitals and nursing homes, and correction facilities.

When viewing transient population figures, it should be kept in mind that it is not possible to determine how many persons in some categories (e.g. the workforce at an employer, guests in a hotel, etc.) reside within or outside the study area, meaning that the category can lead to double counting, especially in larger geographic areas. Therefore, the sum of the resident and transient populations tends to overstate the total area population. Nevertheless, transient population estimates can be useful and are provided below for the 0 to 16-km (10-mi) and 16 to 80-km (10 to 50-mi) radii from the Fermi 3 power block.

2.1.3.1.2.1 Transient Population within Approximately 16 km (10 mi)

An estimate of the total transient population, which includes the transient population (persons who live outside of the Emergency Planning Zone (EPZ) boundary but enter the EPZ for a specific reason, and then leave the EPZ; examples include campers or recreational facility users) plus commuter-employees (persons who live outside the EPZ yet commute to work within the EPZ) for the EPZ has been estimated in the "Fermi Nuclear Power Plant Development of Evacuation Time Estimates" (the "Evacuation Time Estimate" (ETE)) as contained in COLA Part 5

4. ArcGIS Desktop is a mapping and data analysis software that allows the user to discover patterns, relationships, and trends in data, and to map and integrate data, perform advanced analysis, model and automate operational processes, and display results on professional-quality maps.

(Reference 2.1-208). This estimate was developed in May 2008 by KLD Associates, Inc. for Detroit Edison Company.

The Evacuation Time Estimate reports the transient population for the two groups listed above. The information is organized by the distance and compass direction from the Fermi site. Based on the resident population developed above and the total transient population from the ETE, the total 16-km (10-mi) radius population (permanent plus transient total) is estimated at 106,736 in Table 2.1-205 (Reference 2.1-209) and the transient population of 17,538 comprises approximately 16.4 percent of this figure.

Figure 2.1-210 is a map of the resident plus transient population by segment in the 16-km (10-mi) Fermi 3 EPZ. Table 2.1-205 also lists the permanent and total transient population estimates as well as population densities for concentric circles within the 16-km (10-mi) radius of the Fermi 3 power block.

2.1.3.1.2.2 Transient Population up to 80 km (50 mi)

The estimated transient population for the Fermi 0 to 80-km (50-mi) radius in 2000 is listed in Table 2.1-206 as 200,656. The table also shows the resident and transient total population and the population density for concentric circles up to 80 km (50 mi). Approximately 3.6 percent of the total population of 5.6 million in the 0 to 80-km (50-mi) radius concentric circle is estimated to be transient.

Figure 2.1-211 is a map indicating the resident and transient population distribution by segment in the 80-km (50-mi) Fermi region. On this map, the estimated total transient population for each Michigan or Ohio segment within each concentric circle was calculated by combining estimates of the following, as explained further below.

- 2000 U.S. Census commuter information for each county (Reference 2.1-210)
- 2000 U.S. Census information from LandView® 6 on the number of Recreational, Seasonal, and Occasional housing units in the 80-km (50-mi) Region (Reference 2.1-211)
- Special facilities transient population data

The 2000 U.S. Census reports commuter inflow and outflow information for each county. Table 2.1-207 lists the commuter inflow and outflow data for counties within 80 km (50 mi) of the Fermi site. Once this commuter

information was compiled, ArcGIS software was used to find the percentage of each county lying within a segment. Multiplying this percentage by the commuter net flow for each county produced an estimate of the net commuter transient population for each concentric circle segment for the 16 to 80-km (10 to 50-mi) radius.

The LandView® 6 software was used to estimate the transient population associated with the use of recreational, seasonal, or occasional housing units as follows. LandView® 6 was used to determine the number of houses in each segment based on Census Block Point data. For each segment, the number of housing units was then multiplied by the percentage of total housing units in the generally corresponding Census Block Group classified as "for recreational, seasonal, or occasional use." The result was an estimate of the number of houses in each segment that were vacant. Next, and to translate this into a population estimate, the number of units for recreational, seasonal, or occasional use for each segment was multiplied by the county's average household size to arrive at the maximum population in recreational, seasonal, or occasional housing units in each segment. Finally, because these units are only occupied part of the year, it was assumed that three quarters of the housing units would only be occupied for three months (one-quarter) of the year. Thus, by multiplying the maximum population in recreational, seasonal, or occasional housing units by 0.1875 (0.75 x 0.25) an estimate of the equivalent transient housing population for recreational, seasonal or occasional use for each segment was derived.

Table 2.1-208 lists special facilities transient population information for several categories (correctional facilities, college dormitories, nursing homes, hospitals, religious group quarters, and other non-household living situations) for each county within 80-km (50 mi) of the site. ArcGIS software was used to find the percentage of each county lying within a segment. Multiplying this percentage by the transient population for each county produces an estimate of transient population for each concentric circle segment for these several categories.

The transient population for segments in Canada was assumed equal to the same percentage as the transient population percentage in the United States. This methodology was deemed appropriate because the transient population makes up a small percentage of the total population, 3.6 percent for the U.S. region within 80 km (50 mi) of the Fermi site and

the percentage of resident Canadian population to the whole regional resident population was 8.7 percent.

2.1.3.1.3 Projected Total Populations

Population projections for the segments within 16 km (10 mi) of the Fermi 3 power block for 2000, 2008, 2013, 2018, 2020 and for each subsequent decade for four decades through the year 2060 (the assumed end of the initial plant license period) are based upon the average annual growth rate in census population from 1990 through 2005 (Table 2.1-209) for the regional counties, applied to the 2000 resident and transient population estimate for each segment. ArcGIS software was used to find the percentage of each segment lying within an area. A weighted average growth rate for each segment was calculated by summing up the product of the county growth rate and the segment tract area percentage associated with each county. Figure 2.1-212 shows a graphical representation of this methodology. The transient population was estimated to grow at the same rate as the resident population because schools, employment, and a number of other transient categories are generally linked to resident population. The resulting population projection is listed in Table 2.1-210 for the 0 to 16-km (10-mi) radius around Fermi.

The population projections for the 16 to 80-km (10 to 50-mi) segments from the Fermi 3 power block for 2000, 2008, 2013, 2018, 2020, and for each subsequent decade for four decades through the year 2060 are based upon the average annual growth rate in United States county census population from 1990 through 2005 (Table 2.1-209) and the average annual growth rate in Canadian census county population from 1996 through 2006 (Table 2.1-211), applied to the 2000, for the United States, and the 2001, for Canada, resident and transient population estimate for each segment. The resulting population projection for the 16 to 80-km (10 to 50-mi) segments are listed in Table 2.1-212.

2.1.3.2 Exclusion Area

There are no residents within the Exclusion Area Boundary.

2.1.3.3 Low Population Zone

The definition of a Low Population Zone (LPZ) as stated in 10 CFR 100 is: “the area immediately surrounding the exclusion area which contains residents, the total number and density of which are such that there is a

reasonable probability that appropriate protective measures could be taken in their behalf in the event of a serious accident." The Fermi 3 LPZ radius is defined as a 5 km (3-mi) radial distance measured from the power block center. Figure 2.1-213 illustrates the LPZ and the transportation routes within approximately a 8 km (5-mi) radius of the Fermi site. Figure 2.1-213 also shows the industrial facilities, parks and other facilities within 8 km (5 mi) of the Fermi site that may require special consideration[5]. There are no hospitals or prisons within 8 km (5 mi) of Fermi 3. Table 2.1-213 and Table 2.1-214 provide more detailed information about the facilities (or institutions) and schools within 8 km (5 mi), respectively.

Population data for the LPZ is listed in Table 2.1-215 for 2000, 2020 and 2060. Table 2.1-215 shows that the permanent (resident) population within the LPZ was 5761 in 2000 and the transient population was 493. The population density for the total population (resident plus transient) in the LPZ was 221 persons per square mile in 2000. The population density is projected to reach 268 persons per square mile by 2020, the assumed in-service operational date. By 2060, the population density is projected to reach 332 persons per square mile when the total population is projected to be 9393.

The Fermi 3 daily workforce is in addition to other institutions within 80 km (5 mi) of the facility that are of special concern. Based on the analysis developed above, the transient population for the LPZ is estimated to be 493 (includes Fermi 2 work force).

2.1.3.4 Population Center

A population center is defined in 10 CFR 100 as a densely populated area where there are about 25,000 inhabitants or more. In making the determination of the nearest populated area, clusters of populations near official political boundaries are considered. Based on the LandView® 6 software, the population center nearest to the site is the population area of Monroe, consisting of Monroe, West Monroe, and South Monroe. This area boundary is located approximately 8.9 km (5.5 mi) from the site and this area contained a total population of 32,339 in 2000. Applying Monroe County's average annual growth rate of 0.94 percent to the area of Monroe's 2000 population of 32,339 yields a 2057 population projection

5. If an institution had a sizable population greater than 250 persons or handled hazardous material it was deemed as require special consideration.

of 55,123. As a result, the Monroe population area is projected to remain the nearest population center in 2057, the projected end of plant life (assuming an initial operation of 2017 with a 40 year operating life).

2.1.3.5 Population Density

The cumulative permanent (resident) population for 2000 was calculated using the data from LandView® 6 software provided by the U.S. Census Bureau. The permanent population density for the County of Monroe, in which the site is located, is 264.8 persons per square mile; for the State of Michigan, it is 175.0 persons per square mile; for the State of Ohio, it is 277.3 persons per square mile.

Regulatory Guide 4.7, Position C.4 specifies that "a reactor would be located so that, at the time of initial site approval and within about 5 years thereafter, the population density, including weighted transient population, averaged over any radial distance out to 32 km (20 mi) (cumulative population at a distance divided by the circular area at that distance), does not exceed 500 persons per square mile." The projected initial site approval date for Fermi 3 is 2013. Based on data from Table 2.1-216 and Table 2.1-217, the Fermi 3 population density lies below this threshold. The data in Table 2.1-216 and Table 2.1-217 is based on population data from Section 2.1.3.1 above.

2.1.4 References

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2.1-212 LandView® 6 on DVD with MARPLOT® , a Viewer for EPA, Census Bureau and USGS data and maps, December 2003, http://landview.census.gov, (County Information).

2.1-213 LandView® 6 on DVD with MARPLOT® , a Viewer for EPA, Census Bureau and USGS data and maps, December 2003, http://landview.census.gov, (Census Block Point Information).

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2.1-220 Institute of Education Sciences, U.S. Department of Education, National Center for Education Statistics, “Search for schools, Colleges, and Libraries,” http://nces.ed.gov/globallocator/index.asp?search=1&State=&city=&zipcode=48162&miles=10&itemname=&sortby=name&School=1&PrivSchool=1&College=1&Library=1&CS=4F9B788F, accessed 24 April 2008.

