



Spire STL Pipeline Project

Resource Report 5
Socioeconomics

FERC Docket No. CP17-40-____

Amendment to FERC Application
April 2017

Public



RESOURCE REPORT 5 - SOCIOECONOMICS	
SUMMARY OF FILING INFORMATION	
Information	Found in
1. For major aboveground facilities and major pipeline projects that require an environmental impact statement, describe existing socioeconomic conditions within the project area - Title 18 Code of Federal Regulations (CFR) section (§) 380.12 (g)(1).	Not Applicable.
2. For major aboveground facilities, quantify impact on employment, housing, local government services, local tax revenues, transportation, and other relevant factors within the project area - 18 CFR § 380.12 (g)(2-6).	Not Applicable.
INFORMATION RECOMMENDED OR OFTEN MISSING	
1. Evaluate the impact of any substantial immigration of people on governmental facilities and services and describe plans to reduce the impact on local infrastructure.	Not Applicable.
2. Describe on-site workforce requirements, including the number of construction personnel who currently reside within the impact area, would commute daily to the site from outside the impact area, or would relocate temporarily and permanently within the impact area.	Section 5.1.1.
3. Estimate total worker payroll and material purchases during construction and operation.	Estimated payroll included in Section 5.1.1; Material purchases Not Applicable.
4. Estimate project-related ad valorem and local tax revenues.	Not Applicable.
5. Determine whether existing housing within the project area is sufficient to meet the needs of the additional population.	Section 5.1.2.
6. Describe the number and types of residences and businesses that would be displaced by the project, procedures to be used to acquire these properties, and types and amounts of relocation assistance payments.	Not Applicable.



RESOURCE REPORT 5 - SOCIOECONOMICS	
INFORMATION RECOMMENDED OR OFTEN MISSING	
Information	Found in
7. Describe impacts on local traffic due to construction- and operation-related traffic and worker commuting. Where applicable (e.g., LNG import/export facilities), address impacts on marine traffic.	Section 5.1.4.
8. Evaluate the effects of the project on minority and low income populations in consideration of Executive Order 12898.	Section 5.2.
9. Conduct a fiscal impact analysis evaluating incremental local government expenditures in relation to incremental local government revenues that would result from construction of the project. Incremental expenditures include, but are not limited to, school operating costs, road maintenance and repair, public safety, and public utility costs.	Not Applicable.



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Acronyms and Abbreviations

CFR	Code of Federal Regulations
EJSCREEN	Environmental Justice Screening and Mapping Tool
FERC	Federal Energy Regulatory Commission
HDD	horizontal directional drill
M&R	metering and regulating
NEPA	National Environmental Policy Act
NSA	noise sensitive area
PCBs	polychlorinated biphenyls
Project	Spire STL Pipeline Project
SMSA	standard metropolitan statistical area
Spire	Spire STL Pipeline LLC
USEPA	United States Environmental Protection Agency



Socioeconomics

Spire STL Pipeline LLC's ("Spire's") proposed facilities for the Spire STL Pipeline Project ("Project") are not considered a major aboveground facility as defined within 18 Code of Federal Regulations ("CFR") Part 380.12(g) or a major pipeline project. The Project is not anticipated to have a major impact on permanent employment, housing, local government services, local tax revenues, transportation, or other related socioeconomic conditions as impacts will be limited and temporary, and those topics are therefore not addressed or are only briefly discussed herein. An estimate of workforce requirements for Project construction and operation, including the number of personnel to be hired to operate the proposed Project, is included in Section 5.1.1 and further discussed in Resource Report 1, General Project Description.

5.1 Construction and Operation

5.1.1 Employment

Unemployment rates vary across the Project. The average annual unemployment rates by county are as follows (Bureau of Labor Statistics 2016):

- 5.8 percent in Scott County, Illinois;
- 6.2 percent in Greene County, Illinois;
- 6.3 percent in Jersey County, Illinois;
- 3.9 percent in St. Charles County, Missouri; and
- 4.6 percent in St. Louis County, Missouri.

Spire anticipates that 292 workers will be temporarily employed for construction of the 24-inch pipeline, and a further 77 workers will be temporarily employed for the construction of the North County Extension. For aboveground facilities, Spire anticipates that metering and regulating ("M&R") stations will be constructed by two teams of approximately 17 workers each. Mainline valve sites will also be constructed sequentially by a team of approximately seven personnel. Spire plans to hire locally up to 50 percent of construction workers, as available. The workforce payroll is estimated to be \$50 million for the duration of construction, and approximately \$750,000 per year during operation. Spire expects to hire five permanent personnel for operation of the Project. These employees will be based in St. Louis County, Missouri. Therefore, the Project is not expected to significantly contribute to long-term employment in the Project area.

5.1.2 Housing and Local Economy

The Project is expected to positively impact the local economy, specifically related but not limited to the leisure and hospitality sector, which would cater to non-local temporary workers and their families. However, these impacts are expected to be temporary in nature and predominantly limited to the timeframe when construction



is ongoing, and most workers are not likely to be accompanied by their families. Non-local workers would be expected to utilize temporary accommodations such as hotels, motels, and homes/apartments available for rent or for seasonal or temporary use. Much of the Project is located in rural areas; therefore the majority of available temporary housing is located within St. Louis, Missouri and the surrounding area. Rental vacancies for counties crossed by the Project, along with data for St. Louis city, are included in Table 5.1-1.

Table 5.1-1. Temporary Housing Units Available in the Project Area

City or County, State	Percent Rental Vacancy Rate (percent)	Number of Vacant Rental Units	Number of Vacant Units for Seasonal, Recreational, or Occasional Use
Scott County, Illinois	3.6	20	51
Greene County, Illinois	4.4	61	191
Jersey County, Illinois	4.0	72	314
St. Charles County, Missouri	5.2	1,611	938
St. Louis County, Missouri	7.6	9,942	2,263
St. Louis City, Missouri	8.3	7,193	831

Note: Data are sourced from the United States Census Bureau’s 2011-2015 American Community Survey 5-Year Estimates for vacancy status and housing characteristics.

In addition to rental properties, an estimated 38,000 hotel rooms are located in St. Louis County and St. Louis City, Missouri (Mattus 2016a). For the fiscal year 2016, St. Louis city and county hotel occupancy reached 68 percent (Explore St. Louis 2016). Within the standard metropolitan statistical area (“SMSA”) for St. Louis, data for the monthly occupancy rates from January through October 2016 ranged from a low of 49.5 percent in January to a high of 77.7 percent in June (Mattus 2016b). The SMSA for St. Louis includes St. Louis City, St. Louis County, St. Charles County, Jefferson County, Franklin County, Missouri; and Madison County and St. Clair County, Illinois.

A portion of the prospective workforce already resides either permanently or temporarily in the vicinity of the Project. Based on Spire’s estimate of the proportion of the workforce to be hired locally, along with the numerous temporary accommodations available in the Project area, Spire does not anticipate negative effects on populations such as displacement of tourists, residents or businesses. As only five permanent staff are anticipated to be hired, the Project would not have an adverse effect on the availability of permanent or temporary residences during operation.



During the proposed Project construction, it is assumed that purchases would be made from the local economy for vehicle fuel, and a wide variety of construction materials and other miscellaneous expenses. In addition, non-local workers will spend part of their income on local fuel, lodging, and food. At this stage of Project development and planning, Spire is not able to estimate these expenses or, in the case of miscellaneous construction-related expenses, the point(s) of purchase. All purchases are taxable at the general sales tax rate in each state and county. The general sales tax rate for Illinois is 6.25 percent and for Missouri is 4.225 percent.

During right-of-way easement negotiations, Spire and landowners will discuss compensation relating to construction impacts such as crop damages, as well as compensation for the permanent easement to be maintained during operations. Construction and operation of the proposed Project is not anticipated to affect property values for those landowners directly affected by the Project. In 2016, The INGAA Foundation, Inc. released a study of selected Federal Energy Regulatory Commission (“FERC”)-jurisdictional natural gas transmission pipelines throughout the county and their impact on property values (INGAA Foundation, Inc. 2016). Based on the analysis, there is no measurable impact on the sales price of properties located along or in proximity to a natural gas pipeline versus properties which are not located along or in proximity to the same pipeline.

5.1.3 Public Services

As stated previously, the Project workforce is not anticipated to affect temporary or permanent accommodations. There are sufficient existing accommodations in the Project area, and these would be expected to be supported by existing public services. During construction and operation, public service requirements of the Project are expected to be negligible.

Spire shall establish an incident planning program as part of Spire’s Emergency Response Plan so that physicians, medical consultants, hospitals, and ambulance services in the area can efficiently work together to respond in case of an emergency. Project supervisors will post emergency phone numbers in on-site construction trailers, and maintain an up-to-date emergency response plan. Emergency public services are located throughout the Project area, including fire, police, and/or emergency hospital services in:

- Winchester, Scott County, Illinois (approximately five miles north-northeast of the 24-inch pipeline);
- Roodhouse, White Hall, and Carrollton, Greene County, Illinois (approximately three miles, 1.5 miles, and one-mile east of the 24-inch pipeline, respectively);
- Jerseyville and Grafton, Jersey County, Illinois (approximately three miles east of and three miles west of the 24-inch pipeline, respectively);
- West Alton, St. Charles County, Missouri (approximately 0.3-mile east of the 24-inch pipeline);
- Alton, Illinois (approximately three miles northeast of the 24-inch pipeline);
- Florissant, Ferguson, and Spanish Lake, St. Louis County, Missouri (approximately 4.2 miles southwest, 4.5 miles southwest, and 0.9-mile southwest of the North County Extension, respectively); and
- St. Louis County, Missouri (approximately 1.8 miles south of North County Extension).



The use of public services such as fire, police, or medical services, would be temporary; therefore should an accident occur, Spire does not anticipate the Project would result in an undue burden on public services. Spire will adhere to its emergency management procedures, as further discussed in Resource Report 11, Reliability and Safety.

5.1.4 Transportation and Road Crossing Procedures

The proposed 24-inch pipeline portion of the Project is predominantly located within rural areas, but is proposed to cross several larger, well-traveled roads including SR-106, SR-108, SR-16, SR-3, and SR-100 in Illinois, and SR-94 in Missouri which will all be crossed by conventional bore. The North County Extension is located in proximity to more developed areas and well-traveled roads including SR 367/US-67 which will be crossed by horizontal directional drill (“HDD”). Other less-traveled roads in the Project area are also paved and marked. The Project area is served by US-67, a primary route providing north-south access, and several interstate highways located in the vicinity of St. Louis, Missouri including I-270, I-170, I-70, I-64, I-44, I-55, and I-255. A comprehensive list of roads crossed by the Project are also included in Resource Report 1, General Project Description.

Short-term impacts on roads and highways are anticipated during construction of the proposed Project. Generally, all paved roads will be crossed by conventional bore. Boring typically requires additional temporary workspace areas on both sides of the crossing for excavating bore pits while the road remains in operation. Therefore, little or no disruption of traffic is expected at paved road crossings.

Unpaved rural roads may be open-cut where permitted by local authorities or landowners. These areas of construction may require temporary closure of a road and establishment of detours. If no reasonable detour is feasible, at least one lane of a road would be kept open to traffic, except for brief periods when it is essential to close the road to install the pipeline. Spire would avoid road closings during peak traffic hours. Open-cut crossings of roads would typically be completed in one to two days. Spire will attempt to complete construction across high-traffic roads within 24 hours.

Roads affected by open-cutting will be returned to pre-construction conditions. If an open-cut road requires extensive construction time, provisions will be made for temporary detours or other measures to allow safe traffic flow during construction. Additionally, where required by the landowner, a temporary bridge or bypass could be established on small roads or driveways. Prior to closing roads, a road closure schedule would be arranged with the appropriate local transportation authority, if applicable, and local businesses that could be affected by the closures. Law enforcement agencies also would be notified.

Where the right-of-way or right-of-way access locations intersect public hard-surfaced roads, a crushed stone pad will be installed as a construction entrance to control mud and dirt tracking onto the highway. If excess soil or mud is tracked onto roadways, it would be removed as soon as practical. To prevent sediment from construction being washed onto roads during a rain event, sediment barriers would be installed adjacent to all paved roads where the potential for sediment transport exists.



The Project is expected to have a minimal, temporary impact on the local transportation system. Local workers would commute to the Project from home residences, and most non-local workers will likely commute from the St. Louis area, depending upon where temporary accommodations are secured. Workers may carpool to the Project site. Parking will be available at the staging areas included on the Project, and workers will typically be transported via school buses to the right-of-way. Spire will utilize appropriate signage and traffic control measures at the Project site to protect the safety of construction traffic and commuters.

To maintain safe conditions, Spire would direct its construction contractors to comply with vehicle weight and width restrictions, and to remove excess soil that is left on the road surface by the crossing of construction equipment. In addition, when it is necessary for equipment to move across paved roads, mats or other appropriate measures would be used to prevent damage to the road surface. Contractors would employ the appropriate traffic control measures in accordance with all permits and local regulations at high-traffic roadway crossings and at any other crossings where deemed necessary either due to other conditions and/or by local authorities. At all road crossings, flaggers would direct traffic and appropriate construction notification signage would be displayed. Detours or obstructions in traffic flow due to large vehicles or construction of pipeline road crossings may require short-term assistance from local police in limited instances. Project-related demands on local police workloads are not expected to be significant.

The movement of construction equipment and materials from staging areas to the construction work area would result in additional short-term impacts on the transportation network. Several construction-related trips would be made each day (to and from the jobsite) on each spread. This level of traffic would remain fairly constant throughout the construction period, and would typically occur at early morning and evening hours. Spire will hire a third-party firm to coordinate contractor movement of oversized loads on a scheduled basis as well as to notify and coordinate with local fire, police, emergency management services, schools and other civic departments as applicable. Spire would comply with state and federal regulations. Prior to construction, Spire will coordinate with the appropriate local officials to obtain the necessary permits and discuss the minimization of impacts on the transportation system.

5.1.5 Residential Noise Impacts

Construction of the Project is expected to contribute to noise within residential areas, though these impacts are anticipated to be temporary and localized. Residential areas on the Project are primarily located on the North County Extension. Noise and vibration generated during construction within 50 feet of residences will not be unusual in nature and will be similar to that which would occur during public works type projects (e.g., paving, trenching). This work will typically occur for a few days or less at any location and impacts will be temporary. More significant construction noise will be associated with the HDD locations described below. Spire has located the HDD locations away from densely populated areas to the extent practicable.

Construction activity and associated noise levels for pipeline and aboveground facility installation will vary depending on the phase of construction in progress at any one time. These construction phases include site grading, clearing/grubbing, and pipeline and aboveground facility installation. The highest level of construction



noise is assumed to occur during earthwork. These impacts will be temporary, and will occur during daytime hours, with the exception of HDD pullback operations described below.

For M&R stations and mainline valve locations associated with the Project, the site construction noise associated with the installation of the new equipment should have a negligible impact on nearby noise sensitive areas (“NSAs”), and construction will be limited to weekday daytime hours. NSAs near M&R facilities are illustrated in Resource Report 9, Air and Noise Quality.

Noise mitigation measures to be employed during construction include ensuring that sound muffling devices that are provided as standard equipment by the construction equipment manufacturer are kept in good working order.

