APPENDIX A
SCOPING SUMMARY, SCOPING COMMENTS, KEY DOCUMENTS, NOTICES, AND PUBLIC COMMENT DOCUMENTS

Appendix A-1
CPO Purpose and Need Factors

A-1 CPO Purpose and Need Factors

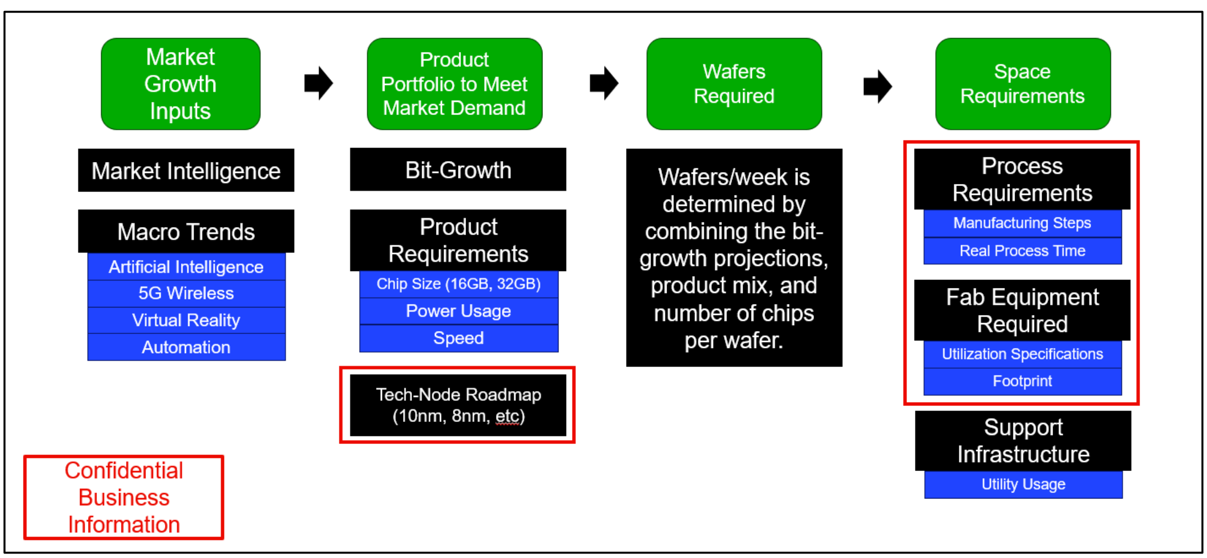
As described in Section 1.1.1, the Department of Commerce's funding award for a semiconductor memory facility is based on two factors: (1) the amount of cleanroom space that would be required to achieve an economically viable domestic memory chip output sufficient to meet U.S. economic and national security objectives, based on economic modeling; and (2) by extension, the amount of total building area and site configuration that would be required to support that cleanroom space, accounting for technological, logistical, and cost considerations.

A-1.1 Cleanroom Space

Based on the economic modeling that Micron submitted in support of its CHIPS application, the Department of Commerce determined that Micron would need to construct 2.4 million sq. ft. of cleanroom space capable of producing an average~~the short-term manufacture~~ of ~~13,000 DRAM wafers per week starting in 2028 and increasing to~~ 52,000 wafers per week over the life of the project~~by 2045~~ to achieve the level of domestic memory chip output sufficient to meet U.S. economic and national security objectives.

This output and associated cleanroom space requirement is based on Micron's sources and uses information submitted in support of its CHIPS application, including economic modeling and estimates that Micron prepares as part of its annual long-range SNOP process. Micron uses its SNOP process to forecast overall memory sector market growth based on market intelligence, macro trends from new technologies such as AI, virtual reality, 5G wireless proliferation, and many other factors. Based on its product mixes and technological capabilities, such as the number of bits it can manufacture per wafer, Micron then determines how many wafers would be required to meet DRAM market demand, which in turn determines the cleanroom space required to meet that demand. Figure A-1 illustrates the SNOP process.

Figure A-1 Micron Long Range SNOP Process



Source: Micron Technology.

The economic modeling in Micron's SNOP process analyzes key market trends. In the semiconductor industry, one key trend is the continuous effort to develop chips based on increasingly smaller (e.g., nanoscale) "technology nodes" enabled by advancements in semiconductor manufacturing technology.[1] As technology nodes become smaller typically every 18 to 24 months, more processing steps are required per wafer due to increased manufacturing complexity. This results in both longer processing times per wafer and the need for additional, highly complex, space-consuming, and expensive semiconductor manufacturing equipment or "tools," which in turn require more cleanroom space.

Therefore, as reflected in historic data and information from the research and development processes of Micron and other manufacturers, as technology advances, the number of wafers that can be produced per square foot of cleanroom space declines, necessitating more cleanroom space. Micron's modeling also considers that, as technology advances and technology nodes become smaller, the amount of data stored per wafer (measured in bits) increases, which further drives longer processing times per wafer, manufacturing complexity, the need for additional tools, and requirements for more cleanroom space.

Micron's ability to achieve a target DRAM wafer output and successfully align its investment planning and product optimization with that output thus depends on the ability to effectively model and forecast memory chip demand based on the above technical considerations. The economic and commercial viability of Micron's planned facilities depends in part on Micron's ability to analyze how trends in declining wafer production per square foot of cleanroom space and increasing data storage per wafer affect overall operational capacity and efficiency, so that Micron can align its production capacity with future market growth and competition.

Micron gathers market intelligence from a variety of sources, including industry publications and engagement with customers. The Boston Consulting Group (BCG) and the Semiconductor Industry Association (SIA) estimate that the United States accounts for 25 percent of global memory chip demand, and that 911 percent of the global memory chip output is consumed by applications that are critical to U.S. economic and national security (Varas et al., 2021), including defense, aerospace, telecommunications, energy, medical equipment, and other applications. As noted in Section 1.1.1, because Micron currently manufactures all DRAM produced in the United States, but that output is less than one percent of global DRAM production, the United States memory chip supply chain is largely dependent on production in East Asia, which leaves the United States exposed to geopolitical tensions and large-scale supply interruptions, which could impair access to suppliers or customers.

To expand domestic DRAM production, Micron has first looked to expansion and modernization of their existing domestic facilities. The expansion at the Virginia site is focused on the automotive, aerospace, defense and industrial markets, and does not offset any of the DRAM and HBM chips planned to be manufactured in New York. The ongoing expansion at Micron's HQ and R&D facility in Idaho to include high volume DRAM production will satisfy the short-term domestic needs for DRAM chips but will be inadequate to satisfy projected growth leaving

[1] A technology node is the smallest manufacturable feature size on a chip, typically measured by transistor gate length, often in nanometers (nm). As the technology node size shrinks, more transistors can be packed into a given area, improving performance.

the United States again dependent on production in East Asia over the next decade. The expansion of HVM in Idaho is also possible due to colocation benefits with R&D.

The 2.4 million sq. ft. of additional cleanroom space that would be needed to achieve the level of domestic memory chip output sufficient to meet U.S. economic and national security objectives described above is based on historical investment data showing that DRAM memory chip manufacturing requires, on average, approximately 2.05 times the capital intensity of logic chip manufacturing (Yoon, 2021), which drives memory cleanroom size. In general, an economically viable logic operation requires approximately 300,000 sq. ft. of cleanroom space, and the typical memory operation requires approximately 600,000 sq. ft. of cleanroom space. Based on these factors and technical constraints relating to bit-growth per wafer and step-growth per wafer from new technology nodes, achieving the necessary level of DRAM output requires a total of 2.4 million sq. ft. of cleanroom space.

In addition, growth trends in logic fabs also drive growth trends in memory fabs. In their 2021 report, "Strengthening the Global Semiconductor Value Chain," BCG and SIA specifically noted that "covering the expected domestic consumption of advanced logic chips for critical infrastructure applications by 2030 would require building . . . 2-3 new state-of-the-art [logic] fabs in the U.S." (Varas et al., 2021). The Department of Commerce factored in this domestic need for logic chip production in the context of a separate CPO award to TSMC Arizona Corporation to construct three leading-edge logic fabs in Arizona with 900,000 sq. ft. of cleanroom space.[2] Because on-shoring of logic chip production is anticipated to drive domestic growth of products requiring logic chips that also will require memory chips,[3] 2.4 million sq. ft. of cleanroom space is in keeping with the projected capital intensity needed to on-shore memory chip production at pace with logic chip production.

A-1.2 Co-Location at Sufficient Scale

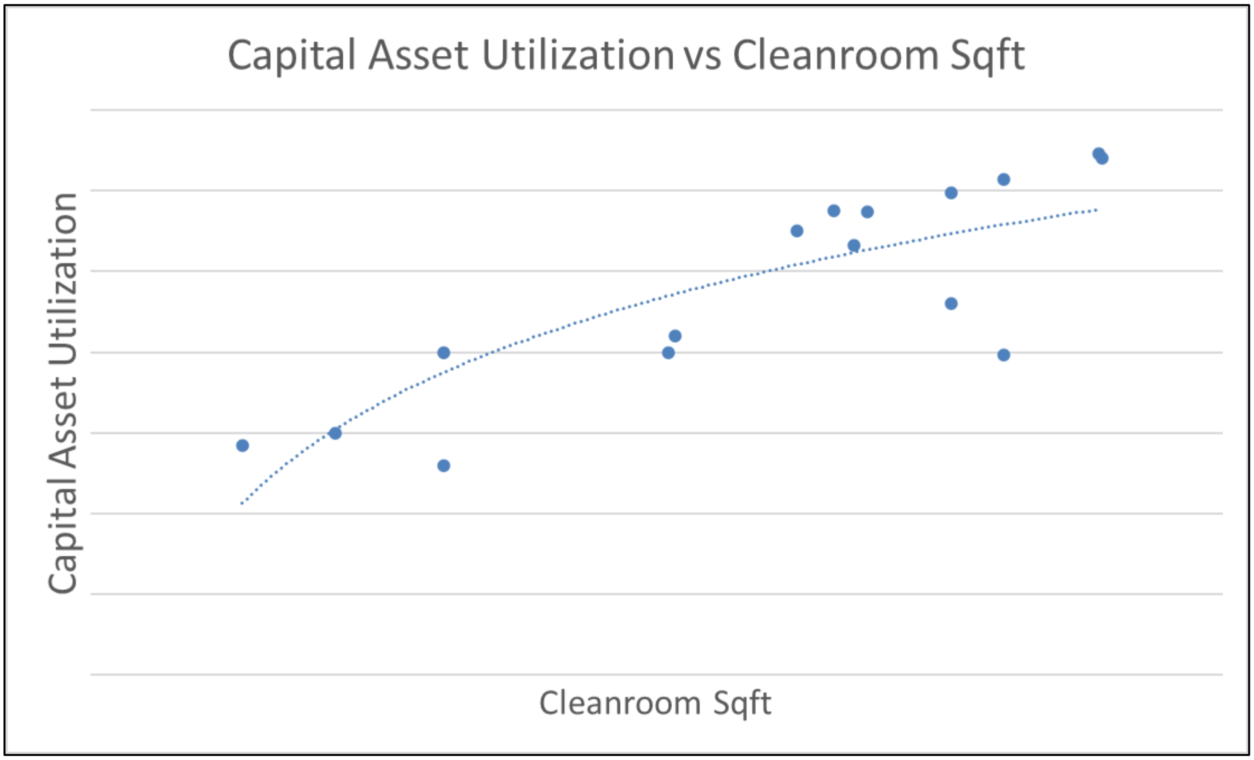
As noted above, cleanroom space is the primary driver of semiconductor facility size requirements. However, a key related requirement is the need to accommodate such large amounts of cleanroom space with sufficient supporting infrastructure and utilities, accounting for technological, logistical, and cost considerations. As noted in Section 1.1.1, to be economically viable, large-scale semiconductor facilities need to be simultaneously: (a) large enough to achieve a utilization rate of their expensive facility infrastructure capable of justifying their capital expenditures, known as the CAU rate; and (b) compact enough with buildings efficiently designed to meet precise sizing, engineering, and interoperability specifications while minimizing overall building, utility, and equipment costs.

[2] *See* U.S. Department of Commerce, "Biden-Harris Administration Announces CHIPS Incentives Award with TSMC Arizona to Secure U.S. Leadership in Advanced Semiconductor Technology" (Nov. ~~15, 2024),~~ https://www.commerce.gov/news/press-releases/2024/11/biden-harris-administration-announces-chips-incentives-award-tsmc15, 2024), ; See also Arizona Commerce Authority, "President Trump, TSMC Announce $100 Billion Investment in Arizona" (Mar. 3, 2025), https://www.azcommerce.com/news-events/news/2025/3/president-trump-tsmc-announce-100-billion-investment-in-arizona/~~.~~

[3] Logic chips are primarily designed to perform complex logical operations and execute instructions for programmable devices that rely on them; memory chips are primarily responsible for storing and retrieving data for such devices.

Although it would not cost more money, narrowly construed, to build only two or three fabs as opposed to four, a campus limited to two or three fabs would have a higher *per wafer cost* due to lower scale and production efficiencies. The incremental wafer cost would be higher at a 2-fab facility than a 4-fab facility. Put differently, to avoid a higher per wafer cost, semiconductor facilities must take advantage of larger economies of scale. The CAU rate is one measurement of this requirement and reflects the utilization rate of advanced semiconductor manufacturing equipment, weighted by cost. (For example, the average privately owned car is used only at certain times, to drive to work, the store, etc., whereas a taxi, which operates more continuously, has a much higher utilization rate.) In semiconductor manufacturing, the CAU rate increases with cleanroom square footage, as larger fabs enable more efficient equipment use (see Figure A-2).

Figure A-2 Capital Asset Utilization vs. Cleanroom Square Footage



Source: Micron Technology.

Micron estimates that with only two fabs instead of four, its CAU rate would be approximately 6.7 percent lower. This lower utilization rate would reflect the less efficient use of resources from operating fewer fabs with the same expensive equipment, which would result in a higher production cost per wafer. Specifically, Micron estimates that an additional up-front investment of approximately $3.3 billion would be necessary to achieve the same output needed to meet the Department of Commerce's goals with fewer fabs, due to the less efficient economies of scale and lower CAU rate that approach would create.[4]

Building a large campus with four fabs would require co-locating the fabs in a precise site configuration to ensure adequate cost controls for economic viability. Memory is a commodity that is built to precise standards (such as the Joint Electron Device Engineering Council (JEDEC) standards) and is designed to be pin-compatible, enabling customers to easily substitute one supplier's product for another. This high level of interchangeability creates a highly competitive market. When combined with the cyclical nature of the semiconductor industry, which includes periods of operating at a loss, this combination reinforces the principle that controlling cost is paramount. Strict cost control is therefore essential for long-term viability. Co-locating cleanroom space in multiple fabs on a single site to reduce both the fixed cost per wafer produced and the average operating cost per wafer has become a demonstrated cost control strategy in the industry. In the context of the Proposed Project, and as shown in Table A-1 below, co-locating four fabs on a single site is necessary to avoid cost impacts that could prevent the campus from achieving economic viability.

Table A-1 Cost Impacts of Building Fewer Than Four Fabs

Requirement	Description	Est. Cost Impact
Electrical Infrastructure	Each fab would use approximately 400 MW of electricity, which would require very large copper cables from the Clay Substation to the fabs. This cost is projected to remain high as the world electrifies transportation and builds out renewable energy solutions. By locating all four fabs at the WPCP across the road from the Clay Substation, Micron would be able to control these high transmission costs.	$50 million (approx. $5,000 per linear foot)
Lighting Strike Protection	One of the most damaging events to a semiconductor operation is the loss of power, even a short loss measured in seconds.[5] The Clay Substation has invested $150 million to install lightning protection over the past five years. If Micron built some of the fabs elsewhere, Micron would need to invest $150 million to ensure adequate lightning protection.	$150 million
Water	By locating all four fabs at the WPCP, and with installation of the proposed OCWA water supply system upgrades discussed in this EIS, Micron would be able to ensure an adequate water supply for Fabs 1 and 2 using as much existing infrastructure as possible.	Estimate not available
Capital Equipment	As described above, Micron estimates that achieving the required memory chip output with a lower CAU rate from operating fewer fabs with the same expensive semiconductor manufacturing	$3.3 billion

[4] This calculation is not applicable to the Virginia or Idaho expansions. The Virginia expansions is occurring within an already built clean room space that is underutilized. The Idaho facility is collocated with Micron's existing HQ and R&D facility and can share existing assets, making the expansion costs more favorable than the cost identified in Table A-1.

[5] In 2019, a major semiconductor manufacturer in Japan experienced a 13-minute power outage due to a lightning strike on its electrical infrastructure. The outage impacted approximately 25 percent of the company's output for the quarter, a material event financially for the company resulting in an estimated loss of $250 million.

	equipment would require $3.3 billion in additional capital investment.	
Transportation	The WPCP is conveniently located near a major highway and is a short drive (20 minutes) from Syracuse. In comparison, STAMP is two times farther from I-90 and twice as far from a major metro area (Buffalo).	Estimate not available
Total Estimated Impact: $3.5 billion (approx.)		

Source: Micron Technology

References

Varas, A., Varadarajan, R., Goodrich, J., & Yinug, F. (2021). *Strengthening the global semiconductor value chain*. Boston Consulting Group & Semiconductor Industry Association. https://web-assets.bcg.com/9d/64/367c63094411b6e9e1407bec0dcc/bcgxsia-strengthening-the-global-semiconductor-value-chain-april-2021.pdf

Yoon, J. K. (2021). *Foundry to account for 35% of chip spending in 2021*. The Elec. https://thelec.net/news/articleView.html?idxno=3684.

Appendix A-2
Final SEQRA Scope

Appendix A-3
Summary of NEPA Scoping Comments

A-3 Summary of NEPA Scoping Comments

As noted in Section 1.3.2, a NEPA scoping period was held from March 5 to April 5, 2024, and a public scoping meeting was held on March 19, 2024. Commenters at the scoping meeting included Federal, State, and local agencies, non-government organizations, and members of the public. Overall, 113 commenters, including 102 individuals, provided input during the scoping period. As shown in Table A-2, a total of 438 individual comments were received across various categories. This section summarizes the comments received by category.

Table A-2 Summary of Scoping Comments by Category

Category	Comments
NEPA Process Generally	73
Land Use, Zoning, and Public Policy	9
Geology, Soils, and Topography	13
Water Resources	99
Biological Resources	43
Historic and Cultural Resources	7
Air Quality	21
Greenhouse Gases and Climate Change	12
Solid Waste, Hazardous Waste, and Hazardous Materials	21
Human Health and Safety	14
Utilities and Supporting Infrastructure	22
Transportation and Traffic	36
Noise and Vibration	8
Socioeconomic Conditions	32
Environmental Justice	2
Miscellaneous	26
Total	**438**

NEPA Process Generally

Seventy-three commenters provided comments on the NEPA process. USEPA suggested the use of the NEPAssist tool to facilitate the environmental review process. Most commenters in this category requested that the EIS analyze all potential environmental effects. Some commenters requested additional consultation with local indigenous communities and nearby municipalities. Some commenters expressed concern about the lack of transparency in the semiconductor industry in general. One commenter stated that the current environmental process is sufficient. One commenter highlighted the importance of fully applying the guidance in CPO’s Programmatic Environmental Assessment for Modernization and Internal Expansion of Existing Semiconductor Fabrication Facilities under the CHIPS Incentives Program.

Three commenters provided comments on indirect and cumulative effects. USEPA recommended consideration of direct, indirect, and cumulative effects, analysis of effects of both the Proposed Project and other announced or planned projects in the area, analysis of effects on communities that may be experiencing existing pollution or health burdens.

Other commenters noted the existence of other projects within the vicinity of the Proposed Project, such as the Interstate 81 urban corridor redevelopment project, which required lengthy analysis of traffic modeling. These commenters suggested that the EIS include updated regional traffic and air pollution models, with detailed analysis of the Proposed Project's effects on traffic in Syracuse. Commenters also recommended the consideration of cumulative effects on sewers, water usage, power, emergency services, schools, roads, air quality, and water quality.

Seven commenters provided comments relating to alternatives to the Proposed Project. Some commenters suggested siting the proposed Micron Campus elsewhere to decrease potential environmental, community, and traffic impacts; one commenter recommended siting the Micron Campus in downtown Syracuse or at one of several unused remediated industrial sites with existing utilities and infrastructure. Some commenters suggested that the Micron Campus and alternatives include features such as permeable parking lots and ecological landscaping techniques to reduce potential effects on wildlife. One commenter suggested that alternatives only be partially implemented to reduce potential effects.

Twenty-seven commenters provided comments on mitigation measures and monitoring. These commenters highlighted the need for a comprehensive and transparent discussion on mitigation and monitoring measures in the EIS, particularly regarding potential effects relating to wetlands and traffic. Many commenters expressed concern that wetland mitigation measures may not be sufficient or could lead to adverse effects. Commenters stated that the scope of current plans for wetland mitigation should be expanded to include wetlands outside the immediate project area and that there is a potential for the wetland mitigation measures to adversely affect nearby landowners due to displaced water.

Many commenters requested that the government agencies reviewing the Proposed Project ensure that stated mitigation measures are fully planned and implemented prior to the commencement of construction. Some commenters stated there should be permitting and monitoring efforts to reduce the potential effects of environmental releases.

Three commenters requested accessible public meetings that members of the public could reasonably attend after normal working hours, accommodations for non-English speakers, and virtual attendance methods. Commenters requested assurances that Micron would fulfill commitments to provide financial assistance to the City of Syracuse to address poverty. Commenters also stated that agencies should recognize the public's right to know about Proposed Project effects, the permits it would require, and how and when comments could be made on the EIS. The commenters recommended that agencies publish a schedule of opportunities for public participation for permit processes associated with the Proposed Project.

Land Use, Zoning, and Public Policy

Nine commenters provided comments on land use. Some commenters expressed concerns that the Proposed Project area contains prime agricultural land and historic properties that would be permanently impacted if the Proposed Project is implemented. Others indicated concern over the planned development of the land based on the potential environmental effects of filling wetlands and streams. Some commenters suggested increasing the amount of green space on the proposed Micron campus, while others suggested that Micron purchase land elsewhere that could be converted to green space as a land exchange. Some commenters also expressed concerns about potential effects on residentially zoned areas adjacent to the project area.

Geology, Soils, and Topography

Seven commenters provided comments on geology, topography, and soils. Commenters were generally concerned over potential pollution of the soil as a result of facility construction and operation, particularly related to heavy metals, PFAS, and other chemical contamination. One commenter expressed concerns about potential soil impacts due to excavation.

Six commenters provided comments on construction methods and impacts. Commenters recommended utilizing green construction practices whenever possible, including recycling of construction materials for both use and disposal, environmentally friendly landscaping, green infrastructure, and incorporation of energy-efficient technologies. Commenters requested that green construction include permeable pavement on all hardened surfaces because the facility would be built in a wetland area. Commenters further inquired if Micron would seek a SITES certification for sustainable landscapes, which would entail the creation of landscapes to help reduce water demand, conserve or restore natural resources, provide wildlife habitat, reduce energy consumption, and promote human health and wellbeing.

Commenters also expressed concern relating to the effects of construction processes and equipment on the site. Commenters stated that significant volumes of concrete may affect the water table, and that the drainage of the site should be considered. Commenters stated that there should be a construction plan to mitigate the potential effects of construction fill on the site's water table and drainage, and of construction vehicle traffic on surrounding residential areas.

Water Resources

Fifty-seven commenters provided comments on water resources, water quality, and flooding in and near the Proposed Project area. Commenters were broadly concerned with the potential for negative effects from facility wastewater, stormwater runoff, and potential leaks or spills on the water quality of water resources, including Oneida Lake, nearby streams, and other water bodies. Commenters expressed concerns about potential flooding due to water displaced by the facility from the filling of water bodies and runoff from impervious surfaces, such as parking lots. Commenters also expressed concerns about short- and long-term adverse effects on nearby residences, businesses, and agriculture from potential Proposed Project-induced flooding, including sedimentation, increased turbidity, and introduction of pollutants via runoff. Some commenters expressed concerns that filling of water bodies would potentially cause floodwater to enter their properties and damage their lands or structures, and some of those commenters provided personal or historical anecdotes of flooding on their properties.

Forty-two commenters submitted comments relating to wetlands in or near the Proposed Project area. Most of these commenters expressed general concern about and opposition to the filling of wetlands, particularly related to potential flooding of nearby properties, and the loss of wildlife habitat, including for threatened and endangered species and migratory birds. Many commenters stated that wetlands are essentially irreplaceable and expressed concerns that compensatory mitigation for filled wetlands would not sufficiently replace them or the habitat and ecosystem services they provide. Many commenters also expressed concerns about the potential for pollutants to leach into wetlands outside of the Proposed Project area. Some commenters requested that the EIS analyze wetlands outside of the immediate vicinity of the Proposed Project area. One commenter indicated that USACE should not permit Micron to fill the proposed acreage of wetlands and should instead consider permitting fill of a substantially smaller acreage of wetlands.

Biological Resources

Forty-three commenters provided comments relating to biological resources, including threatened and endangered species, other terrestrial wildlife, migratory birds, and vegetation and habitat in and near the Proposed Project area. Many commenters expressed concerns about potential adverse effects on wildlife from noise and light pollution from construction and operation of the proposed Micron Campus. Several commenters expressed opposition to the amount of vegetation and wildlife habitat that would be cleared for construction.

A majority of these 43 commenters expressed concerns about potential effects on Indiana and northern long-eared bats from habitat loss that would be expected to occur within the Proposed Project area and vicinity. Some commenters expressed concerns about proposals to relocate bat populations. Additional commenters raised concerns about potential effects on protected bird species in the area. Other commenters expressed concerns that planned habitat mitigation measures would not be sufficient to protect threatened and endangered species or concerns with an overall lack of mitigation planning in general.

Commenters in this category generally also commented on potential effects on wildlife from the loss of wetland and grassland habitat. Commenters expressed concern that Micron's plan to minimize the effects on habitat would be inadequate and suggested that there should be a mitigation program to analyze the effects of construction in wetlands, including on adjacent uplands. Commenters also stated that Micron should engage in wildlife relocation efforts. Commenters stated that the loss of grassland habitat would affect the 11 species of grassland birds in New York State that require grasslands for breeding and wintering. One commenter noted that historic habitat degradation has had little impact on New York State's wildlife and expects the Proposed Project to have no significant effects on wildlife.

Additional comments related to other potential Proposed Project effects on wildlife from construction activities, noise and light pollution, wastewater, and water use. One commenter requested the preparation of studies of these effects, and effects from loss of open space and increased human activity within the proposed Micron Campus, on wildlife. Commenters also requested disclosure of effects of wastewater discharges and water intakes on shoreline vegetation, aquatic organisms, fish, and other lake-dependent wildlife.

Five comments expressed concerns about potential effects of wetlands and grasslands habitat removal on migratory birds. The commenters stated that wetlands and grasslands play a vital role in supporting birds during migration and expressed concerns about potential effects on migratory birds from facility light pollution and the risk of bird strikes once the buildings are completed.

Historic and Cultural Resources

Seven commenters expressed concerns relating to potential effects on properties considered to have historic importance at or near the Proposed Project site, including a cemetery, older residences, and potential indigenous burial sites. Other commenters expressed concerns about potential effects on local indigenous communities, particularly the Onondaga Nation and the Oneida Indian Nation, from potential pollution of Onondaga Lake and other culturally significant water bodies in and near the Proposed Project area. Some commenters also expressed concern that the Onondaga Nation and the Oneida Indian Nation did not attend the public scoping meeting and requested that Micron invite their views and input on the Proposed Project.

Air Quality

Twenty-one commenters expressed concerns about potential air pollution from facility chemical use (including PFAS) and incineration, and from increased traffic. Commenters stated that there should be careful monitoring and regulation of air emissions associated with the Proposed Project. Commenters requested the use of modeling to estimate potential air emissions from the proposed Micron Campus and from Proposed Project-related traffic, and that these estimates be made publicly available. One commenter requested that USACE develop a more comprehensive action plan to mitigate air pollution.

Greenhouse Gases and Climate Change

Twelve commenters provided comments on GHGs and climate change. Some commenters expressed general concerns about potential individual and cumulative effects from the Proposed Project on climate change. Commenters expressed concerns about potential effects on climate change from chemical and gas releases and a large projected water consumption rate. Some commenters stated that there should be more discussion of the GHG emissions mitigation technology that Micron plans to use, including for fluorinated gases. Several commenters requested that Micron implement green energy solutions to mitigate the Proposed Project's potential contributions to climate change, such as on-site renewable energy generation by solar or geothermal power.

Solid Waste, Hazardous Waste, and Hazardous Materials

Twenty-one commenters provided comments on chemicals, contaminants, toxics, and hazardous materials, including comments relating to PFAS. Commenters expressed concerns about potential environmental pollution from facility releases of chemicals from normal operation, hazardous waste, and waste disposal by incineration and wastewater. Commenters expressed concerns about regulatory oversight of the semiconductor industry given the range of toxic chemicals it uses. Some commenters stated that there should be a comprehensive waste management plan addressing potential worker or public chemical exposure. One commenter requested assurances that herbicides or insecticides would not be used on the proposed Micron Campus. One commenter suggested that municipalities included in the traffic study should be notified of vehicles that would transport hazardous chemicals or waste within their boundaries.

Some commenters expressed concerns about the potential use of PFAS on the proposed Micron Campus, including concerns that potential release routes for PFAS could include accidental spills during transport or handling of PFAS-containing products, incomplete combustion of PFAS during process controls on gaseous emissions, or inadequate wastewater treatment. Commenters expressed concerns that current wastewater treatment technologies would not adequately remove all PFAS, particularly short-chain compounds used in semiconductor production. The commenters requested that the EIS identify potential mitigation measures or research objectives relating to industrial wastewater. These commenters also expressed concern that current State and Federal regulations only cover two types of PFAS that have been phased out by the semiconductor industry. Other comments expressed general concerns about the longevity of PFAS once they are released to the environment and their potential adverse effects on the human and natural environment.

Human Health and Safety

Fourteen commenters provided comments on public and worker health and safety. Commenters expressed concerns about the potential for public and worker exposure to toxic chemicals, including PFAS, via air, water, and soil pollution and short- and long-term health effects from potential chemical exposure, including at a nearby school. Some commenters also expressed concerns about fair labor practices in the context of potential worker exposure to hazardous chemicals. Some commenters expressed concerns about potential terrorist acts on the Micron Campus based on its national value and proximity to New York City and stated that these factors could pose risks to public safety. Commenters suggested that employees should be trained in the potential toxicity of gases and management of potential releases. Commenters stated that additional risk management should include the planned use and storage of hazardous substances based on proximity and wind direction. One commenter recommended that Micron create Risk Management Plans for the notification of the public and first responders.

Utilities

Twenty-two commenters provided comments on utilities. Many commenters expressed concerns about the funding sources or use of tax dollars for new utility connections for the proposed Micron Campus. Commenters also expressed concerns about the size of the proposed Micron Campus and its projected electricity and water demands, and the ability of the existing utility system to prevent potential blackouts and water shortages. One commenter inquired about the potential incorporation of combined heat and power into Micron Campus building designs.

Transportation and Traffic

Thirty-six commenters provided comments on transportation and traffic in and surrounding the Proposed Project area. Commenters generally expressed concerns about the potential for increased traffic congestion as a result of the Proposed Project and additional residential and commercial development. Some commenters stated that increased traffic could result in potential air quality and noise effects. Some commenters requested the completion of additional traffic studies, particularly relating to air quality or the delivery of construction material to the Proposed Project site. One commenter expressed concern about the ability of emergency vehicles (e.g., fire engines) to travel efficiently along Caughdenoy Road in the event of potential traffic congestion from the Proposed Project. Another commenter suggested that the EIS should thoroughly discuss specific traffic mitigation measures. One commenter submitted an illustration proposing new road construction.

Noise and Vibration

Eight commenters provided comments on noise (as well as other potential nuisances such as olfactory irritation and light pollution). Commenters expressed concerns about potential quality of life effects (e.g., sleep, traffic flow) and effects on wildlife (e.g., birds) from noise pollution from operation of the proposed Micron Campus. One commenter expressed concerns about potential noise pollution from lawncare equipment and recommended the implementation of ecological landscape techniques to reduce the amount of necessary lawncare. One commenter requested construction of a traffic noise barrier. One commenter stated that the current wastewater treatment plant has an extremely unpleasant odor. Another commenter expressed concerns about potential unpleasant odors from the completed Micron facility due to chemical releases. Two commenters expressed concerns that the Micron Campus would generate light pollution during operation and from associated traffic and stated that light pollution could also have adverse effects on the quality of human life.

Socioeconomic Conditions

Thirty-two commenters provided comments relating to socioeconomic conditions. Several commenters expressed support for the Proposed Project due to the projected boost to the local economy. Many commenters expressed concerns regarding housing affordability and availability in the areas surrounding the Proposed Project due to the projected influx of Micron employees and supporting staff. Some commenters expressed concerns about effects on quality of life in the areas surrounding the proposed Micron Campus relating to potential chemical, noise, and light pollution from the construction and operation of the facility. Some commenters expressed concerns about potential effects on the local economy from the construction of supporting facilities and residences. One commenter expressed concern that products manufactured at the Micron Campus would not be used in the United States, but would be shipped overseas, and that the Proposed Project would not result in the creation of jobs for existing local residents. One commenter suggested that Micron seek employees for the new facility from within the local area, particularly the City of Syracuse, based on the city's high rate of poverty and unemployment, particularly among minority groups. One commenter suggested that the EIS discuss potential effects on property taxes.

Two commenters expressed opposition to removal of residences and potential effects on properties considered to have historic importance. One commenter expressed concerns about where homeowners who would be asked to relocate would go and who would be responsible for providing new housing. One commenter described a personal experience with losing a historical property to eminent domain.

Environmental Justice

USEPA stated that communities with environmental justice concerns should be afforded the opportunity to provide input on the NEPA process, including proposed mitigation, and encouraged the use of the EJScreen tool to identify such communities. One commenter stated that the EIS must provide an unbiased and rigorous analysis of environmental effects, including effects relating to environmental justice, and encouraged the agencies to evaluate potential air quality, climate change, water quality, and socioeconomic effects on communities with environmental justice concerns.

Miscellaneous

Twenty-six commenters raised other miscellaneous concerns:

- **Aesthetics and visual resources.** Commenters expressed concerns relating to potential effects on area aesthetics from facility construction and perceived undesirable visual elements, such as large sizes of buildings and supporting infrastructure on the proposed Micron Campus.
- **Recreation.** Three commenters stated that the EIS should consider potential effects on recreational resources in Upstate New York and the outdoor opportunities they provide. One commenter mentioned the value of Oneida Lake to fishermen and enthusiasts of boating, kayaking, sailing, swimming, and sightseeing, noting that these activities generate more than $140 million in spending and additional tax revenue.
- **Comment deadline extension requests.** Four commenters requested an extension of the public scoping comment deadline to give the public more time to provide input.
- **Support for public scoping meeting.** One commenter expressed appreciation for USACE and Micron staff based on the public scoping meeting.
- **Education and community benefits.** One commenter expressed support for the Proposed Project based on projected education and community benefits, particularly as would be provided by the proposed Childcare Center.
- **Employment interest.** One commenter expressed support for the Proposed Project and interest in future employment at the Micron Campus.
- **Information requests.** Two commenters requested copies of public scoping meeting materials.
- **Mailing list requests.** Five commenters requested to be added to the EIS mailing list to receive updates on the NEPA process.
- **Media interview requests.** One commenter requested an interview with Micron regarding the Proposed Project.
- **Project longevity.** Several commenters expressed concerns about the longevity of the Micron fabs, and associated facilities based on potential further technology advancement during the Proposed Project's 16-year construction period.
- **Independent review.** Several commenters requested that government agencies conduct independent and thorough reviews of documents associated with the Proposed Project, including the EIS, traffic and air studies, and Proposed Project facility emergency and disaster management plans.

- **Sovereign Nations.** One commenter requested that the EIS describe the process and outcomes of consultation with sovereign nations and recommended that the EIS evaluate potential downstream effects on sovereign nations, sacred sites, and areas of religious or cultural significance. The commenter stated that CPO should ensure that the Proposed Project avoids or includes plans to mitigate effects on such sacred sites.
- **Compliance with Executive Order 14008.** One commenter inquired about compliance with Section 216 of E.O. 14008, Tackling the Climate Crisis at Home and Abroad, which requires Federal agencies to recommend steps to achieve the goal of conserving at least 30 percent of U.S. lands and waters by 2030.

Appendix A-4
Notices

Appendix A-5
Response to Comments

Appendix A-6
Comment Matrix and Comments Received

APPENDIX B
MICRON CAMPUS SITE SELECTION BACKGROUND, CONSTRUCTION PHASES, AND SITE LAYOUT ALTERNATIVES, REVISED CONSTRUCTION SCHEDULE, AND TECHNICAL MEMO

Appendix B-1
Micron Campus Site Selection Background

B-1 Micron Campus Site Selection Background

This section describes: (1) the process that the State of New York conducted to identify semiconductor technology parks sufficient in scale to advance the State's semiconductor manufacturing sector; (2) the process that OCIDA conducted to identify sites in Onondaga County sufficient in scale to host a large-scale semiconductor manufacturing facility; (3) the process and criteria that Micron used to identify a sufficient location for a large-scale memory chip manufacturing facility; and (4) the additional property search Micron conducted to identify potential alternative locations for its facility.

B-1.1 New York State Selection of WPCP

In 1997, New York State initiated the CHIP FAB 98 / SEMI-NY Program to promote the growth of the State's semiconductor manufacturing industry. Led by the Governor's Office for Regulatory Reform and the Empire State Economic Development Council (NYSEDC), this initiative began by identifying suitable sites. A list of 55 candidate sites throughout the State was narrowed to 13 sufficient to meet then-current industry standards. (Apte, 1998; Gargano, 2006).

By the year 2000, three sites—Luther Forest (in Malta, NY, Saratoga County), Marcy Nanocenter (in Marcy, NY, Oneida County), and the WPCP—were identified as "shovel ready," i.e., they had completed certain pre-permitting requirements applicable at that time. In 2017, NYSEDC updated its site suitability criteria and arrived at four potentially suitable sites: the Marcy Nanocenter; the Western NY Science, Technology, and Advanced Manufacturing Park (STAMP) near Batavia in Genesee County; Luther Forest; and the WPCP. NYSEDC's evaluation included 5 primary criteria with 108 geographical viability factors, including site quality, and reliability. The evaluation benchmarked the four sites against six other competing locations nationwide. Of the evaluated sites, only the WPCP and Marcy Nanocenter ranked the highest nationally for utility access and development readiness (Newmark Knight Frank, 2018).

The Marcy Nanocenter is a 434-acre greenfield campus. A substantial portion of that campus was developed in 2022 by Mohawk Valley EDGE for semiconductor manufacturing, and only approximately 130 acres remain for stormwater management infrastructure, compensatory wetland mitigation, and development buffers. Therefore, this location is no longer available and would be too small for the Proposed Project (see Section 1.1).

The STAMP site, covering 1,250 acres, has seen significant development by other companies, reducing its available space to five non-contiguous parcels totaling 540 acres, the largest of which is 310 acres. This location would be too small for the Proposed Project.

The Luther Forest site was developed for semiconductor manufacturing and is currently occupied by GlobalFoundries, which has purchased the only remaining 800 undeveloped acres at the site. This location is no longer available and would be too small for the Proposed Project.

B-1.2 Onondaga County Selection of WPCP

Onondaga County presented the WPCP to the State as a suitable site for semiconductor manufacturing as part of a longstanding process to identify and develop a suitable site in the County for industrial manufacturing. In 1991, OCIDA and the City of Syracuse Chamber of

Commerce initiated an Industrial Park Feasibility Study to identify potential locations for industrial businesses in Onondaga County. Of the two sites the study identified—a site in the Town of Lysander and the WPCP—the WPCP emerged as the preferred choice due to its proximity to National Grid's electric substation in Clay, excellent highway access, and ability to be rezoned for industrial use. From 1991 to 1999, the County acquired seven properties, forming the original 340-acre WPCP.

Onondaga County received feedback from prospective site selectors and companies that the 340-acre site would be insufficient for the economic needs of contemporary large-scale semiconductor manufacturing. The County expanded the WPCP on multiple occasions until it ultimately reached its current 1,339-acre area. In addition to expanding the size of the WPCP, the County began addressing other essential project requirements, including access to adequate, reliable electricity, natural gas, and water supply, and wastewater treatment capacity.

OCIDA completed a GEIS, which was supplemented in 2021, that identified and screened various alternatives to the WPCP within Onondaga County. The analysis concluded that the WPCP was the only viable option to meet the semiconductor industry's needs, as it meets specific project pre-requisites, including a large, contiguous parcel of land controlled by a single owner, and access to significant, redundant, and resilient transportation and utility infrastructure (OCIDA, 2013).

B-1.3 Micron Site Search

In 2021, Micron initiated a search for potentially suitable sites to construct a large-scale memory chip manufacturing facility that would also be able to achieve U.S. national and economic security goals, based on then-emerging consideration in Congress of new legislation to incentivize re-shoring of chip manufacturing, including large-scale, commercially viable fab clusters capable of enduring foreign competition—goals that ultimately became the basis for the CHIPS Act and the Department of Commerce's priorities in the NOFO for commercial semiconductor fabrication facilities (see Section 1.1).

Consistent with the above goals, which form the basis of CPO's purpose and need described in Section 1.1, and Micron's analysis of memory chip fab cluster trends described in Appendix A-1, the combination of then-developing Federal priorities for large fab clusters and Micron's annual long-range SNOP process coincided to shape Micron's site search. Specifically, to attract Federal and other sources of investment and achieve global competitiveness, Micron determined that it would need to identify a site capable of hosting a commercially viable, four-fab memory chip manufacturing facility with a cleanroom size of at least 600,000 sq. ft. and a fab size of at least 1.2 million sq. ft. (for a total 2.4 million sq. ft. of cleanroom space and 4.8 million sq. ft. of fab space). This four-fab configuration also would be necessary to achieve a memory chip production output of 52,000 wafers per week on average over the life of the facility capable of meeting Micron's market-based forecast for the output required to be commercially viable given memory chip industry competition in East Asia.

Micron also determined that construction of 2.4 million sq. ft. of cleanroom space would necessitate the construction of ancillary buildings, such as central utility buildings, hazardous process materials buildings, bulk and specialty gas storage, and other on-site infrastructure, as described in Section 2.1.1.5 and Table 2.1-3. Given the competitiveness and cost sensitivity of the DRAM market, Micron determined that it would require a single site of sufficient size to co-locate and accommodate all of the fab space and infrastructure described above, and that developing disparate parcels with duplicative infrastructure and supply chain needs would preclude Micron from achieving a cost-efficient memory chip operation capable of global competitiveness and attracting Federal and other sources of investment. For the above reasons, Micron determined that it would require a minimum single site footprint of 1,000 acres or more.

This approach is consistent with semiconductor industry competitiveness trends that drive companies in this space to co-locate multiple fabs on a single site to achieve economies of scale and efficient supply chain and feedstock management, while minimizing costs, as well as minimizing total project footprints and ground disturbance (see Section 1.1).

In the context of these goals, Micron began exploring potential sites for a four-fab memory chip manufacturing facility in New York State in late 2021. To facilitate its search, Micron developed a set of site selection criteria, detailed in Table B-1~~Table B-1~~ below, including the minimum 1,000-acre site size, utility and energy availability, transportation accessibility, workforce development capacity, time-to-market (permitting and approvability), climate-related risks, place enhancement (livability) considerations, advanced manufacturing ecosystem (including supply chain) considerations, and the availability of Federal and State financial incentives, among various other technical and socioeconomic factors.

Table B-1 Micron Site Selection Criteria

Criteria	Description
Site availability	Potential sites would need to be available for acquisition.
Minimum site size of 1,000 contiguous acres	See explanation of 1,000-acre size requirement in text above. Sufficient parcel size would be essential to accommodate the necessary size of the manufacturing buildings to economically meet production goals while maintaining adequate spacing between the fab buildings and providing the space needed for ancillary structures, utilities, and other infrastructure. The parcel also would need to be fully contiguous and could not be irregularly shaped or preclude a uniform manufacturing facility layout capable of maximizing fab interoperability, efficiencies, and economies of scale, driven by minimizing automated device travel times across fabs (see Appendix B-3). The contiguous land criterion also would be necessary to ensure that all facility components could be efficiently integrated and operated on a single campus, reducing the need for multiple utility or other site connections that would make the facility uncompetitive with its peers and global competitors.
Zoning	Potential sites would need to be zoned or readily able to be zoned to accommodate the proposed manufacturing use.
Geological conditions	Potential sites would need to have a relatively flat topography with geological conditions capable of supporting an efficient four-fab layout and adequate foundations to support such a design. A site with a geotechnical makeup and topography that would require substantial excavation and import of fill material also would need to have proximity to rail transport or other cost-effective transportation methods capable of bringing

	substantial volumes of fill and other construction materials on-site, while avoiding prohibitive increased costs and environmental and community effects from transporting large volumes by truck.
Electricity supply	Potential sites would need to have proximity to robust electric transmission infrastructure capable of providing electricity at 345 kV or higher to the entire site, with sufficient available on-site or adjacent land for dedicated substations and transformers, or to a technically and economically feasible and practicable plan to expand such capacity and capability to connect to such supplies. A multi-fab facility requires a stable and continuous 24/7 electricity supply from highly resilient, non-intermittent sources, including dual feed electrical service with high resistance to voltage fluctuations. Any disruption in power can dramatically impact the semiconductor manufacturing process and lead to substantial operational inefficiencies and production and financial losses.
Natural gas supply	Potential sites would need to have ready access to substantial natural gas supplies and distribution capacity, or to a technically and economically feasible and practicable plan to expand such capacity and a route to connect to such supplies. Natural gas is required for its thermal value in semiconductor manufacturing, which depends on several heating processes that together could overwhelm otherwise reasonable electricity supplies and infrastructure.
Water supply	Potential sites would need to have ready access to substantial water supplies and transmission capacity, or to a technically and economically feasible and practicable plan to expand such capacity and a route to connect to such supplies.
Wastewater treatment capacity	Potential sites would need to have ready access to substantial wastewater treatment infrastructure with adequate capacity to accommodate a large-scale semiconductor facility, or to a technically and economically feasible and practicable plan to expand such capacity and a route to connect to such service.
Highway access	Potential sites would need to be located within 20 miles of an interstate highway. Proximity to highway access would be required to facilitate efficient transportation of materials, products, and personnel for a four-fab facility.
Airport access	Potential sites would need to be located within 30 miles of a domestic commercial airport and 50 miles of an international commercial airport. Proximity to air transport is needed to support efficient movement of personnel and critical components to a large-scale semiconductor manufacturing facility.
Specialized workforce	Potential sites would need to be in an area with a sufficiently large, specialized labor force capable of supporting highly advanced manufacturing processes and specialized equipment operation and maintenance needs. In addition, potential sites would need to be in proximity to institutions of higher learning and institutions for research and development, training, and innovation, such as military bases, technical colleges, universities, and other sources of technical direct labor, which are essential to providing skilled labor, continuing education, and training programs to keep a specialized workforce familiar with relevant technological advancements and industry practices.

Source: Micron Technology.

At the time that Micron began exploring sites in New York State in late 2021, three of the four viable State-identified technology sites (Marcy Nanocenter, STAMP, Luther Forest, and the WPCP) were unavailable or too small for the four fabs needed to satisfy Micron's search criteria. Marcy Nanocenter only had 130 acres available, GlobalFoundries held an option contract on Luther Forest, and STAMP offered only 540 non-contiguous acres. Only the WPCP remained, which satisfied all of Micron's site selection criteria in Table B-1Table B-1.

B-1.4 Micron Updated Site Search

In 2024, Micron conducted an updated property search to identify other potentially reasonable alternative sites for the Proposed Project. Using an available parcel listing survey, Micron identified three sites, including the WPCP, that were available for purchase and that were 1,000 acres or greater in size. See Figure B-1, Figure B-2, and Figure B-3 for site locations. Micron evaluated each site against its site selection criteria. The results are summarized in Table B-2 below. Of the three sites, only the WPCP was located in a NYISO Load Zone with the potential to provide a sufficiently reliable and stable electricity supply to the Proposed Project. In addition, the WPCP satisfied all of Micron's other site selection criteria, whereas the other two sites failed several criteria.

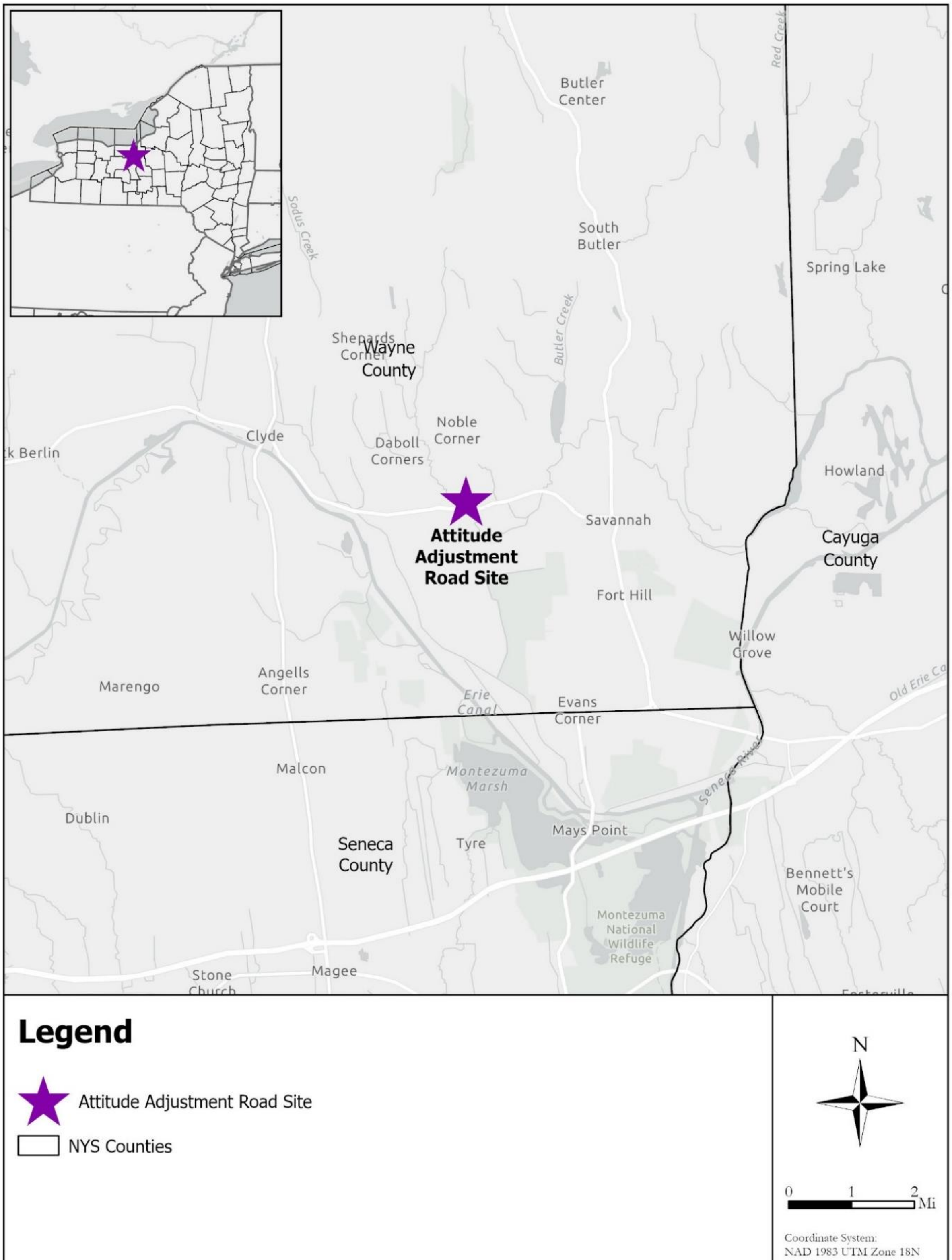
Table B-2 Updated Site Search Results

Site	1	2	3
Site Name	Attitude Adjustment Rd	Creek Road	White Pine Commerce Park (WPCP)
County	Wayne	Cattaraugus	Onondaga
Parcel ID	76111-00-115772	4.003-1-22	Multiple
Available for Purchase	Yes	Yes	Yes
Parcel Acreage	3,929	1,217	1,376
Industrial zoning	No	No	Yes
Adequate geology and topography	No	No	Yes
Floodplains present	Yes	No	No
Adequate power / NYISO Load Zone / adequate transmission capacity	No / B / Yes	No / A / Yes	Yes / C / Yes
Adequate natural gas supplies	Yes	No	Yes
Adequate water supplies	No	No	Yes
Adequate wastewater capacity	Yes	No	Yes

Proximity to highways	Yes	Yes	Yes
Proximity to airports	Yes	Yes	Yes
Specialized workforce available	No	No	Yes

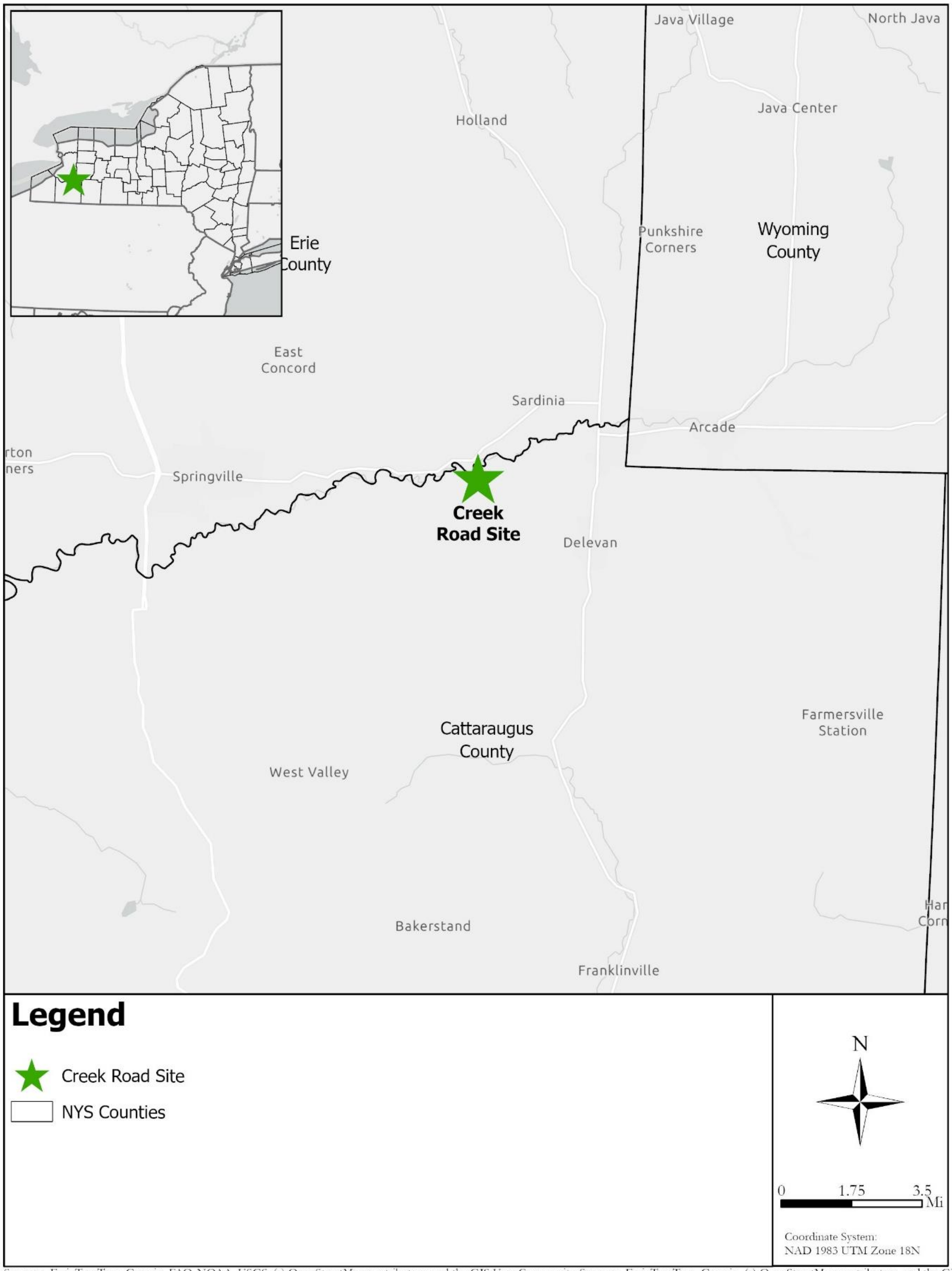
Source: Micron Technology.

Figure B-1 Attitude Adjustment Road Site Location



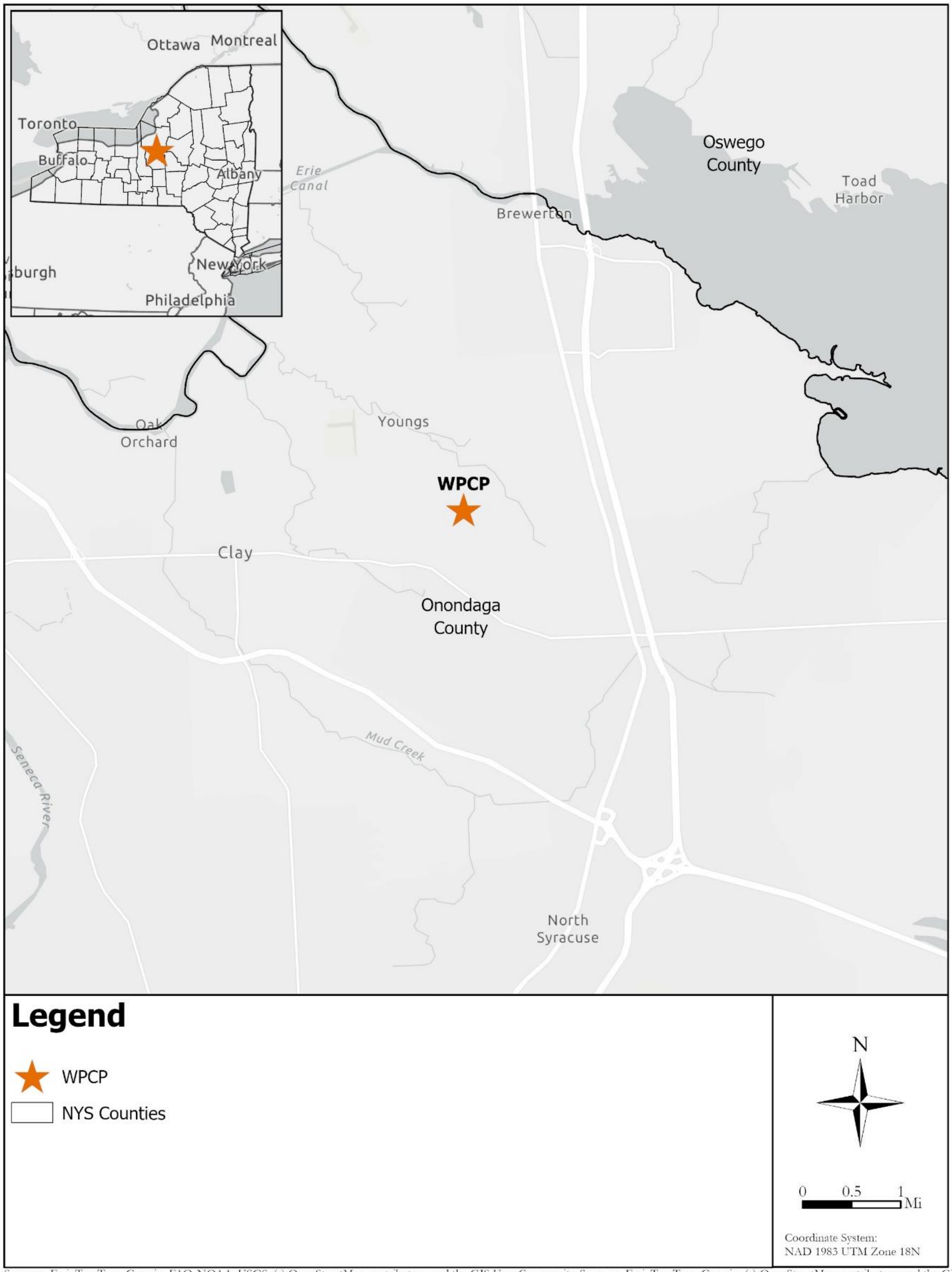
Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community, Sources: Esri, TomTom, Garmin, (c) OpenStreetMap contributors, and the GIS User Community

Figure B-2 Creek Road Site Location



Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community, Sources: Esri, TomTom, Garmin, (c) OpenStreetMap contributors, and the GIS User Community

Figure B-3 WPCP Site Location



Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community, Sources: Esri, TomTom, Garmin, (c) OpenStreetMap contributors, and the GIS User Community

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Gargano, C. (2006). Building the high-tech future. Economic Development Journal, 5(2), 47.

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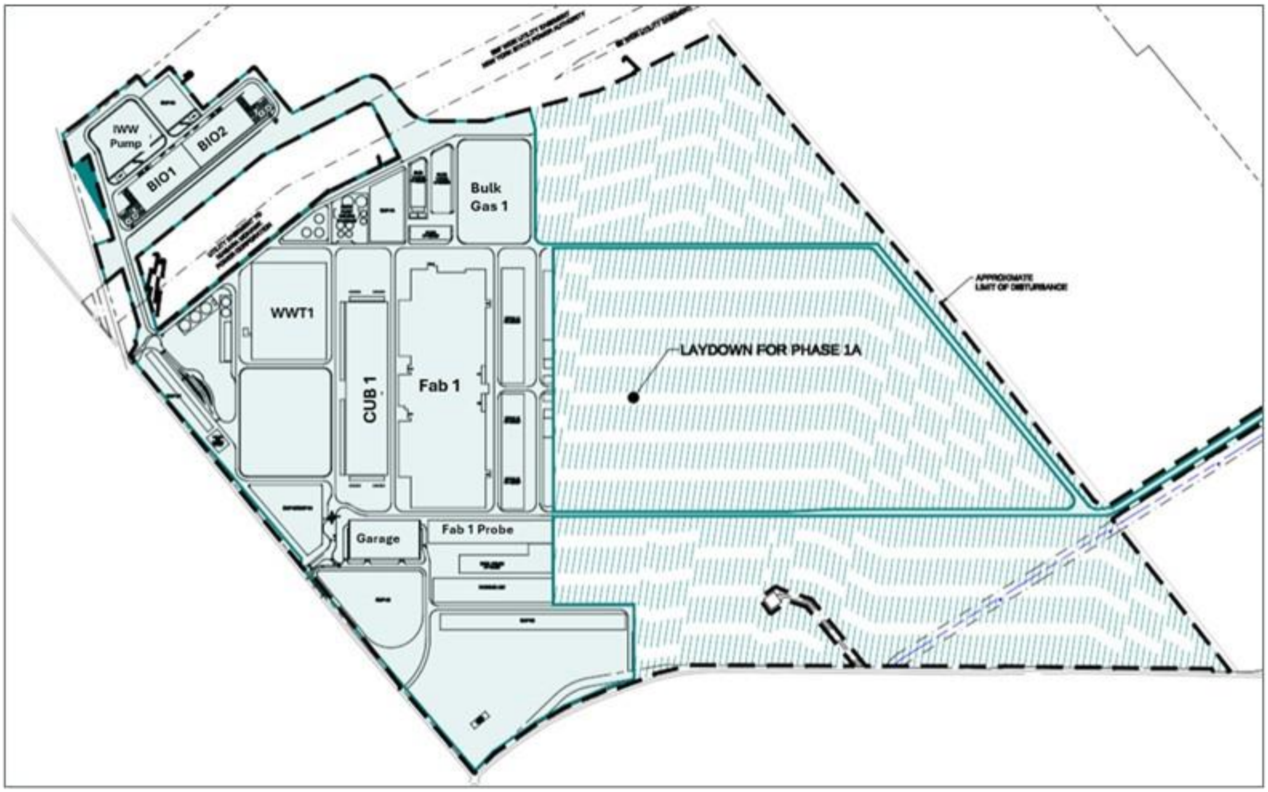
OCIDA. (2013). Final Generic Environmental Impact Statement (SGEIS).

Appendix B-2
Micron Campus Construction Phases

B-2 Micron Campus Construction Phases

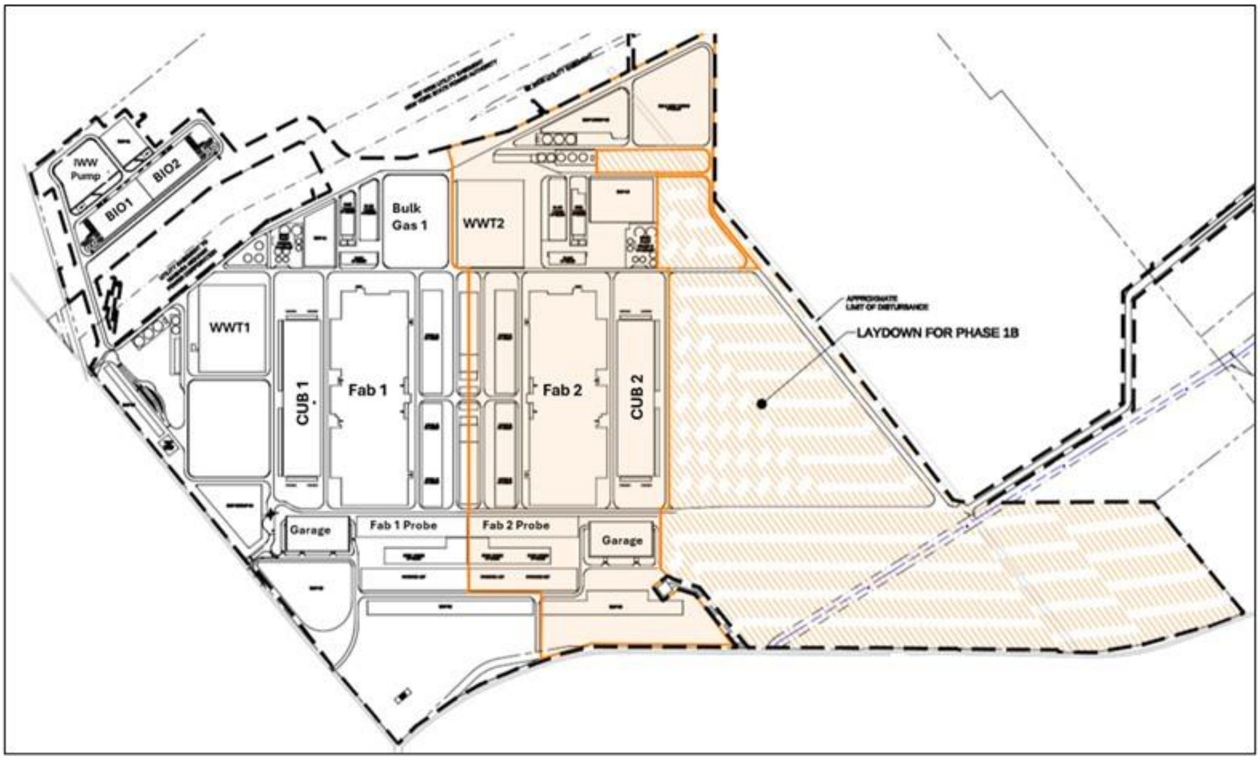
As noted in Section 2.1.1.1, the four fabs at the proposed Micron Campus would be built sequentially from west to east. The four figures below show schematics of the build-out.

Figure B-4 Micron Campus Construction – Phase 1A[6]



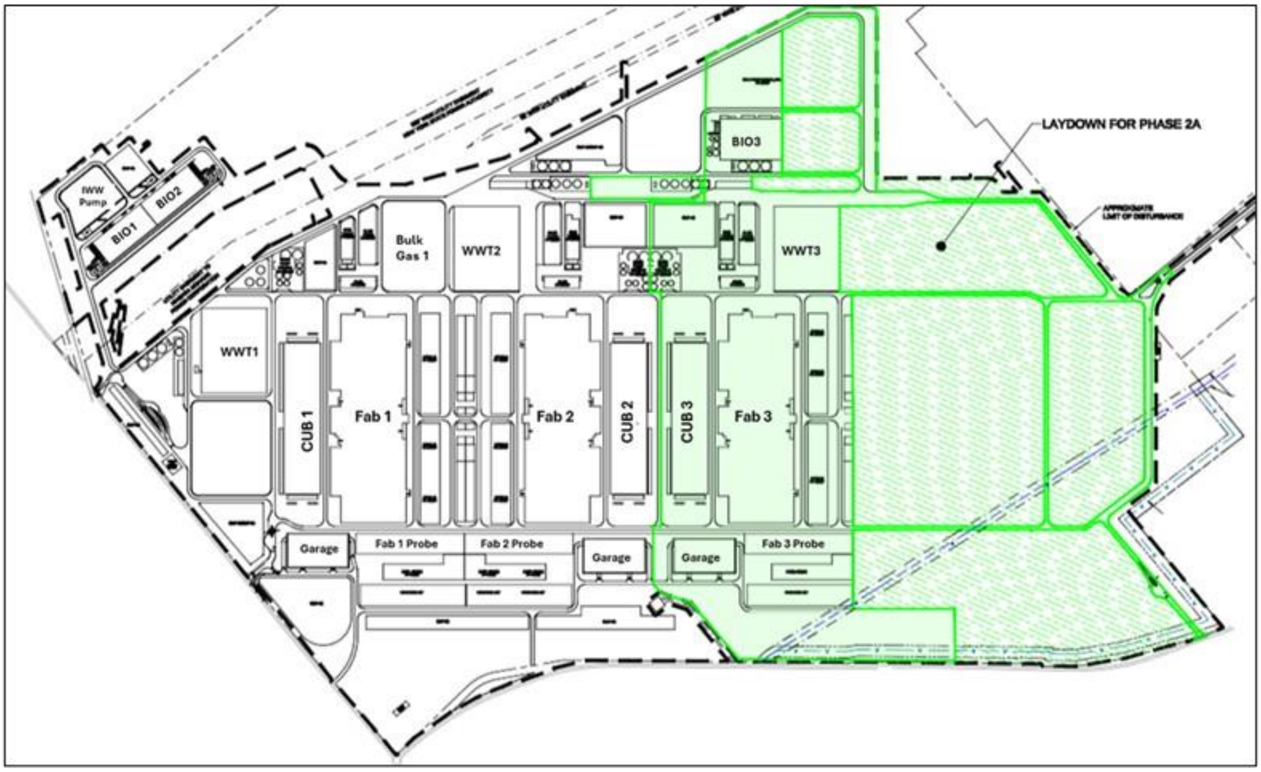
[6] Ground clearing of the entire Phase 1A area would occur in Q4 2025, during the bat hibernation period.

Figure B-5 Micron Campus Construction – Phase 1B[7]



[7] Although construction would be scheduled for Q3 2028, additional ground clearing in the Phase 1B area would occur in Q4 2028, during the bat hibernation period.

Figure B-6 Micron Campus Construction – Phase 2A[8]



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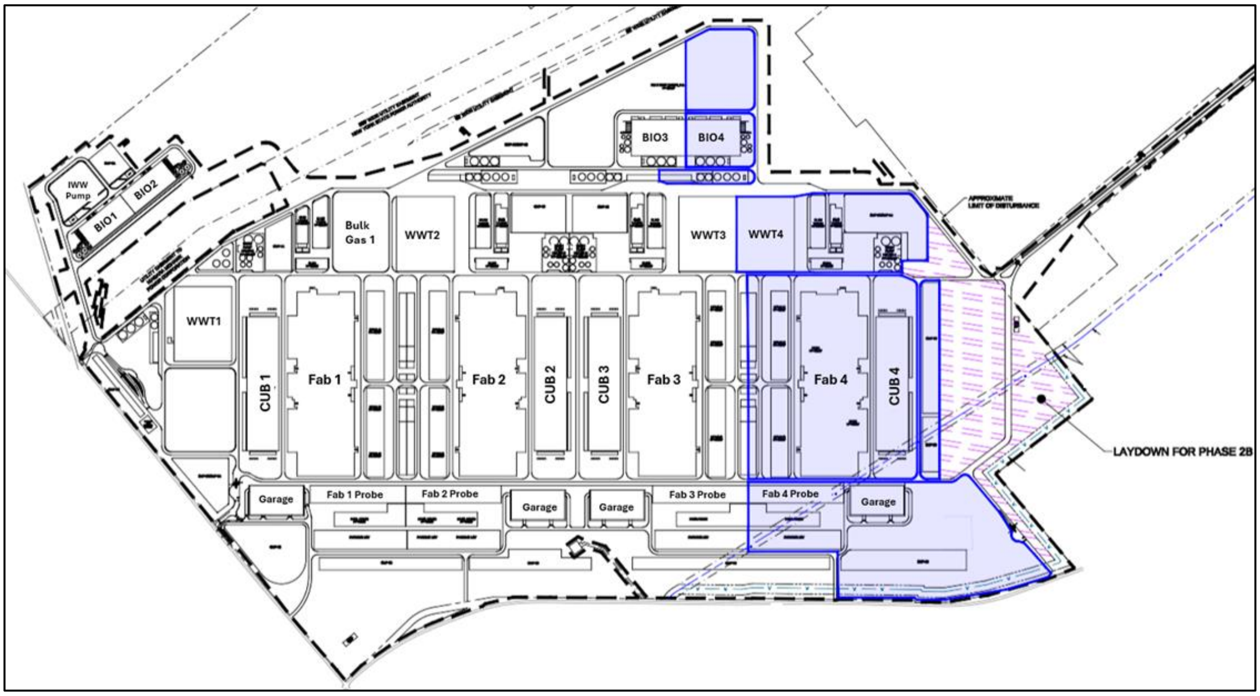
[8] Although construction would be scheduled for Q3 2033, additional ground clearing in the Phase 2A area would occur in Q4 2033, during the bat hibernation period.

Figure B-7 Micron Campus Construction – Phase 2B[9]



[9] Although construction would be scheduled for Q2 2039, additional ground clearing in the Phase 2B area would occur in Q4 2039 or Q1 2039, during the bat hibernation period.

Appendix B-3
Micron Campus Site Layout Alternatives

B-3 Micron Campus Site Layout Alternatives

In coordination with Micron, CPO and OCIDA considered a series of potential site layout alternatives for the proposed Micron Campus to determine whether a different layout of the fabs and supporting buildings from the Preferred Action Alternative site layout would result in fewer impacts to waterbodies on the WPCP. Specifically, six site layout alternatives were considered in addition to the Preferred Action Alternative. For the reasons explained below, CPO and OCIDA determined that none of the site layout alternatives besides the Preferred Action Alternative would be practicable because each would create inefficiencies that would prevent the Micron Campus from achieving the semiconductor wafer output necessary to achieve commercial viability.

In addition, CPO and OCIDA found that the Preferred Action Alternative would impact fewer Federal jurisdictional wetlands (190 acres) compared to other site layout alternatives, all of which would impact 200 acres or more of Federal jurisdictional wetlands.

Therefore, CPO and OCIDA determined that the Preferred Action Alternative site layout makes it the only alternative that meets CPO's purpose and need under NEPA and Micron's purpose and need under SEQRA (see Section 1.1) and did not carry the six other site layout alternatives forward for further analysis in the EIS.

Maximally efficient site layouts are critical to the successful operation of large-scale, multi-fab semiconductor manufacturing facilities such as the proposed Micron Campus manufacturing facility. These advanced facilities depend on the ability to minimize transport time for material traveling from one fab to another to maximize the utilization of extremely high-cost fab equipment. An AMHS (Figure B-8) is an integrated system of robots that travel along the ceilings of the fabs and across links between the fabs to transport wafers from one step of the manufacturing process to the next. Since there are limitations on the number of robot paths between fabs that can be built, site layout alternatives must carefully consider variations to entry and exit points from each fab to avoid unacceptable levels of robot congestion that could hamper facility productivity.

Figure B-8 AMHS Example

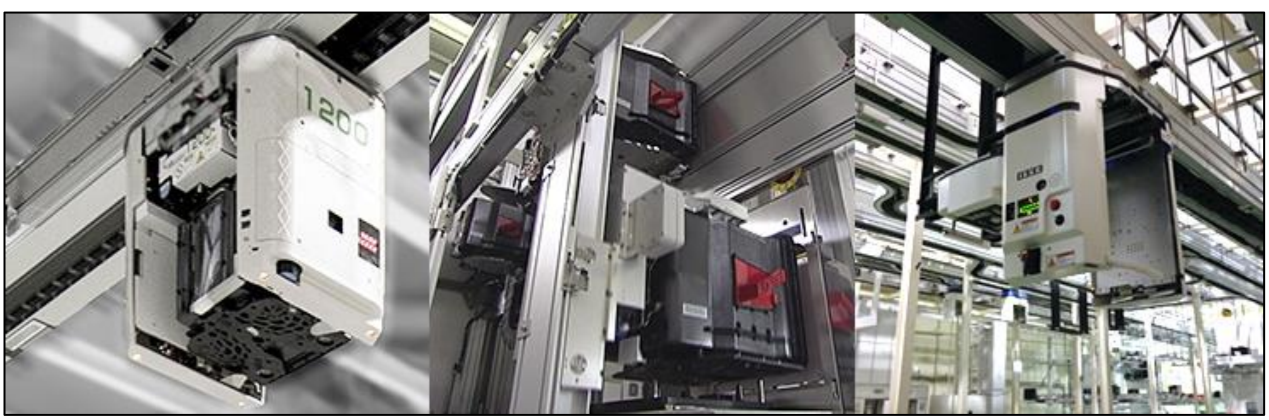


Image Source: Muratec Machinery, LTD. (www.muratec.net/cfa/)/

Table B-3 on the next page further details key site layout criteria relevant to ensuring efficient semiconductor manufacturing facility operations.

Table B-3 Site Layout Criteria

Criteria	Description
AMHS Cross-Fab Travel Time	This is the measure of time to transport material from one fab to another. Travel time would need to be minimized to maximize the utilization of the more than $60 billion that Micron would need to spend on semiconductor manufacturing equipment, to ensure that wafer output is optimized as more materials are processed in less time.
AMHS Risk of Overhead Transport (OHT) Congestion	Similar to roadways, the paths that AMHS robots take can become congested and there are limited paths that can be built. For the Micron Campus, any inefficient design of the entry and exit points from each fab would negatively affect cross-fab travel time and diminish Micron's utilization of the more than $60 billion estimated cost of fab equipment needed for the campus.
Utilities Layout and Routing	Semiconductor manufacturing uses a large variety and volume of chemicals, gases, and water. For the Micron Campus, air in the fabs would need to be conditioned to precise temperature and humidity ranges. Delivery of the chemicals, gases, water, and air needed for fab operations would require special support buildings (the central utilities buildings and hazardous process materials buildings located between the fabs). To minimize energy usage, the distances between these support buildings and the fabs would need to be minimized.
Construction Laydown Space	The Micron Campus would require a large area for contractor parking and storage of construction materials. Once the fabs would be built, the construction laydown area would still be needed due to continuous construction activities inside the fabs as they are retrofitted for new memory chip production technology nodes. The need for a large laydown area therefore operates as a constraint on efficient layouts.
Constructability	Design of the fab buildings would only be feasible based on currently available construction means and methods, which also can operate as constraints on alternative layouts.
Other	Other requirements that can operate as constraints on alternative layouts include stormwater management, vibration specifications, and access points.

Source: Micron Technology.

Table B-4 below shows CPO's and OCIDA's application of the alternative evaluation criteria described in Section 2.2 and the site layout criteria in Table B-3 above to the Preferred Action Alternative and the six other site layout alternatives. Based on the below comparison, CPO and OCIDA found that none of the site layout alternatives besides the Preferred Action Alternative would meet purposes and needs or be technically or economically feasible or practicable, and all of them would result in either the same amount of permanent losses of Federal jurisdictional wetlands or the permanent loss of approximately 16-20 additional acres of Federal jurisdictional wetlands. Following Table B-4, Figure B-9 to Figure B-15 display each site layout alternative.

Table B-4 Site Layout Alternative Analysis

Layout	Meets Alternative Evaluation Criteria?	Wetland / Surface Water Losses[10]
Site Layout Alternative 1 (Preferred Action Alternative)	Yes. Would meet purposes and needs; would be technically and economically feasible and practicable; would result in fewer permanent losses of wetlands compared to other site layout alternatives.	184.47 acres / 6,283 LF
Site Layout Alternative 2 (similar to 1 but requires underground parking garages)	No. Would not meet purposes and needs because: • Layout would reduce wafer output per week (WOPW)[11] due to bottlenecks and inefficiencies from underground parking (limited underground access and garage congestion, longer employee garage to workstation travel times, and longer fab material, equipment, and maintenance delivery times would all affect production process efficiency). Would not be technically or economically feasible or practicable because: • Parking garages could not be constructed underground due to high water table and prohibitive amount of near-grade bedrock. Would not result in permanent losses of wetland or surface water features compared to the Preferred Action Alternative.	184.47 acres / 6,283 LF

Site Layout Alternative 3 (Fabs 2-4 shifted to southeast; requires underground parking garages)	No. Would not meet purposes and needs because:
	• Layout would reduce WOPW by approximately 2 to 3 percent primarily due to longer delivery travel times between fabs.
	  ○ Distance between fabs and non-linear connections between fabs would require AMHS robot turning and bending, causing bottlenecks, congestion, and increased robot travel times from Fabs 1-2 to Fabs 3-4.
	  ○ AMHS inefficiencies would reduce the amount of process tool sharing across fabs.
		204 acres / 5,701 LF

[10] Figures represent losses of acres of Federal jurisdictional wetlands and linear feet (LF) of Federal jurisdictional surface water features. For additional information, see Section 3.3 (Water Resources).

[11] Unaddressed or unmanageable inefficiencies in memory chip production processes result in reductions in WOPW; even marginal reductions in WOPW result in significantly increased costs (see Appendix A-1).

	○ Design would break up and thereby diminish efficiency of unified probe building operations. ○ Layout would cause bottlenecks and inefficiencies from underground parking garages. Would not be technically or economically feasible or practicable because: • Parking garages could not be constructed underground due to high water table and prohibitive amount of near-grade bedrock. • Layout would have insufficient construction laydown area for Fabs 3-4. • Fab 2 would be too far removed from industrial wastewater treatment. • Layout would result in insufficient stormwater management areas on the southwest side of the campus. Would result in permanent loss of approximately 20 additional acres of Federal jurisdictional wetlands compared to the Preferred Action Alternative.	
Site Layout Alternative 4 (Fabs 1-4 shifted to southeast; requires underground parking garages)	No. Would not meet purposes and needs because: • Layout would reduce WOPW due to bottlenecks and inefficiencies from underground parking. Would not be technically or economically feasible or practicable because: • Parking garages could not be constructed underground due to high water table and prohibitive amount of near-grade bedrock. • Layout would have insufficient construction laydown area for Fabs 3-4. • Layout would have insufficient space for projected utility needs. • Layout would result in insufficient stormwater management area allocations across the campus, necessitating construction of underground stormwater holding tanks with mechanical pumps, which would result in decreased energy efficiency, increased risks of mechanical failure, and increased costs. Would result in permanent loss of approximately 16 additional acres of Federal jurisdictional wetlands compared to the Preferred Action Alternative.	200 acres / 5,902 LF
Site Layout Alternative 5 (Fabs 3-4 shifted to southeast; requires underground parking garages)	No. Would not meet purposes and needs because: • Layout would reduce WOPW primarily due to longer delivery travel times between fabs. ○ Distance between fabs and non-linear connections between fabs would require AMHS robot turning and bending, causing	204 acres / 5,701 LF

	bottlenecks, congestion, and increased robot travel times. o AMHS inefficiencies would reduce the amount of process tool sharing across fabs. o Design would break up and thereby diminish efficiency of unified probe building operations. o Layout would cause bottlenecks and inefficiencies from underground parking garages. Would not be technically or economically feasible or practicable because: • Parking garages could not be constructed underground due to high water table and prohibitive amount of near-grade bedrock. • Layout would have insufficient construction laydown area for Fabs 3-4. • Layout would result in insufficient stormwater management areas on the southwest side of the campus. Would results in permanent loss of approximately 20 additional acres of Federal jurisdictional wetlands compared to the Preferred Action Alternative.	
Site Layout Alternative 6 (Fabs 3-4 rotated horizontally; requires underground parking garages)	No. Would not meet purposes and needs because: • Layout would reduce WOPW primarily due to longer delivery travel times between fabs. o Orientation of fabs and distance and non-linear connections between fabs would require AMHS robot turning and bending, causing bottlenecks, congestion, and increased robot travel times; layout would necessitate additional AMHS construction for approximately $150 million in additional capital expenditure. o Non-linear fab alignment would essentially eliminate useful cross-fab transportation connections (which also would increase capital and operating expenditures). o Tool sharing across fabs would be eliminated. o Design would break up and thereby diminish efficiency of unified probe building operations. o Layout would cause bottlenecks and inefficiencies from underground parking garages. Would not be technically or economically feasible or practicable because: • Parking garages could not be constructed underground due to high water	204 acres / 5,701 LF

	table and prohibitive amount of near-grade bedrock. • Layout would have insufficient construction laydown area for Fabs 3-4. • Layout would result in insufficient stormwater management areas on the southwest side of the campus. Would results in permanent loss of approximately 20 additional acres of Federal jurisdictional wetlands compared to the Preferred Action Alternative.	

Site Layout Alternative 7 (Fabs 2-3 rotated horizontally; requires underground parking garages)	No. Would not meet purposes and needs because:
	• Layout would reduce WOPW primarily due to longer delivery travel times between fabs.
	  ○ Orientation of fabs and distance and non-linear connections between fabs would require AMHS robot turning and bending, causing bottlenecks, congestion, and increased robot travel times.
	  ○ Non-linear fab alignment would essentially eliminate useful cross-fab transportation connections (which also would increase capital and operating expenditures).
	  ○ Tool sharing across fabs would be eliminated.
	  ○ Design would break up and thereby diminish efficiency of unified probe building operations.
	  ○ Layout would cause bottlenecks and inefficiencies from underground parking garages.
	Would not be technically or economically feasible or practicable because:
	• Parking garages could not be constructed underground due to high water table and prohibitive amount of near-grade bedrock.
	Would result in permanent loss of approximately 20 additional acres of Federal jurisdictional wetlands compared to the Preferred Action Alternative.
		204 acres / 5,701 LF

Source: Micron Technology.