Table 2.1-201 U.S. Counties and Canadian Counties within 80 km (50 mi) Radius of Fermi 3

Michigan Counties	Ohio Counties	Ontario CA Counties
Jackson	Erie	Essex
Lenawee	Fulton	Chatham-Kent
Livingston	Henry	Lambton
Macomb	Lucas	
Monroe*	Ottawa	
Oakland	Sandusky	
Washtenaw	Seneca	
Wayne	Wood	

* Proposed Location of Fermi 3
Source: Reference 2.1-212

Table 2.1-202 Resident Population Distribution by Segment, 0 to 16 km (10 mi) from Fermi 3, 2000

Cardinal Compass Direction	Mile Range					
	0-1	1-2	2-3	3-4	4-5	5-10
NORTH		83	397	218	188	12,715
N-NE		124	46	26	71	7212
NE		282	204	0	0	0
E-NE		0	0	0	0	0
EAST		0	0	0	0	0
E-SE		0	0	0	0	0
SE		0	0	0	0	0
S-SE		0	0	0	0	0
SOUTH	121	1154	0	0	0	0
S-SW		259	0	0	0	0
SW		280	0	106	162	1609
W-SW		115	1279	2426	1341	35,180
WEST		185	213	219	518	4863
W-NW		28	0	70	263	5066
NW		195	392	203	776	5521
N-NW		205	199	240	191	4253
Total Population Per Circle	121	2910	2730	3508	3510	76,419
Total Population: All Segments	89,198					

Source: Reference 2.1-213

Table 2.1-203 Largest Population Areas within 16 km (10 mi) of the Fermi Site, 2000

Populated Place	2000 Population	Approx. Distance from Fermi km (mi.)
Stony Point	1775	2.1 (1.3)
Woodland Point	2179	4.7 (2.9)
Detroit Point	2289	6.4 (4.0)
Monroe	32,339	8.9 (5.5)
Rockwood	4726	12.2 (7.6)
Carleton	2562	15.1 (9.4)
Flat Rock	8488	15.3 (9.5)
Gibraltar	4264	15.3 (9.5)

Source: Reference 2.1-212

Table 2.1-204 Segment Resident Population Distribution 0 to 80 km (50 mi) From the Proposed Fermi 3 Power Block, 2000

Cardinal Compass Direction	Population in Mile Range from the Proposed 3 Power Block				
	0-10	10-20	20-30	30-40	40-50
NORTH	89,198	121,416	453,510	571,939	365,114
N-NE		107,027	354,880	725,303	453,907
NE		15,533	123,981	36,136	5371
E-NE		10,242	17,807	22,751	19,742
EAST		2220	4917	11,590	2351
E-SE		0	0	256	0
SE		0	67	8110	43,157
S-SE		0	1540	17,199	28,286
SOUTH		0	7621	14,145	27,723
S-SW		3547	112,020	36,023	40,991
SW		12,453	265,684	111,951	28,032
W-SW		8945	10,475	10,573	8240
WEST		6730	8705	37,023	30,762
W-NW		5732	20,446	19,167	16,759
NW		17,938	122,093	138,391	67,173
N-NW		24,388	221,758	179,240	149,989
Total Population Per Circle	89,198	336,170	1,725,503	1,939,797	1,287,597
Total Population: All Segments			5,378,266		

Source: Reference 2.1-213

Table 2.1-205 Resident and Transient Population and Density, 0-10 mi Concentric Circles from the Fermi Site, 2000

Concentric Circle	Population			Area (Sq. Mi.)	Population Density (Persons/Sq. Mi.)
	Resident	Transient	Total		
0 – 1 mi	121	449	570	3.1	181
1 – 2 mi	2910	14	2924	9.4	310
2 – 3 mi	2730	30	2760	15.7	176
3 – 4 mi	3508	226	3734	22.0	170
4 – 5 mi	3510	2153	5663	28.3	200
5 - 10 mi	76,419	14,666	91,085	235.6	387
0 - 10 mi	89,198	17,538	106,736	314.2	340
Michigan (Resident)			9,938,444	56,804	175

Source: Reference 2.1-209

Table 2.1-206 Resident and Transient Population and Density by Concentric Circle, 2000

Concentric Circle	Population			Area (Sq. Mi.)	Population Density (Persons/Sq. Mi.)
	Resident	Transient	Total		
0 - 10 mi	89,198	17,538	106,736	314	340
10 - 20 mi	336,170	10,906	347,076	942	368
20 - 30 mi	1,725,503	44,433	1,769,936	1,571	1,127
30 - 40 mi	1,939,797	70,601	2,010,398	2,199	914
40 - 50 mi	1,287,597	57,178	1,344,775	2,827	476
0 - 50 mi	5,378,266	200,656	5,578,922	7,854	710
Michigan			9,938,444	56,804	175
Ohio			11,353,140	40,948	277

Source: Reference 2.1-209

Table 2.1-207 Commuter Information for the 80 km (50 mi) Region, 2000

County	Inflow	Outflow	Net flow
Jackson Co. MI	9899	16,929	-7030
Lenawee Co. MI	6160	14,759	-8599
Livingston Co. MI	20,093	45,884	-25,791
Macomb Co. MI	116,045	158,944	-42,899
Monroe Co. MI	12,886	33,633	-20,747
Oakland Co. MI	287,517	174,731	112,786
St. Clair Co. MI	8203	28,113	-19,910
Washtenaw Co. MI	69,192	39,361	29,831
Wayne Co. MI	226,899	208,906	17,993
Erie Co. OH	9680	9366	314
Fulton Co. OH	8676	8124	552
Henry Co. OH	3151	5977	-2826
Lucas Co. OH	49,919	32,211	17,708
Ottawa Co. OH	4175	8510	-4335
Sandusky Co. OH	7452	9335	-1883
Seneca Co. OH	5388	10,504	-5116
Wood Co. OH	26,509	27,099	-590
Totals	871,844	832,386	39,458

Source: Reference 2.1-210

Table 2.1-208 Special Facilities Transient Population Data for the Regional Counties, 2000

County	Number of People Living in: State Prisons/Local Jails[1]	College Dormitories*	Nursing Homes	Hospitals or Wards[2]	Religious Group Quarters[3]	Other non-household living situations[4]
Jackson (MI)	7327	761	1139	153	253	405
Lenawee (MI)	2597	1005	543	299	602	131
Livingston (MI)	423	3	212	119	330	178
Macomb (MI)	2513		3935	502	167	1177
Monroe (MI)	300		507	73	301	329
Oakland (MI)	2571	1837	4327	1753	1483	1773
St. Clair (MI)	274		605	152	448	174
Washtenaw (MI)	3318	14898	1244	1194	222	453
Wayne (MI)	7783	1254	10,061	4661	1493	6726
Erie (OH)	108		1443	37	223	175
Fulton (OH)	5		372	17	27	13
Henry (OH)	180		294	31		74
Lucas (OH)	591	2505	3663	628	414	871
Ottawa (OH)	72		382	137	32	2
Sandusky (OH)	99		621	101	69	105
Seneca (OH)	8	751	369	195	311	19
Wood (OH)	232	6377	777	87	88	144
Total:	28,401	29,391	30,494	10,139	6,463	12,749

Notes:

* Includes college quarters off campus

1. Includes local jails (including police lockups), halfway houses, state prisons, juvenile institutions (including short-term care, detention or diagnostic centers), other correctional institutions, federal prisons, military disciplinary barracks
2. Includes homes for the mentally/physically handicapped/ill, hospitals/wards and hospices for chronically ill, orthopedic wards, institutions for the deaf or blind, patients who have no usual home elsewhere
3. Includes workers' dormitories, agriculture workers' dormitories on farms, other group homes
4. Includes other noninstitutional group quarters, job corps and vocational training facilities

Source: Reference 2.1-214

Table 2.1-209 Michigan and Ohio Regional County Populations and Average Annual Growth Rates

	Historical and Estimated Population			Average Annual Growth Rate		
County	**1990**	**2000**	**1-Jul-05**	**'90-'00**	**00-'05**	**'90-'05**
Michigan	9,295,297	9,938,444	10,100,833	0.67%	0.32%	0.56%
Jackson County	149,756	158,422	163,432	0.56%	0.62%	0.58%
Lenawee County	91,476	98,890	101,778	0.78%	0.58%	0.71%
Livingston County	115,645	156,951	181,404	3.10%	2.94%	3.05%
Macomb County	717,400	788,149	828,950	0.94%	1.01%	0.97%
Monroe County	133,600	145,945	153,772	0.89%	1.05%	0.94%
Oakland County	1,083,592	1,194,156	1,213,669	0.98%	0.32%	0.76%
St. Clair County	145,607	164,235	171,079	1.21%	0.82%	1.08%
Washtenaw County	282,937	322,895	342,124	1.33%	1.16%	1.27%
Wayne County	2,111,687	2,061,162	1,990,932	-0.24%	-0.69%	-0.39%
Ohio	10,847,115	11,353,140	11,470,685	0.46%	0.21%	0.37%
Erie County, OH	76,779	79,551	78,374	0.36%	-0.30%	0.14%
Fulton County, OH	38,498	42,084	42,888	0.89%	0.38%	0.72%
Henry County, OH	29,108	29,210	29,431	0.03%	0.15%	0.07%
Lucas County, OH	462,361	455,054	447,410	-0.16%	-0.34%	-0.22%
Ottawa County, OH	40,029	40,985	41,430	0.24%	0.22%	0.23%
Sandusky County, OH	61,963	61,792	61,279	-0.03%	-0.17%	-0.07%
Seneca County, OH	59,733	58,683	57,373	-0.18%	-0.45%	-0.27%
Wood County, OH	113,269	121,065	123,889	0.67%	0.46%	0.60%
All Regional Counties	5,713,440	5,979,229	6,029,214	0.46%	0.17%	0.36%

Source: Reference 2.1-215

Table 2.1-210 0 to 16 km (10 mi) Resident and Transient Historical Population and Population Projections, 2000, 2008, 2013, 2018, and 2020-2060 (Sheet 1 of 6)

Year	Population in the 0-1 mi Range
2000	570
2008	1163
2013	1159
2018	1155
2020	1153
2030	1144
2040	1133
2050	1122
2060	1109

Cardinal Compass Direction	Year	Population in Mile Range					Total
		1-2	2-3	3-4	4-5	5-10	
NORTH	2000	83	397	218	188	14,146	15,032
	2008	89	427	234	202	14,505	15,457
	2013	93	448	246	212	14,734	15,733
	2018	98	469	258	222	14,967	16,014
	2020	100	478	262	226	15,061	16,127
	2030	109	525	288	249	15,541	16,712
	2040	120	577	317	273	16,036	17,323
	2050	132	634	348	300	16,547	17,961
	2060	145	696	382	329	17,074	18,626
N-NE	2000	124	46	26	2071	9912	12,179
	2008	133	49	28	2232	9834	12,276
	2013	140	51	29	2339	9786	12,345
	2018	146	54	30	2451	9738	12,419
	2020	149	55	31	2498	9718	12,451
	2030	164	60	34	2743	9623	12,624
	2040	180	66	37	3013	9529	12,825
	2050	198	73	41	3309	9436	13,057
	2060	217	80	45	3634	9343	13,319

Table 2.1-210 0 to 16 km (10 mi) Resident and Transient Historical Population and Population Projections, 2000, 2008, 2013, 2018, and 2020-2060 (Sheet 2 of 6)