Spire plans to limit construction to daytime working hours to minimize impacts in residential areas. On the North County Extension, construction near a public school is proposed for the summer months, which will minimize noise disruptions when the school is in full operation. In addition, Spire was granted permission for environmental surveys from a private education institution Applied Scholastics International on the North County Extension and will continue to communicate with Applied Scholastics as the project progresses to easement discussions. Further information on these properties is included in Resource Report 8, Land Use, Recreation, and Aesthetics.

There are four proposed HDD crossings on the Project: one at the Mississippi River between Jersey County, Illinois and St. Charles County, Missouri; one at the Missouri River between St. Charles County, Missouri and St. Louis County, Missouri; one at US-67/Coldwater Creek in St. Louis County, Missouri; and one at Spanish Lake Park in St. Louis County, Missouri. The Project will comply with FERC’s standards to limit noise impacts at NSAs near the proposed HDD sites, which are illustrated in Resource Report 9, Air and Noise Quality. Spire is planning on conducting HDD activities primarily during daytime working hours, except for pull-back activities which will require 24-hour operations for a short timeframe.

Noise survey results and proposed mitigation are further discussed in Resource Report 9, Air and Noise Quality.

5.2 Environmental Justice

Executive Order 12898 requires federal agencies to identify the environmental effects, including health, social, and economic effects, of a project on minority and low-income communities or Native American programs, and to address, as appropriate, disproportionately high and adverse human health and environmental effects.

Spire utilized data from the United States Census Bureau and the United States Environmental Protection Agency’s (“USEPA’s”) Environmental Justice Screening and Mapping Tool (“EJSCREEN”) to identify demographics in the Project area (2016a). For the purposes of this analysis, Spire reviewed the Affected Environment in EJSCREEN to identify potential Environmental Justice concerns.

Spire established the Affected Environment in accordance with guidance from the Council on Environmental Quality’s *Environmental Justice Guidance Under the National Environmental Policy Act* (“NEPA”) (1997), and the Federal Interagency Working Group’s *Promising Practices for EJ Methodologies in NEPA Reviews* (USEPA 2016b).



Spire considered the direct and indirect impacts for each resource topic of this Environmental Report to establish the Affected Environment described below:

- The primary direct and indirect impacts from the 24-inch pipeline and North County Extension include land use change and impacts to streams and wetlands. Stream and wetland impacts are anticipated to have fairly localized temporary impacts, as no permanent fill is proposed. Therefore, consistent with the geographic scope utilized for land use in the cumulative impacts analysis included in Resource Report 1, a one-mile radius buffer was established as the Affected Environment for the 24-inch pipeline and North County Extension. This Affected Environment is of sufficient size to include the Project's Area of Potential Effect for impacts to cultural resources as well.

A map summarizing the Environmental Justice populations is included as Appendix 5-A.

The majority of the proposed 24-inch pipeline route is situated in predominately rural/agricultural areas. The North County Extension traverses agricultural, forested, and residential lands. Construction activities on both portions of the Project would be temporary in nature and Spire will coordinate in advance with landowners to limit exposures to noise and construction dust. Spire will also work with local officials to maintain traffic patterns through residential areas such that typical driving, walking, biking etc. will be maintained.

Spire does not anticipate encountering hazardous materials, such as asbestos and polychlorinated biphenyls ("PCBs"), during construction. As further discussed in Resource Report 12, PCB Contamination, in the event that PCB-contaminated liquid, soil or facilities are encountered during construction, any removal of these materials will be done in accordance with the USEPA's Toxic Substance Control Act regulations found at 40 CFR § 761, as well as any applicable state regulations.

5.2.1 Minority Populations

A summary of the race and ethnicity for the Affected Environment within each county is presented in Table 5.2-1 (USEPA 2016).

Spire utilized EJSCREEN to identify minority populations within the Affected Environment. Percent minority populations for the Affected Environment in comparison to the state and national averages are included in Table 5.2-2 (USEPA 2016a). The Fifty Percent and Meaningfully Greater analyses were utilized to evaluate the presence of minority populations. Under the Fifty Percent analysis, a minority population is identified if the percentage of minority individuals within the geographic unit of analysis meets or exceeds 50 percent. Under the Meaningfully Greater analysis, a minority population is identified if the percentage of minority individuals within the geographic unit of analysis is meaningfully greater than the percentage of minorities within a reference community, such as the county, state or nation. For this analysis, the reference populations included the state and national averages.



Table 5.2-1. Race and Ethnicity in the Affected Environment

Facility/County, State	White (%) ¹	Black or African American (%) ¹	American Indian (%) ¹	Asian (%) ¹	Pacific Islander (%) ¹	Some Other Race (%) ¹	Population Reporting Two or More Races (%) ¹
24-Inch Pipeline							
Scott County, Illinois	96	0	0	1	0	0	4
Greene County, Illinois	97	1	0	0	0	0	1
Jersey County, Illinois	98	0	0	1	0	0	1
St. Charles County, Missouri	94	4	1	0	0	0	0
St. Louis County, Missouri	45	52	0	0	0	1	2
North County Extension							
St. Louis County, Missouri	25	70	0	1	0	1	3

Notes: Data are sourced from the United States Census Bureau’s American Community Survey, vintage 2010-2014, as presented in EJSSCREEN (USEPA 2016a) for the Affected Environment, as defined in Section 5.2, within each county.

¹ Percentages are estimates and may not equal 100 percent due to rounding.

Table 5.2-2. Minority Populations in the Affected Environment

Facility/County, State	Value for Affected Environment (%)	State Average (%)	United States Average (%)	Minority Population (Y/N)
24-Inch Pipeline				
Scott County, Illinois	4	37	37	N
Greene County, Illinois	3	37	37	N
Jersey County, Illinois	2	37	37	N
St. Charles County, Missouri	6	20	37	N
St. Louis County, Missouri	55	20	37	Y
North County Extension				
St. Louis County, Missouri	76	20	37	Y

Note: Data are sourced from the EJSSCREEN Report (USEPA 2016a) for the Affected Environment, as defined in Section 5.2, within each county.

Minority populations were identified in the Affected Environments of St. Louis County, Missouri for both the 24-inch pipeline and the North County Extension. Spire will implement safety measures where residences or other occupied structures are within 50 feet of the construction work area, as detailed in Resource Report 8, Land Use.



Temporary construction workspaces will be restored to pre-existing conditions after construction, and previous land uses will be able to continue after construction is complete with the exception of the Laclede/Lange Delivery Station and Chain of Rocks Station. As discussed in Resource Report 9, Air and Noise Quality, the Project will comply with FERC’s standards to limit noise impacts at NSAs near the proposed HDD locations. Landowners will be compensated for any potential property damage and permanent facilities. Communications with property owners impacted by the Project construction will include clear and simple presentation of the purpose and need for the Project, and accurately projected construction schedule and anticipated property impacts will be discussed during landowner negotiations.

5.2.2 Low Income Populations

A summary of the population below the poverty level for the impacted counties, along with state and national reference populations, is presented in Table 5.2-3 (United States Census Bureau 2014). Based on this preliminary analysis, Spire narrowed the scope to focus on the Affected Environment to identify low income populations.

Table 5.2-3. Poverty Levels in Counties Crossed by the Project

	Scott, Illinois (%)	Greene, Illinois (%)	Jersey, Illinois (%)	St. Charles, Missouri (%)	St. Louis, Missouri (%)	Illinois (%)	Missouri (%)	United States (%)
All Ages Below Poverty Level	12	16.2	11.6	6.8	9.6	14.3	15.5	15.5

Note: Data are sourced from the United States Census Bureau’s Small Area Income and Poverty Estimates (United States Census Bureau 2014), which presents data at the county level.

Spire utilized EJSCREEN to obtain demographic indicators for low income populations within the Affected Environment (USEPA 2016). For the purposes of this analysis, low income populations were identified using data from EJSCREEN, as presented in Table 5.2-4. Under the Threshold Criteria analysis, a low income population is identified where the value for the Affected Environment is equal to or greater than that of the reference population. For this analysis, the reference populations included the state and national averages.



Table 5.2-4. Low Income Populations in the Affected Environment

Facility/County, State	Value for Affected Environment (%)	State Average (%)	United States Average (%)	Low Income Population (Y/N)
24-Inch Pipeline				
Scott County, Illinois	40	32	35	Y
Greene County, Illinois	35	32	35	Y
Jersey County, Illinois	22	32	35	N
St. Charles County, Missouri	31	35	35	N
St. Louis County, Missouri	21	35	35	N
North County Extension				
St. Louis County, Missouri	46	35	35	Y

Note: Data are sourced from the EJSCREEN Report (USEPA 2016a) for the Affected Environment, as defined in Section 5.2, within each county.

Low income populations affected by the 24-inch pipeline were identified in Scott and Greene Counties, Illinois. Low income populations affected by the North County Extension were identified in St. Louis County, Missouri.

Impacts to these communities will be temporary during construction of the Project. Permanent negative effects on these populations would be avoided because there will be no displacements of businesses or residences. The majority of the area impacted by the 24-inch pipeline is rural, with low population density. Spire has routed the North County Extension to avoid residential areas where possible. Spire will implement safety measures where residences or other occupied structures are within 50 feet of the construction work area, as detailed in Resource Report 8, Land Use. Any economic losses from potential temporary or permanent reductions in agricultural/pasture land productivity or other potential property damage will be compensated accordingly. Best management practices used for construction in streams and wetlands will avoid potential negative impacts to persons who may rely on hunting and fishing for a portion of their subsistence. Communications with property owners impacted by the Project construction will include clear and simple presentation of the purpose and need for the Project, and accurately projected construction schedule and anticipated property impacts will be discussed during landowner negotiations.



5.2.3 Linguistically Isolated Populations

Spire utilized the EJSCREEN tool to identify linguistically isolated populations within the Affected Environment (USEPA 2016). Linguistically isolated populations are rare, but are present within the Affected Environment for the 24-inch pipeline in Scott County, Illinois, and St. Charles and St. Louis Counties, Missouri, and within the Affected Environment for the North County Extension in St. Louis County, Missouri. Languages include Asian-Pacific Island, Spanish, other Indo-European, and other unspecified language.

As of the date of this application, Spire has not identified linguistically isolated populations during coordination with landowners. Every effort will be made to ensure that written and oral communications with landowners in those counties with potential linguistically isolated populations utilize simple, plain language and pictures if needed during communications and through easement negotiations to reduce the potential for negative impact to these populations through miscommunication.

Table 5.2-5. Linguistically Isolated Populations in the Affected Environment

Facility/County, State	Linguistically Isolated Population (%)	Linguistically Isolated Households Language (estimated count)
24-Inch Pipeline		
Scott County, Illinois	2	Asian-Pacific Island (2)
Greene County, Illinois	0	Not Applicable (0)
Jersey County, Illinois	0	Not Applicable (0)
St. Charles County, Missouri	1	Spanish (2), Other Indo-European (1)
St. Louis County, Missouri	1	Other (2)
North County Extension		
St. Louis County, Missouri	1	Other Indo-European (3), Other (2)

Note: Data are sourced from the United States Census Bureau American Community Survey, vintage 2010-2014, as presented in EJSCREEN (USEPA 2016a) for the Affected Environment, as defined in Section 5.2, within each county.



5.3 References

Explore St. Louis. 2016. *Fiscal Year 2016 Annual Report*. Accessed December 2016 from <http://explorestlouis.com/>.

INGAAA Foundation, Inc. 2016. *Pipeline Impact to Property Value and Property Insurability*. Accessed December 2016 from <http://www.ingaa.org/File.aspx?id=27480&v=cac46a26>.

Mattus, Linda. 2016a. Telephone call from Ali Trunzo, GAI, to Explore St. Louis on December 13, 2016.

Mattus, Linda. 2016b. Email from Explore St. Louis to Ali Trunzo, GAI on December 13, 2016.

United States Census Bureau. 2016. *American Community Survey 5-Year Estimates*. Accessed December 2016 from <https://factfinder.census.gov>.

United States Census Bureau. 2014. *Small Area Income and Poverty Estimates*. Accessed September 2016 from <https://www.census.gov/did/www/saipe/data/index.html>.

United States Department of Labor - Bureau of Labor Statistics. 2016. *Local Area Unemployment Statistics Labor Force Data by County, 2015 Annual Averages*. Accessed December 2016 from <http://www.bls.gov/lau/tables.htm>.

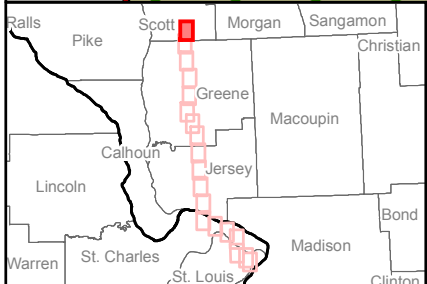
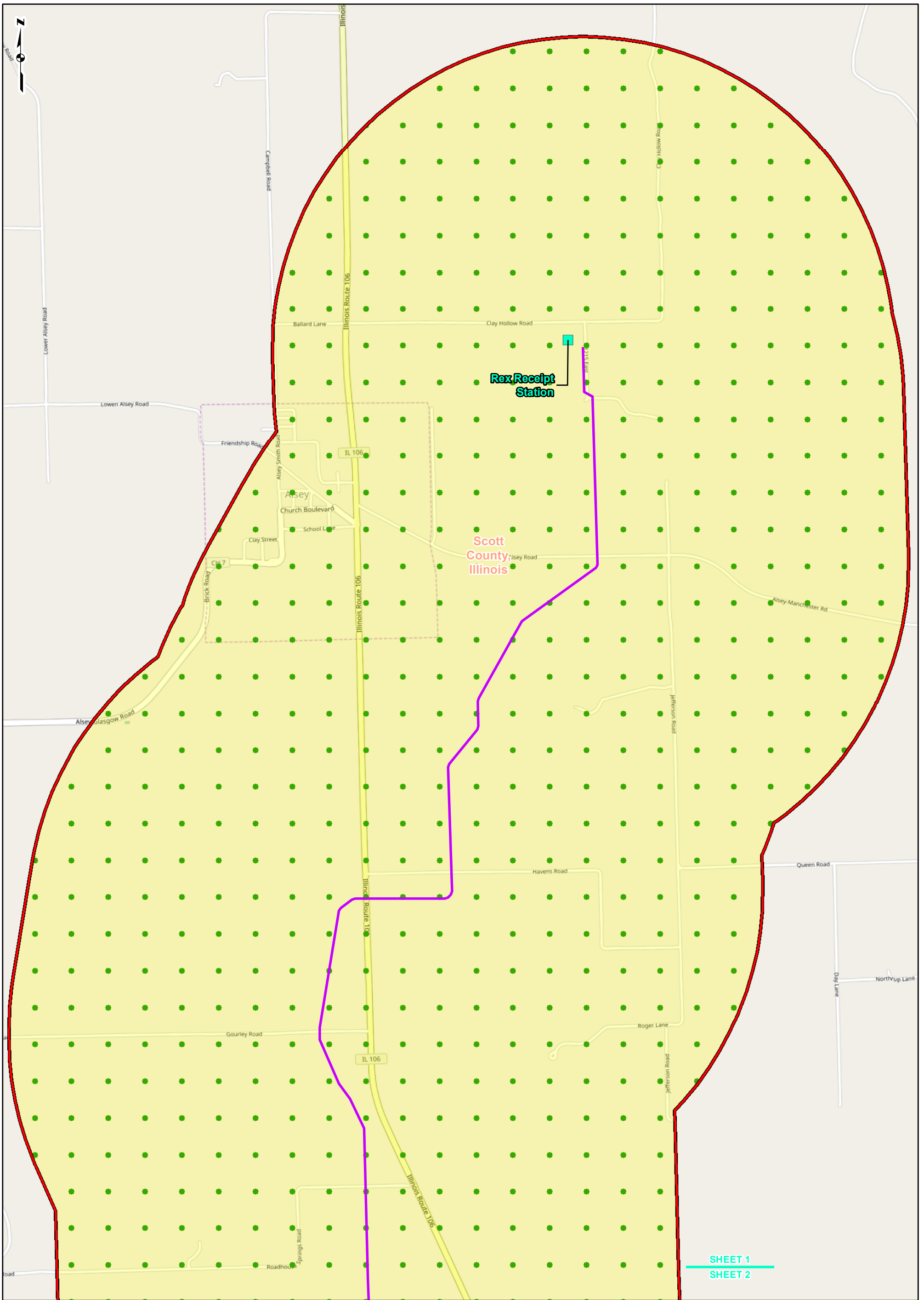
United States Environmental Protection Agency. 2016a. EJSCREEN. Accessed March 2017 from www.epa.gov/ejscreen.