Figure B-9 Site Layout Alternative 1
(Preferred Action Alternative)

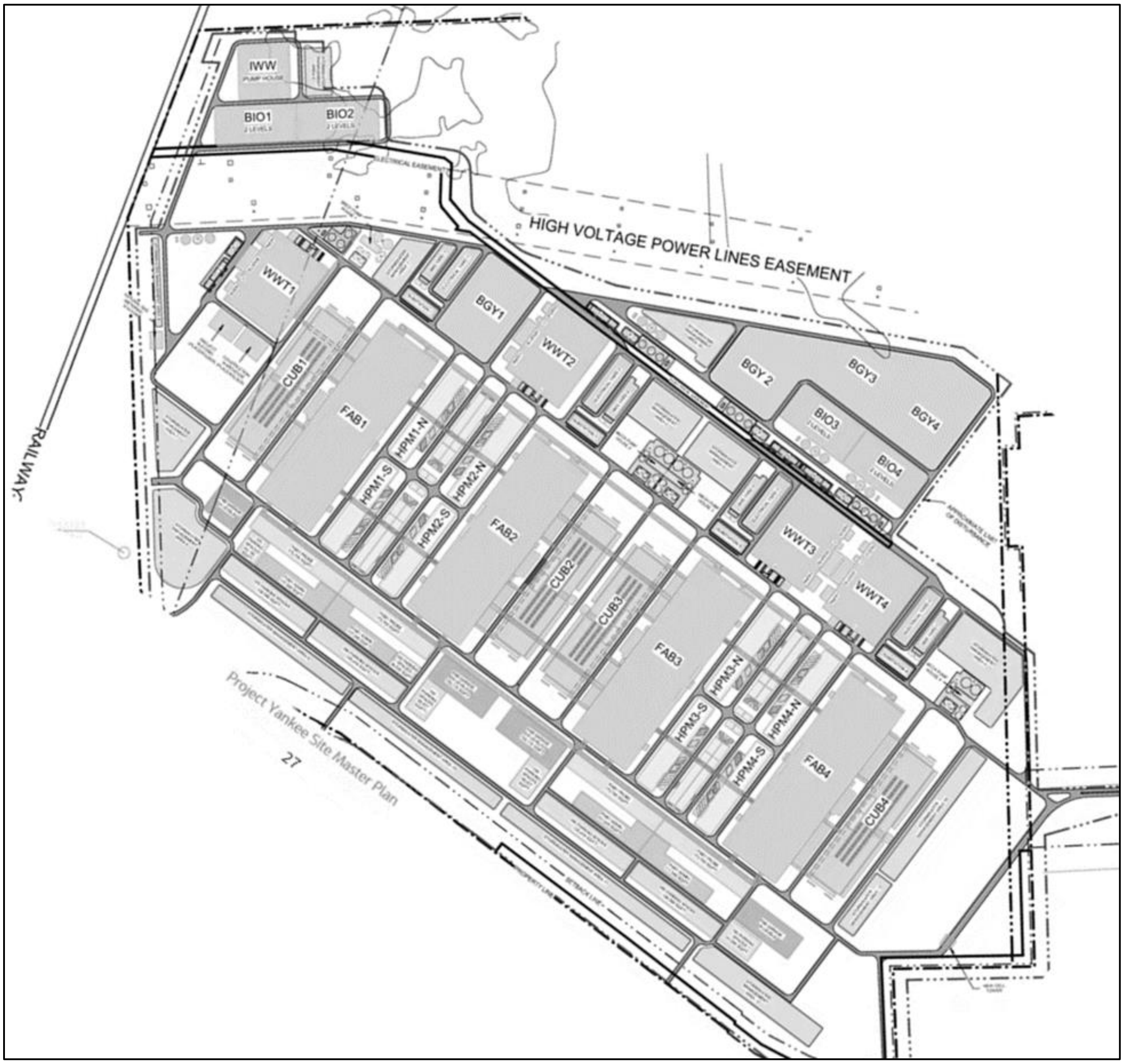


Figure B-10 Site Layout Alternative 2
(similar to 1 but requires underground parking garages)

Figure B-11 Site Layout Alternative 3
(Fabs 2-4 shifted to southeast; requires underground parking garages)

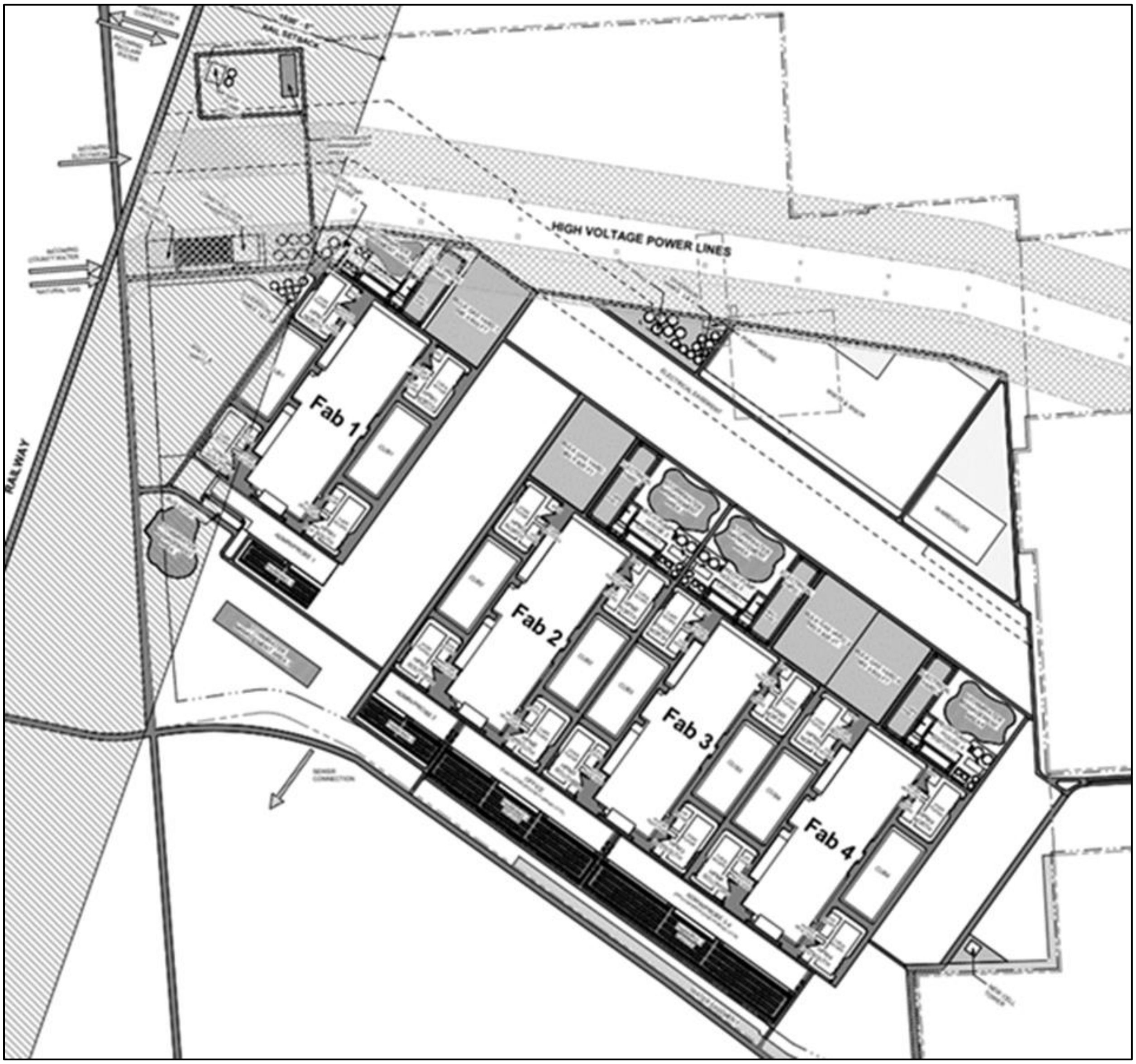


Figure B-12 Site Layout Alternative 4
(Fabs 1-4 shifted to southeast; requires underground parking garages)

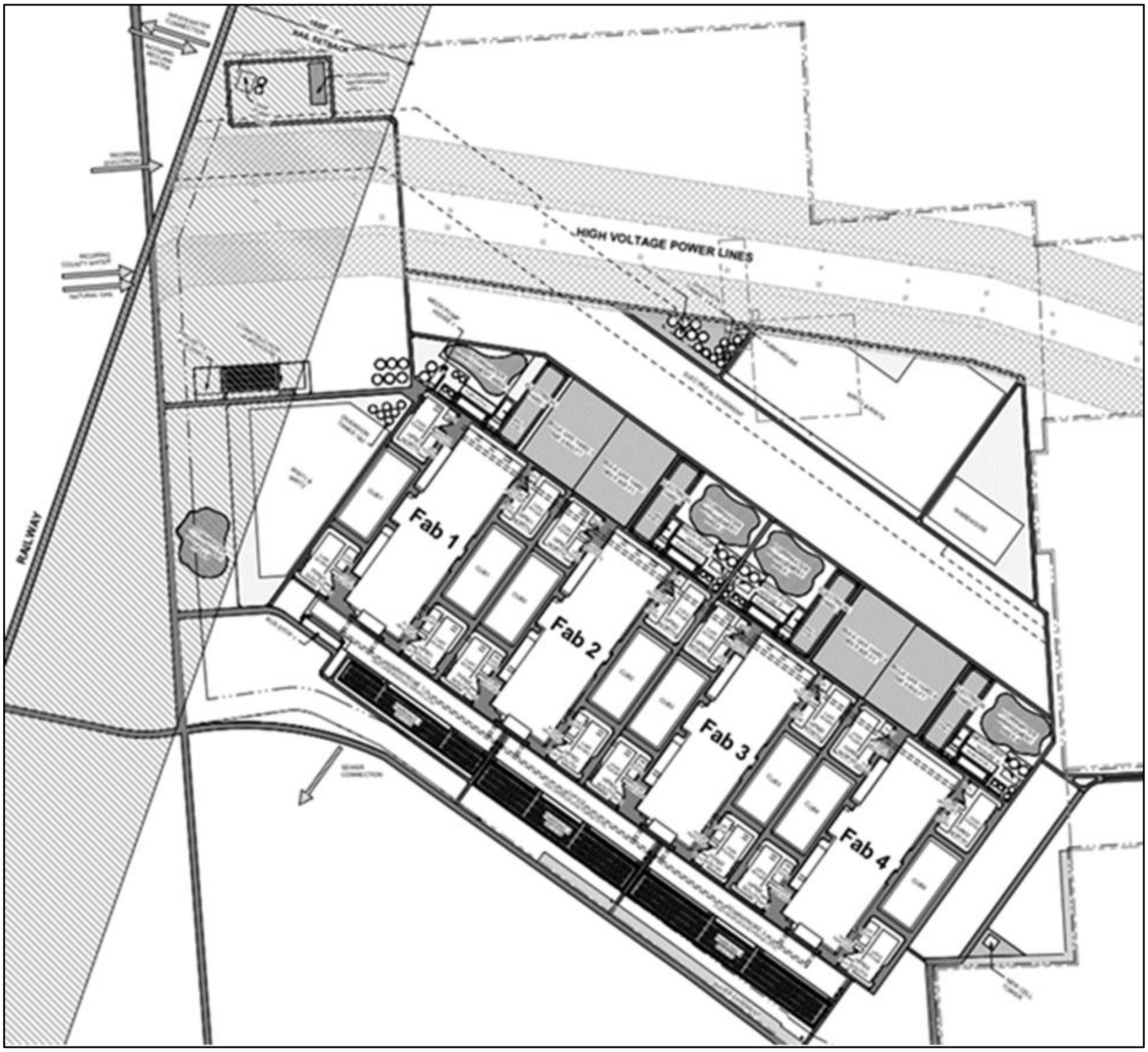


Figure B-13 Site Layout Alternative 5
(Fabs 3-4 shifted to southeast; requires underground parking garages)

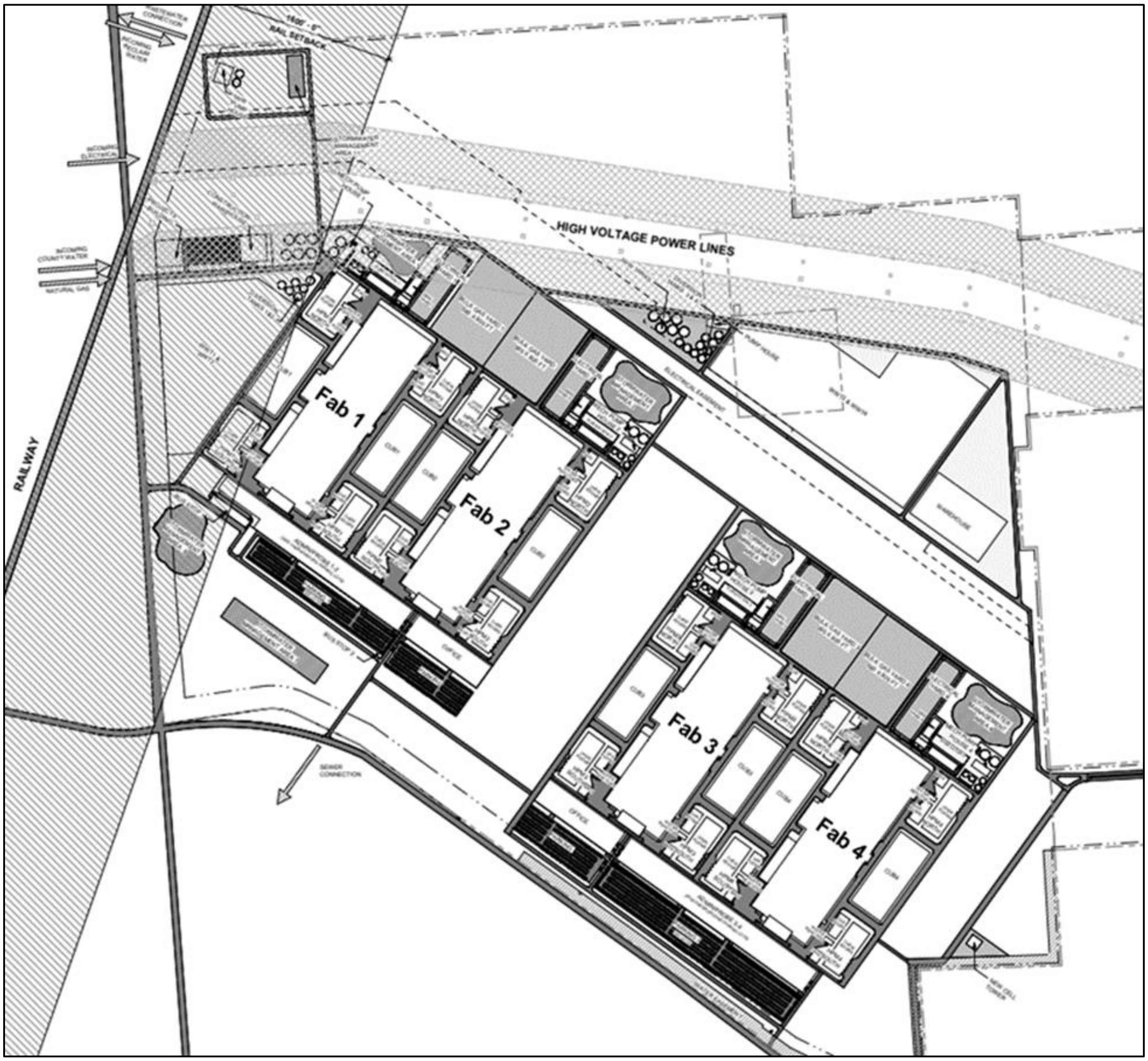


Figure B-14 Site Layout Alternative 6
(Fabs 3-4 rotated horizontally; requires underground parking garages)

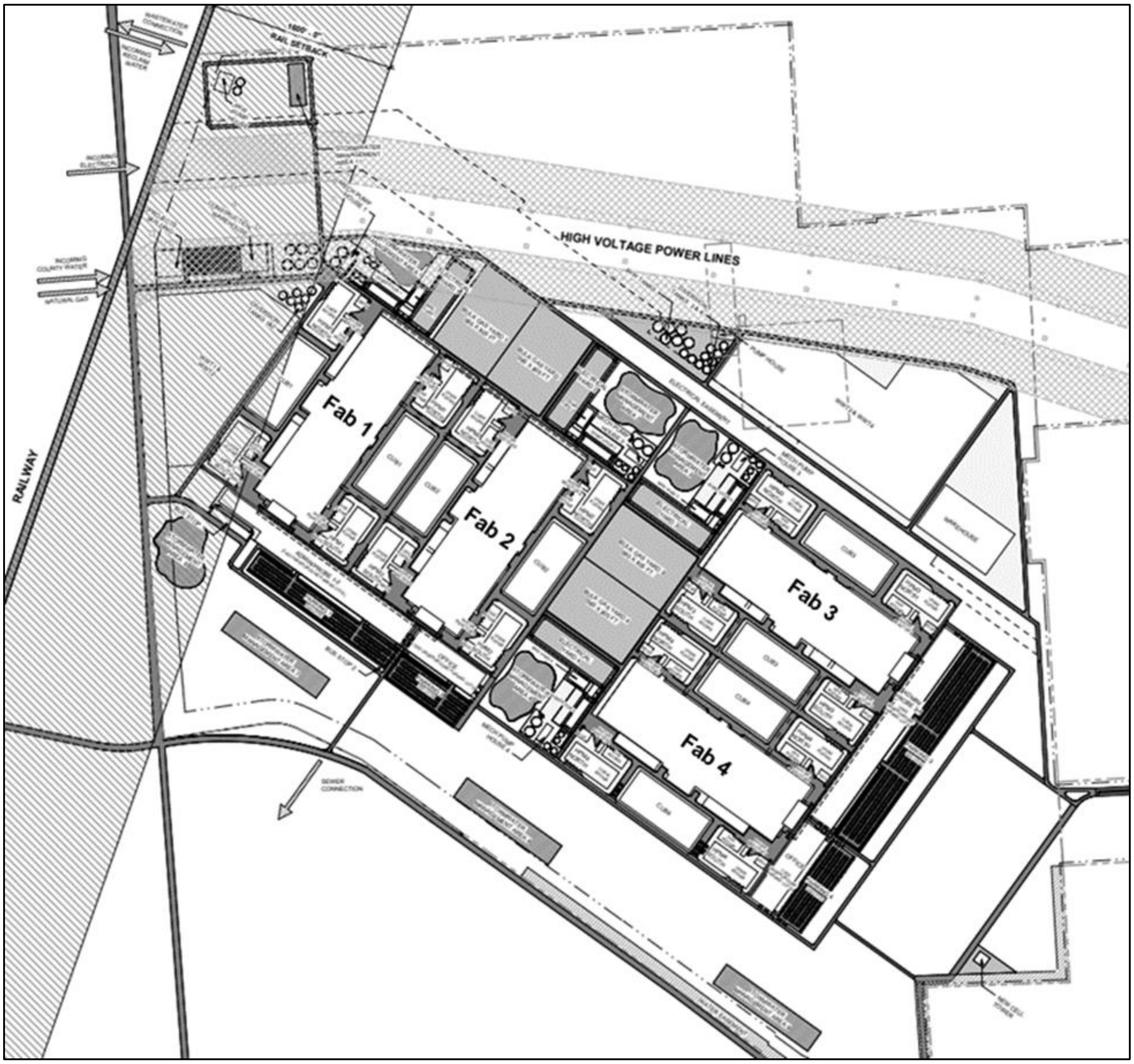
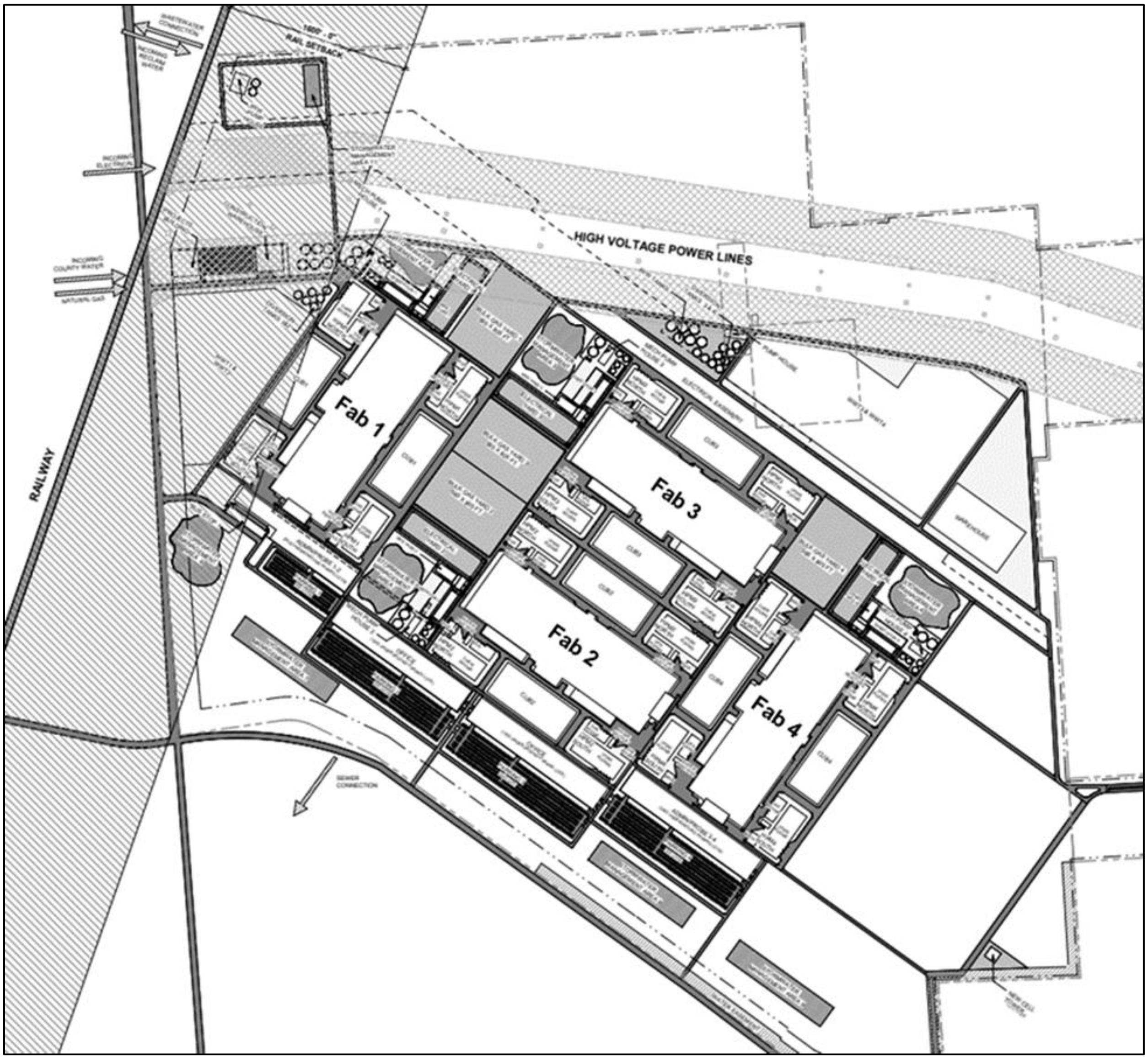


Figure B-15 Site Layout Alternative 7
(Fabs 2-3 rotated horizontally; requires underground parking garages)



Appendix B-4
Micron Campus Parking Space Needs

B-4 Micron Campus Parking Space Needs

The proposed Micron Campus would include a total of 11,600 above-ground parking spaces, divided between four 500-space surface parking lots located south of the administration and probe buildings, and four 2,400-space structured parking areas (see Figure 2.1-5). As outlined below, the design of the campus includes this number of parking spaces to accommodate the anticipated peak headcount for full-time employees, construction workers, general visitors, and visitors to large on-site events, while also factoring in considerations for snow storage.

Workforce Parking

As discussed in Section 2.1.1.6, at full production in 2045, the Micron Campus would support a full-time employee peak headcount of 9,005 workers, along with 300 construction workers who will remain on-site for ongoing refinements. Parking spaces would be allocated to ensure that every full-time employee and construction worker has access to on-site parking and to accommodate shift overlap. This overlap would be necessary to allow for a pass-down period between shifts, during which both incoming and outgoing shift vehicles would be parked simultaneously. Overall, this parking allocation would be necessary to maintain a smooth flow of traffic within the property.

General Visitor Parking

In addition to parking for employees and construction workers, Micron anticipates a regular flow of visitors. Approximately 400 parking spaces would be allocated to visitors to ensure safe visitor access to the campus. This allocation would minimize disruptions to employee parking areas and day-to-day operations.

Large Event Parking

Micron anticipates the need to occasionally host large events that would require additional visitor parking. Approximately 800 parking spaces would be allocated to accommodate peak anticipated attendance during these events. These spaces would be necessary to ensure that large groups can park on-site and safely access the campus. Micron would plan for these events in advance to avoid potential congestion or parking shortages.

Snow Storage

Given the climate in New York State, snow storage is an essential element of parking lot design. Approximately 1,100 spaces, representing 25 percent of the surface parking lots and the top level of the structured parking areas, would be allocated to snow storage during the winter months. Adequate snow storage space would be necessary to manage snow accumulation without interfering with the availability of parking spaces, and would ensure that snow removal would not impede traffic flow or create hazards for employees or visitors.

Appendix B-5
Revised Proposed Project Construction Schedule Details and Impact Analysis

B-5 Revised Proposed Project Construction Schedule Details and Impact Analysis Review

B-5.1 Revised Construction Schedule

As described in Section 2.3, Micron could revise the construction schedule and commencement of construction for each fab as well as the Child Care Site, compared to what is currently presented in the FEIS. A detailed description of the potential revisions to the construction schedule is provided in the tables below. The following tables and graphs present the possible revised construction schedules for each component of the Proposed Project and Connected actions as well as a graphical comparison between the DEIS timing and the potential revised construction and commencement of operations schedule.

Under the revised construction schedule, Micron would still mobilize for initial site preparation beginning in the fourth quarter of 2025, including commencement of tree clearing, just as it would have under the timeline presented in the DEIS. However, the initiation of construction of Fabs 1 and 2 would be later, with each being constructed over a longer period of time. Specifically, construction of Fab 1, which previously was anticipated to begin following tree clearing in Q4 of 2025 and end at the end of Q2 2028, would, under the revised construction schedule, begin in Q2 of 2026 and extend to Q3 2030, whereupon operations of Fab 1 would begin. Under the revised construction schedule, construction of Fab 2 would begin in Q4 of 2030 and end in Q4 of 2033, instead of beginning in Q3 2028 and ending in Q4 2030 as contemplated in the DEIS. See Table B-5.

Because the revised construction schedule for Fabs 1 and 2 would push back the arrival of operational workers at the Micron Campus (See Figure B-16), initiation of construction at the Childcare Site would change from 2026 to 2028 for the childcare center, and from 2030 to 2032 for the healthcare and recreation centers. Securing warehouse space also would be changed to November 2028 because initiation of wafer production would occur later in time. Finally, the initiation of construction of Fab 3 would be changed from Q3 2033 to Q3 2035 and Fab 4 would be delayed by one calendar quarter. Despite these potential construction schedule changes, final construction on the Micron Campus (including Fab 4) would still be completed in 2041 as discussed in the DEIS and ramp up to full four-fab production would still occur by the end of 2045.

The construction schedule for the Connected Actions would also change to meet the utility needs of the Proposed Project, which would occur at different times under the potential revised construction schedule than discussed in the DEIS. As illustrated in the tables below, construction of the electrical, natural gas, freshwater, industrial wastewater, sanitary wastewater, and telecommunications-related connected actions all would be postponed and/or implemented over a longer period of time if Micron elects to move forward under the revised construction schedule scenario. See Figure B-17 and B-18. Finally, under a revised construction schedule, the interim bridging project that was discussed in the DEIS and would have been necessary to handle industrial wastewater flows from the Micron Campus while OCDWEP constructed the new IWWTP, would no longer be necessary. See DEIS Section 2.1.8.2.

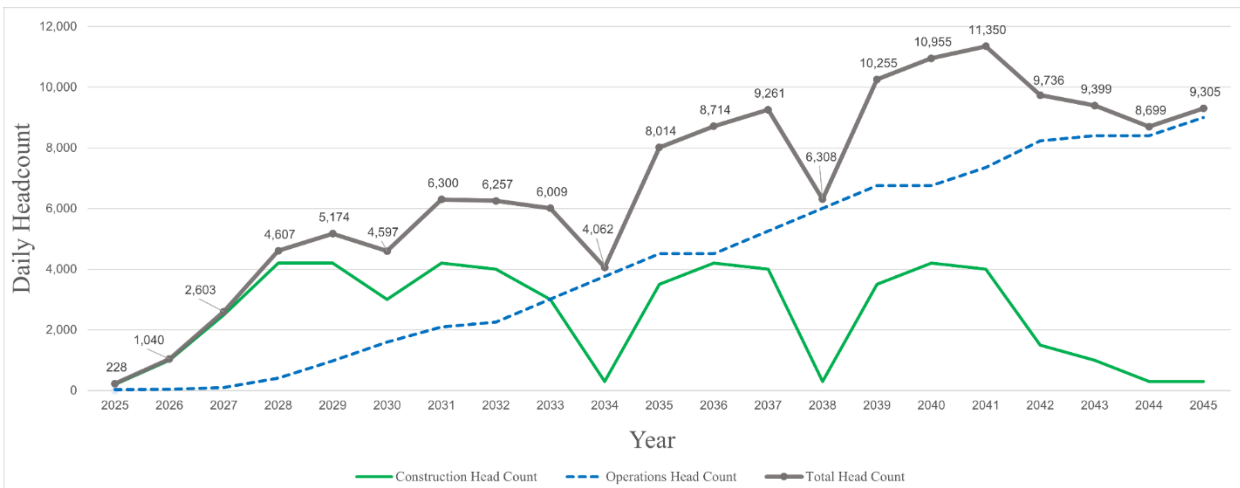
For more detailed information about the potential revised construction schedule, and a side-by-side comparison of these potential construction schedule changes and the construction schedule analyzed in the DEIS, see and Figures B-16 through B-18 below.

Table - Potential Revised Micron Campus Fab Construction Schedule

Phase	Fab	Tree Clearing	Construction Start	Ready for Equipment	Building Construction End	Operations Start
Phase 1A	Fab 1	Q1 2026	Q2 2026	Q2 2030	Q3 2030	Q3 2030
Phase 1B	Fab 2	Q4 2030	Q4 2030	Q3 2033	Q4 2033	Q4 2033
Phase 2A	Fab 3	Q1 2035	Q3 2035	Q2 2037	Q3 2037	Q3 2037
Phase 2B	Fab 4	Q1 2039	Q3 2039	Q3 2041	Q4 2041	Q4 2041

Source: Micron Technology (n.d.). Note: Fab 4 building construction would end in Q4 2041 and ramp up to full production by 2045.

Figure - Potential Revised Project On-Site Construction, Operation, and Total Headcount (2025-2045)



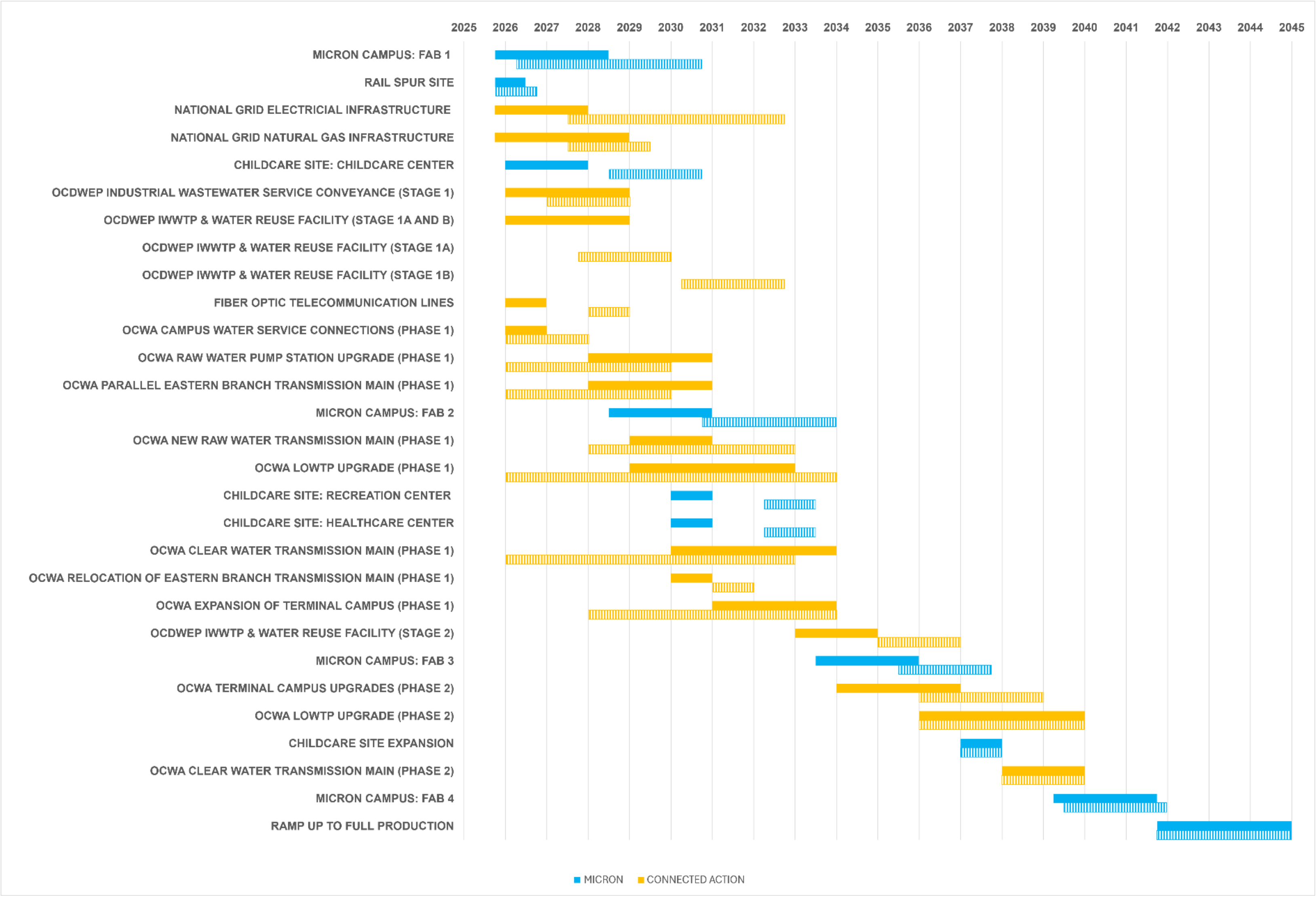
Source: Micron Technology (n.d.). Note: Although Fab 4 construction would end in Q4 2041, Fabs 3 and 4 would not ramp up to full production until 2045.

Figure - Potential Revised Proposed Project and Connected Actions Construction Timeline

Sources: Micron Technology (n.d.); National Grid (n.d.); OCWA (n.d.); OCDWEP (n.d.).

Note: Phases 1 and 2 of the OCWA improvements and Stages 1 and 2 of the OCDWEP improvements would be timed to serve Phase 1 (Fabs 1-2) and Phase 2 (Fabs 3-4) of the Micron Campus. The Warehouse Site is not shown but Micron would anticipate leasing warehouse space for a 7-10-year term beginning in November 2028.

Figure - Comparison of DEIS Construction Timeline and Potential Revised Construction Timelines



Sources: Micron Technology (n.d.); National Grid (n.d.); OCWA (n.d.); OCDWEP (n.d.).
Note: Solid bars represent construction timeline in DEIS; striped bars represent revised construction timeline

B-5.2 Potential Revised Construction Schedule Impact Analysis

The potential construction schedule revisions are not anticipated to materially change the reasonably foreseeable effects that were described in the DEIS for the Proposed Project and Connected Actions, or alter the significance of those effects. As a result, no changes were made to the assessment of environmental effects in Chapters 3 and 4 of the FEIS.

below provides a resource-by-resource assessment of how the potential construction schedule change might alter the intensity of environmental effects associated with the Proposed Project and Connected Actions. This assessment concluded that the potential construction schedule changes would either have no effect on, or slightly lessen, the environmental effects that otherwise would be associated with the Proposed Project and Connected Actions. As explained in the table, this is primarily because the potential construction schedule changes generally would reduce the intensity of development during the initial stages of Proposed Project implementation, while preserving the overall Proposed Project construction period. This is particularly the case for transportation-related effects under the revised construction schedule, which are further analyzed in the traffic technical memorandum (See Appendix B-6), which shows a less acute effect on traffic due to longer ramp-up periods for Fabs 1 and 2, and allows more time for NYSDOT and other authorities to implement traffic improvements to handle the traffic increase associated with the Proposed Project. Reduction in short-term traffic impacts also would reduce other effects associated with traffic, such as noise and air pollution. See and Appendix B-6.

As explained in , though impacts to some resource areas would be slightly altered, the potential revisions to the construction schedule would not materially change the anticipated environmental effects associated with the Proposed Project and Connected Actions, or affect the significance of the impacts that the Proposed Project and Connected Actions would have on any environmental resource.

Table - Impact of Potential Revised Project Construction Timeline on Anticipated Environmental Effects

Resource Area	Material Change to Impacts Associated with Construction?	Material Change to Impacts Associated with Operations?	Explanation
Land Use, Zoning, and Public Policy	No	No	The revised timeline would not affect the geographic scope, nature, or extent of the land use changes that would be associated with the Proposed Project and Connected Actions. The revised timeline would only affect the timing of these changes, which would not alter the effects on Land Use, Zoning, and Public Policy analyzed in the DEIS.
Geology, Soils, and Topography	No	No	The revised timeline would not affect the geographic scope, nature, or extent of the land use changes that would be associated with the Proposed Project and Connected Actions. The revised timeline would only affect the timing of these changes, which would not alter the effects on Geology, Soils, and Topography analyzed in the DEIS.
Water Resources	No; slightly reduces anticipated effects	No	The revised timeline would result in a slower construction pace during the construction of Fabs 1 and 2. This would modestly reduce the immediacy and intensity of many of the short-term impacts associated with the early phases of construction (e.g., soil runoff, potential for construction equipment spills). There are no proposed changes to the remainder of the construction schedule and long-term impacts for water resources that would result in additional effects.
Biological Resources	No	No; changes effects duration	The revised timeline would increase the time during which Fabs 1 and 2 would be constructed. This revised timeline would extend the period under which wildlife expected to occur in remaining habitats during the construction period, including aquatic biota and threatened and endangered species, would be exposed to lighting and noise disturbances associated with the construction. However, this exposure would be anticipated to be at a lower intensity than previously considered. As a result, the revised timeline would not

Resource Area	Material Change to Impacts Associated with Construction?	Material Change to Impacts Associated with Operations?	Explanation
			change the conclusions in the DEIS with respect to the degree of impacts to biological resources during construction. The remaining changes to the construction schedule would not have any different effect on biological resources than those disclosed in the DEIS.
Historic and Cultural Resources	No	No	The revised timeline would not affect the geographic scope, nature, or extent of the land use changes that would be associated with the Proposed Project and Connected Actions. The revised timeline would only affect the timing of these changes, which would not alter the effects of on Historic and Cultural Resources analyzed in the DEIS.
Air Quality	No; slightly reduces anticipated effects	No	The revised timeline would increase the time during which Fabs 1 and 2 would be constructed, and, therefore, would reduce the intensity of construction-related emissions over that time. The remainder of the construction schedule would be unaffected. Therefore, the revised timeline would modestly reduce construction-related air quality impacts. The revised timeline delays, but does not affect, the intensity of impacts from the startup and operation of the Proposed Project as analyzed in the DEIS. Further, given the reduction in construction intensity and overall traffic effects, traffic-generated mobile air emissions impacts would also be the same or better under a modified schedule.
Greenhouse Gas Emissions, Climate Change, and Climate Resiliency	No	No	The revised timeline would not affect the GHG emissions, Climate Change, or Climate Resiliency related effects of the Preferred Action Alternative. The revised timeline would increase the time during which Fabs 1 and 2 would be constructed, and, therefore, would reduce the intensity of construction-related GHG emissions over that time. The remainder of the construction schedule would be unaffected.

Resource Area	Material Change to Impacts Associated with Construction?	Material Change to Impacts Associated with Operations?	Explanation
			Therefore, the revised timeline would modestly reduce the intensity of GHG emissions associated with construction, but would not affect overall construction GHG emissions, which would still have the same climate related effects described in the DEIS. The revised timeline delays, but does not affect, the intensity of GHG/climate related impacts from the startup and operation of the Proposed Project. The revised timeline would not affect Proposed Project location, design, or operation, and will not affect the climate resiliency attributes analyzed in the DEIS.
Solid Waste, Hazardous Waste, and Hazardous Materials	No; slightly reduces anticipated effects	No	The revised timeline would increase the time during which Fabs 1 and 2 would be constructed, and, therefore, would push back and reduce the intensity of generation of solid waste over that time. Generation of hazardous waste and use of hazardous materials during construction is anticipated to be minimal; therefore, the revised timeline, if anything, would only serve to further reduce the intensity of generation of hazardous waste or use hazardous materials during construction for Fabs 1 and 2. The remainder of the construction schedule would be unaffected. Therefore, the revised timeline would modestly reduce construction-related solid waste generation impacts. The revised timeline does not affect the intensity of impacts from the startup and operation of the Proposed Project analyzed in the DEIS.
Human Health and Safety	No	No	The revised timeline would not materially affect human health and safety at the Proposed Project; slower construction schedules for Fabs 1 and 2 may reduce peak on-site workers during this period, which may result in a minor reduction of risk to workers at the Micron Campus during this time. The revised timeline would not affect the analysis in the DEIS on human health and safety associated with operating the Proposed Project.

Resource Area	Material Change to Impacts Associated with Construction?	Material Change to Impacts Associated with Operations?	Explanation
Utilities and Supporting Infrastructure	No	No; possible slight decrease in anticipated effects	Overall utility demands associated with implementing the Preferred Action Alternative would remain unchanged under the revised Proposed Project construction timeline. The only change would be the dates on which Proposed Project-related utility demand would occur. A potential delay will provide additional time for the various utility providers (including gas, electricity, freshwater supply, wastewater and broadband services) and utility planning entities to prepare for Proposed Project-related and induced growth increases in demand. Accordingly, the effects of the revised timeline on utilities likely would be slightly reduced from that analyzed in the DEIS.
Transportation and Traffic	No; slightly reduces anticipated effects	No; slightly reduces anticipated effects	The revised timeline reflects a longer, less intensive commencement of the construction period, reducing peak-hour traffic. It also would enable the implementation of recommended mitigation measures prior to Fab 1 and 2 related traffic volumes that were not feasible under the Preferred Action Alternative. The revised timeline would result in a reduction of significant adverse traffic impacts and no new significant adverse impacts, as presented in a traffic technical memo (see Appendix B-6), though it would not reduce the impacts disclosed and analyzed in the DEIS below the level of significance. Given the reduction in construction intensity and overall traffic effects, no new traffic impacts are anticipated. See Appendix B-6, traffic technical memo for additional details.
Noise and Vibration	No	No	The revised timeline would increase the time it would take to complete Fabs 1 and 2 and, therefore would reduce the anticipated overlapping peak intensity of construction-related noise associated with those Fabs compared to the Preferred Action Alternative. The analysis would be anticipated to remain unchanged for Fabs 3 and 4.

Resource Area	Material Change to Impacts Associated with Construction?	Material Change to Impacts Associated with Operations?	Explanation
			Construction-related peak vibration levels, which are below impact thresholds under the Preferred Action Alternative, are not expected to change. Additionally, the traffic technical memo indicates that the longer construction period is expected to reduce peak-hour traffic volumes associated with construction of Fabs 1 and 2 and, therefore, should result in lower traffic noise exposure levels of longer duration than those levels under the Preferred Action Alternative. Although the peak noise levels would be lower, they would not necessarily be below significance levels. Accordingly, the total combined effects of construction noise plus traffic noise plus operational noise will not be perceptibly different from those levels described in the DEIS, and recommended noise mitigation measures associated with construction and operations would remain unchanged. Further, given the reduction in construction intensity and overall traffic effects, traffic-generated noise impacts would also be the same or better under a modified schedule.
Visual Effects and Community Character	No	No	The revised timeline would not affect the geographic scope, nature, or extent of the land use changes, and, therefore, the analysis of visual or community character changes in the DEIS would not change. While the pace of construction of Fabs 1 and 2 would be slower than assumed in the DEIS, the overall construction period would not change. Construction and operation of the Micron Campus and Rail Spur Site would continue to be highly visible from certain surrounding areas and would produce noticeable visual effects from multiple viewpoints. There would be no significant aesthetic impacts on any designated aesthetic resources in range of the Proposed Project or Connected Actions. The Proposed Project would continue to result in changes to community character based on the combination of visual effects with other effects described in the FEIS, such as increased traffic

Resource Area	Material Change to Impacts Associated with Construction?	Material Change to Impacts Associated with Operations?	Explanation
			and noise, and the effects of induced growth. However, the revised timeline would reduce the intensity of construction-related effects during the time period when Fabs 1 and 2 are under construction. Overall, these changes would continue to be consistent with community character as expressed in local land use regulations, policies, and plans.
Community Facilities, Open Space, and Recreation	No	No	The revised timeline would not materially affect the conclusions of the DEIS with respect to community facilities, open space, and recreation. Slower construction schedules for Fabs 1 and 2 may reduce peak on-site workers during this period, reducing the demand for police services, fire services, EMS, healthcare facilities. Increased student enrollment from induced growth associated with the construction and operation of Fabs 1 and 2 would be more gradual but continue to bring increased economic activity and an expanded regional tax base capable of providing increased funding for school district budgets, facilities, and staffing. The revised timeline would not affect the conclusions of the DEIS with respect to open space and recreational resources. The induced residential growth would continue to contribute to property taxes and other fees that would support the maintenance of parks and recreational resources within the County. The potential significant adverse effects on volunteer fire services in the five-county region would continue, although the timing of these effects may be later. The proposed mitigation measures would not be affected by this change.
Socioeconomic Conditions	No; slightly reduces anticipated effects	No	The revised timeline would result in a slower construction pace in the early project period, reducing the immediacy and intensity of short-term demands on housing and construction labor and materials. This would enable local and regional markets to better respond to market changes, reducing the potential adverse effects associated with potential shortages in building material and labor

Resource Area	**Material Change to Impacts Associated with Construction?**	**Material Change to Impacts Associated with Operations?**	**Explanation**
			supply; it would reduce, but not eliminate, nor reduce below significance levels, the reasonably foreseeable significant adverse short-term impacts on housing costs in the local study area.
Environmental Justice	No; slightly reduces anticipated effects	No	As noted for the resource areas listed above, the revised timeline would not result in significant adverse impacts not already identified in the DEIS. Rather, it would modestly reduce the intensity of some construction effects, due to the slower pace of construction for Fabs 1 and 2. Therefore, the conclusions in the DEIS would be unaffected as the construction or operation of the Proposed Project or Connected Actions would not cause or increase a disproportionate burden on a DAC or a minority or low-income community, except the potential temporary adverse impact on housing and rent pricing, which would be reduced. As discussed in the DEIS, the Proposed Project would continue to produce the beneficial effects for the local and regional communities, including the identified DACs and minority and low-income communities.
Cumulative Effect on Each Resource Above	No	No	The revised timeline would not be anticipated to directly affect the construction of the reasonably foreseeable future projects identified in the Cumulative Effects Analysis. However, the slower pace of construction during the early stages of the Proposed Project would allow for more of the reasonably foreseeable future projects identified to be constructed. Many of the reasonably foreseeable future projects, particularly those associated with housing and transportation are anticipated to support the increased demands for transportation and housing capacity. As a result, the revised timeline would not be anticipated to result in increased cumulative effects relative to those already disclosed in the DEIS.

Appendix B-6
Revised Traffic Modeling Technical Memorandum

APPENDIX C
GROWTH INDUCING EFFECTS

Appendix C-1
Growth Inducing Effects Methodology and Study Area

C-1 Growth Inducing Effects

C-1.1 Overview and Study Area

SEQRA and its implementing regulations (6 NYCRR § 617.9) specify that an EIS should identify and discuss any growth inducing aspects of a proposed action, where such effects are relevant to the analysis. As described in the SEQR Handbook published by NYSDEC, the analysis in an EIS of the reasonably foreseeable indirect effects of a proposed action should include growth inducing effects, such as "effects related to changes in the pattern of land use, population density or growth rate, and air, water, and other natural systems, including ecosystems" (NYSDEC, 2020, p. 79).

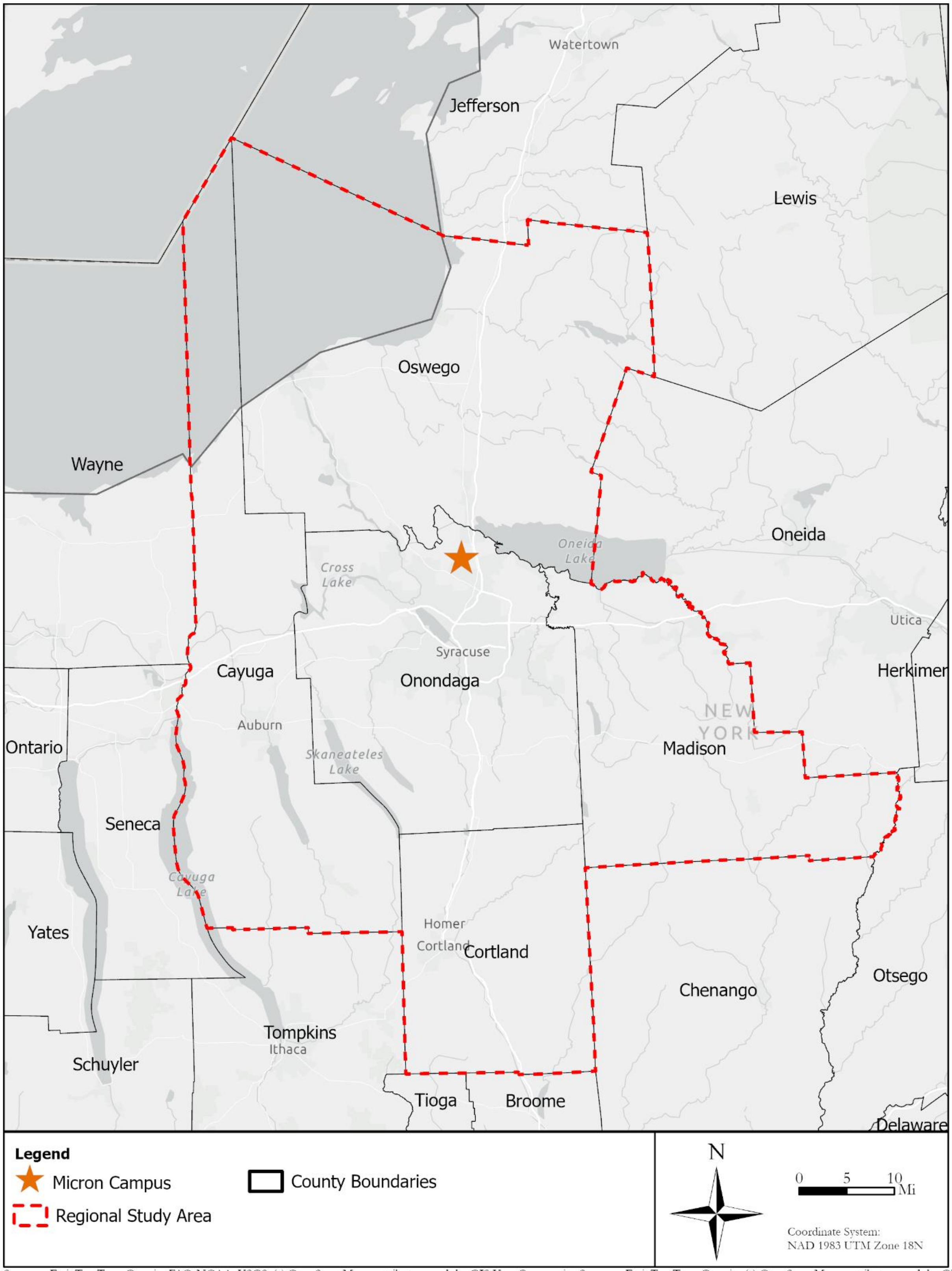
According to a 2022 study prepared by Regional Economic Models, Inc. (REMI) and sponsored by ESD (the "REMI Study"), 85 percent of induced job growth and 90 percent of induced residential growth from Micron establishing a four-fab semiconductor manufacturing facility in Onondaga County would occur within the five-county region (REMI, 2022). A copy of the REMI Study is included in Appendix C-2.

Therefore, this five-county region, shown in Figure C-1 on the next page, has been selected as the study area for analyzing growth inducing effects in this EIS. This study area represents the outer extent of the reasonably foreseeable growth inducing effects of the Preferred Action Alternative on the resource areas analyzed in the EIS, which describes such effects under Growth Inducing Effects in each section of Chapter 3. In general, although locations beyond the five-county region could experience some induced growth, such growth would likely be more limited in nature than that in the five-county region and would not occur at a scale that would be anticipated to result in significant adverse environmental effects.

Under the Preferred Action Alternative, the construction and operation of the Micron Campus in particular would be anticipated to induce job growth within the semiconductor supply chain, draw additional supply chain businesses to the area, and catalyze further development and growth in the regional economy. This economic revitalization could lead to increases in population, worker and household spending, and commercial and retail activity. At the same time, this induced growth could lead to changes in population density and land use patterns, and increased residential, commercial, and industrial activity that could produce additional effects on the surrounding human and natural environment.

The following sections provide additional information on the methodology and evaluation methods used to assess growth inducing effects in the EIS.

Figure C-1 Growth Inducing Effects Study Area



Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community, Sources: Esri, TomTom, Garmin, (c) OpenStreetMap contributors, and the GIS User Community

C-1.2 Methodology and Modeling

The methodology for the growth inducing effects analysis in the EIS was developed based on a combination of the REMI Study, local planning sources, and data analytics. An analysis of growth inducing effects requires information on the types of growth anticipated, the scale and extent of growth, and where that growth is likely to occur. Therefore, the growth inducing effects analysis first considered the following broad categories of growth:

- **Increases in population:** the Preferred Action Alternative would lead to in-migration of Micron workers, supply chain workers, and other individuals attracted to the area by increased social and economic opportunities, the in-migration of the families of those groups, and the increased retention of existing residents and workers and their families who would support and benefit from increased local economic activity and household spending from additional population and labor income such groups would bring.
- **Increases in jobs and economic activity:** the Preferred Action Alternative would lead to increased economic activity, business revenues, and jobs within the semiconductor manufacturing supply chain in the region and would further stimulate other business growth, residential growth, and household consumer spending.
- **Increases in residential, commercial, and industrial development:** in-migrating workers and families would need housing, which would spur additional residential development; Micron's construction and operational activities would lead to growth in supply chain businesses supporting Micron's activities; and increases in population and labor income would spur further commercial development to support the anticipated growth in household consumer spending.

The REMI Study estimated induced job[12] growth and induced residential growth from the construction of a four-fab facility at the proposed Micron Campus site that would be likely to occur between 2025 and 2055.[13] These induced growth estimates indicate the overall extent and scale of anticipated induced growth in the five-county region as a whole, but the study was not intended to provide induced growth projections at a smaller scale.

To develop a more granular analysis of growth inducing effects at the community level, the EIS used information and data from local planning sources compiled by the Syracuse Metropolitan Transportation Authority (SMTA) to develop a model of induced household growth at the town, city, and county levels. The model distributed the REMI Study's induced population growth projections by municipality as follows:

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[12] Although the REMI Study defined "induced jobs" as those jobs that would be generated by worker spending and "indirect jobs" as those jobs that would be generated within the semiconductor supply chain, the EIS considers both of those types of jobs as components of induced growth.

[13] The REMI Study found that induced population growth in the five-county region would be primarily driven by economic in-migration to the region due to the expanded availability of high-paying jobs. Economic in-migration is net population movement into (or out of) a region driven by changes in economic conditions such as job availability, compensation, cost of living, or taxes.

- The REMI Study's induced population growth projections were converted to estimated numbers of induced households, based on a 2.31 persons-per-household assumption derived from 2016-2021 U.S. Census Bureau American Community Survey (ACS) data for the five-county region.

- The total induced households were apportioned into the following household types:

  - Micron construction workers and their families who would in-migrate to the region based on construction jobs at the Micron Campus. The estimated number of in-migrating construction workers is based on Micron's estimated construction labor demand relative to the construction labor force supply within an approximately 90-mile radius of the Micron Campus, and assumes one Micron construction worker per in-migrating household.

  - Micron operational workers and their families who would in-migrate to the region for an operational job at the Micron Campus. The estimated number of in-migrating Micron operational workers is based on Micron's estimated operational labor demand relative to an average 28 percent worker in-migration rate that has occurred at Micron's existing facilities in Boise, ID and Manassas, VA, and assumes one Micron operational worker per in-migrating household.

  - Other workers and their families (also assuming one induced worker per household) who would in-migrate to the area to meet the growth in labor demand within Micron's supply chain and the consumer needs from the induced population growth, as well as individuals and families attracted to the area by increased social and economic opportunities.

- The total induced households were then distributed to municipalities within the five-county region based on the known characteristics of these household types:

  - In-migrating Micron construction worker households were distributed based in part on ACS data on commuting distances within Onondaga County and for construction workers nationally. The modeling also accounted for existing population densities, short-term housing supply constraints that could push worker housing farther out than shorter commuting distances, and Micron's intention to reimburse certain work-related travel expenses for construction workers traveling from as far away as 90 miles from the Micron Campus.

  - In-migrating Micron operational worker households also were distributed based on existing population densities and ACS data on commuting distances, including U.S. Census Bureau OnTheMap data on residence-to-workplace distances in the census tract where the Micron Campus would be located and the census tracts for Micron's existing facilities in Boise, ID and Manassas, VA and the GlobalFoundries semiconductor facilities in Malta, NY, taking into account changing patterns in commuting distances from before and after those facilities began operations.

  - Other workers and their families who would be employed at supply chain businesses and other commercial businesses serving anticipated household consumer spending growth were distributed not based on potential proximity to the Micron Campus but on existing municipal population densities within the five-county region; in-migrating residents who would be attracted to the region due to increased social and economic opportunities and who would not necessarily be tied to induced jobs also were distributed based on existing municipal population densities.

Because a vast majority of the projected in-migrating residents would not be employed with Micron, the modeled distribution of the REMI Study induced population projections as described above was not heavily concentrated around the Micron Campus location.

Separate from the modeling described above, SMTC generated future household and job growth projections for the Syracuse Metropolitan Planning Area (MPA) (all of Onondaga County, plus the Towns of Hastings, Schroeppel, and West Monroe in Oswego County), including anticipated growth associated with the Proposed Project. To generate these projections, SMTC staff met with local planning agencies, including representatives from the City of Syracuse, Onondaga County, and CenterState CEO, who identified general and site-specific locations of planned and anticipated household and employment growth or decline in their geographic areas of expertise. SMTC developed MPA projections for 2040 and 2050 based on this information, the REMI Study projections, and its local knowledge of other anticipated growth.

SMTC's MPA projections indicated a larger degree of induced growth than the modeling described above, whereas assuming the REMI Study's regional projections as an upper limit on the SMTC projections results in a reduced degree of induced growth occurring outside of the MPA but within the five-county region. Therefore, the EIS developed low- and high-range estimates of induced household growth at the town, city, and county levels to conservatively demonstrate the range of possible induced growth based on these varying information sources.

Induced commercial and industrial business growth within the semiconductor supply chain, and increased consumer demand generated by population increases, also would be anticipated to occur in the five-county region in addition to the induced household growth described above. The REMI Study did not provide estimates for induced commercial or industrial business growth, and it would be difficult to determine how much of that growth would occur largely within or through expansions of existing facilities versus through establishment of new facilities. Given the scale of anticipated supply chain growth and new worker and household spending, it is reasonable to assume that substantial new commercial and industrial development would occur over time. However, it would be premature to estimate ranges for such incremental commercial and industrial development at the municipal or regional level at this time.

C-1.3 Induced Growth Estimates

As described above, the EIS developed a model of future induced household growth at the town, city, and county levels. Although it is not possible to predict all of the specific locations and sites where induced development would occur over time (including because such development would be subject to applicable laws and regulations, including local zoning requirements, site plan approvals, and other discretionary actions requiring separate site-specific reviews), the municipal and county level estimates indicate the potential scale of such induced growth, and inform the discussion of potential Growth Inducing Effects in the EIS.

The following tables show the induced growth projections developed based on the methodology and modeling described in the previous section. The projections are shown as low- and high-range estimated percentage changes compared to 2023 estimated household numbers at the municipal and county levels the five-county region for the years 2035 and 2041. Table C-1 and C-2 show the total induced growth projections at the county level in 2035 and 2041. The remaining tables show the municipal projections within each county for those years.[14]

Table C-1 Induced Growth Projections by County (2035)

Geographic Area	Estimated Households in 2023	Micron Induced Households		Percent Increase in Households over 2023	
		Low	High	Low	High
Onondaga County	194,963	12,727	18,223	6.5%	9.3%
Oswego County	47,132	1,438	3,721	3.1%	7.9%
Madison County	25,563	751	1,943	2.9%	7.6%
Cayuga County	31,334	808	2,090	2.6%	6.7%
Cortland County	18,768	464	1,201	2.5%	6.4%

Table C-2 Induced Growth Projections by County (2041)

Geographic Area	Estimated Households in 2023	Micron Induced Households		Percent Increase in Households over 2023	
		Low	High	Low	High
Onondaga County	194,963	16,568	23,518	8.5%	12.1%
Oswego County	47,132	1,674	4,561	3.6%	9.7%
Madison County	25,563	874	2,382	3.4%	9.3%
Cayuga County	31,334	940	2,562	3.0%	8.2%
Cortland County	18,768	540	1,473	2.9%	7.8%

[14] All tables in this Appendix are projections developed by AKRF, Inc. based on data from the REMI Study, existing household data contained in U.S. Census Bureau ACS 2019-2023 5-year estimates, and SMTC growth projections. The induced household growth estimates presented in the tables include all Proposed Project-induced new populations, including: in-migrating Micron workers and families; retained and in-migrating supply chain workers and families; retained and in-migrating workers and families supporting increased household and consumer spending; and other retained and in-migrating residents attracted to the region by increased social and economic opportunities. Totals may not sum due to rounding.

Table C-3 Induced Growth in Onondaga County (2035)

Geographic Area	Estimated Households in 2022	Micron Induced Households		Percent Increase in Households over 2022	
		Low	High	Low	High
Onondaga County (Total)	**194,963**	**12,727**	**18,223**	**6.5%**	**9.3%**
Camillus	10,785	539	772	5.0%	7.2%
Cicero	12,635	1,270	1,819	10.1%	14.4%
Clay	25,143	2,092	2,996	8.3%	11.9%
Dewitt	10,332	796	1,140	7.7%	11.0%
Elbridge	2,339	101	144	4.3%	6.2%
Fabius	825	16	22	1.9%	2.7%
Geddes	7,187	195	280	2.7%	3.9%
LaFayette	1,942	71	101	3.7%	5.2%
Lysander	9,002	754	1,080	8.4%	12.0%
Manilius	13,830	789	1,130	5.7%	8.2%
Marcellus	2,629	129	185	4.9%	7.0%
Onondaga (town)	8,640	610	873	7.1%	10.1%
Onondaga Nation	192	-	-	-	-
Otisco	934	30	43	3.2%	4.6%
Pompey	2,812	97	139	3.4%	4.9%
Salina	15,205	544	779	3.6%	5.1%
Skaneateles	3,037	104	148	3.4%	4.9%
Spafford	730	19	27	2.6%	3.7%
Syracuse	59,286	4,097	5,866	6.9%	9.9%
Tully	1,016	41	59	4.0%	5.8%
Van Buren	6,462	433	620	6.7%	9.6%

Table C-4 Induced Growth in Onondaga County (2041)

Geographic Area	Estimated Households in 2023	Micron Induced Households		Percent Increase in Households over 2023	
		Low	High	Low	High
Onondaga County (Total)	**194,963**	**16,568**	**23,518**	**8.5%**	**12.1%**
Camillus	10,785	702	996	6.5%	9.2%
Cicero	12,635	1,654	2,348	13.1%	18.6%
Clay	25,143	2,724	3,866	10.8%	15.4%
Dewitt	10,332	1,036	1,471	10.0%	14.2%
Elbridge	2,339	131	186	5.6%	8.0%
Fabius	825	20	29	2.4%	3.5%
Geddes	7,187	254	361	3.5%	5.0%
LaFayette	1,942	92	131	4.7%	6.7%
Lysander	9,002	982	1,394	10.9%	15.5%
Manlius	13,830	1,028	1,459	7.4%	10.5%
Marcellus	2,629	168	238	6.4%	9.1%
Onondaga (town)	8,640	794	1,126	9.2%	13.0%
Onondaga Nation	192	-	-	-	-
Otisco	934	39	56	4.2%	6.0%
Pompey	2,812	126	179	4.5%	6.4%
Salina	15,205	708	1,005	4.7%	6.6%
Skaneateles	3,037	135	192	4.4%	6.3%
Spafford	730	25	35	3.4%	4.8%
Syracuse	59,286	5,333	7,570	9.0%	12.8%
Tully	1,016	54	76	5.3%	7.5%
Van Buren	6,462	564	800	8.7%	12.4%

Table C-5 Induced Growth in Oswego County (2035)

Geographic Area	Estimated Households in 2023	Micron Induced Households		Percent Increase in Households over 2023	
		Low	High	Low	High
Oswego County (Total)	**47,132**	**1,438**	**3,721**	**3.1%**	**7.9%**
Albion	709	20	54	2.9%	7.6%
Amboy	487	14	37	2.9%	7.6%
Boylston	256	7	19	2.9%	7.6%
Constantia	1,879	64	161	3.4%	8.6%
Fulton	4,782	138	364	2.9%	7.6%
Granby	2,657	77	202	2.9%	7.6%
Hannibal	1,781	51	135	2.9%	7.6%
Hastings	3,851	132	329	3.4%	8.6%
Mexico	2,269	66	173	2.9%	7.6%
Minetto	691	20	53	2.9%	7.6%
New Haven	1,107	32	84	2.9%	7.6%
Orwell	370	11	28	2.9%	7.6%
Oswego city	7,256	210	552	2.9%	7.6%
Oswego town	1,874	54	143	2.9%	7.6%
Palermo	1,220	42	104	3.4%	8.6%
Parish	1,042	30	79	2.9%	7.6%
Redfield	168	5	13	2.9%	7.6%
Richland	2,337	68	178	2.9%	7.6%
Sandy Creek	1,610	47	122	2.9%	7.6%
Schroeppel	3,385	116	290	3.4%	8.6%
Scriba	2,809	81	214	2.9%	7.6%
Volney	2,346	80	201	3.4%	8.6%
West Monroe	1,707	58	146	3.4%	8.6%
Williamstown	539	16	41	2.9%	7.6%

Table C-6 Induced Growth in Oswego County (2041)

Geographic Area	Estimated Households in 2023	Micron Induced Households		Percent Increase in Households over 2023	
		Low	High	Low	High
Oswego County (Total)	**47,132**	**1,674**	**4,561**	**3.6%**	**9.7%**
Albion	709	24	66	3.4%	9.4%
Amboy	487	16	46	3.4%	9.4%
Boylston	256	9	24	3.4%	9.4%
Constantia	1,879	74	195	3.9%	10.4%
Fulton	4,782	162	448	3.4%	9.4%
Granby	2,657	90	249	3.4%	9.4%
Hannibal	1,781	60	167	3.4%	9.4%
Hastings	3,851	152	400	3.9%	10.4%
Mexico	2,269	77	212	3.4%	9.4%
Minetto	691	23	65	3.4%	9.4%
New Haven	1,107	37	104	3.4%	9.4%
Orwell	370	13	35	3.4%	9.4%
Oswego city	7,256	245	679	3.4%	9.4%
Oswego town	1,874	63	175	3.4%	9.4%
Palermo	1,220	48	127	3.9%	10.4%
Parish	1,042	35	98	3.4%	9.4%
Redfield	168	6	16	3.4%	9.4%
Richland	2,337	79	219	3.4%	9.4%
Sandy Creek	1,610	54	151	3.4%	9.4%
Schroeppel	3,385	133	352	3.9%	10.4%
Scriba	2,809	95	263	3.4%	9.4%
Volney	2,346	92	244	3.9%	10.4%
West Monroe	1,707	67	177	3.9%	10.4%
Williamstown	539	18	50	3.4%	9.4%

Table C-7 Induced Growth in Madison County (2035)

Geographic Area	Estimated Households in 2023	Micron Induced Households		Percent Increase in Households over 2023	
		Low	High	Low	High
Madison County (Total)	**25,563**	**751**	**1,943**	**2.9%**	**7.6%**
Brookfield	839	24	62	2.8%	7.4%
Cazenovia	2,479	74	190	3.0%	7.7%
DeRuyter	518	15	38	2.8%	7.4%
Eaton	1,180	33	87	2.8%	7.4%
Fenner	682	20	52	3.0%	7.7%
Georgetown	223	6	17	2.8%	7.4%
Hamilton	1,522	43	113	2.8%	7.4%
Lebanon	521	15	39	2.8%	7.4%
Lenox	3,681	109	282	3.0%	7.7%
Lincoln	701	21	54	3.0%	7.7%
Madison	1,167	33	87	2.8%	7.4%
Nelson	778	23	60	3.0%	7.7%
Oneida	4,519	134	346	3.0%	7.7%
Smithfield	447	13	34	3.0%	7.7%
Stockbridge	729	22	56	3.0%	7.7%
Sullivan	5,577	166	427	3.0%	7.7%

Table C-8 Induced Growth in Madison County (2041)

Geographic Area	Estimated Households in 2023	Micron Induced Households		Percent Increase in Households over 2023	
		Low	High	Low	High
Madison County (Total)	**25,563**	**874**	**2,382**	**3.4%**	**9.3%**
Brookfield	839	28	76	3.3%	9.1%
Cazenovia	2,479	86	233	3.5%	9.4%
DeRuyter	518	17	47	3.3%	9.1%
Eaton	1,180	39	108	3.3%	9.1%
Fenner	682	24	64	3.5%	9.4%
Georgetown	223	7	20	3.3%	9.1%
Hamilton	1,522	50	139	3.3%	9.1%
Lebanon	521	17	47	3.3%	9.1%
Lenox	3,681	127	345	3.5%	9.4%
Lincoln	701	24	66	3.5%	9.4%
Madison	1,167	39	106	3.3%	9.1%
Nelson	778	27	73	3.5%	9.4%
Oneida	4,519	156	424	3.5%	9.4%
Smithfield	447	15	42	3.5%	9.4%
Stockbridge	729	25	68	3.5%	9.4%
Sullivan	5,577	193	523	3.5%	9.4%

Table C-9 Induced Growth in Cayuga County (2035)

Geographic Area	Estimated Households in 2023	Micron Induced Households		Percent Increase in Households over 2023	
		Low	High	Low	High
Cayuga County (Total)	**31,334**	**808**	**2,090**	**2.6%**	**6.7%**
Auburn	11,758	310	796	2.6%	6.8%
Aurelius	1,097	27	70	2.4%	6.4%
Brutus	1,873	49	127	2.6%	6.8%
Cato	1,100	29	74	2.6%	6.8%
Conquest	683	18	46	2.6%	6.8%
Fleming	991	24	63	2.4%	6.4%
Genoa	652	16	42	2.4%	6.4%
Ira	786	21	53	2.6%	6.8%
Ledyard	602	15	38	2.4%	6.4%
Locke	741	18	47	2.4%	6.4%
Mentz	828	22	56	2.6%	6.8%
Montezuma	496	13	34	2.6%	6.8%
Moravia	1,020	25	65	2.4%	6.4%
Niles	498	12	32	2.4%	6.4%
Owasco	1,655	44	112	2.6%	6.8%
Scipio	578	14	37	2.4%	6.4%
Sempronius	304	7	19	2.4%	6.4%
Sennett	1,256	33	85	2.6%	6.8%
Springport	914	22	58	2.4%	6.4%
Sterling	1,410	37	95	2.6%	6.8%
Summerhill	379	9	24	2.4%	6.4%
Throop	698	18	47	2.6%	6.8%
Venice	457	11	29	2.4%	6.4%
Victory	558	15	38	2.6%	6.8%

Table C-10 Induced Growth in Cayuga County (2041)

Geographic Area	Estimated Households in 2023	Micron Induced Households		Percent Increase in Households over 2023	
		Low	High	Low	High
Cayuga County (Total)	**31,334**	**940**	**2,562**	**3.0%**	**8.2%**
Auburn	11,758	360	974	3.1%	8.3%
Aurelius	1,097	31	86	2.8%	7.9%
Brutus	1,873	57	155	3.1%	8.3%
Cato	1,100	34	91	3.1%	8.3%
Conquest	683	21	57	3.1%	8.3%
Fleming	991	28	78	2.8%	7.9%
Genoa	652	18	51	2.8%	7.9%
Ira	786	24	65	3.1%	8.3%
Ledyard	602	17	47	2.8%	7.9%
Locke	741	21	58	2.8%	7.9%
Mentz	828	25	69	3.1%	8.3%
Montezuma	496	15	41	3.1%	8.3%
Moravia	1,020	29	80	2.8%	7.9%
Niles	498	14	39	2.8%	7.9%
Owasco	1,655	51	137	3.1%	8.3%
Scipio	578	16	46	2.8%	7.9%
Sempronius	304	9	24	2.8%	7.9%
Sennett	1,256	38	104	3.1%	8.3%
Springport	914	26	72	2.8%	7.9%
Sterling	1,410	43	117	3.1%	8.3%
Summerhill	379	11	30	2.8%	7.9%
Throop	698	21	58	3.1%	8.3%
Venice	457	13	36	2.8%	7.9%
Victory	558	17	46	3.1%	8.3%

Table C-11 Induced Growth in Cortland County (2035)

Geographic Area	Estimated Households in 2023	Micron Induced Households		Percent Increase in Households over 2023	
		Low	High	Low	High
Cortland County (Total)	**18,768**	**464**	**1,201**	**2.5%**	**6.4%**
Cincinnatus	429	9	25	2.2%	5.9%
Cortland City	6,992	153	411	2.2%	5.9%
Cortlandville	3,209	70	189	2.2%	5.9%
Cuyler	288	10	24	3.5%	8.3%
Freetown	326	7	19	2.2%	5.9%
Harford	413	9	24	2.2%	5.9%
Homer	2,786	98	231	3.5%	8.3%
Lapeer	293	6	17	2.2%	5.9%
Marathon	749	16	44	2.2%	5.9%
Preble	560	20	46	3.5%	8.3%
Scott	377	8	22	2.2%	5.9%
Solon	379	8	22	2.2%	5.9%
Taylor	159	3	9	2.2%	5.9%
Truxton	457	16	38	3.5%	8.3%
Virgil	1,028	22	60	2.2%	5.9%
Willet	323	7	19	2.2%	5.9%

Table C-12 Induced Growth in Cortland County (2041)

Geographic Area	Estimated Households in 2023	Micron Induced Households		Percent Increase in Households over 2023	
		Low	High	Low	High
Cortland County (Total)	**18,768**	**540**	**1,473**	**2.9%**	**7.8%**
Cincinnatus	429	11	31	2.6%	7.3%
Cortland City	6,992	179	509	2.6%	7.3%
Cortlandville	3,209	82	234	2.6%	7.3%
Cuyler	288	12	28	4.0%	9.9%
Freetown	326	8	24	2.6%	7.3%
Harford	413	11	30	2.6%	7.3%
Homer	2,786	111	275	4.0%	9.9%
Lapeer	293	8	21	2.6%	7.3%
Marathon	749	19	55	2.6%	7.3%
Preble	560	22	55	4.0%	9.9%
Scott	377	10	27	2.6%	7.3%
Solon	379	10	28	2.6%	7.3%
Taylor	159	4	12	2.6%	7.3%
Truxton	457	18	45	4.0%	9.9%
Virgil	1,028	26	75	2.6%	7.3%
Willet	323	8	24	2.6%	7.3%

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Appendix C-2
REMI Study

APPENDIX D
LAND USE, ZONING, AND PUBLIC POLICY

Appendix D-1
Land Use, Zoning, and Public Policy Methodology

D-1 Land Use, Zoning, and Public Policy Methodology

This section defines the study area for land use, zoning, and public policy and explains the methodology, data, and sources of information used to describe the affected environment. This section also explains the evaluation methods used to determine the direct and indirect effects of the alternatives on land use, zoning, and public policy. The analysis considers the Preferred Action Alternative's direct effects on uses and development trends within the study area and its compatibility with the surrounding built and natural environment. The analysis also considers the Preferred Action Alternative's relationship to applicable zoning regulations and public policies. Finally, the analysis considers potential indirect growth inducing effects on land use, zoning, and public policy in the region. Potential cumulative effects on land use, zoning, and public policy are evaluated in Chapter 4.

The land use study area encompasses the full scope of the Proposed Project and the proposed Connected Actions. The study area for the Proposed Project includes the Micron Campus, the Rail Spur Site, and the Childcare Site, as well as the area within a 1-mile radius surrounding the Micron Campus and the Rail Spur Site and a ¼-mile radius surrounding the Childcare Site, as shown in Figure 3.1-1. These study area limits represent a conservative estimate of the broader area potentially susceptible to land use changes from the Proposed Project. The build-out of the Micron Campus and the Rail Spur Site would create industrial uses in an area generally surrounded by vacant land, residential uses, and agricultural land. Therefore, the 1-mile radius around the Micron Campus and the Rail Spur Site represents the area that would be most likely to experience potential adverse effects from the manufacturing and industrial activities on those sites, such as noise and vibration effects from construction activities and the effects of increased traffic. The Childcare Site would include childcare, medical, and recreational uses more common in residential and commercial areas with more limited potential to disturb adjacent properties. Therefore, the ¼-mile radius was selected based on the lower likelihood of potential adverse effects from that site to extend beyond that distance.

The land use study area also encompasses the Connected Actions (electricity, natural gas, telecommunications, water, wastewater, and utility improvements; see Table 3.1-3). The Connected Actions would include upgrades to existing utility properties and certain linear infrastructure located primarily in existing rights-of-way and easements that would be unlikely to generate noticeable post-construction effects beyond the utility boundaries. Therefore, the study area for the Connected Actions is limited to the extent of the new utilities and improvements upon build-out but considers any potential effects on surrounding properties, including privately owned parcels along utility easement areas. The analysis also considers relevant effects on surrounding land uses and relevant zoning and public policy considerations.

Various sources were used to comprehensively analyze the land use, zoning, and public policy characteristics of the study area, including land use data supplied by Onondaga County; zoning maps from both the Town of Clay and the Town of Cicero as well as those towns' respective zoning codes; and comprehensive plans and other planning documents published by Onondaga County, the Town of Clay, and Town of Cicero. The methodology accounts for all existing land uses in the study area, including existing residences, businesses, and community facilities in the vicinity of the Proposed Project, as well as the other planned projects identified in Table 3.1-2.

The analysis also summarizes the existing zoning regulations applicable to the area of the Preferred Action Alternative and the land use study area and describes any changes to zoning regulations that are anticipated by the Preferred Action Alternative.

As explained in Section 3.1.3.2, the analysis of growth inducing effects due to reasonably foreseeable increases in population, jobs and economic activity, and residential, commercial, and industrial development under the Preferred Action Alternative relies on a study area that includes the five-county region. Because this study area supports the analysis of the alternatives' potential growth inducing effects on multiple resource areas, the detailed methodology for this study area is provided in Appendix B-3.

Finally, the methodology also considers the Preferred Action Alternative's relationship to applicable local or regional planning and economic development policies, including the Onondaga County Comprehensive Plan, the SMTC 2050 Long Range Transportation Plan 2020 Update, the Town of Clay Northern Land Use Study, the Town of Cicero Comprehensive Plan, and the New York Green CHIPS Program.

Appendix D-2
Zoning Regulations

D-2 Zoning Regulations

This section summarizes the zoning regulations that would be applicable to the Proposed Project, including design standards, site plan conditions, and mitigation requirements potentially applicable to new development.

D-2.1 Industrial-2 District (Town of Clay)

The majority of the Micron Campus and the entire Rail Spur Site would be located within the Town of Clay Industrial-2 (I-2) zoning district.

As shown in Table D-1Table D-1 below, development in the I-2 district must comply with the dimensional/bulk (i.e., building size and shape), density, and design requirements in the Town of Clay Zoning Code. The I-2 district does not have minimum lot area, width, or depth requirements, and does not restrict maximum building height, number of floors, or gross floor area, but does include a maximum building coverage of 60 percent and a total maximum lot coverage of 80 percent. The district also requires minimum frontage and perimeter landscape areas and additional side and rear yards when a lot abuts a non-industrial district. In addition, the district imposes performance standards on activities that emit noise exceeding certain maximum levels, vibration, dust and dirt, smoke, noxious gases, and odors, as well as standards relating to lighting and glare, radioactive materials, fire, and safety hazards.

Table D-1 Town of Clay I-2 District Requirements

Requirement	Principal Structure	Accessory Structure
Minimum Required Dimensions/Bulk		
Lot Area / Width / Depth	-	-
Maximum Permitted Dimensions/Bulk		
Building Height / Floors	-	-
Gross Floor Area (GFA)	-	-
Building Coverage	60%	60%
Total Lot Coverage	80%	80%
Front Perimeter Landscape Strip	50% of front yard area required (25% of front yard required when a lot is surrounded on all sides by other industrial zones).	
Structure Design, Scale, and Materials	Approval required for new or modified land uses and/or structures proposed on a property that is entirely or partially within 500 feet of a Residential Zone District in consideration of compatibility of site and building design, scale of development, and any impacts related to development with the existing or planned character of those residential zones. Seven-foot-high fence, hedge, or similar opaque barrier required around open storage of materials or waste to screen them from view from all property lines.	

Requirement	Principal Structure	Accessory Structure
Minimum Required Frontage and Design Requirements		
Front Yard (ft)	200 (NYS or County HWY) 50 (Town or Private HWY)	Existing principal structure rear line
Side Yard (ft)	25 (100 if abutting non-industrial district)	25 (100 if abutting non-industrial district)
Rear Yard (ft)	25 (100 if abutting non-industrial district)	25 (100 if abutting non-industrial district)
Performance Standards		
Noise and Vibration	Noise from activities generally limited to a maximum of 70 decibels between 6:00 a.m. and 10:00 p.m., or 60 decibels between 10:00 p.m. and 6:00 a.m., with provisions for limited intermittent exceedances. Activities that result in vibration that creates an unreasonable displacement are prohibited.	
Dust and Dirt	Activities required to meet USEPA or NYSDEC standards for limiting emissions of soot, cinders or fly ash, other kinds of dust, dirt and other particulate matter. Emissions of dust and/or dirt crossing the property lines of the subject property are prohibited.	
Smoke, Noxious Gases, and Odors	Activities required to meet USEPA or NYSDEC standards for limiting emissions of smoke. Emissions of noxious acids, fumes, or gases at levels with the potential endanger public health or safety are prohibited. Emissions of odors that are unreasonably offensive are prohibited.	
Lighting and Glare	Activities that illuminate a property or emit direct or reflected glare that is determined to be unreasonably intense or offensive is prohibited. Lighting of signs, buildings or yards is prohibited, unless it is of intensity, location, direction and shielding that does not impair the vision of any motor vehicle driver. Any activity, structure, or site improvement on property that is entirely or partially within 500 feet of a residential zone district may be subject to more restrictive lighting standards.	
Radiation, Fire, and Safety	Activities that emit any form or quantities of radioactive materials that are considered unsafe under standards established by NIST or the NYS Department of Labor are prohibited. All buildings, operations, storage, waste disposal, etc. are required to be in conformance with applicable provisions of the NYS Uniform Fire Prevention and Building Code relating to fire protection and safety.	

Source: Town of Clay Zoning Code.

D-2.2 Highway Overlay District (Town of Clay)

The Micron Campus also would be located in the Town of Clay Highway Overlay district, which applies to properties that abut major roadways. The Highway Overlay district was created to protect the function, safety, and efficiency of primary roadways by allowing additional space for roadway expansion while providing for additional setbacks. The district classifies NYS Route 31 as a Type A road, which means it has the potential to become a five-lane roadway. Developments in the Highway Overlay district that would abut Type A roads may include increased lot sizes but would be subject to increased frontage requirements (double the base district minimum), as well as a 165-foot setback for primary structures, a 115-foot setback for accessory structures, and a 90-foot setback for parking areas.

D-2.3 Residential/Agricultural District (Town of Clay)

Three parcels in the WPCP are currently zoned as Residential/Agricultural (RA-100). The Childcare Site also would be located in an RA-100 district. RA-100 districts are intended for agricultural activities, low-density family dwellings, and supportive non-residential development. Other uses not specifically permitted in an RA-100 district may need to obtain special use permits from the Town of Clay Planning Board.[15]

D-2.4 General Commercial District (Town of Cicero)

Two portions of the Micron Campus would be located in the Town of Cicero General Commercial (GC) district, which permits a mix of commercial uses such as shopping centers, hotels and motels, gas stations, and restaurants. Table D-2~~Table D-2~~ shows the GC bulk regulations.

Table D-2 Town of Clay GC District Bulk Regulations

Dimension	Bulk Limit
Minimum Building Line	100 ft.
Minimum Lot Depth	200 ft.
Minimum Front Yard	50 ft.
Minimum Rear Yard	25 ft.
Minimum Side Yard	15 ft.
Maximum Coverage	40%
Maximum Building Size	100,000 sq. ft.

[15] Section 230-13 A (2) (c) [7] of the Town of Clay Zoning Code permits “Special Uses” defined as “An accessory use to a principal use which, because of its unique characteristics, requires special consideration in each case by the Planning Board before a building permit can be issued.”

Dimension	Bulk Limit
Maximum Height	60 ft.

Source: Town of Cicero Zoning Code

References

Town of Cicero (NY) Department of Zoning and Planning. (n.d.). Town of Cicero Zoning Code. https://ciceronewyork.net/zoning-planning/. Accessed November 2023.

Town of Clay (NY) Department of Planning and Development. (n.d.). Town of Clay Zoning Code. https://townofclay.org/forms-permits-info/zoning-codes-map. Accessed November 20232023 .

Appendix D-3
Public Policies

D-3 Public Policies

This section summarizes the public policies that would be applicable to the Preferred Action Alternative, including policies related to land use and planning in the local region (e.g., local comprehensive, land use, and transportation plans) and the New York Green CHIPS economic development program. The section includes analyses of the relationship between the Preferred Action Alternative and each of these public policies.

D-3.1 2050 Long Range Transportation Plan 2020 Update

SMTC adopted its 2050 Long Range Transportation Plan 2020 Update (LRTP) in September 2020 to provide goals, objectives, targets, and performance measures, utilize transportation planning, and lay out capital investments. SMTC amended the LRTP in 2022 to reflect progress on the Interstate 81 Viaduct Project, including by incorporating a new financial analysis and adding anticipated future short-term highway projects to the LRTP.

In developing the LRTP, SMTC reviewed local and regional planning documents and compiled public input to create goals for the future. The LRTP analyzes past and current regional population growth, the region's economic growth, potential future growth patterns, travel, and tourism, and proposed future employment centers. The LRTP specifically identifies the WPCP as a proposed future employment center that would bolster the region's economic growth.

The LRTP comprehensively documents the existing transportation system, examining factors such as freight volumes, challenges and opportunities in freight movement, and issues related to injuries, fatalities, accessibility, mobility, environmental impacts, reliability, preservation, and equity. The LRTP also incorporates predictive modeling for future conditions and evaluates emerging transportation trends, including the potential integration of autonomous vehicles. The LRTP designates I-81 as a key freight corridor and an integral part of the Congestion Management Process (CMP) Freight Network and identifies both I-81 and NYS Route 31 as primary commuter corridors. The LRTP also outlines two designated on-street bike routes: one aligning with NYS Route 31 and the other following U.S. Route 11.

The LRTP identifies future short-term projects, including: capacity improvements on NYS Route 31 at Caughdenoy Road; maintenance on I-81 between NYS Route 31 and Route 49; and railroad grade crossing improvements planned at the intersection of the CSX Railroad with Old Liverpool Road. The LRTP also identifies mid-term projects (2025-2034) including interchange improvements at I-81 and NYS Route 31, and NYS Route 31 intersection turn lanes from Morgan Road to U.S. Route 11 (SMTC, 2020).