Cardinal Compass Direction	Year	Population in Mile Range					Total
		1-2	2-3	3-4	4-5	5-10	
NE	2000	282	204	0	0	0	486
	2008	303	219	0	0	0	522
	2013	318	230	0	0	0	548
	2018	333	241	0	0	0	574
	2020	340	246	0	0	0	586
	2030	373	270	0	0	0	643
	2040	410	296	0	0	0	706
	2050	450	325	0	0	0	775
	2060	494	358	0	0	0	852
E-NE	2000	0	0	0	0	0	0
	2008	0	0	0	0	0	0
	2013	0	0	0	0	0	0
	2018	0	0	0	0	0	0
	2020	0	0	0	0	0	0
	2030	0	0	0	0	0	0
	2040	0	0	0	0	0	0
	2050	0	0	0	0	0	0
	2060	0	0	0	0	0	0
EAST	2000	0	0	0	0	0	0
	2008	0	0	0	0	0	0
	2013	0	0	0	0	0	0
	2018	0	0	0	0	0	0
	2020	0	0	0	0	0	0
	2030	0	0	0	0	0	0
	2040	0	0	0	0	0	0
	2050	0	0	0	0	0	0
	2060	0	0	0	0	0	0

Table 2.1-210 0 to 16 km (10 mi) Resident and Transient Historical Population and Population Projections, 2000, 2008, 2013, 2018, and 2020-2060 (Sheet 3 of 6)

Cardinal Compass Direction	Year	Population in Mile Range					Total
		1-2	2-3	3-4	4-5	5-10	
E-SE	2000	0	0	0	0	0	0
	2008	0	0	0	0	0	0
	2013	0	0	0	0	0	0
	2018	0	0	0	0	0	0
	2020	0	0	0	0	0	0
	2030	0	0	0	0	0	0
	2040	0	0	0	0	0	0
	2050	0	0	0	0	0	0
	2060	0	0	0	0	0	0
SE	2000	0	0	0	0	0	0
	2008	0	0	0	0	0	0
	2013	0	0	0	0	0	0
	2018	0	0	0	0	0	0
	2020	0	0	0	0	0	0
	2030	0	0	0	0	0	0
	2040	0	0	0	0	0	0
	2050	0	0	0	0	0	0
	2060	0	0	0	0	0	0
S-SE	2000	0	0	0	0	0	0
	2008	0	0	0	0	0	0
	2013	0	0	0	0	0	0
	2018	0	0	0	0	0	0
	2020	0	0	0	0	0	0
	2030	0	0	0	0	0	0
	2040	0	0	0	0	0	0
	2050	0	0	0	0	0	0
	2060	0	0	0	0	0	0

Table 2.1-210 0 to 16 km (10 mi) Resident and Transient Historical Population and Population Projections, 2000, 2008, 2013, 2018, and 2020-2060 (Sheet 4 of 6)

Cardinal Compass Direction	Year	Population in Mile Range					Total
		1-2	2-3	3-4	4-5	5-10	
SOUTH	2000	1,154	0	0	0	0	1154
	2008	1,243	0	0	0	0	1243
	2013	1,303	0	0	0	0	1303
	2018	1,366	0	0	0	0	1366
	2020	1,391	0	0	0	0	1391
	2030	1,528	0	0	0	0	1528
	2040	1,679	0	0	0	0	1679
	2050	1,844	0	0	0	0	1844
	2060	2,025	0	0	0	0	2025
S-SW	2000	259	0	0	0	0	259
	2008	279	0	0	0	0	279
	2013	292	0	0	0	0	292
	2018	306	0	0	0	0	306
	2020	312	0	0	0	0	312
	2030	343	0	0	0	0	343
	2040	376	0	0	0	0	376
	2050	413	0	0	0	0	413
	2060	454	0	0	0	0	454
SW	2000	280	0	106	162	8526	9074
	2008	301	0	114	174	9190	9779
	2013	316	0	119	182	9631	10,248
	2018	331	0	125	191	10,093	10,740
	2020	337	0	127	195	10,284	10,943
	2030	370	0	140	214	11,295	12,019
	2040	407	0	154	235	12,405	13,201
	2050	447	0	169	258	13,624	14,498
	2060	491	0	186	284	14,963	15,924

Table 2.1-210 0 to 16 km (10 mi) Resident and Transient Historical Population and Population Projections, 2000, 2008, 2013, 2018, and 2020-2060 (Sheet 5 of 6)

Cardinal Compass Direction	Year	Population in Mile Range					Total
		1-2	2-3	3-4	4-5	5-10	
W-SW	2000	115	1309	2426	1458	38,357	43,665
	2008	123	1410	2614	1571	41,344	47,062
	2013	129	1478	2740	1646	43,328	49,321
	2018	136	1549	2871	1726	45,407	51,689
	2020	138	1578	2926	1758	46,267	52,667
	2030	152	1734	3213	1931	50,814	57,844
	2040	167	1904	3529	2121	55,808	63,529
	2050	183	2091	3876	2329	61,293	69,772
	2060	201	2297	4257	2558	67,317	76,630
WEST	2000	185	213	219	554	5003	6174
	2008	199	229	236	597	5392	6653
	2013	208	240	247	625	5651	6971
	2018	219	252	259	655	5922	7307
	2020	223	256	264	668	6034	7445
	2030	245	282	290	733	6627	8177
	2040	269	309	318	806	7279	8981
	2050	295	340	349	885	7994	9863
	2060	324	373	384	972	8780	10,833
W-NW	2000	28	0	70	263	5066	5427
	2008	30	0	75	283	5460	5848
	2013	31	0	79	297	5722	6129
	2018	33	0	82	311	5997	6423
	2020	33	0	84	317	6110	6544
	2030	37	0	92	348	6711	7188
	2040	40	0	101	382	7370	7893
	2050	44	0	111	420	8095	8670
	2060	49	0	122	461	8890	9522

Table 2.1-210 0 to 16 km (10 mi) Resident and Transient Historical Population and Population Projections, 2000, 2008, 2013, 2018, and 2020-2060 (Sheet 6 of 6)

Cardinal Compass Direction	Year	Population in Mile Range					Total
		1-2	2-3	3-4	4-5	5-10	
NW	2000	195	392	379	776	5802	7544
	2008	210	422	408	836	6253	8129
	2013	220	442	428	876	6553	8519
	2018	230	464	448	918	6868	8928
	2020	235	472	457	936	6998	9098
	2030	258	519	502	1028	7686	9993
	2040	283	570	551	1129	8441	10,974
	2050	311	626	605	1240	9271	12,053
	2060	342	687	665	1,361	10,182	13,237
N-NW	2000	219	199	290	191	4273	5172
	2008	236	214	312	205	4450	5417
	2013	247	224	327	215	4565	5578
	2018	259	235	343	226	4683	5746
	2020	264	240	349	230	4731	5814
	2030	290	263	384	253	4978	6168
	2040	318	289	421	277	5239	6544
	2050	349	317	463	305	5513	6947
	2060	384	349	508	335	5801	7377

Source: Reference 2.1-215

Table 2.1-211 Canadian Population and Average Annual Growth Rates

	Historical Population			Average Annual Growth Rate		
Canadian Counties	**1996**	**2001**	**2006**	**'96-'01**	**'01-'06**	**'96-'06**
Ontario	10,753,573	11,410,046	12,160,282	1.19%	1.28%	1.24%
Amherstburg	19,273	20,339	21,748	1.08%	1.35%	1.22%
Chatham-Kent	109,350	107,341	108,177	-0.37%	0.16%	-0.11%
Essex	19,437	20,085	20,032	0.66%	-0.05%	0.30%
Kingsville	18,409	19,619	20,908	1.28%	1.28%	1.28%
Lakeshore	26,127	28,746	33,245	1.93%	2.95%	2.44%
LaSalle	20,556	25,285	27,652	4.23%	1.81%	3.01%
Leamington	25,389	27,138	28,833	1.34%	1.22%	1.28%
Pelee	283	256	287	-1.99%	2.31%	0.14%
Tecumseh	23,151	25,105	24,224	1.63%	-0.71%	0.45%
Walpole Island 46	1,525	1,843	1,878	3.86%	0.38%	2.10%
Windsor	197,694	208,402	216,473	1.06%	0.76%	0.91%
All Subdivision	461,194	484,159	503,457	0.98%	0.78%	0.88%

Source: Reference 2.1-215

Table 2.1-212 16 km (10 mi) to 80 km (50 mi) Resident and Transient Population, 2000, 2008, 2013, 2018, and 2020 to 2060 (Sheet 1 of 4)

Cardinal Compass Direction	Year	10-20	20-30	30-40	40-50	Total (10-50)
NORTH	2000	126,286	461,805	589,430	391,250	1,568,771
	2008	122,381	447,527	608,376	415,635	1,593,919
	2013	120,002	438,828	620,526	431,642	1,610,998
	2018	117,670	430,299	632,918	448,265	1,629,152
	2020	116,750	426,934	637,944	455,093	1,636,721
	2030	112,255	410,499	663,679	490,821	1,677,254
	2040	107,934	394,696	690,452	529,354	1,722,436
	2050	103,779	379,502	718,305	570,912	1,772,498
	2060	99,784	364,893	747,281	615,732	1,827,690
N-NE	2000	110,927	363,265	731,939	446,579	1,652,710
	2008	112,409	372,223	739,588	481,669	1,705,889
	2013	113,346	377,934	744,410	504,987	1,740,677
	2018	114,290	383,733	749,263	529,434	1,776,720
	2020	114,670	386,077	751,213	539,541	1,791,501
	2030	116,589	398,015	761,040	593,044	1,868,688
	2040	118,540	410,323	770,996	651,854	1,951,713
	2050	120,523	423,010	781,081	716,495	2,041,109
	2060	122,540	436,091	791,299	787,547	2,137,477
NE	2000	16,227	128,415	37,448	5553	187,643
	2008	17,859	140,785	44,592	6,614	209,850
	2013	18,961	149,115	49,734	7,378	225,188
	2018	20,132	157,937	55,469	8,230	241,768
	2020	20,620	161,611	57,944	8,598	248,773
	2030	23,245	181,300	72,077	10,699	287,321
	2040	26,204	203,388	89,658	13,312	332,562
	2050	29,539	228,167	111,527	16,565	385,798
	2060	33,299	255,965	138,730	20,612	448,606
E-NE	2000	10,608	18,443	23,564	20,448	73,063
	2008	11,176	19,782	27,221	22,628	80,807
	2013	11,547	20,668	29,789	24,108	86,112
	2018	11,931	21,594	32,600	25,684	91,809
	2020	12,088	21,976	33,798	26,343	94,205
	2030	12,904	23,989	40,477	29,901	107,271
	2040	13,775	26,187	48,476	33,939	122,377
	2050	14,705	28,586	58,056	38,523	139,870
	2060	15,698	31,204	69,529	43,725	160,156

Table 2.1-212 16 km (10 mi) to 80 km (50 mi) Resident and Transient Population, 2000, 2008, 2013, 2018, and 2020 to 2060 (Sheet 2 of 4)