United States Environmental Protection Agency. 2016b. *Promising Practices for EJ Methodologies in NEPA Reviews*. Accessed October 2016 from https://www.epa.gov/sites/production/files/2016-08/documents/nepa_promising_practices_document_2016.pdf.



APPENDIX 5-A

Areas of the Affected Environment with Environmental Justice Populations



REFERENCE:
OPEN STREET MAP,
ESRI DATA AND MAPS,
ACCESSED 3/27/2017

LEGEND

ABOVE GROUND FACILITY	AFFECTED ENVIRONMENT
24-INCH PIPELINE	LINGUISTICALLY ISOLATED POPULATION: 1 PERCENT
NORTH COUNTY EXTENSION	LINGUISTICALLY ISOLATED POPULATION: 2 PERCENT
COUNTY BOUNDARY	MINORITY POPULATION
STATE BOUNDARY	LOW INCOME POPULATION

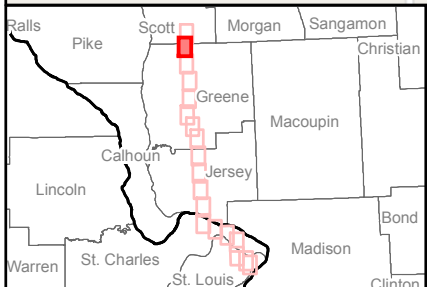
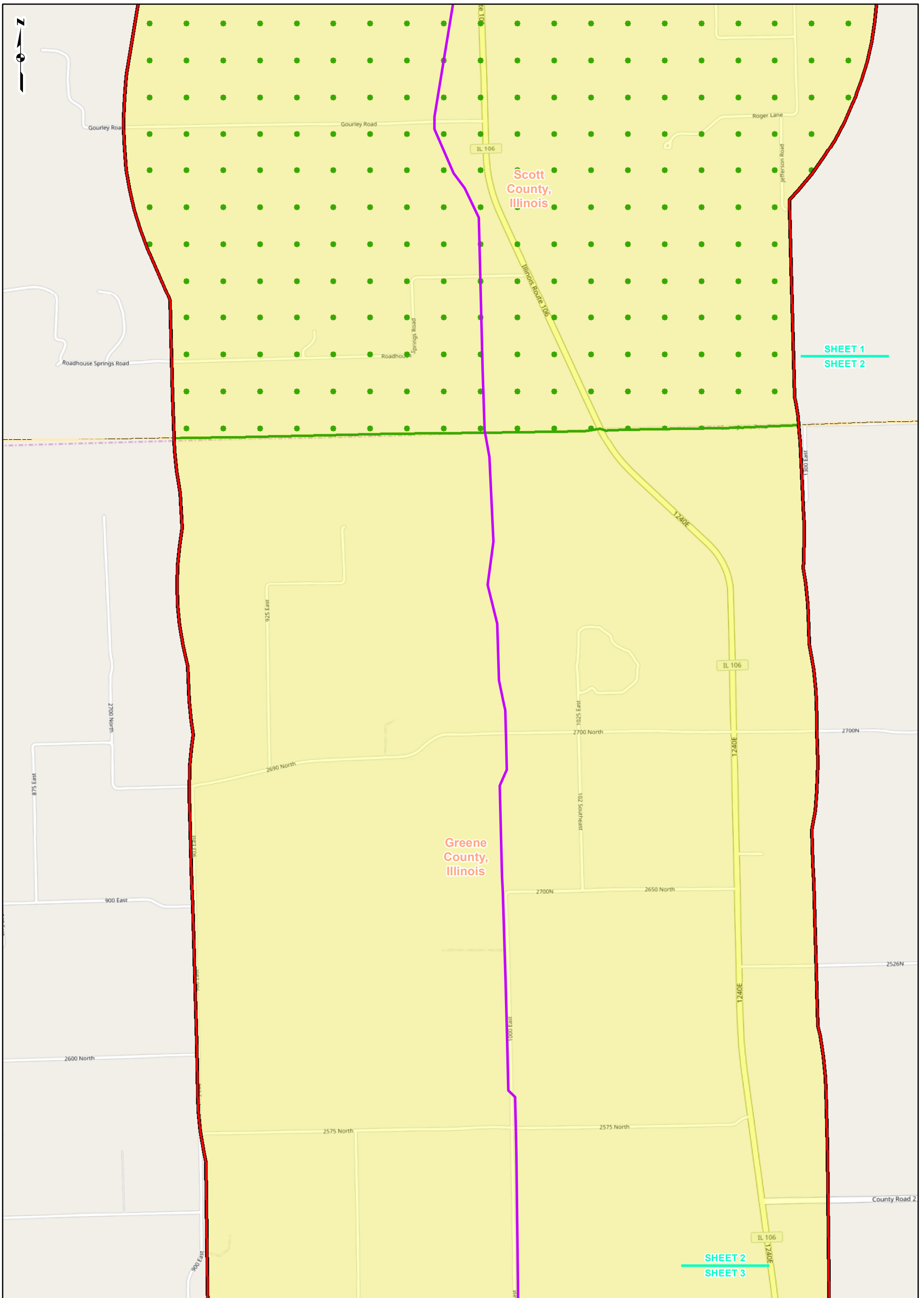
0 750 1,500 3,000
Feet

FIGURE 5.2-1
AREAS OF THE AFFECTED ENVIRONMENT WITH ENVIRONMENTAL JUSTICE POPULATIONS
SHEET 1 OF 19

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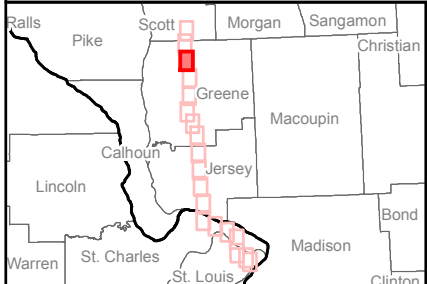
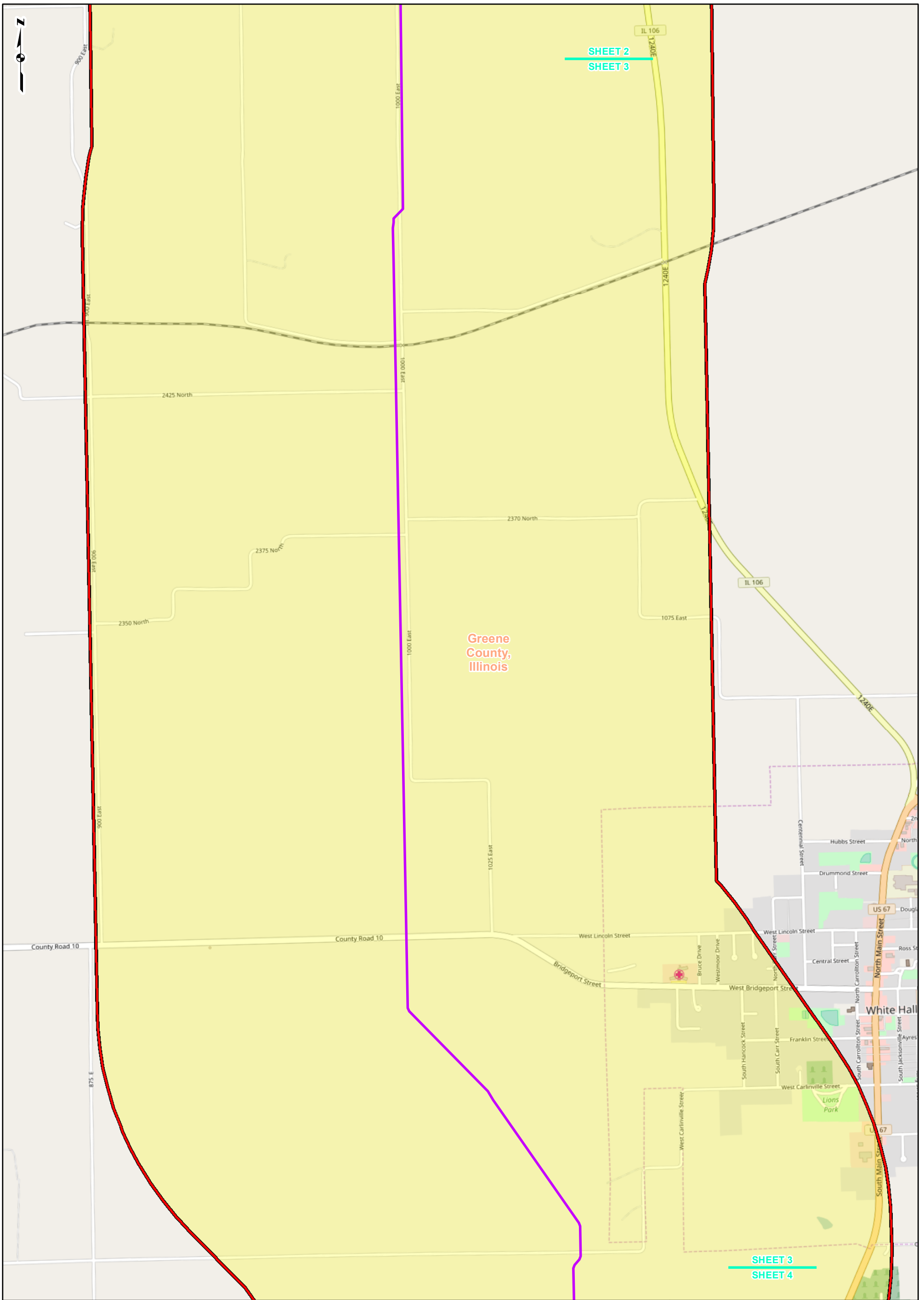
ABOVE GROUND FACILITY	AFFECTED ENVIRONMENT
24-INCH PIPELINE	LINGUISTICALLY ISOLATED POPULATION: 1 PERCENT
NORTH COUNTY EXTENSION	LINGUISTICALLY ISOLATED POPULATION: 2 PERCENT
COUNTY BOUNDARY	MINORITY POPULATION
STATE BOUNDARY	LOW INCOME POPULATION

0 750 1,500 3,000 Feet

FIGURE 5.2-1
 AREAS OF THE AFFECTED ENVIRONMENT WITH ENVIRONMENTAL JUSTICE POPULATIONS
 SHEET 2 OF 19

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ABOVE GROUND FACILITY	AFFECTED ENVIRONMENT
24-INCH PIPELINE	LINGUISTICALLY ISOLATED POPULATION: 1 PERCENT
NORTH COUNTY EXTENSION	LINGUISTICALLY ISOLATED POPULATION: 2 PERCENT
COUNTY BOUNDARY	MINORITY POPULATION
STATE BOUNDARY	LOW INCOME POPULATION

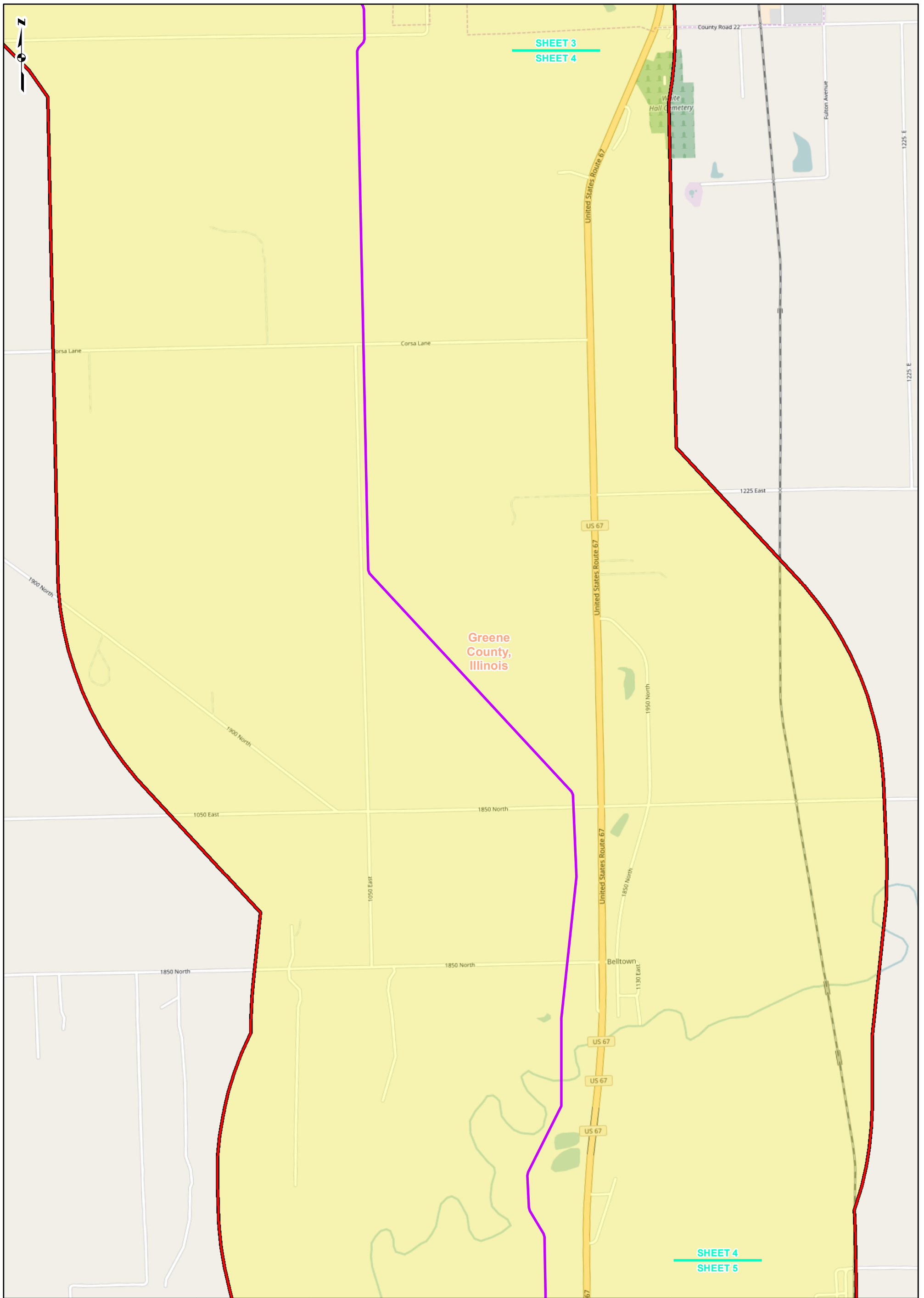
0 750 1,500 3,000 Feet

FIGURE 5.2-1
AREAS OF THE AFFECTED ENVIRONMENT WITH ENVIRONMENTAL JUSTICE POPULATIONS
SHEET 3 OF 19

SPIRE STL PIPELINE PROJECT

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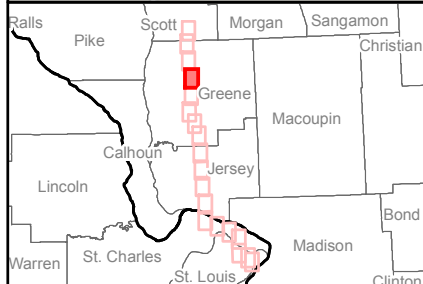
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SHEET 3
SHEET 4