D-3.1.1 Analysis

As the Preferred Action Alternative is not a transportation system improvement project, it would not directly advance the SMTC LRTP's goals relating to the region's transportation system. However, the Preferred Action Alternative would be consistent with SMTC's LRTP goals relating to community planning, which seek to support the planning goals of the region and local communities. This includes supporting smart growth development patterns and commercial and industrial development.

The LRTP specifically identifies the WPCP, where the Micron Campus would be located, as a future employment center to help support the region's economic growth. The Proposed Project would be adjacent to major roadways evaluated in the LRTP, including I-81, NYS Route 31, and U.S. Route 11. The LRTP includes capacity improvements and upgrades on each of these roads in the short-term, with interchange and intersection improvements identified as mid-term projects.

Section 3.11 (Transportation and Traffic) identifies potential transportation improvement projects that could address anticipated traffic effects from the Proposed Project. The transportation improvements also would address capacity on the roads evaluated in the LRTP and their interchanges, which would support the LRTP's goal of improving road access to intermodal freight facilities and major freight generators. Any proposed transportation improvements would be subject to review by NYSDOT and the FHWA.

D-3.2 Onondaga County Comprehensive Plan

Onondaga County adopted the Onondaga County Comprehensive Plan (the Comprehensive Plan) in 2023 to envision the future of the County. Through public input, the County developed the Comprehensive Plan around five themes—Strong Centers, Housing and Neighborhoods, Community Mobility, Greenways and Blueways, and Agriculture—and included goals and recommendations for all five themes.

The Comprehensive Plan evaluates the County's current conditions and trends, which include a decline in job growth, and establishes a global economic competitiveness framework for the County. The Comprehensive Plan recognizes the County's competitiveness in three defined areas that contribute to regional economic competitiveness—Human Capital, Strong Centers, and Economic Collaboration—but notes the need for continued improvement in Economic Collaboration.[16] Under the Strong Centers theme, the Comprehensive Plan calls for infrastructure investments and economic development to encourage private sector investment and improve the quality of life through the creation of higher paying jobs. It also identifies employment centers, such as industrial parks, as a type of development that should be prioritized for continued investment. The Comprehensive Plan specifically identifies the Proposed Project as a major economic development initiative that would positively influence growth in the region.[17]

[16] Human Capital, also referred to in the Comprehensive Plan as "Investments in People," concerns social elements that support growth in the knowledge-based economy, such as support for entrepreneurship, improving quality of life to attract talent, and education. Economic Collaboration concerns coordinated efforts to guide economic development, such as support for institutions that encourage economic growth and developing strong relationships between jurisdictions and with the private sector.

[17] See Comprehensive Plan at 11 (Countywide Profile): "In October 2022 Micron Technology Inc. announced that it would be locating its largest semiconductor manufacturing facility in the Town of Clay, in the northern portion of Onondaga County. This facility is the largest economic development project to date in the history of the nation and will provide 9,000 jobs at the facility and an estimated 40,000 induced jobs in the region, especially in Onondaga County. The location of the plant in the Town of Clay will create a dramatic shift in employment centers. The project will also introduce jobs and an industry that will support our existing and planned mixed-use centers. From the initiation of Plan Onondaga, the planning team has been aware that this type of opportunity was inevitable, and the themes and approaches put forward in this plan are consistent with both a fast-growth and slow-growth reality."

The Comprehensive Plan includes a land use plan for the County that reflects the County's vision for its future growth, calls for new development and future investment to be concentrated in areas that are served by existing infrastructure, and specifically identifies "centers" throughout the County that have the ability to support additional growth: Traditional Centers (existing walkable, mixed-use, and amenity-rich neighborhoods); Emerging and Town Growth Centers (existing commercial corridors and downtown areas with potential for growth); the City Center (downtown Syracuse); and Employment Centers (locations with potential for increased economic activity, such as manufacturing). The Comprehensive Plan identifies the proposed Micron Campus as a potential Employment Center and nearby locations along the NYS Route 31 and I-81 corridors as Emerging Centers.

The Comprehensive Plan calls for a focus on transit-oriented development near the identified centers and transit corridors and enhancement of the BRT system to support the land use vision for the County. It identifies the portion of I-81 near the proposed Micron Campus as a corridor to target for enhanced BRT services and recommends that the County take a broader approach to the BRT system as it works to advance the WPCP redevelopment that accounts for potential increases in people travelling to and from the site.

D-3.2.1 Analysis

The Preferred Action Alternative would advance key goals in the Comprehensive Plan to expand economic development in Onondaga County. The Comprehensive Plan cites the proposed Micron Campus as an opportunity to bolster the County's competitiveness in Human Capital, Strong Centers, and Economic Collaboration. The Proposed Project also would support the Comprehensive Plan's recommendations relating to continued investment in industrial parks and other businesses that would bring high paying jobs to the County and promote development near existing utilities and transit corridors. The Proposed Project would become an Employment Center under the Comprehensive Plan capable of driving the County's economic development goals.

The Proposed Project would not directly advance some of the Comprehensive Plan's goals relating to development of key Employment Centers; in particular, the Proposed Project would not include improvements to public transit such as expansion of BRT services, which were actions intended to be taken by the County.

D-3.3 Town of Clay Northern Land Use Study

The Town of Clay adopted its Northern Land Use Study (NLUS) in 2013 to guide Town officials and planners with regard to future land use development in the northern portion of the Town. It evaluates existing land uses in the area north of NYS Route 31 as well as development-constraining features, such as sewage and water access, wetlands, soils, and floodplains. The NLUS aims to preserve open space and project future patterns of growth, and includes a plan for appropriate land uses adjacent to the Town of Cicero.

The NLUS encompasses three main themes: environmental, economic, and public infrastructure. The study's environmental objectives focus on safeguarding environmentally sensitive areas, preserving open space, and mitigating the development impacts on water quality. The NLUS also recognizes the Town of Clay Local Waterfront Revitalization Program as part of an overarching goal to protect riverfront areas in the Town. The NLUS includes recommendations to maintain the rural character of the area by focusing growth in suitable locations. These recommendations include permitting higher-density, large-lot residential uses with a minimum lot size of 100,000 sq. ft and encouraging cluster developments with minimum lot sizes of 40,000 sq. ft. where suitable.

The NLUS' economic goals include promoting the development of the WPCP and leveraging its proximity to I-81 and essential public infrastructure. The NLUS also includes a public infrastructure goal that calls for restricting sewer and water extensions north of NYS Route 31 except as needed to support the WPCP redevelopment.

The NLUS also finds that the OOWWTPOWWTP would have the capacity to support a large manufacturing use with substantial water requirements located on the WPCP property.

Finally, the NLUS notes that NYS Route 31 is currently operating at full capacity and recommends that any proposed future development that would increase the intensity of uses in Northern Clay provide adequate traffic impact. The NLUS states that such future development should also consider access points and development of alternative transportation routes to NYS Route 31 (Town of Clay Department of Planning and Development, 2013).

D-3.3.1 Analysis

The Preferred Action Alternative would be generally consistent with the economic growth and development goals in the NLUS. In particular, construction of the Micron Campus would fulfill the study's goal to establish an industrial development at the WPCP. The Proposed Project also would fulfill goals in the NLUS to expand water supply infrastructure and sewer systems near the WPCP and increase the OOWWTP'sOWWTP's capacity to serve a large industrial development. Although construction of the manufacturing facility on the Micron Campus would not support the NLUS' goal to preserve the rural character of the area, it would be consistent with the study's goal to concentrate larger-scale development around the WPCP while the Town undertakes efforts to relieve development pressure in other rural areas further away from the I-81 corridor and public infrastructure.

D-3.4 Town of Cicero Comprehensive Plan

The Town of Cicero initiated a process to establish its first comprehensive plan in late 2022, which would supersede a draft plan from 2006 that was not adopted. In November 2024, the Town released a draft of the new Comprehensive Plan, titled Vision Cicero, which is currently undergoing public review and is expected to be adopted in 2025. Although Vision Cicero has not been formally adopted, the draft Comprehensive Plan is considered here.

Vision Cicero is intended as a guide for decision-making relating to growth, with a focus on promoting balanced growth, sustainability, and preservation of the town's community character and quality of life. The plan specifically identifies the Proposed Project as a major potential factor for economic growth that would likely bring jobs and infrastructure development to the area.[18] At the same time, Vision Cicero acknowledges that potential effects of the Proposed Project on growth would present challenges, particularly the need for an expanded transportation network, diverse housing options, and expanded public services. As a whole, Vision Cicero cites the Proposed Project as “a once in a generation opportunity to improve our already high quality of life.”

Vision Cicero includes goals relating to housing and residential growth, transportation, public services to enhance quality of life, economic development and business growth, preservation of natural areas, and sustainability. Vision Cicero’s economic development goal focuses on attracting and supporting the economic growth that the Proposed Project would likely generate by calling for marketing efforts to attract businesses, particularly in the semiconductor industry, upgrades to Town infrastructure to support businesses, and identifying opportunities for additional industrial development along the Town’s major freight corridors.

Vision Cicero includes a land use plan intended as a guide for future land use decisions, including a comprehensive update to the Town zoning code that is anticipated to follow the adoption of the Comprehensive Plan. The land use plan identifies the area along the U.S. Route 11 corridor as an area of commercial and light industrial development with potential to attract new businesses, including high-tech manufacturing facilities. The land use plan also identifies higher density residential and other development areas near the U.S. Route 11 corridor (referred to as Regional Mixed Use, Mixed Residential, and Town Center areas) with potential to facilitate a variety of housing types and increase the housing supply to meet the increased demand and growth the Proposed Project would likely generate in the area (Town of Cicero, 2024).

D-3.4.1 Analysis

Although the proposed Micron Campus manufacturing facility would be located in the Town of Clay and only two portions of the campus with access roads, driveways, and utility lines would be located in the Town of Cicero, the Preferred Action Alternative would be generally consistent with Vision Cicero and would directly support the plan’s primary economic development goal. In addition, the Proposed Project would be consistent with the Vision Cicero land use plan, which is intended to attract high-tech businesses, including those that would serve Micron’s supply chain, to the U.S. Route 11 corridor.

[18] See Vision Cicero at 10 (Micron Technology Invests in CNY): “The Micron semiconductor manufacturing facility is expected to generate a significant number of jobs and have a substantial economic impact on the central New York region. The plant will create approximately 9,000 direct high-tech jobs over the next 20 years, with positions ranging from engineering and manufacturing to maintenance and administrative roles. In addition to these direct jobs, the construction phase alone is projected to support around 5,000 temporary jobs. Beyond direct employment, the Micron facility will also create tens of thousands of indirect jobs across various sectors, including suppliers, logistics, construction, and service industries that will support both the plant and the growing workforce. The influx of workers will likely boost local demand for housing, retail, and services, leading to further job creation in these sectors. The broader economic impact is expected to be transformative for the region … The Micron plant will act as a catalyst for broader economic growth in Cicero. Increased demand for housing, retail, and services will likely spur new residential and commercial development, particularly along major corridors like I-81, Route 11, and Route 31.”

The Proposed Project would not directly support some of the plan's goals; in particular, it would not directly provide any housing or enhanced public services to support the anticipated residential growth and would not provide for enhanced mixed-modal transportation options. However, the Proposed Project would include infrastructure improvements to support the manufacturing use (generally located in the Town of Clay and outlying areas, and not in the Town of Cicero) and traffic mitigation to address capacity on major roadways (discussed in Section 3.11, Transportation and Traffic), consistent with the plan's recommendations to support growth. The Proposed Project is also consistent with Vision Cicero's land use plan, which identifies the area that contains the Micron Campus as an area for commercial and light industrial development. Therefore, the Preferred Action Alternative is generally consistent with Vision Cicero.

D-3.5 New York Green CHIPS Program

In 2022, the New York State Legislature enacted the Green CHIPS Program, which includes approximately $10 billion in economic incentives for environmentally friendly semiconductor manufacturing projects with the potential to create thousands of jobs in the State and address issues relating to semiconductor supply chain shortages, inflation, and national security. The Green CHIPS Program includes several provisions to help reduce the cost of constructing and operating semiconductor manufacturing facilities.

To receive benefits under the Green CHIPS Program, a project must be qualified through an application to the State Urban Development Corporation (also known as ESD). There are several requirements to qualify as a Green CHIPS facility, including creating a minimum of 500 new jobs and providing $3 billion in investment over a 10-year period. Projects also must adopt sustainability measures to mitigate greenhouse gas emissions, pay construction workers a federal prevailing wage, and commit to worker and community investment, including training and educational programs to expand employment opportunities for economically disadvantaged individuals. Projects may apply for an additional 10 years of benefits, subject to new job requirements, capital expenditures, and ESD approval, which may allow some Green CHIPS projects to be eligible for 20 years of incentives.

Incentives available to Green CHIPS projects include a tax credit for research and development expenditures and an investment tax credit for capital expenditures. The Program also offers a tax credit on salaries and wages, and a real property tax credit. The Program also includes reductions in private utility services through discounted delivery rates. Green CHIPS projects that achieve their job and investment commitments and meet eligibility requirements are eligible for refundable tax credits under ESD's Excelsior Jobs Program, a pay-for-performance program that allows companies to receive tax credits as they meet investment and job targets.

D-3.5.1 Analysis

The Proposed Project would use incentives from the New York Green CHIPS Program, enacted in August 2022 to provide financial support for on-shoring semiconductor manufacturing to spur economic growth in New York State. To be eligible to receive Green CHIPS Program incentives, Micron must meet the statutory requirements of creating at least 500 new jobs, adopting sustainability measures to reduce GHG emissions (see Section 3.7, Greenhouse Gas Emissions, Climate Change, and Climate Resiliency), paying construction workers the Federal prevailing wage, and committing to worker and community investments. In furtherance of the Green CHIPS Program and New York's policy of incentivizing semiconductor manufacturing in New York, in September 2022, Micron, ESD, Onondaga County and OCIDA entered into a "Key Terms and Conditions for Development of the Micron Green Manufacturing Memory Chip Fab Campus in Clay, New York" ("Term Sheet") to incentivize Micron to locate a semiconductor facility at the WPCP.

The Term Sheet outlines Micron's commitments to creating more than 9,000 new jobs and paying the Federal prevailing wage to construction workers, and further outlines preliminary sustainability commitments designed to reduce GHG emissions. The Term Sheet further illustrates Micron's commitments to worker and community investments, including a Community Investment Fund (CIF) of $500 million for CNY communities, which will be used to develop the local workforce, invest in education throughout CNY, promote affordable housing, and provide additional benefits to CNY communities. Micron also committed to installing on-site renewable energy systems and implementing water conservation and efficiency measures.

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Appendix D-4
NRCS FPPA Review Documents

APPENDIX E
GEOLOGY, SOILS, AND TOPOGRAPHY

Appendix E-1
Geology, Soils, And Topography Methodology

E-1 Geology, Soils, and Topography Methodology

This section defines the study area for Geology, Soils, and Topography and explains the methodology and information sources used to describe the affected environment. Figure E-1 on the next page shows the study area for geology, soils, and topography. The study area includes the proposed 1,377-acre Micron Campus, 38-acre Rail Spur Site, and 31-acre Childcare Site.

The study area also includes the proposed Connected Actions, including new structures at the National Grid Clay Substation, the OCWA Lake Ontario Water Treatment Plant, the OCWA Terminal Campus, and the proposed new IWWTP at the Oak Orchard site, as well as linear improvements, including construction of electrical transmission lines, a natural gas line, water transmission lines, and an industrial wastewater conveyance. The Connected Actions have been assessed as part of the study area, taking into consideration the surrounding geology, topographic information available online, and nearby unique geological features.

Finally, the Connected Actions would include extensions of existing fiber optic lines along NYS Route 31 and Caughdenoy Road to the Micron Campus built along cable routes and directly buried or pulled through existing conduits to avoid further ground disturbance. The extensions of the existing fiber optic lines are not considered in the study area because they would be buried and stabilized underground, avoiding any disturbance to surrounding geology and soils.

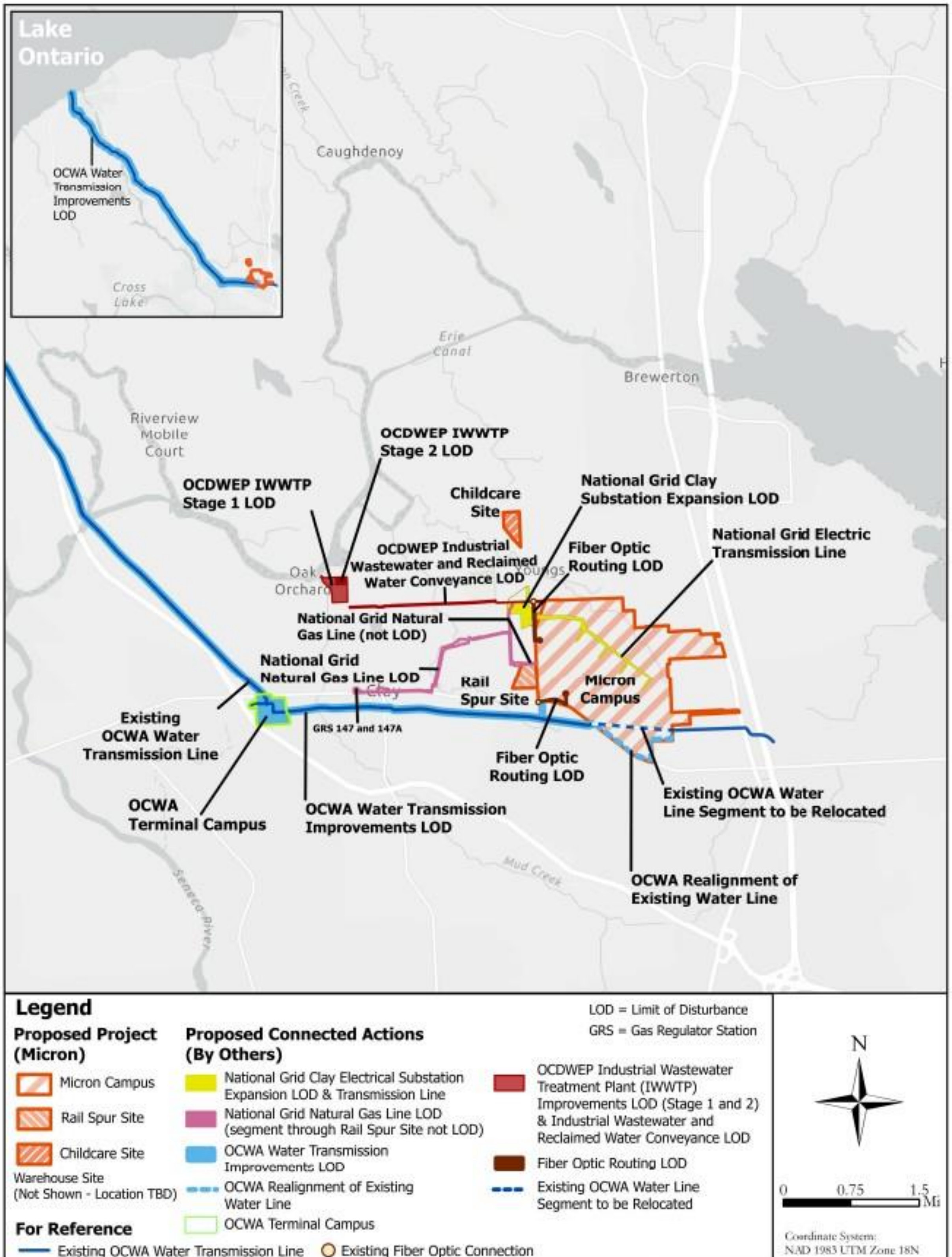
The methodology for Section 3.2 (Geology, Soils, and Topography) relies on a combination of an in-depth desktop analysis as well as site-specific data and geotechnical analysis. The geotechnical analyses were~~analysis was~~ prepared by CME and Langan, and details boring investigations completed by CME in the Spring and Fall of 2023 as well as the Spring of 2024 , and additional investigations completed by Langan in Spring 2025(Appendix E-4).

The first geotechnical report details findings from boring investigations from Phase 1 and Phase 2 explorations conducted by CME in May and June 2023, which included test borings, cone penetration testing, groundwater monitoring wells, test pits, and laboratory testing for the proposed Micron Campus site. The findings from these investigations revealed shallow depth to groundwater as well as soils with high water content. The second geotechnical report details investigations carried out in a Spring 2024 Phase 3 exploration. This investigation included test borings, auger probes, groundwater monitoring wells, infiltration testing, test pits, field soil resistivity testing, and laboratory testing. The investigation revealed similar findings to the first report, as well as compressible soils present at the site. A third geotechnical report details a subsurface investigation which was conducted at the proposed Childcare Site in September 2023. This investigation included test borings, test pits, and infiltration testing. The results of this investigation revealed compressible soils at the site. The fourth geotechnical report details a subsurface investigation which was conducted for Phase 1 and 2 of the WPCP between April and May 2025. This investigation included test borings, cone penetration tests, test pits, crosshole seismic logging, thermal resistivity tests, electrical resistivity tests, and seismic refraction surveys. The results of this investigation are consistent with previous geotechnical data.

Site-specific analysis relied on field sampling data, topographic surveys, and soil borings (including depth to groundwater), the Phase 1A Archaeological Survey prepared by AKRF, Inc., and information from publicly available sources, including U.S. Geological Survey maps for the Finger Lakes Region (bedrock and surficial geologic maps) and the U.S. Department of

Agriculture Natural Resources Conservation Service Web Soil Survey database, the Soil Survey Geographic (SSURGO) database, and Official Soil Series Descriptions (Appendix E-2).

Figure E-1 Study Area



Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community, Sources: Esri, TomTom, Garmin, (c) OpenStreetMap contributors, and the GIS User Community

Appendix E-2
Soil Type Descriptions

E-2 Soil Type Descriptions

Niagara Silt Loam (NgA)

These very deep, somewhat poorly drained soils formed in silty glacio-lacustrine deposits. The soils occur in level to slightly concave areas on lake plains and in valleys. The surface layer is very dark grayish brown, 5 inches thick. The subsoil is dark grayish brown, moderately blocky in structure, and 17 inches thick. The substratum is dark grayish brown, very fine sandy loam and is 41 inches thick.

This soil map unit is found throughout the Proposed Project area but is mostly concentrated in the central and northern sections of the proposed Micron Campus. Niagara Silt Loam covers 14.9 acres of the Rail Spur Site and a small section in the northeastern corner of the Childcare Site. In total, it covers 522 acres of the Proposed Project area.

Collamer Silt Loam (ChA, ChB)

These deep to very deep, moderately well drained, nearly level soils formed in silty glacio-lacustrine sediments. They occur on lake plains and till plains that have a thick mantle of lake sediments. The surface layer is dark grayish brown silt loam, 12 inches thick. The subsoil is 21 inches thick. The upper 6 inches of the subsoil is brown and dark yellowish brown, moderately coarse silt loam; the deeper portion of the subsoil is brown, moderate medium and coarse, 12 inches thick. The substratum is yellowish brown, amorphous “massive” silt loam and ranges from 33 to 72 inches thick.

This soil map unit is found throughout the Proposed Project area, concentrated in the central and southern portions of the proposed Micron Campus, and covering approximately 99.4 percent of the soil at the proposed Childcare Site. Collamer Silt Loam (ChA and ChB) covers approximately 433 acres of the proposed Micron Campus and 29.8 acres of the proposed Childcare Site, or 462.8 acres of the Proposed Project area.

Canandaigua Mucky Silt Loam (Cd)

These very deep, poorly to very poorly drained hydric soils formed in silty glacio-lacustrine sediments. They occur on lowland lake plains and in depressional areas on glaciated uplands. The surface layer is very dark gray, moderately fine to very fine silt loam, and is 8 inches thick. The subsoil is light brownish gray to gray, very coarse to plate-like in structure and is 22 inches thick. The substratum is gray and light brown, very fine to massive silt and sandy loam and is 42 inches thick. This soil map unit is found in pockets throughout the Proposed Project area. In total, it covers 82.4 acres of the Proposed Project area.

Palms Muck (Pb)

These very deep, very poorly drained hydric soils formed in herbaceous organic materials. They occur in the underlying loamy deposits in closed depressions on moraines, lake plains, till plains, outwash plains, and hillside seep areas, and on backswamps of flood plains. The surface layer is black, broken face and rubbed muck, slightly sticky, and is 14 inches thick. The subsoil is black, broken face and rubbed muck, slightly sticky, and is 21 inches thick. The substratum is gray and dark yellowish brown, massive clay loam and is 45 inches thick. This soil map unit is concentrated in the northern central section of the proposed Micron Campus. In total, it covers 73.5 acres of the Proposed Project area.

Hilton Loam (H1A, H1B)

These very deep, moderately well drained soils formed in Wisconsin age till derived from sandstone and limestone. They occur as nearly level to sloping soils on till plains and glaciated dissected plateaus. The surface layer is dark grayish brown and light brownish gray granular loam and is 9 inches thick. The subsoil is reddish brown, gravelly, moderately blocky loam and is 19 inches thick. The substratum is reddish brown to brown, gravelly, moderately plate-like to massive in structure and is 36 inches thick. This soil map unit is found in pockets throughout the Proposed Project area. In total, it covers 73.3 acres of the Proposed Project area.

Cut and Fill (CFL)

This soil type is classified by construction material brought into the area for the purpose of site grading. According to the NYSDEC regulations for fill, these materials consist of soil, sand, gravel, or rock as well as non-putrescible non-soil constituents.

Scriba Gravelly Fine Sandy Loam (ScB, ScC)

These very deep, somewhat poorly drained hydric soils are derived from loamy glacial till. The slope of these soils typically ranges from 0 to 15 percent. The surface layer is very dark grayish brown gravelly loam, up to 9 inches thick. The subsoil is a grayish brown gravelly fine sandy loam, 9 to 13 inches thick. The substratum is brown, very gravelly fine sandy loam 48 to 72 inches thick. This soil map unit is found at the Lake Ontario Water Treatment Plant. It covers approximately 16.5 acres of the Connected Action sites.

Urban Land (Ub)

Urban land, like cut and fill is a soil classification used to describe the soils beneath highly urbanized areas. These areas consist of a mix of concrete, asphalt, cut and fill materials, and a mix of local soil types. Approximately 14.4 acres of the Connected Action sites comprise this soil map unit type.

Ira Gravelly Fine Sandy Loam (IrB, IrC)

These coarse to loamy, mixed, somewhat poorly drained hydric soils are from the mesic family of the Typic Fragiochrepts. The surface layer is a dark grayish brown, fine, gravelly sandy loam, up to 8 inches thick. The substratum is a yellowish brown fine sandy loam with a blocky structure, about 13 inches thick. The substratum is a grayish brown gravelly fine sandy loam which is slightly alkaline, and approximately 50 inches thick. This soil map unit is found at the OCWA Terminal Campus. It covers approximately 9.7 acres of the Connected Action sites.

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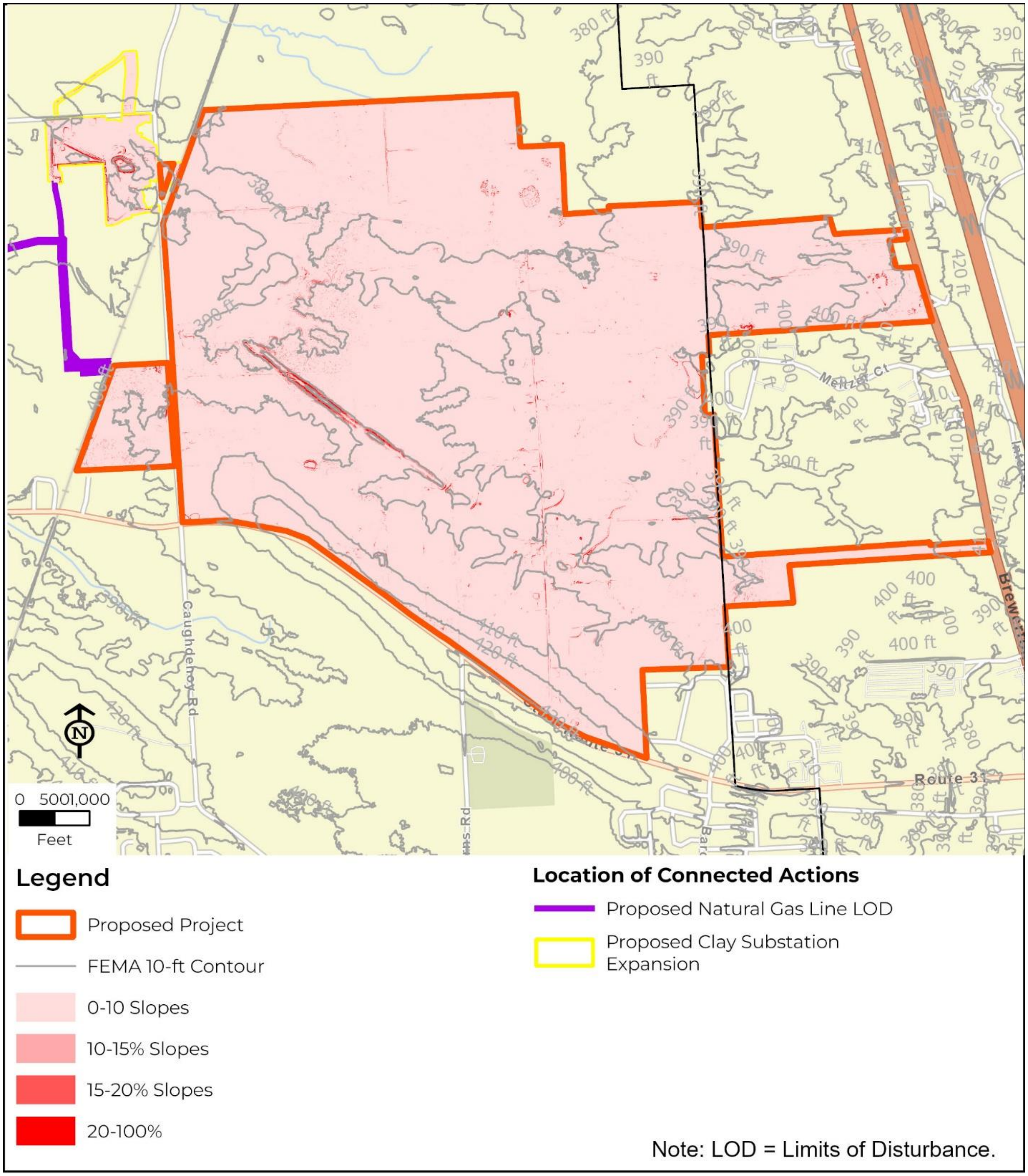
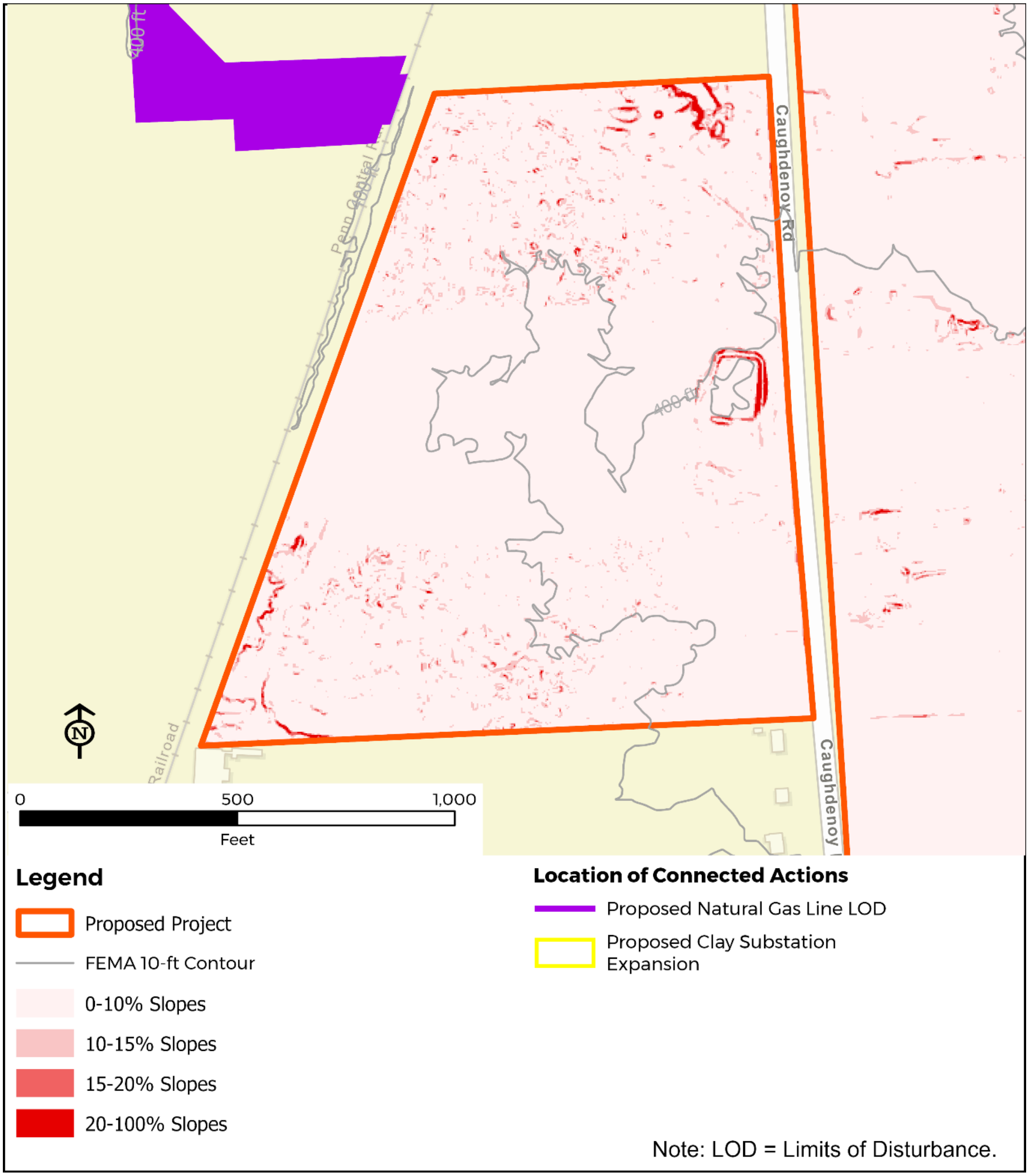
Appendix E-3
Topographical Figures

Figure E-2 Topography at Proposed Micron Campus



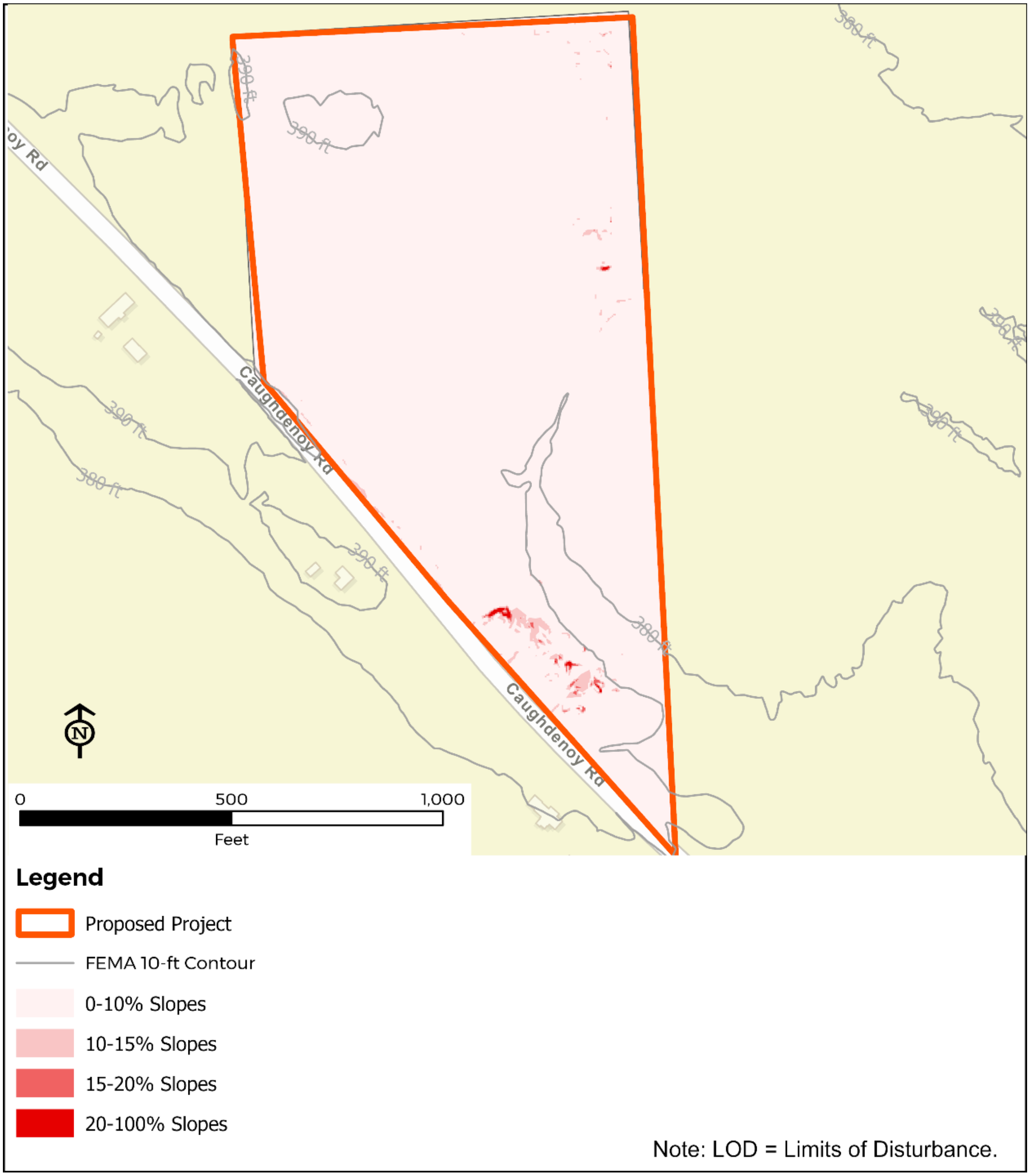
Source: 1 Meter DEM Index (FEMA) retrieved from https://orthos.dhses.ny.gov.

Figure E-3 Topography at Proposed Rail Spur Site



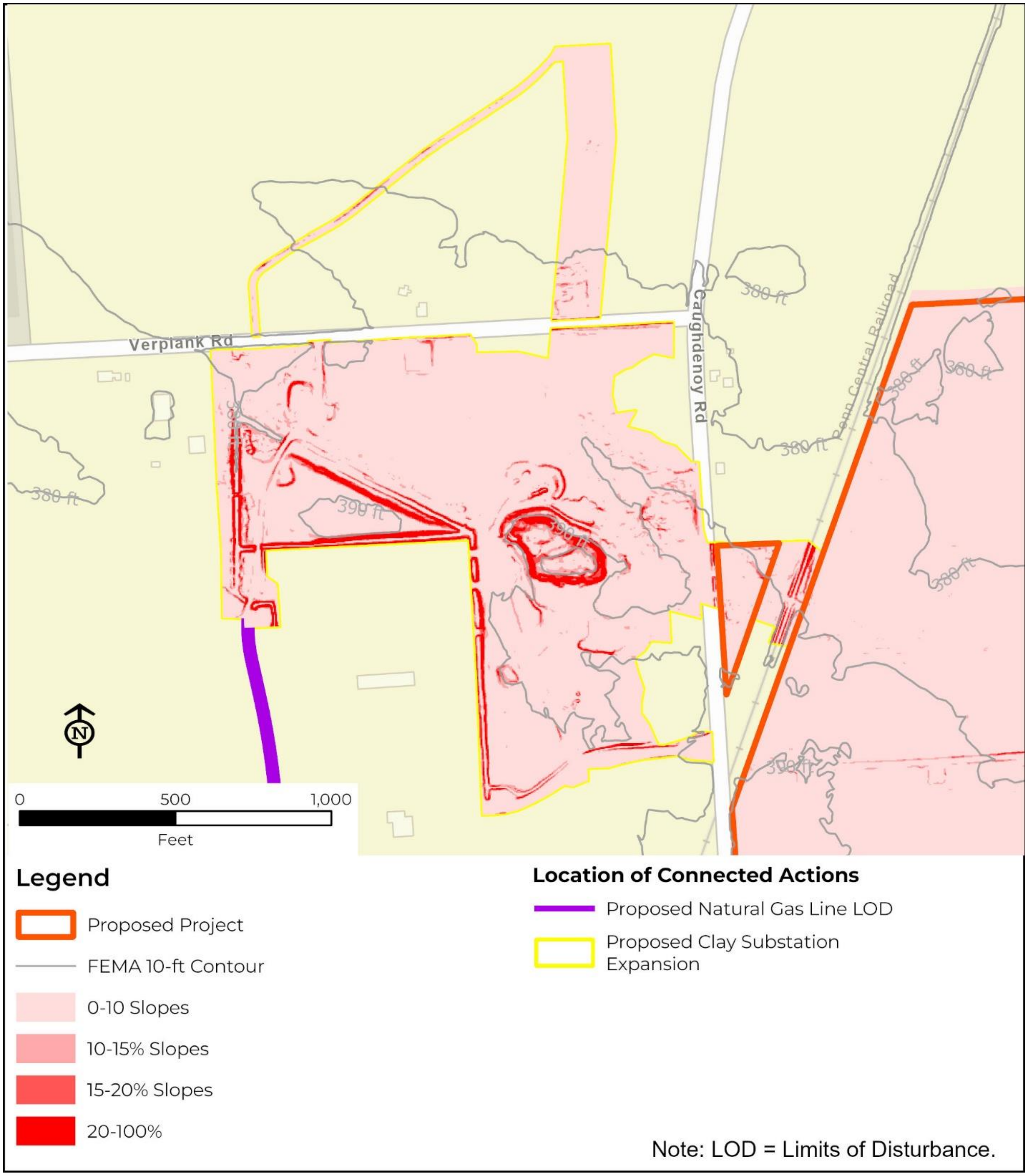
Source: 1 Meter DEM Index (FEMA) retrieved from https://orthos.dhses.ny.gov.

Figure E-4 Topography at Proposed Childcare Site



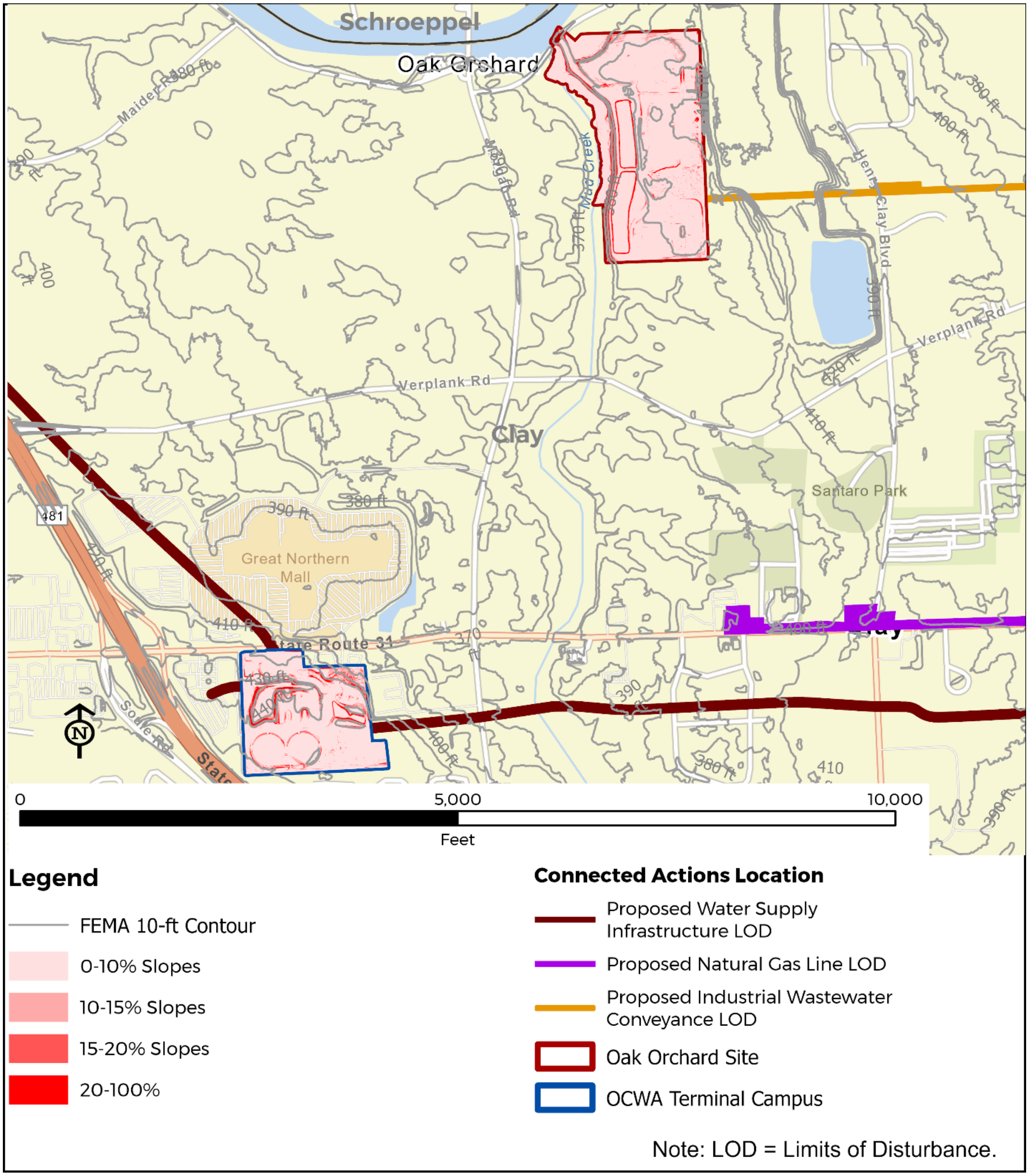
Source: 1 Meter DEM Index (FEMA) retrieved from https://orthos.dhses.ny.gov.

Figure E-5 Topography at Proposed Clay Substation Expansion Area



Source: 1 Meter DEM Index (FEMA) retrieved from https://orthos.dhses.ny.gov.

Figure E-6 Topography at Oak Orchard Site and OCWA Terminal Campus



Source: 1 Meter DEM Index (FEMA) retrieved from https://orthos.dhses.ny.gov.

Appendix E-4
Geotechnical Reports

Appendix E-5
Micron Blasting Plan

APPENDIX F
WATER RESOURCES

Appendix F-1
Water Resources Study Area

F-1 Water Resources Study Area

The function of each water resource depends on a complex set of relationships between the resource and the surrounding watershed ecosystems within which it lies. USEPA defines a watershed as a geographic area in which water, sediments, and dissolved materials drain from higher elevations to a common low-lying basin or point on a larger stream, lake, underlying aquifer, or estuary (USEPA, 2025a). The size of a watershed (also called a drainage basin or catchment) is defined on several scales. The scale of a watershed is based on the geography that is most relevant to its specific area. Larger watersheds may encompass thousands of square miles and are assigned Hydrologic Unit Codes (HUCs) (NOAA, 2024). Each of the 10 digits in a watershed HUC or 12 digits in a sub-watershed HUC signify a code for each watershed level (i.e., first 2 digits = region, next 2 digits = sub-region, next 2 digits = basin, next 2 digits = sub-basin, next 2 digits = watershed, and last 2 digits = sub-watershed) (USGS, 2024a). Smaller drainage basins, such as Youngs Creek and Shaver Creek, are not coded, as they combine to comprise larger sub-watersheds with assigned 12-digit HUCs.

The proposed Micron Campus site, Rail Spur Site, and Childcare Site are located entirely within the Oneida River watershed (HUC 0414020209) and the Oneida River sub-watershed (HUC 041402020905). Two smaller drainage basins within the Oneida River sub-watershed, Youngs Creek and Shaver Creek, drain nearly all the land on or near the Proposed Project features and many of the Connected Actions, and thus have the highest potential to be affected by Proposed Project construction and operation. Therefore, the extent of these two basins has been selected as the portion of the water resources study area relevant to analyzing Proposed Project activities. For a map of the Youngs Creek and Shaver Creek drainage basins, see Figure F-1.

The Youngs Creek basin drains 6.78 square miles of surrounding landscape (USGS, 2024b). It is part of the larger Oneida River sub-watershed (HUC 041402020905), which drains more than 26,000 acres. Youngs Creek is a freshwater stream that runs for more than six miles from its headwaters to its confluence with the Oneida River (USGS, 2024c). Combined with its tributaries, there are approximately 10.41 miles of mapped channels within the basin. Approximately 2.33 percent of the Youngs Creek basin, or 0.16 square miles, is covered by impervious surfaces such as paved roadways, parking lots, houses, and other buildings (USGS, 2024c). In December 2023, at Micron's direction based on a NYSDEC and USFWS request, Ramboll conducted a qualitative environmental field survey of Youngs Creek and its associated tributaries in the vicinity of the WPCP. Ramboll evaluated 22 surface water locations within five stream reaches, which Ramboll observed to exhibit a low gradient with nominal flow under relatively stagnant or still conditions (Ramboll, 2024a).

The Shaver Creek basin drains 2.51 square miles of surrounding landscape (USGS, 2024d). It is also part of the larger Oneida River sub-watershed (HUC 041402020905). Shaver Creek is a freshwater stream that runs for more than five miles from its headwaters to its confluence with the Oneida River. Combined with its tributaries, there are approximately 6.11 miles of mapped channels within the basin. Only 1.71 percent, or approximately 0.04 square miles, of the basin is covered by impervious surfaces (USGS, 2024e).

Some of the LODs associated with the Connected Actions fall within the Proposed Project portion of the water resources study area, including the eastern portion of the proposed National Grid natural gas distribution line route, the proposed National Grid Clay electric substation expansion area, the southeastern end of the proposed OCWA water supply transmission mains, and the eastern portion of the proposed OCDWEP industrial wastewater conveyance route. Other Connected Action footprints lie outside this portion of the study area, including the westernmost portions of the gas line and industrial wastewater conveyance routes, the majority of the OCWA water supply lines and associated facility upgrades, and the proposed IWWTP. Connected Action LODs outside this portion of the study area lie within five different watersheds, including the Oneida River (HUC 0414020209), Ox Creek-Oswego River (HUC 0414020301), Oswego River (HUC 0414020302), Ninemile Creek-Frontal Lake Ontario (HUC 0414010101), and Amherst Island-Frontal Lake Ontario (HUC 0428000201) watersheds.

Figure F-2 shows each of the HUC 10 watersheds and HUC 12 sub-watersheds associated with the proposed Connected Actions. Although Connected Action activities would be distributed across nine sub-watersheds, effects on water resources would be expected to occur primarily within the Connected Action LODs. Specifically, Connected Action activities would occur within the within the following watersheds and sub-watersheds:

- Oneida River watershed:
  - Mud Creek sub-watershed (HUC 041402020902)
  - Oneida River sub-watershed (HUC 041402020905)
  - Sixmile Creek sub-watershed (HUC 041402020903)
- Ox Creek-Oswego River watershed:
  - Waterhouse Creek-Oswego River sub-watershed (HUC 041402030103)
- Oswego River watershed:
  - Black Creek sub-watershed (HUC 041402030203)
  - Oswego River sub-watershed (HUC 041402030204)
- Ninemile Creek-Frontal Lake Ontario watershed:
  - Eightmile Creek-Frontal Lake Ontario sub-watershed (HUC 041401010102)
  - Rice Creek sub-watershed (HUC 041401010101)
- Amherst Island-Frontal Lake Ontario watershed:
  - Point Peninsula-Frontal Lake Ontario sub-watershed (HUC 042800020102).

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U.S. Geologic Survey (USGS). (2024a). *Hydrologic Unit Codes (HUCs) Explained*. https://nas.er.usgs.gov/hucs.aspx. Accessed June 20, 2024.

U.S. Geologic Survey (USGS). (2024b). *National Water Information System: Web Interface. USGS 0424687005 Youngs Creek at Mouth at Oak Orchard NY*. https://waterdata.usgs.gov/nwis/inventory/?site_no=0424687005&agency_cd=USGS&amp. Accessed June 19, 2024.

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U.S. Geologic Survey (USGS). (2024d). *National Water Information System: Web Interface. USGS 0424689005 Shaver Creek at Mouth at Oak Orchard NY*. https://waterdata.usgs.gov/nwis/inventory/?site_no=0424689005&agency_cd=USGS&amp. Accessed June 19, 2024.

U.S. Geologic Survey (USGS). (2024e). *StreamStats Report. Shaver Creek.* https://streamstats.usgs.gov/ss/. Accessed July 12, 2024.

Appendix F-2
Legal and Regulatory Setting

F-2 Legal and Regulatory Setting

F-2.1 Federal

Section 301 of the CWA (33 U.S.C. § 1311) prohibits the discharge of pollutants into WOTUS without authorization or compliance with the CWA. This includes dredged or fill material, which is covered by Section 404 of the CWA. Under Section 301, Federal agencies are required to comply with all Federal and State requirements for water pollution control and abatement. Section 301 is enforced through a NPDES permit issued under Section 402 of the CWA or, in the case of New York State, through a SPDES permit issued by NYSDEC (see below under Section 402).

Section 401 of the CWA (33 U.S.C. § 1341) prohibits a Federal agency from issuing a permit or license to conduct any activity that may result in any discharge into WOTUS unless a Section 401 water quality certification is issued, or certification is waived. States and authorized Tribes where the discharge would originate are generally responsible for issuing water quality certifications. USEPA has authorized NYSDEC to approve projects and issue water quality certifications for proposed discharges in New York State. Once a water quality certification is granted, granted with conditions, or waived, USEPA is required to review the certification to determine whether the proposed discharge has the potential to affect water quality in a neighboring jurisdiction. The NYSDPS also reviews applications for activities involving the construction and operation of major electric transmission or natural gas distribution facilities pursuant to Article VII of the New York State Public Service Law. As part of the NYSDPS, the NYSPSC would be responsible for issuing a Section 401 water quality certification for the proposed National Grid Clay electric substation expansion.

Section 402 of the CWA (33 U.S.C. § 1342) establishes Federal limits on the amounts of specific pollutants that can be discharged into surface waters. Section 402 prohibits discharges from point (e.g., end-of-pipe) and non-point (e.g., stormwater) sources of water pollution unless they are authorized by a NPDES permit or an approved State permit. USEPA has approved NYSDEC's SPDES program to permit discharges in New York State.

Section 404 of the CWA (33 U.S.C. § 1344) prohibits the discharge of dredged or fill material into WOTUS, including wetlands, without a permit. USACE regulates such discharges and is responsible for reviewing applications for permits.

Section 10 of the Rivers and Harbors Act (33 U.S.C. § 403) requires USACE authorization for any in-water work or structures proposed in navigable waters.

Executive Order 11988 (Floodplain Management) directs Federal agencies to avoid long- and short-term adverse effects associated with the occupancy and modification of floodplains, to the extent possible. It also directs agencies to avoid conducting or authorizing direct and indirect floodplain development unless it is the only practicable alternative. Flood potential is typically determined by the 100-year floodplain (42 Fed. Reg. 26951).

The Coastal Zone Management Act (CZMA) (16 U.S.C. § 1451 *et seq.*) aids states, in cooperation with Federal and local agencies, in developing land and water use programs in designated coastal zones. Projects that require Federal permits or authorizations, such as a USACE permit, may require consistency review by the NYSDOS if the proposed activity would take place in, or affect, a designated coastal zone.

F-2.2 State

The Freshwater Wetlands Act (New York ECL Article 24; 6 NYCRR Parts 663-665) was enacted in 1975 in response to rapidly increasing wetland losses throughout New York State to preserve, protect, and conserve freshwater wetlands and their benefits. NYSDEC is the primary regulatory agency under the Act. As a result of the 2022 amendments to the Act and to 6 NYCRR Part 664, which took effect on January 1, 2025, NYSDEC's jurisdictional authority over freshwater wetlands has expanded beyond the limits of the previously mapped freshwater wetlands historically used by the State. Currently, NYSDEC has jurisdiction over all regulated activities affecting wetlands at least 12.4 acres in size and wetlands less than 12.4 acres if they meet "unusual importance" criteria. In 2028, the regulated size threshold will decrease from 12.4 acres to 7.4 acres.

The Protection of Waters Program (ECL Article 15 Title 5; 6 NYCRR Part 608) charges NYSDEC with preserving and protecting the State's lakes, rivers, streams, and ponds. All waters of the State are provided a class and standard designation based on the existing or expected best usage of each water or waterway segment. Streams and small waterbodies with a Classification of AA or A (waters used as a source of drinking water), B (best usage for swimming and other contact recreation), or C (waters supporting fisheries and suitable for non-contact activities) with a standard designation that it may support a trout population (T) or trout spawning (TS) are collectively referred to as "protected streams" and are subject to the stream protection provisions of the Protection of Waters regulations. Small waterbodies (ponds and lakes) with a surface area of less than 10 acres located within the stream course are considered part of the stream and are also subject to the regulations.

The Water Pollution Control Act (ECL Article 17; 6 NYCRR Part 750) charges NYSDEC with administering the CWA Section 402 NPDES program in New York State under the approved SPDES program established under ECL Article 17 (primarily Titles 7 and 8). The SPDES program prohibits discharges from point and non-point sources of water pollution into the waters of the State without a SPDES permit. NYSDEC issues SPDES permits that include technology-based or water quality-based effluent limitations developed to ensure compliance with State and Federal water quality standards.

The Participating in Flood Insurance Programs Law (ECL Article 36) establishes State participation in the National Flood Insurance Program (NFIP) and requires all local governments with land use jurisdiction within SFHAs to comply with Federal standards and permitting for flood insurance.

Article VII of the New York State Public Service Law (Siting of Major Utility Transmission Facilities) requires a full review of the need for, and environmental effects of, the siting, design, construction, and operation of major transmission facilities in New York State. Major transmission facilities include natural gas pipelines that extend a distance of at least 1,000 feet and operate at pressures of 125 pounds per square inch or more.

Sole Source Aquifer Protection (ECL Article 55) establishes procedures to designate special groundwater protection areas in Federally designated SSAs in counties with one million people or more, to ensure that areas within SSAs are protected and managed to maintain or improve existing water quality, and to develop and implement site-specific management plans for designated special groundwater protection areas.

Prohibition of Certain Incompatible Uses Over Either Primary Groundwater Recharge Areas or Federally Designated Sole Source Aquifers (ECL Article 15, Title 5, § 15-0514) prohibits incompatible land uses over primary groundwater recharge areas or Federally designated SSAs. Incompatible uses include those that lead to the contamination of groundwater from hazardous wastes or substances.

The Coastal Erosion Management Program (ECL Article 34; 6 NYCRR Part 505) is enforced to protect and preserve natural protective features (i.e., nearshore areas, beaches, bluffs, and dunes) and to protect human life and property by ensuring that new development is placed at a safe distance from areas of active erosion and coastal storms. NYSDEC's CEHA maps identify the areas that are regulated under this permit program.

The Waterfront Revitalization of Coastal Areas and Inland Waterways Act (New York State Executive Law, Article 42) designates possible technical and financial support by the State and its agencies to local governments seeking to revitalize their waterfronts. Participating local governments must submit their waterfront revitalization program details to NYSDOS.

F-2.3 Local

Flood Damage Prevention, Town of Clay, General Legislation, Chapter 112 aims to control filling, grading, dredging, and development that may increase erosion or flood damage, and alterations of natural floodplains and stream channels that accommodate floodwater, within all SFHAs in the Town of Clay. The Town of Clay recognizes the SFHAs identified by FEMA on FIRMs within the Town and outlined in § 112-6, in addition to those identified in the Flood Insurance Study, Onondaga County, New York, All Jurisdictions, dated November 4, 2016. The Town of Clay Planning and Development Department acts as the local floodplain administrator and is authorized to grant or deny floodplain development permits required under this legislation for development within identified SFHAs.

Flood Damage Prevention, Town of Schroeppel, General Legislation, Chapter 95, Article XII aims to control the alteration of natural floodplains and the filling, grading, dredging, and development of floodplains that may increase erosion and flood damage. The Town of Schroeppel recognizes the SFHAs identified by FEMA on FIRMS within the Town and outlined in § 95-63, in addition to those identified in the Flood Insurance Study, Oswego County, New York, All Jurisdictions, dated June 18, 2013. The Town of Schroeppel Code Enforcement Officer acts as the local floodplain administrator and is authorized to grant or deny floodplain development permits required under this legislation for development within identified SFHAs.

The Flood Prevention Law, City of Oswego aims to control the alteration of natural floodplains and the filling, grading, dredging, and development of floodplains that may increase erosion and flood damage. The City of Oswego recognizes the SFHAs identified by FEMA on FIRMs within the City, in addition to those identified in the Flood Insurance Study, Oswego

County, New York, All Jurisdictions, dated November 16, 2023. The City Engineer acts as the local floodplain administrator and is authorized to grant or deny floodplain development permits required under this legislation for development within identified SFHAs.

The Town of Clay Local Waterfront Revitalization Plan (LWRP) was adopted in 2012 to help the Town plan the development, redevelopment, enhancement, and preservation of its 26 miles of riverfront. The Town of Clay LWRP assesses the development of Three Rivers Point, the revitalization of a former industrial site on Maider Road, and several State- and Town-owned waterfront parcels. The LWRP identifies a need to preserve the history of certain sites, create mixed-use development that promotes a "waterfront village," and increase access to the river for fishing and boating. In support of these goals, the LWRP recommends development of Three Rivers Point and former industrial sites on Maider Road, with a boardwalk connecting the two sites, among other opportunities. Noting that constraints to achieving these goals include physical barriers such as Route 57 and the CSX rail line, as well as the lack of municipal sanitary sewers and water service along portions of Maider Road, the LWRP recommends that the Town study the potential need to expand services to the waterfront (Plumley Engineering, 2012).

The designated Waterfront Corridor under the Town of Clay LWRP extends along the Oneida and Seneca Rivers, generally located to the north and west of the Proposed Project area. The Micron Campus, Rail Spur Site, and Childcare Site would not be located within the Waterfront Corridor. However, the proposed new IWWTP and portions of the OCDWEP industrial wastewater conveyance and OCWA water lines would be located within the designated Town of Clay LWRP boundaries (see Figure F-47).

The City of Oswego LWRP was implemented in 1986. The overarching objective of the City of Oswego LWRP is to rejuvenate and enhance a significant portion of the waterfront and foster a dynamic blend of uses suitable for a waterfront district. The plan was conceived to pinpoint appealing development sites for marketing to developers, designate areas suitable for public access, achieve a harmonious mix of uses, and identify potential funding sources from both the private and public sectors. To achieve these objectives, the LWRP conducted an inventory of vacant and underutilized sites, referred to as Opportunity Sites, as well as natural resources and existing land and waterfront uses. Furthermore, the plan establishes goals and policies aimed at safeguarding natural resources, restoring fish and wildlife habitats, and preventing erosion and flooding (City of Oswego, 1986). In examining the state of the waterfront, the Oswego LWRP conducted a comprehensive review of all activities within the waterfront area to assess their suitability or potential recommendation for relocation. The LWRP concluded that the Raw Water Pump Station on Lake Ontario, responsible for drawing water from Lake Ontario to meet the water needs of a substantial portion of Central New York, qualified as a water-dependent use, and deemed its location to be appropriate for the waterfront area (City of Oswego, 1986).

The designated Waterfront Revitalization Area under the City of Oswego LWRP is located along the Oswego River and the Lake Ontario shorefront within the City. The Proposed Project and most Connected Action components are outside this area. However, OCWA water system components, including the Raw Water Pump Station and a portion of the OCWA water transmission main, are within the City of Oswego LWRP area (see Figure F-48).

References

City of Oswego. (1986). City of Oswego Local Waterfront Revitalization Program. Adopted April 28, 1986.

Plumley Engineering. (2012). Town of Clay Local Waterfront Revitalization Program. Adopted March 19, 2012.

Appendix F-3
Supplemental Information: Affected Environment

F-3 Supplemental Information: Affected Environment

F-3.1 Wetlands

In 2018, the State of New York was estimated to contain 2.5 million acres of freshwater wetlands (NYSDEC, 2018). Wetlands are a vital component of the ecosystem, providing food and habitat for thousands of species of plants and animals (USGS, 2024f). Wetlands have been compared to tropical rainforests and coral reefs with regard to the productivity and diversity of species they support (USEPA, 2002; USEPA, 2025a). Wetlands also function to improve water quality, store floodwater, provide aesthetic quality to the surrounding landscape, and help prevent shoreline erosion (USGS, 2024f; USEPA, 2002; USEPA, 2025a).

According to USEPA, wetlands are natural sponges that function to trap and slowly release surface water, rain, snowmelt, groundwater, and flood waters. Within a floodplain, trees, root mats, and other wetland vegetation also act as barriers, slowing down the speed of flood waters and helping to distribute them more slowly. The combination of both water storage and braking action can lower flood height, reduce erosion, and protect against water logging of crops. Wetlands downstream of pavement and buildings are particularly valuable in counteracting the greatly increased rate and volume of surface water runoff. The preservation and restoration of wetlands can often provide the level of flood control otherwise provided by expensive dredging operations and levees (USEPA, 2025a).

The physical and biological properties of wetlands slow the movement of stormwater runoff from surrounding upgradient land, allowing suspended soil particulates and other pollutants to drop out and settle to the wetland floor, where they may be absorbed and stored by wetland soil particles. Nutrients dissolved in the water, such as nitrogen and phosphorus, are often absorbed by plant roots and microorganisms in the soil. In many cases, this filtration process removes much of the water's nutrient and pollutant load prior to its being released from wetlands into neighboring surface waters or underlying groundwater aquifers (USEPA, 2002). Wetland plant communities and soil also store carbon, which prevents it from being released into the atmosphere as carbon dioxide, thus helping to moderate global climate conditions (USEPA, 2025a).

F-3.1.1 Micron Campus

The Micron Campus was field evaluated for the potential presence of wetlands regulated by the Federal government and the State of New York. The delineations were conducted by Ramboll biologists trained in wetlands identification and delineation in the fall of 2021, summer of 2022, and spring, summer, and fall of 2023. Site visits were also conducted in the spring, summer, and fall of 2023 and the spring of 2024 with USACE Buffalo District and NYSDEC Region 7 personnel to observe, verify, and supplement the delineations conducted by Ramboll. Data on vegetation, soils, hydrology, and geographic location were collected as part of the formal wetland delineations (Ramboll, 2023).

Wetlands that meet the current definition of "waters of the United States," as defined in 33 C.F.R. § 328.3, are subject to Federal jurisdiction and regulation under the CWA by USACE. Wetlands that meet the criteria in 6 NYCRR Part 664 are subject to State jurisdiction and regulation under the ECL by NYSDEC. In general, Federal jurisdiction over wetlands on the proposed

Micron Campus site was determined by the USACE based on continuous surface connection to the Youngs Creek or Shaver Creek stream systems. Both creeks meet the "relatively permanent" standard for Federal jurisdictional rivers and streams and are tributaries of the Oneida River, which is a traditionally navigable water subject to Federal jurisdiction. Table F-1 provides a breakdown of the delineated Federal jurisdictional wetlands on the proposed Micron Campus site by wetland type.

Table F-1 Delineated Federal Jurisdictional Wetland Acreages (Micron Campus)

ID	POW	PEM	PSS	PFO	Total
W1	0.03	5.75	2.01	10.55	18.34
W2	0.19	12.35	0.33	25.66	38.53
W3	0.0	5.47	0.0	0.49	5.96
W5	0.31	2.39	4.84	0.21	7.75
W6a	0.0	0.0	0.0	0.38	0.38
W11	0.24	17.57	0.07	1.32	19.2
W12	0.0	0.20	0.30	0.0	0.50
W13	0.0	0.43	0.38	0.0	0.81
W14	0.0	0	0.35	0.0	0.35
W26	0.0	0.81	0.49	0.0	1.3
W28	0.0	0.0	0.0	0.49	0.49
W29	0.0	0.0	0.0	1.08	1.08
W34	0.93	77.37	16.24	15.17	109.71
W35	0.0	92.77	1.77	87.32	181.86
W40	0.0	0.88	0.0	0.0	0.88
W53	0.0	0.35	0.0	4.43	4.78
W54	0.0	6.45	1.81	0.0	8.26
W55	0.0	0.0	0.0	4.71	4.71
W61	0.0	0.0	0.36	1.61*	1.97
W62	0.0	0.95*	0.0	0.0	0.95
W63	0.0	0.0	0.33	0.0	0.33

W69	0.0	0.0	0.07	0.0	0.07
W70	0.0	0.23	0.0	0.15	0.38
W71	0.0	0.02	0.0	0.0	0.02
Total	**1.70**	**223.04**	**30.30**	**153.57**	**408.61**

Sources: Ramboll (2024a); Micron (2025b); Chiarello (2025a); Chiarello (2025b). Note: *Denotes acreage calculations different from those in JD letters from USACE based on property line discrepancies identified after JDs were issued. The differences amount to 0.01 fewer acres for W61 and 0.03 fewer acres for W62 than what USACE identified.

New York State jurisdictional authority was based on connection of wetlands to State Class II and III jurisdictional wetlands previously mapped (prior to regulatory changes implementing amendments to Article 24 of the ECL, which took effect on January 1, 2025) adjacent to, within, and north of the overhead electric utility ROW located on the northern portion of the proposed Micron Campus site. Table F-2 provides a breakdown of the delineated State jurisdictional wetlands on the proposed Micron Campus site by wetland type.

Table F-2 Delineated State Jurisdictional Wetland Acreages (Micron Campus)

ID	SEM	DEM	SS	RMHS	HHS	FF	FP/AP	Total
W1	5.75	0.0	2.01	10.55	0.0	0.0	0.03	18.34
W2	12.29	0.0	0.56	22.52	3.14	0.28	0.19	38.98
W3	4.58	0.0	0.89	0.0	0.0	0.49	0.0	5.96
W5	2.39	0.0	4.84	0.0	0.0	0.21	0.31	7.75
W6a	0.0	0.0	0.0	0.34	0.04	0.0	0.0	0.38
W11	17.57	0.24	0.07	0.0	0.0	1.32	0.0	19.2
W12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W28	0.0	0.0	0.0	0.0	0.0	0.04	0.0	0.04
W29	0.0	0.0	0.0	0.0	0.0	0.38	0.0	0.38
W34	15.07	60.26	15.80	8.23	0.0	6.94	0.13	106.43
W35	0.0	91.43	3.11	11.73	0.0	75.59	0.0	181.86
W40	0.88	0.0	0.0	0.0	0.0	0.0	0.0	0.88

W53	0.35	0.0	0.0	0.0	0.0	4.43	0.0	4.78
W54	6.45	0.0	1.81	0.0	0.0	0.0	0.0	8.26
W55	0.0	0.0	0.0	0.0	0.0	4.71	0.0	4.71
W61	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W62	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W63	0.0	0.0	0.33	0.0	0.0	0.0	0.0	0.33
W69	0.0	0.0	0.07	0.0	0.0	0.0	0.0	0.07
W70	0.23	0.0	0.0	0.0	0.0	0.15	0.0	0.38
W71	0.02	0.0	0.0	0.0	0.0	0.0	0.0	0.02
Total	**65.58**	**151.93**	**29.49**	**53.37**	**3.18**	**94.54**	**0.66**	**398.75**

Sources: Ramboll (2024a); Micron (2025a); Chiarello (2025a); Chiarello (2025b).

The topographic gradient at the WPCP is generally sloping from southwest to northeast. Therefore, hydrologic flow within wetlands on the property are generally connected to the Youngs Creek system. Based on a review of historical aerial photographs, a portion of the WPCP was historically used for agricultural production until as recently as the early 2020s. As a result, remnants of clay drain tiles and farm furrows are still present. Although pasture/hay land is one of the more prominent land use habitat cover types reported for the WPCP, many of these agricultural fields have succeeded into old field and shrubland habitats due to years of inactivity. Therefore, most of the pasture/hay and cultivated crops cover types are better described as successional old field and successional shrubland. Despite the historic disturbances, a significant portion of the identified wetlands occur on lands that are now undergoing this natural successional stage of development (Micron, 2025a).

The two largest wetland complexes on the WPCP, W34 and W35, are located along the northern and eastern portions of the site. These two wetlands comprise approximately 71.3 percent of all wetlands on the WPCP. Because of their diffuse boundaries and mixture of open water and dense vegetation receiving the majority of runoff from uplands and other wetlands, these two wetland complexes were identified as having three principal wetland functions (floodflow alteration, sediment or toxicant retention, and wildlife habitat) and were deemed suitable for six additional functions (groundwater recharge or discharge; fish and shellfish habitat; nutrient removal; production export; sediment stabilization) and one service (endangered species habitat). Most of the other jurisdictional wetlands on the WPCP were identified as having one principal function (e.g., wildlife habitat), though some were also deemed suitable for up to three additional functions (e.g., floodflow alteration, nutrient removal, or sediment or toxicant retention) and one service (e.g., endangered species habitat) (Ramboll 2024b).

The 109.71 acres of Federal jurisdictional wetlands within the W34 complex consist of 77.37 acres of PEM cover type, dominated by narrowleaf cattail (*Typha angustifolia*) sedges, rushes, pickerelweed (*Pontederia cordata*), sensitive fern (*Onoclea sensibilis*), reed canary grass (*Phalaris arundinacea*), and common reed (*Phragmites australis*), 15.17 acres of PFO cover type, dominated by silver maple (*Acer saccharinum*), red maple (*Acer rubrum*), green ash (*Fraxinus pennsylvanica*), halberd-leaf tearthumb (*Persicaria arifolia*), and poison ivy (*Toxicodendron radicans*), 16.24 acres of PSS cover type, dominated by Bebb's willow (*Salix bebbiana*), silky dogwood (*Cornus amomum*), and sensitive fern, and 0.93 acres of POW cover type. Wetland complex W34 has been influenced by past human activity (e.g., agricultural use and utility corridors) as evidenced by old furrows, successional vegetative growth in scrub shrub and woodlands, historic ditching, and diverted and culverted drainages. Beaver activity is also evident, influencing the extent of inundation and soil saturation (Ramboll, 2024b). A total of 106.43 acres of this wetland are also State jurisdictional subject to regulation by NYSDEC, classified as a mixture of 60.26 acres of deep emergent marsh, 15.80 acres of shrub swamp, 15.07 acres of shallow emergent marsh, 6.94 acres of floodplain forest, 8.23 acres of red maple-hardwood swamp, and 0.13 acres of farm pond / artificial pond.

The 181.86 acres of Federal jurisdictional wetlands within the W35 complex consist of 92.77 acres of PEM cover type, dominated by narrowleaf cattail (*Typha angustifolia*), silky dogwood, gray dogwood, common buckthorn (*Rhamnus cathartica*), creeping jenny, and purple loosestrife, 87.32 acres of PFO cover type, dominated by green ash, silky dogwood, gray dogwood, reed canary grass, and sensitive fern, and 1.77 acres of PSS cover type. This wetland has also been influenced by past human activity (e.g., agricultural use and utility corridors) as evidenced by old furrows, successional vegetative growth in scrub shrub and woodlands, historic ditching, and diverted and culverted drainages (Ramboll, 2024b). All 181.86 acres of this wetland are also State jurisdictional subject to regulation by NYSDEC, classified as a mixture of 91.43 acres of deep emergent marsh, 75.59 acres of floodplain forest, 11.73 acres of red maple-hardwood swamp, and 3.11 acres of shrub swamp.

F-3.1.2 Rail Spur Site

The Rail Spur Site was field evaluated in 2023 by Ramboll biologists for the potential presence of wetlands and other WOTUS. Ramboll delineated 17.27 acres of Federal jurisdictional wetlands and no State jurisdictional wetlands on the site. The USACE JD for the site found hydrologic flow within wetlands on the site to flow generally toward the west, with the wetlands connected to the Shaver Creek system (USACE, 2024). The 17.27 acres of Federal jurisdictional wetlands on the Rail Spur Site are part of one designated wetland complex, W49, containing a mix of 16.61 acres of PFO wetlands, 0.26 acres of PSS wetlands, and 0.40 acres of POW habitat (Micron, 2025a). W49 was identified as having wildlife habitat as its principal function, but it was also deemed suitable for floodflow alteration and sediment or toxicant retention functions and endangered species habitat service (Ramboll, 2024b). The forest ecological community at the site is dominated by sugar maple (*Acer saccharum*), shagbark hickory (*Carya ovata*), eastern hemlock (*Tsuga canadensis*), green ash, and goldenrod (*Solidago* sp.). The average size of the trees in the canopy suggests that this forest is not fully mature. The successional shrubland ecological community is dominated by common buckthorn, gray dogwood, Tartarian honeysuckle (*Lonicera tatarica*), green ash, red maple, and American elm. The species composition (including the prevalence of invasive species), limited canopy cover, and small size of existing trees suggests historic disturbance and a community in the earlier stages of succession. The inundated open water habitat is best characterized as a reed marsh ecological community dominated by common reed formed as a result of a beaver dam. The prevalence of invasive common reed suggests it is a disturbed community (Micron, 2025a).

F-3.1.3 Childcare Site

The Childcare Site was also field evaluated in 2023 by Ramboll biologists. Ramboll delineated 4.51 acres of Federal jurisdictional wetlands on the site, which are also State jurisdictional wetlands subject to regulation by NYSDEC. These wetlands have been classified as a mix of 2.63 acres of PEM wetlands and 1.88 acres of PFO wetlands. The emergent wetlands are in a pasture and previously active hay field and the forested wetlands are in a mature forest. Although these areas are separated within the property boundary, they were determined to have a continuous hydrologic connection outside the site limits to the east. Therefore, they were designated as one wetland complex, W52 (Ramboll, n.d.). This complex is also presumed to include the same acreage of the NYSDEC Class II wetlands and was classified as a mix of 2.63 acres of shallow emergent marsh and 1.88 acres of floodplain forest. The wetland vegetation includes emergent species (grasses, nettles, and sedges), shrub species (buckthorn) and trees (ash, elms, and hickories). The hydrologic flow of the emergent wetlands was found to flow generally to the north and to be confined to narrow drainages and fringe areas of the forested wetlands. The forested wetlands receive hydrology from neighboring active farmland to the west and their hydrologic flow was found to flow generally to the east (Ramboll, n.d.). Because the proposed Childcare Site would not result in any losses of jurisdictional wetlands on the property, wetland complex W52's functions and services have not been formally evaluated.

F-3.1.4 Connected Actions

The presence and extent of wetlands within each Connected Action LOD were delineated in the field and evaluated in the same manner as those conducted for the proposed Micron Campus, except for wetlands within the proposed water supply improvement LODs, because those improvements are currently scheduled too far in the future for wetland delineations conducted at this time to be valid by the time construction begins. Instead, the water supply improvement LODs were evaluated as part of a desktop review of the USFWS NWI maps (USFWS, 2024a) and New York State informational freshwater wetland maps (NYSDEC, 2025a). Field delineations of these LODs would be conducted as part of the permitting process for, and prior to construction of, the water supply improvements.

The Connected Action LOD wetland delineations have not yet been evaluated by NYSDEC for State jurisdictional status, except for the wetland delineations for the Clay Substation expansion area LOD. Further, the total amount of non-jurisdictional wetlands present within the LODs cannot be determined at this time because not all of the LODs have been delineated. Except as described below for the proposed Clay Substation expansion area, functional analyses of wetlands within the remaining Connected Action LODs also have not yet been conducted, for various reasons, including because field delineations have not yet been performed, wetlands have yet to be assessed by USACE or NYSDEC, or losses of jurisdictional wetlands within the remaining LODs are anticipated to be negligible. Jurisdictional determinations by USACE and NYSDEC would be required for any applicable Section 404 and Article 24 permitting, respectively, after field delineations have been conducted.

As noted in Section 3.3.3.1, a total of 78.86 acres of wetlands have been identified within the Connected Action LODs, including within the Clay Substation expansion area and the natural gas, water supply, and wastewater improvement LODs. However, jurisdictional determinations have not yet been issued for these features, except for the Clay Substation expansion area.

Clay Substation Expansion Area

The anticipated LOD for the Clay Substation expansion area was field evaluated by GZA environmental scientists in the summer and fall of 2023. The substation is located within the Youngs Creek drainage basin and would be expanded to the north and east of its current property line, affecting 10.3 acres of already disturbed land. GZA delineated 10 wetlands within the proposed expansion area LOD (GZA, 2024; Thompson, 2025) (see Figure F-11). National Grid requested a PJD for nine of these wetlands and an AJD for the remaining wetland (Wetland 8). GZA identified the 8.34 acres of wetlands treated as Federally jurisdictional as a mix of 6.94 acres of PSS wetlands (83.2 percent), 1.15 acres of PEM wetlands (13.8 percent), and 0.25 acres of PFO wetlands (3.0 percent) (GZA, 2024).

Typical vegetation observed within the PSS wetlands included silky dogwood, southern arrow-wood (*Viburnum dentatum*), young green ash, and various species of willow (*Salix* spp.). The emergent wetlands were typically vegetated with reed canary grass, common soft rush (*Juncus effusus*), sensitive fern, purple loosestrife, and dark green bulrush (*Scirpus atrovirens*). Typical vegetation observed within the PFO wetlands included green ash, American elm, silver maple, and red maple (GZA, 2024). GZA identified all of these wetlands as capable of providing nutrient retention, production export, and wildlife habitat, with wildlife habitat identified as the principal function of more than half of the wetlands on the site. GZA also identified two wetlands on the site as capable of providing groundwater recharge and floodflow alteration. Although GZA did not identify the wetlands within the Clay Substation expansion area as providing endangered species habitat service, suitable habitat for various threatened and endangered species has since been recorded for this property and adjacent former or active agricultural fields (GZA, 2024). Based on new NYSDEC freshwater wetland maps, these 8.34 acres of wetlands within the LOD are currently considered not likely to be State jurisdictional (NYSDEC, 2025a).

USACE verified the boundaries of the wetlands being treated as Federal jurisdictional under the CWA through a PJD issued on June 2, 2025 (included in Appendix F-6). USACE also confirmed that Wetland 8 within the LOD is non-jurisdictional through an AJD issued the same day (included in Appendix F-6).

Natural Gas Improvements

The anticipated LOD for the natural gas line was field evaluated by Fisher Associates environmental scientists in the fall of 2020, spring of 2021, fall of 2021 and 2022, and spring of 2023. The line would traverse the Youngs Creek and Shaver Creek drainage basins within the Oneida River sub-watershed, and the westernmost portion of the line and GRS 147 are located within the Mud Creek sub-watershed (see Figure F-1 to Figure F-2). The line would run primarily along disturbed land, including NYS Route 31 and an existing National Grid easement. Fisher Associates delineated 7.37 acres of wetlands within the natural gas line LOD (see Figure F-12), which are being treated as Federal jurisdictional, as a mix of 4.25 acres of PSS wetlands (57.7 percent), 2.10 acres of PEM wetlands (28.5 percent), and 1.02 acres of PFO wetlands (13.8 percent). The PSS wetlands are generally dominated by red osier dogwood (*Cornus sericea*), grey dogwood, and green ash. The PEM wetlands consist primarily of purple loosestrife, sensitive fern, and reed canary grass. The PFO wetlands are generally dominated by pussy willow (*Salix discolor*), silver maple, and green ash (Fisher Associates, 2023). These wetlands reportedly receive hydrologic input from both a direct groundwater connection to and surface hydrology associated with unnamed tributaries to the Oneida River. In addition, overland flow and intermittent discharges from stormwater management structures associated with the railroad bed that crosses the LOD and the Clay Substation area provide an additional hydrologic source (Fisher Associates 2023). Based on new NYSDEC freshwater wetland maps, these 7.37 acres of wetlands are currently considered potentially State jurisdictional (NYSDEC, 2025a).

Water Supply Improvements

As noted above, the proposed water supply improvement LODs would traverse various parts of nine sub-watersheds (see Figure F-2) and were evaluated as part of a desktop review of Federal NWI and State freshwater wetland maps. The Federal maps show approximately 20.05 acres of wetlands within the LODs (see Figure F-13 through Figure F-17), and the State maps show 53.62 acres of wetlands within the LODs (see Figure F-18 through Figure F-22). The NWI mapped wetlands include a mix of 9.03 acres of PFO wetlands (45.0 percent), 7.42 acres of PUB habitat (37.0 percent), and 3.60 acres of PSS wetlands (18.0 percent). There are no cover types assigned to the State mapped wetlands. These map results are considered baseline estimates of the potential regulated wetlands present within the LODs. Delineations would be conducted along the full extent of the LODs closer to construction to ensure a more accurate evaluation of all wetland locations, sizes, and habitat types. Jurisdictional determinations would be made by USACE and NYSDEC after the wetland delineations are conducted.

Wastewater Improvements

The anticipated LOD for the IWWTP was field evaluated by EDR environmental scientists, and the anticipated LOD for the wastewater conveyance was field evaluated by Ramboll environmental scientists. The IWWTP and the westernmost portion of the wastewater conveyance would be located within the Mud Creek sub-watershed, and the rest of the conveyance would traverse the Shaver Creek and Youngs Creek drainage basins within the Oneida River sub-watershed (see Figure F-1 to Figure F-2). The conveyance would first run along the disturbed northern edge of Verplank Road before running through agricultural fields and undisturbed wooded habitat. EDR delineated 2.27 acres of wetlands within the IWWTP LOD, and Ramboll delineated 7.26 acres of wetlands within the wastewater conveyance LOD (see Figure F-23). The wetlands within these LODs have not yet been evaluated for jurisdictional status, but for purposes of this EIS they are being treated as jurisdictional. EDR identified the 2.27 acres of wetlands within the IWWTP LOD as a mix of 1.42 acres of PFO wetlands (62.6 percent), 0.72 acres of PSS wetlands (31.7 percent), and 0.13 acres of PEM wetlands (5.7 percent). Ramboll identified the 7.26 acres within the wastewater conveyance LOD as a mix of 3.71 acres of PFO wetlands (51.1 percent), 3.34 acres of PEM wetlands (46.0 percent), and 0.21 acres of PSS wetlands (2.9 percent).

F-3.2 Surface Water

The State of New York contains 87,000 miles of rivers and streams (NYSDEC, 2018). The principal streams in the Proposed Project portion of the water resources study area are Youngs Creek and Shaver Creek, in the Oneida River sub-watershed. Table F-3 describes the current water quality conditions of these surface waters.