Cardinal Compass Direction	Year	10-20	20-30	30-40	40-50	Total (10-50)
EAST	2000	2299	5092	12,004	2435	21,830
	2008	2,354	5,485	13,290	2,592	23,721
	2013	2,390	5,747	14,163	2,695	24,995
	2018	2,426	6,021	15,093	2,803	26,343
	2020	2,441	6,134	15,482	2,847	26,904
	2030	2,516	6,734	17,582	3,078	29,910
	2040	2,593	7,392	19,967	3,329	33,281
	2050	2,672	8,114	22,676	3,599	37,061
	2060	2,754	8,907	25,753	3,892	41,306
E-SE	2000	0	0	265	0	265
	2008	0	0	267	0	267
	2013	0	0	269	0	269
	2018	0	0	271	0	271
	2020	0	0	272	0	272
	2030	0	0	276	0	276
	2040	0	0	280	0	280
	2050	0	0	284	0	284
	2060	0	0	288	0	288
SE	2000	0	100	9884	43,966	53,950
	2008	0	101	10,055	44,528	54,684
	2013	0	103	10,163	44,883	55,149
	2018	0	104	10,273	45,242	55,619
	2020	0	104	10,317	45,386	55,807
	2030	0	107	10,542	46,113	56,762
	2040	0	109	10,770	46,852	57,731
	2050	0	112	11,004	47,602	58,718
	2060	0	114	11,243	48,365	59,722
S-SE	2000	0	1467	16,677	28,597	46,741
	2008	0	1494	16,883	28,585	46,962
	2013	0	1511	17,013	28,578	47,102
	2018	0	1528	17,144	28,571	47,243
	2020	0	1535	17,197	28,568	47,300
	2030	0	1571	17,463	28,553	47,587
	2040	0	1607	17,733	28,539	47,879
	2050	0	1645	18,007	28,524	48,176
	2060	0	1683	18,286	28,510	48,479

Table 2.1-212 16 km (10 mi) to 80 km (50 mi) Resident and Transient Population, 2000, 2008, 2013, 2018, and 2020 to 2060 (Sheet 3 of 4)

Cardinal Compass Direction	Year	10-20	20-30	30-40	40-50	Total (10-50)
SOUTH	2000	166	8116	13,136	27,293	48,711
	2008	163	8202	13,193	27,091	48,649
	2013	161	8256	13,228	26,967	48,612
	2018	159	8311	13,264	26,842	48,576
	2020	158	8333	13,279	26,793	48,563
	2030	155	8444	13,351	26,546	48,496
	2040	152	8556	13,424	26,302	48,434
	2050	148	8670	13,497	26,060	48,375
	2060	145	8785	13,570	25,820	48,320
S-SW	2000	3789	115,973	37,284	42,979	200,025
	2008	3812	117,045	38,847	45,018	204,722
	2013	3826	117,721	39,858	46,341	207,746
	2018	3841	118,400	40,894	47,703	210,838
	2020	3847	118,673	41,316	48,259	212,095
	2030	3877	120,047	43,494	51,138	218,556
	2040	3907	121,436	45,786	54,188	225,317
	2050	3937	122,842	48,198	57,421	232,398
	2060	3967	124,264	50,738	60,846	239,815
SW	2000	10,965	270,798	121,157	33,280	436,200
	2008	11,788	272,133	120,372	34,105	438,398
	2013	12,334	272,970	119,884	34,632	439,820
	2018	12,905	273,811	119,399	35,167	441,282
	2020	13,141	274,148	119,205	35,383	441,877
	2030	14,387	275,838	118,241	36,484	444,950
	2040	15,750	277,539	117,285	37,619	448,193
	2050	17,243	279,251	116,337	38,790	451,621
	2060	18,877	280,973	115,396	39,997	455,243
W-SW	2000	6896	7699	12,189	8175	34,959
	2008	7433	8264	12,725	8657	37,079
	2013	7789	8638	13,073	8973	38,473
	2018	8163	9028	13,430	9300	39,921
	2020	8318	9190	13,575	9434	40,517
	2030	9135	10,040	14,327	10,135	43,637
	2040	10,033	10,970	15,120	10,888	47,011
	2050	11,019	11,985	15,957	11,696	50,657
	2060	12,102	13,095	16,840	12,565	54,602

Table 2.1-212 16 km (10 mi) to 80 km (50 mi) Resident and Transient Population, 2000, 2008, 2013, 2018, and 2020 to 2060 (Sheet 4 of 4)

Cardinal Compass Direction	Year	10-20	20-30	30-40	40-50	Total (10-50)
WEST	2000	4676	6513	36,417	30,483	78,089
	2008	5040	6968	38,549	32,267	82,824
	2013	5282	7268	39,945	33,435	85,930
	2018	5535	7581	41,392	34,645	89,153
	2020	5640	7711	41,985	35,141	90,477
	2030	6194	8390	45,081	37,731	97,396
	2040	6803	9,129	48,405	40,511	104,848
	2050	7472	9933	51,974	43,497	112,876
	2060	8206	10,808	55,807	46,702	121,523
W-NW	2000	4181	23,120	27,245	26,576	81,122
	2008	4515	25,232	29,915	29,019	88,681
	2013	4737	26,649	31,716	30,659	93,761
	2018	4970	28,146	33,624	32,392	99,132
	2020	5067	28,768	34,420	33,112	101,367
	2030	5578	32,090	38,688	36,960	113,316
	2040	6141	35,796	43,485	41,256	126,678
	2050	6760	39,930	48,877	46,051	141,618
	2060	7442	44,541	54,937	51,403	158,323
NW	2000	21,003	129,325	148,411	72,477	371,216
	2008	21,223	141,425	164,240	84,721	411,609
	2013	21,362	149,556	174,979	93,404	439,301
	2018	21,502	158,155	186,421	102,977	469,055
	2020	21,558	161,731	191,205	107,075	481,569
	2030	21,842	180,863	217,028	130,146	549,879
	2040	22,129	202,258	246,338	158,189	628,914
	2050	22,420	226,184	279,607	192,275	720,486
	2060	22,715	252,941	317,370	233,704	826,730
N-NW	2000	29,054	229,806	193,348	164,684	616,892
	2008	28,216	225,322	203,502	185,988	643,028
	2013	27,704	222,565	210,117	200,681	661,067
	2018	27,202	219,841	216,948	216,536	680,527
	2020	27,004	218,761	219,742	223,223	688,730
	2030	26,034	213,440	234,261	259,885	733,620
	2040	25,099	208,248	249,739	302,570	785,656
	2050	24,198	203,182	266,240	352,265	845,885
	2060	23,329	198,239	283,831	410,122	915,521

Source: Reference 2.1-215

Table 2.1-213 Industrial Facilities within 5 mi of Fermi Site

Facility Name	Distance/ Direction	Function	Products	# of Employees
Monroe Water Dept. Wilfred LaPage Water Pump	0.9 mi S	Raw Water Pumping Station	Raw Drinking Water (shared intake w/Frenchtown TWP)	
Frenchtown Township Water Treatment Plant	2.1 mi W-SW	Water Treatment Plant	Potable Water	11
Berlin Township Wastewater Treatment Plant	2.1 mi N-NW	Wastewater Treatment Plant	Process sewage	4
StoneCo of Michigan, Newport Quarry	3.4 mi N-NE	Quarry	Limestone, Dolomite	7-10
Rockwood Quarry, LLC	3.6 mi N-NE	Quarry	Limestone	25
Meijer Distribution Inc.	4 mi NW	Food/Clothing Distributor	General Warehousing & Storage	300
TWB Company, LLC	4.5 mi W	Motor Vehicle Metal Stamping	Automotive Stampings	250 - 303
Rockwood Landfill	4.5 mi NE	Landfill		

Source: Reference 2.1-216 through Reference 2.1-219

Table 2.1-214 Schools within 5 mi of Fermi Site

School	Distance / Direction	Students / Teachers (2005-2006 School Year)
Hurd Road Elementary School	5.0 mi SW	388 / 22
Jefferson Alternative Education	2.8 mi WSW	18 / NA
Jefferson High School	2.8 mi WSW	819 / 40
Jefferson Middle School	2.8 mi WSW	368 / 19
Sodt School	3.1 mi WSW	366 / 21
Niedermeier Elementary School	3.5 mi NW	337 / 17
North Elementary School	2.6 mi N	434 / 22
St. Charles Elementary School	2.7 mi NNW	211 / 9

Source: Reference 2.1-220

Table 2.1-215 Current and Projected Population Data for the LPZ

	Area	2000				2020		2060	
	(sq. mi.)	Permanent	Transient	Total	Density	Total	Density	Total	Density
0-1 mi	3.14	121	449	570	181	1,159	369	1,133	361
1-2 mi	9.42	2,910	14	2,924	310	3,297	350	4,249	451
2-3 mi	15.71	2,730	30	2,760	176	3,113	198	4,011	255
0-3 mi	28.27	5,761	493	6,254	221	7,569	268	9,393	332

Source: Reference 2.1-209, Reference 2.1-215

Table 2.1-216 2013 Population Density by Concentric Circle

Concentric Circle	Permanent and Transient Population	Area (Sq. Mi.)	Population Density
0 - 5 mi	6,154	79	78
0 - 10 mi	150,922	314	480
0 - 20 mi	496,733	1257	395
0 - 30 mi	2,287,014	2827	809
0 - 40 mi	4,408,187	5027	877
0 - 50 mi	5,925,502	7854	754

Source: Reference 2.1-215

Table 2.1-217 2018 Population Density by Concentric Circle

Concentric Circle	Permanent and Transient Population	Area (Sq. Mi.)	Population Density
0 - 5 mi	6,389	79	81
0 - 10 mi	156,637	314	499
0 - 20 mi	502,240	1257	400
0 - 30 mi	2,302,166	2827	814
0 - 40 mi	4,469,015	5027	889
0 - 50 mi	6,059,782	7854	772

Source: Reference 2.1-215

Figure 2.1-201 Site Location and Vicinity Within 80 km (50 Mi)