SHEET 4
SHEET 5

Greene
County,
Illinois



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LEGEND

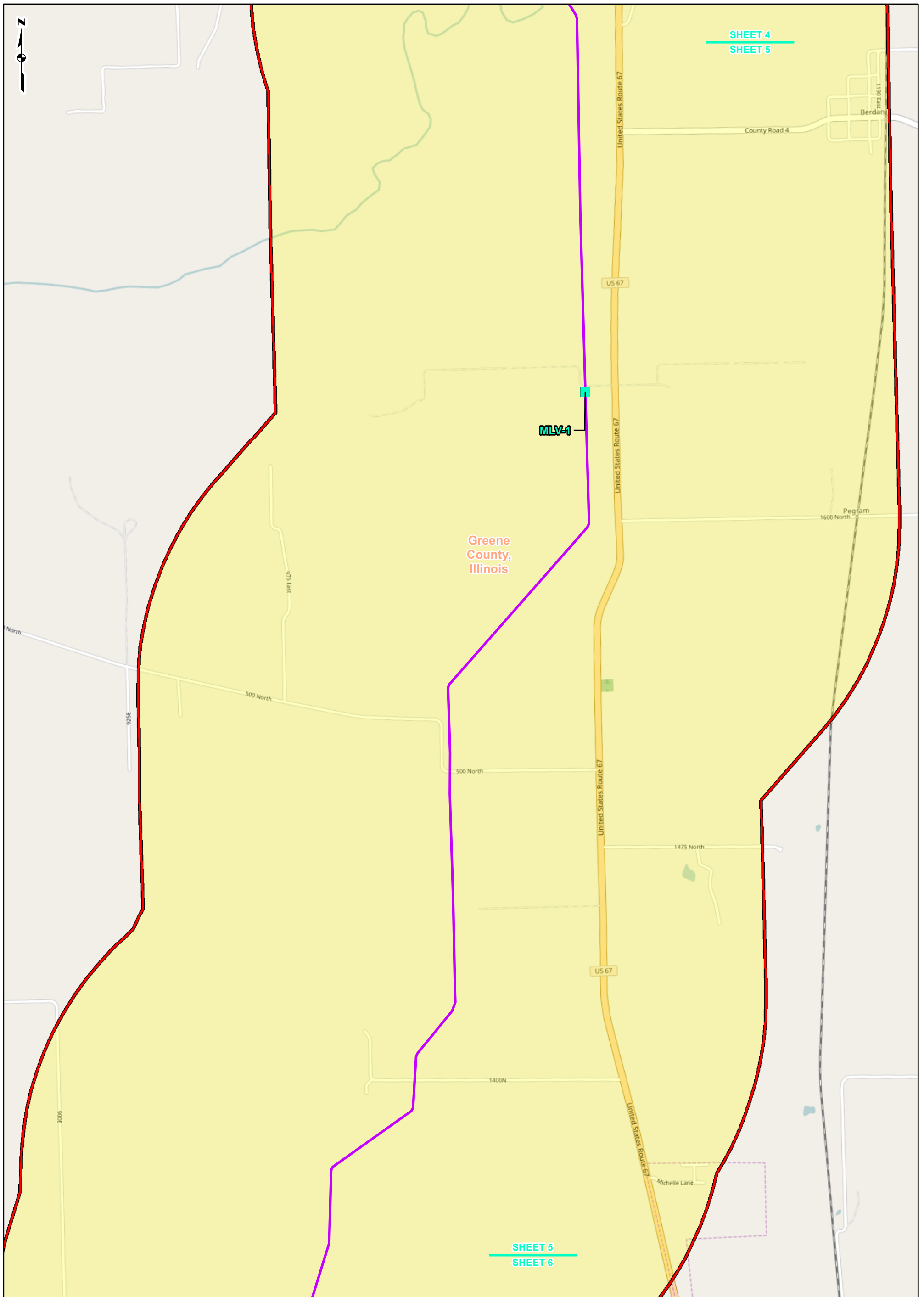
ABOVE GROUND FACILITY	AFFECTED ENVIRONMENT
24-INCH PIPELINE	LINGUISTICALLY ISOLATED POPULATION: 1 PERCENT
NORTH COUNTY EXTENSION	LINGUISTICALLY ISOLATED POPULATION: 2 PERCENT
COUNTY BOUNDARY	MINORITY POPULATION
STATE BOUNDARY	LOW INCOME POPULATION

0 750 1,500 3,000
Feet

FIGURE 5.2-1
AREAS OF THE AFFECTED ENVIRONMENT WITH ENVIRONMENTAL JUSTICE POPULATIONS
SHEET 4 OF 19

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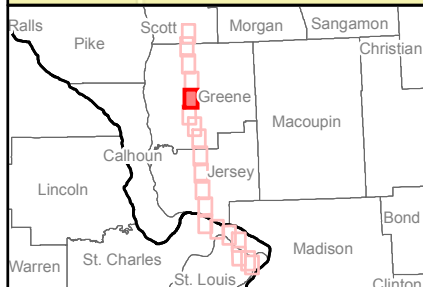


SHEET 4
SHEET 5

Greene
County,
Illinois

MLV-1

SHEET 5
SHEET 6



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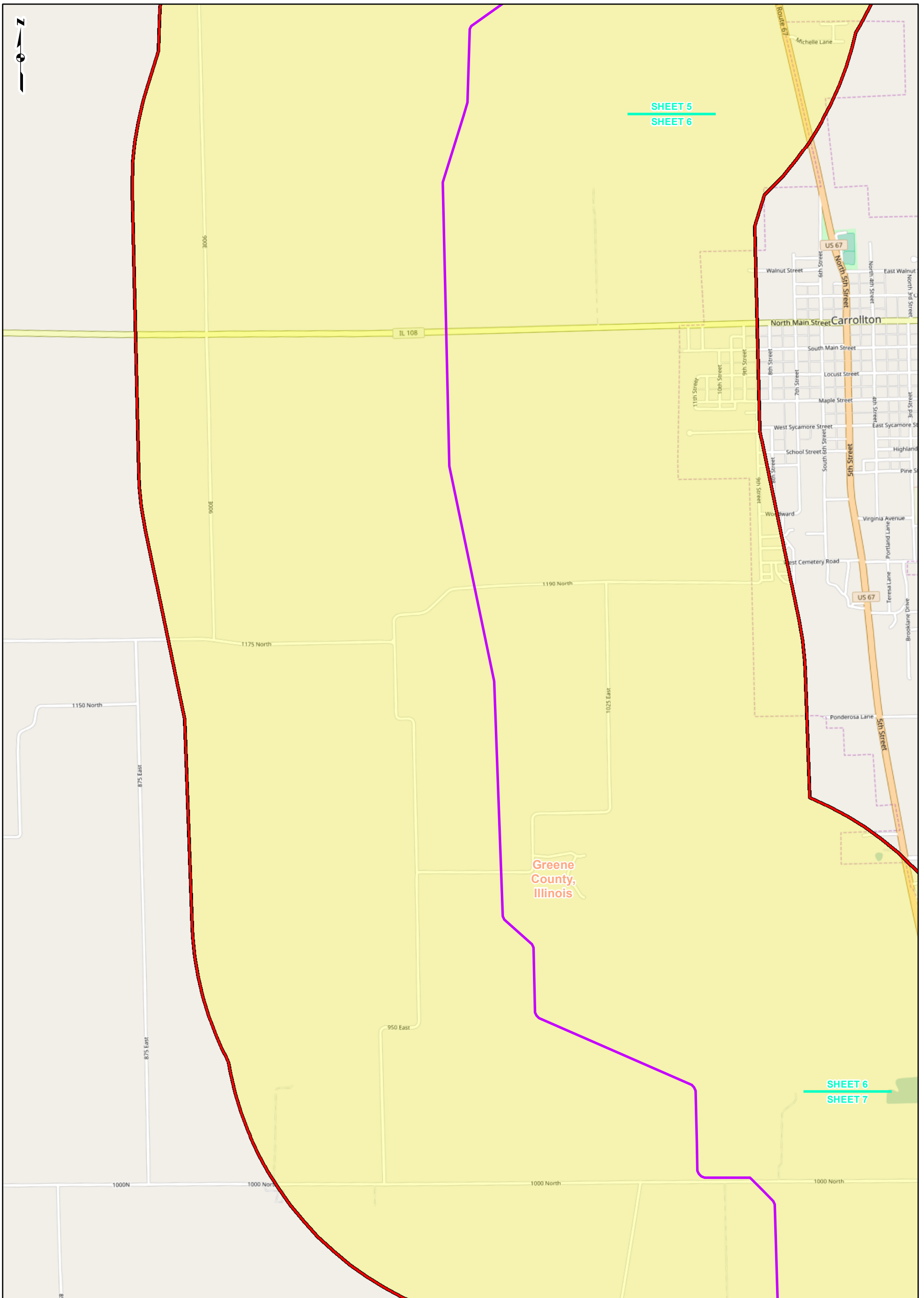
ABOVE GROUND FACILITY	AFFECTED ENVIRONMENT
24-INCH PIPELINE	LINGUISTICALLY ISOLATED POPULATION: 1 PERCENT
NORTH COUNTY EXTENSION	LINGUISTICALLY ISOLATED POPULATION: 2 PERCENT
COUNTY BOUNDARY	MINORITY POPULATION
STATE BOUNDARY	LOW INCOME POPULATION

0 750 1,500 3,000 Feet

FIGURE 5.2-1
AREAS OF THE AFFECTED ENVIRONMENT WITH ENVIRONMENTAL JUSTICE POPULATIONS
SHEET 5 OF 19

SPIRE STL PIPELINE PROJECT

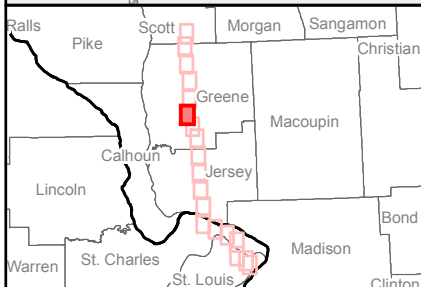
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SHEET 5
SHEET 6

SHEET 6
SHEET 7

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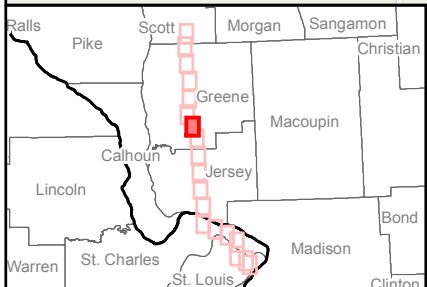
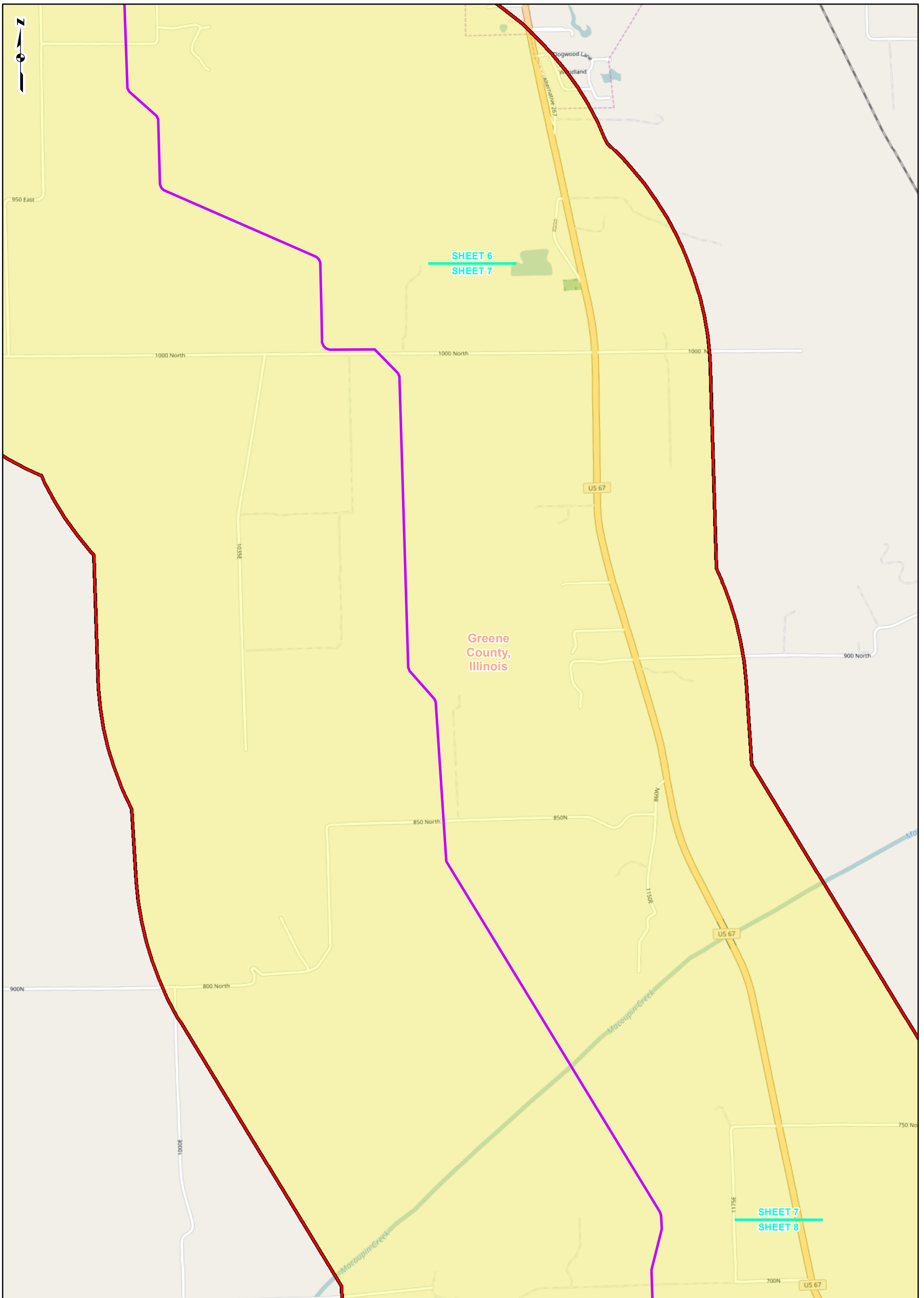
ABOVE GROUND FACILITY	AFFECTED ENVIRONMENT
24-INCH PIPELINE	LINGUISTICALLY ISOLATED POPULATION: 1 PERCENT
NORTH COUNTY EXTENSION	LINGUISTICALLY ISOLATED POPULATION: 2 PERCENT
COUNTY BOUNDARY	MINORITY POPULATION
STATE BOUNDARY	LOW INCOME POPULATION