Table F-3 Current Surface Water Quality Conditions

Surface Water	Description of Current Surface Water Quality Conditions
Oneida River sub-watershed	The Oneida River sub-watershed, within which the Youngs Creek and Shaver Creek basins both lie, has been assigned a watershed health rating of 0.65 out of 1.0. This indicates that this sub-watershed is relatively healthier than other watersheds in the area, including the Mud Creek watershed to the southeast (health rating of 0.57) and the Crooked Brook-Seneca River watershed to the southwest (health rating of 0.52). No waters within the Oneida River sub-watershed are currently listed on the Final New York State 2020/2022 CWA Section 303(d) list of impaired waters. Listing on the Section 303(d) list means a water no longer supports its best uses in accordance with water quality standards.
Youngs Creek	Youngs Creek is classified as a Class C stream, which is defined as having a best usage of fishing pursuant to 6 NYCRR § 701.8. A Class C stream must be suitably maintained for fish, shellfish, and wildlife propagation and survival, as well as for primary and secondary contact recreation, although other factors may limit these uses. Water quality conditions in the Youngs Creek basin have not been evaluated by USEPA. However, in June 2024, Ramboll conducted an investigation that focused on physical water quality parameters within reaches of Youngs Creek and the WPCP that had standing water and were identified as having the potential for supporting aquatic life (i.e., benthic macroinvertebrates and fishes). Results from this investigation revealed the following: • Temperature ranged from 18.09 degrees Celsius (ºC) to 26.71ºC (64.56 degrees Fahrenheit (ºF) to 80.08ºF) (healthy stream temperatures are below 26.7ºC (80ºF)). • Dissolved oxygen (DO) ranged from 0.51 milligrams per liter (mg/L) to 7.35 mg/L (healthy DO levels are greater than 5 mg/L). • Specific conductivity ranged from 0.451 micro-Siemens per centimeter (µS/cm) to 0.852 µS/cm (healthy conductivity values are below 300 µS/cm). • Turbidity ranged from 0 Nephelometric Turbidity Units (NTUs) to 162 NTUs (healthy turbidity values are below 5 NTUs). • pH ranged from 5.7 to 8.35 (healthy pH levels are between 6.5 and 8.5). Recorded DO levels were generally low throughout the Youngs Creek system, with the ponded wetland locations having the lowest levels observed (0.51-6.52 mg/L). These same areas recorded the highest surface water temperatures (26.16-26.71ºC; 79.09-80.08ºF). The perennial portion of Youngs Creek (i.e., water present within the channel throughout the year) was unique compared to other locations, as it showed the highest DO level (7.35 mg/L) and a reduced abundance of duckweed (*Lemna perpusilla*) and sago pondweed (*Stuckenia pectinata*). These aquatic surface-oriented plants often form floating mats on ponded surface water features with high nutrient content (eutrophic conditions). If weed growth becomes excessive, the resulting effects may include the depletion of oxygen and reduced water circulation. The intermittent tributaries showed signs of decreased water quality (e.g., decreased DO levels, higher temperatures, indications of eutrophic conditions) compared to the main channel of Youngs Creek. Youngs Creek is not currently listed on the Final New York State 2020/2022 Section 303(d) list of impaired waters.

Shaver Creek	Shaver Creek is classified as a Class C stream, which is defined as having a best usage of fishing pursuant to 6 NYCRR § 701.8. A Class C stream must be suitably maintained for fish, shellfish, and wildlife propagation and survival, as well as for primary and secondary contact recreation, although other factors may limit these uses. Water quality conditions in the Shaver Creek basin have not been evaluated by USEPA. Ramboll's June 2024 survey did not include Shaver Creek because Proposed Project activities would only result in losses to rivers and streams associated with Youngs Creek. Shaver Creek is not currently listed on the Final New York State 2020/2022 Section 303(d) list of impaired waters.

Sources: Ramboll (2024b); NYSDEC (2024b); USEPA (2024b).

F-3.2.1 Proposed Project

During the 2021 to 2023 wetland delineations, Ramboll biologists also conducted field evaluations of the proposed Micron Campus, Rail Spur Site, and Childcare Site for the presence of potentially jurisdictional rivers and streams. Ramboll identified freshwater courses such as stream channels, tributaries, ditches, and linear conveyance features based on the recognition of field indicators of a stream bed, banks, and an OHWM, which marks the lateral extent of Federal jurisdiction over navigable waters. Ramboll also evaluated features for perennial, intermittent, and ephemeral flow regimes, and whether features contributed flow directly or indirectly to the Oneida River, a traditionally navigable water. Ramboll also reviewed standard State stream classes and designations (Ramboll, 2023).

Because the effects of the Proposed Project on surface water would be concentrated primarily within the Youngs Creek system, Ramboll biologists conducted a qualitative environmental survey of the extent of Youngs Creek within the proposed Micron Campus site in December 2023 to determine the system's current health. The field survey assessed streams identified during previous wetland delineation efforts and adjoining features with continuous surface connections to Youngs Creek (Ramboll, 2024a).

The survey showed that a portion of the Youngs Creek system within the Micron Campus displayed signs of alteration from previous human agricultural, residential, transportation, and utility corridor activities. The agricultural activity may be as recent as the early 2020s; remnants of clay drain tiles and farm furrows are still present. Although pasture/hay land is one of the more prominent land cover types at the site, many of the agricultural fields have succeeded into old field and shrubland habitats due to years of inactivity. Therefore, most of the pasture/hay and cultivated crop cover types are better described as successional old field and successional shrubland. A substantial portion of the wetlands on the site also are now undergoing this natural successional stage of development (Micron, 2025a). The survey also revealed signs of substantial alterations to stream channels from recent beaver activity. Channelization, draining, and ponding from beaver activity has diffused or flooded the main channel of Youngs Creek and created low water conditions and high sedimentation rates in certain areas.

Ramboll identified a portion of the main channel of Youngs Creek within the site as a perennial feature. Due to flooding conditions, Ramboll assessed that this feature functions primarily as wetland habitat rather than a stream system (Ramboll, 2024a). Therefore, the majority of the main channel of Youngs Creek within the site was classified as wetland habitat associated with the W34 and W35 wetland complexes (see Section 3.3.3.1). The stream channels on the site that Ramboll identified as intermittent exhibited natural and altered features. Those Ramboll identified as ephemeral exhibited moderately to severely altered habitat conditions and have been reported to go dry in September, relatively late in the year, indicating that their flow regimes are more likely intermittent.

Ramboll conducted a follow-up quantitative study of the area assessed in the field survey in June 2024, which focused on physical water quality parameters within the perennial and intermittent reaches identified as having the potential to support aquatic life. Results from this investigation are reflected in Table F-3 above.

F-3.2.2 Connected Actions

The presence and extent of rivers and streams within each Connected Action LOD were delineated in the field and evaluated in the same manner as those conducted for the Proposed Project components, except for rivers and streams within the proposed water supply improvement LOD, because those improvements are currently scheduled too far in the future for delineations conducted at this time to remain valid by the time construction begins. Instead, the water supply improvement LOD was evaluated as part of a desktop review of Federal and State river and stream maps and databases. Field delineations of this LOD would be conducted as part of the permitting process for and prior to construction of the water supply improvements.

The Connected Action LOD river and stream delineations have not yet been evaluated by NYSDEC for State jurisdictional status, with the exception of the substation expansion LOD. Further, the total amount of non-jurisdictional rivers and streams present within the LODs cannot be determined at this time because not all of the LODs have been delineated. Except as described below for the proposed Clay Substation expansion area, functional analyses of rivers and streams within the remaining Connected Action LODs also have not yet been conducted, for various reasons, including because field delineations have not yet been performed, rivers and streams have yet to be assessed by USACE or NYSDEC, or losses of jurisdictional rivers and streams within the remaining LODs are anticipated to be negligible. Jurisdictional determinations by USACE and NYSDEC would be required for any applicable Section 404 and Article 15 and 24 permitting, respectively, after field delineations have been conducted.

As noted in Section 3.3.3.2, a total of 7,160 LF of surface water features have been identified within the Connected Action LODs, including within the Clay Substation expansion area, natural gas, water supply, and wastewater improvement LODs. However, jurisdictional determinations have not yet been issued for these features, except for the surface water features within the Clay Substation expansion area LOD.

Clay Substation Expansion Area

GZA identified one intermittent stream flowing north at the western edge of the proposed Clay Substation expansion area, and one ephemeral and three intermittent stormwater ditches within the expansion area (see Figure F-28). National Grid requested a PJD from USACE to verify the extents of the intermittent features and an AJD for the ephemeral ditch (Ditch 2). No stream segments qualifying as protected streams under ECL Article 15 were identified.

USACE verified the boundaries of the surface water features being treated as Federal jurisdictional under the CWA through a PJD issued on June 2, 2025 (included in Appendix F-6). USACE also confirmed that Ditch 2 within the LOD is non-jurisdictional through an AJD issued the same day (included in Appendix F-6).

Natural Gas Improvements

Fisher Associates identified three portions of eight different stream segments and one intermittent ditch within the proposed natural gas line LOD (see Figure F-29). National Grid has requested PJDs from USACE for these features, which are currently pending. No stream segments qualifying as protected streams under ECL Article 15 were identified. The three identified stream features receive drainage from multiple wetlands, waterbodies, and connecting streams within the area and are likely hydrologically connected to Shaver Creek. Two of the features were assigned a preliminary Class C surface water designation (waters supporting fisheries and suitable for non-contact activities), and one was assigned a probable Class D designation (other waters only suitable for fishing, the lowest classification standard). These three features are not anticipated to have any other designations (Fisher Associates, 2023). Therefore, they would not support a trout population or trout spawning and would not qualify as protected streams under ECL Article 15. However, NYSDEC has yet to confirm these preliminary designations. It is unclear whether the intermittent ditch identified within the LOD hydrologically connected to Youngs Creek or Shaver Creek, as it feeds wetlands that may be connected to both. All other streams and ditches within the LOD were found unlikely to be Federal or State jurisdictional. However, jurisdictional determinations from USACE and NYSDEC are currently pending.

Water Supply Improvements

A desktop review of State GIS stream mapping and Federal NWI mapping information was conducted to determine the extent of rivers and streams within the proposed water supply improvement LODs. A field study would be conducted to more accurately identify all relevant features within these LODs prior to the permitting process for the water supply improvements. OCWA would request PJDs from USACE for these features as part of that process. Based on the desktop review, 12 river and stream crossings were identified that are likely to qualify as Federal jurisdictional within the water supply improvement LODs at various locations (see Figure F-30 to Figure F-34). However, only the Oneida and Oswego River crossings would be anticipated to be State jurisdictional under ECL Article 15.

Wastewater Conveyance

Ramboll delineated a section of Shaver Creek with a perennial flow regime within the proposed wastewater conveyance LOD flowing in a northerly direction at approximately the center mark of the proposed conveyance route (see Figure F-35). This section of Shaver Creek is classified as a Class C surface water, with no other designation (NYSDEC, 2025a). OCDWEP has requested a PJD from the USACE for this feature, which is currently pending. No stream segments qualifying as protected streams under ECL Article 15 were identified.

F-3.3 Stormwater

Land cover, soil type, and precipitation factors can influence stormwater flow and serve as variables used to model stormwater within the study area. Ramboll has conducted preliminary stormwater modeling to conservatively estimate peak post-construction stormwater discharge rates at selected stormwater design locations. However, these results have not been validated. The modeling process would be used to make iterative adjustments to the design of Proposed Project structures as part of site planning and calculate the degree to which stormwater management techniques would be able to meet the standards for green infrastructure practices in order to show compliance with SPDES General Permit for Stormwater Discharges from Construction Activity requirements via designed post-construction SMPs. The SMPs would be designed to meet effluent limitations for stormwater discharges from industrial activities as required by the SPDES MSGP. Under the 2024 *New York State Stormwater Management Design Manual*, to qualify as green infrastructure practices, SMPs must be capable of treating 100 percent of post-construction WQV, which is an expression of the stormwater runoff volume that includes 90 percent of all rainfall events in a given year. Because the majority of rainfall typically occurs in relatively small events, treating the WQV is considered to be a cost-effective standard for minimizing overall post-construction stormwater runoff pollutant discharge. Sites that cannot treat 100 percent of the WQV due to site constraints must estimate the extent of the WQV they can treat and provide an additional minimum runoff reduction volume (RRV) that they can treat on top of that extent of the WQV (NYSDEC, 2024b).

F-3.4 Groundwater

The water resources study area is situated in the Erie-Ontario Lowlands, a physiographic province that borders the Great Lakes. Consolidated rock, or bedrock, within the water resources study area consists of Ordovician-aged shale, limestone, dolomite, and sandstone, as well as Silurian-aged limestone and dolomite (NYSDOT, 2013, Sheets and Simonson, 2006). The study area is situated over carbonate and sandstone aquifers (USGS, 1995). Carbonate aquifers consist of limestone and dolomite which dissolve to form caverns and crevices that can hold and transport groundwater. Shale and sandstone may also contain groundwater in fractures and joints but often do not yield large quantities of groundwater (NYRWA, n.d.; USGS, 1995). Although bedrock formations are a significant source of groundwater supply in the State of New York, most bedrock aquifers are not mapped in the State (NYSDEC, n.d.-a).

Unlike bedrock aquifers, unconsolidated deposits of permeable sand and gravel are the most productive aquifers in the State (NYSDEC, n.d.-a). Unconsolidated aquifers overlie bedrock and occupy major river and stream valleys or lake plains and terraces (NYSDEC, n.d.-a). Throughout the State of New York, groundwater within unconsolidated aquifers is local in origin and occurs at shallow depths (NYRWA, n.d.). Due to the high permeability of deposits within unconsolidated aquifers and the shallow depth of the water table, unconsolidated aquifers are susceptible to contamination from the land surface above the aquifer. Unconsolidated aquifers are considered either confined (i.e., overlain by clays and fine-grained material with low permeability) or unconfined (i.e., extending and open to the land surface) (NYRWA, n.d.). Unconfined aquifers are particularly vulnerable to contamination because, unlike confined aquifers, they do not have overlying continuous and impermeable barriers that act to block or protect them from contaminated infiltration. Unconfined aquifers are the most common type of high-yielding aquifer system in

Upstate New York and are therefore commonly used as public water supply sources, if sufficiently productive (NYSDEC, 1990).

To protect the quality of groundwater used for public drinking water supplies, unconfined aquifers determined to be highly vulnerable to contamination and highly productive for use by public water supply systems are categorized by the NYSDEC Division of Water as either primary aquifers or principal aquifers. Primary aquifers are those that are highly productive and are utilized as sources of water by major municipal water supply systems; principal aquifers are those that are known to be highly productive or whose geology suggests the potential for an abundant water supply, but which are not intensively used as water supply sources (NYSDEC, 1990).

Although private water wells throughout the region may rely on groundwater for drinking water, all public water supply sources for the municipalities in which the Proposed Project and Connected Actions would be constructed, including the Towns of Clay, Cicero, Schroeppel, Volney, and Minetto and the City of Oswego, originate from surface water sources (OCWA, 2024; City of Oswego, 2024). OCWA provides public water to Clay, Cicero, Schroeppel, Volney, and Minetto with freshwater supply from Lake Ontario. Clay and Cicero also receive water from Otisco Lake (OCWA, 2022). The City of Oswego Water Department receives its public water supply from Lake Ontario (City of Oswego, 2024).

At the Federal level, USEPA defines a SSA as an aquifer that supplies at least 50 percent of the drinking water for its service area where no reasonably available alternative drinking source would exist should the aquifer become contaminated (USEPA, 2023). USEPA designates SSAs as the sole or main source of drinking water for a community under the Federal Safe Drinking Water Act (NYSDEC, n.d.-b) and makes SSA designations in response to petitions by localities and after a public hearing (NYSDEC, 1990). USEPA also reviews Federally-funded projects that would be located on land surface overlying SSAs (USEPA 2023). Unlike the primary and principal aquifer designations assigned by the State of New York, the Federal designation of an SSA does not indicate that an aquifer is more or less valuable or vulnerable to contamination than other aquifers without the Federal SSA designation (USEPA, 2025b).

The presence and extent of groundwater resources within the water resources study area were identified based on State and Federal databases, regional mapping sources, and on-site groundwater monitoring, including unconsolidated aquifer data obtained from the New York State Geographic Information System (GIS) Clearinghouse (NYSDEC, 2025a) and publicly available GIS data on the USEPA website that includes polygons for all SSAs located throughout the nation. SSA overlays were compared to the proposed Connected Action footprints to identify the presence of any SSAs within the Connected Action LODs (USEPA, 2020).

Based on review of the above State GIS Clearinghouse data, the presence or absence of unconsolidated aquifers, as well as the classification of aquifers as primary or principal, were determined with respect to all Connected Action locations. Approximate surface areas of unconsolidated aquifers were then calculated at each location where a Connected Action LOD would overlay an aquifer to facilitate determination of potential effects on groundwater resources.

This review identified unconsolidated aquifers within the LODs of the proposed natural gas line, water supply improvements, IWWTP, and wastewater conveyance.[19]

Table F-4 shows the estimated acreages of disturbance these activities would have on unconsolidated aquifers, and those aquifer types, designations (primary or principal), and depth to groundwater. The estimated disturbances are also labeled on Figure F-38 and Figure F-39.

Table F-4 Mapped Unconsolidated Aquifers within Connected Action LODs

Figure	Disturbance	Type	P/P	Yield	Depth
Natural Gas Improvements					
F-38	6.49 acres	Confined, no overlying surficial aquifer	No	5-500 gal/min	8-20 ft.
Water Supply Improvements					
F-38	8.98 acres	Confined, no overlying surficial aquifer	No	5-500 gal/min	8-20 ft.
F-39	18.61 acres	Primary aquifer region	Primary – Fulton	-	-
F-39	25.36 acres	Confined, unknown depth and thickness	Primary – Fulton	-	-
F-39	6.41 acres	Kame, kame terrace, kame moraine, outwash, or alluvium	No	-	-
F-39	3.43 acres	Confined, unknown depth and thickness	No	-	-
IWWTP					
F-38	3.79 acres	Confined, unknown depth and thickness	No	-	-
	6.65 acres	Unconfined, high yield	Principal	>100 gal/min	10-53 ft.
Wastewater Conveyance					
F-38	6.81 acres	Confined, unknown depth and thickness	No	-	-
Total Disturbance: 86.53 acres					

Notes: P/P = primary or principal aquifer. Depth = depth to groundwater. "-" = unknown yield or depth.

There are no primary or principal aquifers or SSAs located beneath the natural gas improvement LODs. However, as shown in Table F-4 and Figure F-38, the natural gas line LOD would overlay 6.49 acres of an unconsolidated aquifer located on the western boundary of the

[19] The LODs for the Clay Substation expansion area, the eastern portion of the natural gas line, the southeastern end of the water supply lines, and the eastern portion of the wastewater conveyance would fall within the Proposed Project portion of the water resources study area. These LODs would not overlay any groundwater aquifers.

Shaver Creek watershed. This aquifer is confined with no overlying surficial aquifers. Water yield ranges from 5 to 500 gallons per minute.

Information on groundwater quality and movement through the LOD is limited, but groundwater in this area generally moves from south to north toward the Oneida River and Oneida Lake (CNYRPDB, 2014). Based on completion reports submitted by registered water well drillers for private domestic water wells outside of the LOD but within this unconsolidated aquifer, depth to groundwater ranges from approximately 8 to 20 feet below ground surface (bgs) and depth to bedrock ranges from approximately 28 to 118 feet bgs (NYSDEC, 2024b). The closest site-specific groundwater monitoring wells are those installed on the WPCP and proposed Rail Spur Site, which indicate groundwater at depths of 0.1 to 7.8 feet below grade. The closest USGS groundwater monitoring station is located southwest of the Proposed Project area near Camillus, NY, outside of the Oneida River watershed but within the same physiographic province as the LOD. Over the period of record, from January 7, 2004, to February 27, 2025, the daily mean depth to groundwater at the Camillus station (USGS 430243076180402) ranged from a minimum depth of 10.75 feet bgs in 2016 to a maximum depth of 14.02 feet bgs in 2004 (USGS, 2025a). Over the last five years, the daily mean depth to groundwater was 12.66 feet bgs. Groundwater quality at the Camillus station is consistent with the chemical weathering of rocks and sediments within an aquifer. In comparison to the NYSDOH drinking water MCLs (10 NYCRR Part 5), the Camillus station has high concentrations of dissolved solids such as chloride and sulfate and high concentrations of minerals such as iron and manganese (USGS, 2025a).

There are no principal aquifers or SSAs beneath the water supply improvement LOD. However, as shown in Table F-4 and Figure F-39, in Oswego County, the LOD would overlay 43.97 acres of the County's Fulton primary aquifer region. Other portions of the water supply line LOD would overlay three unconsolidated aquifers, including 8.98 acres of a confined, unconsolidated aquifer in Onondaga County, 6.41 acres of a kame aquifer in Oswego County, and 3.43 acres of a confined, unconsolidated aquifer in Oswego County (Figure F-38 and Figure F-39).

The 43.97-acre LOD that would overlay the Oswego County Fulton primary aquifer region is interspersed with till and deposits of sand and silt (Miller and Muller, 1982). The till is compact and of low permeability, creating spaces throughout the aquifer around which groundwater must flow. The deposits of sand and silt are of low to moderate permeability with groundwater generally flowing northwest toward the Oswego River (Stelz, 1982; Anderson and Allen, 1982). Yield within the areas of low to moderate permeability is less than 10 gallons per minute due to the thinness of the deposits (Anderson, 1982). Within this 43.97-acre LOD, 25.36 acres are indicated as being confined with unknown depth and thickness (NYSDEC, 2025a).

The 6.41-acre LOD that would overlay the kame aquifer in Oswego County consists of stratified sand and gravel deposits from melted glaciers (NYSDOT, 2013; Goldstein, 1984). These sediments make the aquifer well drained and capable of rapid infiltration. Information on groundwater quality and movement through this aquifer is limited, but completion reports submitted by registered water well drillers for private domestic water wells outside of the LOD and within the aquifer show depth to bedrock between approximately 15 to 24 feet bgs and stabilized discharges between 9 to 40 gallons per minute (NYSDEC, 2024b).

Other portions of the water supply improvement LOD would overlay unconsolidated aquifers at multiple locations, with the northernmost aquifers located near Fulton City in Oswego

County, and the southernmost aquifer located closer to the WPCP in Onondaga County. The northernmost unconsolidated aquifer is confined with unknown depth, thickness, and yield (NYSDEC, 2024b). The southernmost unconsolidated aquifer is the same aquifer over which the natural gas line would be located. As noted above, this aquifer is confined with no overlying surficial aquifers, with groundwater yield from approximately 5 to 500 gallons per minute (NYSDEC, 2025a), and private domestic water well completion reports show depth to groundwater ranging from approximately 8 to 20 feet bgs and depth to bedrock ranging from approximately 28 to 118 feet bgs (NYSDEC, 2024b).

Data on groundwater levels within the Fulton primary aquifer, kame aquifer, and northernmost unconsolidated aquifer are limited. The closest USGS groundwater monitoring station to these aquifers is located northeast of Fulton near Volney, NY, just outside of the Fulton primary aquifer. Over the period of record, from November 1, 2002, to February 27, 2025, the daily mean depth to groundwater at the Volney station ranged from a minimum depth of 21.16 feet bgs in 2017 to a maximum depth of 22.93 feet bgs in 2015 (USGS, 2025b). Over the last five years, the daily mean depth to groundwater was 22.4 feet bgs. Groundwater quality information within the Fulton primary aquifer is limited, but an annual drinking water quality report from Fulton City in 2023, which includes two groundwater wells located within the Fulton primary aquifer, indicated that groundwater contaminant levels were below NYSDOH drinking water MCLs (Fulton City Water Works, 2023). The closest groundwater monitoring wells to the southernmost unconsolidated aquifers are those installed on the WPCP and proposed Rail Spur Site, which indicate groundwater at depths of 0.1 to 7.8 feet below grade. The closest USGS groundwater monitoring station is the Camillus station noted above, which most closely represents the general state of groundwater quality within the southern portion of the LOD.

There are no primary aquifers or SSAs located beneath the wastewater improvement LODs. However, as shown in Table F-4 and Figure F-38, the IWWTP and wastewater conveyance LODs would overlay two unconsolidated aquifers located on the western edge of the Shaver Creek watershed. Specifically, 6.65 acres of the IWWTP LOD would overlay the northernmost of these two aquifers, which is considered a principal aquifer. This aquifer is unconfined and offers a high yield of more than 100 gallons per minute. Information on groundwater quality and movement through this aquifer is limited, but based on completion reports submitted by registered water well drillers for private domestic water wells within this aquifer, depth to bedrock ranges from approximately 22 to 53 feet bgs and depth to groundwater ranges from approximately 10 to 53 feet bgs (NYSDEC, 2024b). A total of 3.79 acres of the IWWTP LOD and 6.81 acres of the wastewater conveyance LOD would overlay the southernmost of these two aquifers, which is not considered a primary or principal aquifer. This aquifer is confined with an unknown depth, thickness, and yield. Information on groundwater quality and movement through this aquifer is also limited, but completion reports submitted by registered water well drillers for private domestic water wells within the aquifer show depth to bedrock at approximately 43 feet bgs (NYSDEC, 2024b).

The closest site-specific groundwater monitoring wells are those installed on the WPCP and proposed Rail Spur Site, which indicate groundwater at depths of 0.1 to 7.8 feet below grade. The closest USGS groundwater monitoring station is the Camillus station noted above, which most closely represents the general state of groundwater quality within the LOD.

F-3.5 Floodplains

Flooding can endanger human life and damage property, particularly in floodplains where development has occurred (NYSDEC, 2024c). Changes in land use and precipitation and runoff patterns, impervious surfaces, and obstructions in floodways can alter floodplain boundaries and potentially expand floodwater footprints (Tetra Tech, 2019).

FEMA manages the NFIP to provide flood insurance to people who live in areas with the greatest risk of flooding. FEMA maintains flood insurance rate maps (FIRMs) that delineate SFHAs with the highest risk of flooding (FEMA, 2020a, 2020b, 2024). Local governments may participate in the NFIP by ensuring that local laws contain adequate land use and floodplain development control measures and by adopting FIRMs or Flood Hazard Boundary Maps (FEMA, 2024).

Despite its name, a “100-year flood,” also known as a base flood, is a flood with a one percent chance of occurring in any given year (FEMA, 2020c). SFHAs include “100-year floodplains,” which are floodplains inundated by base flood events (FEMA, 2020a). Portions of SFHAs with watercourse channels and adjacent floodplain areas prone to increasing flood heights within 100-year floodplains if developed or filled are referred to as regulated floodways (FEMA, 2020d). SFHAs also include coastal floodplains where wave action or high-velocity water can cause damage during a one percent annual chance flood (FEMA, 2021).

A “500-year storm” is a storm event with a less than one percent but more than 0.2 percent chance of occurring in any given year. Although they are not considered SFHAs, “500-year floodplains” are also delineated on FIRMs, and are considered low- to moderate-risk areas that may still result in shallow flooding (FEMA 2020e, n.d.).

The presence and extent of floodplains within the water resources study area were identified through a desktop review of FEMA FIRMs and GIS data available on FEMA’s Flood Map Service Center website delineating the relevant locations of base flood elevations, SFHAs, and flood insurance risk premium zones.

Based on review of the FEMA FIRMs and GIS data, the presence or absence of SFHAs and 500-year floodplains were determined for all Connected Action locations. Approximate surface areas were then calculated for each location where a Connected Action LOD would overlay an SFHA or 500-year floodplain to facilitate determination of potential effects on floodplains.

This review identified no SFHAs or regulated floodplains within the LODs of the proposed Clay Substation expansion area, natural gas line, or wastewater conveyance, but identified floodplains within 28.28 acres of the proposed water supply improvement LODs and 1.36 acres of the IWWTP LOD. Table F-5 shows the estimated floodplain acreages within these LODs. The floodplain acreages are also labeled on Figure F-41 through Figure F-45.

Table F-5 Mapped FEMA Floodplains within Connected Action LODs

Figure	Waterbody	100-yr	Reg.	500-yr
Water Supply Improvements				
F-41	Mud Creek	0.52	0.97	0.33
F-42	Oneida River	0.06	1.20	0.24
F-42	Peter Scott Swamp	5.63	-	0.54
F-42	Peter Scott Swamp	-	-	0.21
F-43	Unnamed tributary to Waterhouse Creek	0.10	-	-
F-43	Unnamed tributary to Waterhouse Creek	4.26	-	-
F-43	Unnamed tributary to Waterhouse Creek	7.10	-	-
F-44	Unnamed tributary to Waterhouse Creek	0.03	-	-
F-44	Black Creek	4.66	-	-
F-44	Unnamed tributary to Oswego River	-	-	0.35
F-44	Oswego River	0.45	1.31	0.07
F-44	Unnamed tributary to Oswego River	0.25	-	-
IWWTP				
F-41	Oneida River	1.27	-	0.09
	Totals	**24.33**	**3.48**	**1.83**

Sources: FEMA (2016, 2023). Notes: 100-yr = 100-year floodplain acreage. Reg. = regulated floodway acreage. 500-yr = 500-year floodplain acreage. "-" = unknown acreage.

The proposed water supply improvements would traverse six municipalities in Onondaga and Oswego Counties, including the Towns of Cicero, Clay, Schroeppel, Volney, and Minetto and the City of Oswego. The IWWTP would be located within the Town of Clay. Each of these municipalities participates in the NFIP and enforces floodplain management requirements, either through floodplain development permits or planning permits approved by local floodplain administrators (Barton & Loguidice, 2019; TetraTech, 2019).

The 28.28 acres of FEMA floodplains in these municipalities located within the water supply improvement LODs include 23.06 acres of 100-year floodplains (81.5 percent), 3.48 acres of regulated floodways (12.3 percent), and 1.74 acres of 500-year floodplains (6.2 percent). The 1.36 acres of FEMA floodplains in Clay within the IWWTP LOD include 1.27 acres of 100-year floodplains (93.4 percent) and 0.09 acres of 500-year floodplains (6.6 percent).

F-3.6 Coastal Resources

The waters of Lake Ontario continue to be a source of high-quality drinking water. In 2022, toxic chemicals monitored in Lake Ontario sediments and surface water were assessed as fair and long-term trends indicated that concentrations were unchanging to improving. However, atmospheric deposition and localized areas of highly contaminated sediment in or adjacent to the shorelines, particularly in urban areas, remain significant pathways for contaminants to enter the lake (USEPA and GOC, 2022).

The human population surrounding Lake Ontario has increased by more than 60 percent over the past 50 years, more than any of the other Great Lakes (USEPA and GOC, 2022), increasing coastal erosion along the shoreline. Humans can cause erosion through vegetation removal, exposing soil to erosion by wind, waves, and precipitation, directing runoff from impervious surfaces over dunes and bluffs, and constructing hardened structures that reflect wave energy onto adjacent shorelines or deepen nearshore areas (NYSDEC, 2024d).

The presence and extent of coastal resources within the study area were identified through a desktop review of State mapping and GIS data (NYSDEC, 2025a), including data on landward coastal zone boundaries and the Town of Clay and City of Oswego LWRP boundaries published by NYSDOS and CEHA boundary information published by NYSDEC, and a review of the Clay and Oswego LWRPs (Plumley Engineering, 2012; City of Oswego, 1986).

Based on these reviews, 3.69 acres of the LOD of the new water supply line that would be constructed from the RWPS at Lake Ontario to the LOWTP would be located within the Lake Ontario coastal zone boundary, but more than 115 feet away from the nearest CEHA (see Figure F-46), and 3.71 acres of the LOD of this water supply line would be located within the City of Oswego LWRP boundary (see Figure F-48). Separately, a 15.19-acre segment of the water supply line that would be constructed from the LOWTP to the Terminal Campus would be located within the Town of Clay LWRP boundary (see Figure F-47). In addition, all 36 acres of the IWWTP LOD and 3.89 acres of the western end of the wastewater conveyance LOD would also be located within the Clay LWRP boundary (see Figure F-47).

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Appendix F-4
Supplemental Information: Environmental Consequences

F-4 Supplemental Information: Environmental Consequences

F-4.1 Construction Effects – Connected Actions

F-4.1.1 Wetlands

Construction of the Connected Actions would result in the permanent loss of wetlands within the proposed Clay Substation expansion area and IWWTP LOD, as well as temporary effects on wetlands within the substation expansion area and the proposed natural gas improvement, water supply improvement, and wastewater conveyance LODs.

The losses in this section are estimates based on currently available Connected Action design information and would be further refined during the permitting processes for each Connected Action. Construction activities within the LODs for some of the water supply and wastewater improvements that would be constructed further in the future (see Chapter 2, Figure 2.1-3), for which there are currently limited or no available plans, would be conservatively assumed to result in at least some level of adverse effects.

Field delineations to date have been conducted in accordance with the *Corps of Engineers Wetlands Delineation Manual* (USACE, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (USACE, 2012). The amount of State jurisdictional wetlands and associated wetland boundaries, and non-jurisdictional wetlands, are unknown at this time, and would be identified during applicable permitting processes once all necessary field delineations have been completed and jurisdictional determinations have been issued by USACE and NYSDEC. Currently, PJDs and AJDs have not yet been issued for the Connected Action LODs, except for the Clay Substation expansion area. Therefore, the estimated losses in this section reflect the total amount of wetlands anticipated to be subject to regulation by USACE. Effects on regulated wetland buffer areas also would be evaluated during applicable permitting processes. Overall, ground disturbing activities would be anticipated to result in the temporary and permanent direct effects on jurisdictional wetlands shown in Table F-6.

Table F-6 Anticipated Direct Effects on Wetlands (Connected Actions)*

Type	Temporary Effects	Permanent Losses	Total
Clay Substation Expansion			
PEM	0.60	0.55	1.15
PSS	3.68	3.26	6.94
PFO	0.02	0.23	0.25
All	**4.30**	**4.04**	**8.34**
Natural Gas Improvements			
PEM	2.09	0.01	2.10

PSS	4.12	0.0	4.12
PFO	0.91	0.077	0.98
All	**7.12**	**0.087**	**7.20**
Water Supply Improvements			
All	53.62	0.0	53.62
IWWTP			
PEM	0.0	0.13	0.13
PSS	0.0	0.72	0.72
PFO	0.0	1.42	1.42
All	**0.0**	**2.27**	**2.27**
Wastewater Conveyance			
PEM	3.34	0.0	3.34
PSS	0.21	0.0	0.21
PFO	3.71	0.0	3.71
All	**7.26**	**0.0**	**7.26**
Total	**72.30**	**6.40**	**78.70**

Notes: *All values are in acres, are estimates based on currently available Connected Action design information, and would be further refined during the permitting processes for each Connected Action. Construction activities within the water supply and wastewater improvement LODs, for which there are currently limited or no available plans, would be conservatively assumed to result in at least some level of adverse effects. Total wetland acreage estimates represent the total amount of wetlands currently anticipated to be subject to regulation by USACE and are being treated as regulated under the CWA.

As shown in the table, construction of the Connected Actions would result in the permanent loss of a total of 6.40 acres of wetlands being treated as Federal jurisdictional wetlands, including 4.04 acres within the proposed Clay Substation expansion area, 0.087 acres within the natural gas improvement LODs, and 2.27 acres within the IWWTP LOD. These losses would occur as a result of site equipment staging, excavation, filling, and grading necessary to create the level upland conditions required for construction of the various Connected Action components. An additional 0.165 acres of PSS/PFO wetlands is anticipated to be permanently converted to PEM habitat within the natural gas improvement LOD as a result of right-of-way maintenance.

National Grid, OCWA, and OCDWEP would seek to avoid or minimize permanent losses of wetlands and their functions and services through project design modifications during applicable permitting processes. The potential compensatory mitigation that would be required for losses of Federal jurisdictional wetlands regulated by USACE also would be determined during the applicable permitting process for each Connected Action.[20] Losses and conversion of wetlands determined to be State jurisdictional and subject to regulation by NYSDEC also would require preparation of compensatory mitigation plans under ECL Article 24. Losses of wetlands determined to be non-jurisdictional would not require mitigation.

Construction also would result in temporary effects on a total of 72.30 acres of wetlands being treated as Federal jurisdictional wetlands, including 4.30 acres within the substation expansion area, 7.12 acres within the natural gas improvement LOD, 53.62 acres within the water supply improvement LOD, and 7.26 acres within the wastewater improvement LOD. These temporary effects would occur primarily during construction within the linear improvement LODs as a result of the intrusion of personnel and mechanized equipment within the LODs, trampling and machine compression during ground disturbance, cut and cover trenching, and potential HDD.

In general, National Grid, OCWA, and OCDWEP would protect wetland areas from heavy construction equipment and other disturbances through the use of temporary timber mats. Although soil would be stockpiled away from any delineated or suspected wetland areas when feasible, timber matting also would be used when temporary soil stockpiling is required within a wetland area to reduce disturbances. Soil would not be staged on timber matting if it would cause any erosion or sedimentation issues in adjacent wetlands or waterbodies. All wetlands disturbed during trenching would be backfilled with the original excavated soil, when feasible, and would be returned to grade. Any remaining exposed or disturbed soils would be stabilized (e.g., with seed and straw mulch) in accordance with the New York State *Standards & Specifications for Erosion & Sediment Control* (NYSDEC, 2016), or the version in effect at the time of approval given the phased development.). In addition, SWPPP and SPCC/SPR Plans would be prepared for Connected Actions as required to reduce the risk of accidental releases, leaks, or spills of materials such as concrete, oil, fuel, lubricants, or hydraulic fluids during construction and provide for immediate containment and cleanup of any release.

The loss of the wetlands described above also could result in indirect long-term effects on any remaining wetlands within the Connected Action LODs or on the wetland buffers and hydrology, soils, and vegetation supporting them, as a result of subsequent changes in hydrology, including increased stormwater runoff and decreased groundwater recharge. The precise nature of these effects cannot be determined at this time given that some Connected Action designs and LODs have not been finalized and not all wetlands have been delineated and verified by USACE or NYSDEC. Although in general, these indirect effects would be assumed to be similar to those described for the Proposed Project, they also would be anticipated to occur on a substantially smaller scale given the comparatively smaller footprints of the Connected Actions.

To minimize indirect effects on remaining wetlands, National Grid, OCWA, and OCDWEP would implement stormwater BMPs similar to those that Micron would implement for the Proposed Project to reduce runoff rates, reduce erosion of disturbed land and downgradient sedimentation, and protect stormwater from contamination before and during Connected Action construction activities. These would include BMPs to reduce temporary effects from construction

[20] The permanent loss of wetlands within the Clay Substation expansion area is anticipated to include the loss of their nutrient retention, production export, and wildlife habitat functions. National Grid has currently proposed compensatory mitigation for these losses in the form of in-lieu fee program credits.

activities, including silt fencing, stone outlet sediment traps, compost filter socks, or other temporary soil stabilization measures to contain excavated materials, and erosion control measures to prevent sediment-laden runoff from discharging to adjacent areas. Erosion and sediment control plans would be prepared once Connected Action engineering designs are completed.

The permanent and temporary construction effects on wetlands within the Connected Action LODs, in combination with other wetland and surface water effects under the Preferred Action Alternative, would constitute a significant adverse effect on water resources.

F-4.1.2 Surface Water

Construction of the Connected Actions would result in the permanent loss of stream features within the proposed Clay Substation expansion area, as well as temporary effects on rivers and streams within the substation expansion area and the proposed natural gas, water supply, and wastewater improvement LODs.

The losses in this section are estimates based on currently available Connected Action design information and would be further refined during the permitting processes for each Connected Action. Construction activities within the LODs for some of the water supply and wastewater improvements that would be constructed further in the future (see Chapter 2, Figure 2.1-3), for which there are currently limited or no available plans, would be conservatively assumed to result in at least some level of adverse effects.

Field delineations to date have been conducted in accordance with the *Corps of Engineers Wetlands Delineation Manual* (USACE, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (USACE, 2012). The amount of State jurisdictional and non-jurisdictional rivers and streams are unknown at this time and would be identified during applicable permitting processes once all necessary field delineations have been completed and jurisdictional determinations have been issued by USACE and NYSDEC. However, affected State jurisdictional surface waters are anticipated to be limited to those within Oneida and Oswego River crossings totaling approximately 229.93 LF.

PJDs and AJDs have not yet been issued for the Connected Action LODs, with the exception of the Clay Substation. Therefore, the estimated losses in this section reflect the total amount of rivers and streams anticipated to be subject to regulation by USACE. Overall, construction would be anticipated to result in the temporary and permanent direct effects on jurisdictional rivers and streams shown in Table F-7.

Table F-7 Anticipated Direct Effects on Rivers and Streams (Connected Actions)*

Flow Regime	Current Length	Temporary Effects	Permanent Effects
Clay Substation Expansion			
Intermittent	1,925	380	1,545
Total	**1,925**	**380**	**1,545**

Natural Gas Improvements			
Perennial	808	100	0.0
Intermittent	1,491	75	0.0
Total	**2,299**	**175**	**0.0**
Water Supply Improvements			
Total	**2,835**	**2,835**	**0.0**
Wastewater Improvements			
Perennial	101	101	0.0
Total	**101**	**101**	**0.0**
Total (All)	**7,160**	**3,491**	**1,545**

Notes: *All values are in linear feet, are estimates based on currently available Connected Action design information, and would be further refined during the permitting processes for each Connected Action. Streams mapped within the water supply improvement LODs have not yet been evaluated in the field for flow regime. Construction activities within the water supply and wastewater improvement LODs, for which there are currently limited or no available plans, would be conservatively assumed to result in at least some level of adverse effects. Total linear feet estimates represent the total amount of rivers and streams currently anticipated to be subject to regulation by USACE and are being treated as regulated under the CWA. A total of 229.93 LF included under temporary effects within the water supply improvement LODs are also anticipated to be State jurisdictional.

As shown in the table, construction of the Connected Actions would result in the permanent loss of a total of 1,545 LF of intermittent stream features and ditches being treated as Federal jurisdictional, all within the proposed Clay Substation expansion area. These losses would occur as a result of site equipment staging, excavation, filling, and grading necessary to create the level upland conditions required for construction of the various Connected Action components. Based on current designs, the losses within the Clay Substation expansion area would primarily be losses of shallow stormwater ditches (Thompson, 2025). However, as part of the expansion, new stormwater ditches with similar dimensions would be installed around the base of the area to provide similar functions as those lost. The total anticipated loss of 1,545 LF of stream features and ditches is approximately 0.20% of the approximately 759,264 LF of stream channels mapped as included in and near the Oneida River sub-watershed (USEPA, 2025c).

National Grid, OCWA, and OCDWEP would seek to avoid or minimize permanent losses of stream features and their functions and services through project design modifications during applicable permitting processes. The potential compensatory mitigation that would be required for losses of Federal jurisdictional rivers and streams regulated by USACE also would be determined during the applicable permitting process for each Connected Action. Losses of rivers and streams determined to be State jurisdictional and subject to regulation by NYSDEC also would require preparation of compensatory mitigation plans under ECL Article 24. Currently, State jurisdictional stream losses are anticipated to occur within streams designated as Class C waters of the Oneida River sub-watershed, and there are no anticipated permanent losses of State jurisdictional rivers (i.e., losses in the Oneida and Oswego Rivers). Losses of rivers and streams determined to be non-jurisdictional would not require mitigation.

Construction also would result in temporary effects on a total of 3,491 LF of rivers and streams being treated as Federal jurisdictional, including 380 LF within the substation expansion area, 175 LF within the natural gas improvement LOD, 2,835 LF within the water supply improvement LOD, and 101 LF within the wastewater improvement LOD. These temporary effects would occur primarily during construction within the linear improvement LODs as a result of the intrusion of personnel and mechanized equipment within the LODs, trampling and machine compression during ground disturbance, cut and cover trenching, potential HDD methods, and installation of pipeline.

In general, National Grid, OCWA, and OCDWEP would protect streams and ditches from heavy construction equipment and other disturbances through the use of temporary timber mats. Although soil would be stockpiled away from any delineated or suspected stream features when feasible, timber matting also would be used when temporary soil stockpiling is required within a surface water area to reduce disturbances. Soil would not be staged on timber matting if it would cause any erosion or sedimentation issues in adjacent waterbodies. Any remaining exposed or disturbed soils would be stabilized (e.g., with seed and straw mulch) in accordance with the New York State *Standards & Specifications for Erosion & Sediment Control* (NYSDEC, 2016), or the version in effect at the time of approval given the phased development.). In addition, SWPPPs and SPCC/SPR Plans would be prepared for Connected Actions as required to reduce the risk of accidental releases, leaks, or spills of materials such as concrete, oil, fuel, lubricants, or hydraulic fluids during construction and provide for immediate containment and cleanup of any release.

Trenching within waterways, such as for the water supply improvements, would require the use of temporary water impoundment structures (e.g., cofferdams) and pumping or redirection of upstream water flow to the downstream side of the structure to allow trenching work to be performed in dry conditions to minimize sediment suspension. After installation, the trench would be backfilled with the original sediment when feasible, or clean fill when not feasible, and the channel bottoms would be returned to their original grade. However, the installation and removal of these impoundment structures would stir up bottom sediments, which could adversely affect water quality by temporarily increasing turbidity and decreasing dissolved oxygen, primarily out to points past the impoundment structures, where suspended sediment within turbidity plumes would re-settle to the bottom. The sizes and shapes of these turbidity plumes cannot be precisely determined at this time, but the extent of the plumes would be anticipated to be within a few hundred feet of the impoundment structures or fewer, depending on the amount of fine particles (i.e., silts and clays) in the sediment.

Pollutants or contaminants deposited and trapped within the sediment bed from past activities such as agricultural runoff (e.g., pesticides) or road runoff (e.g., petroleum hydrocarbons) could become temporarily re-suspended during installation and removal of impoundment structures, but these contaminants would not be anticipated to be present in concentrations that would exceed water quality standards.

Accidental releases from construction machinery could potentially occur during work in channel bottoms, but these activities would be subject to controls in the SWPPPs and SPCC/SPR Plans noted above. Limiting timing of construction activities to periods when intermittent or ephemeral stream channels would be dry also would be considered to minimize effects.

Use of HDD methods in certain circumstances (e.g., for constructing water supply lines across the Oneida and Oswego Rivers) would avoid direct effects on stream channels by directing pipeline underneath the channel. If HDD methods are used, an Inadvertent HDD Fluid Release Contingency Plan would be required to provide for proper containment and cleanup of any accidental releases of HDD fluids.

The loss of the streams and ditches described above also could result in indirect long-term effects on downgradient rivers or streams from altered hydrologic conditions or adverse water quality conditions, including as a result of temporary upland changes in topography through the completion of construction. The precise nature of these effects cannot be determined at this time given that some Connected Action designs and LODs have not been finalized and not all rivers and streams have been delineated and verified by USACE or NYSDEC. In general, these indirect effects would be assumed to be similar to those described for the Proposed Project.

To minimize indirect effects on remaining rivers and streams, National Grid, OCWA, and OCDWEP would implement stormwater BMPs similar to those that Micron would implement for the Proposed Project to reduce runoff rates, reduce erosion of disturbed land and downgradient sedimentation, and protect stormwater from contamination before and during Connected Action construction activities. These would include BMPs to reduce temporary effects from construction activities, including silt fencing, stone outlet sediment traps, compost filter socks, or other temporary soil stabilization measures to contain excavated materials, and erosion control measures to prevent sediment-laden runoff from discharging to adjacent areas. Erosion and sediment control plans would be prepared once Connected Action engineering designs are completed.

The permanent and temporary construction effects on rivers and streams within the Connected Action LODs, in combination with other wetland and surface water effects under the Preferred Action Alternative, would constitute a significant adverse effect on water resources.

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New York State Department of Environmental Conservation (NYSDEC). (2016). Final New York State Standards and Specifications for Erosion and Sediment Control. November 2016.

Thompson, L. (2025). *National Grid Wetland Impact Updates – Clay Substation and Underground Electric Lines* [Personal Communication]. February 21, 2025.

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U.S. Army Corps of Engineers (USACE). (2012). *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*. Version 2.0. January 2012.

U.S. Environmental Protection Agency (USEPA). (2025c). Waterbody Report. *How's My Waterway*. https://mywaterway.epa.gov/waterbody-report/21NYDECA/NY0703-0018/2022. Accessed February 28, 2025.

Appendix F-5
Water Resources Figures

F-5 Water Resources Figures

Table F-8 Water Resources Figures

Figure	Title
Water Resources Study Area	
F-1	Water Resources Study Area Map
F-2	HUC 10 Watersheds and HUC 12 Sub-Watersheds Map
Wetlands	
F-3	Micron Campus Delineated Federal Jurisdictional Wetlands
F-4	Micron Campus Delineated State Jurisdictional Wetlands
F-5	Micron Campus Delineated Non-Jurisdictional Wetlands
F-6	Rail Spur Site Delineated Federal Jurisdictional Wetlands
F-7	Rail Spur Site Delineated Non-Jurisdictional Wetlands
F-8	Childcare Site Delineated Federal Jurisdictional Rivers and Streams
F-9	Childcare Site Delineated State Jurisdictional Wetlands
F-10	Childcare Site Delineated Non-Jurisdictional Wetlands
F-11	Electricity Improvements Delineated Wetlands
F-12	Natural Gas Improvements Delineated Wetlands
F-13	Water Supply Improvements Mapped Federal Wetlands (Area 1)
F-14	Water Supply Improvements Mapped Federal Wetlands (Area 2)
F-15	Water Supply Improvements Mapped Federal Wetlands (Area 3)
F-16	Water Supply Improvements Mapped Federal Wetlands (Area 4)
F-17	Water Supply Improvements Mapped Federal Wetlands (Area 5)
F-18	Water Supply Improvements Mapped New York State Wetlands (Area 1)
F-19	Water Supply Improvements Mapped New York State Wetlands (Area 2)
F-20	Water Supply Improvements Mapped New York State Wetlands (Area 3)
F-21	Water Supply Improvements Mapped New York State Wetlands (Area 4)
F-22	Water Supply Improvements Mapped New York State Wetlands (Area 5)

Coastal Resources	
F-46	New York State Coastal Area Boundary
F-47	Town of Clay Local Waterfront Revitalization Program Area
F-48	City of Oswego Local Waterfront Revitalization Program Area

Figure F-1 Proposed Project Water Resources Study Area Map

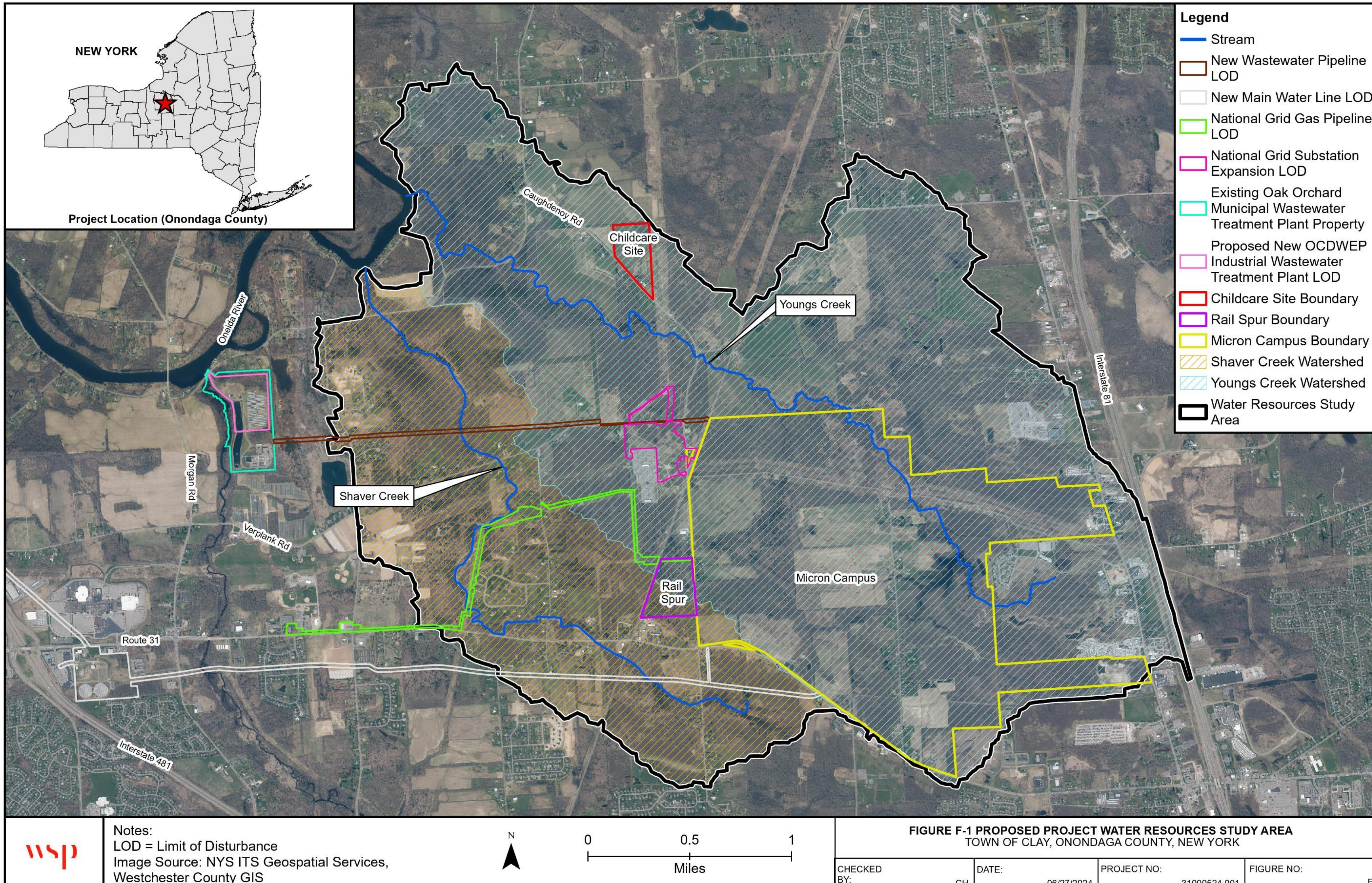


Figure F-2 Connected Actions Water Resources Study Area

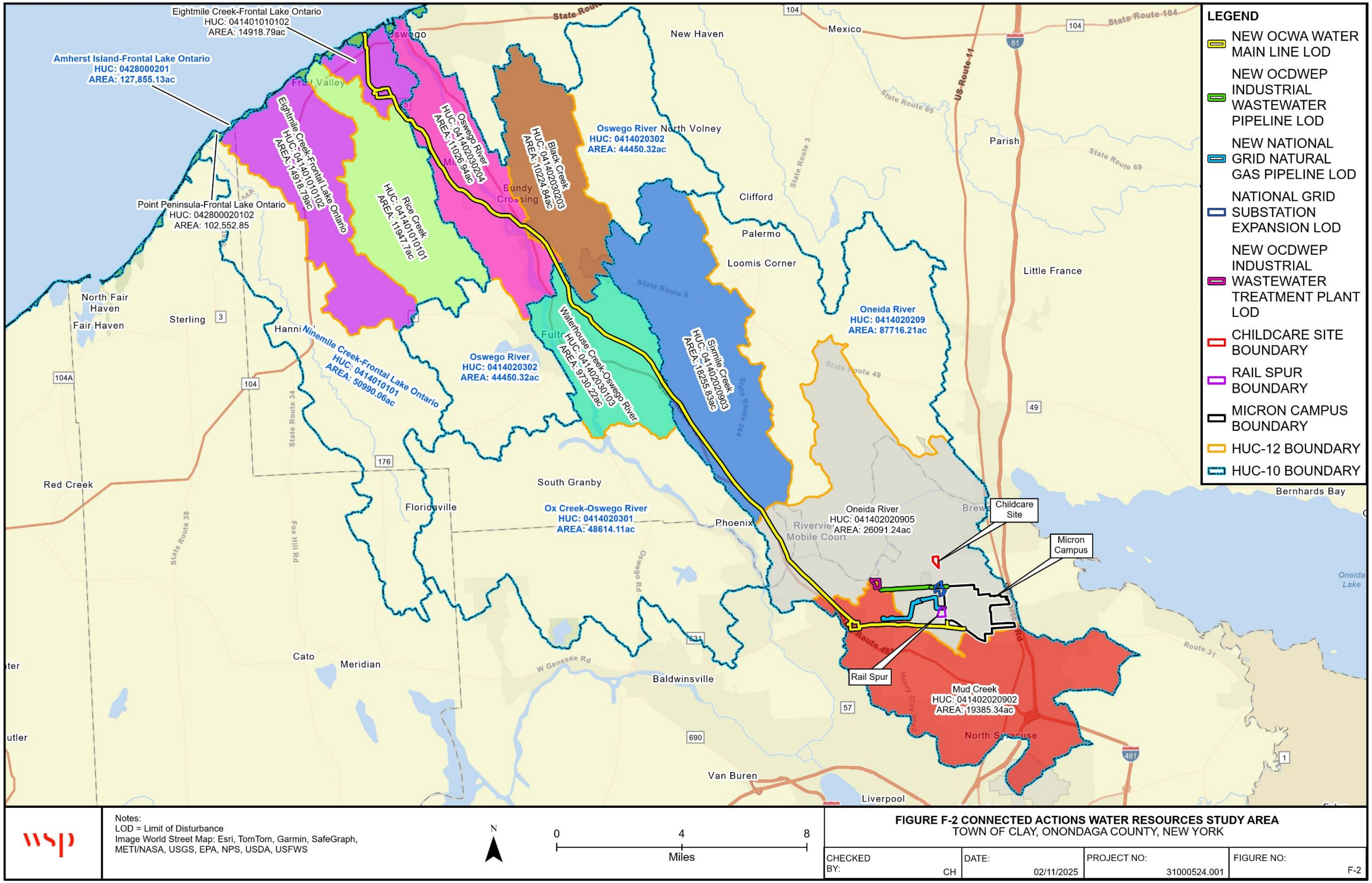
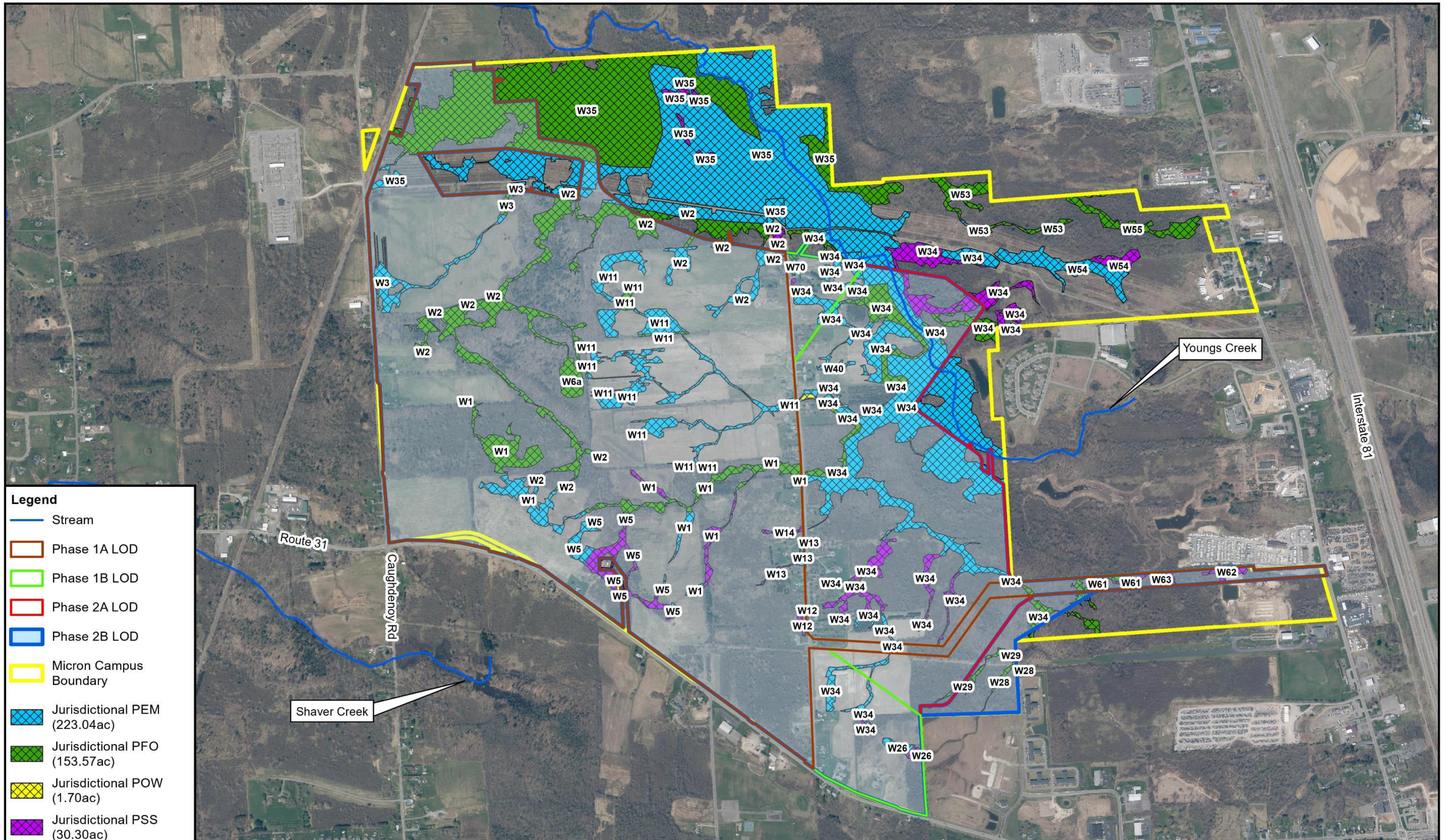


Figure F-3 Micron Campus Delineated Federal Jurisdictional Wetlands



Notes:
LOD = Limit of Disturbance
Image NYS ITS Geospatial Services, Westchester County GIS

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FIGURE F-3 MICRON CAMPUS DELINEATED FEDERAL JURISDICTIONAL WETLANDS
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

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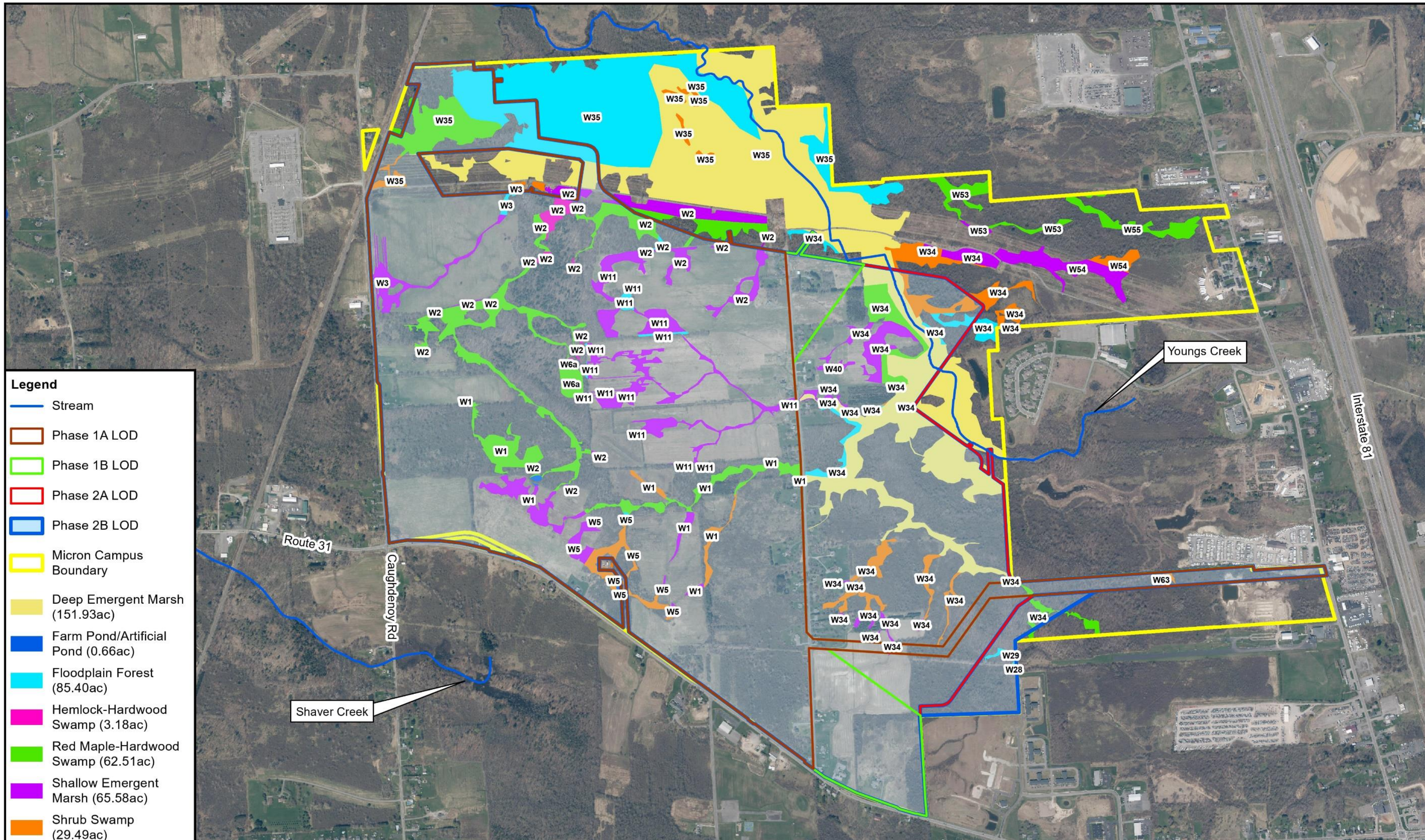
Figure F-4 Micron Campus Delineated State Jurisdictional Wetlands



Notes: LOD = Limit of Disturbance Image NYS ITS Geospatial Services, Westchester County GIS	FIGURE F-4 MICRON CAMPUS DELINEATED STATE JURISDICTIONAL WETLANDS TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

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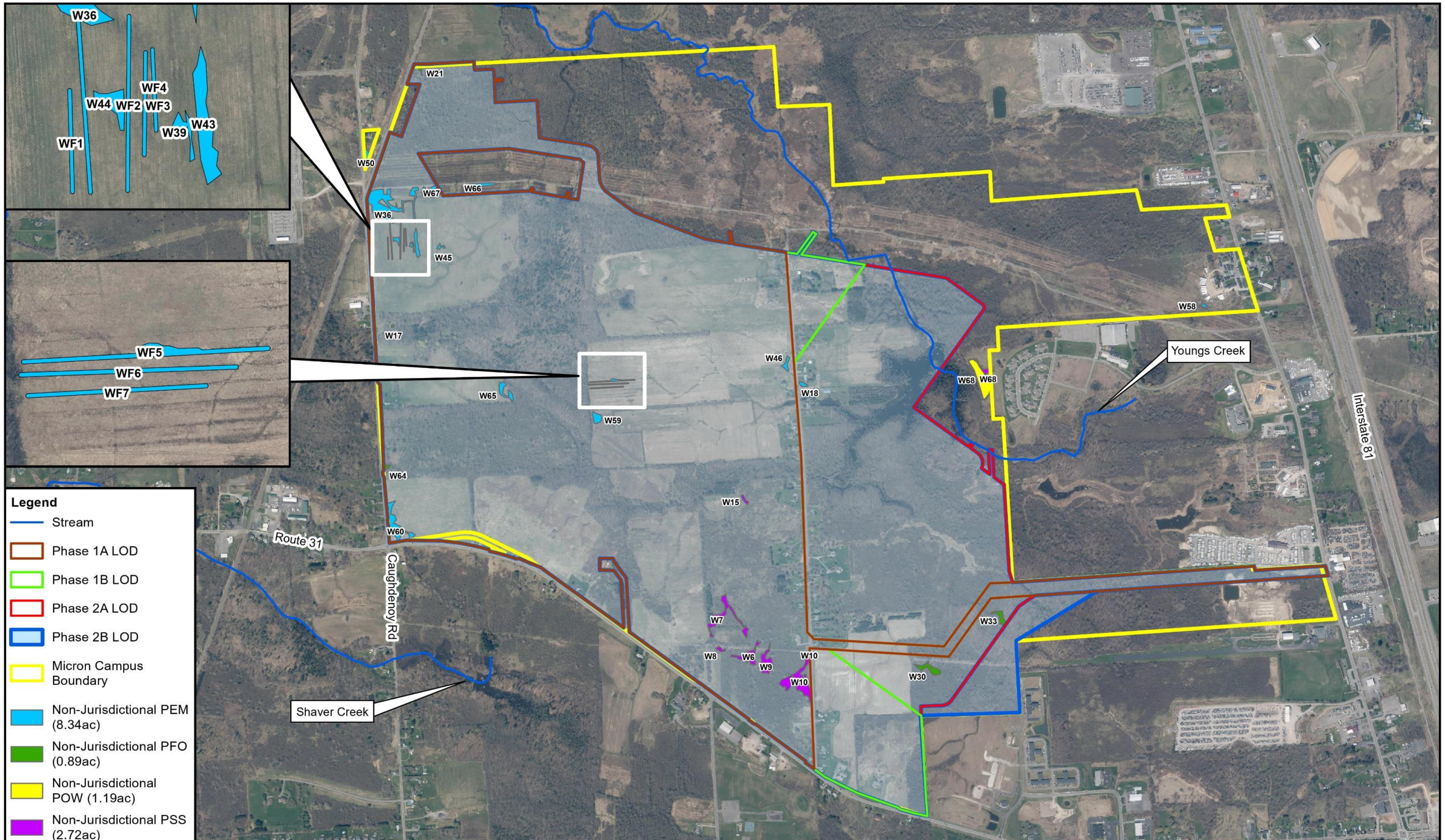
CH	01/28/2025	31000524.001	F-4

Figure F-5 Micron Campus Delineated Non-Jurisdictional Wetlands



wsp	Notes: LOD = Limit of Disturbance Image NYS ITS Geospatial Services, Westchester County GIS	**FIGURE F-5 MICRON CAMPUS DELINEATED NON-JURISDICTIONAL WETLANDS** TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK		
CHECKED BY: CH	DATE: 01/28/2025	PROJECT NO: 31000524.001	FIGURE NO: F-5	

Figure F-6 Rail Spur Site Delineated Federal Jurisdictional Wetlands

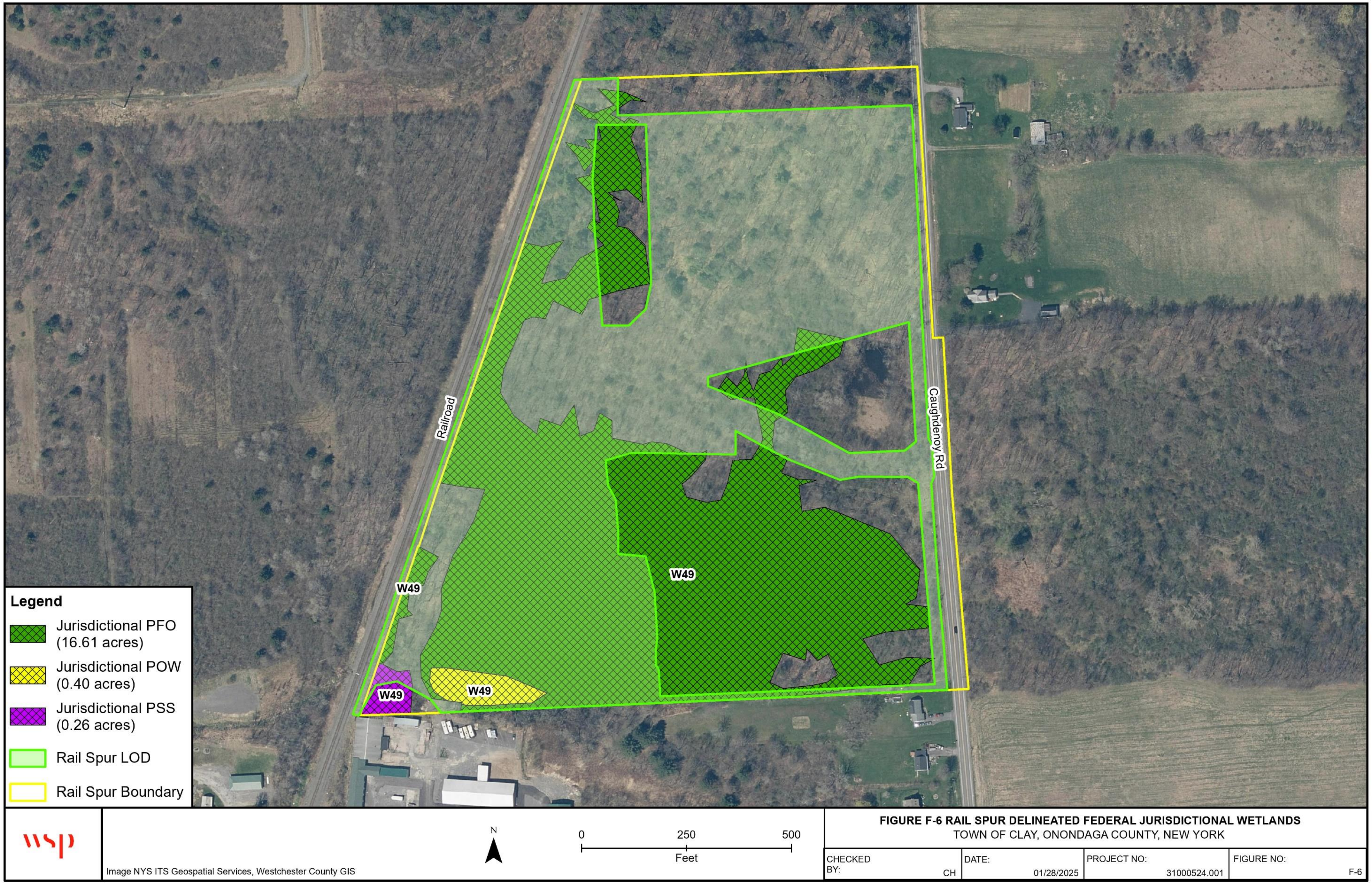


Figure F-7 Rail Spur Site Delineated Non-Jurisdictional Wetlands

Figure F-8 Childcare Site Delineated Federal Jurisdictional Wetlands

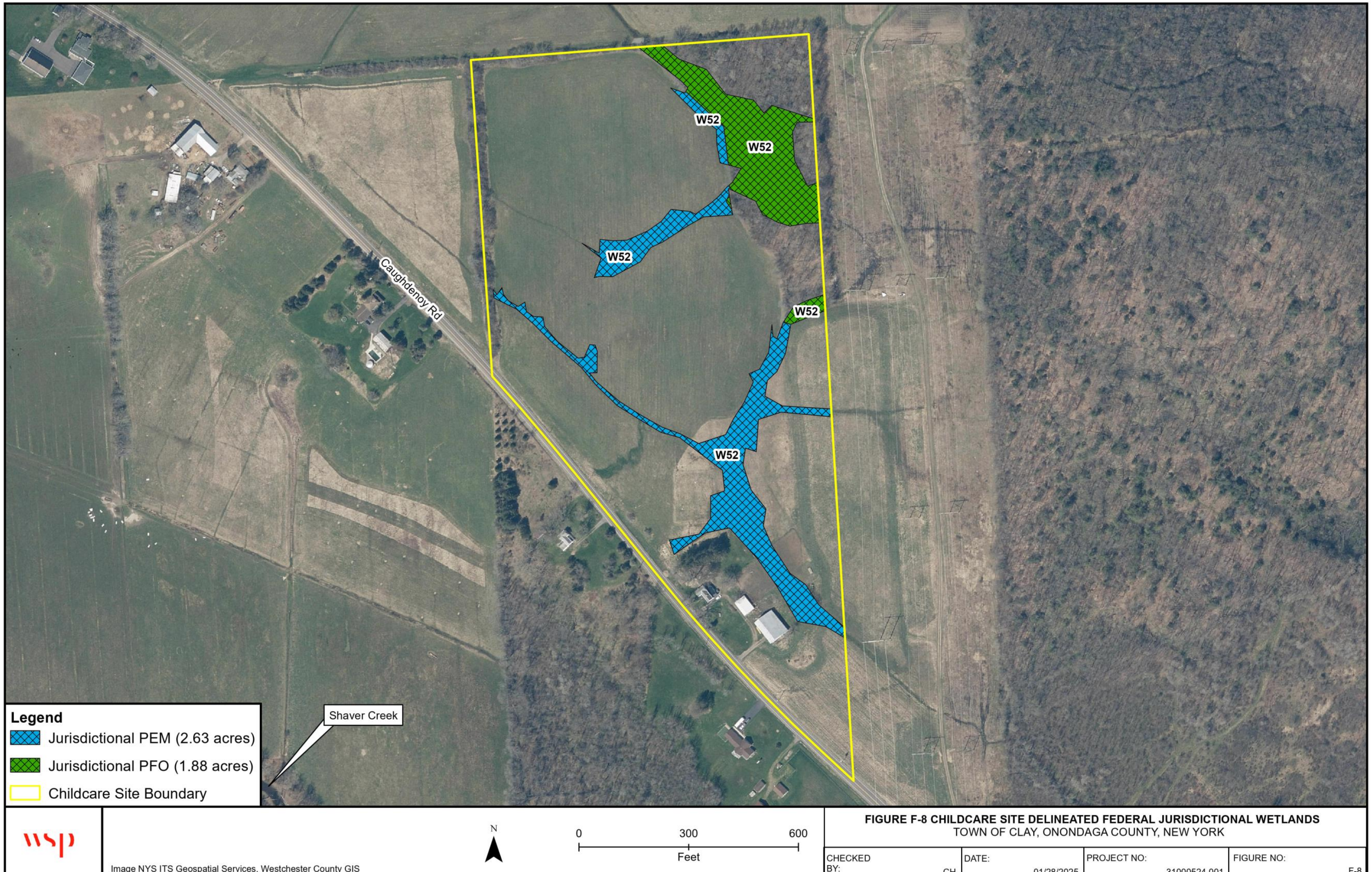


Figure F-9 Childcare Site Delineated State Jurisdictional Wetlands

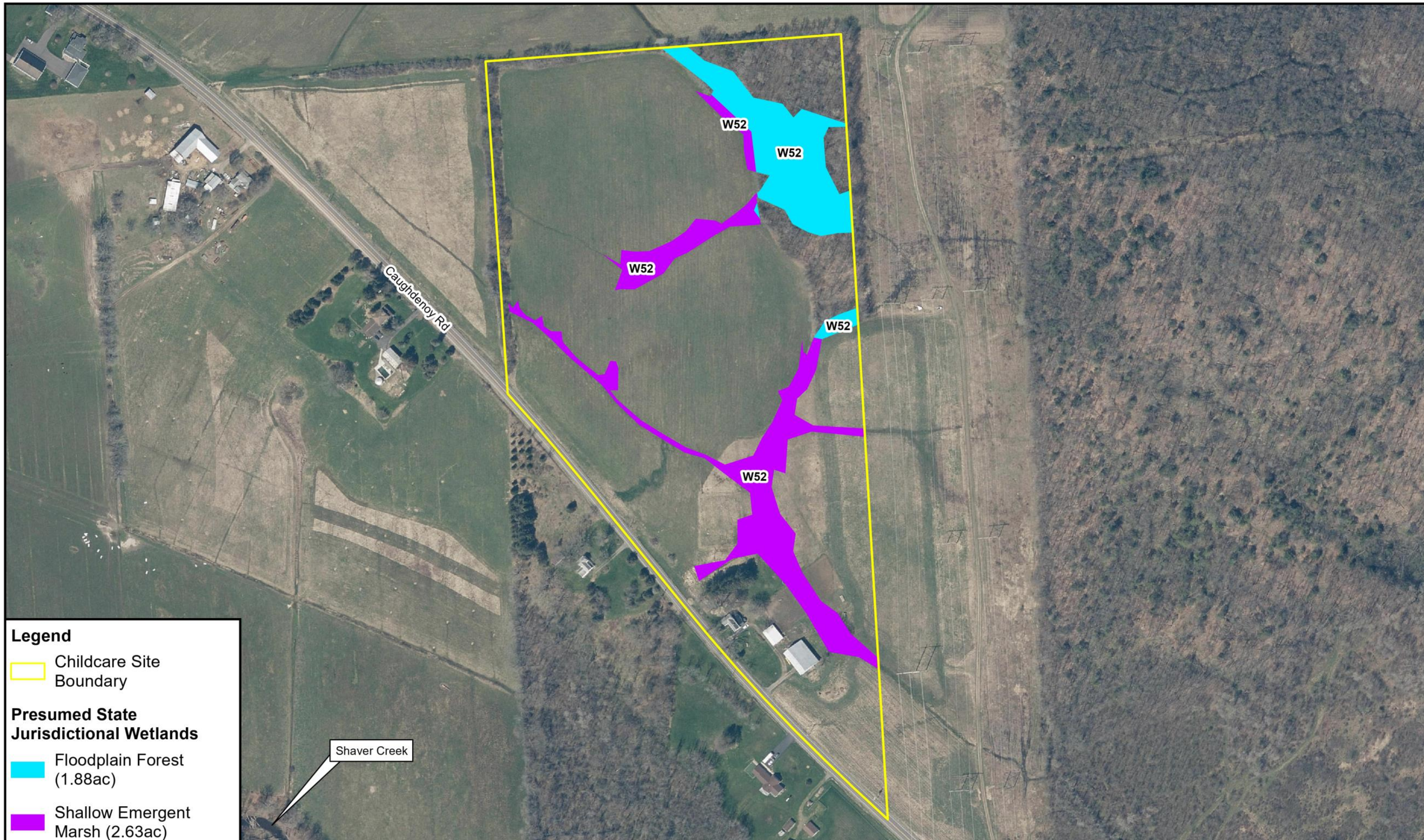


FIGURE F-9 CHILDCARE SITE DELINEATED STATE JURISDICTIONAL WETLANDS TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK			
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Figure F-10 Childcare Site Delineated Non-Jurisdictional Wetlands

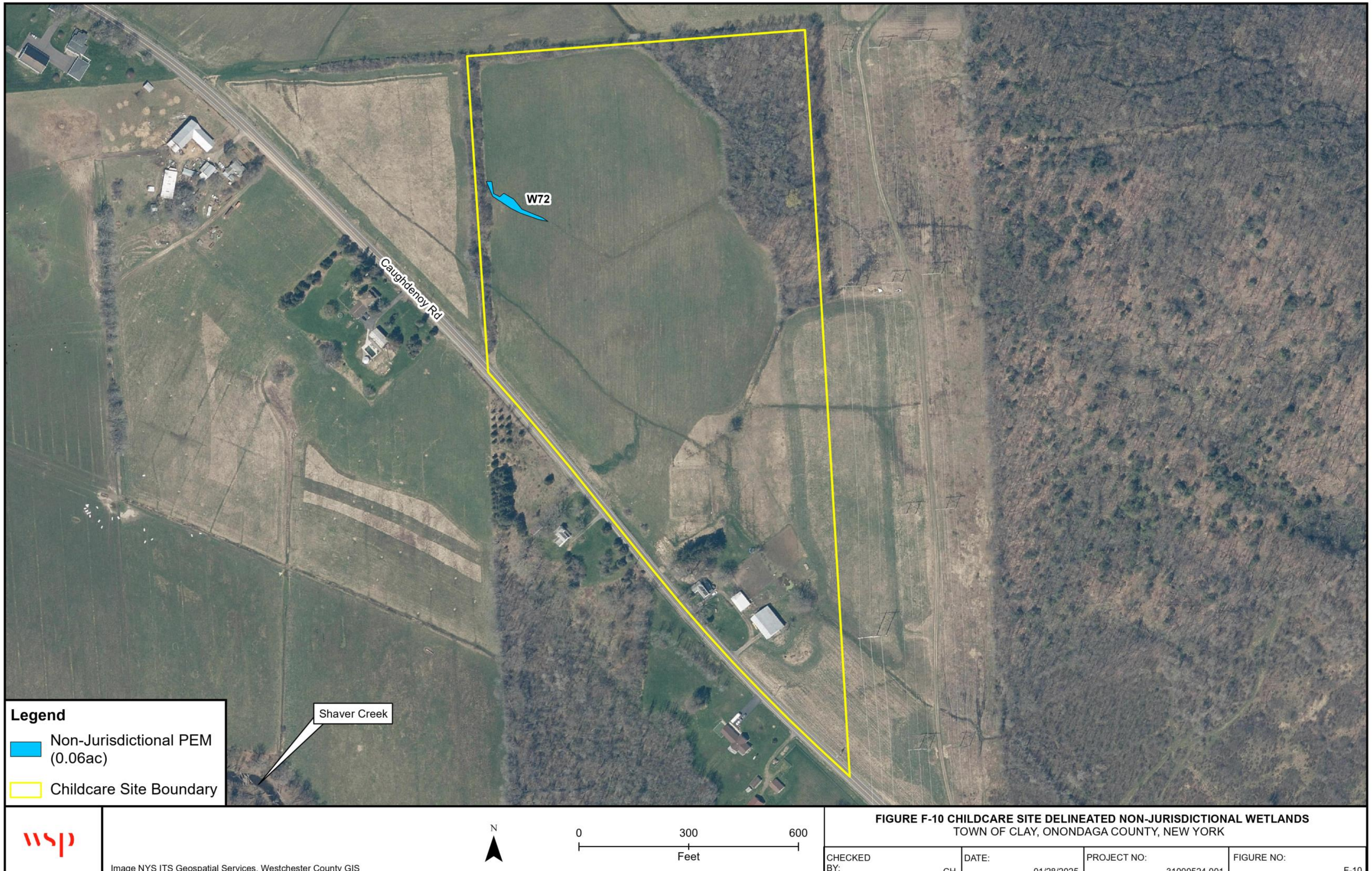


Figure F-11 Electricity Improvements Delineated Wetlands

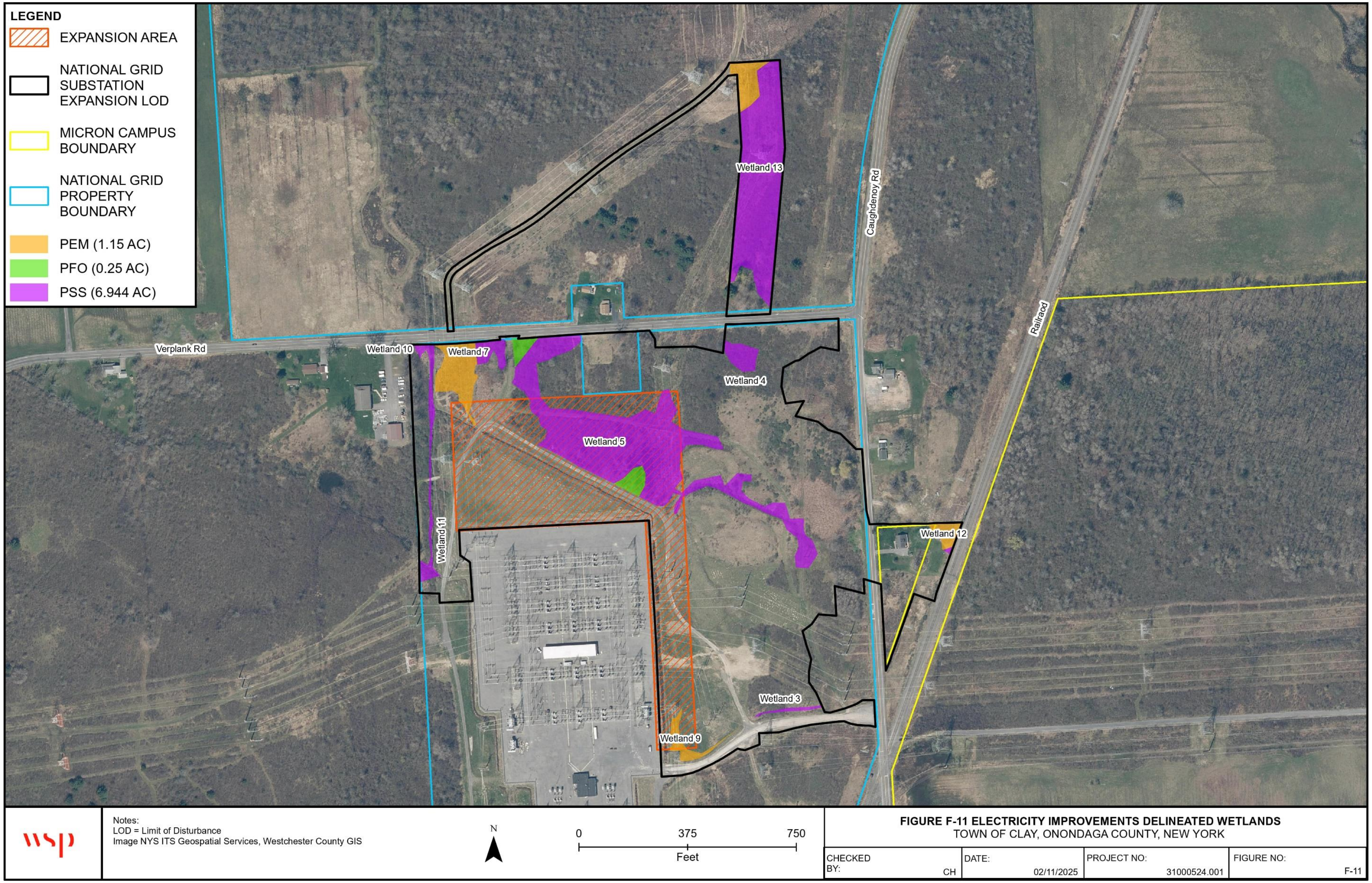


Figure F-12 Natural Gas Improvements Delineated Wetlands

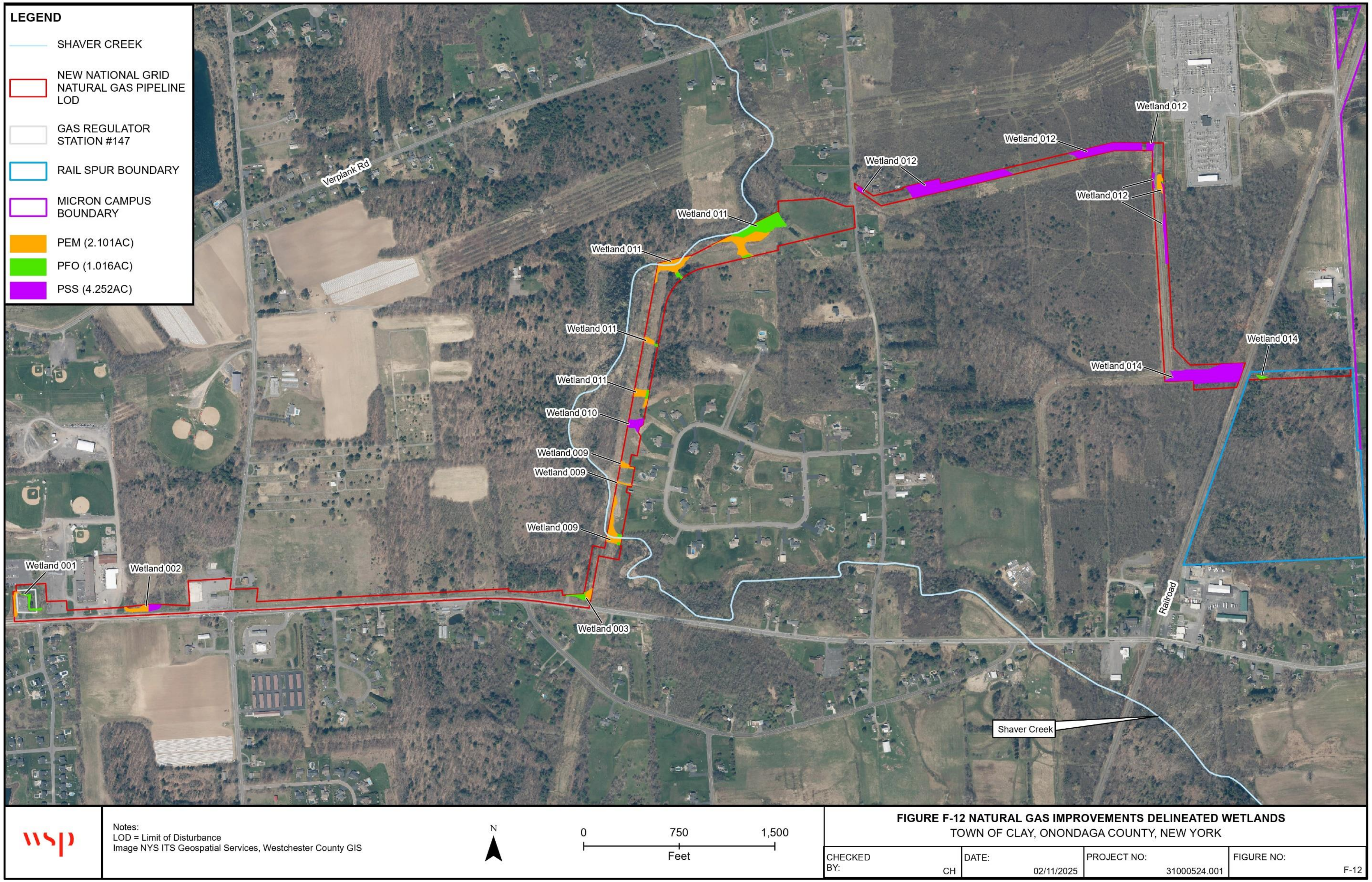


Figure F-13 Water Supply Improvements Mapped Federal Wetlands (Area 1)