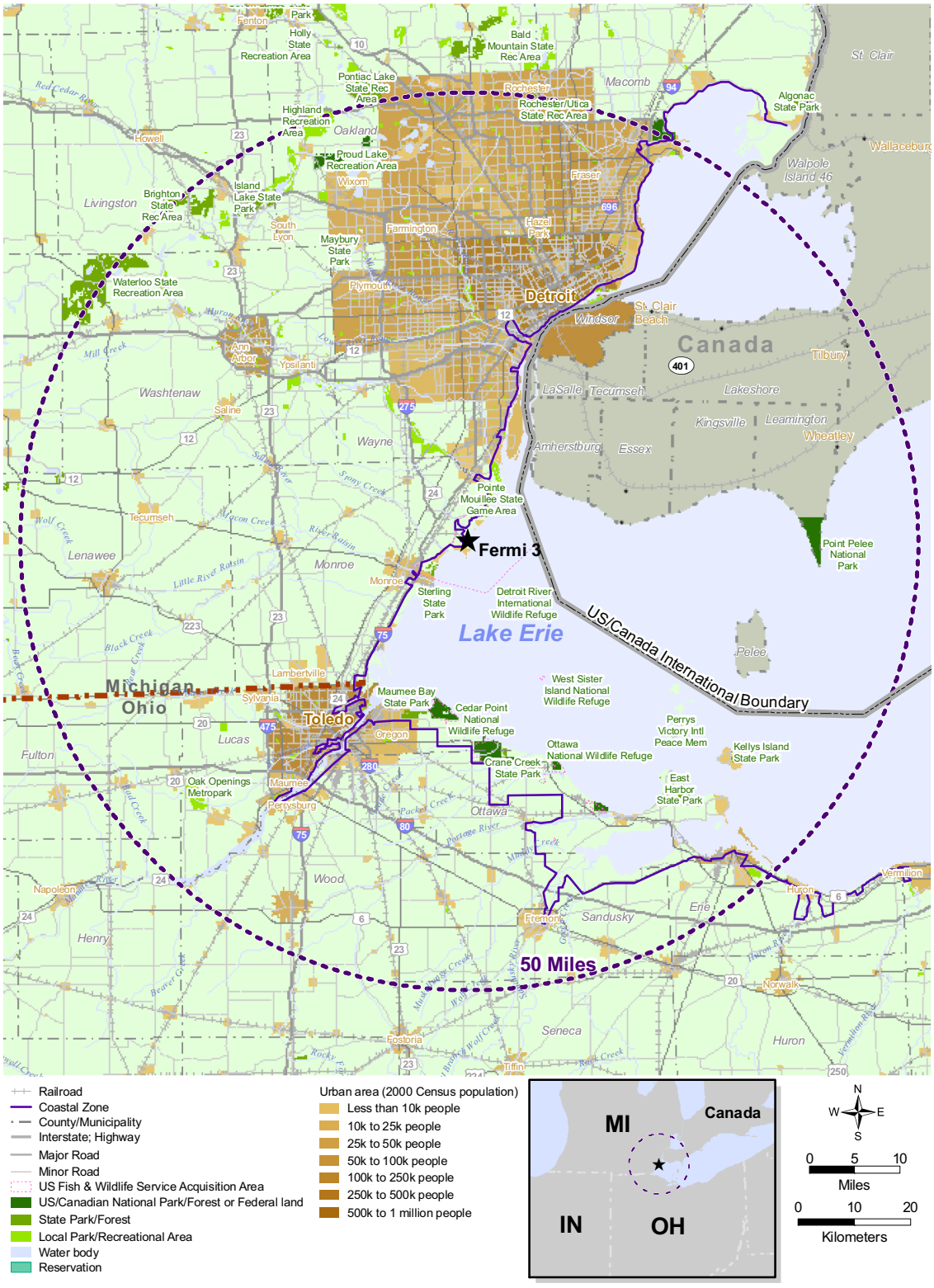


Figure 2.1-202 Site Location and Vicinity Within 12 km (7.5 Mi)