0 750 1,500 3,000 Feet

FIGURE 5.2-1
AREAS OF THE AFFECTED ENVIRONMENT WITH ENVIRONMENTAL JUSTICE POPULATIONS
SHEET 6 OF 19

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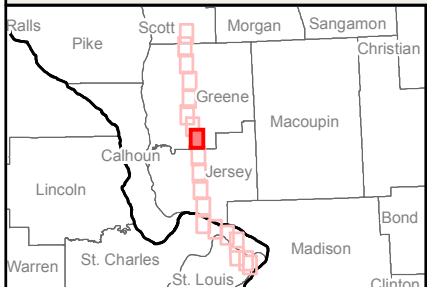
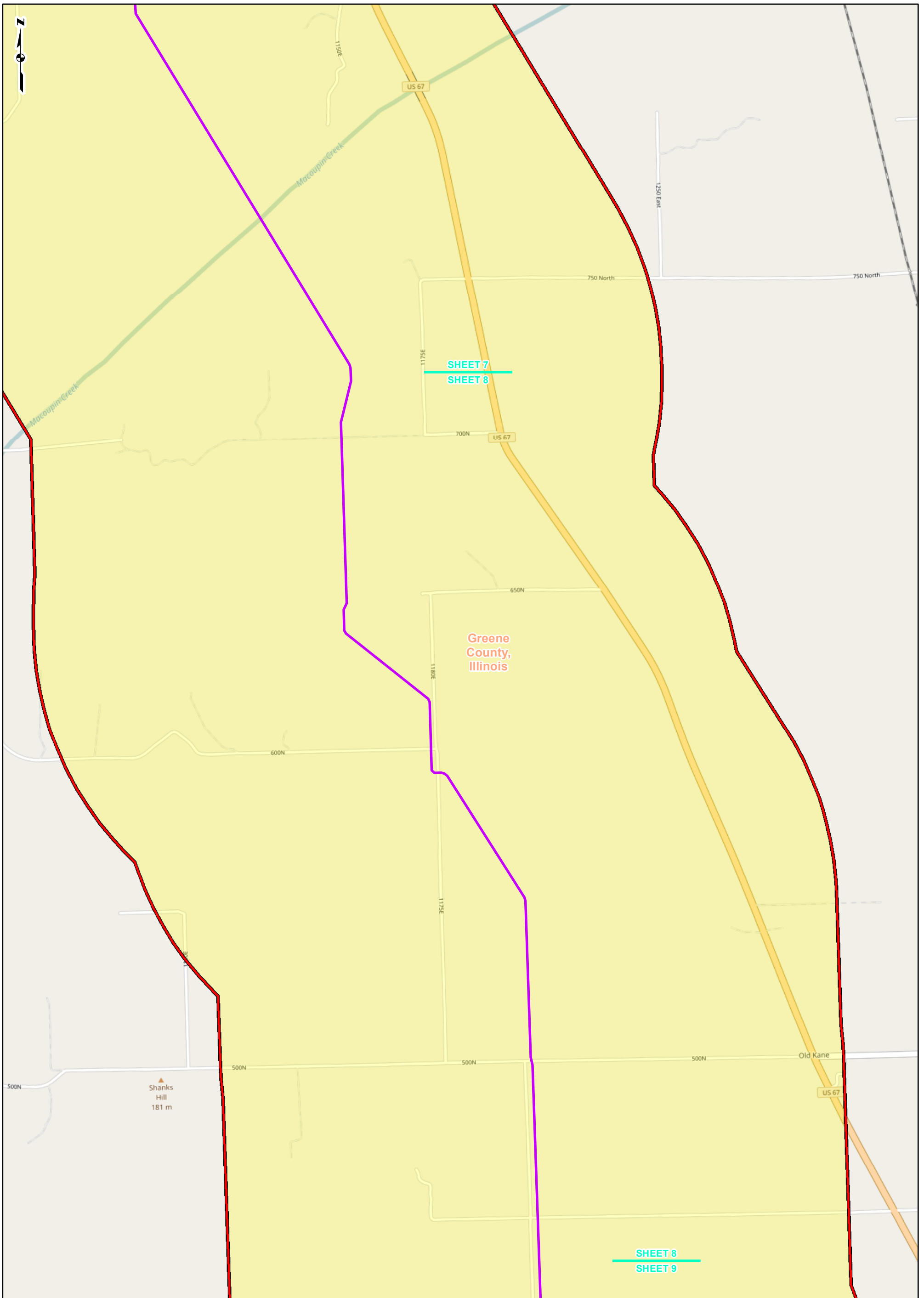
ABOVE GROUND FACILITY	AFFECTED ENVIRONMENT
24-INCH PIPELINE	LINGUISTICALLY ISOLATED POPULATION: 1 PERCENT
NORTH COUNTY EXTENSION	LINGUISTICALLY ISOLATED POPULATION: 2 PERCENT
COUNTY BOUNDARY	MINORITY POPULATION
STATE BOUNDARY	LOW INCOME POPULATION

0 750 1,500 3,000 Feet

FIGURE 5.2-1
AREAS OF THE AFFECTED ENVIRONMENT WITH ENVIRONMENTAL JUSTICE POPULATIONS
SHEET 7 OF 19

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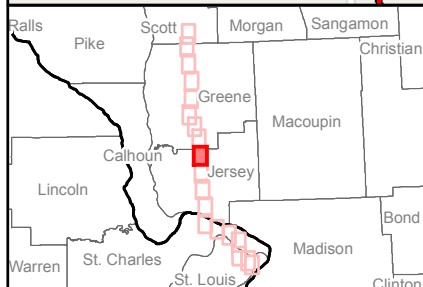
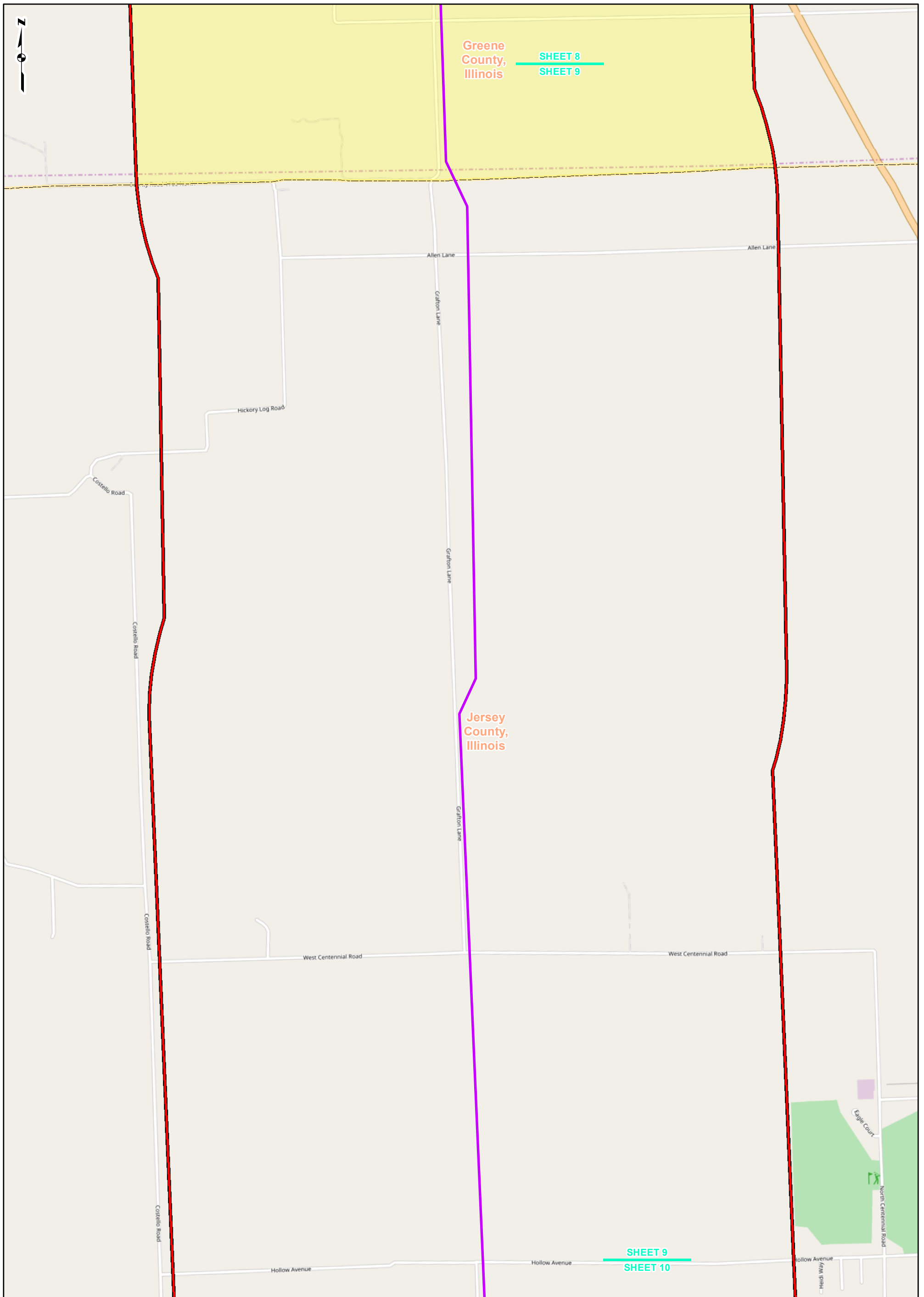
ABOVE GROUND FACILITY	AFFECTED ENVIRONMENT
24-INCH PIPELINE	LINGUISTICALLY ISOLATED POPULATION: 1 PERCENT
NORTH COUNTY EXTENSION	LINGUISTICALLY ISOLATED POPULATION: 2 PERCENT
COUNTY BOUNDARY	MINORITY POPULATION
STATE BOUNDARY	LOW INCOME POPULATION

0 750 1,500 3,000 Feet

FIGURE 5.2-1
AREAS OF THE AFFECTED ENVIRONMENT WITH ENVIRONMENTAL JUSTICE POPULATIONS
SHEET 8 OF 19

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ABOVE GROUND FACILITY	AFFECTED ENVIRONMENT
24-INCH PIPELINE	LINGUISTICALLY ISOLATED POPULATION: 1 PERCENT
NORTH COUNTY EXTENSION	LINGUISTICALLY ISOLATED POPULATION: 2 PERCENT
COUNTY BOUNDARY	MINORITY POPULATION
STATE BOUNDARY	LOW INCOME POPULATION

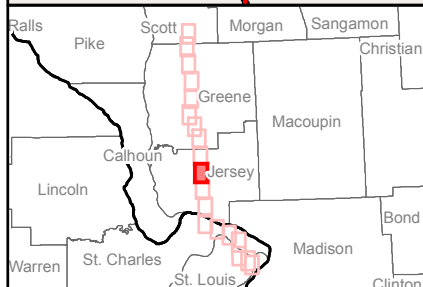
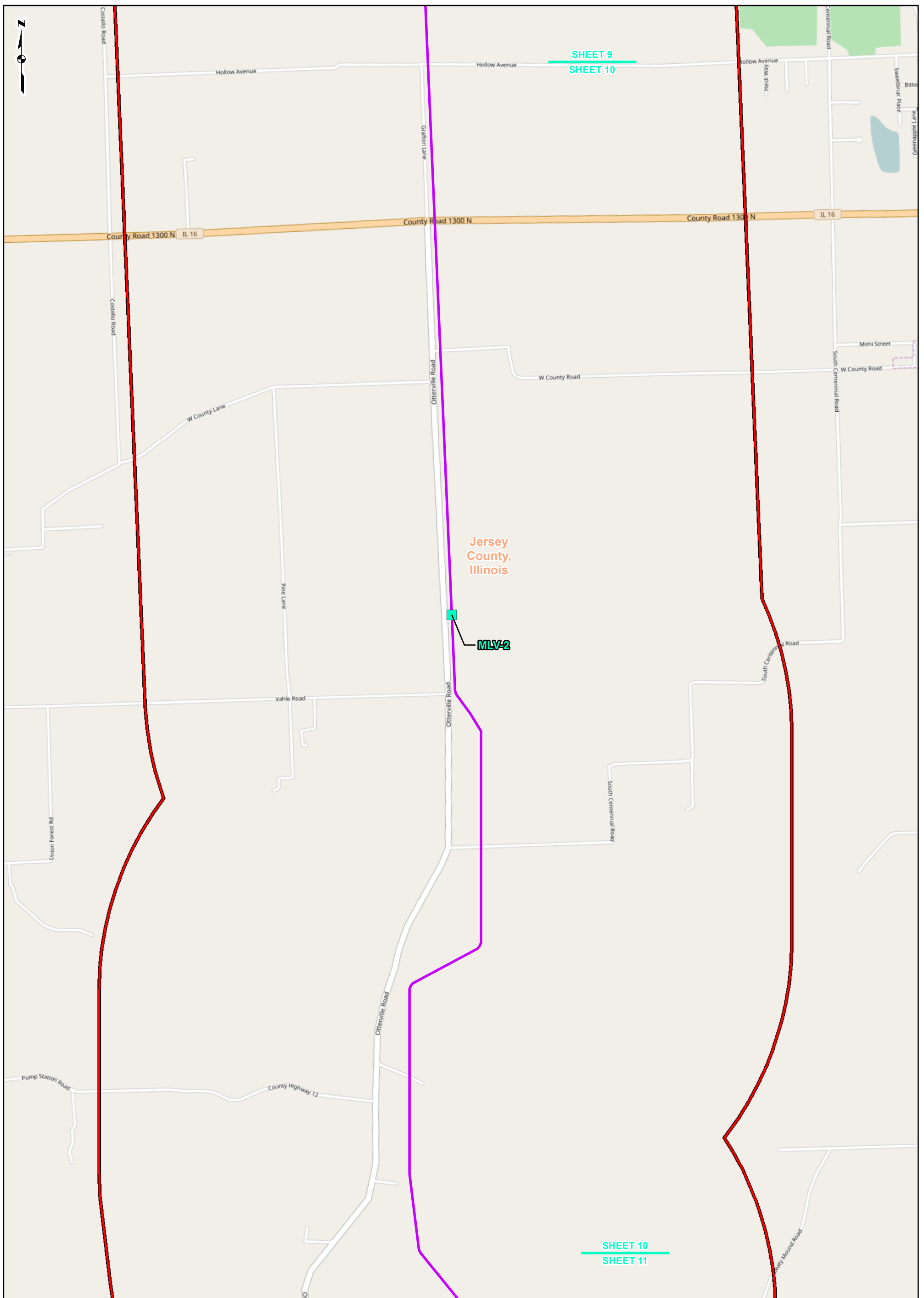
0 750 1,500 3,000
 Feet