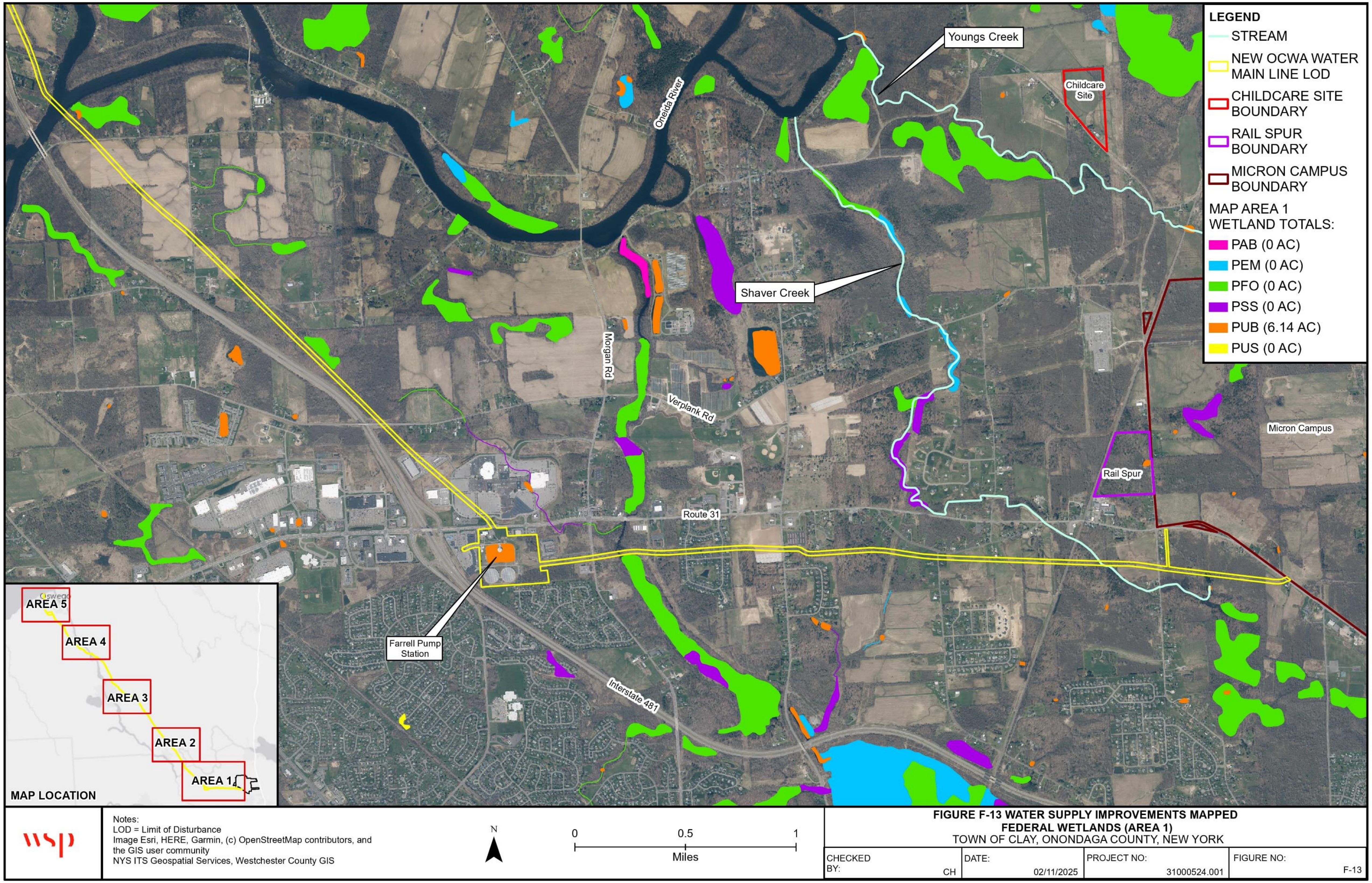
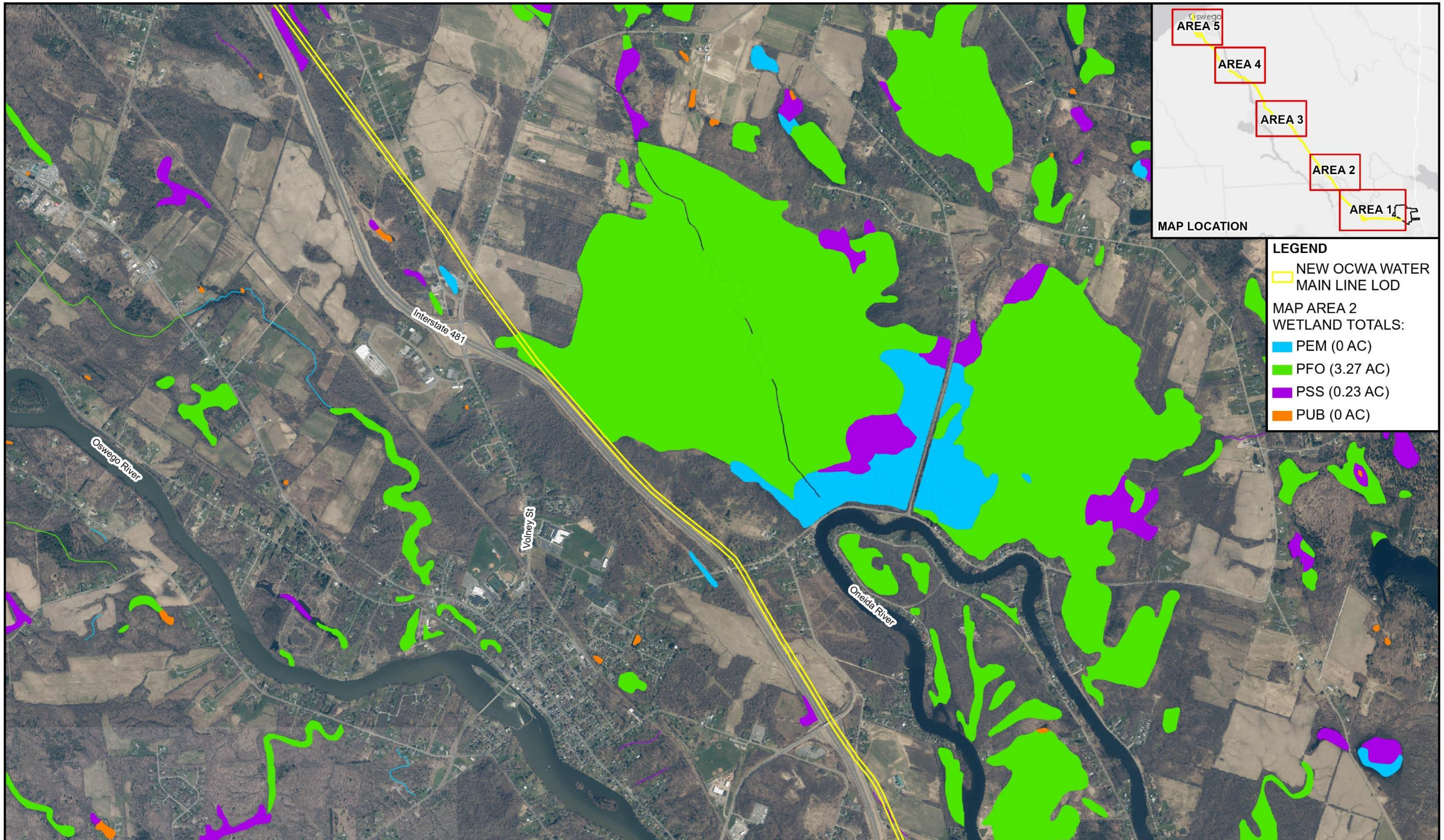


Figure F-14 Water Supply Improvements Mapped Federal Wetlands (Area 2)



Notes:
LOD = Limit of Disturbance
Image Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
NYS ITS Geospatial Services, Westchester County GIS

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FIGURE F-14 WATER SUPPLY IMPROVEMENTS MAPPED FEDERAL WETLANDS (AREA 2)
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

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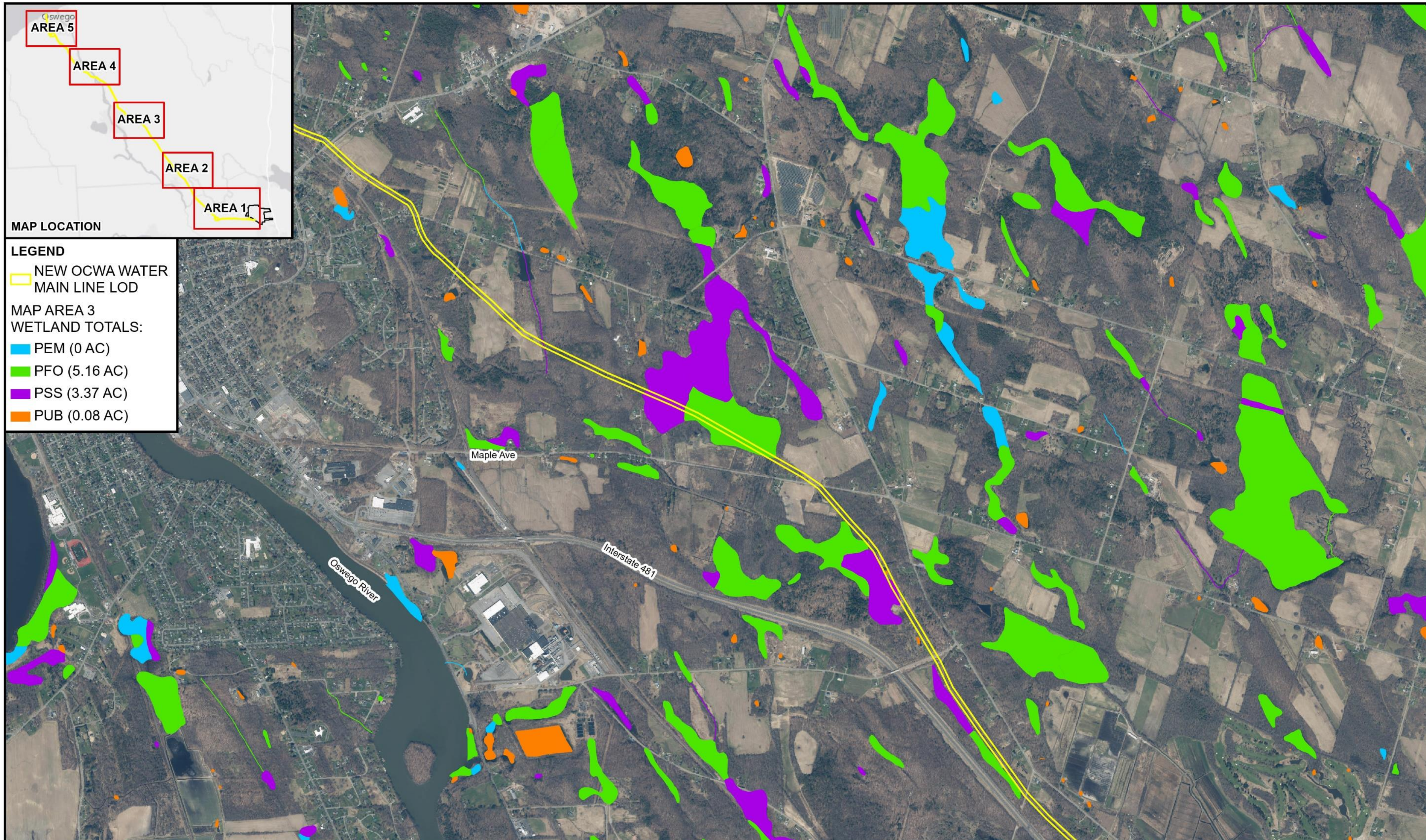
Figure F-15 Water Supply Improvements Mapped Federal Wetlands (Area 3)



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Notes:
LOD = Limit of Disturbance
Image Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
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FIGURE F-15 WATER SUPPLY IMPROVEMENTS MAPPED FEDERAL WETLANDS (AREA 3) TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK			
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Figure F-16 Water Supply Improvements Mapped Federal Wetlands (Area 4)

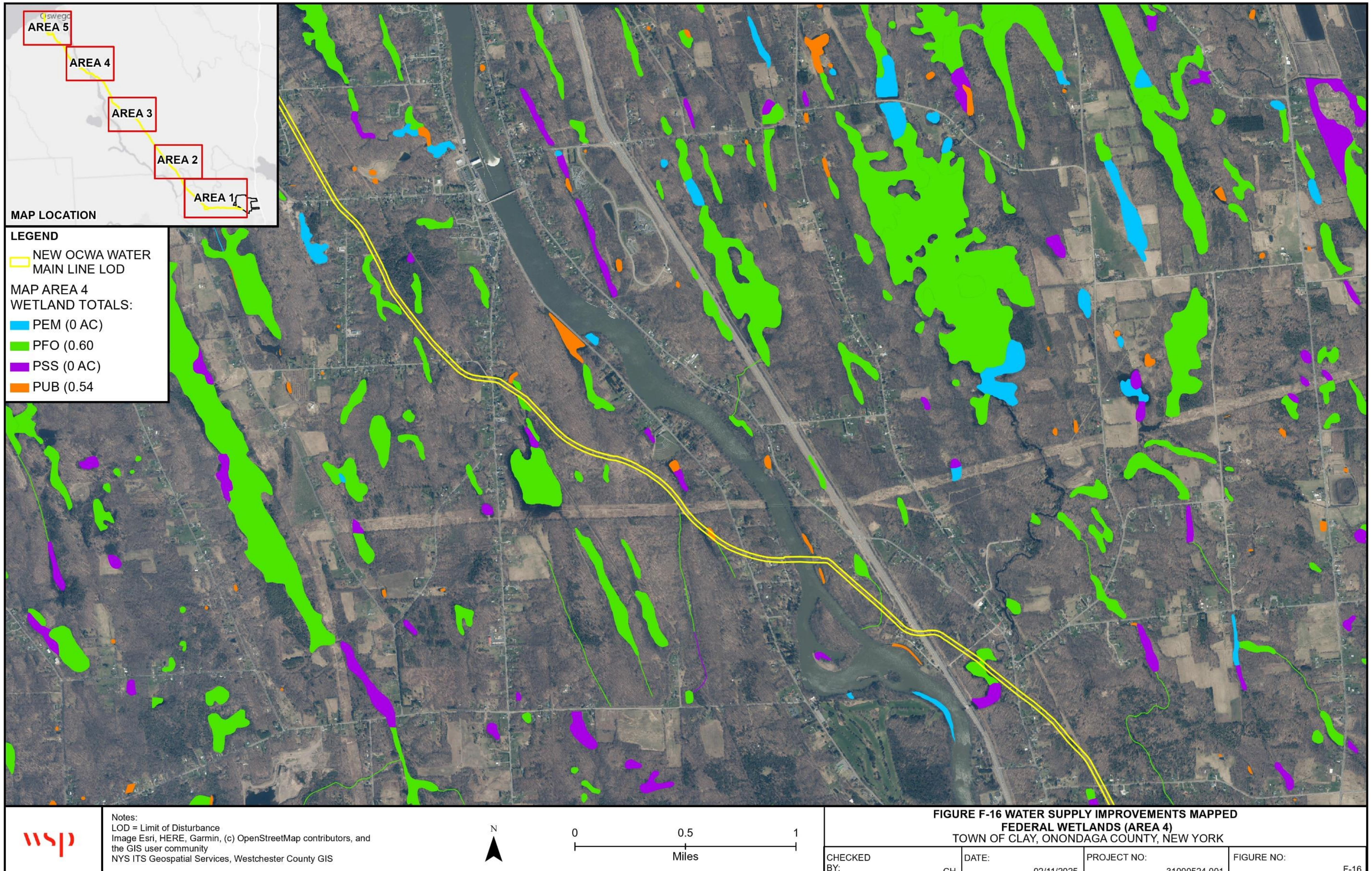

Figure F-17 Water Supply Improvements Mapped Federal Wetlands (Area 5)

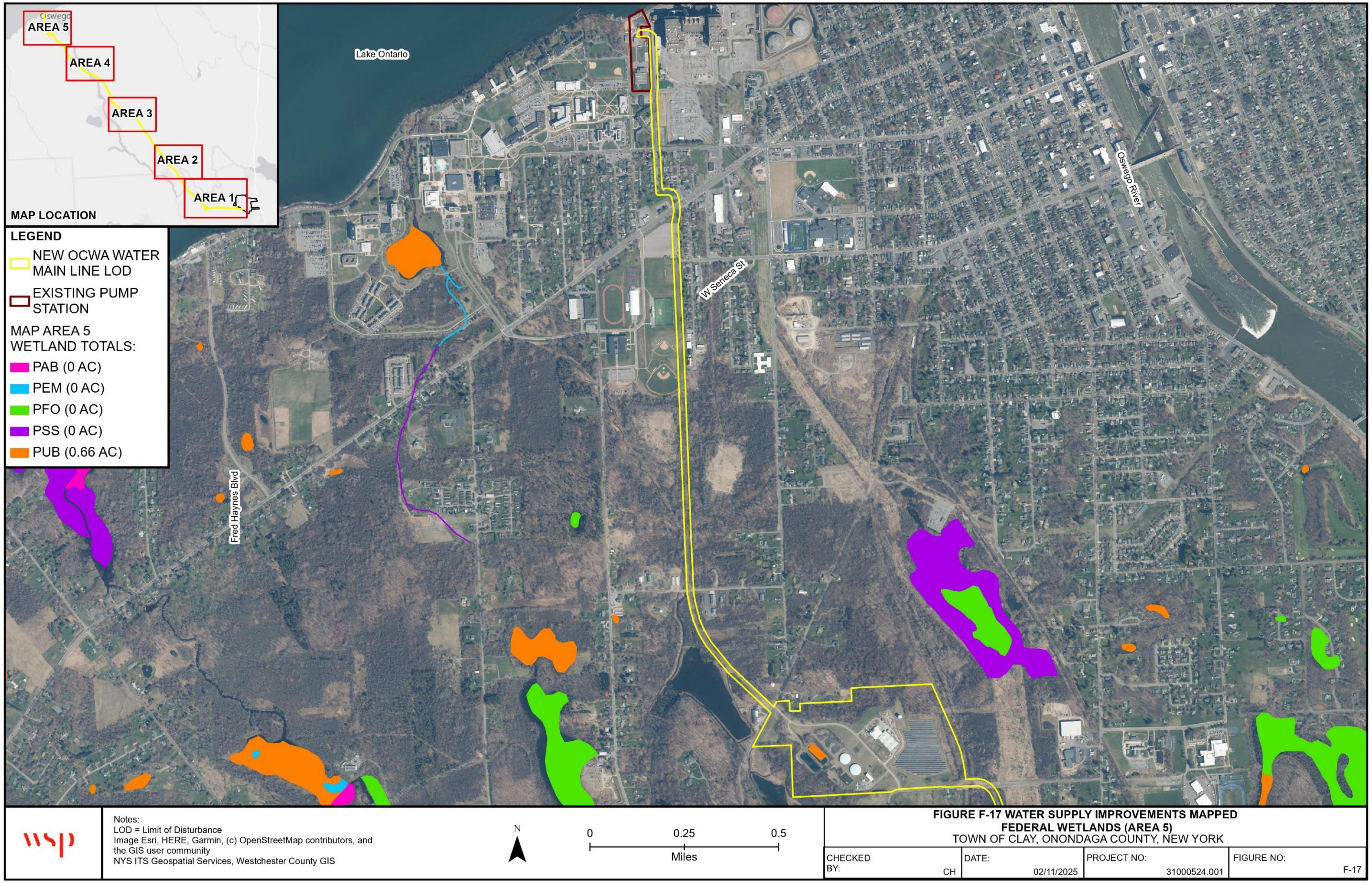

Figure F-18 Water Supply Improvements Mapped New York State Wetlands (Area 1)

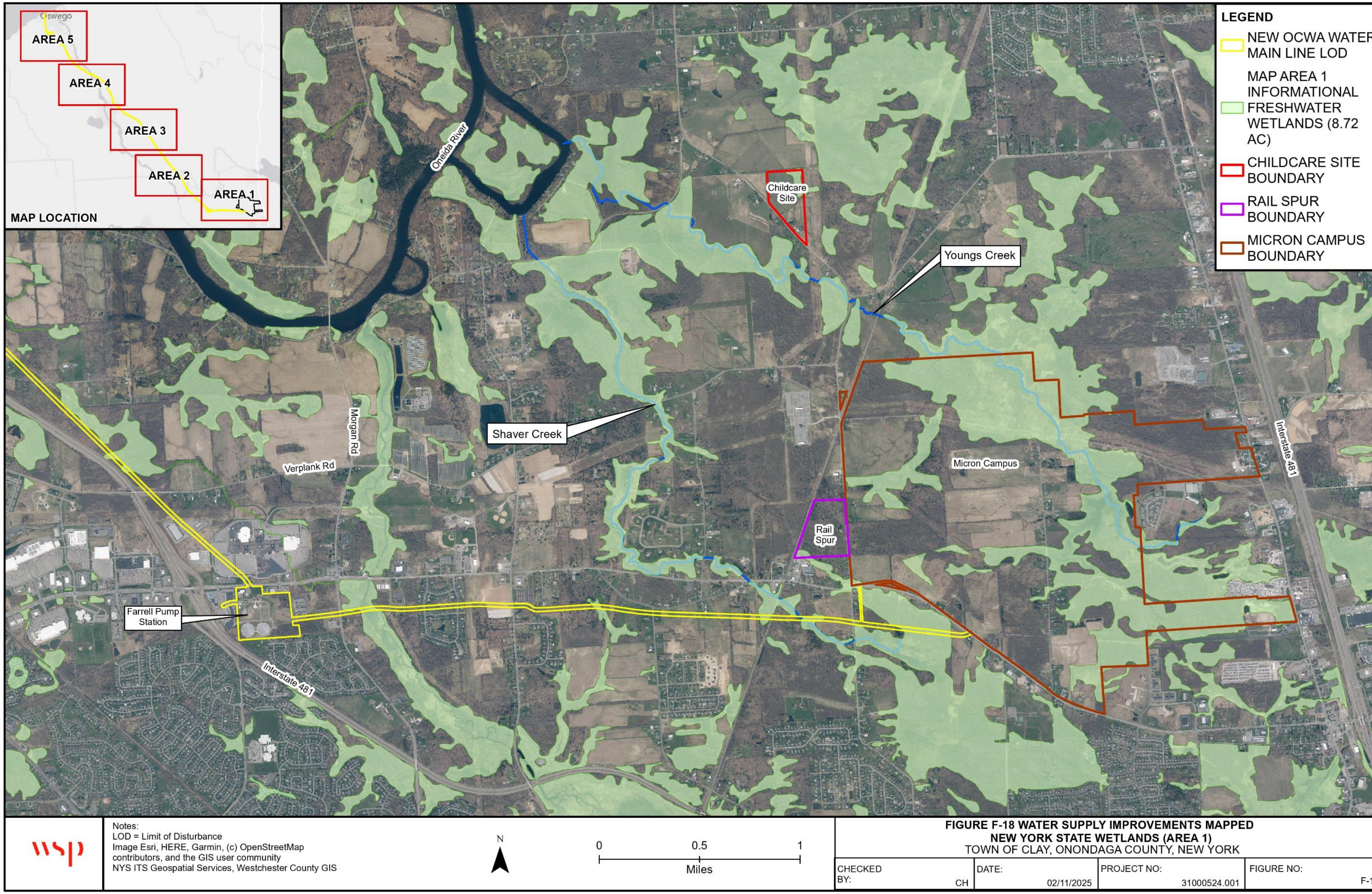

Figure F-19 Water Supply Improvements Mapped New York State Wetlands (Area 2)

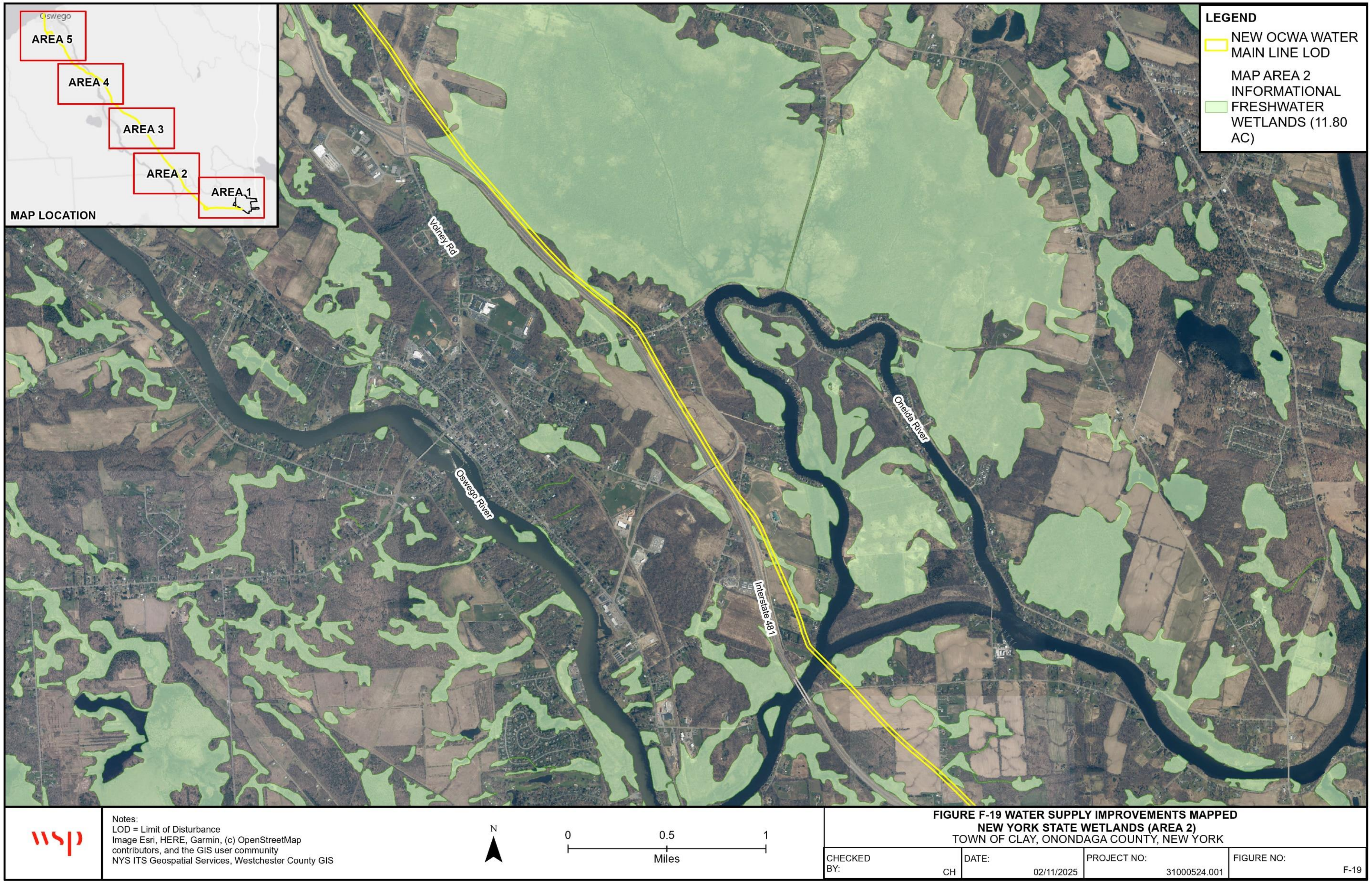

Figure F-20 Water Supply Improvements Mapped New York State Wetlands (Area 3)

Notes:
LOD = Limit of Disturbance
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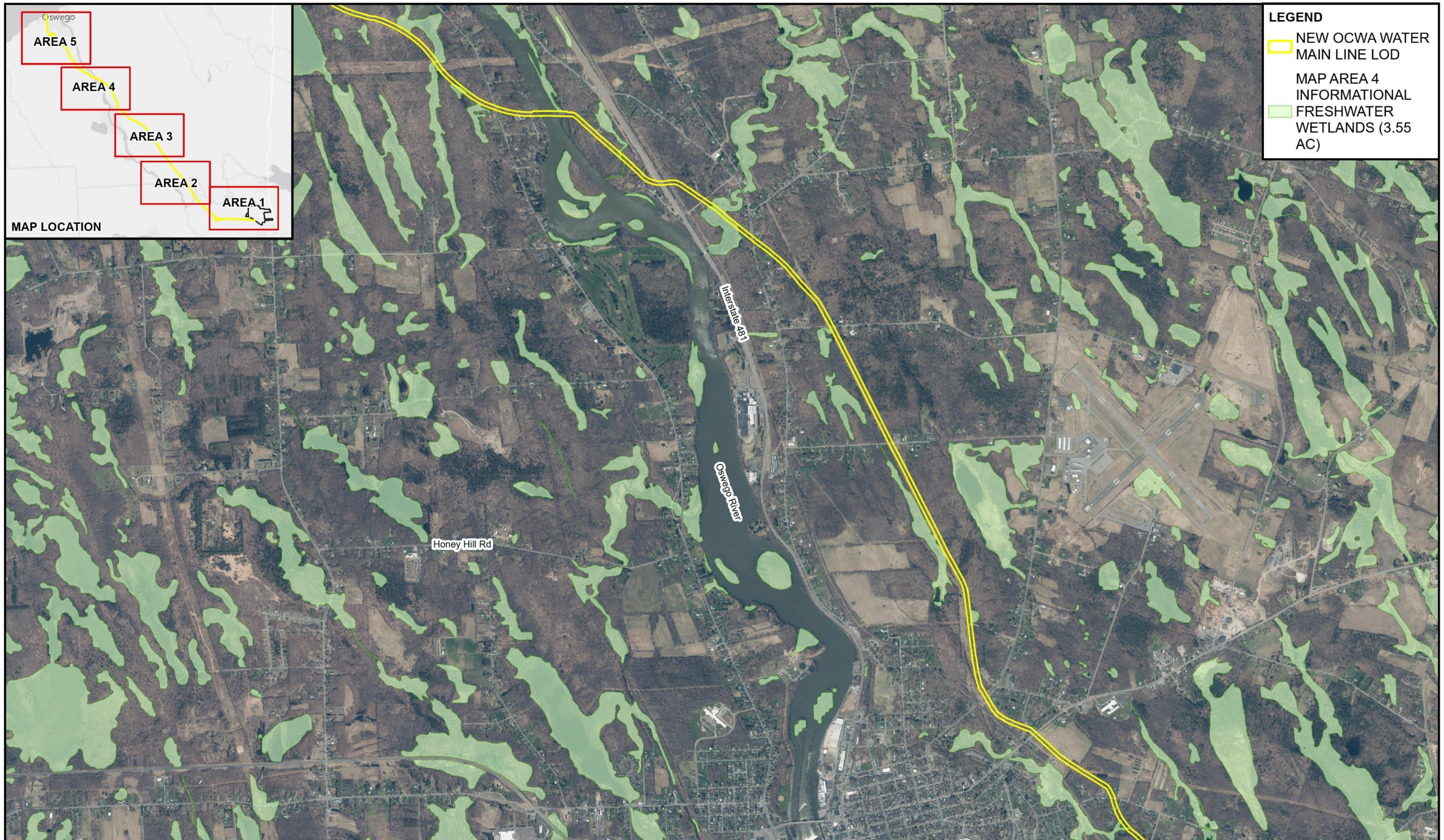
FIGURE F-20 WATER SUPPLY IMPROVEMENTS MAPPED NEW YORK STATE WETLANDS (AREA 3)
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-20

Figure F-21 Water Supply Improvements Mapped New York State Wetlands (Area 4)



Notes:
LOD = Limit of Disturbance
Image Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
NYS ITS Geospatial Services, Westchester County GIS

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FIGURE F-21 WATER SUPPLY IMPROVEMENTS MAPPED NEW YORK STATE WETLANDS (AREA 4)
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

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Figure F-22 Water Supply Improvements Mapped New York State Wetlands (Area 5)

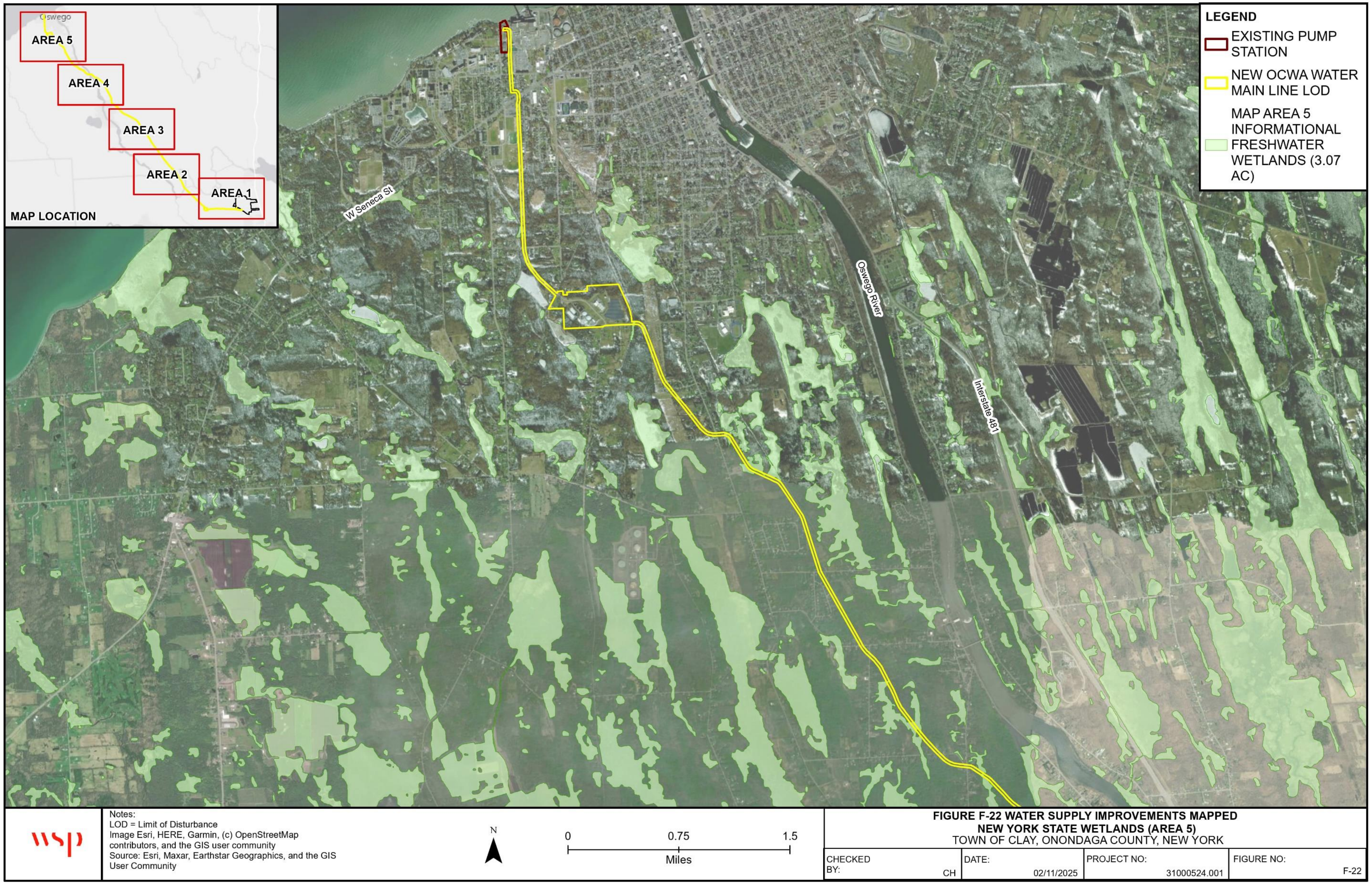


Figure F-23 Wastewater Improvements Delineated Wetlands

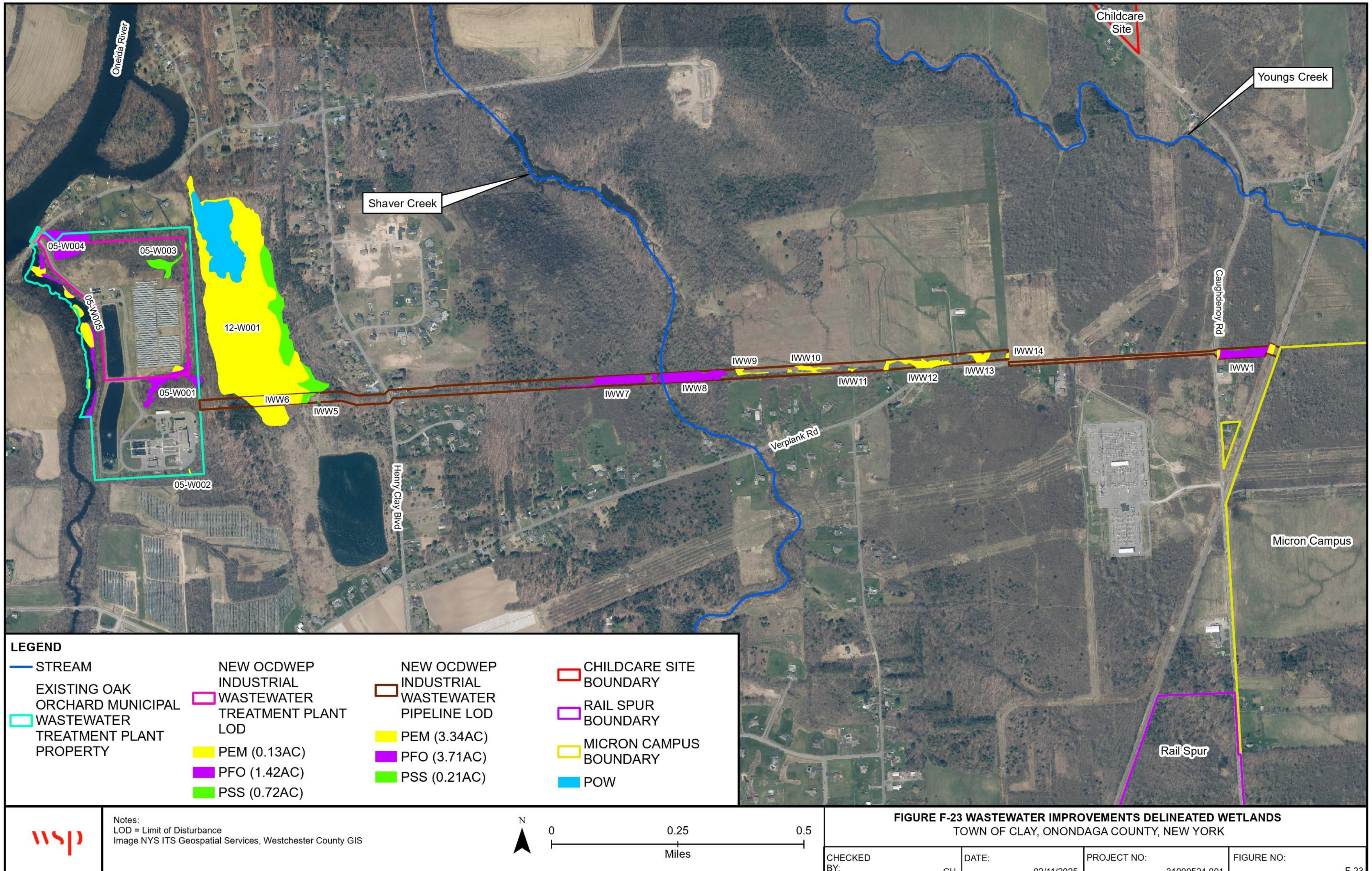
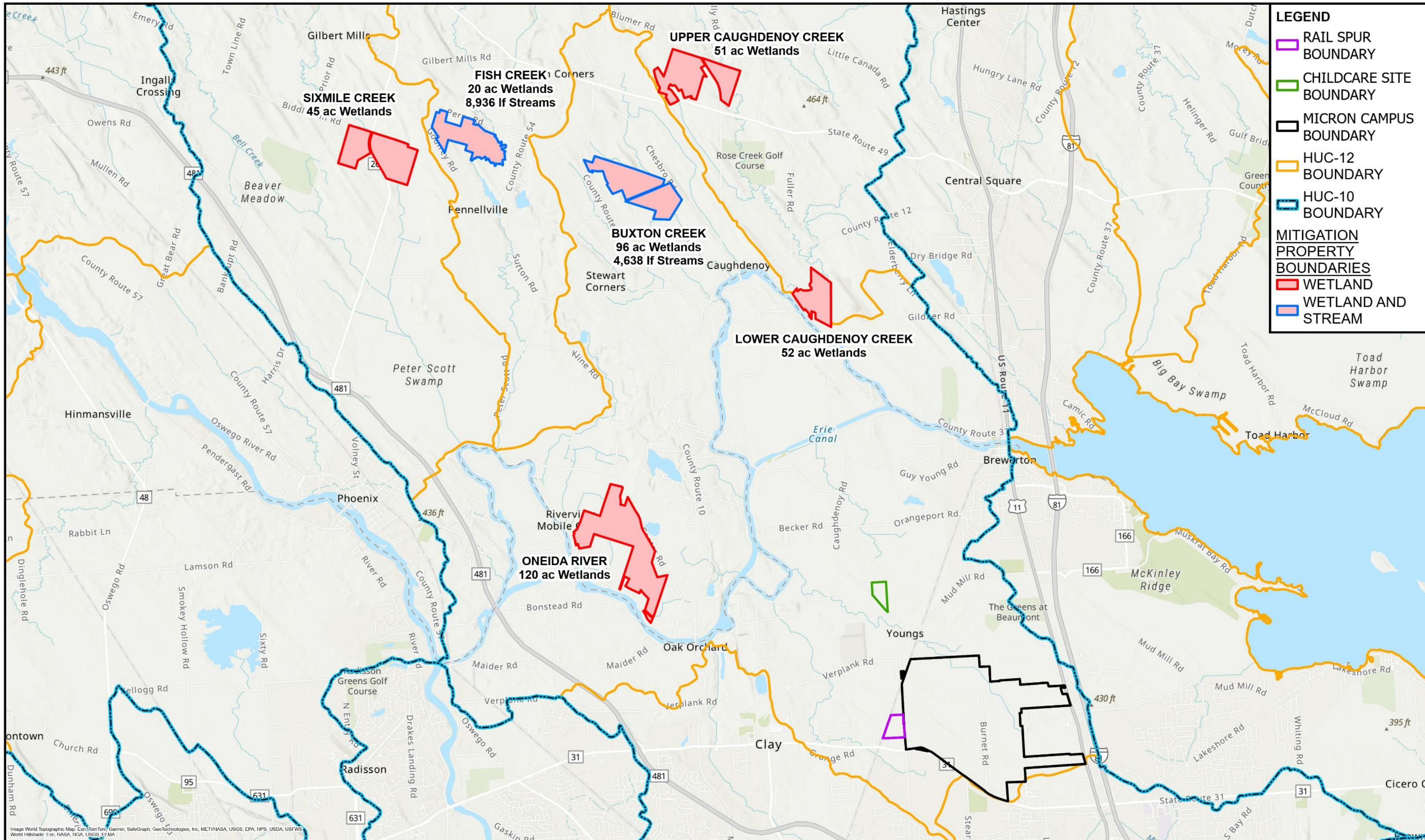


Figure F-24 Proposed Compensatory Mitigation Sites



Notes:
ac = acres
lf = linear feet

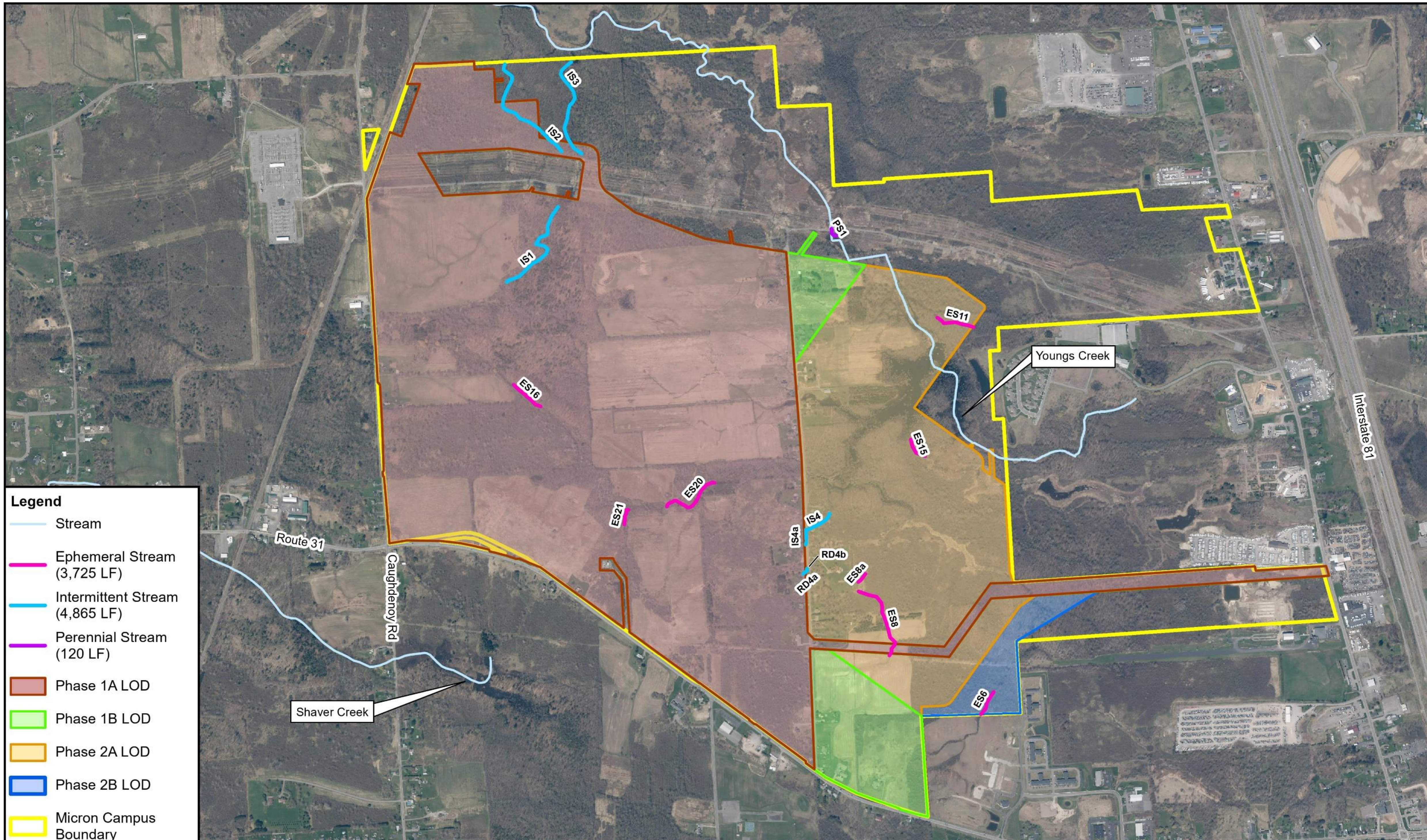
N

0 1.25 2.5
Miles

FIGURE F-24 PROPOSED COMPENSATORY MITIGATION SITES
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-24

Figure F-25 Micron Campus Delineated Federal Jurisdictional Rivers and Streams



Notes:
LOD = Limit of Disturbance
Image NYS ITS Geospatial Services, Westchester County GIS

N

0 0.25 0.5
Miles

FIGURE F-25 MICRON CAMPUS DELINEATED FEDERAL JURISDICTIONAL RIVERS AND STREAMS
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	01/28/2025	31000524.001	F-25

Figure F-26 Micron Campus Delineated Non-Jurisdictional Rivers and Streams

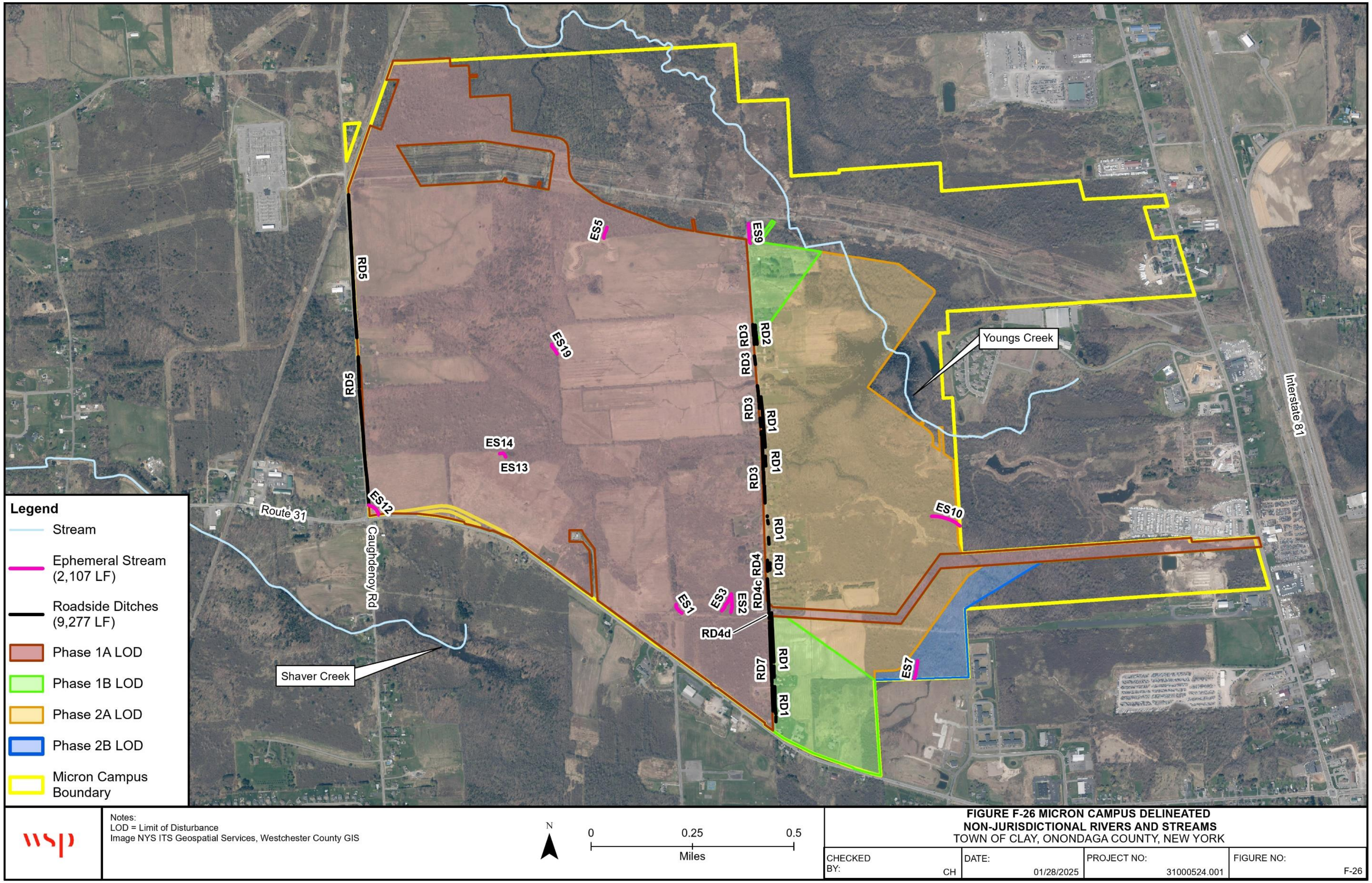


Figure F-27 Childcare Site Delineated Federal Jurisdictional Rivers and Streams

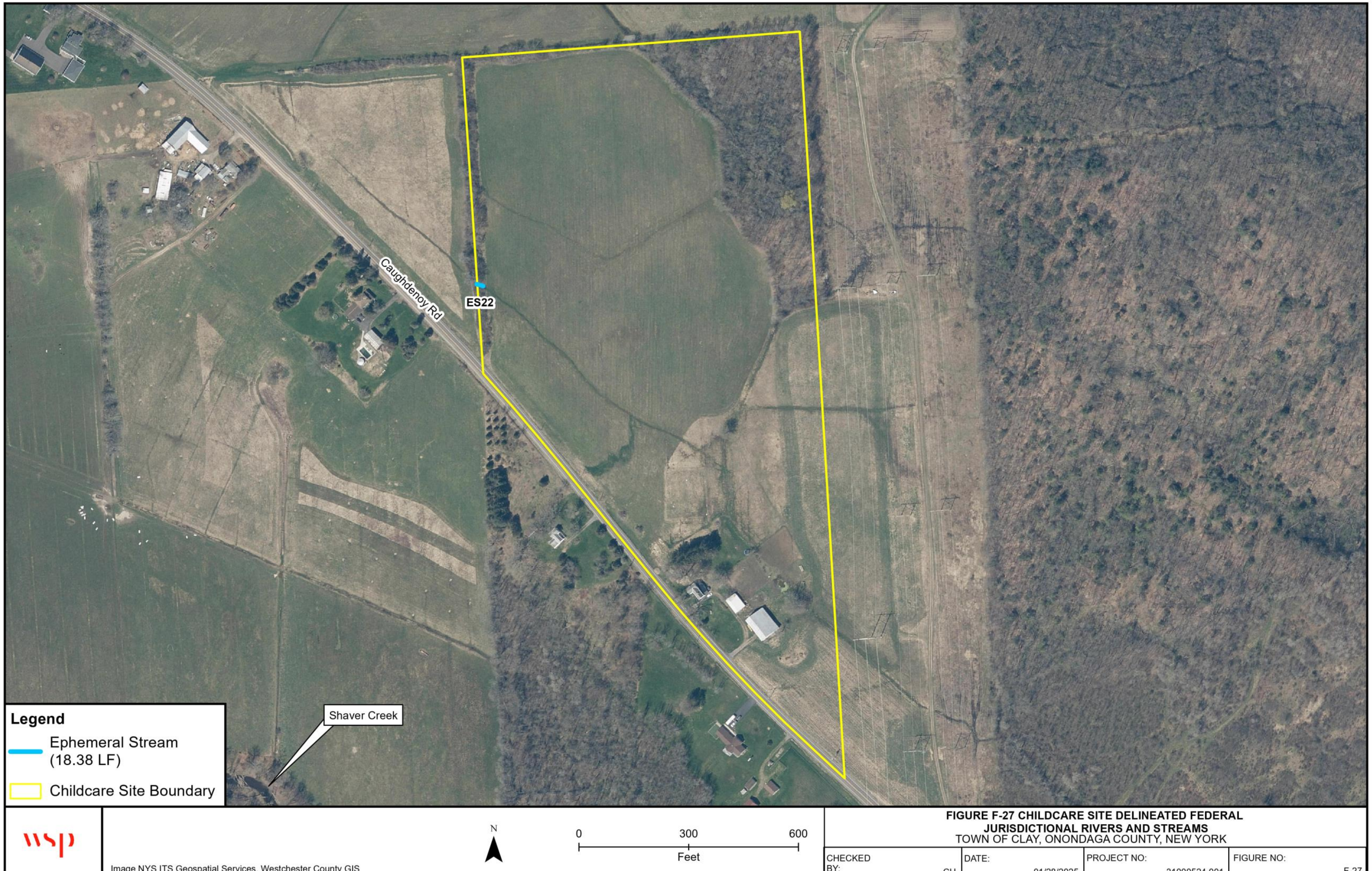


Figure F-28 Electricity Improvements Delineated Rivers and Streams

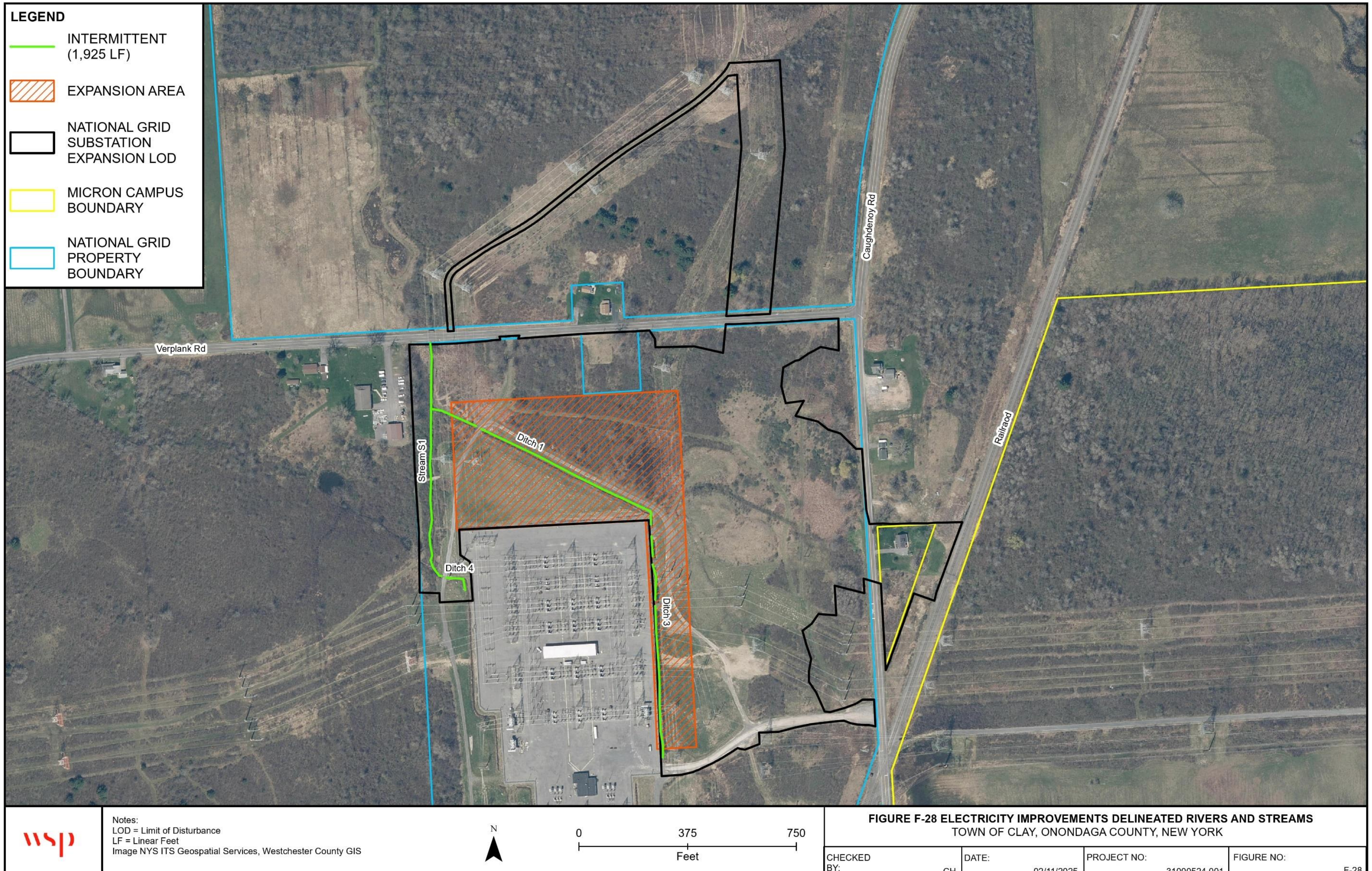


Figure F-29 Natural Gas Improvements Delineated Rivers and Streams

Notes:
LOD = Limit of Disturbance
LF = Linear Feet
Image NYS ITS Geospatial Services, Westchester County GIS

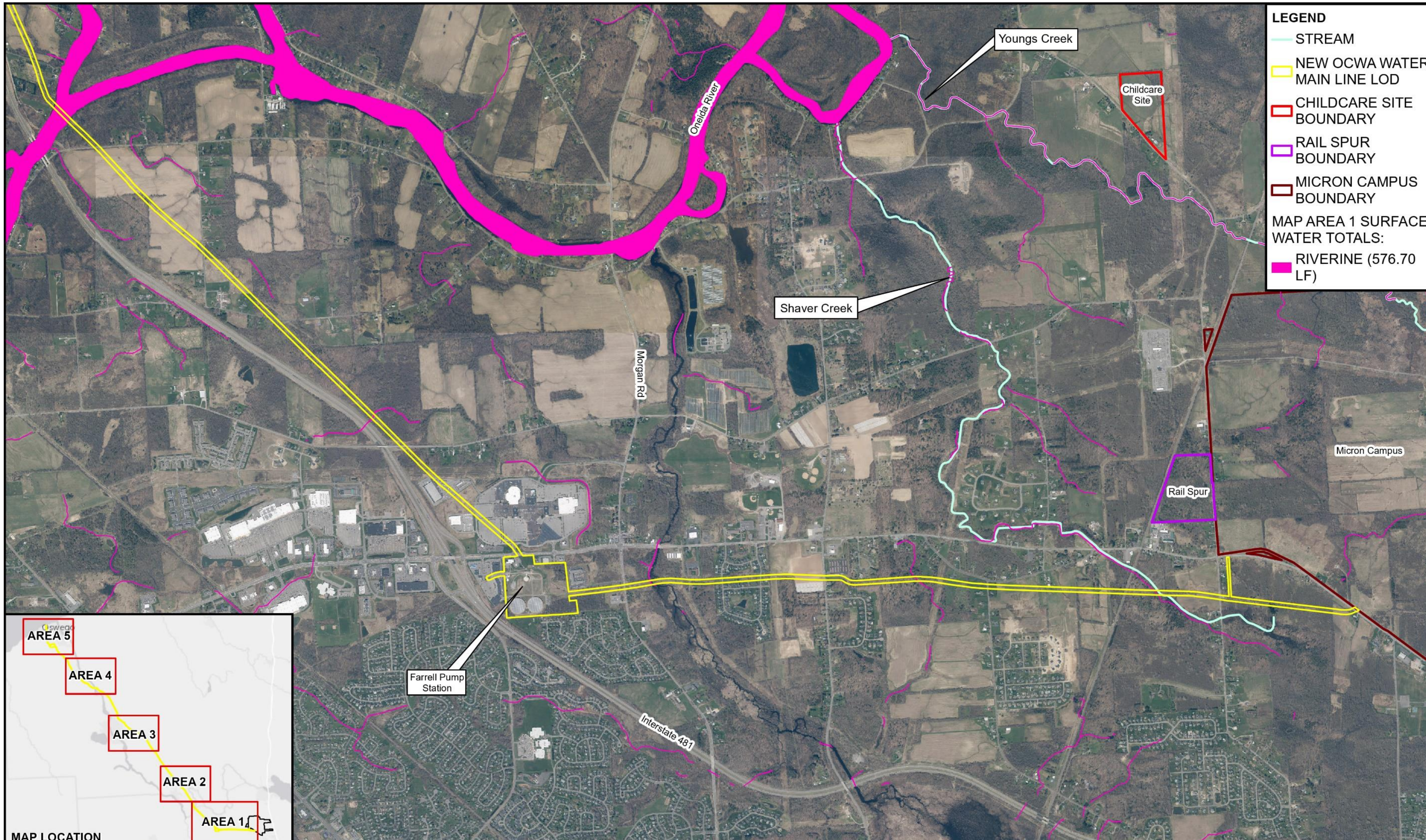
N

0 750 1,500
Feet

FIGURE F-29 NATURAL GAS IMPROVEMENTS DELINEATED RIVERS AND STREAMS
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-29

Figure F-30 Water Supply Improvements Mapped Rivers and Streams (Area 1)



Notes:
LOD = Limit of Dosturbance
LF = Linear Feet
Image Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
NYS ITS Geospatial Services, Westchester County GIS

N

0 0.5 1 Miles

FIGURE F-30 WATER SUPPLY IMPROVEMENTS MAPPED RIVERS AND STREAMS (AREA 1)
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-30

Figure F-31 Water Supply Improvements Mapped Rivers and Streams (Area 2)

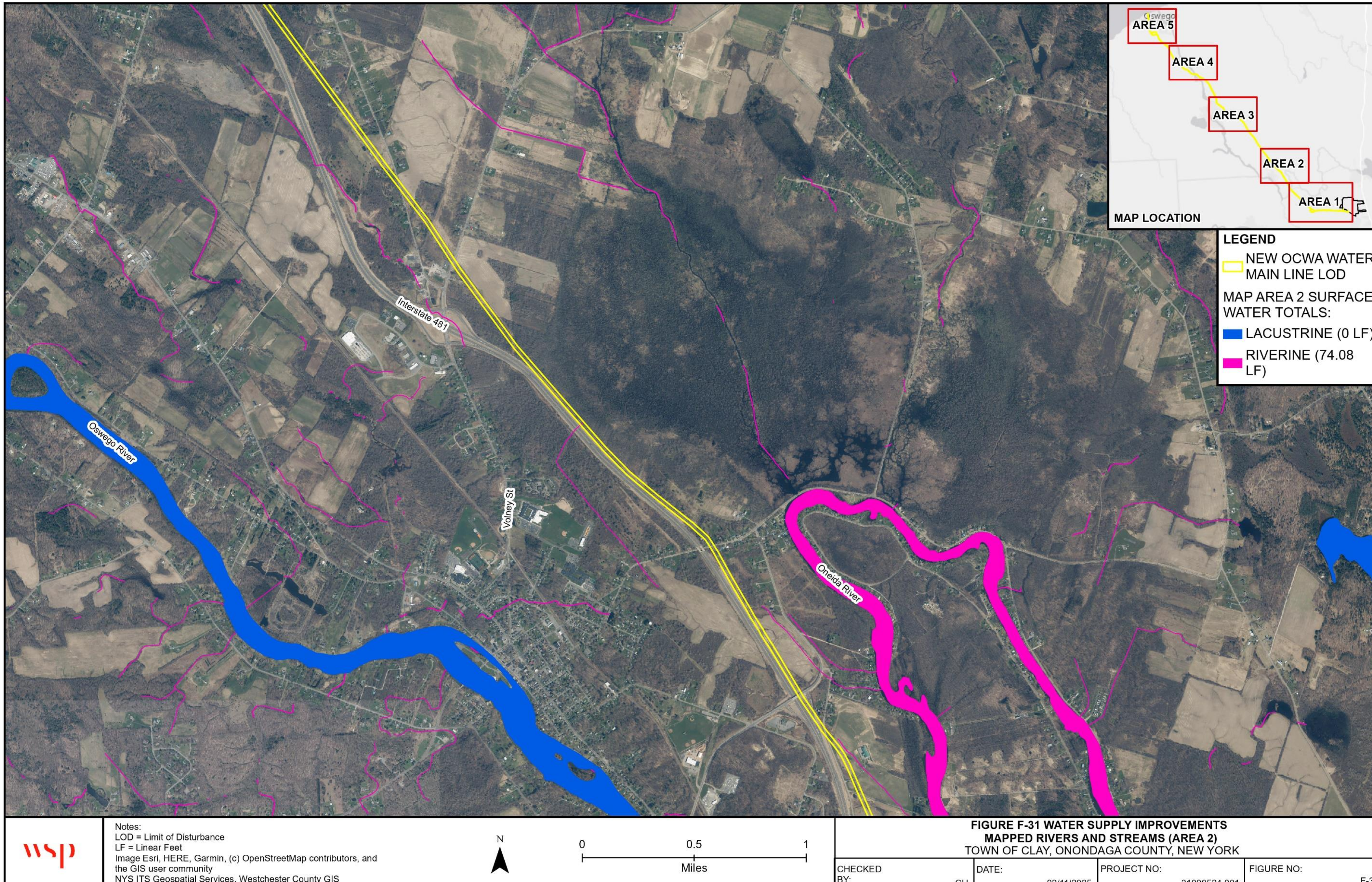
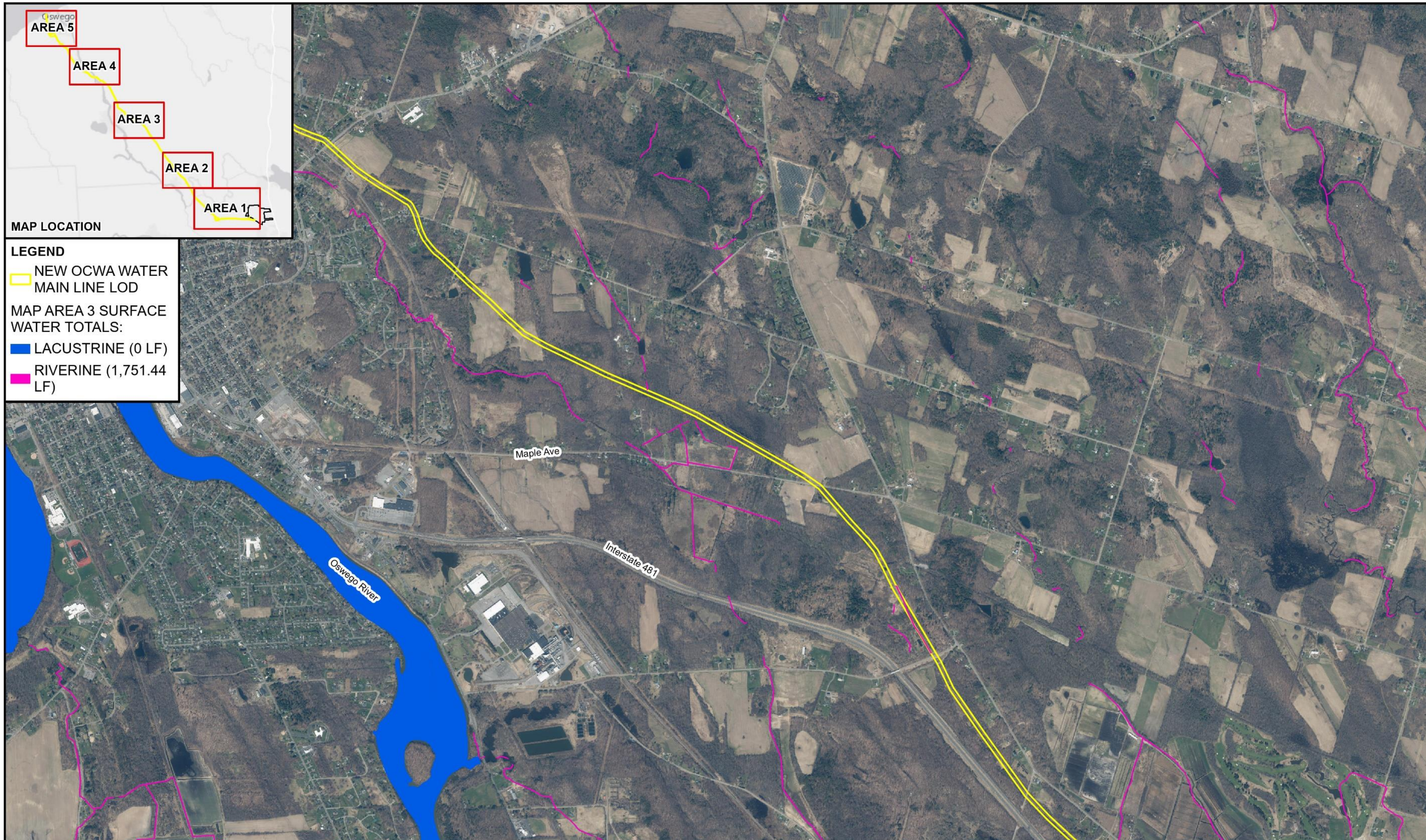


Figure F-32 Water Supply Improvements Mapped Rivers and Streams (Area 3)



wsp

Notes:
LOD = Limit of Disturbance
LF = Linear Feet
Image Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
NYS ITS Geospatial Services, Westchester County GIS

N

0 0.5 1
Miles

FIGURE F-32 WATER SUPPLY IMPROVEMENTS MAPPED RIVERS AND STREAMS (AREA 3)
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-32

Figure F-33 Water Supply Improvements Mapped Rivers and Streams (Area 4)

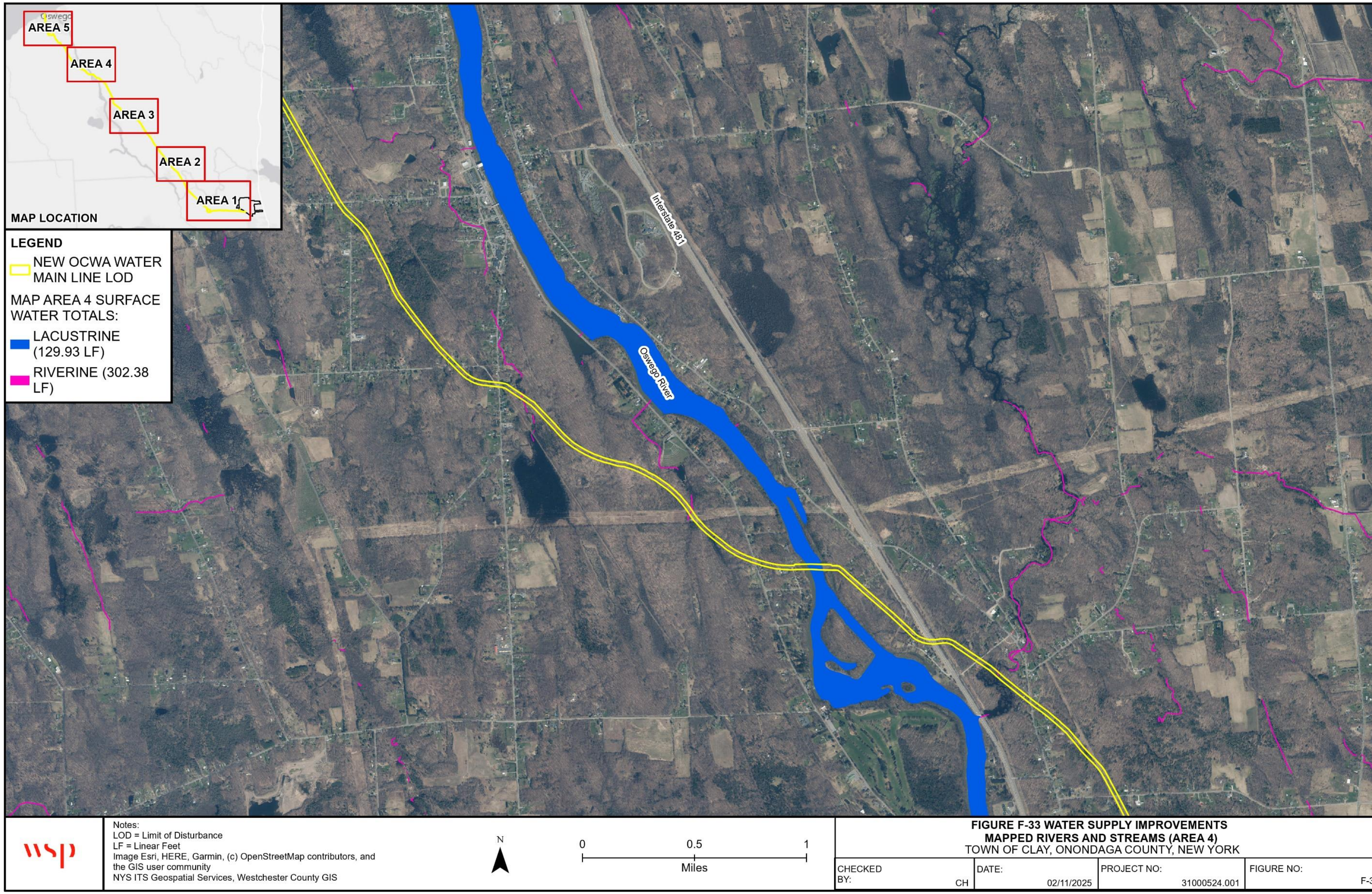
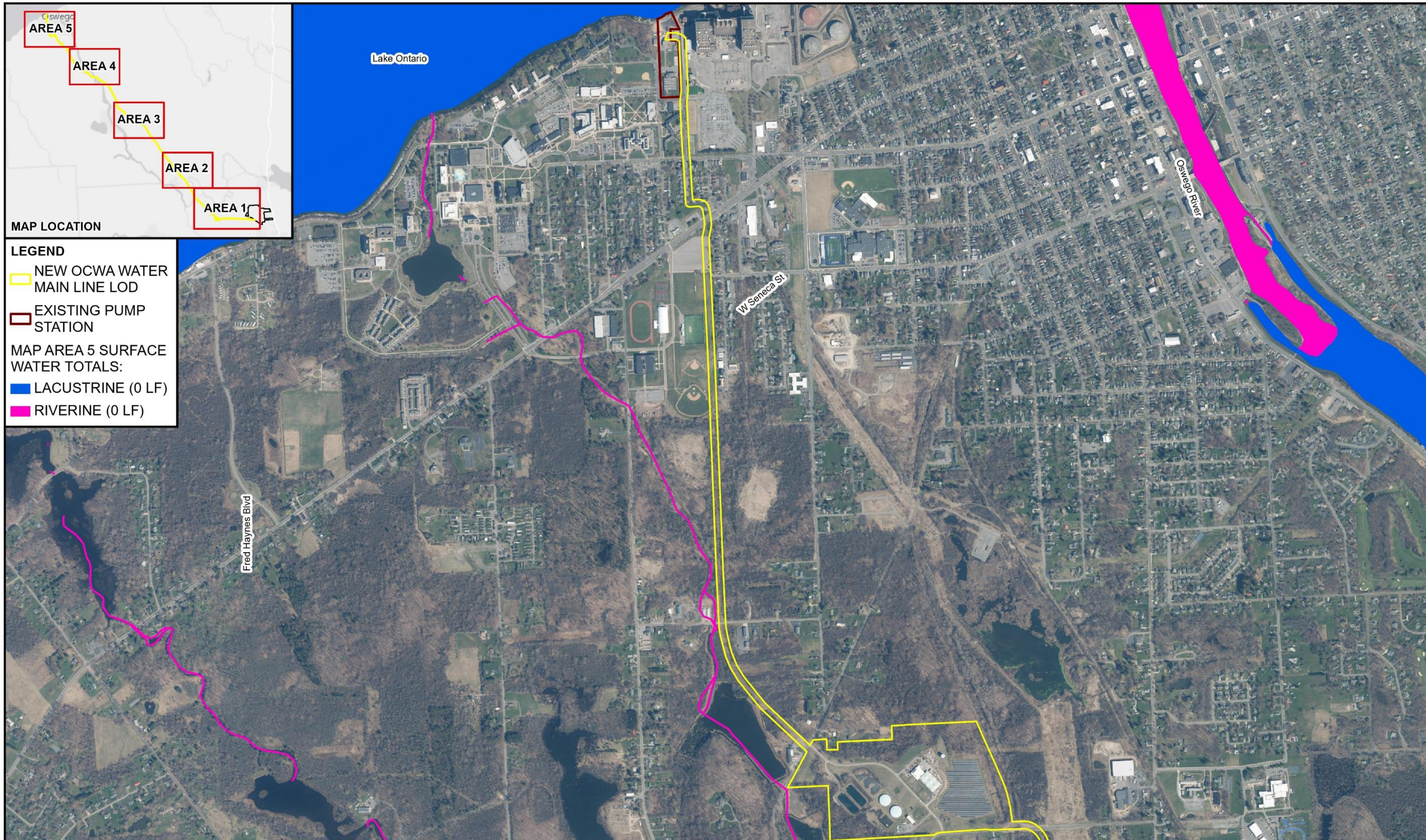


Figure F-34 Water Supply Improvements Mapped Rivers and Streams (Area 5)



wsp

Notes:
LOD = Limit of Disturbance
LF = Linear Feet
Image Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
NYS ITS Geospatial Services, Westchester County GIS

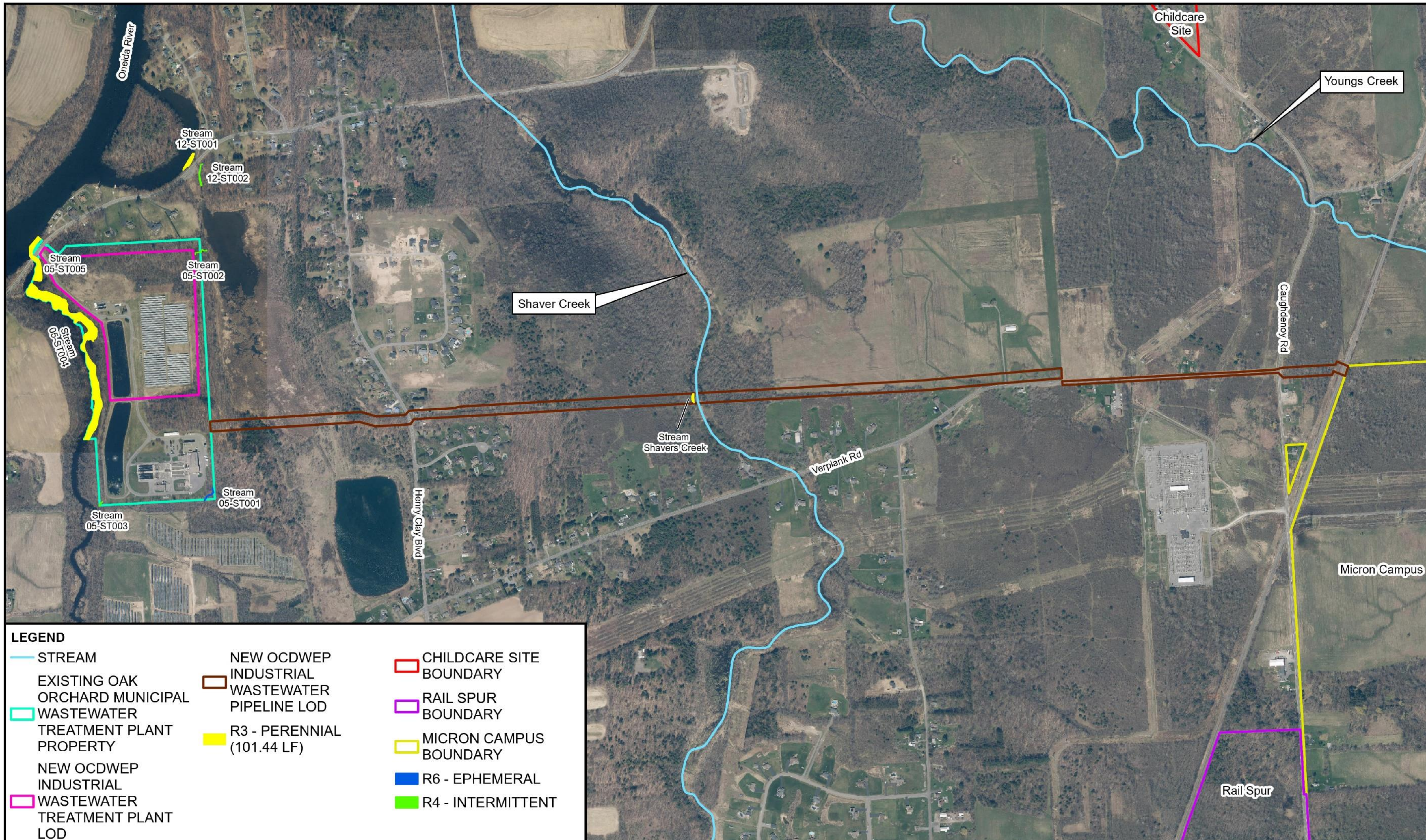
N

0 0.25 0.5
Miles

FIGURE F-34 WATER SUPPLY IMPROVEMENTS
MAPPED RIVERS AND STREAMS (AREA 5)
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-34