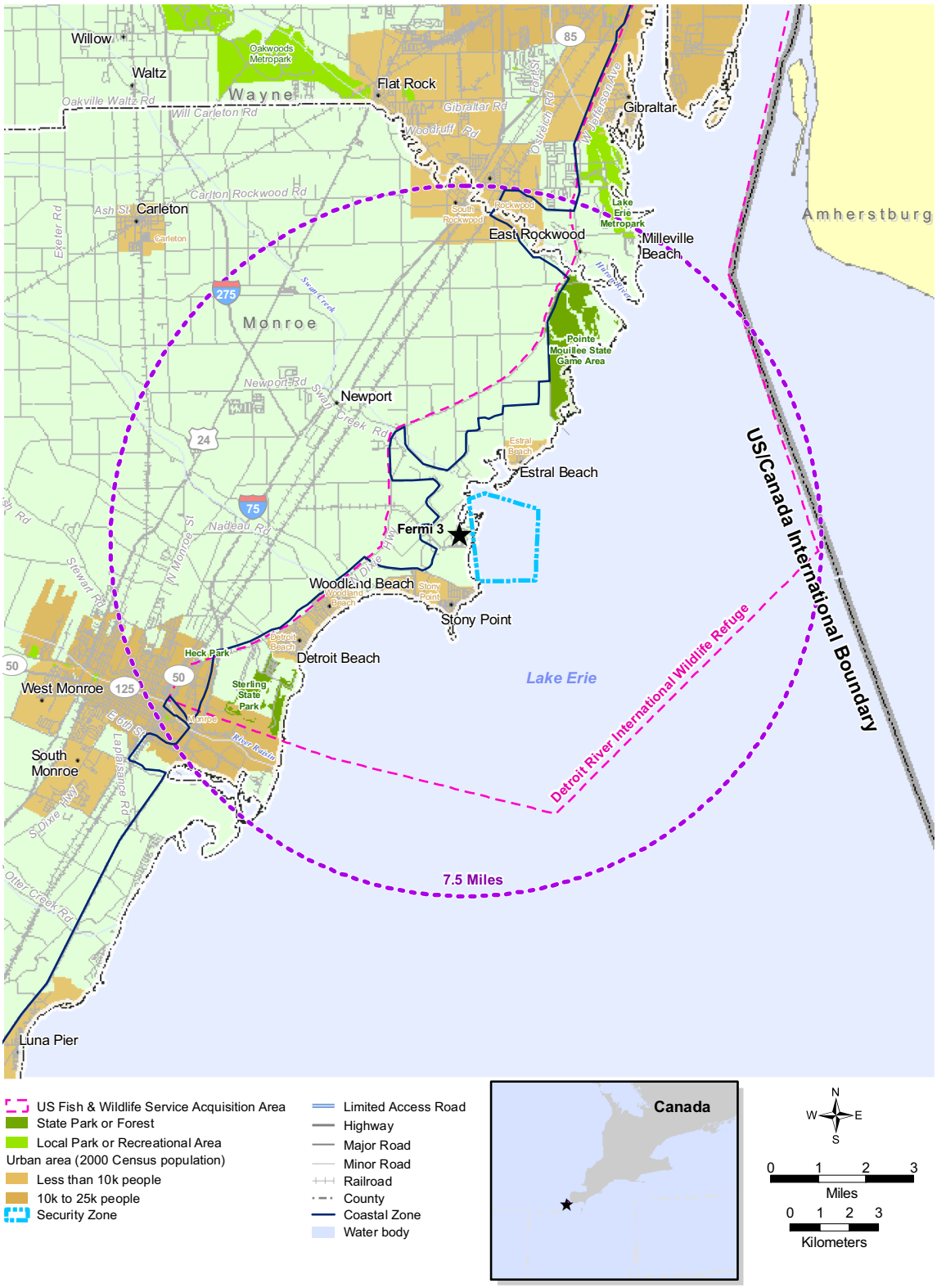


Figure 2.1-203 Fermi Property Boundary

Figure 2.1-204 Fermi 3 Site Plan

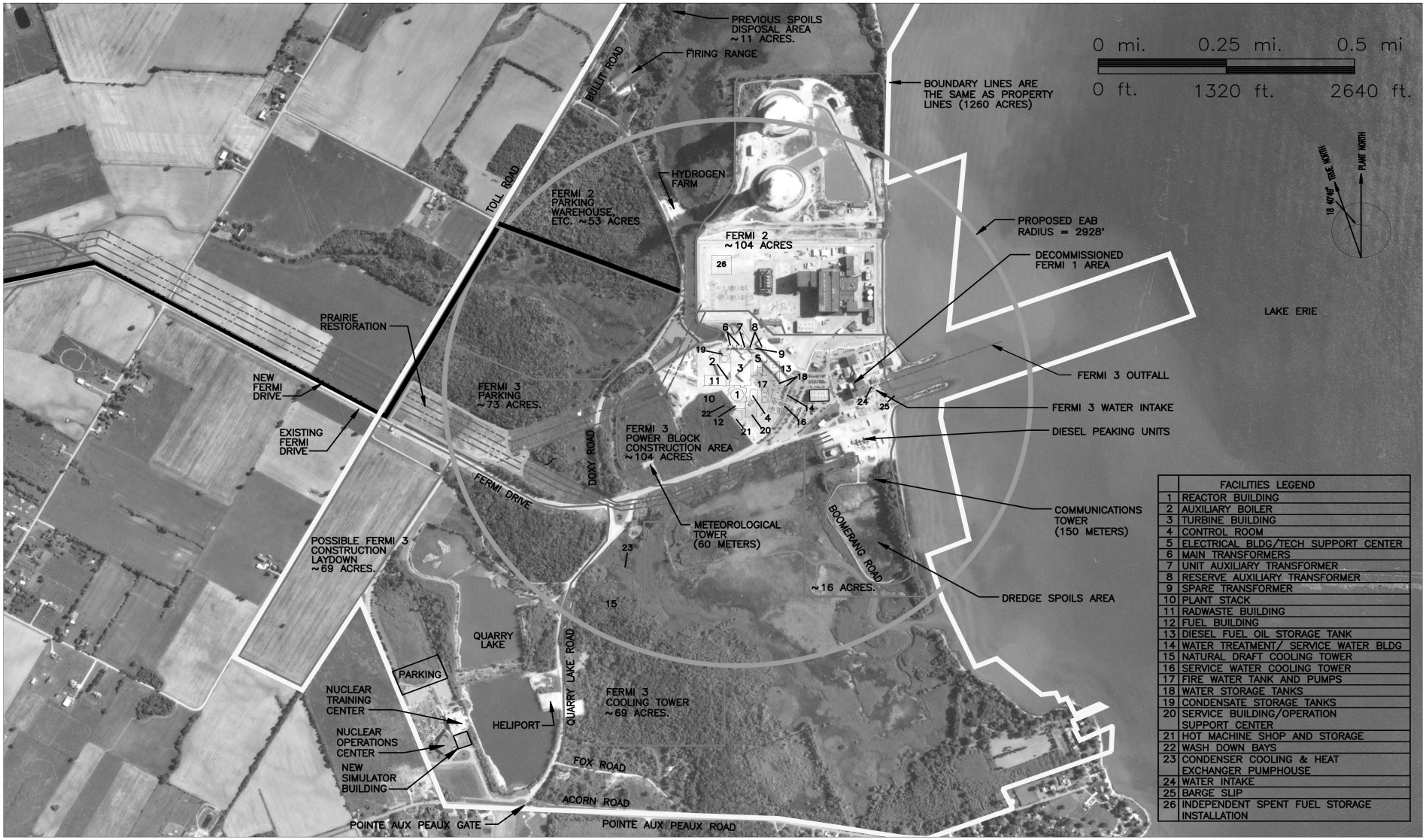
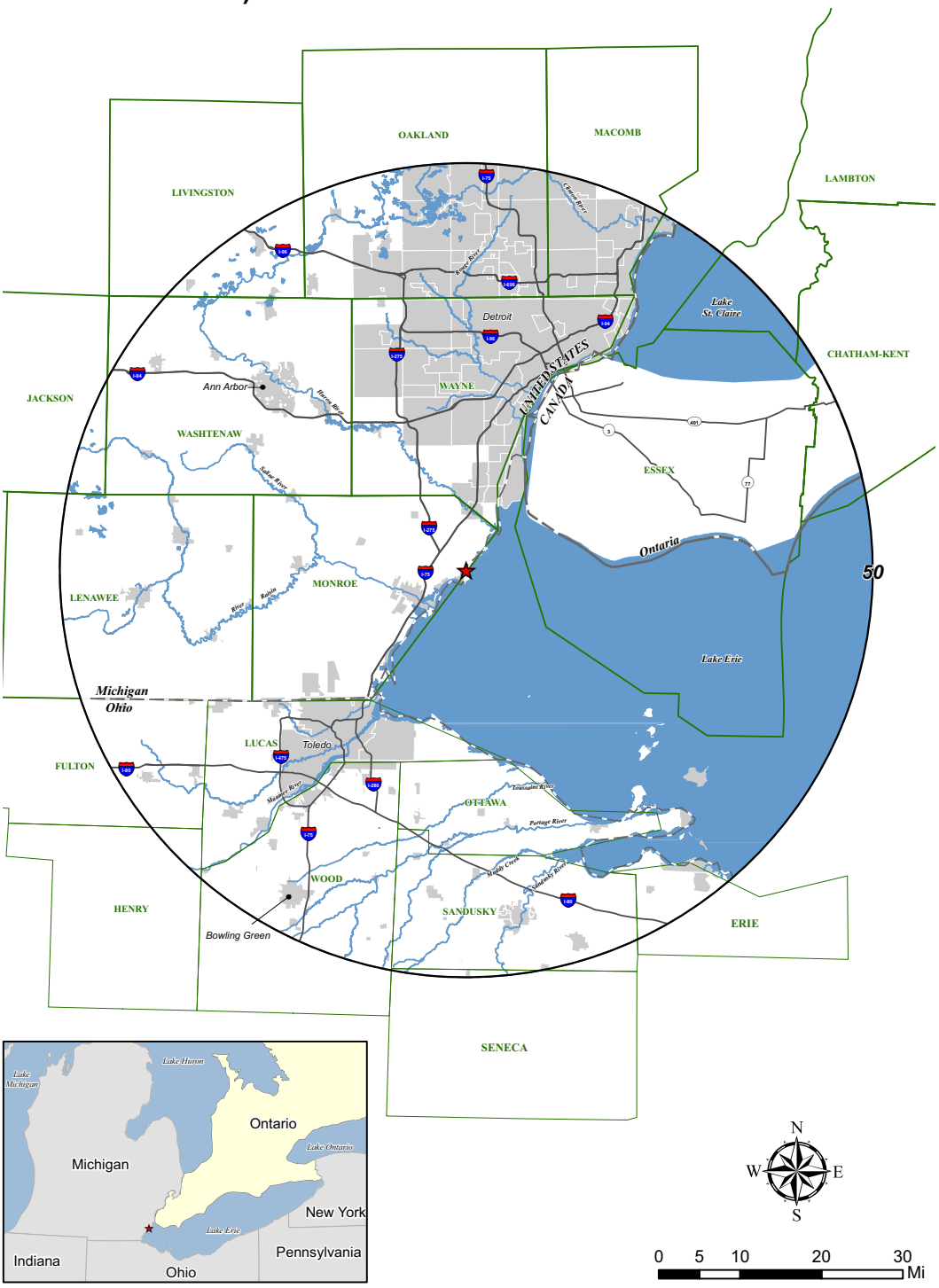
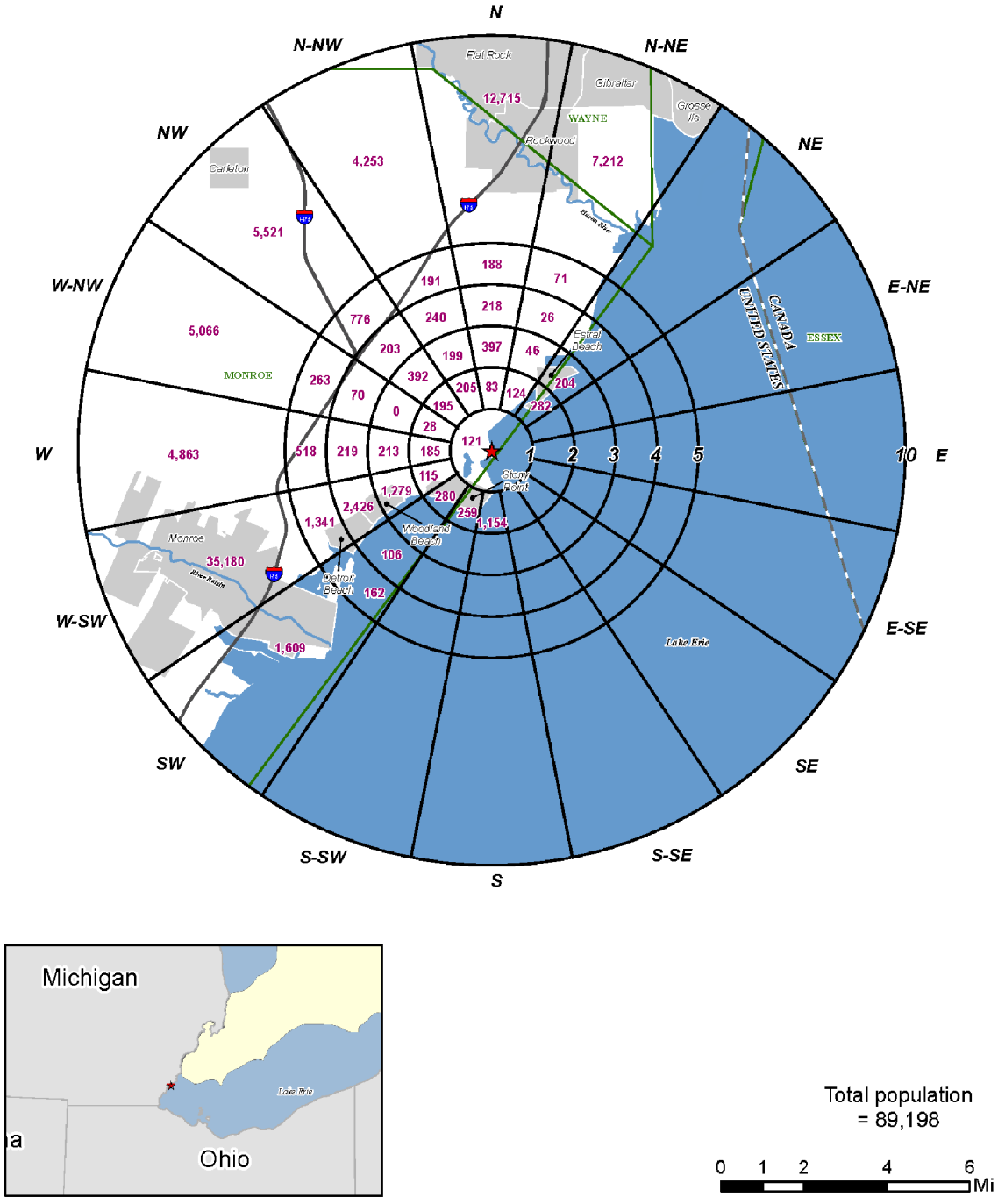


Figure 2.1-205 **U.S. Counties/ CA Counties wholly or partly within 80-km (50-mi) Radius of Fermi 3 (latitude: 41º 57' 39" N, longitude: 83º 15' 43" W)**



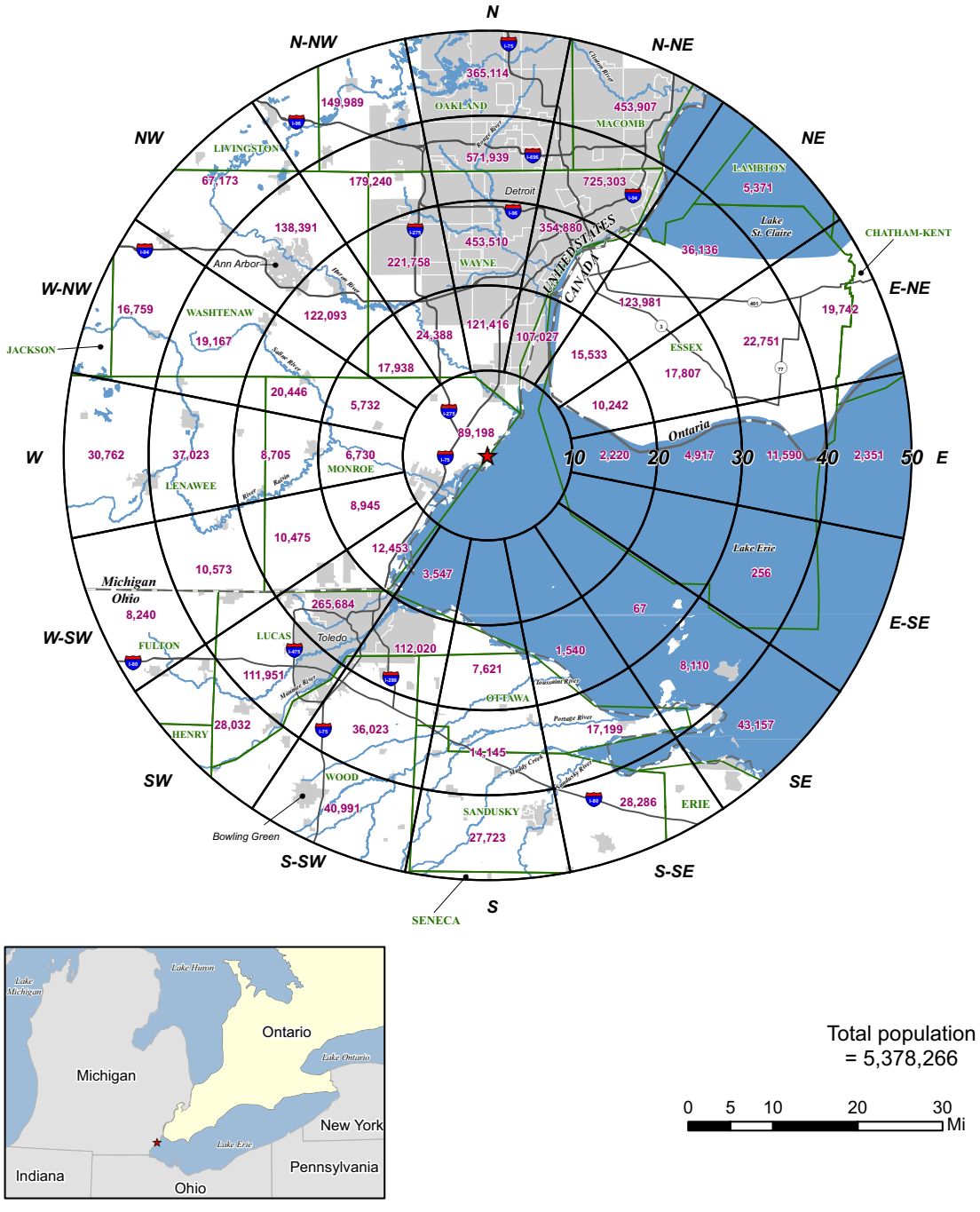
Source: Reference 2.1-212

Figure 2.1-206 Segment Resident Population Distribution 0-16 km (10 mi) (Segmented Concentric Circles) from Fermi 3, 2000