FIGURE 5.2-1
 AREAS OF THE AFFECTED ENVIRONMENT WITH ENVIRONMENTAL JUSTICE POPULATIONS
 SHEET 9 OF 19

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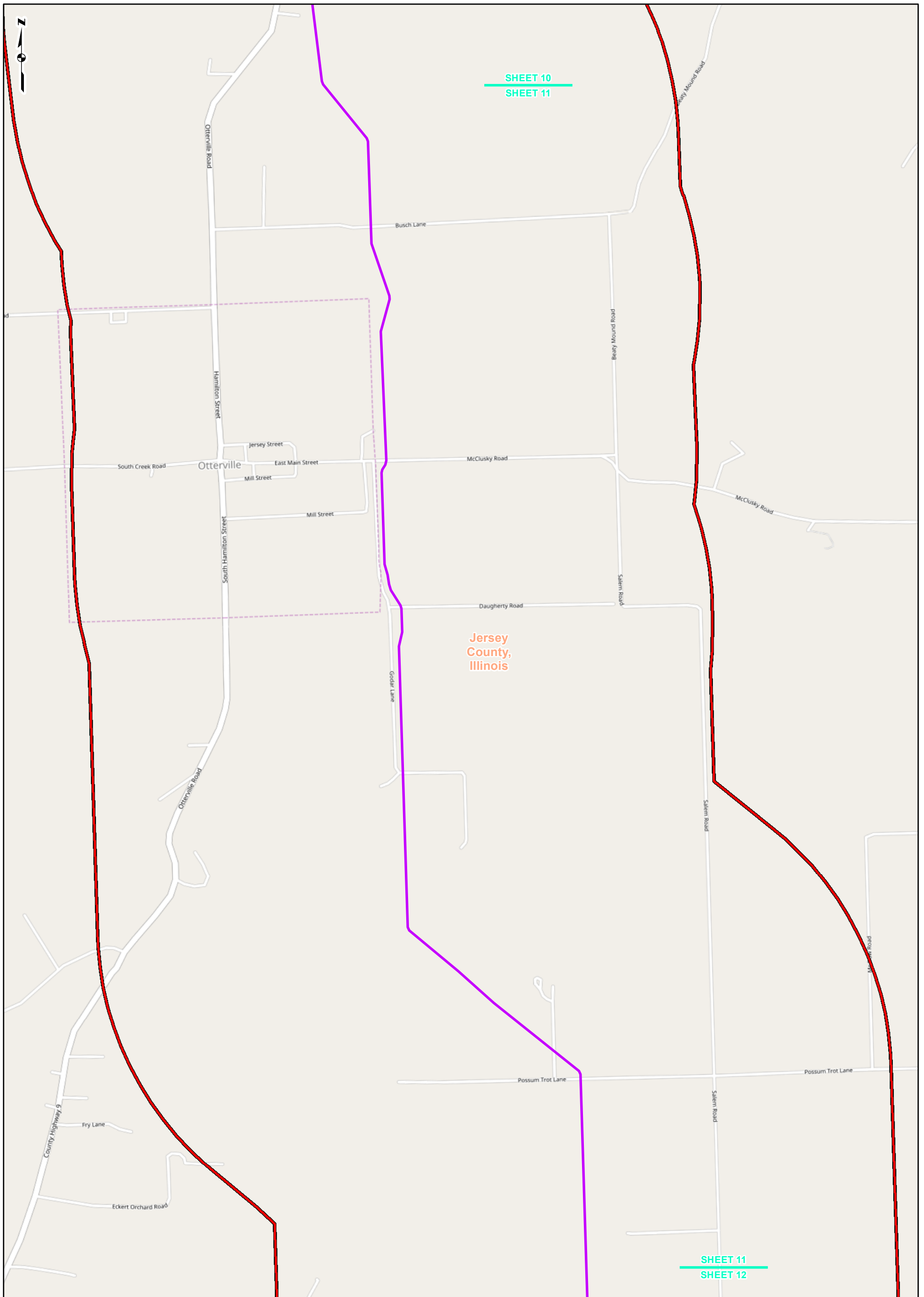
ABOVE GROUND FACILITY	AFFECTED ENVIRONMENT
24-INCH PIPELINE	LINGUISTICALLY ISOLATED POPULATION: 1 PERCENT
NORTH COUNTY EXTENSION	LINGUISTICALLY ISOLATED POPULATION: 2 PERCENT
COUNTY BOUNDARY	MINORITY POPULATION
STATE BOUNDARY	LOW INCOME POPULATION

0 750 1,500 3,000 Feet

FIGURE 5.2-1
 AREAS OF THE AFFECTED ENVIRONMENT WITH ENVIRONMENTAL JUSTICE POPULATIONS
 SHEET 10 OF 19

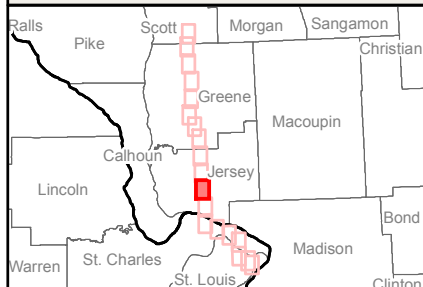
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SHEET 10
SHEET 11

SHEET 11
SHEET 12



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LEGEND

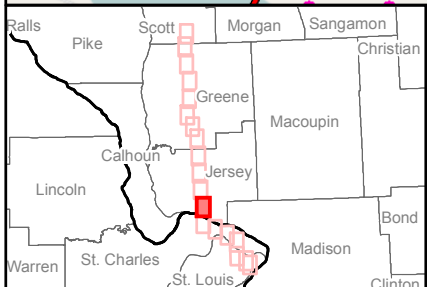
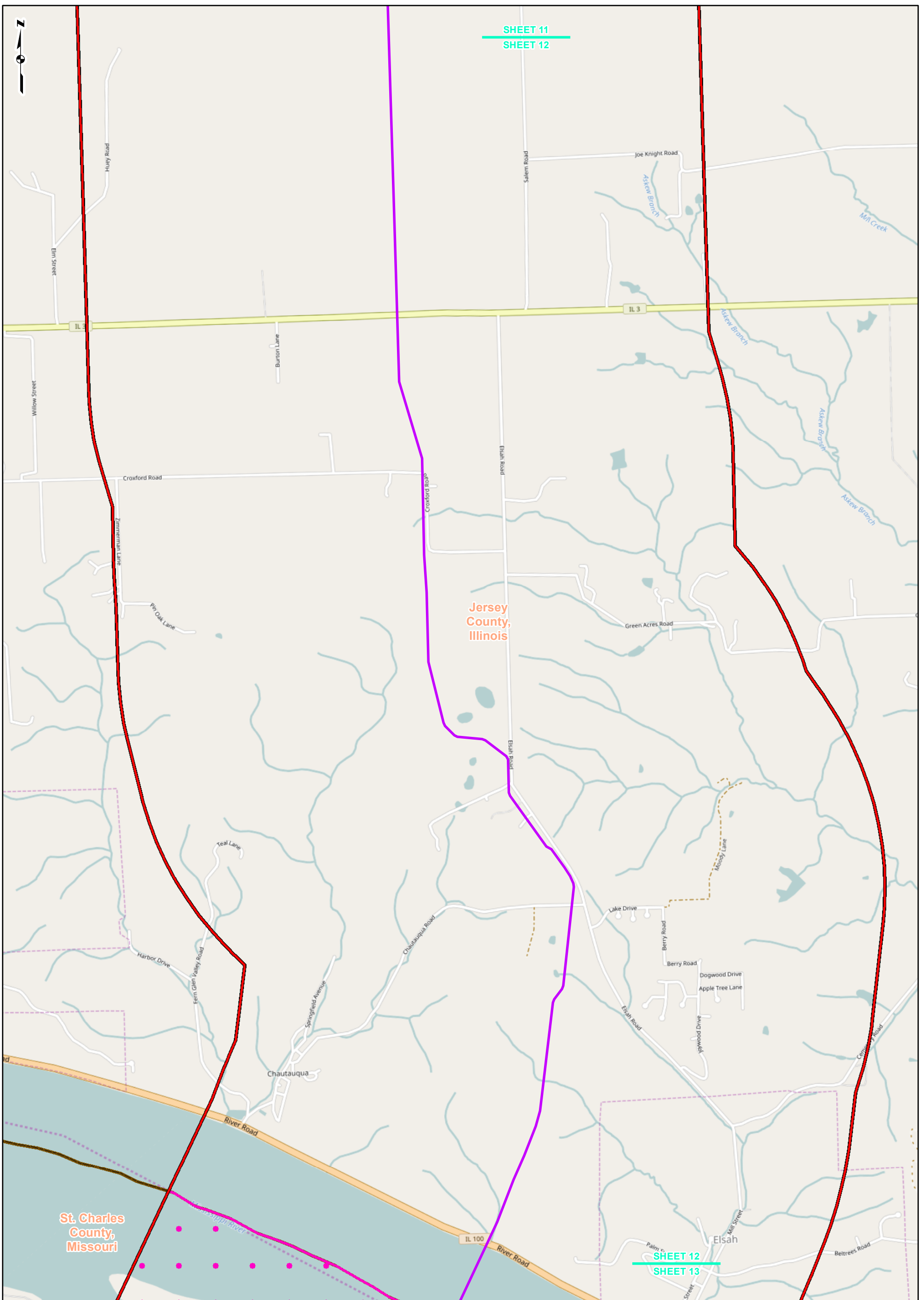
ABOVE GROUND FACILITY	AFFECTED ENVIRONMENT
24-INCH PIPELINE	LINGUISTICALLY ISOLATED POPULATION: 1 PERCENT
NORTH COUNTY EXTENSION	LINGUISTICALLY ISOLATED POPULATION: 2 PERCENT
COUNTY BOUNDARY	MINORITY POPULATION
STATE BOUNDARY	LOW INCOME POPULATION

0 750 1,500 3,000 Feet

FIGURE 5.2-1
AREAS OF THE AFFECTED ENVIRONMENT WITH ENVIRONMENTAL JUSTICE POPULATIONS
SHEET 11 OF 19

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ABOVE GROUND FACILITY	AFFECTED ENVIRONMENT LINGUISTICALLY ISOLATED POPULATION: 1 PERCENT
24-INCH PIPELINE	LINGUISTICALLY ISOLATED POPULATION: 2 PERCENT
NORTH COUNTY EXTENSION	MINORITY POPULATION
COUNTY BOUNDARY	LOW INCOME POPULATION
STATE BOUNDARY	

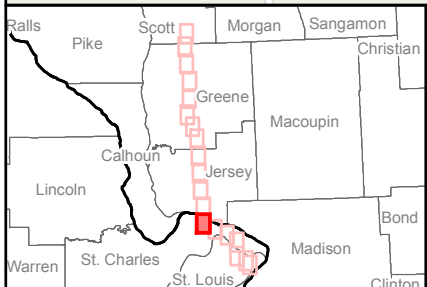
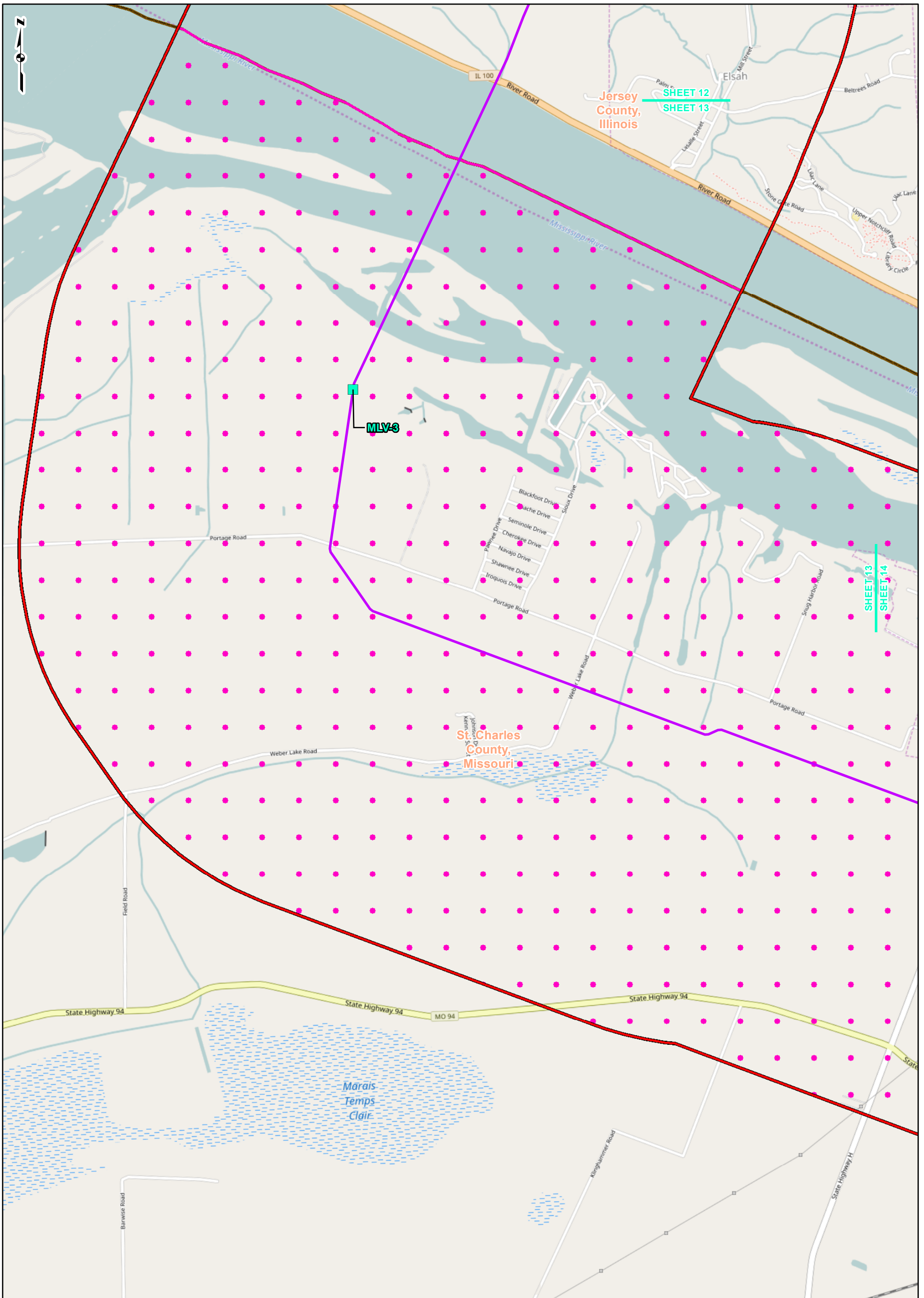
0 750 1,500 3,000 Feet