Figure F-35 Wastewater Improvements Delineated Rivers and Streams



wsp

Notes:
LOD = Limit of Disturbance
LF = Linear Feet
Image NYS ITS Geospatial Services, Westchester County GIS

FIGURE F-35 WASTEWATER IMPROVEMENTS DELINEATED RIVERS AND STREAMS
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-35

Figure F-36 Stormwater Culverts in Water Resources Study Area

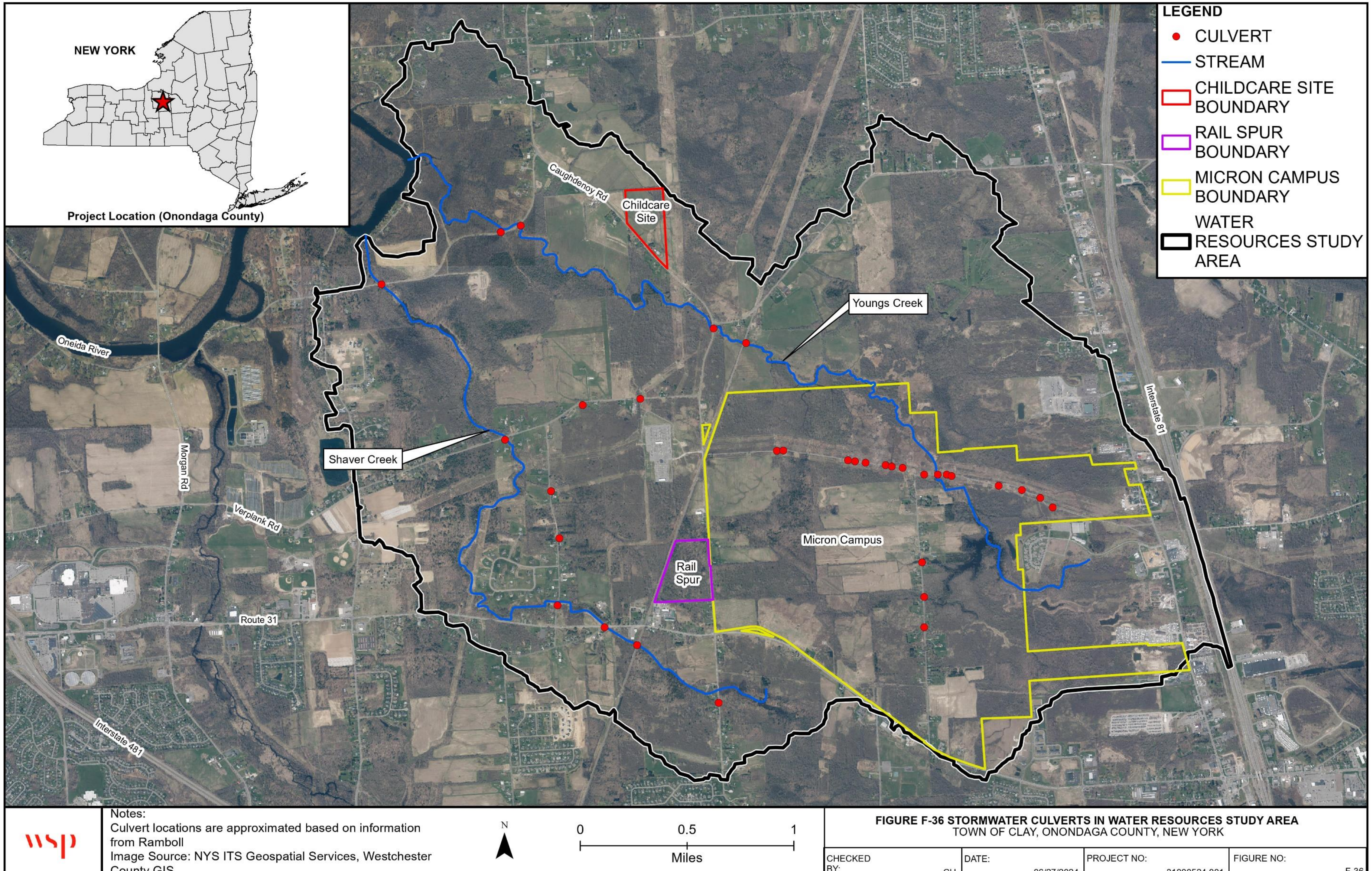


Figure F-37 Groundwater Aquifers in Water Resources Study Area

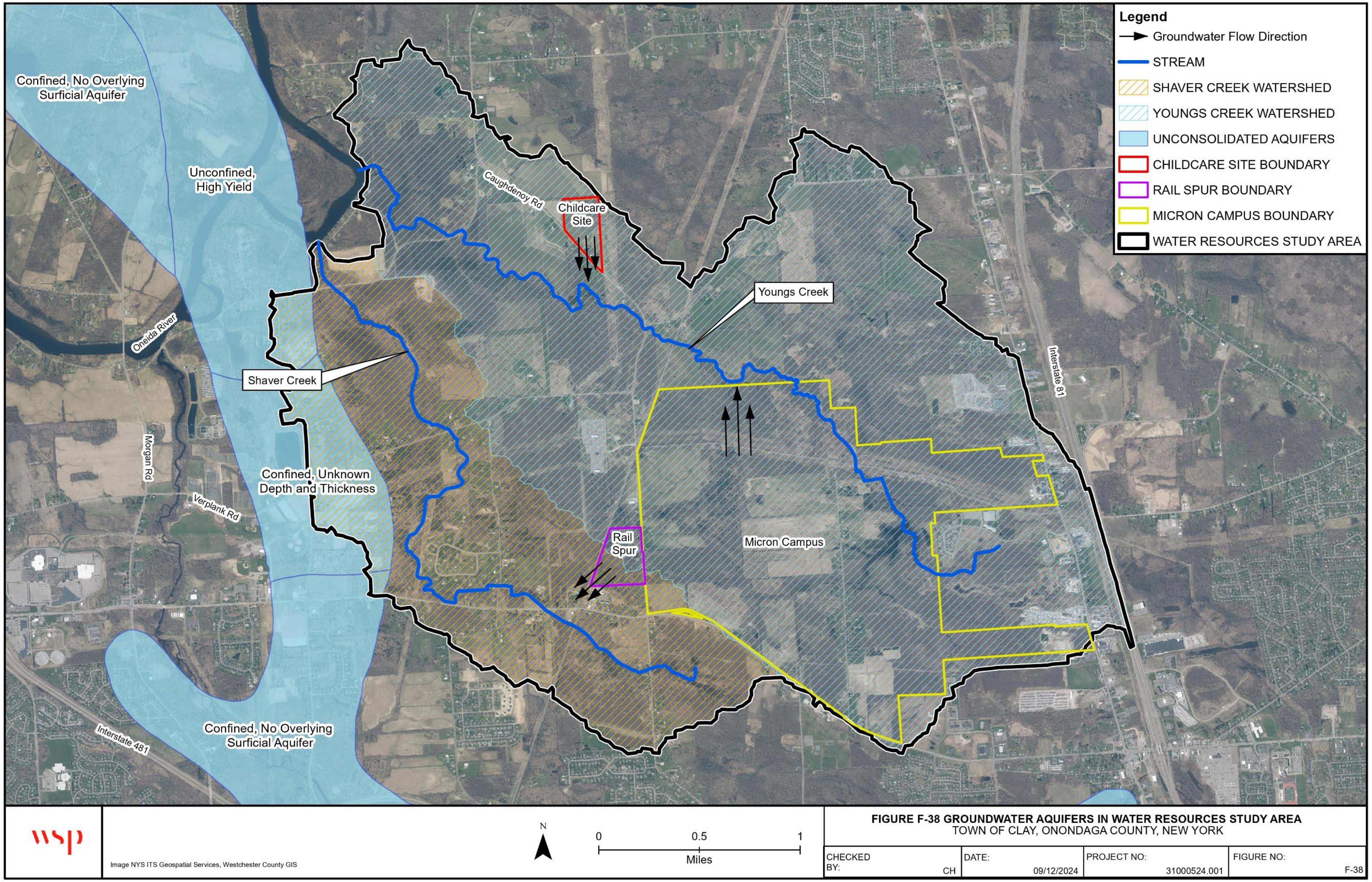


Figure F-38 Groundwater Aquifer Mapped Locations and Types (Area 1)

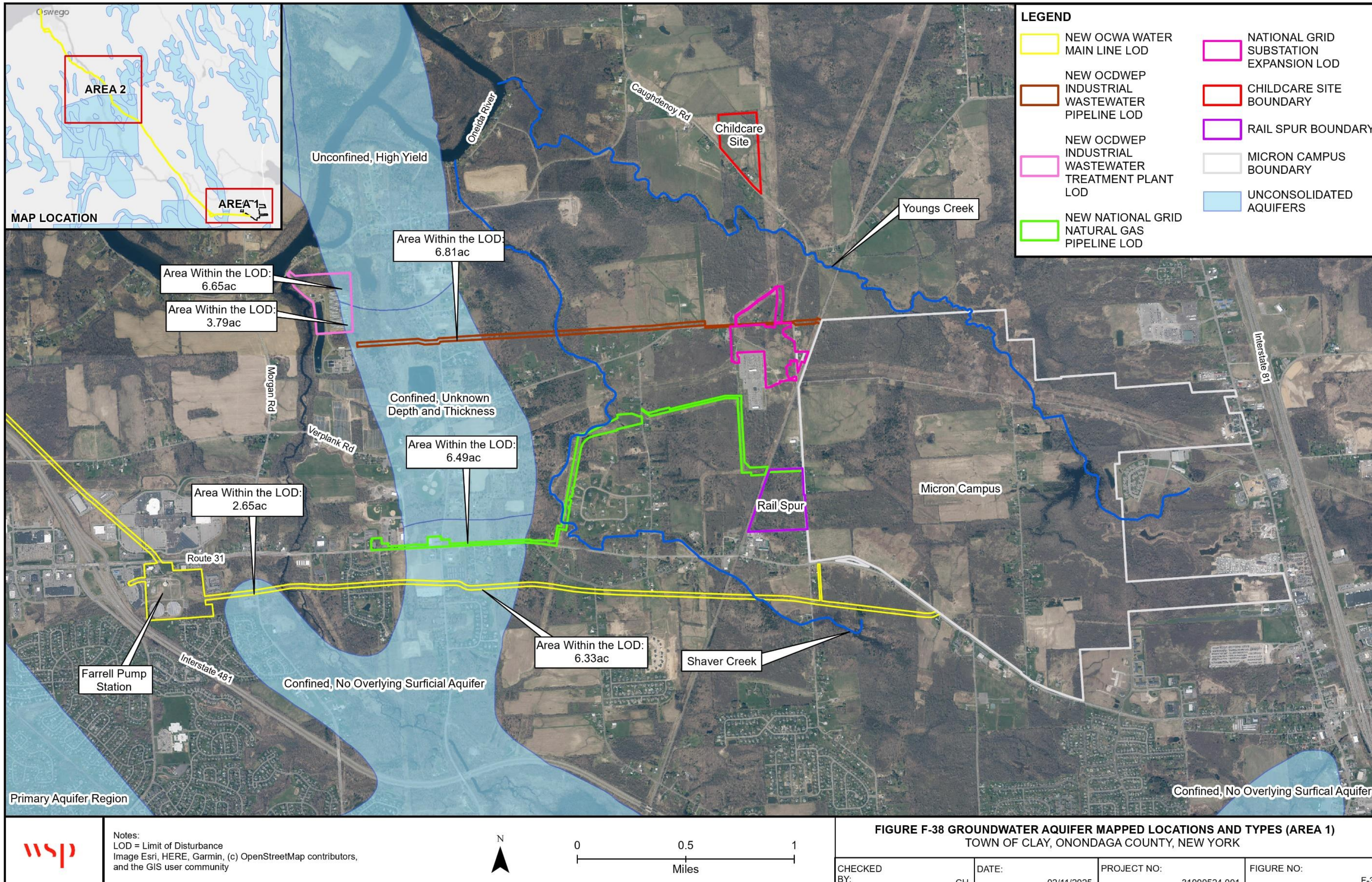
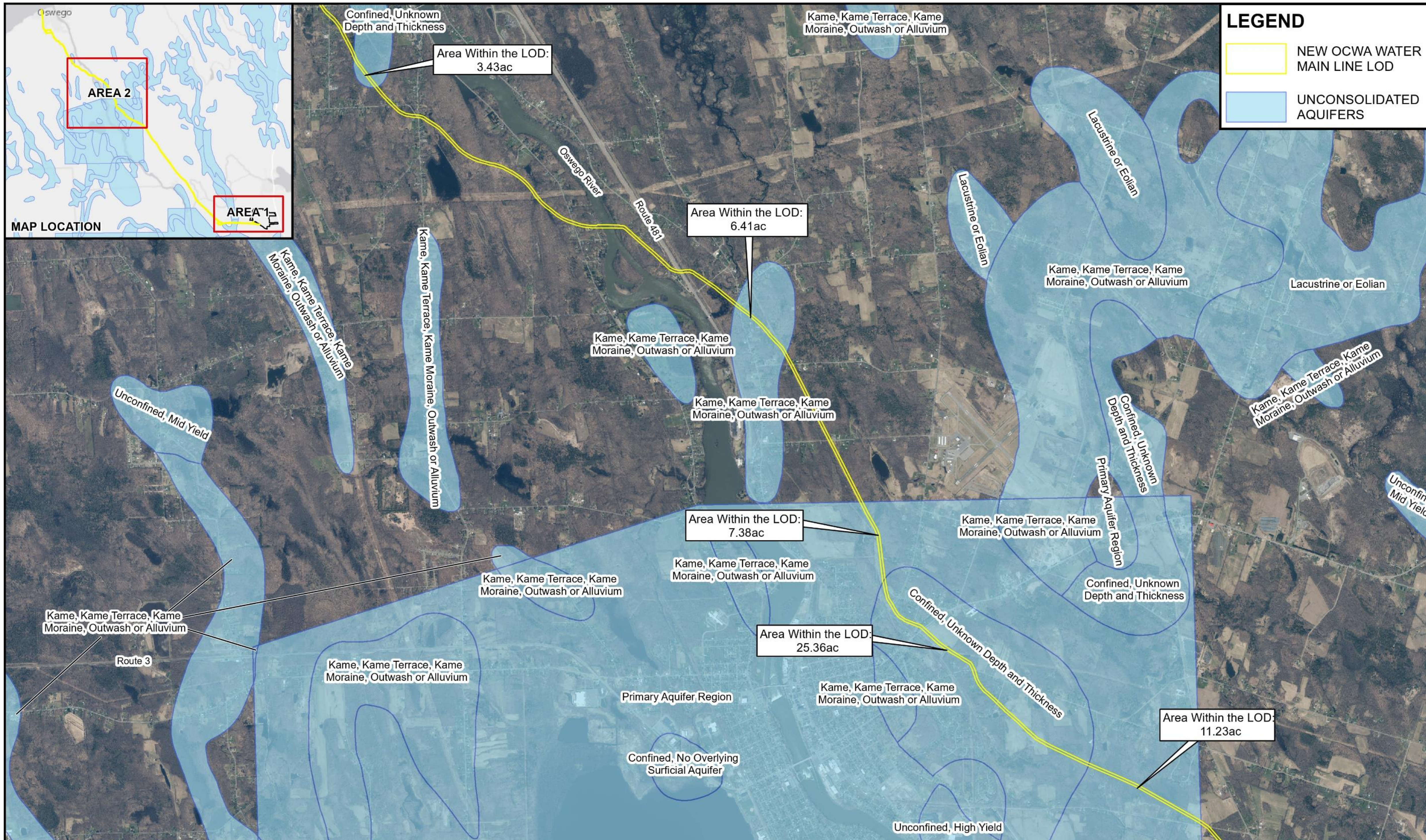


Figure F-39 Groundwater Aquifer Mapped Locations and Types (Area 2)



Notes:
LOD = Limit of Disturbance
Image Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
NYS ITS Geospatial Services, Westchester County GIS

N

0 0.75 1.5
Miles

FIGURE F-39 GROUNDWATER AQUIFER MAPPED LOCATIONS AND TYPES (AREA 2)
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-39

Figure F-40 FEMA Floodplains in Water Resources Study Area

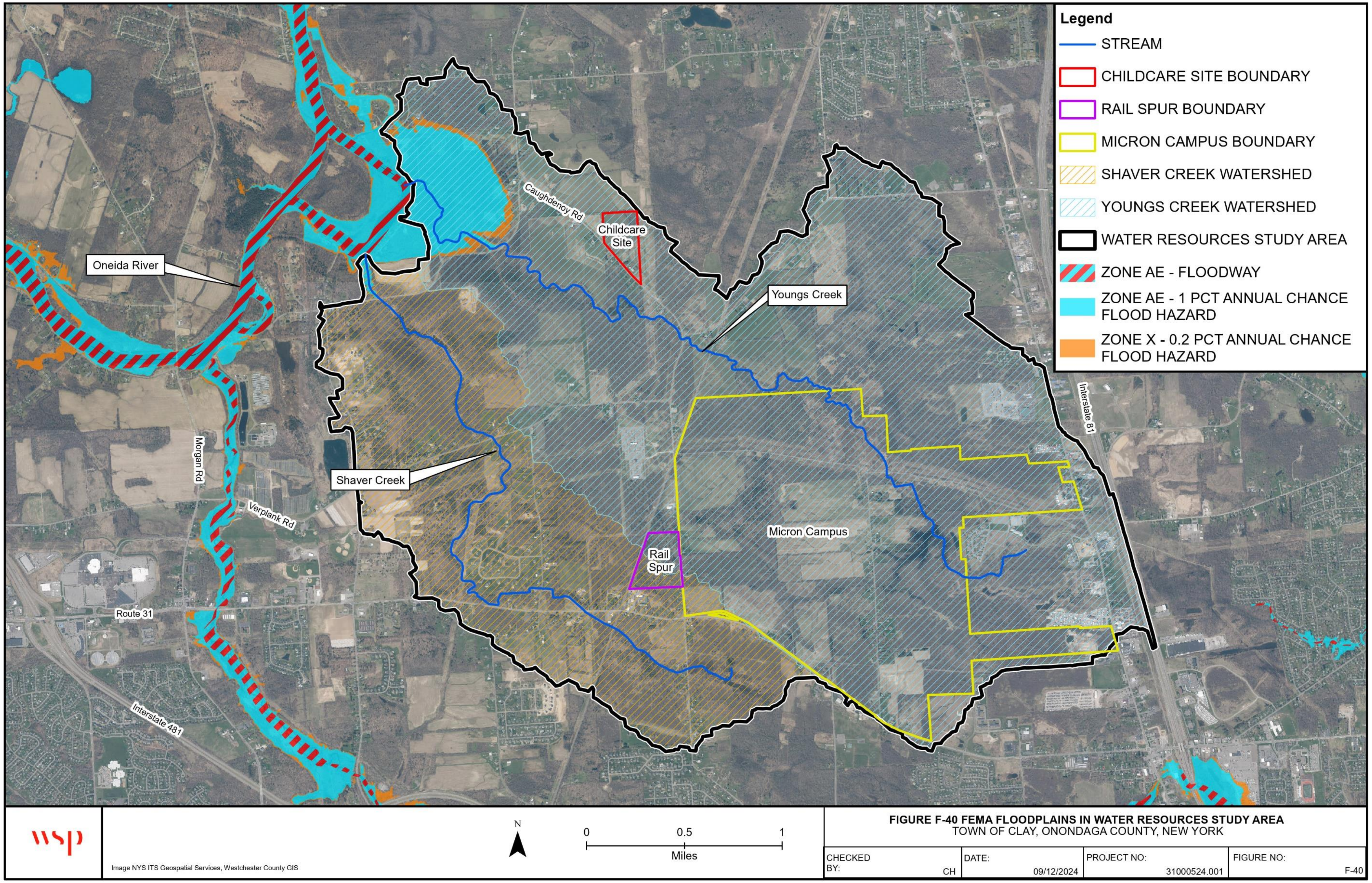


Figure F-41 Water Supply Improvements Mapped FEMA Floodplains (Area 1)

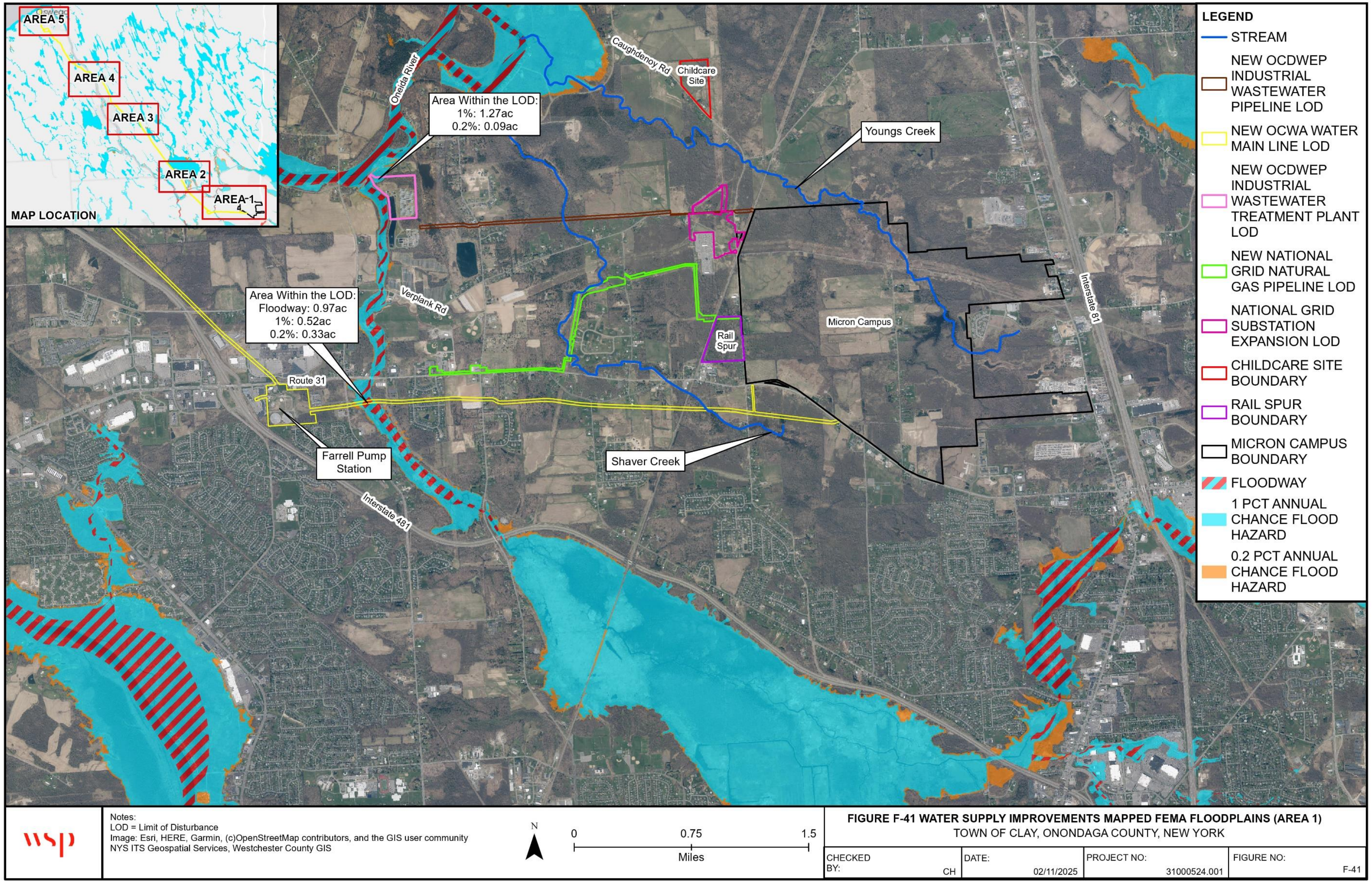
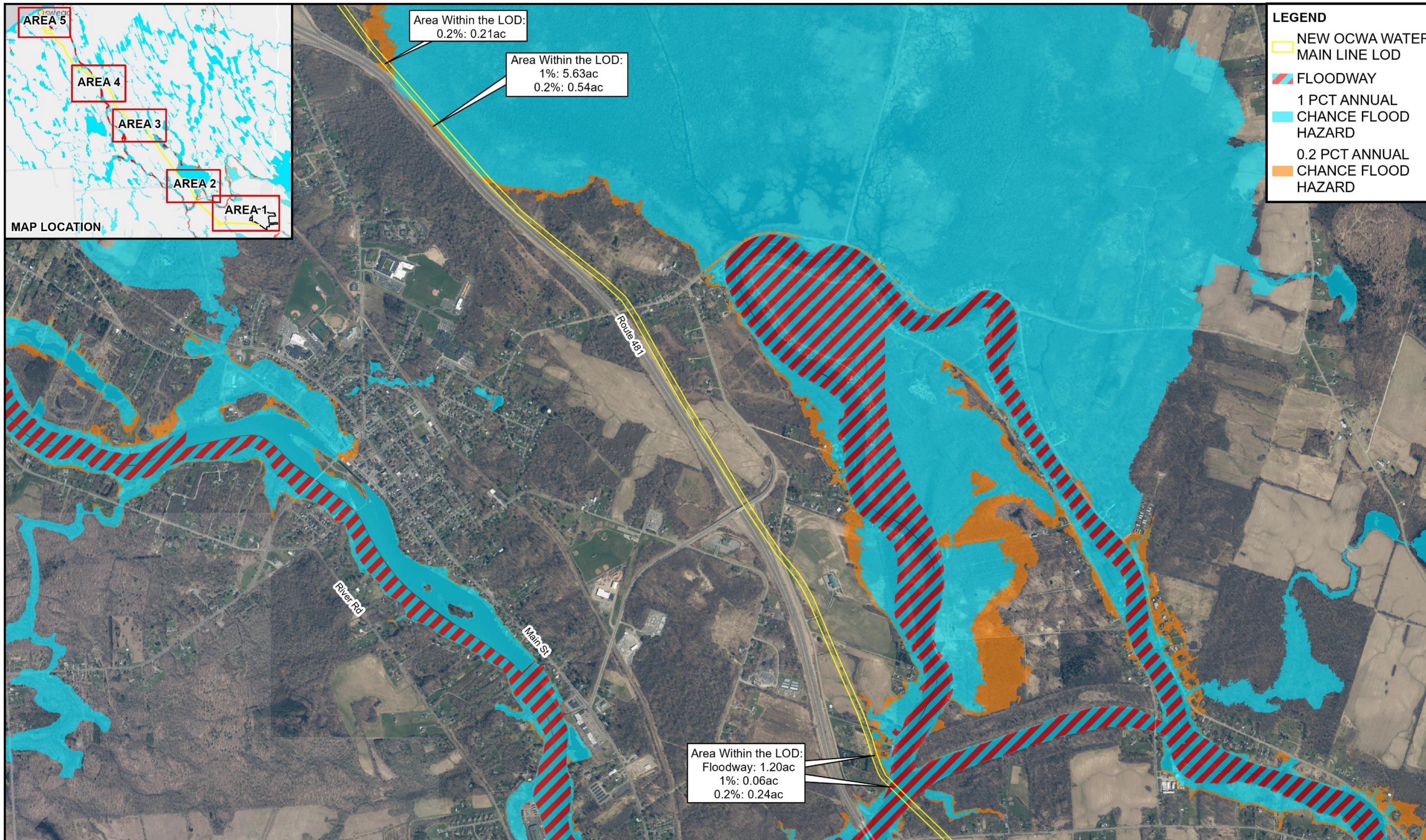


Figure F-42 Water Supply Improvements Mapped FEMA Floodplains (Area 2)



Notes:
LOD = Limit of Disturbance
Image Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
NYS ITS Geospatial Services, Westchester County GIS

FIGURE F-42 WATER SUPPLY IMPROVEMENTS MAPPED FEMA FLOODPLAINS (AREA 2)
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-42

Figure F-43 Water Supply Improvements Mapped FEMA Floodplains (Area 3)

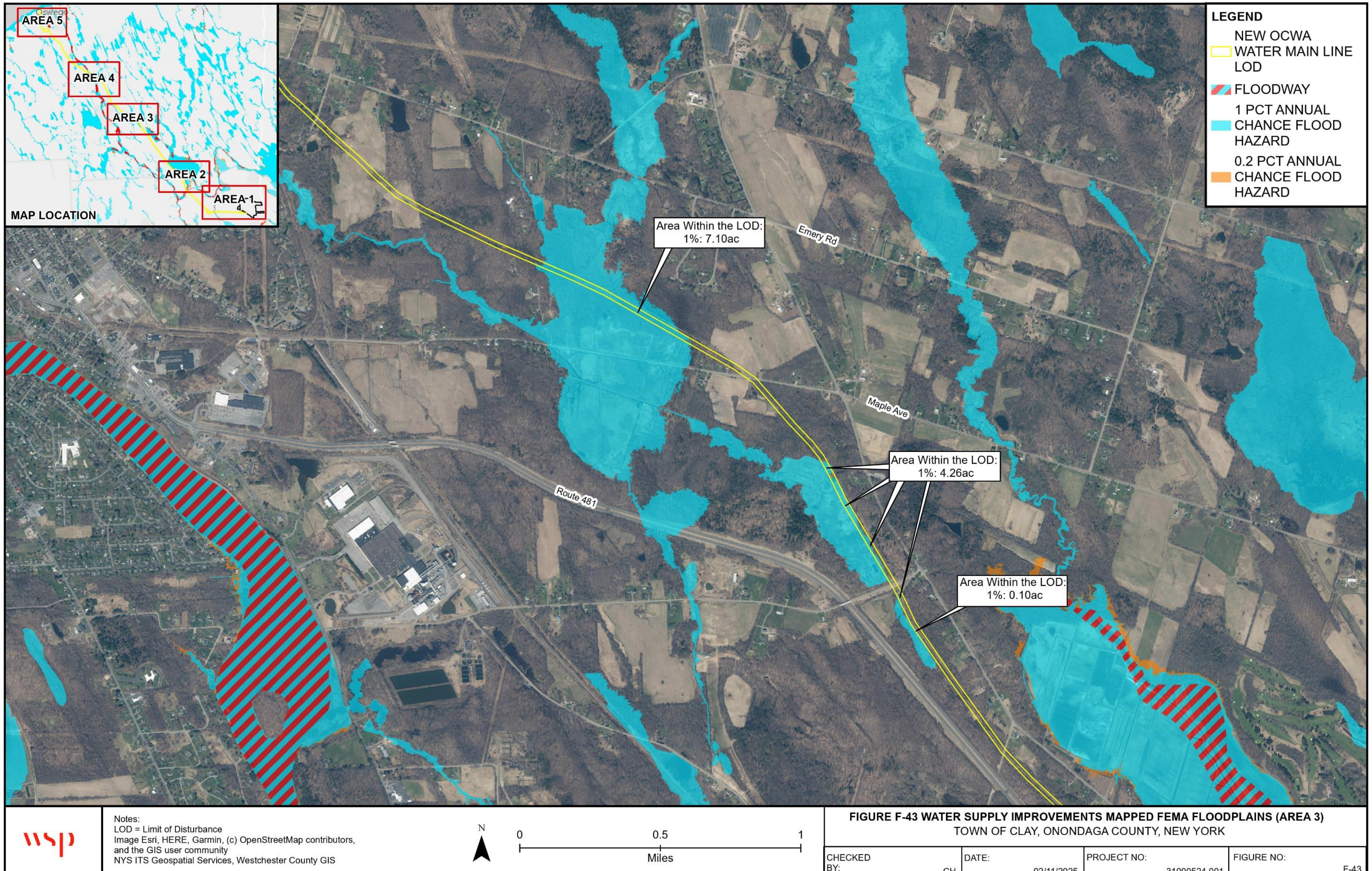


Figure F-44 Water Supply Improvements Mapped FEMA Floodplains (Area 4)

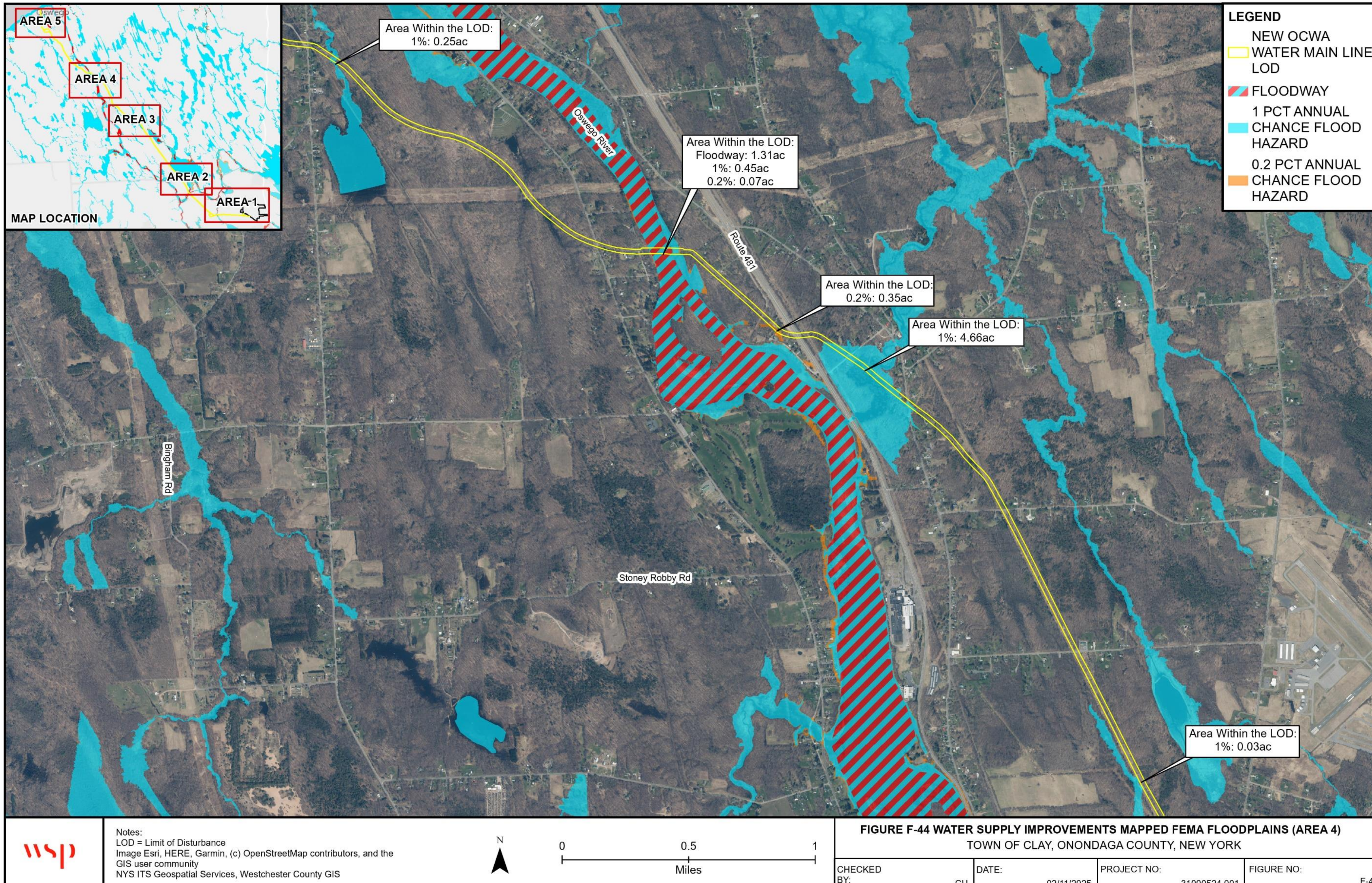


Figure F-45 Water Supply Improvements Mapped FEMA Floodplains (Area 5)

Figure F-46 New York State Coastal Area Boundary

Figure F-47 Town of Clay Local Waterfront Revitalization Program Area

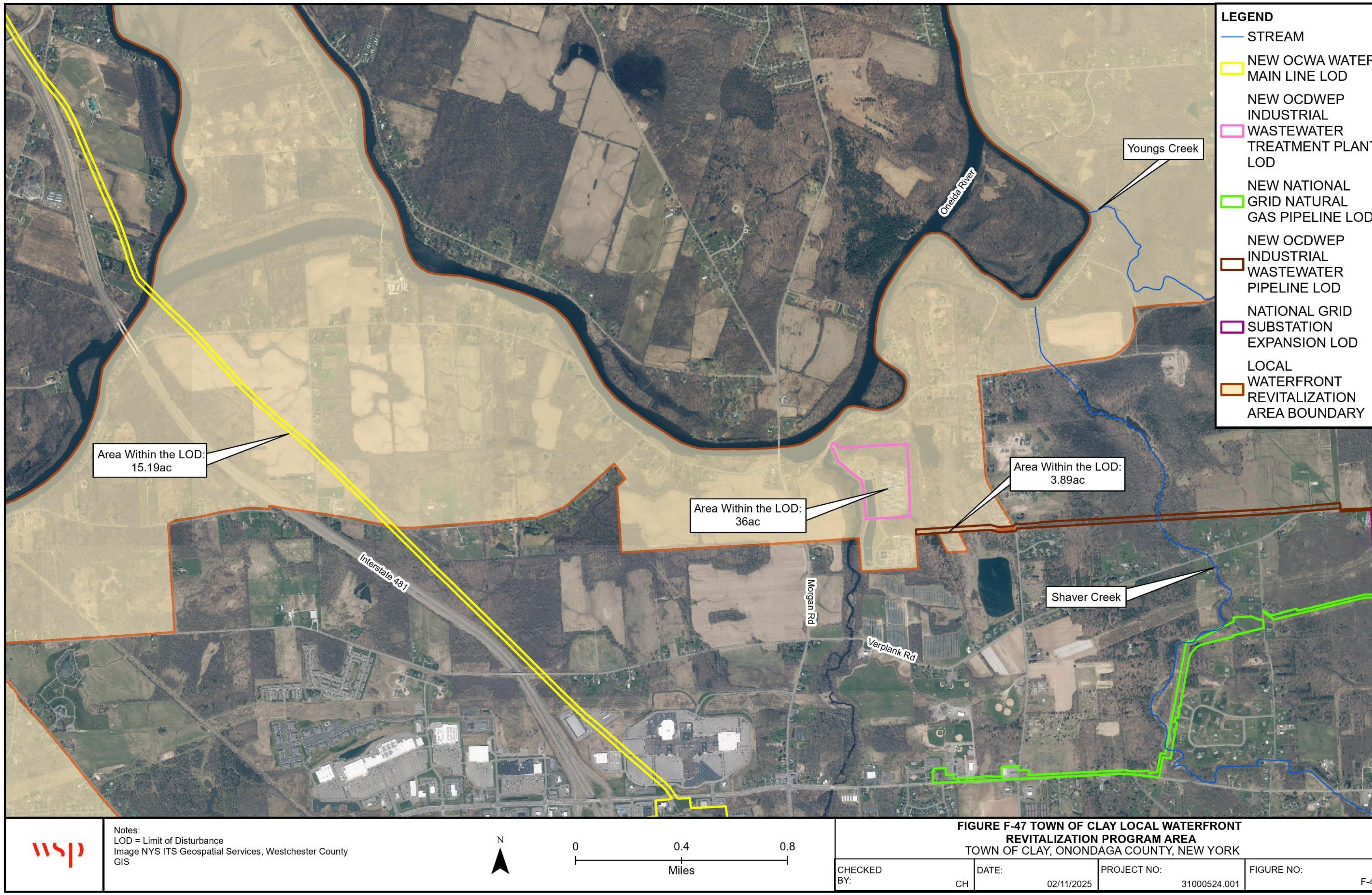


Figure F-48 City of Oswego Local Waterfront Revitalization Program Area

Appendix F-6
Jurisdictional Determinations

F-6 Jurisdictional Determinations

Table F-9 Jurisdictional Determinations

JD	Title	Date	Component
Federal			
AJD / PJD	Approved Jurisdictional Determination, Preliminary Jurisdictional Determination, and Delineation Verification for Department of the Army Processing No. LRB-2000-02198	02/12/2024	Micron Campus
AJD	Approved Jurisdictional Determination and Delineation Verification for Department of the Army Processing No. LRB-2000-02198	03/11/2024	Micron Campus
AJD	Approved Jurisdictional Determination and Delineation Verification for Department of the Army Processing No. LRB-2000-02198	05/17/2024	Rail Spur Site
AJD / PJD	Approved Jurisdictional Determination, Preliminary Jurisdictional Determination, and Delineation Verification for Department of the Army Processing No. LRB-2000-02198, Childcare and Health Care/Recreational Facility	10/11/2024	Childcare Site
PJD	Preliminary Jurisdictional Determination for Department of the Army Application No. LRB-2000-02198	10/11/2024	Micron Campus
AJD / PJD	Approved Jurisdictional Determination, Preliminary Jurisdictional Determination, and Delineation Verification for Department of the Army Processing No. LRB-2024-00629	06/02/2025	Clay Substation
State			
AJD	Final Approved NYS Jurisdictional Determination for Wetlands; Applicant: Micron New York Semiconductor Manufacturing LLC; Facility: White Pine Commerce Park-Micron; Town of Clay, Onondaga county; DEC ID: 7-3124-00575	02/13/2024	Micron Campus

Appendix F-7
Compensatory Mitigation Plan

Appendix F-8
Draft SWPPP

APPENDIX G
BIOLOGICAL RESOURCES

Appendix G-1
Biological Resources Methodology

G-1 Biological Resources Study Area and Methodology

This section defines the study area for biological resources and describes the sources of information used to describe the affected environment. It also explains the evaluation methods used to determine direct and indirect effects on biological resources. Potential cumulative effects on biological resources are described in Chapter 4.

The biological resources study area includes the Proposed Project and Connected Action LODs (where direct effects on ecological communities and wildlife may occur) and habitats adjacent to the LODs (where the Proposed Project and Connected Actions may have indirect effects on habitat and species in the vicinity).

As described in Section 3.4 (Biological Resources), the biological resources analysis relies on the analysis of wetland and surface water effects described in Section 3.3 (Water Resources), where applicable. However, Section 3.4 (Biological Resources) considers effects on ecological communities and wildlife regardless of the extent of Federal or State jurisdiction over wetlands or surface water features. In addition, Section 3.4 (Biological Resources) conservatively assumes that construction effects would occur across all wetland and upland cover types within the Connected Action LODs, even though actual construction effects likely would not occur across the full extent of the Connected Action LODs.

The analysis of the affected environment in Section 3.4 (Biological Resources) relies on the sources of information and evaluation methodologies described below:

- Discussions and correspondence with NYSDEC regarding potential occurrence of State listed rare, threatened, or endangered species in the vicinity of the Proposed Project and Connected Actions.

- Discussions and correspondence with USFWS regarding potential occurrence of species listed or proposed to be listed as Federal threatened or endangered species, and information on critical habitat and other protected resources recorded in the vicinity of the Proposed Project and Connected Actions.

- Site reconnaissance investigations of ecological communities conducted on July 31 through August 2, 2023, at the Micron Campus, Rail Spur Site, and Childcare Site (AKRF, Inc. 2023). Ecologists documented the presence and extent of ecological communities observed via walking meanders throughout the study area while recording dominant plant species and ecological community composition consistent with the categorizations presented in the second edition of *Ecological Communities of New York State* (Edinger, 2014). Incidental wildlife observations were recorded as part of this effort. In addition, ecologists documented any signs of natural or anthropogenic disturbance and conducted tree diameter observations to qualitatively estimate forest stand maturities for each ecological community with tree stands or cover.

- Acoustic bat survey conducted from May 15 to July 7, 2023 for Federally listed bat species at the Micron Campus site that considered USFWS range-wide Indiana bat and northern long-eared bat survey guidelines (USFWS, 2023). The acoustic bat survey is included as part of the ~~draft~~ BA (Appendix G-4).

- Grassland breeding bird survey conducted from May 15 to July 12, 2023, to evaluate the presence of State listed grassland bird species at the Micron Campus site, using the NYSDEC's Survey Protocol for State listed Breeding Grassland Bird Species (NYSDEC, 2022a) (Appendix G-5).

- Visual encounter wildlife surveys conducted at the Micron Campus site, Rail Spur Site, and Childcare Site on June 23, 2023, and from January 30 through February 1, 2024.

- Qualitative environmental surveys of Youngs Creek conducted by Ramboll (see Appendix G-6 for a summary and copies of the surveys).

- Wetland delineations conducted by Ramboll, GZA, Fisher Associates, and EDR, as described in Section 3.3 (Water Resources) and Appendix F. For the proposed Clay Substation expansion area, uplands were mapped in the context of *Ecological Communities of New York State* (Edinger et al. 2014) based on aerial imagery and wetland delineation data. Uplands for all other Connected Actions were classified into general land cover types by reviewing a combination of aerial imagery and wetland delineation data and mapping.

- Published information identified in literature and obtained from governmental and nongovernmental sources, including: Esri World Imagery Map and Nearmap 2025 aerial imagery; USFWS NWI maps; NYSDEC Informational Freshwater Wetland Mapping for wetlands and surface waters; NYNHP database of State listed threatened or endangered species or species of concern; New York State Breeding Bird Atlas (2000-2005 and 2020-2024); Audubon Christmas Bird Count (2018-2023); NYSDEC Amphibian and Reptile Atlas Project (Herp Atlas) (1990-1999); USFWS IPaC System data on species in Onondaga and Oswego Counties (see Appendix G-7); and NYSDEC Environmental Resource Mapper (ERM) and Environmental Assessment Form (EAF) mapper results (see Appendix G-8).

References

AKRF, Inc. (AKRF). (2023). AKRF ecological communities observations collected on July 31 through August 2, 2023.

Edinger, G. J., D. J. Evans, S. Gebauer, T. G. Howard, D. M. Hunt, and A. M. Olivero (editors). (2014). Ecological Communities of New York State. Second Edition. A revised and expanded edition of Carol Reschke's Ecological Communities of New York State. New York Natural Heritage Program, New York State Department of Environmental Conservation, Albany, NY. https://www.nynhp.org/documents/39/ecocomm2014.pdf

New York State Department of Environmental Conservation (NYSDEC). (2022a). Survey Protocol for State-listed Breeding Grassland Bird Species. March 2022.

U.S. Fish and Wildlife Service (USFWS). (2023). Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines. U.S. Fish and Wildlife Service, Region 3, Bloomington, MN. 76 pp Available from: https://www.fws.gov/sites/default/files/documents/USFWS_Range-wide_IBat_%26_NLEB_Survey_Guidelines_2023.05.10_0.pdf (Accessed November 18, 2024).

Appendix G-2
Legal and Regulatory Setting

G-2 Legal and Regulatory Setting

The legal and regulatory setting for Section 3.4 (Biological Resources) includes the authorities described below, in addition to relevant authorities described in Section 3.3 (Water Resources) and Appendix F.

G-2.1 Federal

The Endangered Species Act (ESA) (16 U.S.C. § 1531 *et seq.*) establishes protections for fish, wildlife, and plants that are listed as threatened or endangered, provides for adding species to and removing them from the list of protected threatened and endangered species and preparing and implementing plans for their recovery, and provides for interagency cooperation to avoid take of listed species and for issuing permits for otherwise prohibited activities, among other purposes.

The Migratory Bird Treaty Act (MBTA) (16 U.S.C. § 703 *et seq.*) implements four international conservation treaties between the United States and other nations and is intended to ensure the sustainability of populations of all protected migratory bird species. The MBTA prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by USFWS.

The Fish and Wildlife Coordination Act 16 U.S.C. § 661 *et seq.*) directs USFWS to investigate and report on proposed Federal actions that affect any stream or other body of water and to provide recommendations to minimize impacts on fish and wildlife resources.

G-2.2 State

The New York Fish and Wildlife Law (ECL Article 11) and the NYSDEC Endangered and Threatened Species Regulations (6 NYCRR Part 182) prohibit the taking, import, transport, possession, or selling of any endangered or threatened species of fish or wildlife as listed in 6 NYCRR § 182.5. Under the regulations, activities likely to result in the take of listed endangered or threatened species or adverse modification of occupied habitat are prohibited except as authorized by an incidental take permit issued by NYSDEC.

Appendix G-3
Supplemental Information: Affected Environment

G-3 Supplemental Information: Affected Environment

Appendix G-3 provides supplemental information on the ecological communities and wildlife potentially occurring or documented or observed at the Proposed Project and Connected Action sites based on the sources and methodologies described in Appendix G-2.

G-3.1 Ecological Communities (Micron Campus)

As described in Section 3.4.3.1, the dominant ecological communities at the proposed Micron Campus site include successional old field, successional shrubland, floodplain forest, deep emergent marsh, red maple-hardwood swamp, shallow emergent marsh, and mowed lawn with trees, reflecting the site's general composition as complexes of wetlands and uplands, including previous farmland, in varying stages of succession. As described in Section 3.3 (Water Resources), the site includes approximately 422 acres of wetlands and 8,710 LF of streams. Many of the wetlands were once uplands in agricultural production. A National Grid utility transmission line ROW traverses the northern portion of the site and contains a gravel access road with at-grade and culverted crossings at several locations. The ecological communities on the site to the north of this ROW are primarily forested, swampland, and marshland habitat with varying species composition based on topography, hydrology, and former and current site uses. These communities also are present to a lesser extent on the site to the south of the transmission line ROW.

The floodplain forest ecological communities at the Micron Campus site transition into red maple-hardwood swamp north of the utility ROW and hemlock-hardwood swamp to the south. The red maple-hardwood swamps were observed to have saturated soils, and a dense understory comprised of shrubs and saplings. The floodplain forests adjacent to this ecological community were observed to consist of similar vegetation, but were generally drier, and lacked the same dense shrub understory. South of the utility ROW, the floodplain forest communities are bisected by deep emergent marsh, red maple-hardwood swamp, and other communities present at smaller scales, including shrub swamp and rich mesophytic forest.

The deep emergent marsh community located in the north and eastern portions of the site is the largest marshland community present at the site. Shallow emergent marsh communities were also observed throughout the site, though to a lesser extent than deep emergent marsh. The shallow emergent marsh is present to the south and east of the deep emergent marsh, occurring primarily as a wetland complex throughout the successional old field. The deep emergent marsh community transitions to a floodplain forest to the north and south of the utility ROW and extends off-site to the east. The overstory of the deep emergent marsh and floodplain forest communities includes numerous dead trees (snags) likely created by flooding caused by the beaver dam located in the southern portion of the marsh.

The ecological community along Burnet Road is best characterized as mowed lawn with trees, and the ecological community along the utility ROW is best characterized as mowed roadside/pathway. These ecological communities were observed to have varying levels of succession, with dominant vegetation ranging from mowed herbaceous species to shrublands. A portion of the upland forest in the northwestern corner of the site is best characterized as successional northern hardwood due to the prevalence of early successional and invasive species. South of the utility ROW and west of Burnet Road, red maple-hardwood swamps and floodplain forests transition into beech-maple mesic forest, successional southern hardwood, and maple-basswood rich mesic forest, generally becoming more fragmented by successional old field and shrubland and cropland/field crops.

G-3.2 Connected Action Land Use Cover Types

Figures G-1 through G-23 show the ecological communities (including land cover types and wetlands) for the Connected Actions.

Figure G-1 Clay Substation Expansion Area Ecological Communities

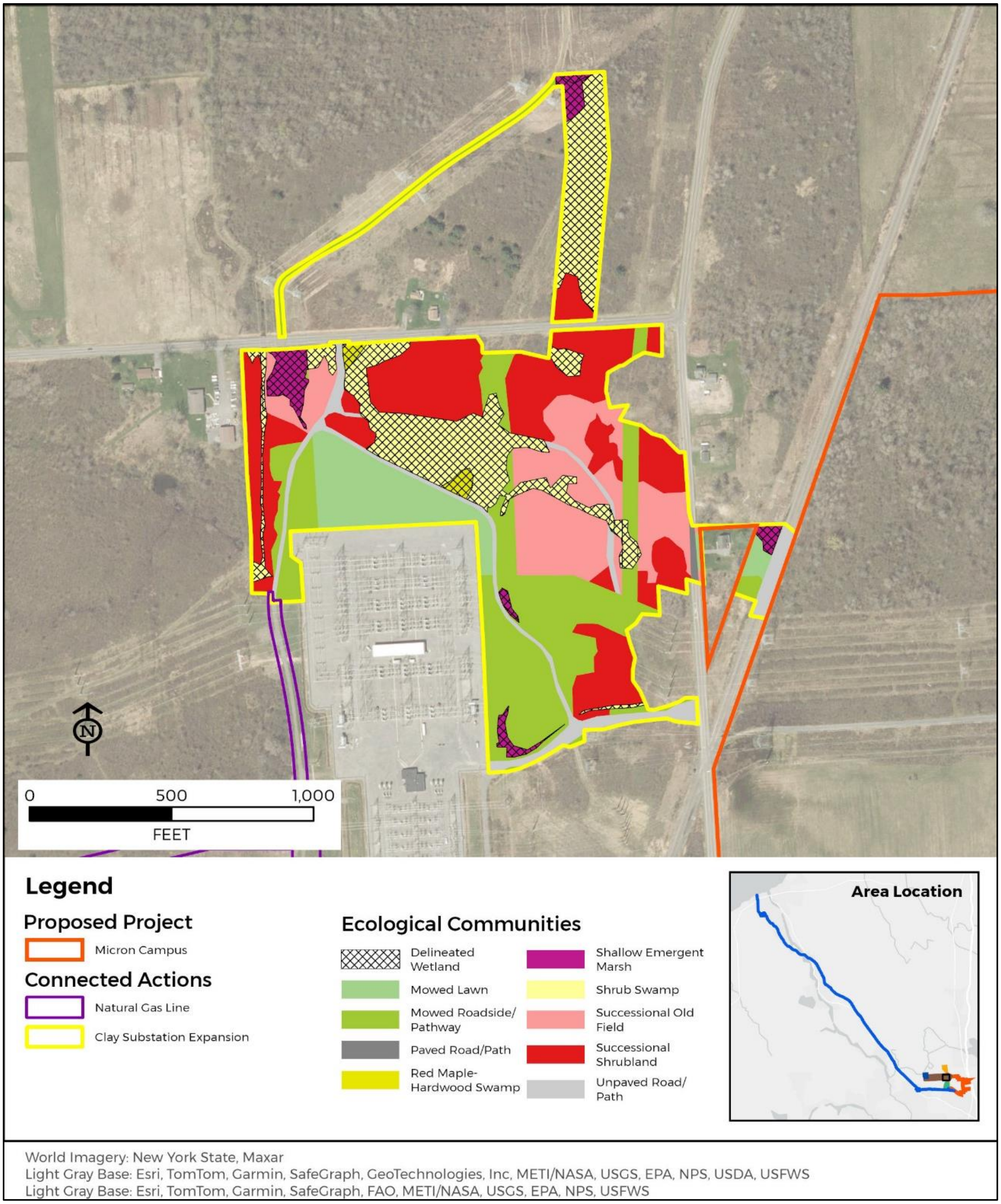


Figure G-2 Natural Gas Improvement Ecological Communities

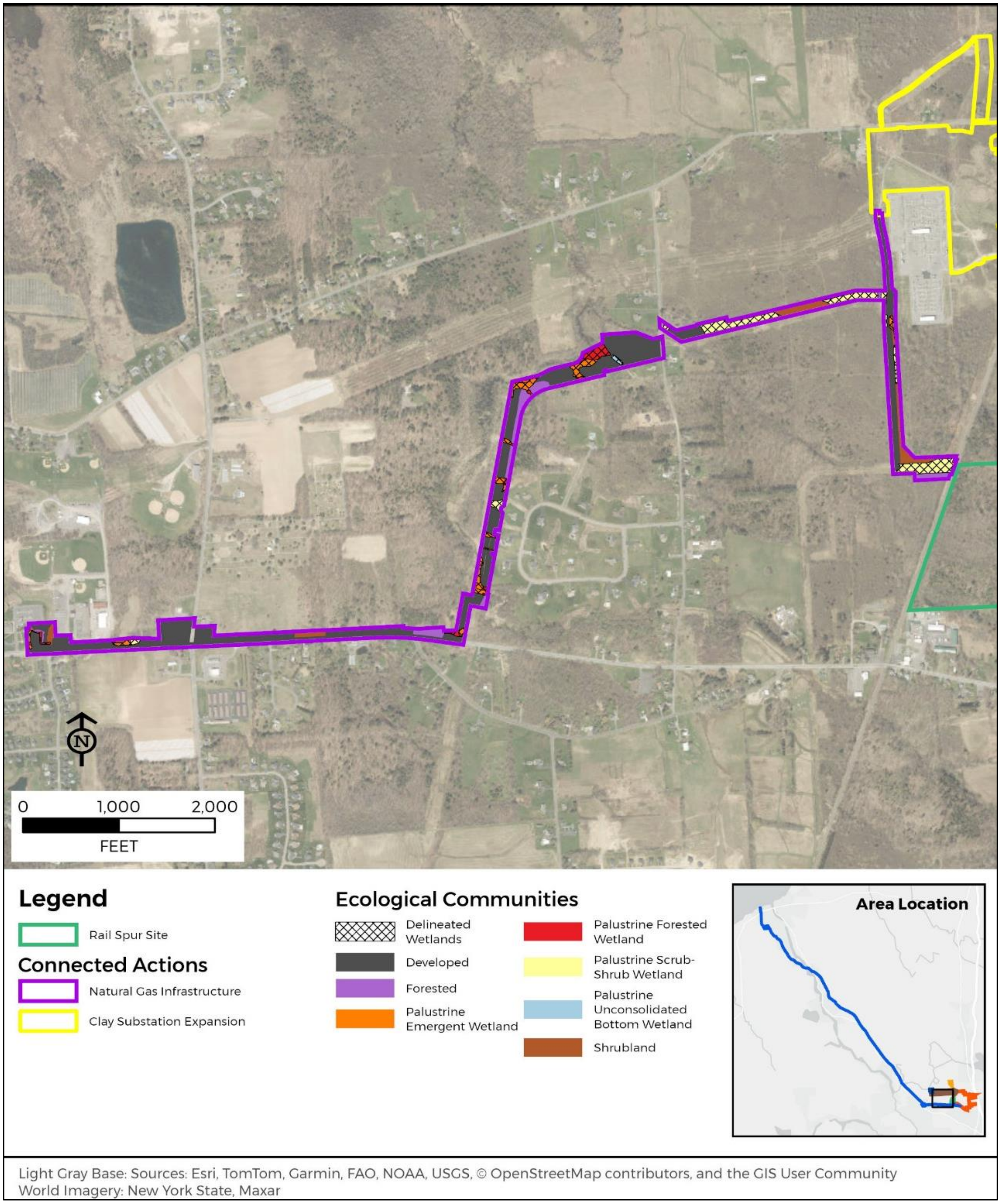
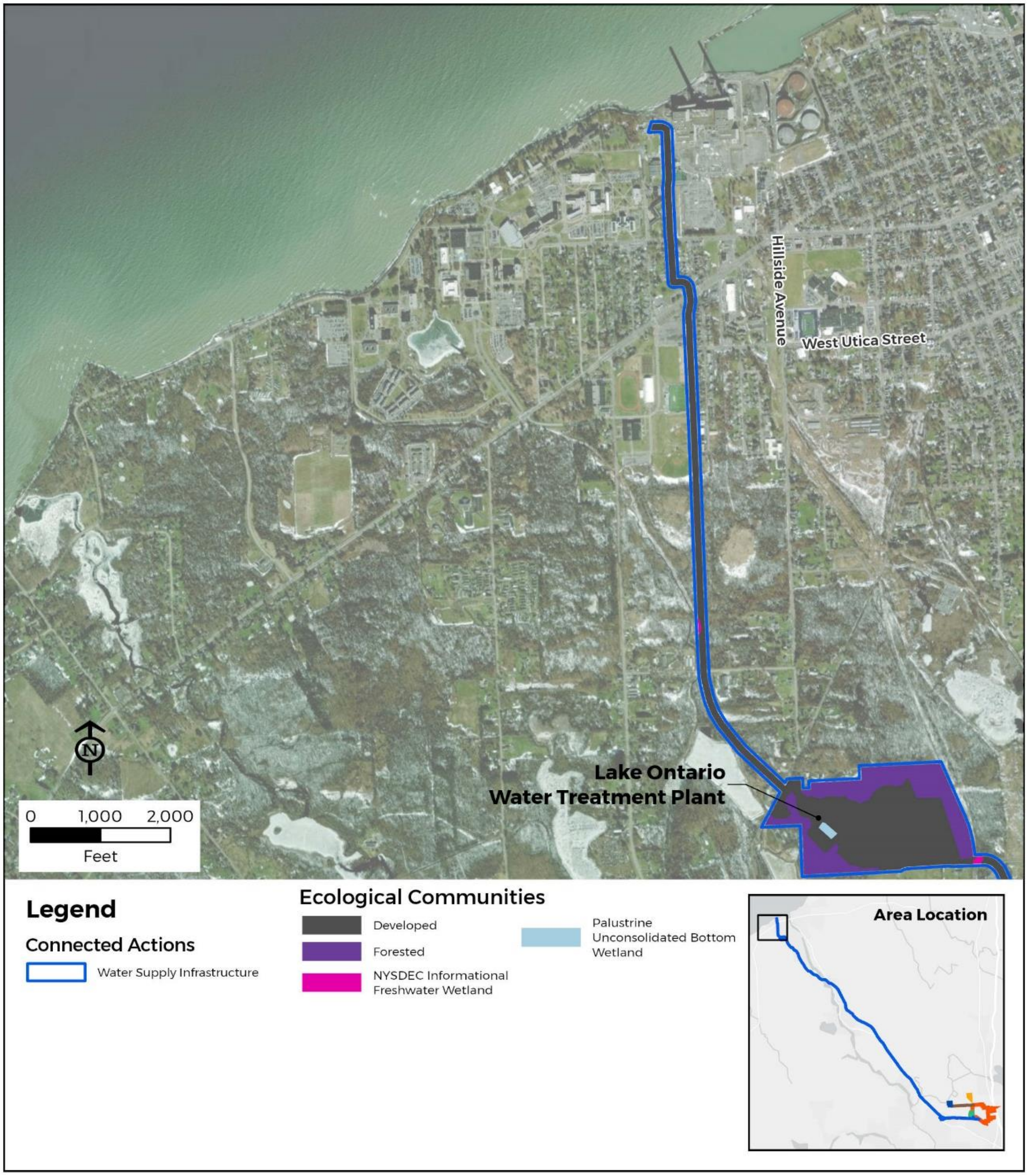
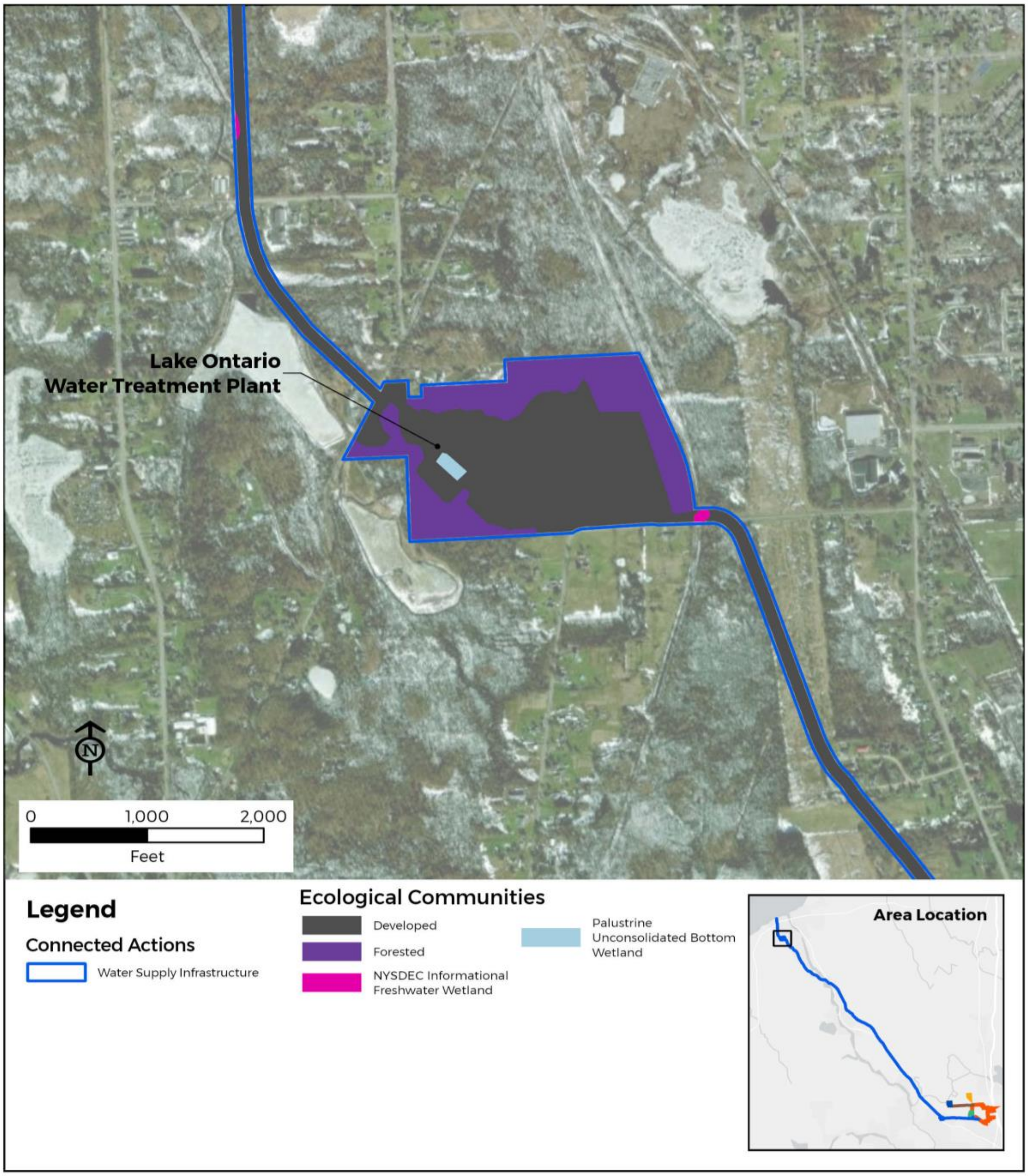


Figure G-3 Water Supply Improvement Ecological Communities



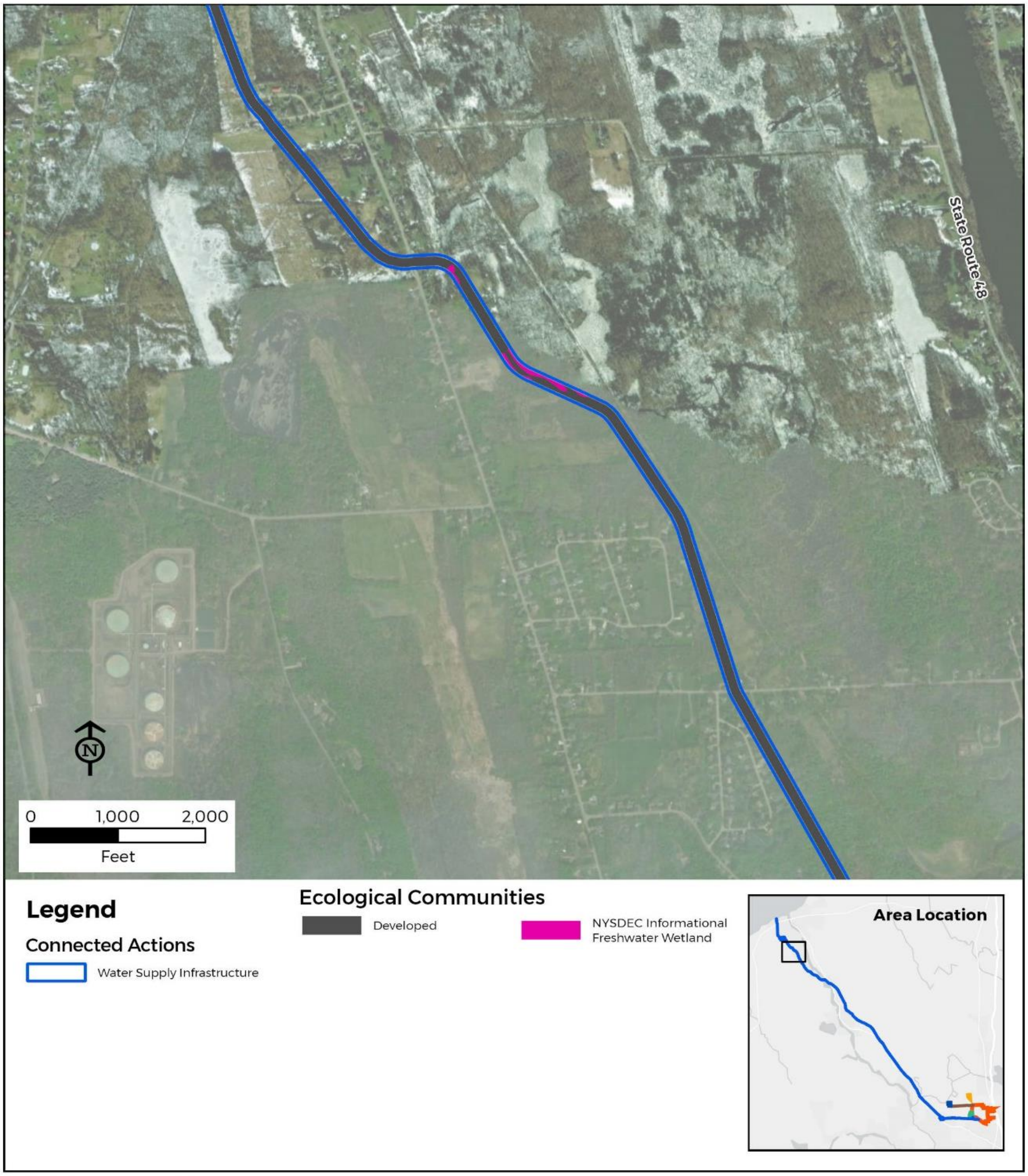
Light Gray Base: Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS
World Imagery: New York State, Earthstar Geographics

Figure G-4 Water Supply Improvement Ecological Communities



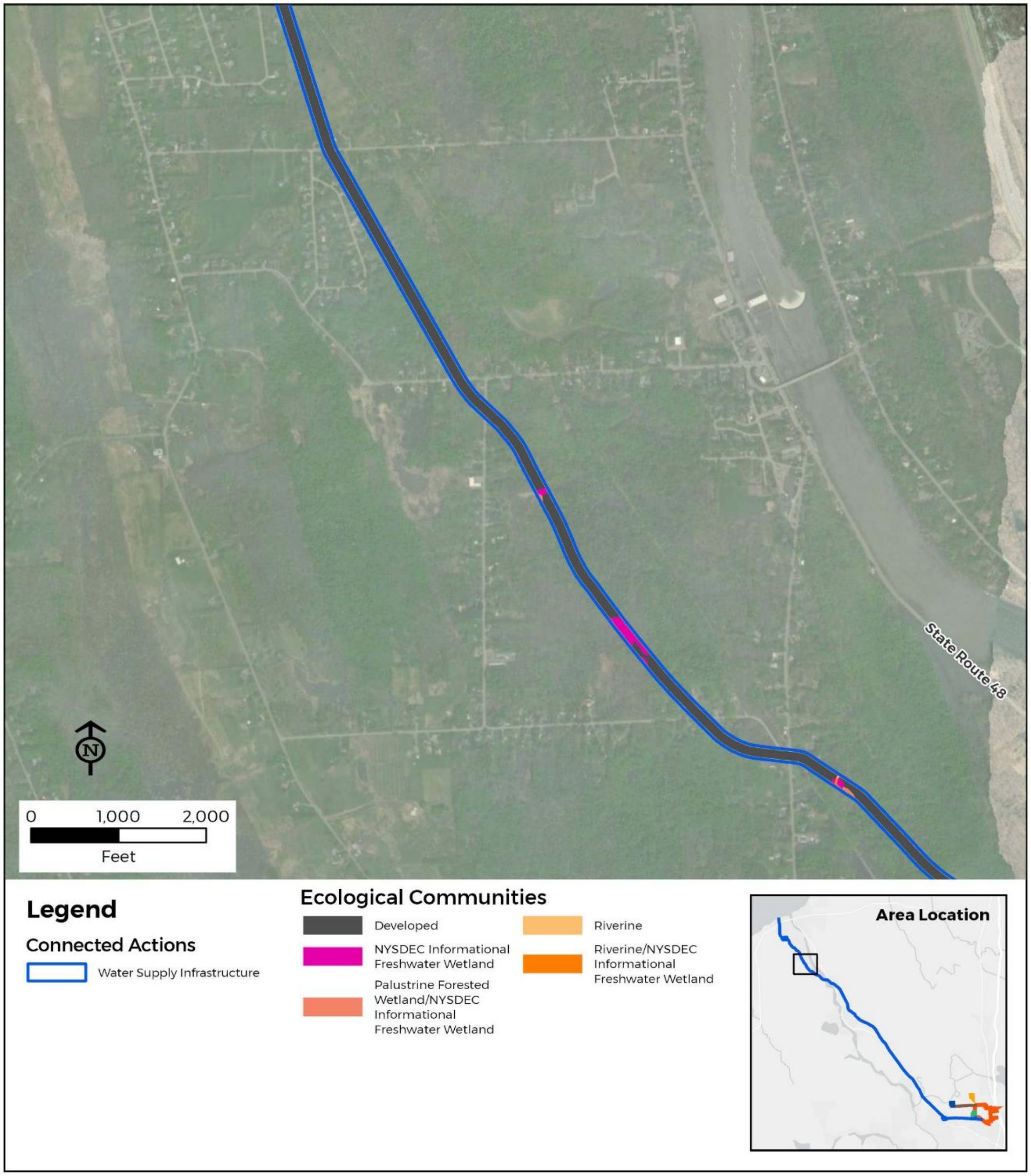
World Imagery: New York State, Maxar
Light Gray Base: Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS

Figure G-5 Water Supply Improvement Ecological Communities



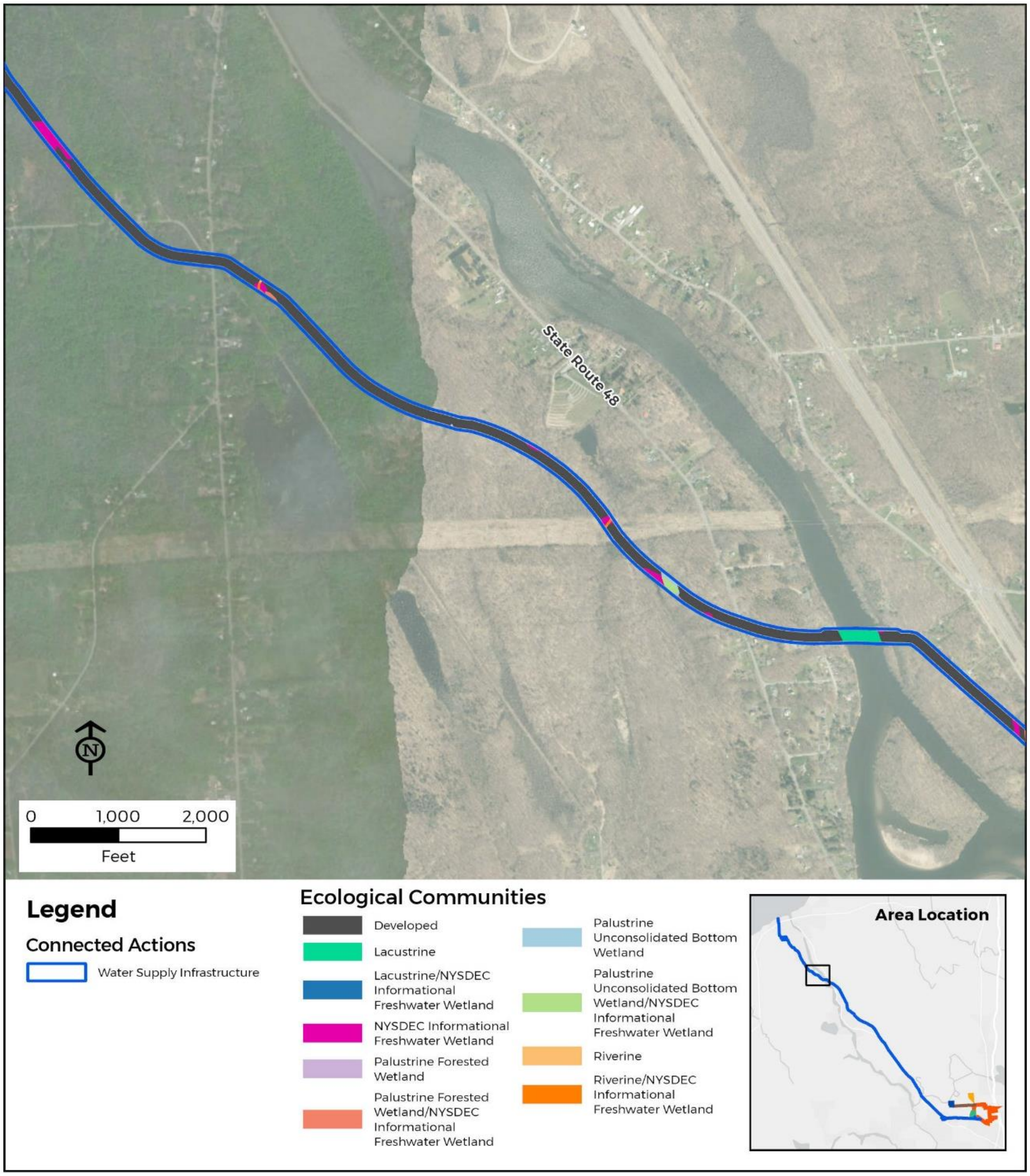
World Imagery: New York State, Maxar
Light Gray Base: Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS

Figure G-6 Water Supply Improvement Ecological Communities



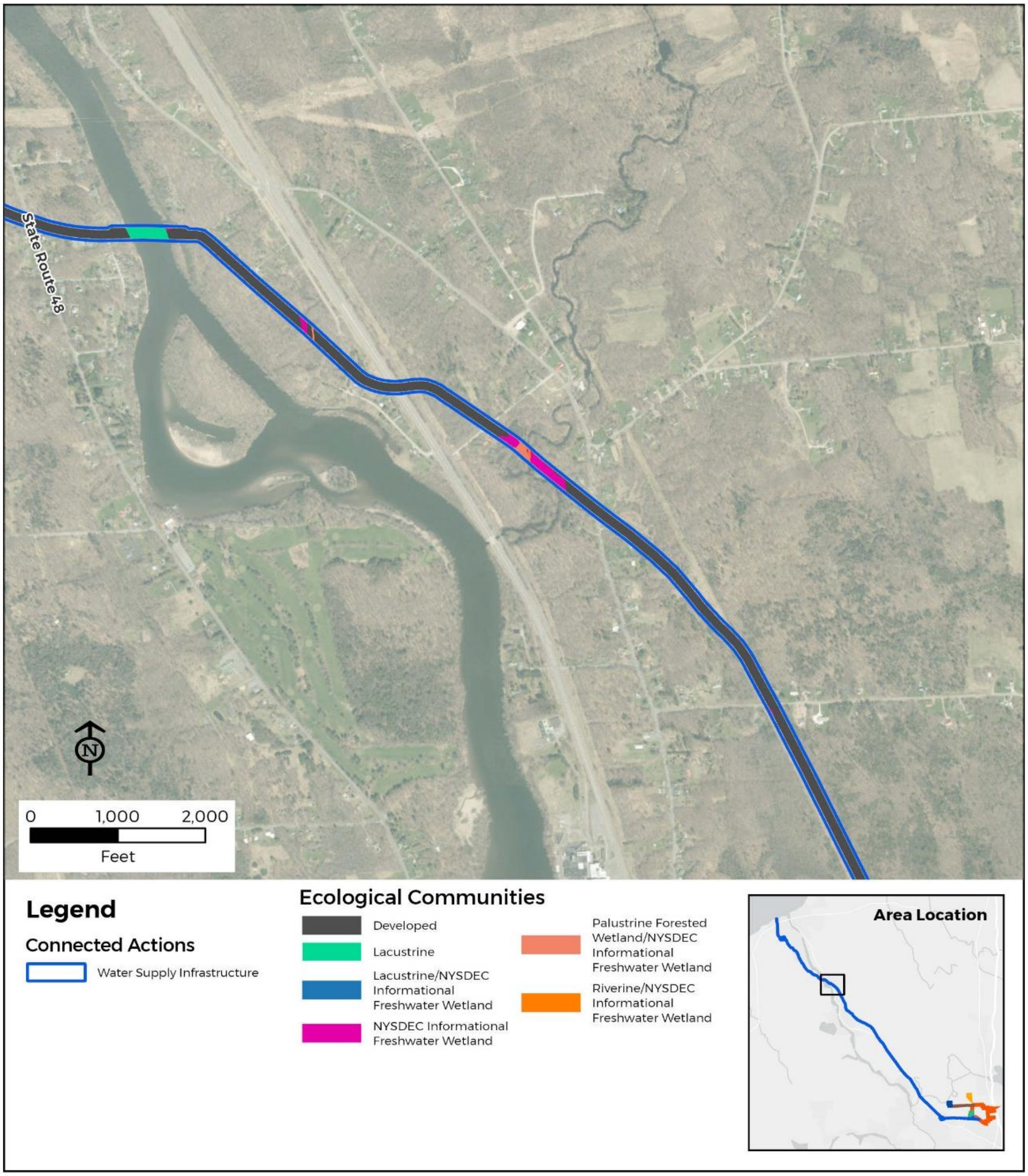
World Imagery: New York State, Maxar
Light Gray Base: Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS

Figure G-7 Water Supply Improvement Ecological Communities



World Imagery: New York State, Maxar
Light Gray Base: Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS

Figure G-8 Water Supply Improvement Ecological Communities



World Imagery: New York State, Maxar
Light Gray Base: Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS

Figure G-9 Water Supply Improvement Ecological Communities

World Imagery: New York State, Maxar
Light Gray Base: Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS