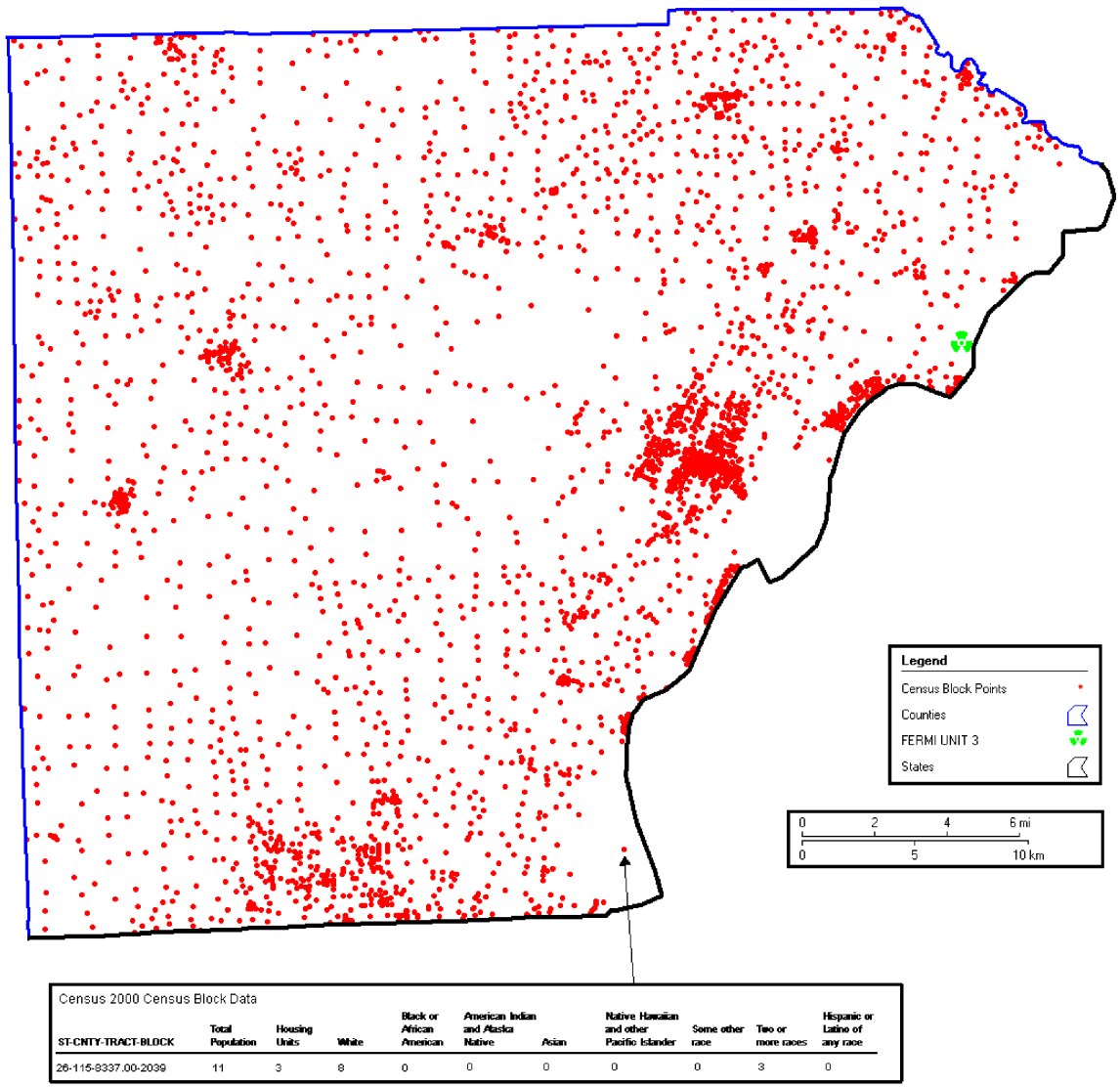
Source: Reference 2.1-213

Figure 2.1-207 Regional Segment Population Distribution 0-80 km (50 mi) (Segmented Concentric Circles) from Fermi 3, 2000