FIGURE 5.2-1
AREAS OF THE AFFECTED ENVIRONMENT WITH ENVIRONMENTAL JUSTICE POPULATIONS
SHEET 12 OF 19

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ABOVE GROUND FACILITY	AFFECTED ENVIRONMENT
24-INCH PIPELINE	LINGUISTICALLY ISOLATED POPULATION: 1 PERCENT
NORTH COUNTY EXTENSION	LINGUISTICALLY ISOLATED POPULATION: 2 PERCENT
COUNTY BOUNDARY	MINORITY POPULATION
STATE BOUNDARY	LOW INCOME POPULATION

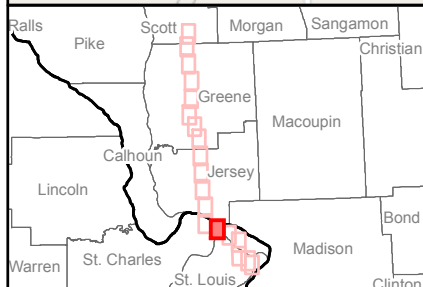
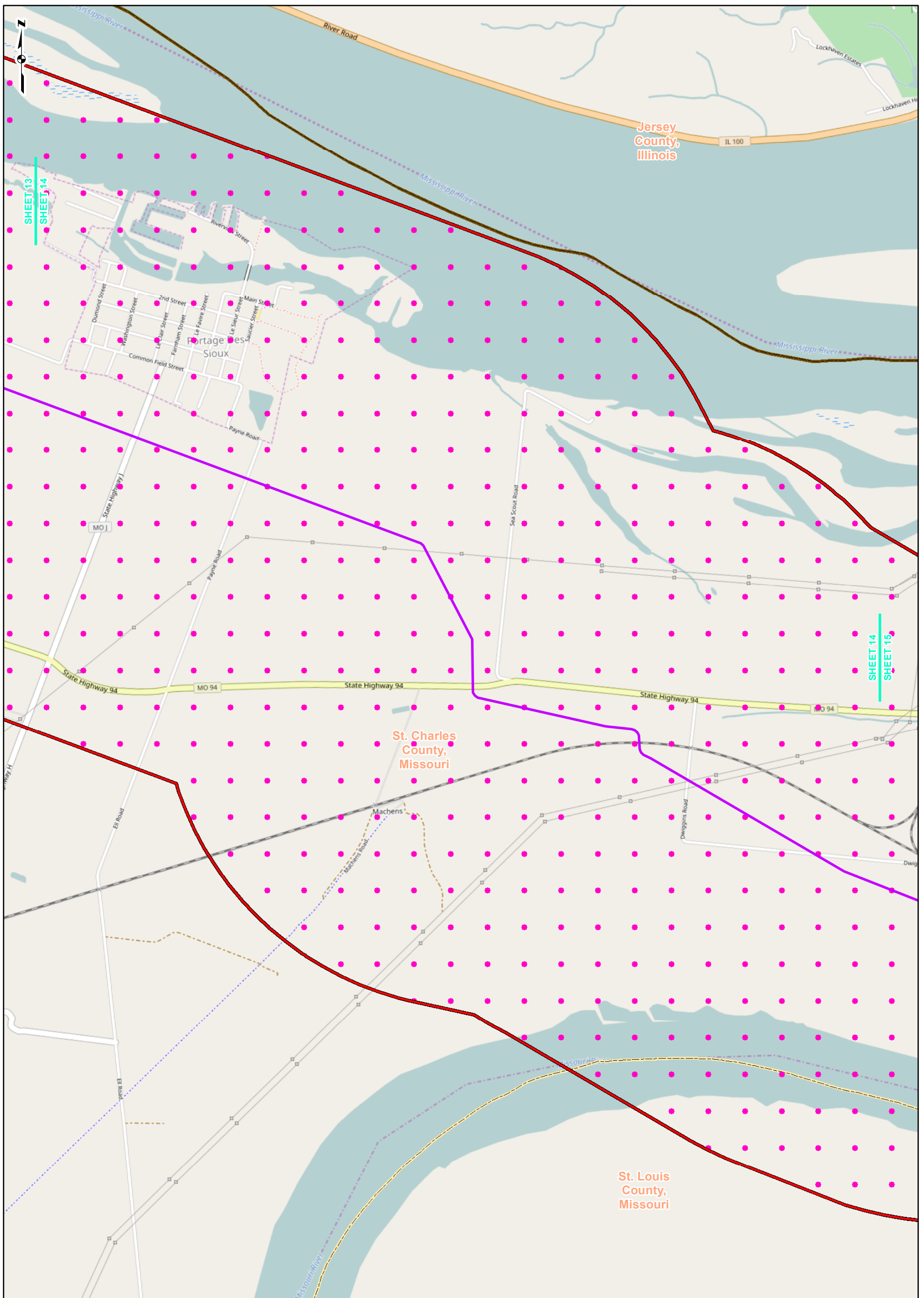
0 750 1,500 3,000
Feet

FIGURE 5.2-1
AREAS OF THE AFFECTED ENVIRONMENT WITH ENVIRONMENTAL JUSTICE POPULATIONS
SHEET 13 OF 19

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ABOVE GROUND FACILITY	AFFECTED ENVIRONMENT
24-INCH PIPELINE	LINGUISTICALLY ISOLATED POPULATION: 1 PERCENT
NORTH COUNTY EXTENSION	LINGUISTICALLY ISOLATED POPULATION: 2 PERCENT
COUNTY BOUNDARY	MINORITY POPULATION
STATE BOUNDARY	LOW INCOME POPULATION

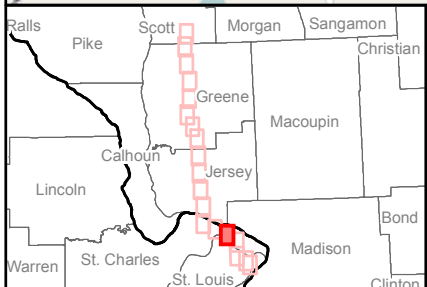
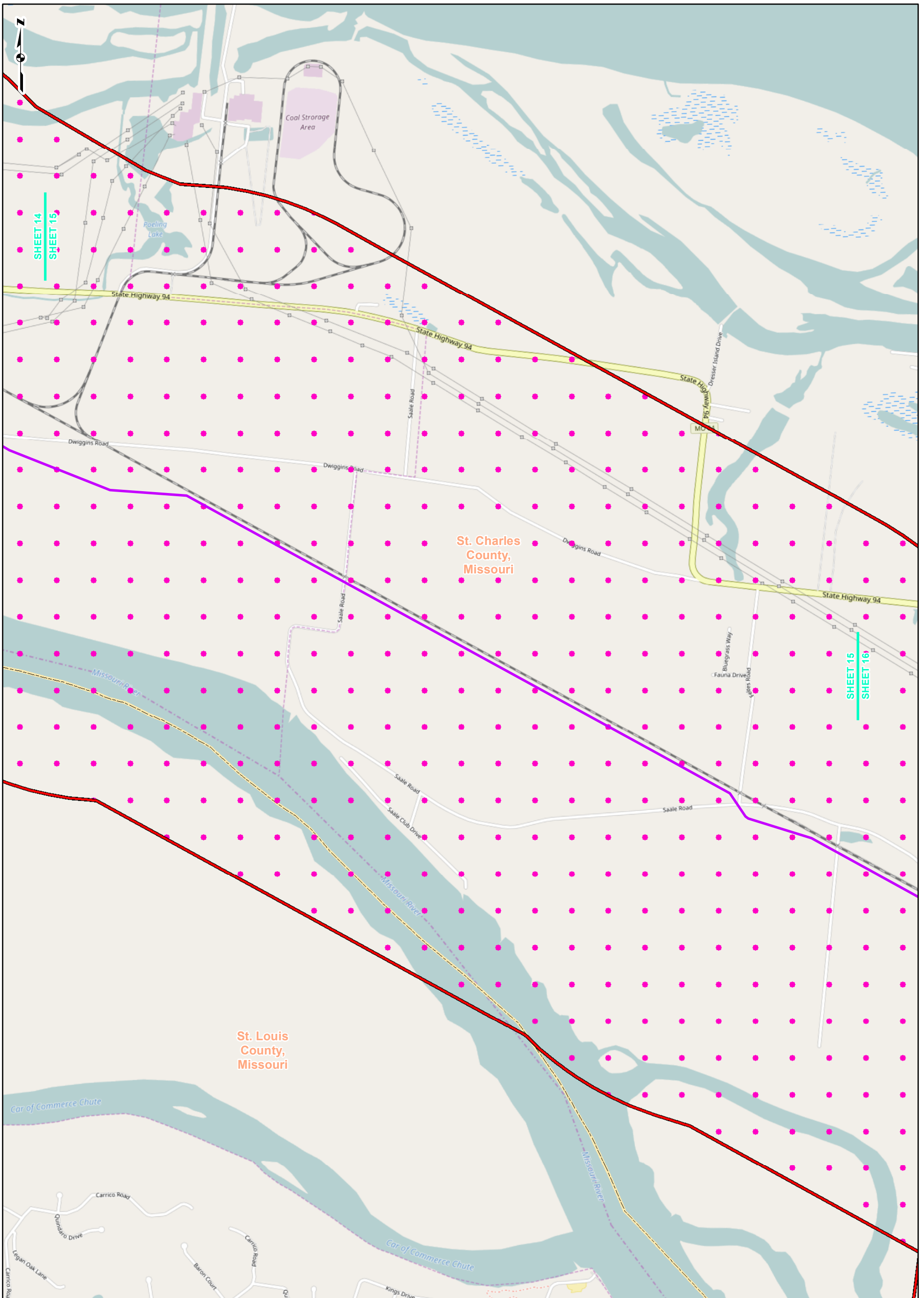
0 750 1,500 3,000 Feet

FIGURE 5.2-1
AREAS OF THE AFFECTED ENVIRONMENT WITH ENVIRONMENTAL JUSTICE POPULATIONS
SHEET 14 OF 19

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ABOVE GROUND FACILITY	AFFECTED ENVIRONMENT
24-INCH PIPELINE	LINGUISTICALLY ISOLATED POPULATION: 1 PERCENT
NORTH COUNTY EXTENSION	LINGUISTICALLY ISOLATED POPULATION: 2 PERCENT
COUNTY BOUNDARY	MINORITY POPULATION
STATE BOUNDARY	LOW INCOME POPULATION

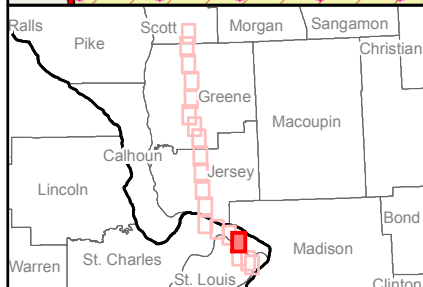
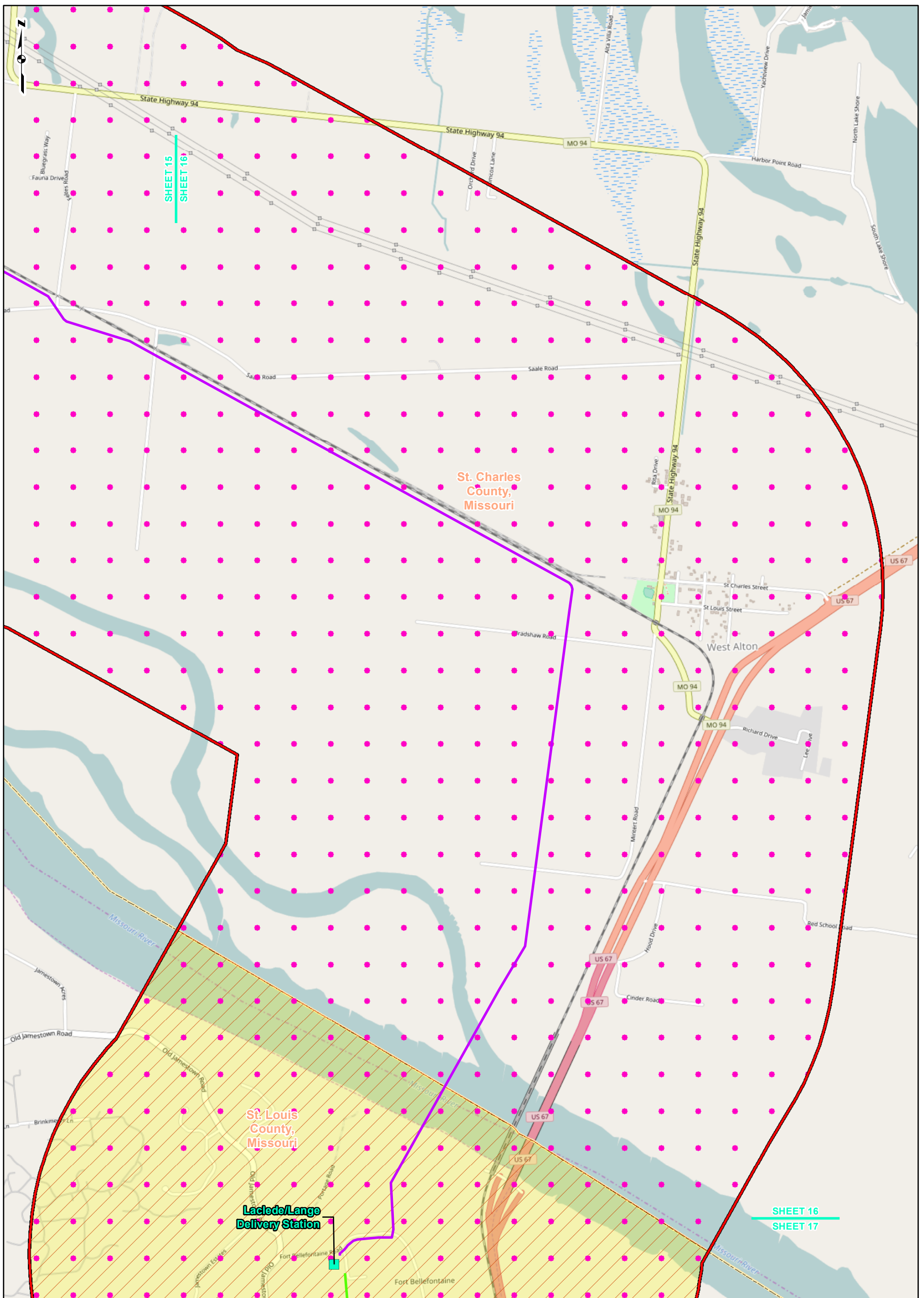
0 750 1,500 3,000
Feet

FIGURE 5.2-1
AREAS OF THE AFFECTED ENVIRONMENT WITH ENVIRONMENTAL JUSTICE POPULATIONS
SHEET 15 OF 19

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- ABOVE GROUND FACILITY
- 24-INCH PIPELINE
- NORTH COUNTY EXTENSION
- COUNTY BOUNDARY
- STATE BOUNDARY
- AFFECTED ENVIRONMENT
- LINGUISTICALLY ISOLATED POPULATION: 1 PERCENT
- LINGUISTICALLY ISOLATED POPULATION: 2 PERCENT
- MINORITY POPULATION
- LOW INCOME POPULATION