Figure G-10 Water Supply Improvement Ecological Communities

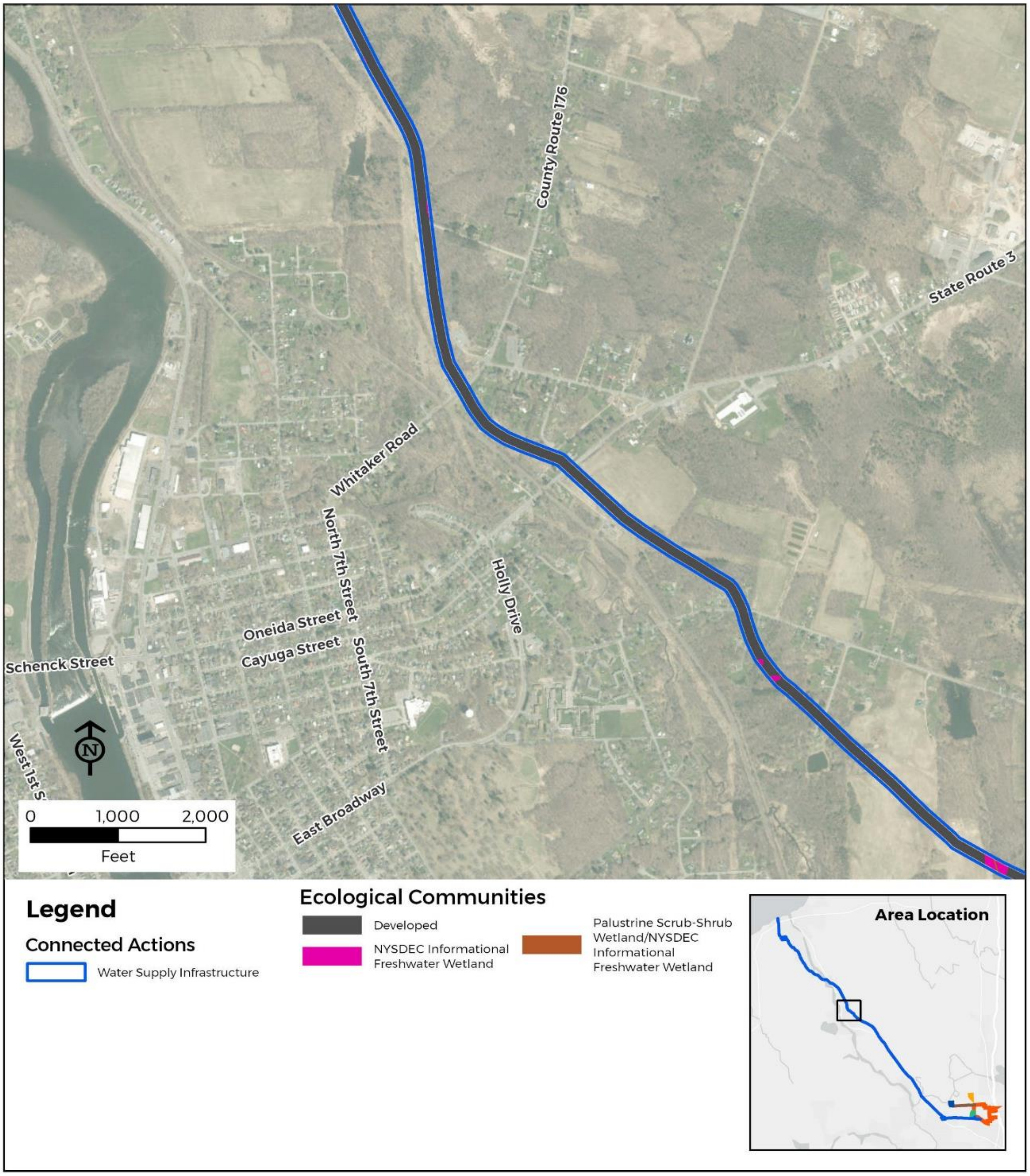


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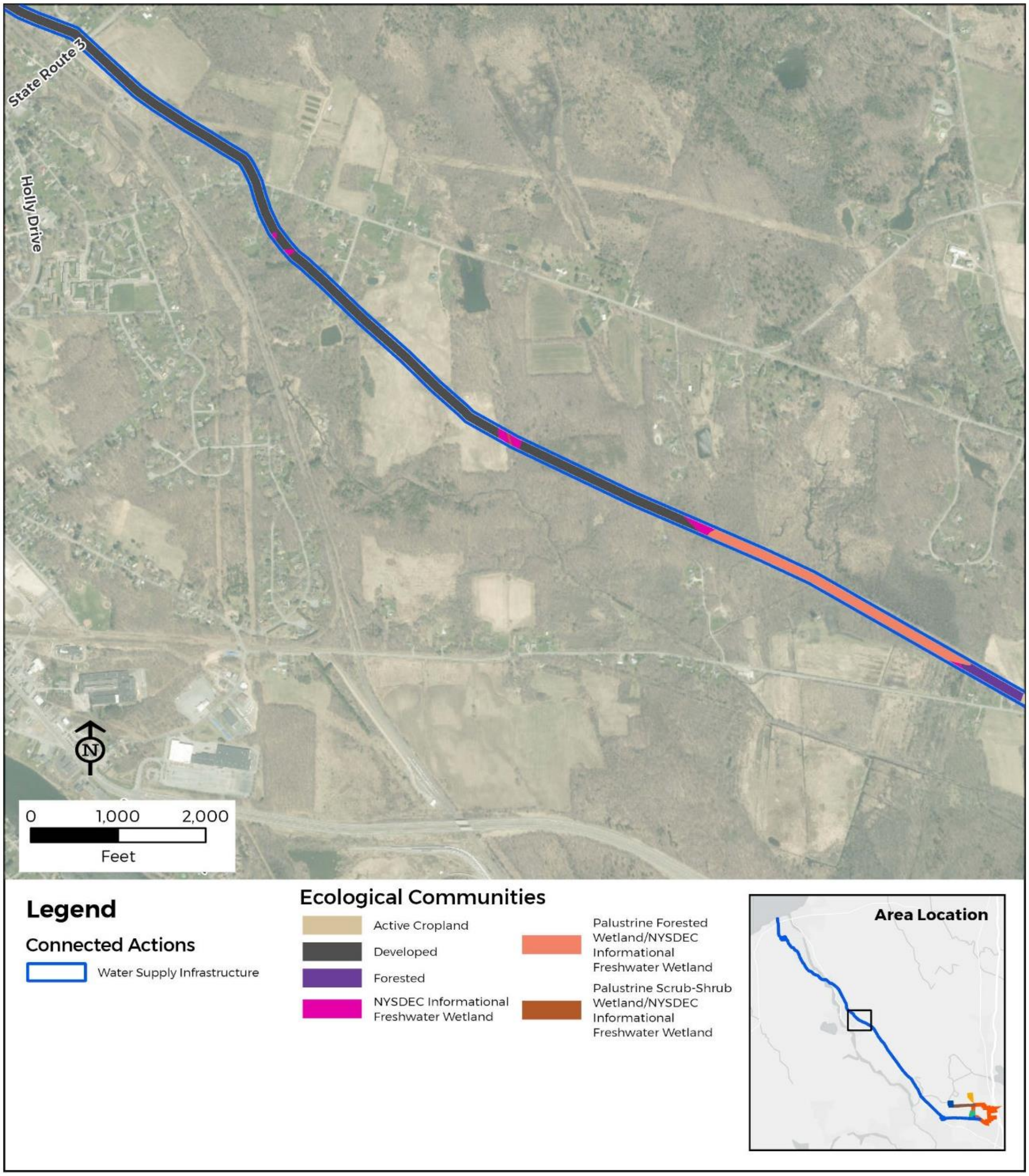
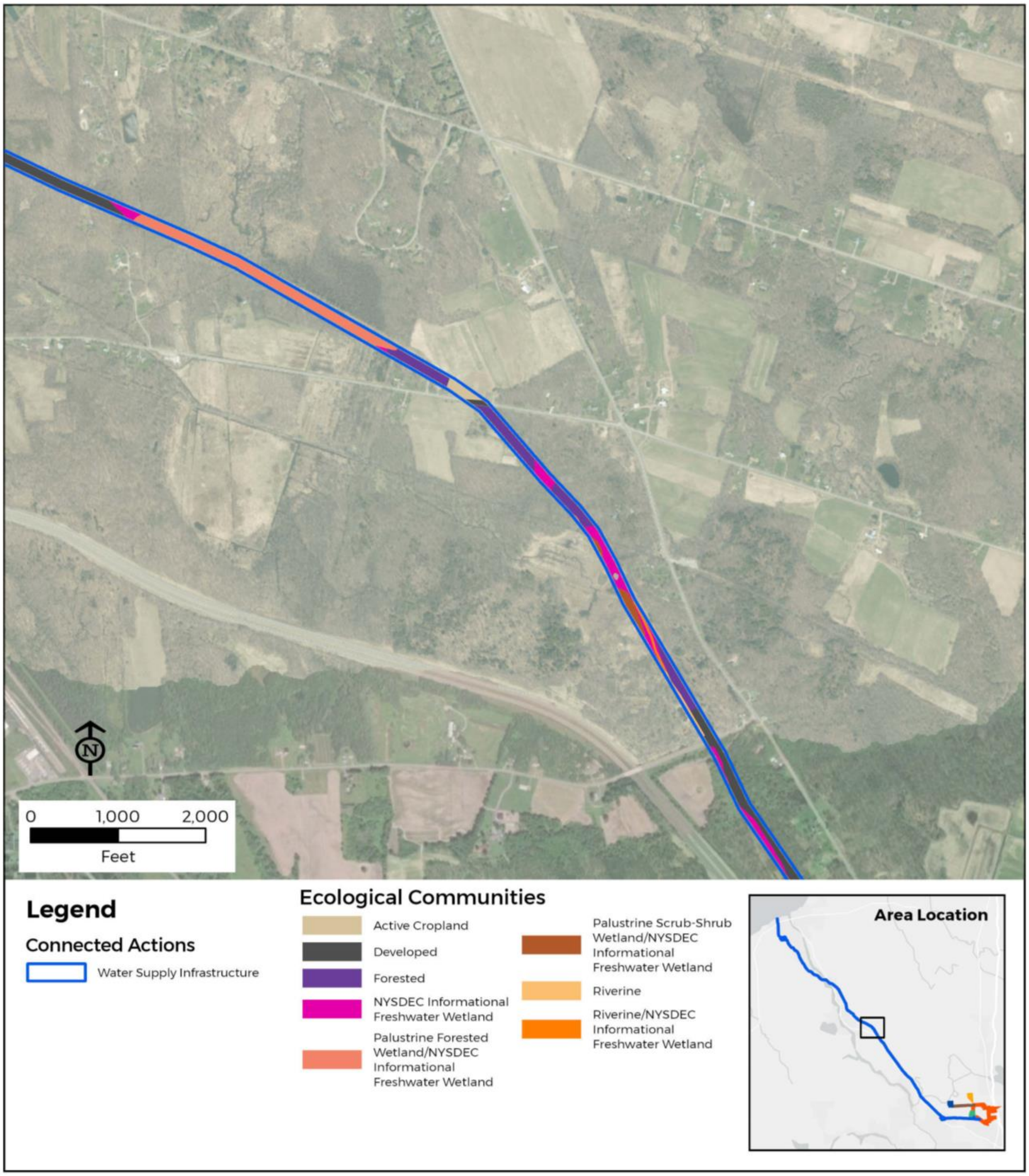
Figure G-11 Water Supply Improvement Ecological Communities



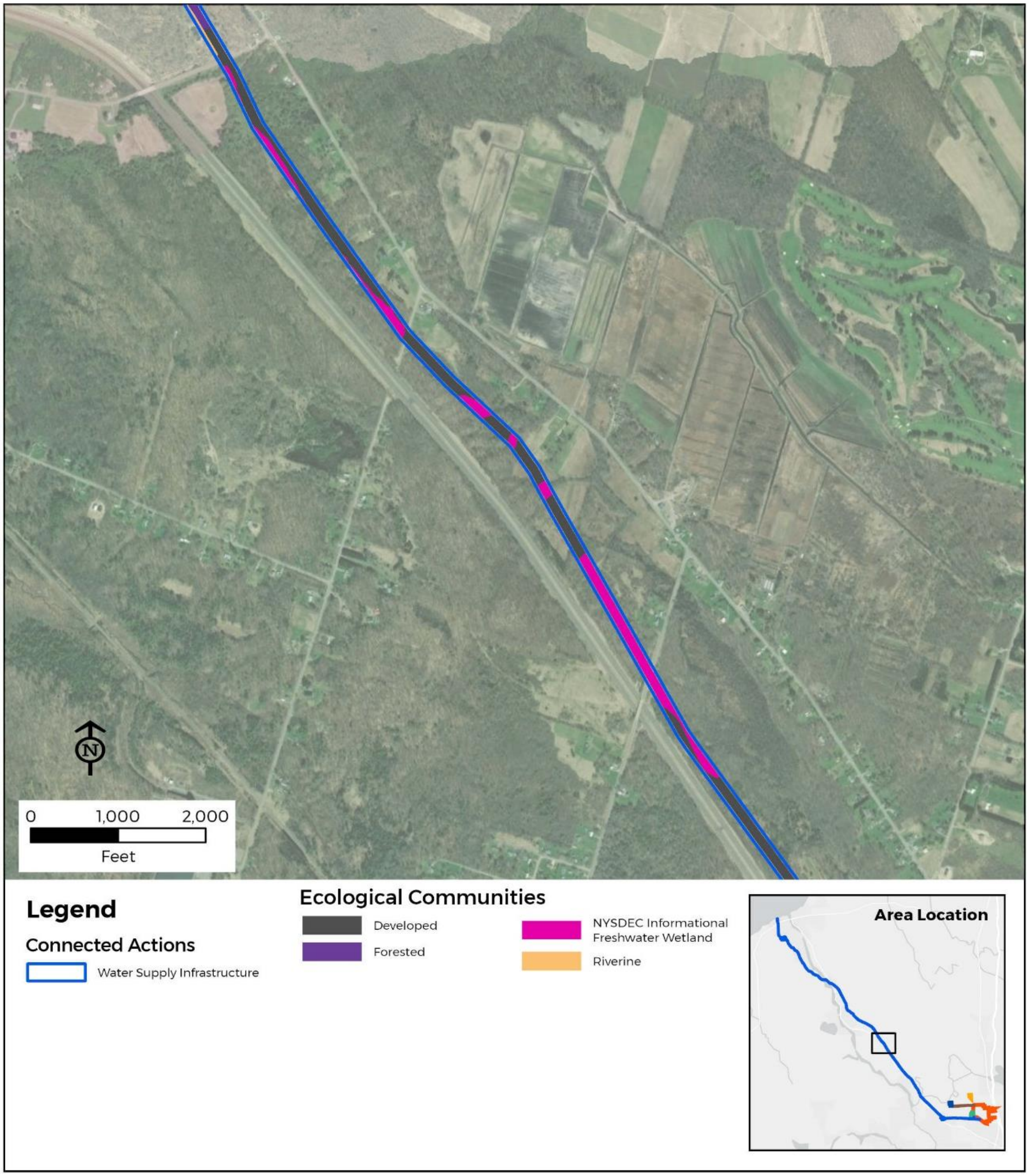
World Imagery: New York State, Maxar
Light Gray Base: Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS

Figure G-12 Water Supply Improvement Ecological Communities



World Imagery: New York State, Maxar
Light Gray Base: Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS

Figure G-13 Water Supply Improvement Ecological Communities



World Imagery: New York State, Maxar
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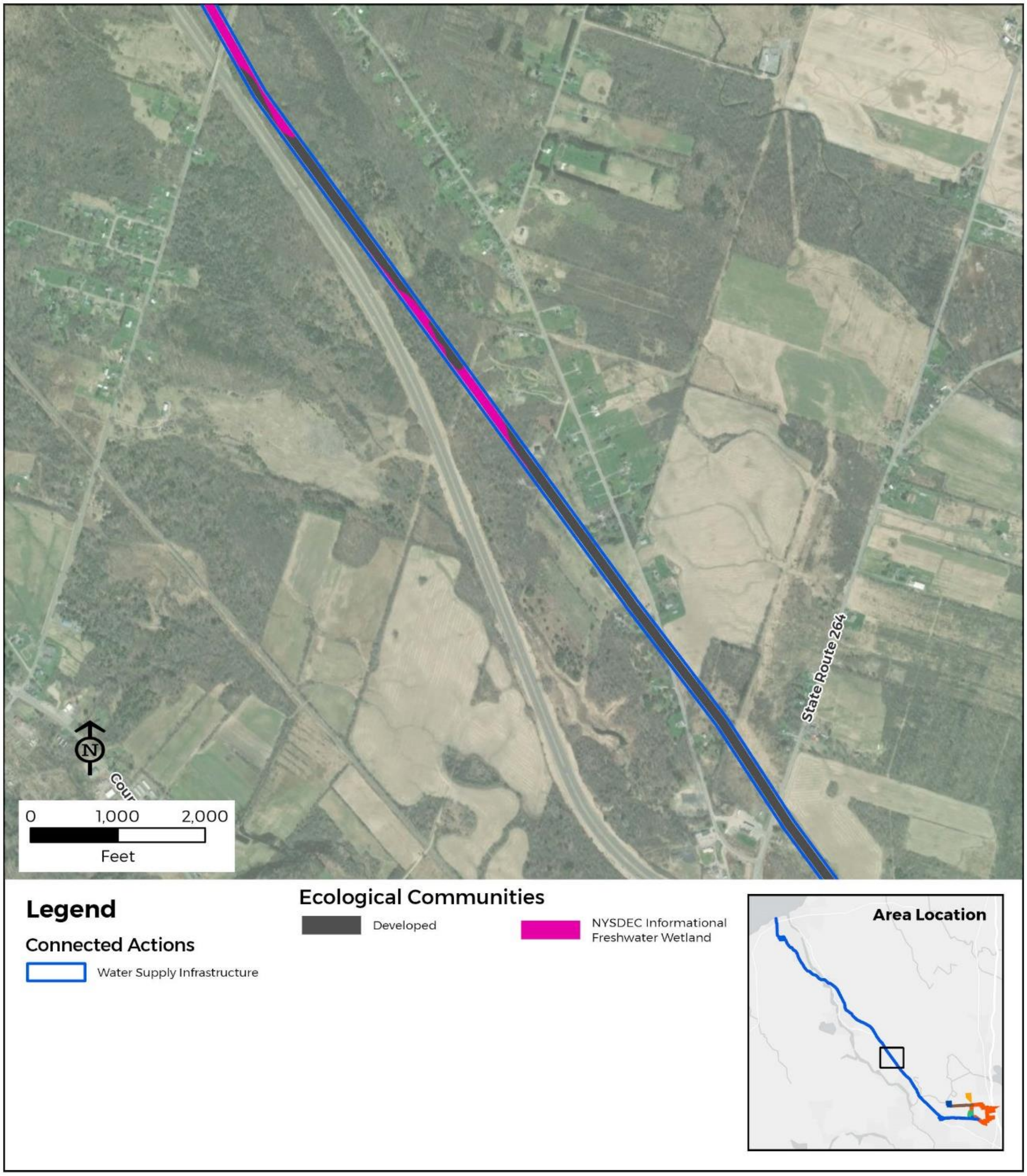
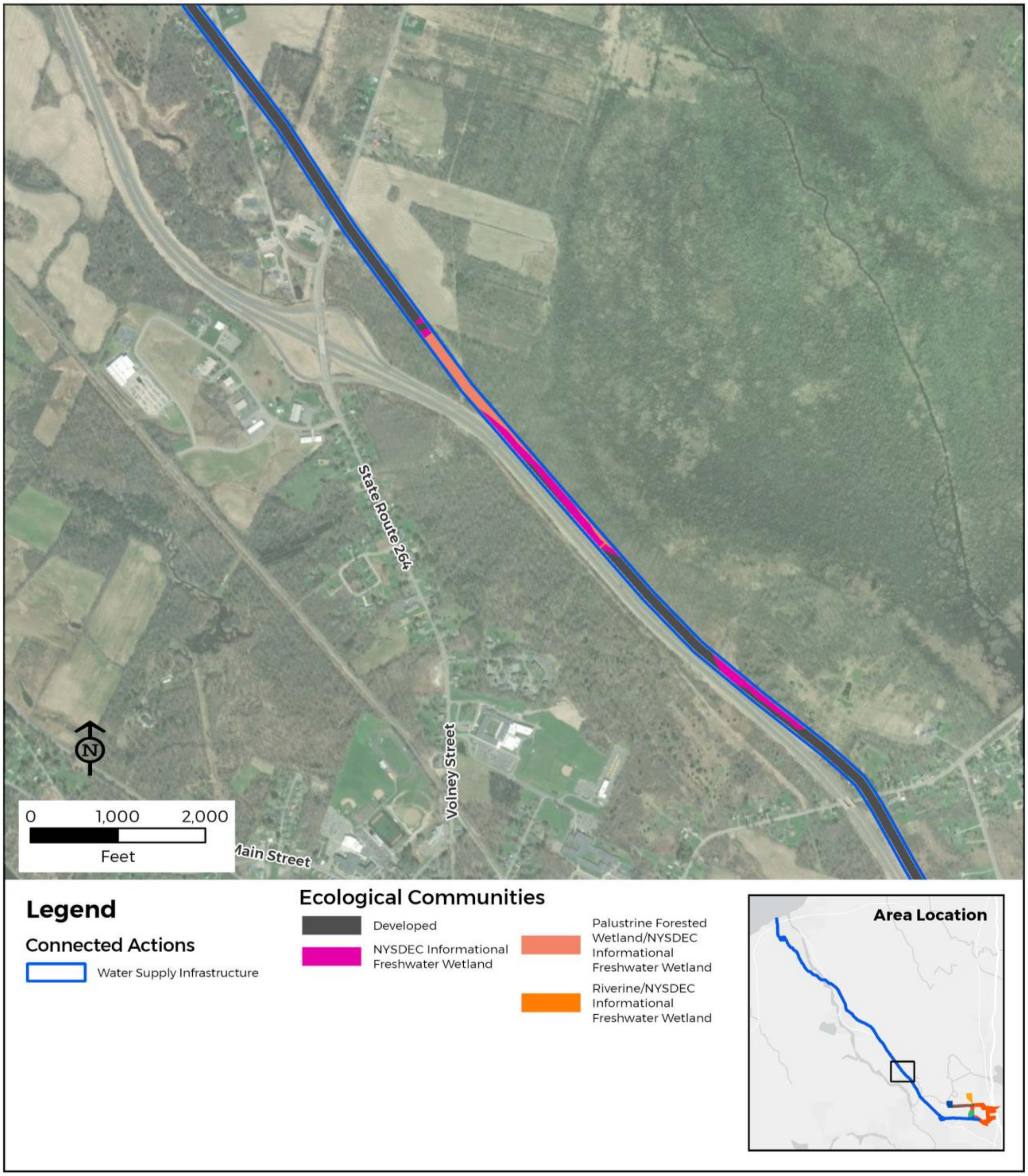
Figure G-14 Water Supply Improvement Ecological Communities



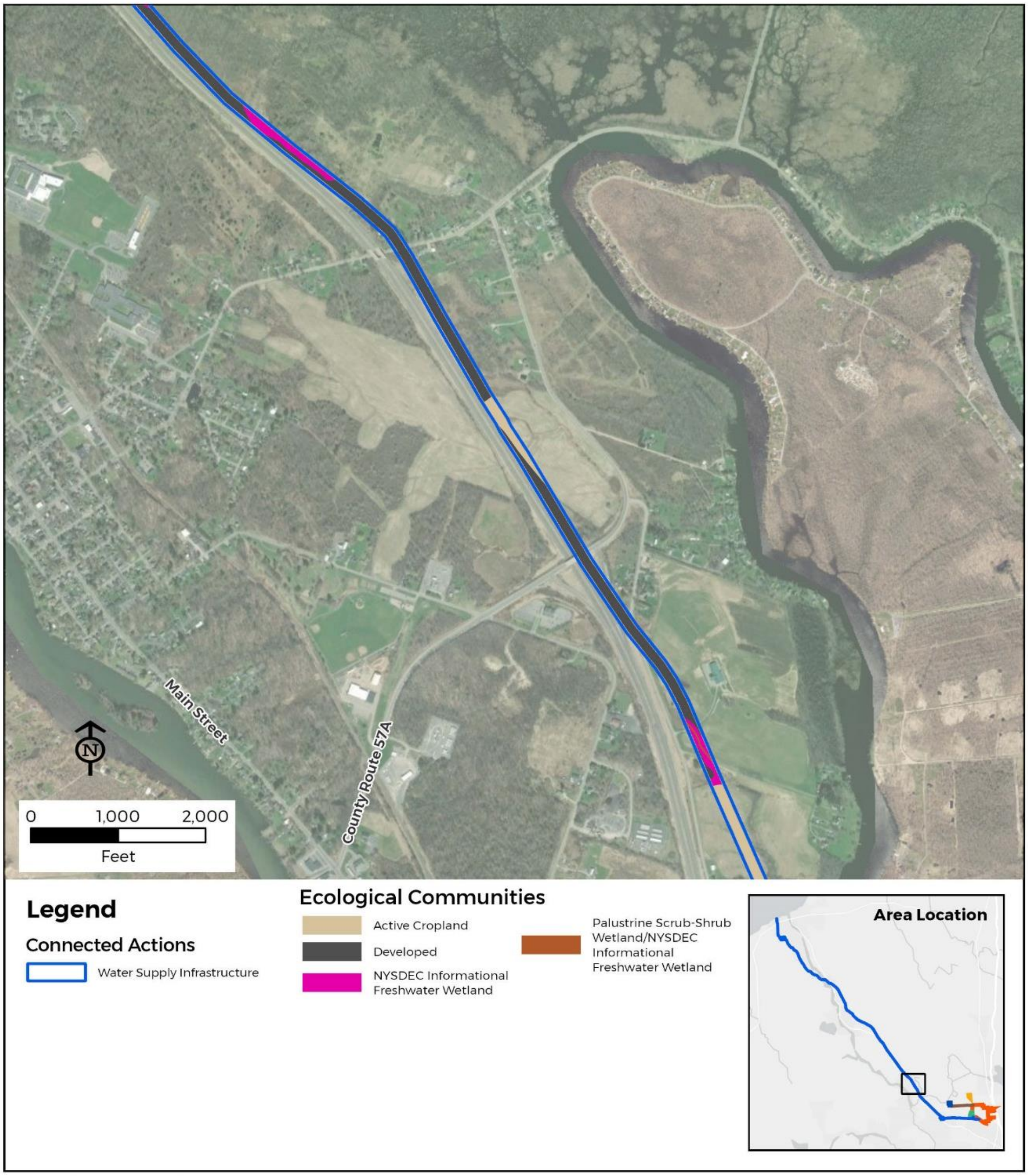
World Imagery: New York State, Maxar
Light Gray Base: Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS

Figure G-15 Water Supply Improvement Ecological Communities



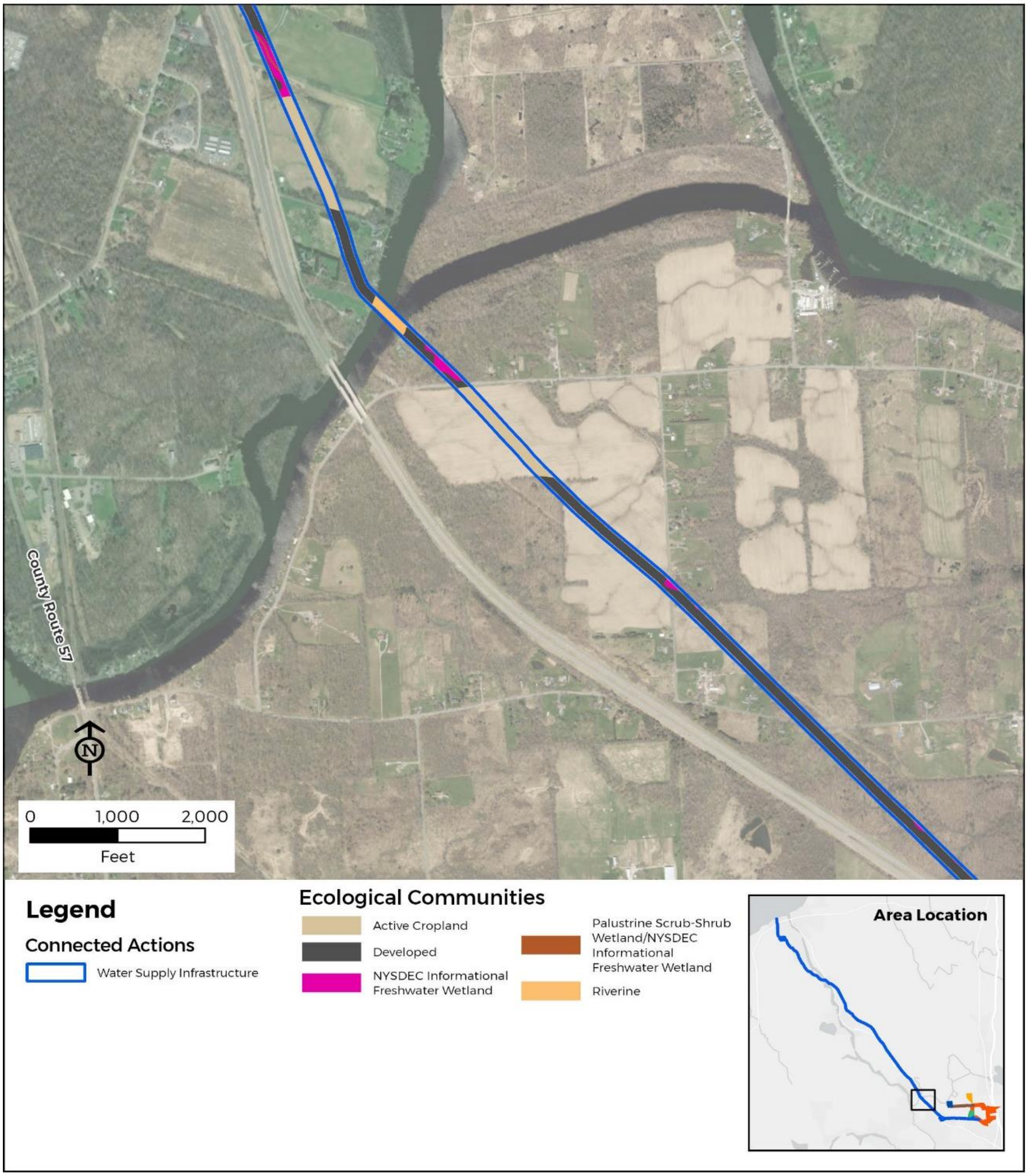
World Imagery: New York State, Maxar
Light Gray Base: Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS

Figure G-16 Water Supply Improvement Ecological Communities



World Imagery: New York State, Maxar
Light Gray Base: Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS

Figure G-17 Water Supply Improvement Ecological Communities



World Imagery: New York State, Maxar
Light Gray Base: Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS

Figure G-18 Water Supply Improvement Ecological Communities

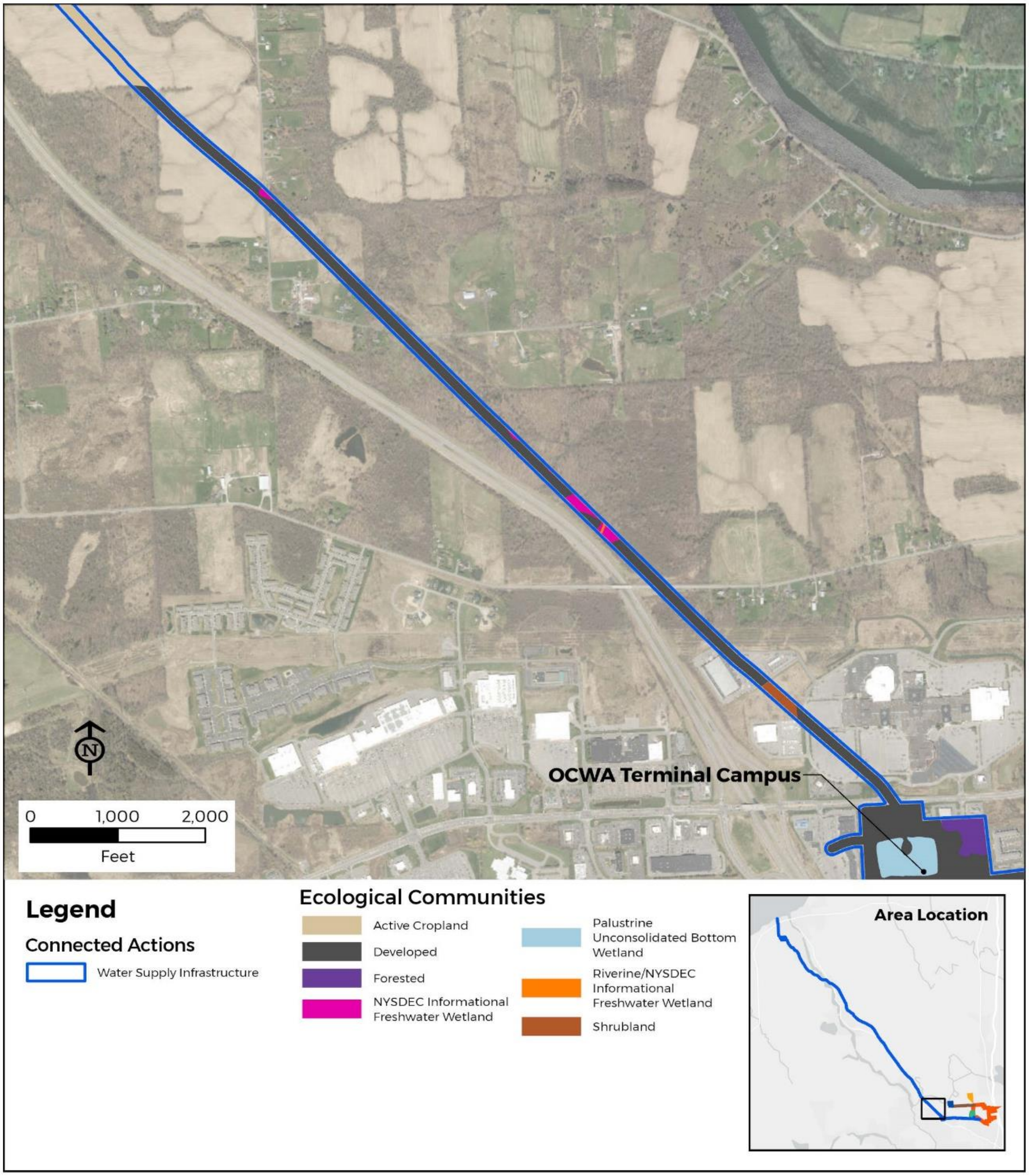


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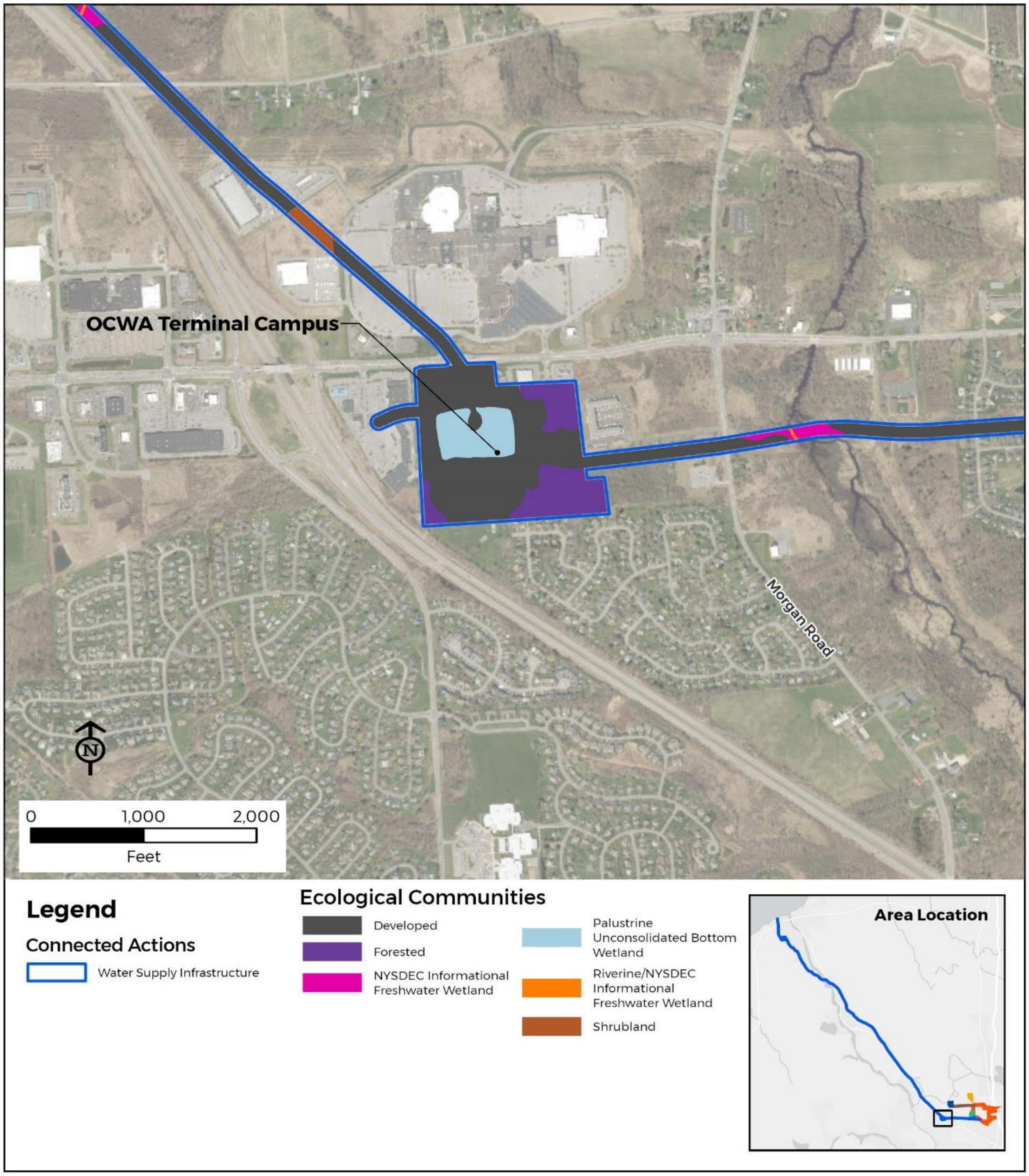
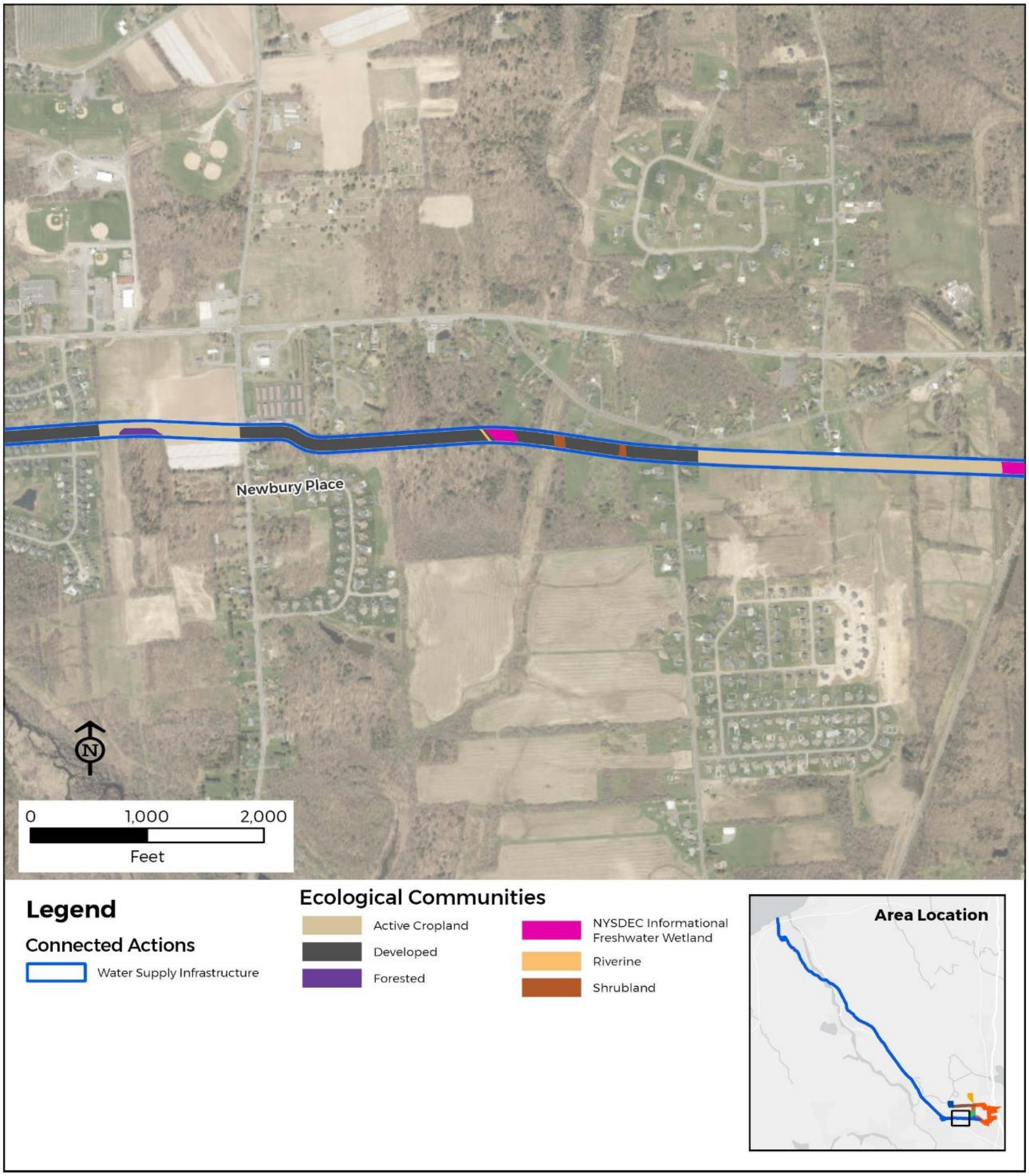
Figure G-19 Water Supply Improvement Ecological Communities



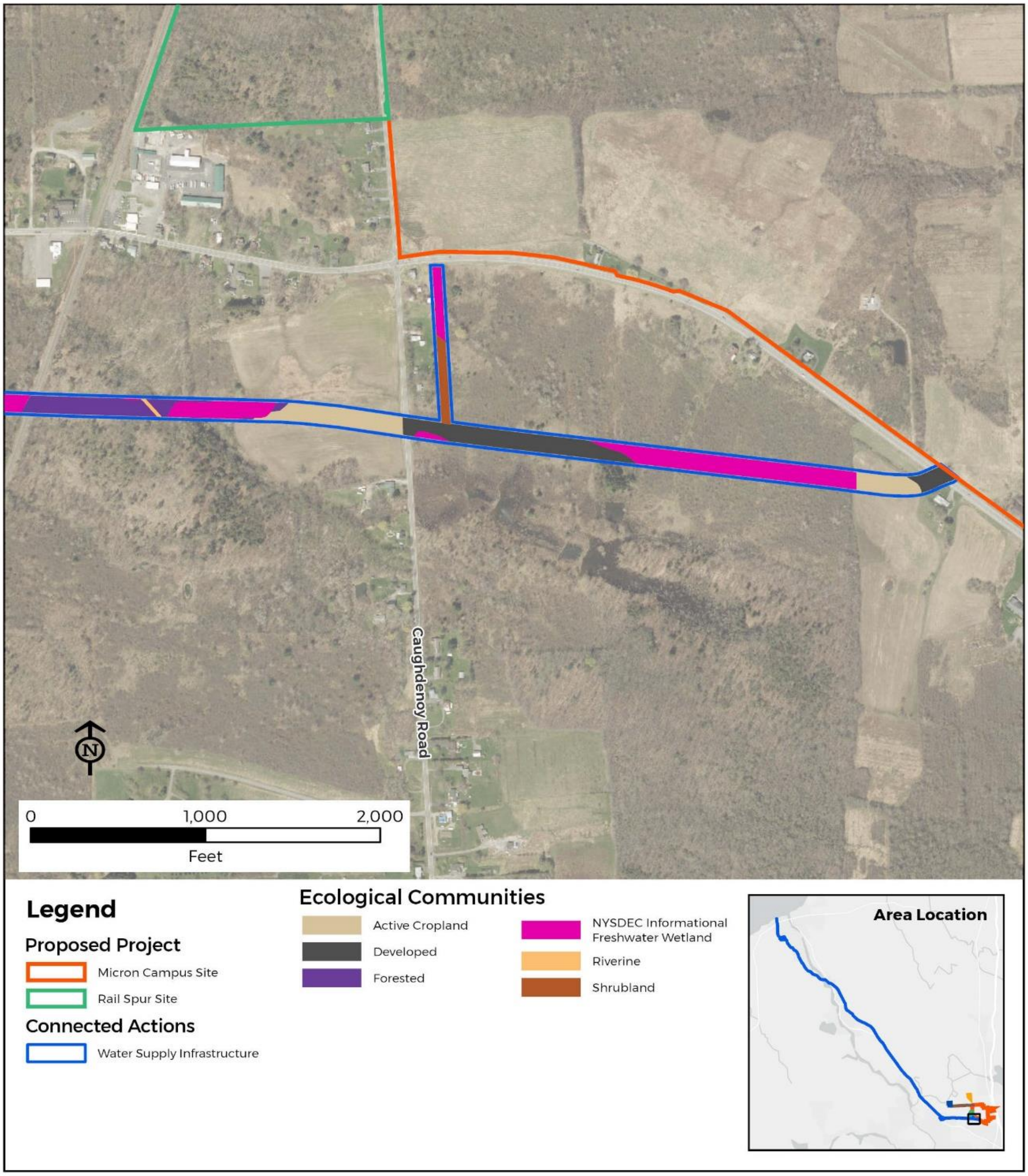
World Imagery: New York State, Maxar
Light Gray Base: Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS

Figure G-20 Water Supply Improvement Ecological Communities



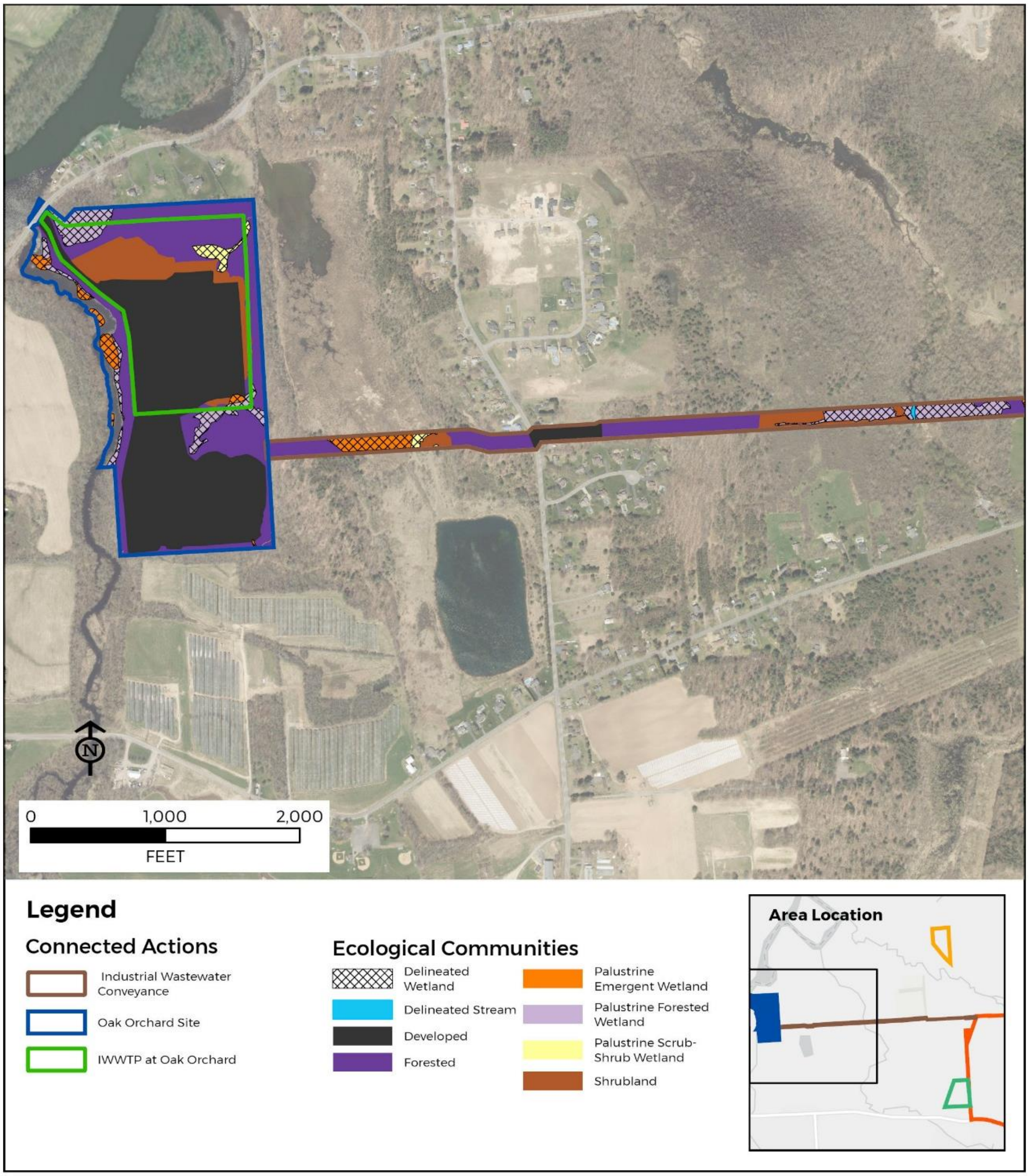
World Imagery: New York State, Maxar
Light Gray Base: Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS

Figure G-21 Water Supply Improvement Ecological Communities



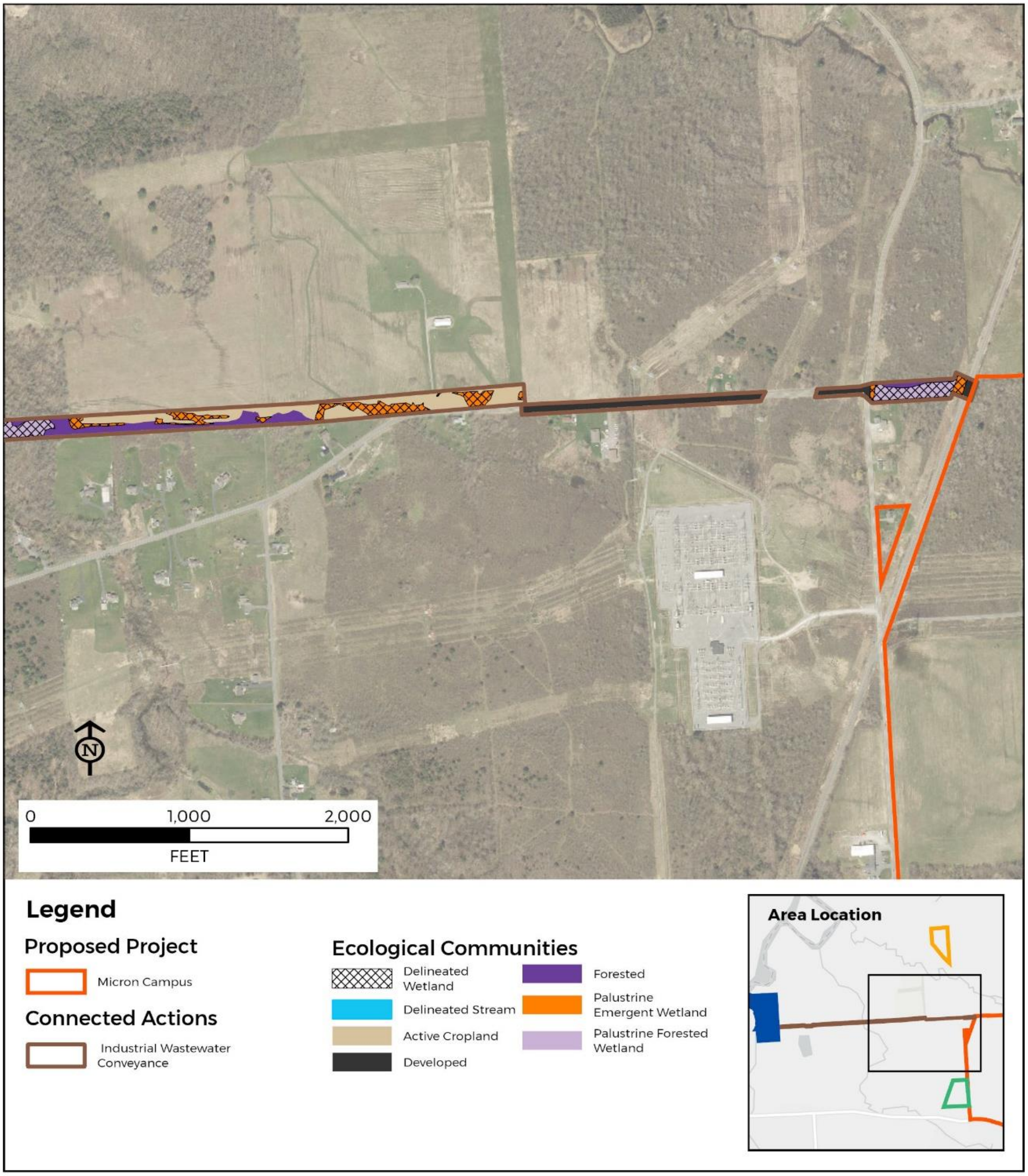
World Imagery: New York State, Maxar
Light Gray Base: Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS

Figure G-22 IWWTP and Wastewater Conveyance Ecological Communities



World Imagery: New York State, Maxar
Light Gray Base: Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

Figure G-23 Wastewater Conveyance Ecological Communities



World Imagery: New York State, Maxar
Light Gray Base: Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

G-3.3 Observed Plant Species (Proposed Project)

Table G-1 lists the plant species observed in the Proposed Project study area.

Table G-1 Observed Plant Species (Proposed Project)

Common Name	Scientific Name	Stratum	Native?	Invasive?
Box-elder maple	*Acer negundo*	Tree	Native	
Norway maple	*Acer platanoides*	Tree	Non-native	X
Red maple	*Acer rubrum*	Tree	Native	
Silver maple	*Acer saccharinum*	Tree	Native	
Sugar maple	*Acer saccharum*	Tree	Native	
Yellow birch	*Betula alleghaniensis*	Tree	Native	
Paper birch	*Betula papyrifera*	Tree	Native	
Gray birch	*Betula populifolia*	Tree	Native	
Musclewood	*Carpinus caroliniana*	Tree	Native	
Bitternut hickory	*Carya cordiformis*	Tree	Native	
Pignut hickory	*Carya glabra*	Tree	Native	
Shagbark hickory	*Carya ovata*	Tree	Native	
Northern catalpa	*Catalpa speciosa*	Tree	Native	X
Eastern redbud	*Cercis canadensis*	Tree	Native	
Hawthorne	*Crataegus crus-galli*	Tree	Native	
American beech	*Fagus grandifolia*	Tree	Native	
White ash	*Fraxinus americana*	Tree	Native	
Green ash	*Fraxinus pennsylvanica*	Tree	Native	
Honeylocust	*Gleditsia triacanthos*	Tree	Native	X
Black walnut	*Juglans nigra*	Tree	Native	
Tulip tree	*Liriodendron tulipifera*	Tree	Native	
Saucer magnolia	*Magnolia × soulangeana*	Tree	Non-native	
Crabapple	*Malus* sp.	Tree	-	-
White mulberry	*Morus alba*	Tree	Non-native	X
Hophornbeam	*Ostrya virginiana*	Tree	Native	
Norway spruce	*Picea abies*	Tree	Non-native	
White spruce	*Picea glauca*	Tree	Native	
Blue spruce	*Picea pungens*	Tree	Native	

Eastern white pine	*Pinus strobus*	Tree	Native	
Scotch pine	*Pinus sylvestris*	Tree	Non-native	
American sycamore	*Platanus occidentalis*	Tree	Native	
Eastern cottonwood	*Populus deltoides*	Tree	Native	
Quaking aspen	*Populus tremuloides*	Tree	Native	
Purple leaf plum	*Prunus cerasifera*	Tree	Non-native	
Black cherry	*Prunus serotina*	Tree	Native	
Callery pear	*Pyrus calleryana*	Tree	Non-native	X
Swamp white oak	*Quercus bicolor*	Tree	Native	
Weeping willow	*Salix babylonica*	Tree	Non-Native	
Pussy willow	*Salix discolor*	Tree	Native	
Black willow	*Salix nigra*	Tree	Native	
American basswood	*Tilia americana*	Tree	Native	
Eastern hemlock	*Tsuga canadensis*	Tree	Native	
American elm	*Ulmus americana*	Tree	Native	
Gray dogwood	*Cornus racemosa*	Shrub	Native	
Red osier dogwood	*Cornus sericea*	Shrub	Native	
Autumn olive	*Elaeagnus umbellata*	Shrub	Non-native	X
Witch hazel	*Hamamelis virginiana*	Shrub	Native	
Tartarian honeysuckle	*Lonicera tatarica*	Shrub	Non-native	X
European buckthorn	*Rhamnus cathartica*	Shrub	Non-native	X
Staghorn sumac	*Rhus typhina*	Shrub	Native	
Multi-flora rose	*Rosa multiflora*	Shrub	Non-native	X
Dappled willow	*Salix integra* 'Hakuro-nishiki'	Shrub	Non-native	
Elderberry	*Sambucus nigra*	Shrub	Native	
Arrowwood viburnum	*Viburnum dentatum*	Shrub	Native	
White snakeroot	*Ageratina altissima*	Herb	Native	
Bugleweed	*Ajuga reptans*	Herb	Non-native	
Garlic mustard	*Alliaria petiolata*	Herb	Non-native	X
New York fern	*Amauropelta noveboracensis*	Herb	Native	
Ragweed	*Ambrosia artemisiifolia*	Herb	Native	
Hemp dogbane	*Apocynum cannabinum*	Herb	Native	
Greater burdock	*Arctium lappa*	Herb	Non-native	X

Common mugwort	*Artemisia vulgaris*	Herb	Non-native	X
Common milkweed	*Asclepias syriaca*	Herb	Native	
Butterfly milkweed	*Asclepias tuberosa*	Herb	Native	
Asparagus	*Asparagus officinalis*	Herb	Non-native	
Common daisy	*Bellis perennis*	Herb	Non-native	
Bladder sedge	*Carex intumescens*	Herb	Native	
Eggbract sedge	*Carex leporina*	Herb	Native	
Fox sedge	*Carex vulpinoidea*	Herb	Native	
Black knapweed	*Centaurea nigra*	Herb	Non-native	X
Common chickory	*Cichorium intybus*	Herb	Non-native	
Bull thistle	*Cirsium vulgare*	Herb	Non-native	X
False nutsedge	*Cyperus strigosus*	Herb	Native	
Orchard grass	*Dactylis glomerata*	Herb	Non-native	
Queen Anne's lace	*Daucus carota*	Herb	Non-native	
Horsetail	*Equisetum* sp.	Herb	Native	
Daisy fleabane	*Erigeron annuus*	Herb	Native	
Joe-pye weed	*Eutrochium purpureum*	Herb	Native	
Wild strawberry	*Fragaria vesca*	Herb	Native	
Bedstraw	*Galium aparine*	Herb	Native	
White avens	*Geum canadense*	Herb	Native	
Jewelweed	*Impatiens capensis*	Herb	Native	
Canada rush	*Juncus canadensis*	Herb	Native	
Soft rush	*Juncus effusus*	Herb	Native	
Path rush	*Juncus tenuis*	Herb	Native	
Purple dead nettle	*Lamium purpureum*	Herb	Non-native	
Butter and eggs	*Linaria vulgaris*	Herb	Non-native	
Spicebush	*Lindera benzoin*	Herb	Native	
Cardinal flower	*Lobelia cardinalis*	Herb	Native	
Purple loosestrife	*Lythrum salicaria*	Herb	Non-native	X
Musk mallow	*Malva moschata*	Herb	Non-native	
Sweet white clover	*Melilotus albus*	Herb	Non-native	
Mint	*Mentha* sp.	Herb	-	
Common evening primrose	*Oenothera biennis*	Herb	Native	

Smooth yellow false foxglove	*Aureolaria flava*	Herb	Native	
Sensitive fern	*Onoclea sensibilis*	Herb	Native	
Royal fern	*Osmunda regalis*	Herb	Native	
Cinnamon fern	*Osmundastrum cinnamomeum*	Herb	Native	
Switch grass	*Panicum virgatum*	Herb	Native	
Arrowleaf arum	*Peltandra virginica*	Herb	Native	
Virginia jumpseed	*Persicaria virginiana*	Herb	Native	
Reed canary grass	*Phalaris arundinacea*	Herb	Native	X
Timothy grass	*Phleum pratense*	Herb	Non-native	X
Common reed	*Phragmites australis*	Herb	Non-native	X
Pokeweed	*Phytolacca americana*	Herb	Native	
Clearweed	*Pilea pumila*	Herb	Native	
English plantain	*Plantago lanceolata*	Herb	Non-native	
Mayapple	*Podophyllum peltatum*	Herb	Native	
Christmas fern	*Polystichum acrostichoides*	Herb	Native	
Meadow buttercup	*Ranunculus bulbosus*	Herb	Non-native	
Japanese knotweed	*Reynoutria japonica*	Herb	Non-native	X
Raspberry	*Rubus* sp.	Herb	-	-
Black-eyed Susan	*Rudbeckia hirta*	Herb	Native	
Curly dock	*Rumex crispus*	Herb	Non-native	
Common rue	*Ruta graveolens*	Herb	Non-native	
Woolgrass	*Scirpus cyperinus*	Herb	Native	
Horse nettle	*Solanum carolinense*	Herb	Native	
Black nightshade	*Solanum nigrum*	Herb	Non-native	
Goldenrod spp.	*Solidago spp.*	Herb	-	
Sow thistle	*Sonchus oleraceus*	Herb	Non-native	
Skunk cabbage	*Symplocarpus foetidus*	Herb	Native	
Poison ivy	*Toxicodendron radicans*	Herb	Native	
Red clover	*Trifolium pratense*	Herb	Non-native	
White clover	*Trifolium repens*	Herb	Non-native	
Wheat	*Triticum aestivum*	Herb	Non-native	
Narrow leaf cattail	*Typha angustifolia*	Herb	Native	X
Stinging nettle	*Urtica dioica*	Herb	Native	X

Common mullein	*Verbascum thapsus*	Herb	Non-native	X
Purple cowvetch	*Vicia cracca*	Herb	Non-native	X
Yellow vetch	*Vicia lutea*	Herb	Non-native	
Hedge bindweed	*Calystegia sepium*	Vine	Non-native	
Field bindweed	*Convolvulus arvensis*	Vine	Non-native	X
Virginia creeper	*Parthenocissus quinquefolia*	Vine	Native	
Mile-a-minute	*Persicaria perfoliata*	Vine	Non-native	X
Common grape vine	*Vitis vinifera*	Vine	Non-native	

Sources: AKRF reconnaissance investigations conducted July 31 through August 2, 2023; NYSDEC, New York State Prohibited and Regulated Invasive Plants (2014), https://www.dec.ny.gov/docs/lands_forests_pdf/isprohibitedplants2.pdf; NYNHP, New York State Invasive Species Tiers (2025), https://www.nynhp.org/invasives/species-tiers-table/. Note: Invasive plants identified in accordance with 6 NYCRR Part 575 and State and Finger Lake PRISM invasive species tier guides (NYNHP, 2025).

G-3.4 Terrestrial Wildlife

This section lists the mammal, bird, and reptile and amphibian species with the potential to occur at or in the vicinity of the Proposed Project sites based on available literature and databases, and identifies species that were observed or documented at or in the vicinity of the Proposed Project sites during the 2023 and 2024 site reconnaissance investigations, visual wildlife encounter surveys, and bat and grassland bird surveys. The section also lists the species with the potential to occur within or adjacent to the Connected Action LODs based on available literature and database search results for the Connected Action study area.

G-3.4.1 Mammals

Table G-2 lists the mammal species with the potential to occur or (in bold) observed in the Proposed Project study area (including direct visual observations or based on observed signs of species presence (e.g., scat and markings).

Table G-2 Mammal Species (Proposed Project)

Common Name	Scientific Name	MC	RSS	CCS
Eastern coyote	*Canis latrans var.*	X	X	X
American beaver	*Castor canadensis*	X		
Star-nosed mole	*Condylura cristata*	X	X	
Virginia opossum	*Didelphis virginiana*	X	X	X
Big brown bat	*Eptesicus fuscus*	X	X	X
Porcupine	*Erethizon dorsatum*	X	X	
Southern flying squirrel	*Glaucomys volans*	X	X	
Silver-haired bat	*Lasionycteris noctivagans*	X	X	
Eastern red bat	*Lasiurus borealis*	X	X	X

Hoary bat	*Lasiurus cinereus*	X	X	X
River otter	*Lontra canadensis*	X		
Bobcat	*Lynx rufus*	X	X	X
Woodchuck	*Marmota monax*	X	X	X
Striped skunk	*Mephitis mephitis*	X	X	X
Meadow vole	*Microtus pennsylvanicus*	X	X	X
Woodland vole	*Microtus pinetorum*	X	X	X
Southern red-backed vole	*Myodes gapperi*	X	X	
Little brown bat	*Myotis lucifugus*	X	X	X
Northern **long-eared bat**	*Myotis septentrionalis*	X	X	
Indiana bat	*Myotis sodalis*	X	X	
Mink	*Neovison vison*	X		
White-tailed deer	*Odocoileus virginianus*	X	X	X
Muskrat	*Ondatra zibethicus*	X		
Tricolored bat	*Perimyotis subflavus*	X	X	
White-footed mouse	*Peromyscus leucopus*	X	X	X
Deer mouse	*Peromyscus maniculatus*	X	X	
Raccoon	*Procyon lotor*	X	X	X
Eastern mole	*Scalopus aquaticus*	X	X	X
Gray squirrel	*Sciurus carolinensis*	X	X	X
Red **squirrel**	*Sciurus vulgaris*	X		
Masked shrew	*Sorex cinereus*	X	X	
Smoky shrew	*Sorex fumeus*	X	X	
Eastern **cottontail**	*Sylvilagus floridanus*	X	X	X
Eastern chipmunk	*Tamias striatus*	X	X	X
Red fox	*Vulpes vulpes*	X	X	X
American black bear	*Ursus americanus*	X	X	

Sources: Observations during wildlife surveys and site reconnaissance investigations; DeGraaf and Yamasaki (2021). Notes: Species in bold were directly observed or observed based on signs (e.g., scat and markings) during visual encounter wildlife surveys (June 23, 2023, and January 30, 2024, through February 1, 2024), site reconnaissance investigations to map ecological communities (July 31 to Aug 2, 2023), and bat and grassland breeding bird surveys conducted during the spring and summer of 2023. Species marked with an X have the potential to overwinter at the site indicated based on their habitat associations. The list in Table G-2 includes species with the potential to occur in the LODs for the telecommunications improvements.

Table G-3 lists the mammals with the potential to occur within or in the vicinity of the Connected Action LODs.

Table G-3 Mammal Species (Connected Actions)

Common Name	Scientific Name
Eastern coyote	*Canis latrans var.*
American beaver	*Castor canadensis*
Star-nosed mole	*Condylura cristata*
Virginia opossum	*Didelphis virginiana*
Big brown bat	*Eptesicus fuscus*
Porcupine	*Erethizon dorsatum*
Southern flying squirrel	*Glaucomys volans*
Silver-haired bat	*Lasionycteris noctivagans*
Eastern red bat	*Lasiurus borealis*
Hoary bat	*Lasiurus cinereus*
Bobcat	*Lynx rufus*
Woodchuck	*Marmota monax*
Striped skunk	*Mephitis mephitis*
Meadow vole	*Microtus pennsylvanicus*
Woodland vole	*Microtus pinetorum*
Southern red-backed vole	*Myodes gapperi*
Little brown bat	*Myotis lucifugus*
Northern long-eared bat	*Myotis septentrionalis*
Indiana bat	*Myotis sodalis*
Mink	*Neovison vison*
White-tailed deer	*Odocoileus virginianus*
Muskrat	*Ondatra zibethicus*
Tricolored bat	*Perimyotis subflavus*
White-footed mouse	*Peromyscus leucopus*
Deer mouse	*Peromyscus maniculatus*
Raccoon	*Procyon lotor*
Eastern mole	*Scalopus aquaticus*
Gray squirrel	*Sciurus carolinensis*
Masked shrew	*Sorex cinereus*

Smoky shrew	*Sorex fumeus*
Eastern cottontail	*Sylvilagus floridanus*
Eastern chipmunk	*Tamias striatus*
American black bear	*Ursus americanus*

Source: DeGraaf and Yamasaki 2001.

G-3.4.2 Birds

Bird species with the potential to occur within the Proposed Project and Connected Action study areas were identified based on a review of the New York State Breeding Bird Atlas (BBA), which conducts a periodic census of the distribution of the State's breeding birds. The review of the BBA included a review of the BBA II census from 2000-2005 and the most recent BBA III census from 2020-2024 for the census blocks containing the Proposed Project sites (BBA II census blocks 4078C, 3978D, and 3978B and the BBA III Brewerton CE and NE census blocks).

The Proposed Project sites contain suitable breeding habitats for a variety of resident and migratory bird species. BBA II documented 105 species as confirmed or probable / possible breeders within the census blocks that include the Micron Campus site and the Rail Spur Site and BBA III documented 99 species as confirmed or probable / possible breeders within the updated census blocks.[21] Based on this information, 103 species have the potential to occur at the Micron Campus site and 41 species have the potential to occur at the Rail Spur Site, and 58 of those species were observed during the site investigations and surveys described above; 31 species have the potential to breed at the Childcare Site and 23 of those species were observed during the site investigations and surveys.

Table G-4 lists the bird species with the potential to occur in the Proposed Project study area based on BBA II and III data or (in bold) observed in the study area during site investigations and surveys, and identifies species with the potential to breed at each site (indicated by an X) based on their habitat associations (Billerman et al. 2022).

Table G-4 BBA Bird Species (Proposed Project)

Common Name	Scientific Name	BBA II	BBA III	MC	RSS	CCS
Cooper's hawk†	*Accipiter cooperii*	X		X		
Sharp-shinned hawk†	***Accipiter striatus***	X	X	X		
Spotted sandpiper	*Actitis macularius*	X	X	X		
Red-winged blackbird	***Agelaius phoeniceus***	X	X	X	X	X
Wood duck	***Aix sponsa***	X	X	X		
Grasshopper sparrow†	*Ammodramus savannarum*	X				
Mallard	***Anas platyrhynchos***	X	X	X		

[21] Although the BBA III census was completed in 2024, as of June 13, 2025, the BBA III Brewerton NE Block is still considered incomplete.

Sandhill crane	*Antigone canadensis*		X			
Ruby-throated hummingbird	***Archilochus colubris***	X	X	X	X	X
Great blue heron	***Ardea herodias***	X	X	X		
Tufted titmouse	***Baeolophus bicolor***	X	X	X	X	
Upland sandpiper[^]	*Bartramia longicauda*	X				
Cedar waxwing	***Bombycilla cedrorum***	X	X	X		
Ruffed grouse	*Bonasa umbellus*	X		X		
American bittern[†]	*Botaurus lentiginosus*	X	X			
Canada goose	***Branta canadensis***	X	X	X		X
Great-horned owl	***Bubo virginianus***	X	X	X		
Red-tailed hawk	***Buteo jamaicensis***	X	X	X		
Green heron	***Butorides virescens***	X	X	X		
Whip-poor-will[†]	*Caprimulgus vociferus*	X		X		
Northern cardinal	***Cardinalis cardinalis***	X	X	X	X	X
House finch	*Carpodacus mexicanus*	X	X	X	X	X
Purple finch	*Carpodacus purpureus*	X		X	X	X
Turkey vulture	*Cathartes aura*	X	X	X		
Veery	***Catharus fuscescens***	X	X	X	X	
Brown creeper	*Certhia americana*		X	X	X	
Chimney swift	*Chaetura pelagica*	X	X	X		
Killdeer	***Charadrius vociferus***	X	X	X		X
Northern harrier[^]	***Circus hudsonius***	X	X	X		X
Marsh wren	*Cistothorus palustris*	X	X	X		
Yellow-billed cuckoo	*Coccyzus americanus*	X		X		
Black-billed cuckoo	*Coccyzus erythropthalmus*	X				
Northern flicker	***Colaptes auratus***	X	X	X	X	
Rock pigeon	*Columba livia*	X	X	X		
Eastern wood-pewee	***Contopus virens***	X	X	X	X	
American crow	***Corvus brachyrhynchos***	X	X	X	X	X
Common Raven	*Corvus corax*		X			
Blue jay	***Cyanocitta cristata***	X	X	X	X	X
Chestnut-sided warbler	*Dendroica pensylvanica*	X	X	X	X	
Yellow warbler	***Dendroica petechia***	X	X	X	X	

Pine warbler	*Dendroica pinus*	X		X		
Black-throated green warbler	*Dendroica virens*	X		X		
Bobolink	***Dolichonyx oryzivorus***	X	X	X		
Pileated woodpecker	***Dryocopus pileatus***	X	X	X		
Gray catbird	***Dumetella carolinensis***	X	X	X	X	X
Alder flycatcher	***Empidonax alnorum***	X	X	X		
Least flycatcher	*Empidonax minimus*	X	X	X		
Willow flycatcher	***Empidonax traillii***	X	X	X		
Rusty blackbird	*Euphagus carolinus*		X			
Merlin	*Falco columbarius*		X			
American kestrel	***Falco sparverius***	X	X	X		
Wilson's snipe	*Gallinago delicata*	X	X	X		
Common gallinule	*Gallinula galeata*		X	X		
Common yellowthroat	***Geothlypis trichas***	X	X	X	X	X
Bald eagle^	*Haliaeetus leucocephalus*		X			
Barn swallow	***Hirundo rustica***	X	X	X		
Wood thrush	***Hylocichla mustelina***	X	X	X		
Baltimore oriole	***Icterus galbula***	X	X	X	X	X
Orchard oriole	*Icterus spurius*	X		X	X	X
Belted kingfisher	*Megaceryle alcyon*	X		X		
Red-bellied woodpecker	***Melanerpes carolinus***	X	X	X		
Wild turkey	***Meleagris gallopavo***	X	X	X		
Swamp sparrow	***Melospiza georgiana***	X	X	X		
Song sparrow	***Melospiza melodia***	X	X	X	X	X
Northern mockingbird	***Mimus polyglottos***	X	X	X	X	X
Brown-headed cowbird	***Molothrus ater***	X	X	X	X	X
Great crested flycatcher	***Myiarchus crinitus***	X	X	X		
Osprey[†]	***Pandion haliaetus***	X	X	X		
Northern waterthrush	*Parkesia noveboracensis*		X			
House sparrow	*Passer domesticus*	X	X	X		X
Savannah sparrow	***Passerculus sandwichensis***	X	X	X		
Indigo bunting	***Passerina cyanea***	X	X	X	X	X
Cliff swallow	*Petrochelidon pyrrhonota*	X	X			

Ring-necked pheasant	*Phasianus colchicus*	X		X		
Rose-breasted grosbeak	***Pheucticus ludovicianus***	X	X	X	X	
Downy woodpecker	***Picoides pubescens***	X	X	X	X	
Hairy woodpecker	*Picoides villosus*	X	X	X	X	
Eastern towhee	***Pipilo erythrophthalmus***	X	X	X	X	
Scarlet tanager	*Piranga olivacea*	X		X		
Pied-billed grebe^	*Podilymbus podiceps*	X				
Black-capped chickadee	***Poecile atricapillus***	X	X	X	X	
Blue-gray gnatcatcher	*Polioptila caerulea*	X	X	X	X	
Vesper Sparrow†	*Pooecetes gramineus*		X			
Sora	*Porzana carolina*		X			
Purple martin	*Progne subis*	X		X		
Common grackle	***Quiscalus quiscula***	X	X	X		
Virginia rail	*Rallus limicola*	X	X	X		
Ruby-crowned kinglet	*Regulus calendula*	X		X		
Bank swallow	*Riparia riparia*	X		X		
Eastern phoebe	***Sayornis phoebe***	X	X	X	X	X
American woodcock	***Scolopax minor***	X	X	X	X	X
Ovenbird	***Seiurus aurocapilla***	X	X	X	X	
Cerulean warbler†	*Setophaga cerulea*		X			
Prairie warbler	*Setophaga discolor*		X			
American redstart	*Setophaga ruticilla*	X	X	X	X	X
Blackpoll warbler	*Setophaga striata*		X			
Eastern bluebird	***Sialia sialis***	X	X	X		X
Red-breasted nuthatch	*Sitta canadensis*	X		X		
White-breasted nuthatch	***Sitta carolinensis***	X	X	X	X	
Yellow-bellied sapsucker	*Sphyrapicus varius*	X	X	X	X	
American goldfinch	***Spinus tristis***	X	X	X	X	
Clay-colored sparrow	*Spizella pallida*		X			
Chipping sparrow	***Spizella passerina***	X	X	X		X
Field sparrow	***Spizella pusilla***	X	X	X		X
Northern rough-winged swallow	*Stelgidopteryx serripennis*	X		X		
Barred owl	*Strix varia*	X		X		

Eastern meadowlark	***Sturnella magna***	X	X	X		
European starling	***Sturnus vulgaris***	X	X	X		X
Tree swallow	***Tachycineta bicolor***	X	X	X		X
Carolina wren	*Thryothorus ludovicianus*		X	X	X	X
Brown thrasher	*Toxostoma rufum*	X	X	X		
House wren	***Troglodytes aedon***	X	X	X	X	X
American robin	***Turdus migratorius***	X	X	X	X	X
Eastern kingbird	***Tyrannus tyrannus***	X	X	X	X	X
Golden-winged warbler†	***Vermivora chrysoptera***	X		X		
Blue-winged warbler	***Vermivora pinus***	X	X	X	X	
Nashville warbler	*Vermivora ruficapilla*	X		X		
Yellow-throated vireo	*Vireo flavifrons*		X	X		
Warbling vireo	*Vireo gilvus*	X	X	X		
Red-eyed vireo	***Vireo olivaceus***	X	X	X		
Mourning dove	***Zenaida macroura***	X	X	X	X	X
White-throated sparrow	***Zonotrichia albicollis***		X			

Sources: BBA II (census blocks 4078C, 3978D, and 3978B), https://extapps.dec.ny.gov/cfmx/extapps/bba/ (accessed June 13, 2025); BBA III (Brewerton CE and NE census blocks), https://ebird.org/atlasny/home (accessed June 13, 2025); Billerman et al. 2022. Notes: BBA III was conducted using available data uploaded by volunteer citizen scientists and occasionally reviewed by eBird regional reviewers. Census blocks are roughly nine square miles and are a subset of the 7.5' USGS Topo Quad in which the block is located (the USGS Topo Quads are broken up into six smaller blocks). The BBA III blocks do not correlate directly with the BBA II survey blocks. Although the BBA III census was completed in 2024, as of June 13, 2025, the Brewerton NE block is considered incomplete. Table G-4 only includes bird species based on "confirmed", "probable", or "possible" breeding evidence. * = State listed endangered species; ^ = State-listed threatened species; † = State listed species of special concern. Species in bold were observed during visual encounter wildlife surveys (June 23, 2023, and January 30, 2024, through February 1, 2024), site reconnaissance investigations to map ecological communities (July 31 to Aug 2, 2023), and bat and grassland breeding bird surveys conducted during the spring and summer of 2023. Species marked with an X have the potential to breed at the site indicated based on their habitat associations.

Bird species with the potential to occur within the Proposed Project and Connected Action study areas during the winter also were identified based on a review of recent historic data (2018-2022) from the Audubon Christmas Bird Count (CBC), a census organized by the National Audubon Society performed across the United States between December 14 and January 5 by volunteer birdwatchers within 15-mile diameter circles. The 2018-2022 CBCs recorded an average of 83 species in the Syracuse circle (ID 55604), which is centered at the Syracuse Hancock International Airport and includes the Micron Campus site, Rail Spur Site, and Childcare Site within its 15-mile diameter.

Based on this information, 55 bird species have the potential to occur at the Micron Campus site and 40 species have the potential to occur at the Rail Spur Site, and 26 of those species were observed during the site investigations and surveys, indicating that those species are year-round residents at those sites; 45 species have the potential to occur at the Childcare Site and 26 of those species were observed during the site investigations and surveys, indicating that those species are year-round residents at that site.

Table G-5 lists the bird species with the potential to occur at the Proposed Project sites based on 2018-2022 CBC results for the Syracuse circle or (in bold) observed in the study area during site investigations and surveys, and identifies species with the potential to overwinter at each site (indicated by an X) based on their habitat associations (Billerman et al. 2022).

Table G-5 CBC Bird Species (Proposed Project)

Common Name	Scientific Name	MC	RSS	CCS
Common redpoll	*Acanthis flammea*	X	X	X
Hoary redpoll	*Acanthis hornemanni*	X	X	X
Cooper's hawk†	*Accipiter cooperii*	X	X	X
Sharp-shinned hawk†	***Accipiter striatus***	X	X	X
Red-winged blackbird	***Agelaius phoeniceus***			
Wood duck	***Aix sponsa***			
Northern pintail	*Anas acuta*			
American wigeon	*Anas americana*			
Green-winged teal	*Anas crecca*			
Mallard	***Anas platyrhynchos***			
American black duck	*Anas rubripes*			
Gadwall	*Anas strepera*			
Great egret	*Ardea alba*			
Great blue heron	***Ardea herodias***			
Lesser scaup	*Aythya affinis*			
Redhead	*Aythya americana*			
Ring-necked duck	*Aythya collaris*			
Greater scaup	*Aythya marila*			
Canvasback	*Aythya valisineria*			
Tufted titmouse	***Baeolophus bicolor***	X	X	X
Cedar waxwing	***Bombycilla cedrorum***	X	X	X
Canada goose	***Branta canadensis***	X		X
Cackling goose	*Branta hutchinsii*			
Snowy owl	*Bubo scandiacus*	X		X
Great horned owl	***Bubo virginianus***	X	X	X
Bufflehead	*Bucephala albeola*			
Common goldeneye	*Bucephala clangula*			
Red-tailed hawk	***Buteo jamaicensis***	X	X	X

Northern cardinal	***Cardinalis cardinalis***	X	X	X
Turkey vulture	*Cathartes aura*			
Hermit thrush	*Catharus guttatus*	X	X	
Blue jay	***Cayanocitta cristata***	X	X	X
Brown creeper	*Certhia americana*	X	X	X
Snow goose	*Chen caerulescens*			
Bonaparte's gull	*Chroicocephalus philadelphia*			
Northern harrier^	***Circus cyaneus***	X		X
Marsh wren	*Cistothorus palustris*			
Evening grosbeak	*Coccothraustes vespertinus*	X	X	X
Northern flicker	*Colaptes auratus*			
Rock pigeon	*Columba livia*	X		
Black vulture	*Coragyps atratus*			
American crow	***Corvus brachyrhynchos***	X	X	X
Common raven	***Corvus corax***	X	X	X
Fish crow	*Corvus ossifragus*	X	X	X
Tundra swan	*Cygnus columbianus*			
Mute swan	*Cygnus olor*			
Pileated woodpecker	***Dryocopus pileatus***	X	X	X
Gray catbird	***Dumetella carolinesis***			
Merlin	*Falco columbarius*			
Peregrine falcon*	*Falco peregrinus*			
American kestrel	***Falco sparverius***			
American coot	*Fulica americana*			
Common loon†	*Gavia immer*			
Red-throated loon	*Gavia stellata*			
Common yellowthroat	***Geothlypis trichas***			
House finch	*Haemorhous mexicanus*	X	X	X
Purple finch	*Haemorhous purpureus*	X	X	X
Bald eagle^	*Haliaeetus leucocephalus*			
Dark-eyed junco	***Junco hyemalis***	X	X	X
Northern shrike	*Lanius excubitor*			
Herring gull	*Larus argentatus*			

Ring-billed gull	*Larus delawarensis*			
Lesser black-backed gull	*Larus fuscus*			
Glaucous gull	*Larus hyperboreus*			
Great black-backed gull	*Larus marinus*			
Hooded merganser	*Lophodytes cucullatus*			
Belted kingfisher	*Megaceryle alcyon*			
Eastern screech-owl	*Megascops asio*	X	X	X
Red-bellied woodpecker	***Melanerpes carolinus***	X	X	X
Black scoter	*Melanitta americana*			
White-winged scoter	*Melanitta fusca*			
Surf scoter	*Melanitta perspicillata*			
Wild turkey	***Meleagris gallopavo***	X	X	X
Swamp sparrow	***Melospiza georgiana***			
Song sparrow	***Melospiza melodia***	X	X	X
Common merganser	*Mergus merganser*			
Red-breasted merganser	*Mergus serrator*			
Northern mockingbird	*Mimus polyglottos*	X	X	X
Brown-headed cowbird	***Molothrus ater***	X	X	X
House sparrow	*Passer domesticus*	X		X
Savannah sparrow	*Passerculus sandwichensis*			
Double-crested cormorant	*Phalacrocorax auritus*			
Downy woodpecker	***Picoides pubescens***	X	X	X
Hairy woodpecker	*Picoides villosus*	X	X	X
Pine grosbeak	*Pinicola enucleator*	X		
Snow bunting	*Plecctrophenax nivalis*	X		X
Horned grebe	*Podiceps auritus*			
Red-necked grebe	*Podiceps grisgena*			
Pied-billed grebe^	*Podilymbus podiceps*			
Black-capped chickadee	***Poecile atricapillus***	X	X	X
Common grackle	*Quiscalus quiscula*			
Virginia rail	*Rallus limicola*			
Ruby-crowned kinglet	*Regulus calendula*	X	X	
Golden-crowned kinglet	*Regulus satrapa*	X	X	

Eastern phoebe	***Sayornis phoebe***			
Yellow-rumped warbler	*Setophaga coronata*			
Eastern bluebird	*Siala sialis*	X		
Red-breasted nuthatch	*Sitta canadensis*	X		
White-breasted nuthatch	***Sitta carolinensis***	X	X	X
Yellow-bellied sapsucker	*Sphyrapicus varius*	X	X	X
Pine siskin	*Spinus pinus*	X		
American goldfinch	***Spinus tristis***	X	X	X
Chipping sparrow	*Spizella passerina*	X		X
Field sparrow	***Spizella pusilla***	X		X
American tree sparrow	*Spizelloides arborea*	X		
Barred owl	*Strix varia*	X	X	X
European starling	***Sturnus vulgaris***	X		X
Carolina wren	*Thryothorus ludovicianus*	X	X	X
Winter wren	*Troglodytes hiemalis*	X		
American robin	***Turdus migratorius***	X	X	X
Mourning dove	***Zenaida macroura***	X	X	X
White-throated sparrow	***Zonotrichia albicollis***	X	X	X
White-crowned sparrow	*Zonotrichia leucophrys*	X	X	X

Sources: Audubon Christmas Bird Count (2018-2022) for Syracuse Circle ID 55604, https://netapp.audubon.org/cbcobservation/ (accessed June 13, 2025); Billerman et al. 2022. Notes: * = State listed endangered species; ^ = State-listed threatened species; † = State listed species of special concern. Species in bold were observed during visual encounter wildlife surveys (June 23, 2023, and January 30, 2024, through February 1, 2024), site reconnaissance investigations to map ecological communities (July 31 to Aug 2, 2023), and bat and grassland breeding bird surveys conducted during the spring and summer of 2023. Species marked with an X have the potential to overwinter at the site indicated based on their habitat associations.

Table G-6 lists bird species documented during the grassland breeding survey conducted at the Micron Campus site by AKRF field ecologists from May 15 to July 12, 2023, using the NYSDEC Survey Protocol for State listed Breeding Grassland Bird Species.

Table G-6 Grassland Breeding Birds (Micron Campus)

Common Name	Scientific Name
Mallard	*Anas platyrhynchos*
Great blue heron	*Ardea herodias*
Cedar waxwing	*Bombycilla cedrorum*
Canada goose	*Branta canadensis*
Great-horned owl	*Bubo virginianus*
Green heron	*Butorides virescens*

Chimney swift	*Chaetura pelagica*
Killdeer	*Charadrius vociferus*
Northern harrier^	*Circus hudsonius*
Common raven	*Corvus corax*
Blue jay	*Cyanocitta cristata*
Bobolink	*Dolichonyx oryzivorus*
Gray catbird	*Dumetella carolinensis*
Alder flycatcher	*Empidonax alnorum*
Least flycatcher	*Empidonax minimus*
American kestrel	*Falco sparverius*
Common yellowthroat	*Geothlypis trichas*
Barn swallow	*Hirundo rustica*
Baltimore oriole	*Icterus galbula*
Red-bellied woodpecker	*Melanerpes carolinus*
Brown-headed cowbird	*Molothrus ater*
Great-crested flycatcher	*Myiarchus crinitus*
Osprey†	*Pandion haliaetus*
Indigo bunting	*Passerina cyanea*
Cliff swallow	*Petrochelidon pyrrhonota*
Eastern towhee	*Pipilo erythrophthalmus*
Eastern phoebe	*Sayornis phoebe*
American woodcock	*Scolopax minor*
American goldfinch	*Spinus tristis*
Field sparrow	*Spizella pusilla*
Eastern meadowlark	*Sturnella magna*
European starling	*Sturnus vulgaris*
American robin	*Turdus migratorius*
Eastern kingbird	*Tyrannus tyrannus*
Golden-winged warbler†	*Vermivora chrysoptera*
Blue-winged warbler	*Vermivora cyanoptera*
Mourning dove	*Zenaida macroura*

Source: Grassland breeding bird survey conducted at the Micron Campus site by AKRF field ecologists from May 15 to July 12, 2023, using NYSDEC Survey Protocol for State listed Breeding Grassland Bird Species (Mar. 2022). Notes: * = State listed endangered species; ^ = State-listed threatened species; † = State listed species of special concern.

Table G-7 lists the bird species with the potential to occur within or adjacent to the Connected Action LODs based on BBA II and III data for the census blocks containing the Connected Actions (BBA II census blocks 3780A, 3780B, 3780D, 3781C, 3878B, 3879A, 3879B, 3879D, 3880C, 3978A, 3978C, 3978D, and 4078C and the BBA III Baldwinsville CE, Baldwinsville NE, Brewerton CE, Brewerton CW, Fulton CE, Fulton NE, Fulton NW, Oswego East SW, Oswego West CE, Oswego West NE, Oswego West SE, Pennellville CW, Pennellville SE, and Pennellville SW census blocks).