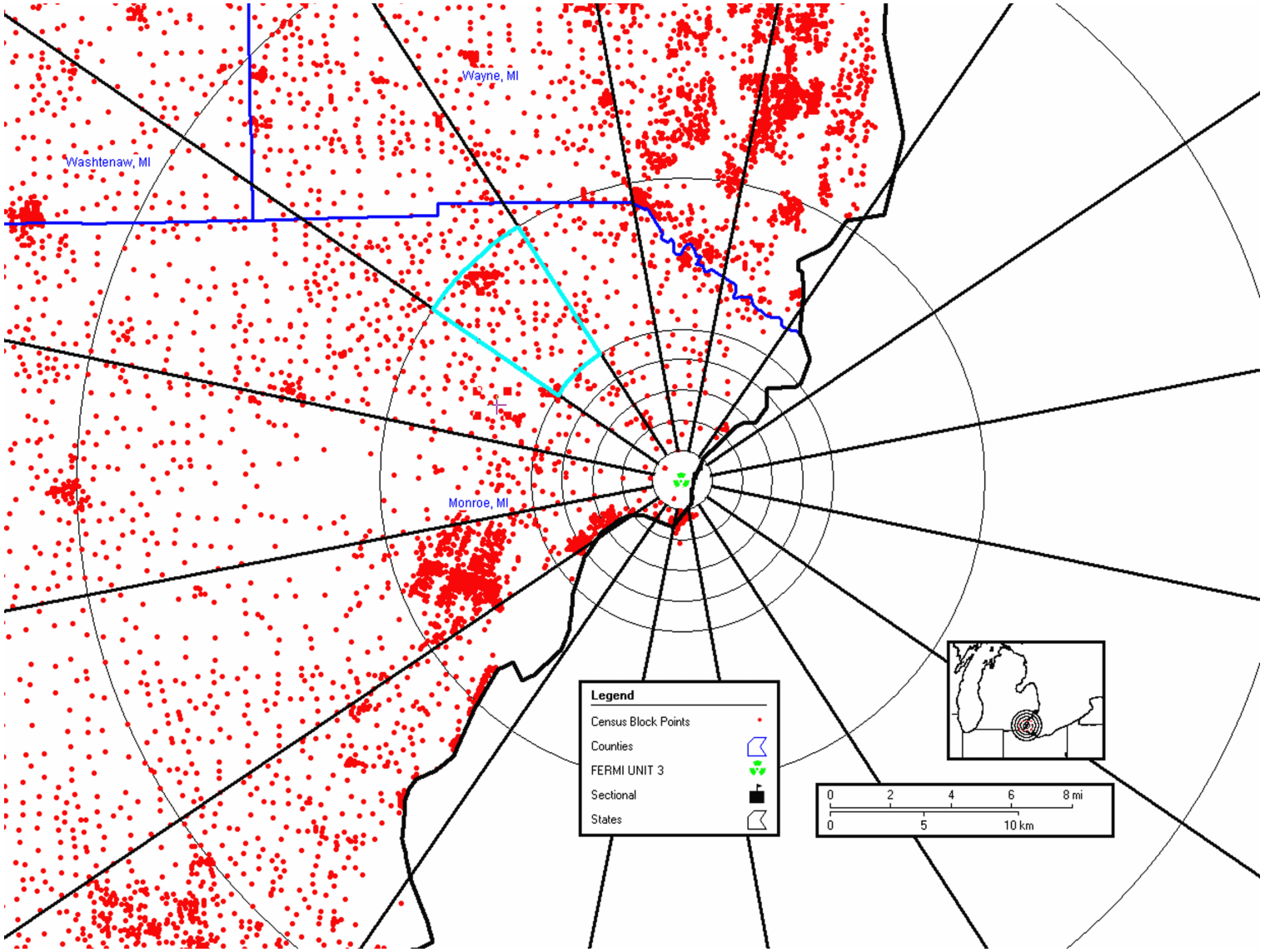
Source: Reference 2.1-213

Figure 2.1-208 Census Block Points within Monroe County, MI



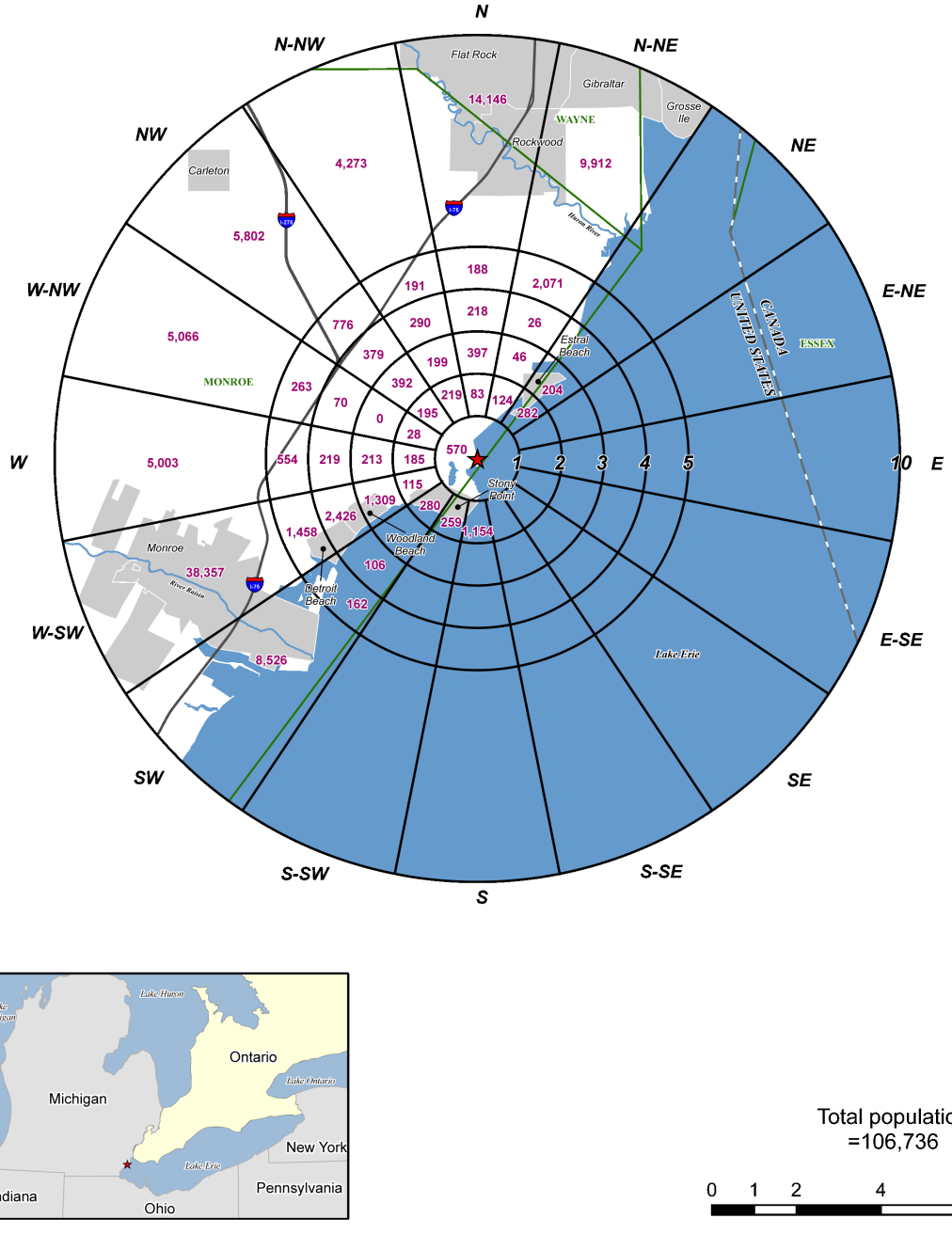
Source: Reference 2.1-213

Figure 2.1-209 Census Block Points within Each Segment



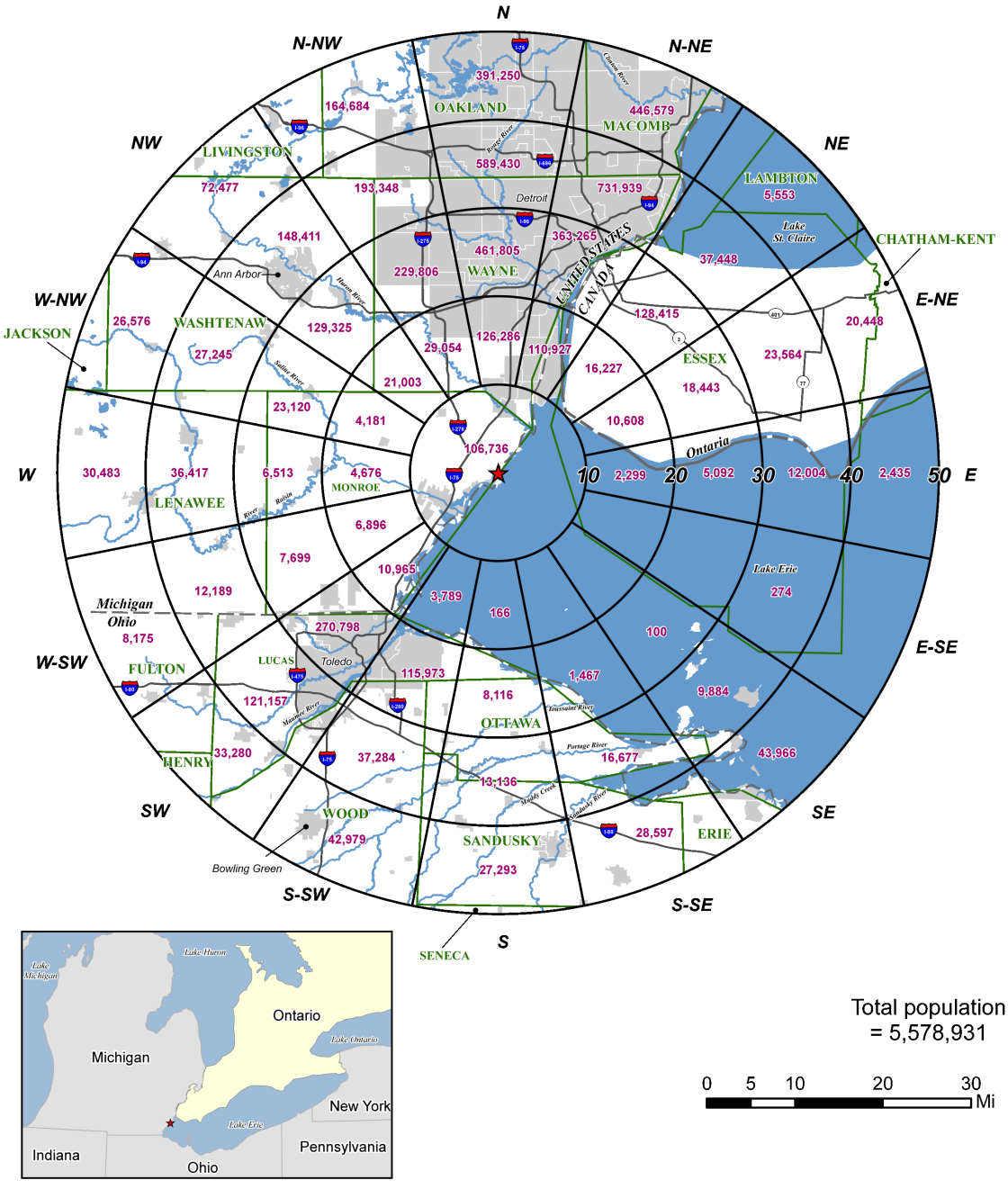
Source: Reference 2.1-213

Figure 2.1-210 Resident and Transient Regional Segment Population Distribution, 0-16 km (10 mi) (Segmented Concentric Circles) from Fermi 3, 2000



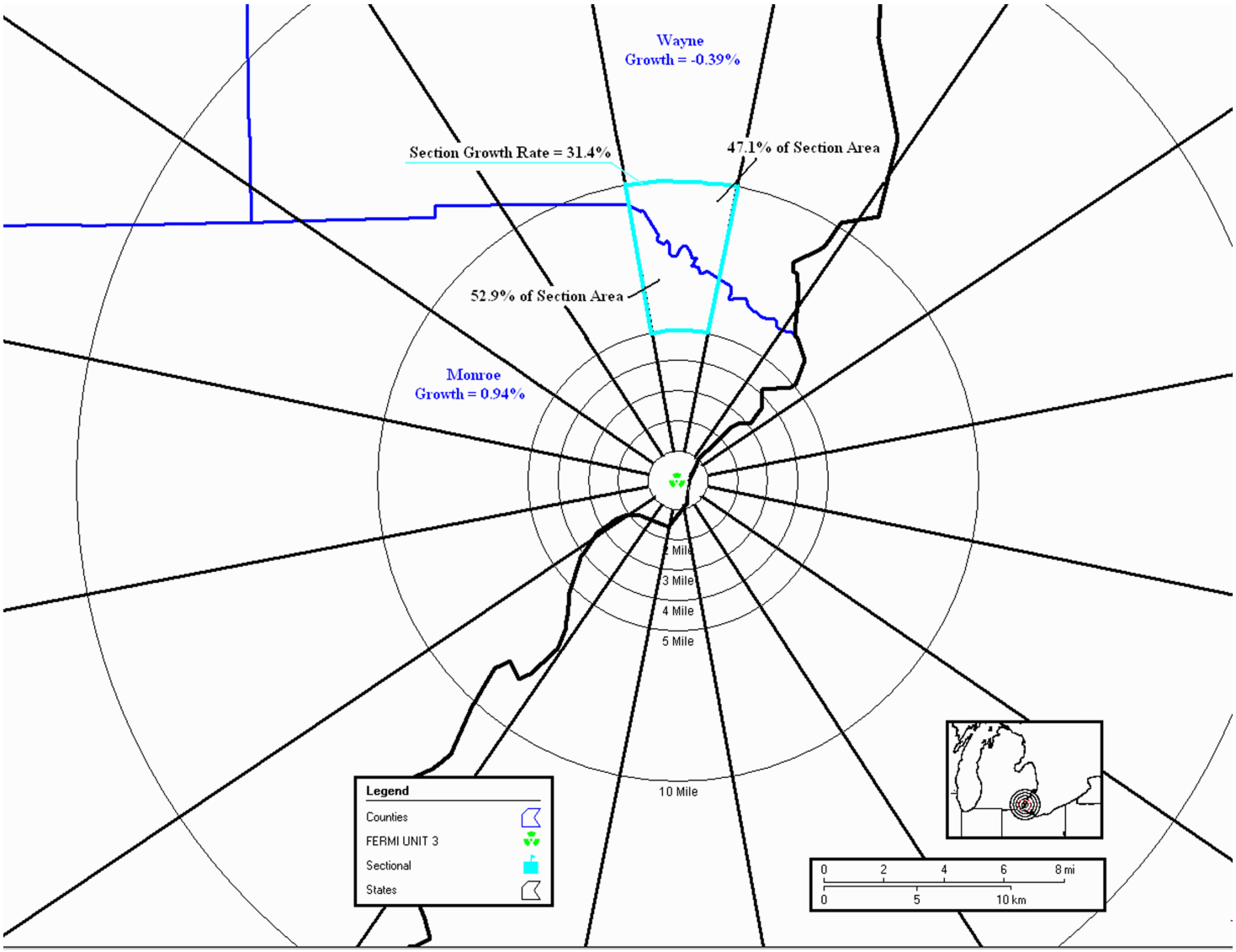
Source: Reference 2.1-209

Figure 2.1-211 Resident and Transient Regional Segment Population Distribution 0-80 km (50 mi) (Segmented Concentric Circles) from Fermi 3, 2000



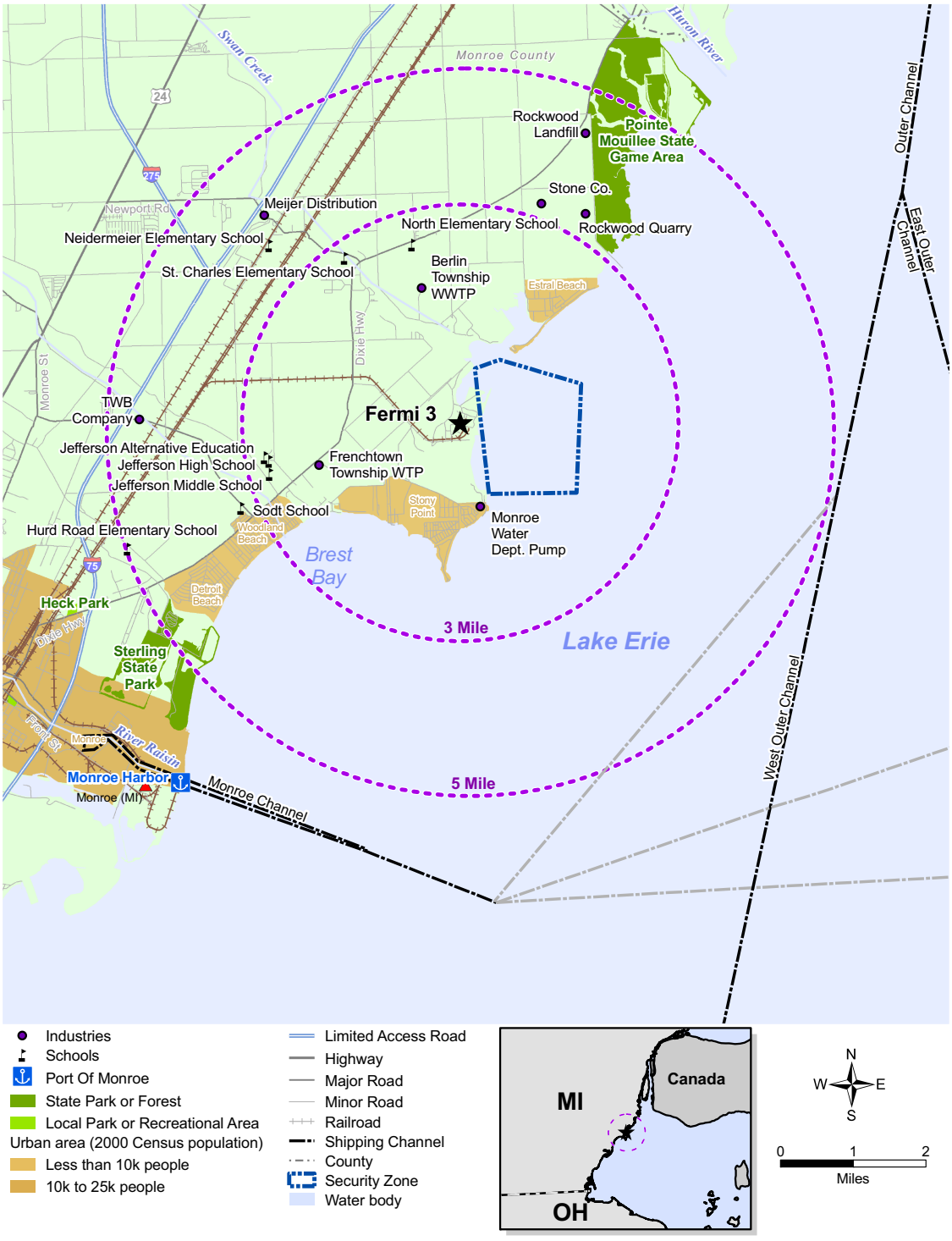
Source: Reference 2.1-213

Figure 2.1-212 Example Sectional Population Growth Rate Calculation



Source: Reference 2.1-215

Figure 2.1-213 Industrial Facilities, Parks and Other Facilities within the LPZ (3 mi) and 5 mi of Fermi 3



Source: Reference 2.1-216, Reference 2.1-220