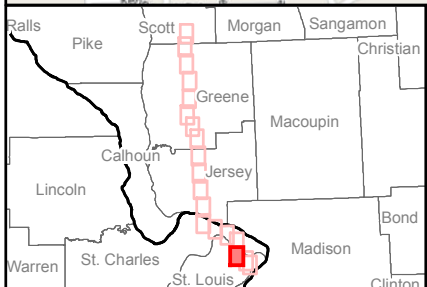
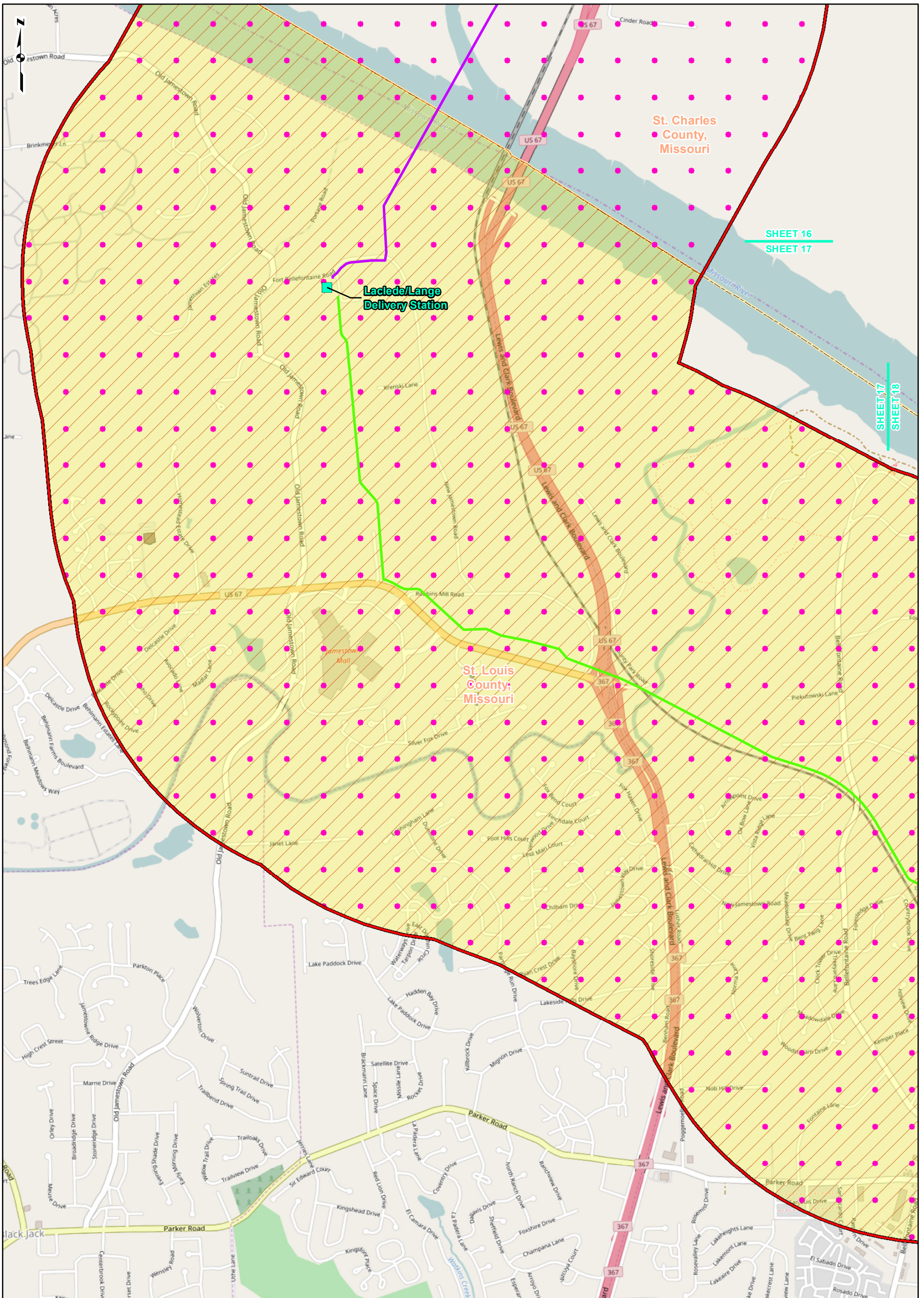
0 750 1,500 3,000
 Feet

FIGURE 5.2-1
AREAS OF THE AFFECTED ENVIRONMENT WITH ENVIRONMENTAL JUSTICE POPULATIONS
SHEET 16 OF 19

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LEGEND

- ABOVE GROUND FACILITY
- 24-INCH PIPELINE
- NORTH COUNTY EXTENSION
- COUNTY BOUNDARY
- STATE BOUNDARY
- AFFECTED ENVIRONMENT
- LINGUISTICALLY ISOLATED POPULATION: 1 PERCENT
- LINGUISTICALLY ISOLATED POPULATION: 2 PERCENT
- MINORITY POPULATION
- LOW INCOME POPULATION

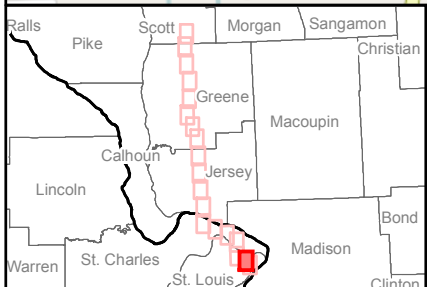
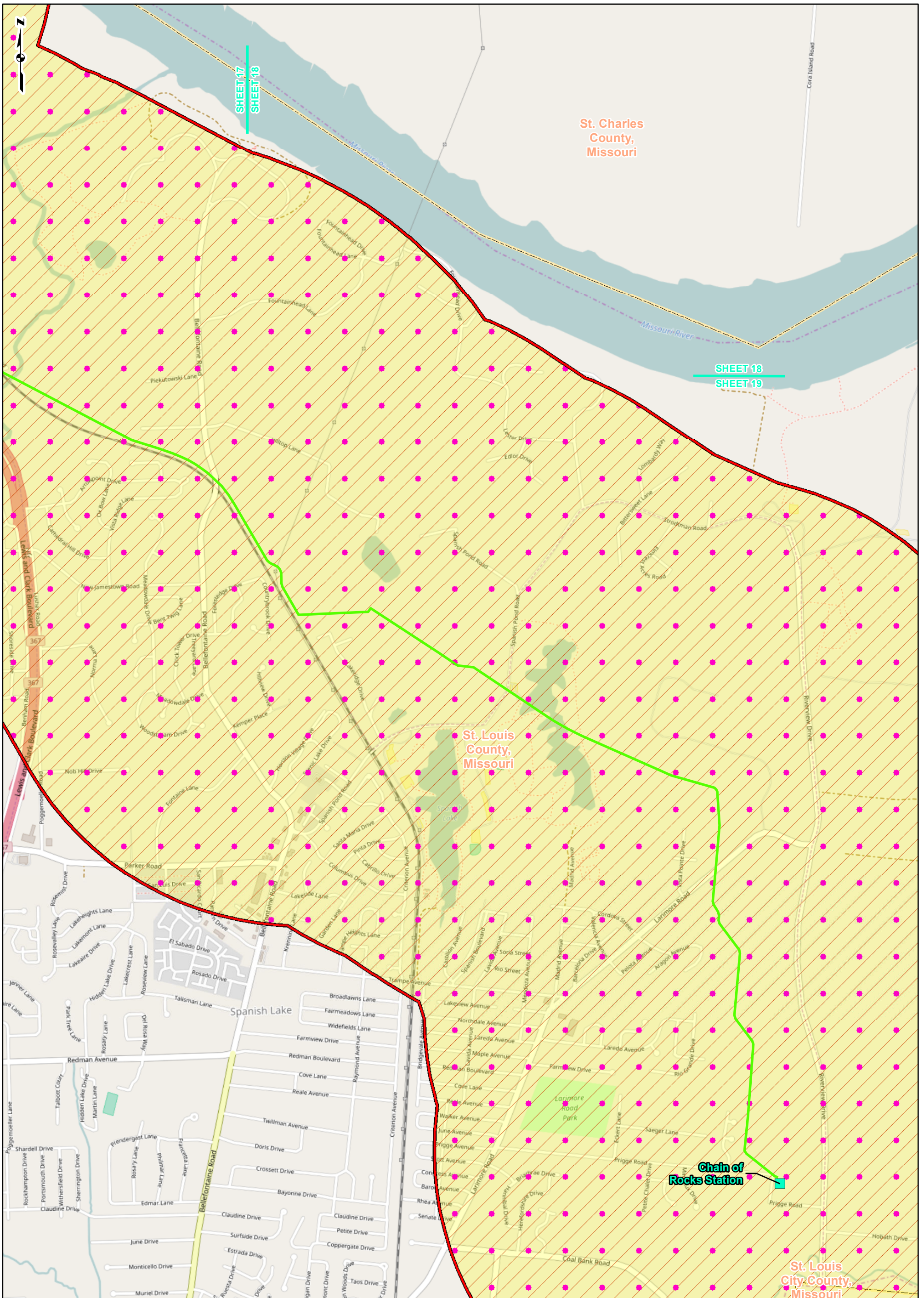
0 750 1,500 3,000
Feet

FIGURE 5.2-1
AREAS OF THE AFFECTED ENVIRONMENT WITH ENVIRONMENTAL JUSTICE POPULATIONS
SHEET 17 OF 19

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LEGEND

- ABOVE GROUND FACILITY
- 24-INCH PIPELINE
- NORTH COUNTY EXTENSION
- COUNTY BOUNDARY
- STATE BOUNDARY
- AFFECTED ENVIRONMENT
- LINGUISTICALLY ISOLATED POPULATION: 1 PERCENT
- LINGUISTICALLY ISOLATED POPULATION: 2 PERCENT
- MINORITY POPULATION
- LOW INCOME POPULATION

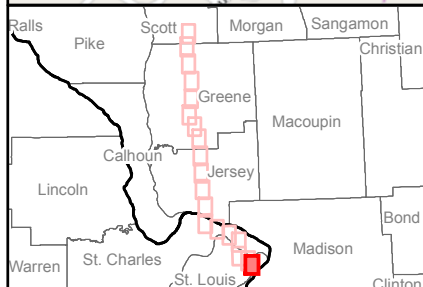
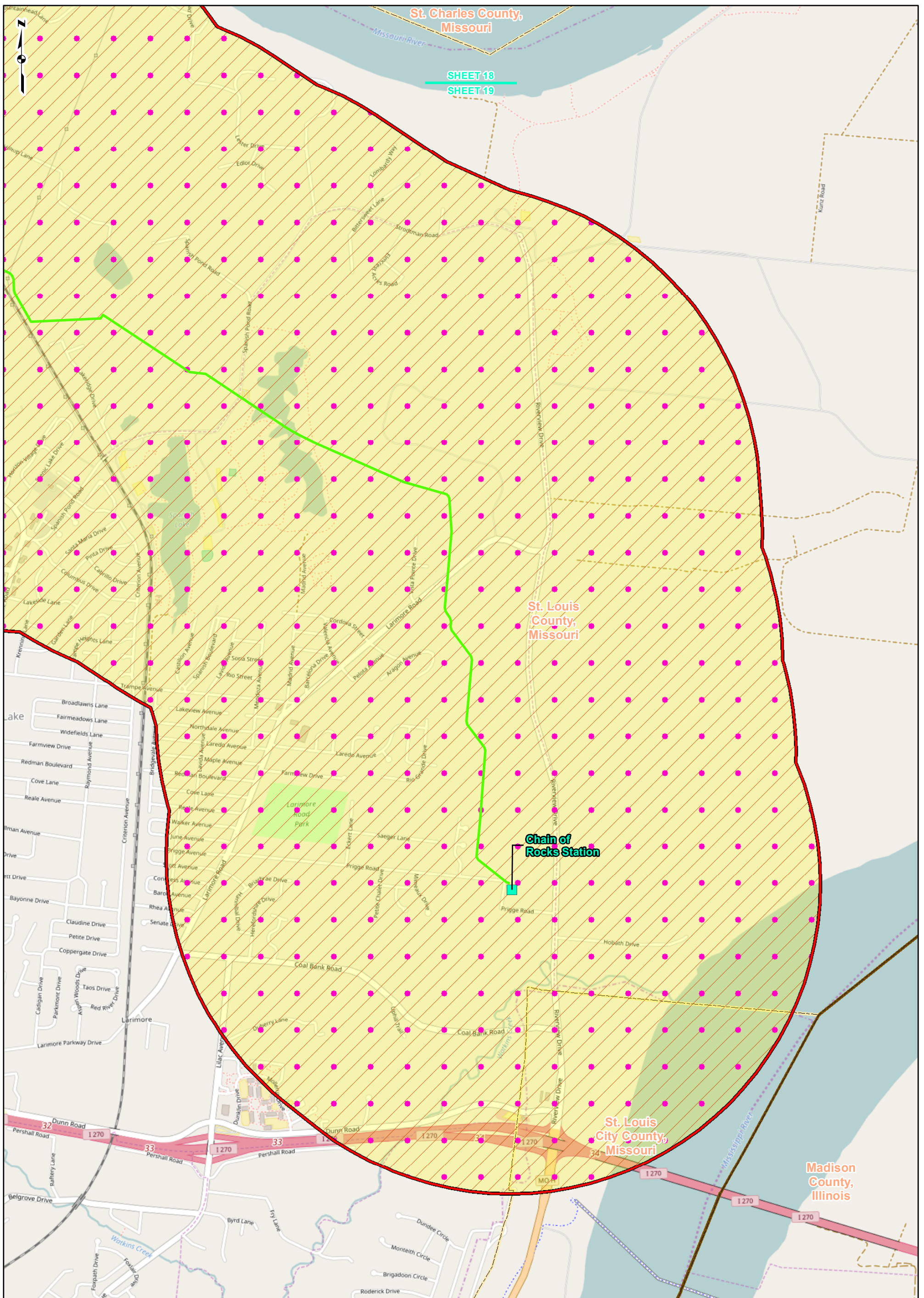
0 750 1,500 3,000
Feet

FIGURE 5.2-1
AREAS OF THE AFFECTED ENVIRONMENT WITH ENVIRONMENTAL JUSTICE POPULATIONS
SHEET 18 OF 19

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LEGEND

ABOVE GROUND FACILITY	AFFECTED ENVIRONMENT
24-INCH PIPELINE	LINGUISTICALLY ISOLATED POPULATION: 1 PERCENT
NORTH COUNTY EXTENSION	LINGUISTICALLY ISOLATED POPULATION: 2 PERCENT
COUNTY BOUNDARY	MINORITY POPULATION
STATE BOUNDARY	LOW INCOME POPULATION

0 750 1,500 3,000 Feet

FIGURE 5.2-1
 AREAS OF THE AFFECTED ENVIRONMENT WITH ENVIRONMENTAL JUSTICE POPULATIONS
 SHEET 19 OF 19

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