Table G-7 BBA Bird Species (Connected Actions)

Common Name	Scientific Name	BBA II	BBA III
Cooper's hawk†	*Accipiter cooperii*	X	X
Northern goshawk†	*Accipiter gentilis*	X	
Sharp-shinned hawk	*Accipiter striatus*	X	X
Spotted sandpiper	*Actitis macularius*	X	X
Red-winged blackbird	*Agelaius phoeniceus*	X	X
Wood duck	*Aix sponsa*	X	X
Henslow's sparrow^	*Ammodramus henslowii*		X
Grasshopper sparrow†	*Ammodramus savannarum*	X	X
Mallard	*Anas platyrhynchos*	X	X
American black duck	*Anas rubripes*	X	X
Sandhill crane	*Antigone canadensis*		X
Eastern Whip-poor-will	*Antrostomus vociferus*		X
Ruby-throated hummingbird	*Archilochus colubris*	X	X
Great blue heron	*Ardea herodias*	X	X
Tufted titmouse	*Baeolophus bicolor*	X	X
Upland sandpiper^	*Bartramia longicauda*	X	
Cedar waxwing	*Bombycilla cedrorum*	X	X
Ruffed grouse	*Bonasa umbellus*	X	X
American bittern†	*Botaurus lentiginosus*	X	X
Brant	*Branta bernicla*		X
Canada goose	*Branta canadensis*	X	X
Great horned owl	*Bubo virginianus*	X	X
Bufflehead	*Bucephala albeola*		X
Red-tailed hawk	*Buteo jamaicensis*	X	X
Red-shouldered hawk†	*Buteo lineatus*	X	
Broad-winged hawk	*Buteo platypterus*	X	X

Green heron	*Butorides virescens*	X	X
Canada warbler	*Cardellina canadensis*	X	X
Northern cardinal	*Cardinalis cardinalis*	X	X
Turkey vulture	*Cathartes aura*	X	X
Veery	*Catharus fuscescens*	X	X
Hermit thrush	*Catharus guttatus*		X
Brown creeper	*Certhia americana*	X	X
Chimney swift	*Chaetura pelagica*	X	X
Killdeer	*Charadrius vociferus*	X	X
Common nighthawk†	*Chordeiles minor*		X
Northern harrier^	*Circus hudsonius*	X	X
Marsh wren	*Cistothorus palustris*	X	X
Sedge wren^	*Cistothorus stellaris*		X
Yellow-billed cuckoo	*Coccyzus americanus*	X	X
Black-billed cuckoo	*Coccyzus erythropthalmus*	X	X
Northern flicker	*Colaptes auratus*	X	X
Rock pigeon	*Columba livia*	X	X
Eastern wood-pewee	*Contopus virens*	X	X
Ruby-crowned kinglet	*Corthylio calendula*		X
American crow	*Corvus brachyrhynchos*	X	X
Common raven	*Corvus corax*	X	X
Fish crow	*Corvus ossifragus*		X
Blue jay	*Cyanocitta cristata*	X	X
Trumpeter swan	*Cygnus buccinator*		X
Mute swan	*Cygnus olor*		X
Bobolink	*Dolichonyx oryzivorus*	X	X
Downy woodpecker	*Dryobates pubescens*	X	X
Hairy woodpecker	*Dryobates villosus*	X	X
Pileated woodpecker	*Dryocopus pileatus*	X	X
Gray catbird	*Dumetella carolinensis*	X	X
Alder flycatcher	*Empidonax alnorum*	X	X
Least flycatcher	*Empidonax minimus*	X	X
Willow flycatcher	*Empidonax traillii*	X	X

Rusty blackbird	*Euphagus carolinus*		X
Merlin	*Falco columbarius*		X
Peregrine falcon*	*Falco peregrinus*		X
American kestrel	*Falco sparverius*	X	X
Wilson's snipe	*Gallinago delicata*	X	x
Common moorhen	*Gallinula chloropus*	X	
Common gallinule	*Gallinula galeata*		X
Mourning warbler	*Geothlypis philadelphia*	X	X
Common yellowthroat	*Geothlypis trichas*	X	X
House finch	*Haemorhous mexicanus*	X	X
Purple finch	*Haemorhous purpureus*	X	X
Bald eagle^	*Haliaeetus leucocephalus*		X
Barn swallow	*Hirundo rustica*	X	X
Caspian tern	*Hydroprogne caspia*		X
Wood thrush	*Hylocichla mustelina*	X	X
Baltimore oriole	*Icterus galbula*	X	X
Orchard oriole	*Icterus spurius*	X	X
Least bittern^	*Ixobrychus exilis*	X	X
Dark-eyed junco	*Junco hyemalis*	X	X
Herring gull	*Larus argentatus*		X
Ring-billed gull	*Larus delawarensis*		X
Tennessee warbler	*Leiothlypis peregrina*		X
Nashville warbler	*Leiothlypis ruficapilla*	X	X
Hooded merganser	*Lophodytes cucullatus*	X	X
Belted kingfisher	*Megaceryle alcyon*	X	X
Eastern screech-owl	*Megascops asio*	X	X
Red-bellied woodpecker	*Melanerpes carolinus*	X	X
Red-headed woodpecker†	*Melanerpes erythrocephalus*	X	
Wild turkey	*Meleagris gallopavo*	X	X
Swamp sparrow	*Melospiza georgiana*	X	X
Song sparrow	*Melospiza melodia*	X	X
Common merganser	*Mergus merganser*	X	X
Red-breasted merganser	*Mergus serrator*		X

Northern mockingbird	*Mimus polyglottos*	X	X
Black-and-white warbler	*Mniotilta varia*	X	X
Brown-headed cowbird	*Molothrus ater*	X	X
Great crested flycatcher	*Myiarchus crinitus*	X	X
Double-crested cormorant	*Nannopterum auritum*		X
Osprey[†]	*Pandion haliaetus*	X	X
Northern waterthrush	*Parkesia noveboracensis*	X	X
House sparrow	*Passer domesticus*	X	X
Savannah sparrow	*Passerculus sandwichensis*	X	X
Indigo bunting	*Passerina cyanea*	X	X
Cliff swallow	*Petrochelidon pyrrhonota*	X	X
Ring-necked pheasant	*Phasianus colchicus*	X	X
Rose-breasted grosbeak	*Pheucticus ludovicianus*	X	X
Eastern towhee	*Pipilo erythrophthalmus*	X	X
Scarlet tanager	*Piranga olivacea*	X	X
Pied-billed grebe[^]	*Podilymbus podiceps*	X	
Black-capped chickadee	*Poecile atricapillus*	X	X
Blue-gray gnatcatcher	*Polioptila caerulea*	X	X
Vesper sparrow[†]	*Pooecetes gramineus*	X	X
Sora	*Porzana carolina*	X	X
Purple martin	*Progne subis*	X	X
Common grackle	*Quiscalus quiscula*	X	X
Virginia rail	*Rallus limicola*	X	X
Bank swallow	*Riparia riparia*	X	X
Eastern phoebe	*Sayornis phoebe*	X	X
American woodcock	*Scolopax minor*	X	X
Ovenbird	*Seiurus aurocapilla*	X	X
Northern parula	*Setophaga americana*		X
Black-throated blue warbler	*Setophaga caerulescens*		X
Cerulean warbler[†]	*Setophaga cerulea*	X	X
Hooded warbler	*Setophaga citrina*	X	X
Yellow-rumped warbler	*Setophaga coronata*	X	X
Blackburnian warbler	*Setophaga fusca*	X	X

Magnolia warbler	*Setophaga magnolia*		X
Palm warbler	*Setophaga palmarum*		X
Chestnut-sided warbler	*Setophaga pensylvanica*	X	X
Yellow warbler	*Setophaga petechia*	X	X
Pine warbler	*Setophaga pinus*	X	X
American redstart	*Setophaga ruticilla*	X	X
Blackpoll warbler	*Setophaga striata*		X
Cape may warbler	*Setophaga tigrina*		X
Black-throated green warbler	*Setophaga virens*	X	X
Eastern bluebird	*Sialia sialis*	X	X
Red-breasted nuthatch	*Sitta canadensis*	X	X
White-breasted nuthatch	*Sitta carolinensis*	X	X
Yellow-bellied sapsucker	*Sphyrapicus varius*	X	X
American goldfinch	*Spinus tristis*	X	X
Chipping sparrow	*Spizella passerina*	X	X
Field sparrow	*Spizella pusilla*	X	X
American tree sparrow	*Spizelloides arborea*		X
Northern Rough-winged swallow	*Stelgidopteryx serripennis*	X	X
Common tern^	*Sterna hirundo*	X	X
Barred owl	*Strix varia*	X	X
Eastern meadowlark	*Sturnella magna*	X	X
European starling	*Sturnus vulgaris*	X	X
Tree swallow	*Tachycineta bicolor*	X	X
Carolina wren	*Thryothorus ludovicianus*		X
Brown thrasher	*Toxostoma rufum*	X	X
House wren	*Troglodytes aedon*	X	X
Winter wren	*Troglodytes hiemalis*	X	X
American robin	*Turdus migratorius*	X	X
Eastern kingbird	*Tyrannus tyrannus*	X	X
Golden-winged warbler†	*Vermivora chrysoptera*	X	X
Blue-winged warbler	*Vermivora cyanoptera*	X	X
Brewster's warbler	*Vermivora pinus x V. chrysoptera*	X	
Yellow-throated vireo	*Vireo flavifrons*	X	X

Warbling vireo	*Vireo gilvus*	X	X
Red-eyed vireo	*Vireo olivaceus*	X	X
Blue-headed vireo	*Vireo solitarius*		X
Mourning dove	*Zenaida macroura*	X	X
White-throated sparrow	*Zonotrichia albicollis*		X
White-crowned sparrow	*Zonotrichia leucophrys*		X

Sources: BBA II (census blocks 3780A, 3780B, 3780D, 3781C, 3878B, 3879A, 3879B, 3879D, 3880C, 3978A, 3978C, 3978D, and 4078C), https://extapps.dec.ny.gov/cfmx/extapps/bba/ (accessed June 13, 2025); BBA III (Baldwinsville CE, Baldwinsville NE, Brewerton CE, Brewerton CW, Fulton CE, Fulton NE, Fulton NW, Oswego East SW, Oswego West CE, Oswego West NE, Oswego West SE, Pennellville CW, Pennellville SE, and Pennellville SW census blocks), https://ebird.org/atlasny/home (accessed June 13, 2025). Notes: BBA III was conducted using available data uploaded by volunteer citizen scientists and occasionally reviewed by eBird regional reviewers. Census blocks are roughly nine square miles and are a subset of the 7.5' USGS Topo Quad in which the block is located (the USGS Topo Quads are broken up into six smaller blocks). The BBA III blocks do not correlate directly with the BBA II survey blocks. Although the BBA III census was completed in 2024, as of June 13, 2025, the Baldwinsville NE, Brewerton CW, Fulton NE, Oswego East SW, Oswego West NE, Oswego West SE, Pennellville CW, and Pennellville SE blocks are considered incomplete. Table G-7 only includes bird species based on "confirmed", "probable", or "possible" breeding evidence. * = State listed endangered species; ^ = State-listed threatened species; † = State listed species of special concern.

Table G-8 lists the bird species with the potential to occur within or adjacent to the Connected Action LODs based on 2018-2022 CBC results for the Oswego-Fulton circle (ID 54092) and Syracuse circle (ID 54092), which are the closest CBC circles to the Connected Actions.

Table G-8 CBC Bird Species (Connected Actions)

Common Name	Scientific Name
Common redpoll	*Acanthis flammea*
Hoary redpoll	*Acanthis hornemanni*
Cooper's hawk†	*Accipiter cooperii*
Sharp-shinned hawk†	*Accipiter striatus*
Red-winged blackbird	*Agelaius phoeniceus*
Wood duck	*Aix sponsa*
Northern pintail	*Anas acuta*
American wigeon	*Anas americana*
Green-winged teal	*Anas crecca*
Mallard	*Anas platyrhynchos*
American black duck x mallard	*Anas platyrhynchos x rubripes*
American black duck	*Anas rubripes*
Gadwall	*Anas strepera*
Graylag goose	*Anser anser*
Snow goose	*Anser caerulescens*

Great egret	*Ardea alba*
Great blue heron	*Ardea herodias*
Long-eared owl	*Asio otus*
Lesser scaup	*Aythya affinis*
Redhead	*Aythya americana*
Ring-necked duck	*Aythya collaris*
Greater scaup	*Aythya marila*
Canvasback	*Aythya valisineria*
Tufted titmouse	*Baeolophus bicolor*
Cedar waxwing	*Bombycilla cedrorum*
Ruffed grouse	*Bonasa umbellus*
Canada goose	*Branta canadensis*
Cackling goose	*Branta hutchinsii*
Snowy owl	*Bubo scandiacus*
Great horned owl	*Bubo virginianus*
Bufflehead	*Bucephala albeola*
Common goldeneye	*Bucephala clangula*
Red-tailed hawk	*Buteo jamaicensis*
Northern cardinal	*Cardinalis cardinalis*
Turkey vulture	*Cathartes aura*
Hermit thrush	*Catharus guttatus*
Brown creeper	*Certhia americana*
Bonaparte’s gull	*Chroicocephalus philadelphia*
Northern harrier^	*Circus cyaneus*
Marsh wren	*Cistothorus palustris*
Long-tailed duck	*Clangula hyemalis*
Evening grosbeak	*Coccothraustes vespertinus*
Northern flicker	*Colaptes auratus*
Rock pigeon	*Columba livia*
Black vulture	*Coragyps atratus*
American crow	*Corvus brachyrhynchos*
Common raven	*Corvus corax*
Fish crow	*Corvus ossifragus*

Blue jay	*Cyanocitta cristata*
Trumpeter swan	*Cygnus buccinator*
Tundra swan	*Cygnus columbianus*
Mute swan	*Cygnus olor*
Pileated woodpecker	*Dryocopus pileatus*
Gray catbird	*Dumetella carolinesis*
Merlin	*Falco columbarius*
Peregrine falcon*	*Falco peregrinus*
American kestrel	*Falco sparverius*
American coot	*Fulica americana*
Common loon†	*Gavia immer*
Red-throated loon	*Gavia stellata*
Common yellowthroat	*Geothlypis trichas*
House finch	*Haemorhous mexicanus*
Purple finch	*Haemorhous purpureus*
Bald eagle^	*Haliaeetus leucocephalus*
Dark-eyed junco	*Junco hyemalis*
Northern shrike	*Lanius excubitor*
Herring gull	*Larus argentatus*
Ring-billed gull	*Larus delawarensis*
Lesser black-backed gull	*Larus fuscus*
Iceland gull	*Larus glaucoides*
Glaucous gull	*Larus hyperboreus*
Great black-backed gull	*Larus marinus*
Hooded merganser	*Lophodytes cucullatus*
White-winged crossbill	*Loxia leucoptera*
Belted kingfisher	*Megaceryle alcyon*
Eastern screech-owl	*Megascops asio*
Red-bellied woodpecker	*Melanerpes carolinus*
Black scoter	*Melanitta americana*
White-winged scoter	*Melanitta fusca*
Surf scoter	*Melanitta perspicillata*
Wild turkey	*Meleagris gallopavo*

Swamp sparrow	*Melospiza georgiana*
Song sparrow	*Melospiza melodia*
Common merganser	*Mergus merganser*
Red-breasted merganser	*Mergus serrator*
Northern mockingbird	*Mimus polyglottos*
Brown-headed cowbird	*Molothrus ater*
Ruddy duck	*Oxyura jamaicensis*
House sparrow	*Passer domesticus*
Savannah sparrow	*Passerculus sandwichensis*
Double-crested cormorant	*Phalacrocorax auritus*
Downy woodpecker	*Picoides pubescens*
Hairy woodpecker	*Picoides villosus*
Pine grosbeak	*Pinicola enucleator*
Eastern towhee	*Pipilo erythrophthalmus*
Snow bunting	*Plecctrophenax nivalis*
Horned grebe	*Podiceps auritus*
Red-necked grebe	*Podiceps grisgena*
Pied-billed grebe^	*Podilymbus podiceps*
Black-capped chickadee	*Poecile atricapillus*
Common grackle	*Quiscalus quiscula*
Virginia rail	*Rallus limicola*
Ruby-crowned kinglet	*Regulus calendula*
Golden-crowned kinglet	*Regulus satrapa*
Eastern phoebe	*Sayornis phoebe*
Yellow-rumped warbler	*Setophaga coronata*
Eastern bluebird	*Sialia sialis*
Red-breasted nuthatch	*Sitta canadensis*
White-breasted nuthatch	*Sitta carolinensis*
Yellow-bellied sapsucker	*Sphyrapicus varius*
Pine siskin	*Spinus pinus*
American goldfinch	*Spinus tristis*
Chipping sparrow	*Spizella passerina*
Field sparrow	*Spizella pusilla*

American tree sparrow	*Spizelloides arborea*
Barred owl	*Strix varia*
European starling	*Sturnus vulgaris*
Carolina wren	*Thryothorus ludovicianus*
Winter wren	*Troglodytes hiemalis*
American robin	*Turdus migratorius*
Mourning dove	*Zenaida macroura*
White-throated sparrow	*Zonotrichia albicollis*
White-crowned sparrow	*Zonotrichia leucophrys*

Sources: Audubon 124th Christmas Bird Count (2018-2022) for Oswego-Fulton Circle ID 5092 and Syracuse Circle ID 55604, https://netapp.audubon.org/cbcobservation/ (accessed June 13, 2025); Billerman et al. 2022. Note: * = State listed endangered species; ^ = State-listed threatened species; † = State listed species of special concern.

G-3.4.3 Reptiles and Amphibians

Reptile and amphibian species with the potential to occur within the Proposed Project and Connected Actions study areas were identified based on a review of the NYSDEC Herp Atlas Project, a statewide survey conducted from 1990 to 1999 to document the geographic distribution of New York's reptile and amphibian species, based on USGS quadrangles.

Table G-9 lists the reptile and amphibian species with the potential to occur within the Proposed Project study area based on Herp Atlas Project data for the quadrangles containing the Micron Campus site (Brewerton and Cicero quadrangles) and the Rail Spur and Childcare Sites (Brewerton quadrangle). Based on this information, 15 species have the potential to occur at the Micron Campus site and the Rail Spur Site. Based on habitat associations (Gibbs et al. 2007), the Micron Campus site has the potential to support all 15 species, and the Rail Spur Site has the potential to support 5 of the species. Reptiles and amphibians observed during the site investigations and surveys include American toad (*Bufo americanus*), common snapping turtle (*Chelydra serpentina*), gray treefrog (*Hyla versicolor*), bullfrog (*Rana catesbeiana*), green frog (*Rana clamitans melanota*), northern leopard frog (*Rana pipiens*), and common garter snake (*Thamnophis sirtalis*). The Childcare Site contains suitable habitat for American toad, gray tree frog, northern red-backed salamander (*Plethodon cinereus*), common garter snake, and northern brown snake (*Storeria dekayi*).

Table G-9 NYS Herp Atlas Reptile and Amphibian Species (Proposed Project)

Common Name	Scientific Name	MC	RSS	CCS
Jefferson Salamander Complex	*Ambystoma jeffersonianum x laterale*			
Blue-spotted Salamander†	*Ambystoma laterale*			
American toad	***Bufo americanus***	X	X	X
Common snapping turtle	***Chelydra serpentina***	X		
Painted turtle	*Chrysemys picta*	X		

Spotted turtle†	*Clemmys guttata*	X		
Wood turtle†	*Clemmys insculpta*			
Gray treefrog	***Hyla versicolor***	X	X	X
Common Mudpuppy	*Necturus maculosus*	X		
Northern water snake	*Nerodia sipedon*	X		
Red-spotted newt	*Notophthalmus viridescens*	X		
Northern redback salamander	*Plethodon cinereus*	X	X	X
Northern spring peeper	*Pseudacris crucifer*	X	X	
Bullfrog	***Rana catesbeiana***	X	X	
Green frog	***Rana clamitans melanota***	X	X	
Pickerel frog	*Rana palustris*	X		
Northern leopard frog	***Rana pipiens***	X		
Wood frog	*Rana sylvatica*	X	X	
Eastern Massasauga*	*Sistrurus catenatus*			
Northern Redbelly Snake	*Storeri occipitomaculata*	X		
Northern brown snake	*Storeria dekayi*	X	X	X
Common garter snake	***Thamnophis sirtalis***	X	X	X

Sources: NYS Herp Atlas (1990-1999) Brewerton and Cicero USGS quadrangles, https://www.dec.ny.gov/animals/7140.html (accessed June 13, 2025); Gibbs et al. 2007. Notes: Species in bold were observed during visual encounter wildlife survey (June 23, 2023), site reconnaissance investigations to map ecological communities (July 31-Aug. 2, 2023), and/or bat and grassland breeding bird surveys conducted during the spring and summer of 2023. Species marked with an X have the potential to occur at the site indicated based on their habitat associations. The list in Table G-9 includes species with the potential to occur in the LODs for the telecommunications improvements. * = State listed endangered species; ^ = State-listed threatened species; † = State listed species of special concern.

Table G-10 lists the reptile and amphibian species with the potential to occur within or adjacent to the Connected Action LODs based on Herp Atlas Project data for the quadrangles containing the Connected Actions (Oswego West, Oswego East, Fulton, Pennellville, Baldwinsville, and Brewerton quadrangles).

Table G-10 NYS Herp Atlas Reptile and Amphibian Species (Connected Actions)

Common Name	Species
Spotted salamander	*Ambystoma maculatum*
American toad	*Bufo americanus*
Common snapping turtle	*Chelydra serpentina*
Painted turtle	*Chrysemys picta*
Spotted turtle†	*Clemmys guttata*
Bog turtle *	*Clemmys muhlenbergii*

Northern two-lined salamander	*Eurycea bisilneata*
Gray treefrog	*Hyla versicolor*
Eastern milk snake	*Lampropeltis triangulum*
Smooth green snake	*Liochlorophis vernalis*
Northern water snake	*Nerodia sipedon*
Red-spotted newt	*Notophthalmus viridescens*
Northern redback salamander	*Plethodon cinereus*
Northern spring peeper	*Pseudacris crucifer*
Western chorus frog	*Pseudacris triseriata*
Bullfrog	*Rana catesbeiana*
Green frog	*Rana clamitans melanota*
Pickerel frog	*Rana palustris*
Northern leopard frog	*Rana pipiens*
Wood frog	*Rana sylvatica*
Common musk turtle	*Stemotherus odoratus*
Northern redbelly snake	*Storeri occipitomaculata*
Northern brown snake	*Storeria dekayi*
Eastern ribbon snake	*Thamnophis sauritus*
Common garter snake	*Thamnophis sirtalis*
Red-eared slider	*Trachemys scripta elegans*

Source: NYS Herp Atlas (1990-1999) Oswego West, Oswego East, Fulton, Pennellville, Baldwinsville, and Brewerton USGS quadrangles, https://www.dec.ny.gov/animals/7140.html (accessed June 13, 2025). Note: * = State listed endangered species; ^ = State-listed threatened species; † = State listed species of special concern.

G-3.5 Special Status Species Profiles

This section provides supplemental information on special status species described in Section 3.4 (Biological Resources). Additional information may be found in Appendix G-4 and Appendix G-5.

G-3.5.1 Indiana Bat

USFWS IPaC system and NYSDEC EAF mapper results (Appendices G-7 and G-8) indicate that the Indiana bat (*Myotis sodalis*), a Federal and State listed endangered species, has the potential to occur in the vicinity of the Proposed Project and Connected Actions. The Micron Campus site and the Rail Spur Site are within 1 mile of a known Indiana bat maternity roost, within 3 miles of other known Indiana bat roost trees and capture locations, and within 14 miles of a known hibernaculum. Suitable roosting and foraging habitat for Indiana bats may be present at the Connected Action sites in unmaintained portions of existing utility corridors, within proposed new utility corridor routes, and in forested areas within and adjacent to the Clay Substation expansion area and wastewater improvement sites.

The Indiana bat is a temperate, insectivorous bat that emerges from the caves or mines in which it hibernates in early spring; males then disperse and remain solitary until mating season at the end of the summer, and pregnant females form maternity colonies in which to rear their young. Maternity roosts, roosting sites of post-lactating females, and roosting sites of solitary males are usually under loose bark or in the crevices of trees. Indiana bat roosting sites have been documented in numerous species of deciduous trees; tree availability, diameter, height, bark characteristics, and sun exposure appear to be more important factors in roost site selection than tree species (USFWS, 2007). Roost trees in New York (Britzke et al. 2006) and elsewhere (USFWS, 2007) are typically in trees with a diameter at breast height (dbh) greater than 16 inches and a height taller than 52 feet, but roosts in smaller trees are not uncommon (USFWS, 2007). Roosting trees are usually dead or nearly dead and decayed (Menzel et al. 2001; Kitchell, 2008). Indiana bats often roost near forest gaps or edges where trees receive direct sunlight for much of the day (Callahan et al. 1997; Menzel et al. 2001).

Habitats used by Indiana bats during summer are varied and include riparian, bottomland/floodplain, and upland forests (Britzke et al. 2006; Humphrey et al. 1977; Watrous et al. 2006) often within fragmented agricultural landscapes (Murray and Kurta, 2004; Watrous et al. 2006; USFWS, 2007) like that in which the Micron Campus site is located. They will forage in the forest canopy, over open fields, over impounded waterbodies, along riparian corridors, and along forest edges (USFWS, 2007). Maternity colonies are commonly located in areas with abundant natural or artificial freshwater sources (Carter et al. 2002; Kurta et al. 2002; Watrous et al. 2006; USFWS, 2007). Spring and autumn habitats of Indiana bats have not been well described but appear to be largely similar to their summer habitat (Britzke et al. 2006; USFWS, 2007). During autumn, Indiana bats mate and deposit fat stores in preparation for winter hibernation. Hibernacula are typically in caves or abandoned mines where ambient temperatures remain above freezing (USFWS, 2007). Indiana bats can migrate upward of 100 miles between their summer territory and hibernaculum (USFWS, 2011; Winhold and Kurta 2006).

The Indiana bat has recently undergone steep population declines due to an exotic fungal pathogen that has caused an outbreak of white-nose syndrome (WNS)—an infectious disease first documented in the Howe Caverns in New York in 2006 (Cheng et al. 2021; Reeder and Moore, 2013). Bats infected with WNS suffer structural damage to their wing membranes and exhibit aberrant hibernation behavior and physiology, the consequences of which are usually fatal (Reeder and Moore 2013). Indiana bat populations declined by approximately 10 percent per year in the first few years following the discovery of WNS (Thogmartin et al. 2012) and by now have declined by an estimated 84 percent range-wide (Cheng et al. 2021). In New York State, pre- and post-WNS count data on hibernating Indiana bats showed an average statewide population decline of 72 percent between 2006 and 2011 (Turner et al. 2011). Declines in New York State since the introduction of WNS have been among the most severe of all monitored states and are approaching 100 percent (Cheng et al. 2021).

G-3.5.2 Northern Long-eared Bat

USFWS IPaC system results (Appendix G-7) indicate that the northern long-eared bat (*Myotis septentrionalis*), a Federal and State listed endangered species, has the potential to occur in the vicinity of the Proposed Project and Connected Actions. NYSDEC also has documented the northern long-eared bat as occurring in the Town of Clay during the summer (NYSDEC, 2022b). The northern long-eared bat is a temperate, insectivorous species that hibernates in caves and mines during winter and emerges in early spring to disperse to summer habitat, usually no more than 60 miles from its hibernaculum (Caceres and Barclay 2000; USFWS, 2014). As with Indiana bats, the males remain solitary until mating season at the end of the summer and pregnant females form maternity colonies in which they rear their pups. During summer, northern long-eared bats are most closely associated with contiguous, closed-canopy, upland or riparian forests within heavily forested landscapes (Ford et al. 2005; Henderson et al. 2008). The northern long-eared bat prefers interior forest for roosting and foraging and is sensitive to fragmentation (Foster and Kurta 1999; Broders et al. 2006; Henderson et al. 2008; Segers and Broders, 2014). In fragmented, agricultural landscapes, northern long-eared bats avoid open habitats and concentrate where there is greatest forest coverage (White et al. 2017). In addition to interior forest, northern long-eared bats will also use streams, forested wetlands, and other riparian habitats for foraging (Ford et al. 2005, Gorman et al. 2022; Johnson et al. 2010,). The deciduous forest and forested wetlands within the eastern, western, and northern portions of the Micron Campus site include habitat types associated with northern long-eared bat roosting and foraging activity.

Unlike many other bat species in the northeastern United States, northern long-eared bats often feed by gleaning prey from leaves and other surfaces rather than strictly hawking flying insects in the air, and are thereby well-adapted to foraging in cluttered, structurally complex forest interior habitat (Lacki et al. 2007; Owen et al. 2003). Most foraging occurs above the understory and below the canopy (Brack and Whitaker 2001; Harvey et al. 2011; USFWS, 2014) in interior areas with a tall and closed canopy (Adams, 2013; Owen et al. 2003; Patriquin and Barclay, 2003). Northern long-eared bats do not concentrate along riparian corridors or other linear landscape features as much as strictly aerial-foraging species do (Ford et al. 2005; Harvey et al. 2011; Owen et al. 2003; USFWS, 2014), and most radiotelemetry and acoustic studies have found that they typically avoid roads and other sharp forest edges (Carter and Feldhamer, 2005; Morris et al. 2010; Owen et al. 2003; Patriquin and Barclay, 2003; Segers and Broders, 2014).

Roost trees are also usually in intact forest, close to the core and away from large clearings, roads, or other sharp edges (Carter and Feldhamer 2005; Menzel et al. 2002; Owen et al. 2003,). Roosts are usually in cavities or, less often, under exfoliating bark of large-diameter trees that form a high and dense canopy (Carter and Feldhamer, 2005, reviewed by Barclay and Kurta, 2007; Foster and Kurta, 1999; Menzel et al. 2002), but trees as small as 3 inches dbh can be potential roost sites (USFWS, 2023a). Possibly in response to the increased thermoregulatory challenges of roosting alone or in small numbers since the extreme population declines caused by WNS, northern long-eared bats appear to be roosting in small-diameter trees more commonly now than before WNS (Kalen et al. 2022). Males and females will both use many different roost trees throughout the summer, often switching roosts every 1 to 5 days and moving hundreds of feet between successive locations (Johnson et al. 2009; Menzel et al. 2002; Owen et al. 2002).

The northern long-eared bat has experienced the steepest population decline of the six species of bats in the northeast that are affected by WNS, with numbers at monitored hibernacula in several states dropping by an average of 98 percent between 2006 and 2011 (Langwig et al. 2012; Reeder and Moore, 2013; Turner et al. 2011) and approaching 100 percent in the years since (Cheng et al. 2021). Ninety percent of hibernacula where northern long-eared bats are still found contain fewer than 10 individuals (Cheng et al. 2021). In New York State, pre- and post-WNS count data from 18 northern long-eared bat hibernacula showed local population extinction at all but 4 of the sites as of 2011 and suggested an average statewide population decline of 97 percent (Turner et al. 2011). Surveys at these 18 hibernacula in New York State during the winter of 2012-2013 found only 14 northern long-eared bats where there had previously been more than 1,100 before WNS (Niver, 2015). However, in recent years, northern long-eared bats have been increasingly found on Long Island and other coastal islands, which may provide refuge from WNS because the milder winter climate shortens the hibernation period and is less favorable to the fungus that causes WNS. Northern long-eared bats in coastal systems also tend to hibernate solitarily rather than colonially, which reduces disease transmission (Gorman, 2023; Hoff, 2023).

G-3.5.3 Tricolored Bat

USFWS IPaC system results (Appendix G-7) indicate that the tricolored bat (*Perimyotis subflavus*), a species proposed to be listed as endangered under the ESA, has the potential to occur in the vicinity of the Proposed Project and Connected Actions. As with the Indiana bat and northern long-eared bat, the tricolored bat is a temperate, insectivorous species that hibernates through the winter and emerges from its hibernaculum in the spring, with females dispersing to form maternity colonies and males remaining solitary until the end of the summer. The tricolored bat is a forest generalist, inhabiting a variety of forest types across its broad geographic range, which spans most of the continental United States, southeastern Canada, Mexico, and Central America (USFWS, 2022). Tricolored bats roost mostly within leaf clusters on live, dying, or dead hardwood trees, and occasionally in coniferous trees and artificial structures (e.g., barns, porch eves, bridges) (Perry and Thill, 2007; Thames, 2020; USFWS, 2022; Veilleux et al. 2003). Female tricolored bats usually return each year to the same roosting area but switch roost trees frequently (daily to semi-daily) (Poissant et al. 2010; Quinn and Broders, 2007; Veilleux and Veilleux, 2004) over an area of up to a few acres throughout the maternity season (Veilleux and Veilleux, 2004). Tricolored bats forage at or above canopy height, over open water, and along forest edges (Barbour and Davis, 1969; Hein et al. 2009; Mumford and Whitaker, 1982). Foraging areas are usually within 3 miles of roost sites for females and 7 miles for males (Veilleux et al. 2003; Thames, 2020). Wetlands and surface waters are important foraging habitats and sources of drinking water (USFWS, 2022).

The tricolored bat has experienced local population declines of 90-100 percent across 59 percent of its geographic range due to WNS (Cheng et al. 2021). The range-wide population is predicted to decline by 89 percent over the next few years, resulting in a 65 percent reduction in spatial distribution (USFWS, 2021, 2022). Mortality caused by wind energy facilities is the second greatest contributor to tricolored bat population declines (USFWS, 2022), with another 19-21 percent decrease expected to result under current wind energy development scenarios (Wiens et al. 2022; Whitby et al. 2022). In contrast to these stressors, USFWS (2021, 2022) considers the effect of habitat loss on tricolored bat population sizes to currently be low.

Habitat availability is not believed to be currently limiting tricolored bat abundance and is not expected to be a limiting factor in the near future (USFWS, 2022). However, tricolored bat populations are perilously low, and they are vulnerable to local extirpations caused by the cumulative effects of habitat loss and other stressors that compound the broader effects of WNS and mortality from wind energy development (USFWS, 2022).

G-3.5.4 Northern Harrier

NYSDEC EAF mapper results (Appendix G-8) indicate that the northern harrier (*Circus hudsonius*), a State listed threatened species, has the potential to occur at the Micron Campus site. The species was documented in the vicinity of the Micron Campus site in the BBA II census (2000-2005), but not in the BBA III census (2020-2024). and the species was documented by the CBC between 2018 and 2022 and was reported to be observed at the Micron Campus site by the public on eBird for much of the winter of 2022-2023.

The northern harrier is a migratory bird of prey that breeds and winters in open habitats such as grasslands, old fields, pastures, croplands, and salt marshes (MacWhirter and Bildstein, 1996). Harriers are present in northern New York year-round (Post, 2008). Range-wide northern harrier populations appear to have declined slightly over the past half-century mostly due to habitat loss from development, drainage of wetlands, reversion of former agricultural lands into forest, and increases in ground predator abundance (Smith et al. 2020). However, there is uncertainty surrounding population estimates due to large fluctuations in harrier abundance in connection with meadow vole population cycles and the large home ranges of harriers, which can lead to multiple counting of the same individuals (Schimpf et al. 2020; NYNHP, 2024). North American Breeding Bird Survey data from 1966-2003 indicate a non-significant, 3 percent annual decline in range-wide northern harrier populations over that time period. In New York State, there was little change in the number of census blocks occupied between the 1980-1985 and 2000-2005 BBAs (Post, 2008). NYSDEC has proposed delisting the northern harrier from a State listed threatened species to a species of special concern (NYSDEC, 2019).

G-3.5.5 Short-eared Owl

NYSDEC EAF mapper results (Appendix G-8) indicate that the short-eared owl (*Asio flammeus*), a State listed endangered species, has the potential to occur in the vicinity of the Micron Campus site and the Rail Spur Site. In addition, a short-eared owl was documented by NYSDEC and the public as wintering at the Micron Campus site, as described below. Short-eared owls were not documented in the vicinity of the Proposed Project or Connected Actions by the BBA II in 2000-2005 or BBA III in 2020-2024 or the CBC in 2018-2022.

The short-eared owl is a ground-nesting bird that inhabits open fields, marshes, and tundra throughout North America and Europe, as well as parts of South America, Africa, and Asia. Populations in North America and particularly in the northeastern United States have declined in recent decades primarily due to habitat loss and fragmentation caused by various forms of development and the reforestation of abandoned agricultural lands. This includes New York State, where the short-eared owl has experienced steep declines (Wiggens et al. 2020; Schneider, 2008).

Northern New York is at the southern extent of the short-eared owl's eastern North American breeding range; therefore, short-eared owls occur much more commonly in New York during winter than the breeding period. A satellite tracking study of short-eared owls overwintering in New York found that all birds departed between March and April and migrated 1,751-1,938 km to summer breeding grounds in eastern Canada (Gahbauer et al. 2021). A separate sample of short-eared owls that were radio-tagged as part of the same study also departed New York wintering grounds mostly in March and April (Gahbauer et al. 2021).

As stated above, a short-eared owl was documented at the Micron Campus site by NYSDEC and members of the public on eBird during the winter of 2022-2023. It was last reported there on March 8, 2023, after which point the bird likely migrated to more northern breeding grounds. Because short-eared owls primarily prey on small mammals whose population sizes fluctuate greatly in space and time, they tend to be nomadic and settle wherever they can find habitat with a sufficient prey base in a given year. As such, short-eared owls typically exhibit low fidelity to the same breeding and non-breeding sites from year to year (Johnson et al. 2017; Village, 1987; Wiggens et al. 2020). However, 3 of 5 short-eared owls that were tagged with tracking devices on wintering grounds in New York and tracked until the following winter did not fit this trend and instead returned to the same wintering site or a nearby (≤ 15 km) site (Gahbauer et al. 2021). The likelihood of the short-eared owl that was reported at the Micron Campus site in the winter and spring of 2023 returning to the site the following winter is therefore uncertain. The Micron Campus site is not known to be consistently used by short-eared owls and most likely supports short-eared owls only on occasion, during winters with relatively high prey availability. Short-eared owls are not known or expected to nest at the Micron Campus site and their presence is reasonably assumed to be limited to the non-breeding seasons. Short-eared owls have large area requirements (Booms et al. 2014; Wiggins et al. 2020), with winter home range sizes in New York State averaging 538 acres (Gahbauer et al. 2021); therefore, only the largest fields at the Micron Campus site are likely to be suitable habitat.

G-3.5.6 Sedge Wren

NYSDEC EAF mapper results (Appendix G-8) indicate that the sedge wren (*Cistothorus platensis*), a State listed threatened species, has the potential to occur in the vicinity of the Proposed Project and within or adjacent to the Clay Substation expansion area and the natural gas and wastewater conveyance LODs. According to the NYNHP, sedge wren was documented as breeding within 0.25 miles of the Proposed Project (NYNHP, 2023). Preferred sedge wren habitats include wet meadows with low bushes, grass and sedge bogs, coastal brackish marshes dominated by saltmeadow cordgrass (*Spartina patens*), and hayfields dominated by sedges and grasses (NYNHP, 2025c). Nesting occurs in dense, tall grasses, sedge clumps or hummocks, on the ground, in small bushes, or at the base of small trees. The species is known to abandon sites that become too wet or too dry (NYNHP, 2025c). The sedge wren is area-sensitive (Herkert, 1994) and prefers a moderate density of woody shrubs mixed with herbaceous vegetation for breeding (Herkert et al. 2021). Sedge wrens have been shown to avoid shelterbelts and forest edges for at least 220 meters (771.8 feet) (Tack et al. 2017) and respond negatively to the proximity of roads and amount of forest cover surrounding open habitats (Panci et al. 2017; Thompson et al. 2014,). The sedge wren was not observed during the 8-week grassland breeding bird survey (approved by NYSDEC) conducted at the Micron Campus site, and sedge wren would not occur at the Rail Spur Site due to the site's forest coverage, or at the Childcare Site, as that site's field is generally too small and too close in proximity to roads and shelterbelts to support grassland birds.

G-3.5.7 Bald Eagle

NYSDEC EAF mapper results (Appendix G-8) indicate that the bald eagle (*Haliaeetus leucocephalus*), a State listed threatened species, has the potential to occur along the Oswego and Oneida Rivers in the vicinity of the water supply and wastewater improvements. The bald eagle is a large raptor found throughout Canada and the continental United States. The species experienced significant declines prior to the 1970s, largely due to exposure to pesticides, particularly DDT (NYSDEC, 2025a). In New York, bald eagles were almost eliminated by the 1960s, leading the State to list them as an endangered species. A significant restoration program for the species began in the 1970s, and in 1999 the State downlisted the species from endangered to threatened. Bald eagles are currently experiencing consistent annual population increases in New York (NYSDEC, 2017).

Bald eagles breed and overwinter throughout most of New York. During the breeding season, the species typically occupies undisturbed forest habitat in proximity to lakes, rivers, and wetlands. For nesting, the species shows a preference for white pine (*Pinus strobus*) and cottonwood (*Populus deltoides*) (NYSDEC, 2017). In winter, bald eagles aggregate near large rivers where they can forage on fish, their primary food source (NYSDEC, 2017, 2025a). There are four primary winter aggregation areas in New York: the Upper Delaware River, the St. Lawrence River, the Lower Hudson River, and the Sacandaga River (NYNHP, 2025d).

G-3.5.8 Black Tern

NYSDEC EAF mapper results (Appendix G-8) indicate that the black tern (*Chlidonias niger*), a State listed endangered species, has the potential to occur in the vicinity of the water supply improvements. This waterbird species nests in freshwater marshes, ponds, river mouths, and large lake shores, typically in areas with a mix of emergent vegetation and open water (NYNHP, 2025f; NYSDEC, 2025c). Black tern habitat selection is dependent on marsh size and proximity to other wetlands. Black terns prefer wetlands greater than 20 hectares (49.4 acres), although black terns have sometimes been observed on wetlands as small as 6 hectares (14.8 acres) (Daub, 1993; Dunn and Agro, 1995; McCollough and McDougal, 1996; Provost, 1947). In New York, black terns prefer to nest in wetlands containing greater than 10 hectares (24.7 acres) of habitat characterized by equal proportions of vegetation cover and open water, dense cover at 0.2 meters above the water line, and sparse cover at 0.5 meters above the water line (Hickey, 1997).

The utility corridor associated with the water supply improvements is adjacent to marshland habitat within a large system of forested and emergent wetlands in the vicinity of the Oneida River near County Route 12 and Peter Scott Road. The emergent wetlands within this area are greater than 60 hectares (148.3 acres) and therefore have the potential to provide suitable black tern habitat.

G-3.5.9 Pied-Billed Grebe

NYSDEC EAF mapper results (Appendix G-8) indicate that the pied-billed grebe (*Podilymbus podiceps*), a State listed threatened species, has the potential to occur in the vicinity of the water supply and wastewater improvements.

This small water bird occurs throughout North and South America. Long-term declines in pied-billed grebe populations were observed between the 1960s and 1990s in many portions of its range. These declines are attributed to loss of wetland habitat and exposure to pesticides, including DDT (NYSDEC, 2025b). In New York State, there was a 47 percent increase in distribution of this species between the 1980-1985 records and the 2000-2005 BBA (NYSDEC, 2014b, 2025b). However, significant declines in pied-billed grebe populations in the Lake Ontario marshes were observed between 1996 and 2013 (Tozer 2015).

New York is in the pied-billed grebe's breeding range. Though the species can be found throughout the state, the pied-billed grebe is most abundant in the marshes of the St. Lawrence River Valley and Lake Ontario. The species generally arrives in New York between March and mid-April to breed in floating platform nests within dense stands of deep-water emergent vegetation, such as cattails, that provide cover. These nests are typically located at marsh edges to allow for open-water foraging (NYSDEC, 2025b). Pied-billed grebe forages in open waters, consuming fish, crayfish, and aquatic insects (NYNHP, 2025e; NYSDEC, 2025b). The species leaves New York for southern wintering grounds between September and November (NYSDEC, 2025b), though it is a rare winter visitor along the coast and in open water areas of the Allegheny and Oswego Rivers (NYNHP, 2025e).

G-3.5.10 Monarch Butterfly

USFWS IPaC system results (Appendix G-7) indicate that the monarch butterfly (*Danaus plexippus*), a species proposed to be listed as threatened under the ESA, has the potential to occur in the vicinity of the Proposed Project and Connected Actions. The monarch butterfly is a migratory insect that has experienced recent population declines but remains widespread and ubiquitous across North America and can be found in nearly any open habitat, including within heavily modified urban and agricultural landscapes (Mawdsley et al. 2020). They migrate from eastern and central North America to winter in montane forests in Mexico and then return north in the spring to breed. Overwintering monarchs may also breed before migrating north (USFWS, 2020a). Monarchs are dependent on milkweeds (*Asclepias* spp.) as their larval host plant, which grow in a variety of conditions, including disturbed and degraded habitats such as old fields, roadside margins, residential properties, and city parks. During the breeding season, monarchs lay their eggs on their obligate milkweed host plant and larvae emerge after two to five days. Larvae develop over a period of 9 to 18 days, feeding on milkweed and sequestering toxic chemicals as a defense against predators; the larva then pupates into a chrysalis before emerging 6 to 14 days later as an adult butterfly (USFWS, 2020a). Multiple generations of monarchs are produced during the breeding season, with most adult butterflies living approximately two to five weeks (USFWS, 2020a). After breeding throughout the summer, multiple generations iteratively move southward again to Mexico where they overwinter (Brock and Kaufman, 2003).

G-3.5.11 Bog Buck Moth

USFWS IPaC system results (Appendix G-7) indicate that the bog buck moth (*Hemileuca maia menyanthevora*), a Federal and State listed endangered species, has the potential to occur in the vicinity of the water supply improvements. The bog buck moth occurs exclusively in open, calcareous, low shrub fens containing large amounts of bog buckbean (*Menyanthes trifoliata*). Bog buckbean is a shade-intolerant plant species that is the preferred larval food source of the bog buck moth. In addition to needing ample buckbean for larval feeding, suitable bog buck moth habitat also requires plants with sturdy upright stems for oviposition (NYNHP, 2019). The eggs hatch between April and June, which aligns with the emergence of bog buckbean. Bog buck moths do not feed in the adult stage, which occurs over a 9-12-day period between September and October. Before dying off, the adult moth mates in the fall and lays egg clusters on plant foliage to overwinter (NYNHP, 2019; NYNHP, 2025b). As the adult stage is brief, this species seldom leaves its known habitat and is known to typically fly only short distances of 0.5 kilometers, despite being capable of further travel (NYNHP, 2019).

Known populations of the bog buck moth are restricted to Oswego County in New York State and Ontario, Canada (NYNHP, 2019; NYNHP, 2025b). In New York State, the six known bog buck moth populations are found within what are considered medium fens, which are those fed by moderately mineralized waters, often as a narrow transition between a stream or lake or between a swamp or upland. Five of the known populations within Oswego County are found in the dunes along the eastern shorelines of Lake Ontario, while the sixth population is located within a wetland in a southwest inland portion of the county (NYNHP, 2019).

NYSDEC does not list bog buck moth as present within the vicinity of the water supply improvements, which indicates that these sites do not overlap with the boundaries of the six known populations within New York State. Therefore, the species is not likely present within or adjacent to the water supply improvement LODs. The ~~draft~~ BA concludes that the Proposed Project and Connected Actions would have "no effect" on the bog buck moth.

G-3.5.12 Eastern Massasauga

USFWS IPaC system results (Appendix G-7) indicate that the eastern massasauga (*Sistrurus catenatus)*, a Federal listed threatened and State listed endangered species, has the potential to occur in the vicinity of the Micron Campus site. The eastern massasauga is a declining, range-restricted rattlesnake that occurs in small, highly isolated populations from central New York State and southern Ontario to south-central Illinois and eastern Iowa. Population declines are primarily attributable to wetland drainage, habitat fragmentation, illegal collection for the pet trade, and the advancement of early successional vegetation into later successional stages in the few areas in which remnant populations persist (Gibbs et al. 2007). Only two populations of the eastern massasauga are known to remain within New York State (Gibbs et al. 2007). One is within a few miles of the WPCP (exact location not disclosed due to the species' vulnerability to collection); the other is in Genesee County (Gibbs et al. 2007).

At the site near the WPCP, eastern massasaugas are largely restricted to peatland habitat that was created by a fire in the late 1800s (Johnson and Breisch, 1993; Johnson 2000). They have extremely small activity ranges and restricted movements within overlapping territories and have not been found to disperse or emigrate outside of this general area (Johnson 1995, 2000). Moreover, the site is separated from the WPCP by two interstate highways, several other major roads, and an inhospitable landscape of development that collectively represent significant barriers to the movement of eastern massasaugas away from that site. Furthermore, NYSDEC does not list eastern massasauga as having the potential to occur in the vicinity of the Micron Campus site, or any of the Proposed Project or Connected Action sites. Therefore, the eastern massasauga is not likely present within the Proposed Project or Connected Action study areas. The ~~draft~~ BA concludes that the Proposed Project and Connected Actions would have "no effect" on the eastern massassauga.

G-3.5.13 Lake Sturgeon

NYSDEC EAF mapper results (Appendix G-8) indicate that the lake sturgeon (*Acipenser fulvescens*), a State listed threatened species, has the potential to occur in the vicinity of the wastewater improvements.

Lake sturgeon is found primarily in lakes and large rivers in the northeastern United States, though it occurs in the Midwest and Southeast as well. This large freshwater fish was historically overexploited for caviar and smoked meat (NYNHP, 2025g; NYSDEC, 2025d). Stocking efforts have led to increasing populations in New York, and natural reproduction of stocked fish has been observed (NYSDEC, 2023), though habitat loss, fragmentation, and degradation remain threats to the species. In New York, lake sturgeon have been collected in the St. Lawrence, Niagara, Oswegatchie, and Grasse River systems, as well as Lake Ontario, Lake Erie, Lake Champlain, and the Seneca and Cayuga Canals (NYSDEC, 2025d). Lower reaches of the Oswegatchie, Grasse, Raquette, and Oswego Rivers provide lake sturgeon spawning habitat (NYNHP, 2025g; NYSDEC, 2023).

G-3.5.14 Hairy Small-leaved Tick Trefoil

NYSDEC EAF mapper results (Appendix G-8) indicate that the hairy small-leaved tick trefoil (*Desmodium ciliare*), a State listed threatened plant species, has the potential to occur in the vicinity of the IWWTP.

The hairy small-leaved tick trefoil is perennial herbaceous species found with a range that extends from New York and Massachusetts west to Michigan, Missouri, and Kansas and south to Texas and Florida. The species is found in New York south of the Adirondacks in dry, open habitats and sandy or rocky summit grasslands (NYNHP, 2025h). There are 16 existing populations in the state, most with fewer than 100 plants (NYNHP, 2025h).

Dominant land cover types present at the Oak Orchard site and within and adjacent to the wastewater conveyance LOD include upland and wetland forest, active cropland, non-forested palustrine wetlands, and developed land. In general, these areas contain minimal dry, open habitats, and lack sandy or rocky summit grasslands. The hairy small-leaved tick trefoil occurs in Oswego and Onondaga Counties (NYFA, 2025) and has been documented at and in the vicinity of the Oak Orchard site.

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Appendix G-4

FinalDraft Biological Assessment

Appendix G-5
Grassland Breeding Bird Survey

Appendix G-6
Youngs Creek Surveys

G-6 Summary of Environmental Surveys of Youngs Creek

This appendix provides supplemental information on aquatic life at the Micron Campus site. Surveys were conducted of Youngs Creek to establish a baseline for the conditions of the Proposed Project's potential upstream, downstream, and on-site effects on aquatic resources, specifically macroinvertebrates and fish. The initial survey, conducted in December 2023 and summarized in the *Qualitative Environmental Survey of Youngs Creek* (Appendix G-6-1), included a desktop review and field studies. These efforts gathered information on the site's history, its environmental resources, and the habitat characteristics of its stream features to assess their potential to support fish and other biological communities. The second survey, conducted in June 2024 and detailed in the *Quantitative Environmental Survey of Youngs Creek Report* (Appendix G-6-2), built upon the findings of the qualitative survey. Its objective was to quantitatively assess benthic macroinvertebrate and fish communities, as well as water quality.

Fish and benthic macroinvertebrate communities are essential biological indicators of stream health because they reflect the cumulative effects of environmental changes, including pollution, habitat destruction, and other stressors (Barbour et al. 1999). Species diversity and abundance of biological indicators can signal the overall health of the aquatic environment and, because different species have varying tolerances to pollutants and habitat alterations, the presence or absence of environmentally sensitive species can indicate the quality of the habitat.

Maintaining healthy fish and macroinvertebrate communities is critical to the functionality and recovery potential of the aquatic environment. Aquatic biota serve as a primary food source within aquatic and terrestrial food webs, and their decomposition contributes to nutrient cycling, supporting primary producers like algae and aquatic plants. Moreover, streams are part of a larger network of aquatic habitats, and the dispersal of organisms between connected water bodies and adjacent watersheds supports biodiversity and ecological functions; healthy populations in one stream can facilitate natural recolonization and ecosystem restoration in nearby streams (Poff et al. 1997, Cardinale et al. 2012). Streams and wetlands also serve as important wildlife corridors for migration between habitat patches.

For the qualitative survey, methods included a desktop review of unmanned aerial vehicle (UAV) imagery, historical aerial images and topographic maps, online environmental resources, and a prior wetland delineation, as well as an environmental field survey of Youngs Creek and its associated tributaries within the boundary of the Micron Campus site. The field survey focused on documenting visual observations of stream habitats in 22 locations within five stream reaches by using NYSDEC's Rapid Assessment of Habitat Conditions in Low and High Gradient Streams from the NYSDEC Division of Water 2021 document, Standard Operating Procedure: Biological Monitoring of Surface Waters in New York State, and by calculating Habitat Model Affinity (HMA) scores to compare sites to a reference condition. HMA scores fall into four habitat condition categories: 'natural', 'altered', 'moderately altered', and 'severely altered', all of which were observed on-site. Based on the qualitative survey, a limited quantitative assessment of the macroinvertebrate and fish communities was recommended for select intermittent and perennial stream reaches within the Youngs Creek stream network. The results of the rapid habitat assessment are shown in Table 1 of the first survey (Appendix G-6-1). Detailed methods and additional survey results are included in the second survey (Appendix G-6-2).

For the quantitative survey, methods included sampling fish and benthic macroinvertebrate communities using backpack electroshocking and dip-netting protocols, respectively, and collecting water quality data at eight locations. All locations were categorized as 'natural' or 'altered' and represented multiple Cowardin classification types (PEM, Intermittent/Riverine Stream Bed (R4SB), and Perennial/Upper Perennial Unconsolidated Bottom (R3UB) (Cowardin et al., 1979), which describe the aquatic system, type of substrate, and water regime of wetlands. Sampling results are shown in Tables 2, 3, and 6 of the second survey (Appendix G-6-2). The fish and benthic macroinvertebrate communities documented in the sampled reaches within the Youngs Creek system were consistent with those often associated with low energy streams and lentic habitats. Fish communities were dominated by brook stickleback (*Culaea inconstans*) and central mudminnow (*Umbra limi*), both of which are tolerant of hypoxic conditions. Environmentally sensitive benthic macroinvertebrate taxa that indicate high-quality conditions, including ephemeroptera (mayflies), plecoptera (stoneflies), and trichoptera (caddisflies) (Barbour et al., 1999), were largely absent from the Youngs Creek ecosystem, with only one mayfly identified from 276 benthic macroinvertebrate individuals. Likewise, there were few hirudinea (leeches) and odonata (dragonflies/damselflies), both of which are indicators of healthy wetlands.

The qualitative and quantitative surveys indicate that fish and benthic macroinvertebrates are present on-site and representative of low energy streams and lentic habitats, as would be expected in a stream/wetland complex such as Youngs Creek. Samples included several tolerant species. However, biotic indices, which are a metric used to describe the quality of an environment based on the types and quantities of organisms present, were not calculated from fish and macroinvertebrate sample data as part of the surveys conducted by Ramboll. Therefore, conclusions about overall Youngs Creek ecosystem health cannot be extrapolated from the surveys. In addition to the observed aquatic biota, there is also significant evidence for the presence of American beaver, a semi-aquatic mammal, at the Micron Campus site.

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Appendix G-6-1

Qualitative Environmental Survey of Youngs Creek

Appendix G-6-2
Quantitative Environmental Survey of Youngs Creek Report

Appendix G-7
USFWS IPaC System Results

Appendix G-8
NYSDEC EAF Mapper Results

Appendix G-9
Draft Invasive Species Management Plan

Appendix G-10
Preliminary Landscape Drawings

APPENDIX H
HISTORIC AND CULTURAL RESOURCES

Appendix H-1
Area of Potential Effect (APE) Figures

Appendix H-2
NHPA Section 106 Process Summary

H-2 NHPA Section 106 Process Summary for the Preferred Action Alternative

Components Covered	Date Range	NHPA Section 106 Consulting Parties	Issues Raised	
		Consultation Phase: Initiation of the Section 106 Process		
Preferred Action Alternative	April 2024 to February 2025	• NYSHPO • NYSDEC • OCIDA • USACE • Cayuga Nation • Oneida Indian Nation • Oneida Nation of Wisconsin • Onondaga Nation • Seneca-Cayuga Nation • Tuscarora Nation • Wyandotte Nation	No issues identified with the Phase 1A reports. On 12/13/2024, NYSHPO requested multiple revisions to the Phase 1B Work Plans for the Micron Campus, Rail Spur Site, and Childcare Site. These included increased testing locations within the APE, changes to survey and testing methodologies, submission of field summaries to Indigenous Nations, and request for the presence of Onondaga Nation monitors during fieldwork. On 12/19/2024, Onondaga Nation responded with concerns related to the exclusion of testing in wetland areas and the timing of investigations. Onondaga Nation requested that a plan for the assessment of wetland areas during construction be added to the Work Plans and that archaeological investigations begin as soon as possible.	Onondaga 5/26/2024, acc to be a Oneida India 10/31/202 invitation to b that they did Onondaga Na OCIDA res accepting C con In November Draft Architec Draft Phas Documentary 1B Archaeolog Plans for the Rail Spur S with consult Nation su comments an Plans. CPC requests Onondaga ensured appr V Micron plann Nation mo construct in

Components Covered	**Date Range**	**NHPA Section 106 Consulting Parties**	**Issues Raised**	
		Consultation Phase: Identification of Historic Properties		
Micron Campus Rail Spur Site Childcare Site	November 2024 to Present	• NYSHPO • NYSDEC • OCIDA • USACE • Oneida Indian Nation • Oneida Nation of Wisconsin • Onondaga Nation • Seneca-Cayuga Nation • Tuscarora Nation • Wyandotte Nation	NYSHPO responded on 3/18/2025 with specific comments on the three Phase 1B Work Plans. NYSHPO requested that specific language be removed from the Work Plans related to surface stripping and mesh screens for shovel tests. Onondaga Nation responded on 3/24/2025 with no comments or concerns regarding the three Phase 1B Work Plans and requested additional information regarding the draft Programmatic Agreement (PA). OCIDA responded on 3/26/2025 with specific, minor comments on the Architectural Resources Report, Main Campus Phase 1A Archaeological Study, Main Campus Phase 1B Work Plan, Rail Spur Phase 1B Work Plan, and Childcare Site Phase 1B Work Plan. On 4/18/2025, Oneida Indian Nation requested that CPO consult with Oneida before making any decisions or determinations in the Section 106 process concerning the Project's APE, level of effort to identify historic properties, presence or absence of historic properties, National Register of Historic Places eligibility, findings of no effect or adverse effect and measures to address or resolving adverse effects. They had no comments on the Architectural Resources Survey, Phase IA Archaeological Documentary Report, and Phase 1B Archaeological Investigation Work Plans for the Micron Campus, Rail Spur Site, and Childcare Site. On 8/25/25, NYSHPO approved the Phase 2 Site Examination Work Plan for the Micron Campus Precontact 1 Site and requested changes to the testing methodology. AKRF revised the Phase 2 Work Plan per NYSHPO's request. CPO sent the	CPO ensu NYSHPO w Work Plans a the Work Plar 1B testing pr Campus, Childcare Site were identifi and Childca Campus I Construc completed d October 3, 2 one preconta site for Pl The Phase Micron Camp approved by (Phase 2 Sur Micron (Archaeologica early Octo indicated that is not eligible and that no analysis rec A draft report 1B investi Campus Con and the Phase Campus Pred Site is being with the NYS A Work P Archaeologic the historic

Components Covered	**Date Range**	**NHPA Section 106 Consulting Parties**	**Issues Raised**	
			revised Phase 2 Work Plan to consulting parties on 10/02/2025.	Historic Site' on October 9, review and w cons NYSHPO co Canning/Fre Site (Micro USN 06703.0 Spur Site A listing in t Registers CPO has and with Oneida Onondaga regarding the biweekly co
Electricity	January 2025 to April 2025	• NYSHPO • OCIDA • USACE • Oneida Indian Nation • Oneida Nation of Wisconsin • Onondaga Nation • Seneca-Cayuga Nation • Tuscarora Nation • Wyandotte Nation	NYSHPO responded on 2/18/2025 stating that the research potential for the two identified historic properties in the APE, the J. Young (USN 06703.000428) and the J. Somers historic properties (USN 06703.000429), had been thoroughly investigated, and no further investigations were warranted. NYSHPO also recommended addendum Phase 1B testing for two parcels which were added to the APE. Oneida Indian Nation responded on 3/14/2025 with no comments on reports or Work Plans, but asked to be included in future consultation. Oneida Nation of Wisconsin responded on 3/24/2025 requesting the address and latitude-longitude of the APE. Onondaga Nation responded on 3/24/2025 with no comments or concerns regarding the Phase 1B	CPO took co into considera responsibilit properties a CPO did not the Oneida continue to c CPO provided informatio Wisconsin re CPO took co into Phase 1B tes electric servi

Components Covered	**Date Range**	**NHPA Section 106 Consulting Parties**	**Issues Raised**	
			Work Plan, but with questions regarding the draft PA. OCIDA responded on 4/9/2025 noting that a complete review was not possible due to heavy redaction due to archaeologically sensitive information and made a general comment about surveyable acreage.	was added to t The othe recommende 1B testing wa 1B testing
Natural Gas	March 2025 to April 2025	• NYSHPO • NYDEC • OCIDA • Oneida Indian Nation • Onondaga Nation • Oneida Nation of Wisconsin • Seneca-Cayuga Nation • Tuscarora Nation • Wyandotte Nation	On 3/21/2025, SHPO responded with concurrence on the Natural Gas Phase IA Archaeological Survey report's recommendation that a Phase IB Archaeological Survey is warranted for the APE, and with approval of the Phase IB Work Plan. Oneida Nation of Wisconsin responded on 3/24/2025 with a request for the exact address and latitude/longitude of the APE. Onondaga Nation responded on 3/24/2025 with no comments or concerns regarding the Phase 1B Work Plan, but with questions regarding the draft PA. OCIDA responded on 3/28/2025 concurring with CPO's proposal to proceed with the Phase 1B investigations upon approval of the Work Plan, and providing specific, minor comments on the Phase 1B Work Plan. OCIDA responded on 4/9/2025 with additional, minor comments on the Natural Gas Line letter and enclosures.	CPO ensu NYSHPO v resubmitted approved th 2025. The V NYSHPO con consulting par comments v enclosures, a testing procee Line APE; no testing Phase 1B conducted b 2025, has archaeolo identified, an dated Octob rev
Water Supply	April 2025 to May 2025	• NYSHPO • NYSDEC • OCIDA • USACE • Oneida Indian Nation • Oneida Nation of Wisconsin	OCIDA responded on 4/29/2025 with concurrence to initiate the OCWA Water Supply Phase 1B testing prior to finalization of the PA. OCIDA recommended a contact list be updated for the protocols for the unanticipated discovery of human remains.	The architec one historic pr APE, the New Historic D recorded hi listed in the S a National H also identifie

Components Covered	**Date Range**	**NHPA Section 106 Consulting Parties**	**Issues Raised**	
		• Onondaga Nation • Seneca-Cayuga Nation • Tuscarora Nation • Wyandotte Nation		within the inc Supply Conne Gothic Reviv Route 31 in circa 1860 and a commercia retail s 06 Phase 1B tes Water Supply end-of-f summarizing date was s review; no c identified in t the Water Sup three OCI Testing of ren APE will be c start of co OCIDA fol confirming the and they had NYSHPO re with concu architectural e the OC Architectural no fu
Industrial Wastewater Conveyance (IWWC) and Wastewater Treatment	April 2025 to May 2025	• NYSDEC • NYSHPO • OCIDA • USACE • Oneida Nation	No issues identified.	OCIDA respo concurrence to IWWTP Pha followed up o their review had no f

Components Covered	Date Range	NHPA Section 106 Consulting Parties	Issues Raised	
Plant (IWWTP)		• Oneida Nation Of Wisconsin • Onondaga Nation • Wyandotte Nation • Seneca-Cayuga Nation • Tuscarora Nation		Phase 1B tes IWWC archaeologica be recomm report is curre l Phase 1B tes IWWTP A archaeolog observed and to have been p further arc recommendec the P
Consultation Phase: Assessment of Effects				
Micron Campus	June 2025 to July 2025	• NYSHPO • NYSDEC • OCIDA • USACE • Oneida Nation • Oneida Nation of Wisconsin • Onondaga Nation • Seneca-Cayuga Nation • Tuscarora Nation Wyandotte Nation	No issues identified.	CPO has as architectural h the Micron C and Childcare that the und adverse effect NYSHPO re with concurr 106 finding o the one architectural Road in the 06 Consultati historic si archaeolog
Rail Spur Site	September 2025 to	• NYSHPO • NYSDEC • OCIDA	No issues related to the CPO finding of no historic properties affected for the Rail Spur Site were	CPO made a Properties Af

Components Covered	Date Range	NHPA Section 106 Consulting Parties	Issues Raised	
	October 2025	• USACE • Oneida Nation • Oneida Nation of Wisconsin • Onondaga Nation • Seneca-Cayuga Nation • Tuscarora Nation • Wyandotte Nation	identified by consulting parties within the 30-day consultation period. In their 8/31/2025 concurrence letter, Onondaga Nation also stated the need for archaeological and Indigenous Nation monitors for all ground-disturbing construction activities associated with the Preferred Action Alternative. This issue relates to the PA currently in development.	Site APE concurre NYSHPO c NYSHPO a Weller Car Company Historic Site, not eligible f National Regi CPO noted t request fo Indigenous N ground-dis activities as during dev
Childcare Site	September 2025 to October 2025	• NYSHPO • NYSDEC • OCIDA • USACE • Oneida Nation • Oneida Nation of Wisconsin • Onondaga Nation • Seneca-Cayuga Nation • Tuscarora Nation • Wyandotte Nation	No issues identified.	On 9/15/202 with the CPC No Historic the Childcare dated 9/15/20 with the Pha Survey rec additional a necessary f Ch Consultation ended on
Electricity	June 2025 to July 2025	• NYSHPO • NYSDEC • OCIDA • USACE • Oneida Nation • Oneida Nation of Wisconsin • Onondaga Nation	No issues identified. No historic properties were identified in the addendum APE.	CPO determi will have no a historic prope 06703.0004 historic 06703.0004 S

Components Covered	**Date Range**	**NHPA Section 106 Consulting Parties**	**Issues Raised**	
		• Seneca-Cayuga Nation • Tuscarora Nation • Wyandotte Nation		NYSHPO re with concurre 106 finding o the two identi the J. Young and the properties(
Natural Gas	March 2025 to Present	• NYSHPO • NYDEC • OCIDA • Oneida Indian Nation • Onondaga Nation • Oneida Nation of Wisconsin • Seneca-Cayuga Nation • Tuscarora Nation • Wyandotte Nation	No issues identified.	The Phase 1I review by CI of effects ha
Water Supply	April 2025 to May 2025	• NYSHPO • NYSDEC • OCIDA • USACE • Oneida Indian Nation • Oneida Nation of Wisconsin • Onondaga Nation • Seneca-Cayuga Nation • Tuscarora Nation • Wyandotte Nation	No issues identified.	As archaeolo ongoing, a c cannot yet l Supply (Consultatio Action is o provide a de consulting p comment

Components Covered	Date Range	NHPA Section 106 Consulting Parties	Issues Raised	
Industrial Wastewater Conveyance (IWWC) and Wastewater Treatment Plant (IWWTP)	April 2025 to Present	• NYSDEC • NYSHPO • OCIDA • USACE • Oneida Nation • Oneida Nation Of Wisconsin • Onondaga Nation • Wyandotte Nation • Seneca-Cayuga Nation • Tuscarora Nation	No issues identified.	Phase 1B re IWWTP are u determinatio b

APPENDIX I
AIR QUALITY

Appendix I-1
Stationary Source Modeling Executive Summary: Micron Campus 4-Fab Scenario

I-1 Stationary Source Modeling Executive Summary – Micron Campus 4-Fab Scenario

I-1.1 Phase 1 (Fabs 1 and 2) DEC Permit Modeling Requirements

Based on the emissions totals associated with the Proposed Air Permit Project for Phase 1 (Fabs 1 and 2) as well as the regulatory requirements described in Section 3.4.1, atmospheric dispersion modeling was required to demonstrate that compounds emitted from the Proposed Air Permit Project do not exceed the NAAQS and Annual AGC and SGC within the study area for permit approval. Offsite concentrations within the modeling domain are not permitted to exceed the SGC. For AGC, the risk-management range can be employed, for facilities that are required to employ BACT.

As required by PSD for the proposed Micron Campus, modeling was performed for the criteria pollutants NO_2, CO, PM_{10}, and $PM_{2.5}$ to demonstrate compliance with the applicable NAAQS. As required by NNSR, no modeling demonstration for ozone was required as part of the permitting action and as such, VOC was not modeled in comparison to the Ozone NAAQS. SO_2 and lead were also not modeled to address PSD requirements as emissions increases were not anticipated to exceed the SER thresholds. SO_2 modeling was required to be completed by the 6 NYCRR Part 212 modeling demonstration described below. Lead emissions were not required to be modeled for Part 212 as there were no process emissions for lead from the Project.

NYSDEC dispersion modeling was also required for non-criteria air contaminants (such as fluorides and carbon tetrafluoride) as determined in accordance with the NYSDEC regulation 6 NYCRR Part 212 and 257 and to demonstrate that NYSDEC-developed New York Air Quality Guidelines, AGCs and SGCs, would not be exceeded. As required by PSD, modeled results are required to be evaluated on the averaging period that applies to each modeled air contaminant subject to a NAAQS (i.e., 1 hour and 8 hour for CO, 1 hour and annual for NO_2, 24 hour for PM_{10}, and annual and 24 hour for $PM_{2.5}$). As required by NYSDEC Part 212 and 257, modeled results are required to be evaluated on a 1-hour basis and annual basis for contaminants for which an SGC and an AGC (respectively) have been established by the NYSDEC. Permit modeling results have been submitted in Micron's Air Permit Application 2 package for the construction and operation of Fabs 1 and 2.

The aforementioned stationary source air quality modeling analysis was performed in accordance with (1) the USEPA user guides for the EPA Regulatory AERMOD Modeling System available from USEPA's Support Center for Regulatory Atmospheric Modeling website, (2) the USEPA's Guideline on Air Quality Models (40 CFR Part 51 - Appendix W), (3) DAR-10: NYSDEC Guidelines on Dispersion Modeling Procedures for Air Quality Impact Analysis, and (4) DAR-1: Guidelines for the Evaluation and Control of Ambient Air Contaminants under 6NYCRR Part 212.

The study area for the DEC permit modeling was developed based on NYSDEC and EPA requirements and is consistent with the air resources study areas discussed in Section 3.4.2. The modeling includes evaluation of stack parameters, building configurations, local terrain and other factors that may affect the dispersion of air emissions from the facility.

I-1.2 4-Fab Modeling Scenario

As detailed in F-1.1, a regulatorily required modeling evaluation has been completed for Phase 1 (Fabs 1 and 2) air quality permitting of the proposed Micron Campus operations and has been submitted to the NYSDECNYDEC for review. As required by the requisite hard look under NEPA and SEQR, a separate modeling evaluation has been completed for the full-scale operations of the proposed Micron Campus (Fabs 1-4). This modeling analysis utilized the same modeling requirements for NAAQS and NYSDEC regulation 6 NYCRR Part 212 and 257 compliance demonstrations as detailed in F-1.1. Although additional modeling and review will be required for subsequent regulatory permitting of Fabs 3 and 4, the modeling analysis summarized below ensures that, based on preliminary design information, the operation of the proposed Micron Campus (Fabs 1-4) will not cause or contribute to an exceedance of an ambient air quality standard.

The modeling analysis described below focuses on the operation of the proposed Micron Campus (Fabs 1-4) as these operations represent the maximum emissions generating scenario throughout the construction and operation phasing of the Proposed Project.

I-1.2.1 NAAQS Analysis

The NAAQS analysis included emissions from Fabs 1-4 along with significant sources of emissions in the surrounding area (as included in the regional source inventory, see "Nearby Sources" description below). These modeled impacts were added to appropriate background concentrations from representative ambient air monitors to define compliance with the NAAQS.

Background Concentrations

For NO_2 and CO, the analysis utilized background data from the Rochester Near-Road monitor (AQS Site ID 36-055-0015) from 2021 to 2023. This site is located approximately 70 miles (114 km) west of the proposed Micron Campus. The modeling demonstration also utilized seasonal, hour-of-day variable background data for 1-hour NO_2, which were derived from data available on EPA's AirData website.

For PM_{10}, the analysis utilized background data from the Rochester monitor (AQS Site ID 36-055-1007) from 2021 to 2023. This site is located approximately 70 miles (114 km) west of the proposed Micron Campus and 0.5 km from the Rochester Near-Road monitor.

Both of the selected monitors are located in an urban environment, directly north of the junction between Interstates 490 and 590, which vary from the proposed Micron Campus in a manner such that these background concentrations are expected to provide conservatively high background concentrations in comparison to the rural nature of the area surrounding the Proposed Micron Campus.

Using data from 2021 to 2023, the analysis utilized the Syracuse monitor (AQS Site ID 36-067-1015) to establish the background for $PM_{2.5}$. The site is located approximately 11 miles (17 km) southeast of the proposed Micron Campus, in an urban area, at the junction of Interstates 690 and 481. Given the characteristics of the monitoring site, the background data for the monitor was expected to provide conservatively high background values. For the $PM_{2.5}$ background assessment, a further analysis was completed to identify if there were days in the timeframe that were eligible for removal from the background concentration as a result of natural or exceptional events. A more detailed description of the process used to ensure accuracy of the $PM_{2.5}$ background, is included in the Phase 1 modeling protocol submitted to the NYSDEC.

Secondary Formation

A Modeled Emission Rates for Precursors (MERPs) analysis to estimate single source $PM_{2.5}$ impact from NO_X and SO_2 emissions were included in the modeling analysis. Based on EPA's "MERPs View Qlik" website, the closest representative hypothetical source to the proposed Micron Campus is in Livingston County, NY. The result was added to the modeled direct $PM_{2.5}$ concentrations and used in the comparison to the applicable SILs and NAAQS.

6 NYCRR Part 212 and Part 257 – Non-Criteria Pollutant Modeling

Part 212 of 6 NYCRR applies to process emission sources and emission points associated with process operations. It requires that the off-site impacts from process operations be evaluated for emissions of air contaminants. Part 212 applies to several process emissions sources proposed as part of the proposed Micron Campus operations. Consistent with the applicability of Part 212 developed and submitted to NYDEC for Fab 1 and 2, the modeling analysis included with the DEIS for the Fab 1-4 analyses the same non-criteria air contaminants.

Part 212 and DAR-1 provide a guideline to determine which sources and compounds require air dispersion modeling to demonstrate that off-site impacts of air contaminants meet the requirements of Part 212. Table I-1 below summarizes the air contaminants that were analyzed for the Part 212 modeling demonstration.

Part 257 provides specific thresholds for Total Fluorides. However, DAR-1 converts these thresholds to "equivalent" 1-hour SGC and annual AGC standards to model against, which are listed in the table below.

Table I-1 Part 212 Modeled Contaminants

CAS #	Chemical Name	SGC (μg/m^3)	AGC (μg/m^3)
7726-95-6	Bromine	130.00	1.60
7782-41-4	Fluorine	5.30	0.067
10035-10-6	Hydrogen bromide[1]	680.00	0.1
7722-84-1	Hydrogen peroxide	-	3.30
7697-37-2	Nitric acid	86.00	12.30
7783-54-2	Nitrogen trifluoride	6.60	0.08
7446-09-5	Sulfur dioxide	196.00	80.00
75-73-0	Tetrafluoromethane	-	300.00
7783-06-4	Hydrogen sulfide	-	2.00

7664-41-7	Ammonia Group	2,400	500
75-10-5	Difluoromethane Group	-	50,600
76-16-4	Hexafluoroethane Group	-	50,400
-	Total Fluorides	5.30	0.067

1. Hydrogen bromide does not have a listed AGC in DAR-1. Per the modeling guidance, the de minimis AGC is 0.1 µg/m3.

Air Dispersion Modeling Methodology

Meteorological Data

The analysis utilized meteorological data from the meteorological tower at the Syracuse Hancock International Airport (KSYR) for the calendar years of 2019 to 2023. This monitoring location is approximately 10 km southeast of the proposed Micron Campus but represented the closest data collection site that could provide quality assured data for all necessary modeling parameters. AERMOD-ready data was made available from the NYSDEC for the modeling analysis.

The data set consisted of five years (2019-2023) of pre-processed meteorological data representing the winds, temperature, and atmospheric turbulence around the KSYR airport (WBAN No. 14771) Automated Surface Observing System (ASOS) monitoring station. Upper air data was collected from the National Weather Service (NWS) station in Buffalo, NY (WBAN No. 14733). The raw hourly surface data format was Integrated Surface Hourly Data (ISHD) and the upper air data format was Forecast Systems Laboratory (FSL). These were processed using the AERMET v23132 pre-processor. Although a new version of AERMET pre-processor has been released, based on NYSDEC guidance, the analysis continued to utilize pre-processed meteorology data provided by NYDEC.

Prior to providing the data, NYSDEC incorporated Adjust U* as a regulatory option for all the ASOS sites in New York. A base elevation of 125 meters was used for the meteorological tower in the modeling analysis.

Building Downwash

USEPA’s guidelines require the evaluation of the potential for physical structures to affect the dispersion of emissions from stack sources, as the exhaust from stacks that are located within specified distance of buildings may be subject to “aerodynamic building downwash” under certain meteorological conditions. In accordance with recent AERMOD updates, an emission point is assumed to be subject to the effects of downwash at all release heights. Stacks located at a distance greater than 5L, where L is the lesser dimension of the nearest structure’s height or width, are not subject to the wake effects of the structure.

Direction-specific equivalent building dimensions were used as input to the AERMOD model to simulate the impacts of downwash were calculated using the USEPA-sanctioned Building Profile Input Program (BPIP-PRIME), version 04274 and used in the AERMOD model.

Terrain

Receptor terrain elevations were input into the model were interpolated from 1/3 arc-second National Elevation Dataset (NED) data obtained from the U.S. Geological Survey (USGS) using AERMAP v24142.

Receptor Grids

Ground-level concentrations were calculated along the proposed Micron Campus boundary and also within a receptor grid outside the ambient air boundary. Since the primary receptor grid extended to 50 km, a nested Cartesian receptor grid was utilized based on DAR-10.

The boundary receptors were spaced 25 meters apart. The Cartesian receptor grid consisted of the following receptor spacing:

- 70 meter-spaced receptors from the boundary out to 1.0 kilometer from the proposed Micron Campus fenceline;
- 100 meter-spaced receptors from 1.0 to 2.5 kilometers;
- 250 meter-spaced receptors from 2.5 to 5 kilometers;
- 500 meter-spaced receptors from 5 to 10 kilometers; and
- 1000 meter-spaced receptors from 10 to 50 kilometers.

In the December 2019 memo from the EPA titled "Revised Policy on Exclusions from 'Ambient Air'", the ambient air policy is "…the atmosphere over land owned or controlled by the stationary source may be excluded from ambient air where the source employs measures, which may include physical barriers, that are effective in precluding access to the land by the general public".

The proposed Micron Campus is planned for a greenfield site that currently consists of primarily residential and agricultural land. The property that constitutes the proposed Micron Campus would be made up of several parcels of land. All of the properties on the proposed Micron Campus have been acquired by the Onondaga County Industrial Development Agency (OCIDA) and the majority of the structures, including residences, were removed in late 2023. Micron anticipates that all of the proposed Micron Campus will be controlled by Micron by the time of the operation of the Proposed Project.

Regulatory NO_2 Model Selection

For NO_2 modeling, the USEPA approved Tier 2 Ambient Ratio Method 2 (ARM2) was utilized. USEPA Appendix W and subsequent guidance recommends a three-tier NO_2 modeling approach for the conversion of nitric oxide (NO) to NO_2. These tiers are regulatory options provided in AERMOD and each consider increasingly complex considerations of NO to NO_2 conversion chemistry.

- Tier 1 assumes total conversion of NO to NO_2;

- Tier 2 utilizes the ARM2 approach; and
- Tier 3 incorporates the Ozone Limiting Method (OLM), Plume Volume Molar Ratio Method (PVMRM), and Generic Reaction Set Method (GRSM) as regulatory options in AERMOD.

The analysis utilized default minimum and maximum ambient equilibrium ratios using the Tier-2 (ARM2) approach.

Emissions Sources and Rates

Source Emission Rates

Emission rates for the modeling analysis conservatively assumed potential to emit and continuous operation, with the exception of a few sources detailed below. Emission rate calculation methodologies and example calculations for each pollutant and relevant averaging period were included in the Air Permit Application 2 package under NYDEC review. As the Air Permit Application 2 package is only for Phase 1 (Fab 1 and 2) of the Proposed Project, Phase 2 (Fab 3 and 4) source parameters and emission rates were based on a duplication of Phase 1 emissions sources and source emission parameters.

Emergency Generators

24-Hour PM_{10} and $PM_{2.5}$

Micron is proposing a daily limit on generator use, which limits the number of hours that a certain number of generators will be operating at a given time. While the numbers provided below reflect only Phase 1, the same proportion of generators were assumed for the analysis for Phase 2. The proposed limits that were included are:

- 46 engines can operate for up to 24 hours
- 80 engines, inclusive of the 46 generators that can operate for up to 24 hours, can operate for up to 8 hours
- All remaining engines can operate for up to 4 hours

In order to maintain flexibility, Micron did not propose limiting specific generators, but rather the facility as a whole. To model the most conservative scenario, the analysis included modeling of the 46 closest generators to ambient receptors with the highest modeled impact in preliminary modeling as operating for 24 hours, the next closest 34 engines as operating for up to 8 hours, and the remainder of generators as operating for up to 4 hours.

1-Hour NO_2

As the 1-hour NO_2 NAAQS is a probabilistic standard, the EPA recommends to "model impacts from intermittent emissions based on an average hourly rate…[which] would account for potential worst-case meteorological conditions associated with emergency generator emissions by assuming continuous operation, while use of the average hourly emission represents a simple approach to account for the probability of the emergency generator actually operating for a given hour." In the Air Permit Application 2 package, Micron proposed a 100 hour per year operation limit on all generators; therefore, emissions for 1-hour NO_2 were input to the model annualizing the short-term emission rate based on operating 100 hours per year for each generator.

For the remainder of the NAAQS averaging periods and pollutants, the analysis modeled the emergency generators at short-term potential to emit emission rates.

Source Parameters

Merged Stacks

Generator and CVD stacks were modeled as merged stacks as the stacks are within 1 stack diameter of each other. In order to model these stacks, an equivalent diameter was calculated for each merged stack by determining the total cross-sectional area across the group of merged stacks. Generators were modeled as either groups of 2 or 3, while CVD stacks were modeled in groups of 2.

In the model, the total combined emissions from each group of stacks were modeled out of one equivalent stack. Stack height, temperature, and exit velocity reflected the shared parameters for each group of stacks.

Redundant Stacks

The proposed Micron Campus is designed such that there are redundant stacks. Only a certain number of units would be operating at a time, and thus, only a certain number of stacks would be operating at a time. Instead of dividing total facility emissions across all the stacks at the site, the analysis divided the total facility emissions across operational stacks, resulting in a higher emission rate per stack and modeling the redundant stacks with no emission rate. Redundant stacks were selected to provide the most conservative modeled impact based on proximity to the western fenceline, as that is where maximum off-site concentrations are expected to be located based on the meteorological data selected. Stacks that were further away from the fenceline were assumed to be redundant.

Nearby Sources

DAR-10 refers to 2011 NO_2 modeling guidance from EPA for how to determine emission source inventories for NAAQS modeling analyses. This guidance suggests that the emphasis on determining which nearby sources to include in the modeling analysis should focus on the area within 10 kilometers of the project location. This distance is based on a rule of thumb that maximum concentrations typically occur a distance downwind that is approximately 10 times the source release height in relatively flat terrain and accounts for extra distance due to possible terrain influences.

EPA has published a final rule that revised Appendix W on November 20, 2024. As part of these revisions, the EPA also released a separate document, "Guidance on Developing Background Concentrations for Use in Modeling Demonstrations", published November 2024. The guidance recommends an initial qualitative analysis to determine how representative background data is of the source mix in the modeled demonstration area, as background monitors are not often co-located with the project source area. Understanding wind patterns, terrain features, and land use are also important in determining whether background data is representative and if nearby sources should be included in cumulative modeling demonstrations.

NYSDEC provided a list of Title V sources within 50 km of the proposed Micron Campus, air state facility permit sources within 25 km, and air facility registration permit sources within 5 km, all of which emitted NO_x, CO, PM_{10}, or $PM_{2.5}$. This list consisted of a total of 45 facilities and all Title V sources were greater than 10 km from the proposed Micron Campus.

A qualitative analysis was completed to initially eliminate nearby sources from the inventory. This involved comparing the density of sources near the selected background monitors compared to the density of sources near the proposed Micron Campus. As previously discussed, the proposed Micron Campus is located in a more rural area compared to the monitors in Rochester or Syracuse, and it is expected that the ambient background resulting from these monitoring locations is a conservative representation of background concentration.

The prevailing winds in the Syracuse area are mostly coming from the west, although there are prevailing winds from the east and south as well. To determine if a nearby source would be included in the cumulative modeling, Micron identified sources with the potential for overlapping plumes with the emissions from the Micron facility. Even though the background data would be expected to adequately represent emissions from these nearby sources, these sources were conservatively included in the cumulative analysis for all four pollutants.

- Paul de Lima Co. Inc.: Located 3 km east of the proposed Micron Campus
- Anheuser Busch Baldwinsville Brewery: Located 13 km west of the proposed Micron Campus
- Barrett Paving Materials Inc.: Located 10 km west of the proposed Micron Campus

All other sources listed in the regional inventory provided by the NYSDEC are either accounted for in the ambient background monitoring or are located further than 20 km from the site and their highest impacts would not be expected to affect the significant impact analysis.

Part 212 Modeling

The analysis utilized an initial unit modeling methodology to streamline the modeling for contaminants regulated under Part 212. As there are many toxic air contaminants that are subject to modeling, as shown in Table I-1, the analysis modeled all emission sources at 1 g/s and analyzed the High 1st High (H1H) modeled impact from every emission source. The maximum H1H modeled impact was then multiplied by the emission rate for each toxic air contaminant from each emission source in the model, and the products are summed together to calculate a worst-case modeled impact. This methodology utilized an extremely conservative assumption that all H1H modeled impacts occur at the same time and receptor.

For any toxic air contaminant where the worst-case modeled impact, based on this unit modeling methodology, was lower than the corresponding SGC or AGC, that toxic air contaminant was not modeled further using AERMOD. If the modeled impact exceeds the corresponding SGC and AGC, the contaminant was evaluated further. In this modeling demonstration, only fluoride

(F) exceeded its SGC and AGC when using the unit modeling methodology and this contaminant was evaluated further.

Modeling Results

Based on the modeling methodology described above and submitted as part of the Air Permit Application 2 Package, it has been confirmed that the ambient emission concentrations resulting from the maximum operation of Fab 1-4 on the proposed Micron Campus would remain below all applicable NAAQS and AGCs and SGCs. This demonstration represents the modeled impact from both Phase 1 and Phase 2 of the Proposed Project. Table I-2 provides the modeled impact of the NAAQS cumulative impact analysis and Table I-3 and Table I-4 provide the modeled impact of the Part 212 analysis.

Table I-2 NAAQS Results

Pollutant	Averaging Period	NAAQS Threshold ($\mu g/m^3$)	Total Modeled Impact[1] ($\mu g/m^3$)	Compliance Confirmed?
PM_{10}	24-hr	150	44.71	Yes
$PM_{2.5}$	24-hr	35	22.74	Yes
$PM_{2.5}$	Annual	9	7.29	Yes
NO_2	1-hr	188	185.92	Yes
NO_2	Annual	100	22.28	Yes
CO	1-hr	40,000	11,209	Yes
CO	8-hr	10,000	5,442	Yes
SO_2	1-hr	196	16.26	Yes

1. Total modeled impacts include background concentrations in results.

Table I-3 Part 212 and Part 257 Results – Short Term Impacts

CAS #	Chemical Name	Short-Term Modeled Impact ($\mu g/m^3$)	SGC ($\mu g/m^3$)	Compliance Confirmed?
7726-95-6	Bromine	35.99	130.00	Yes
7782-41-4[1]	Fluorine	2.46	5.30	Yes
10035-10-6	Hydrogen bromide	0.73	680.00	Yes
7722-84-1	Hydrogen peroxide	N/A	N/A	N/A
7697-37-2	Nitric acid	37.11	86.00	Yes
7783-54-2	Nitrogen trifluoride	4.52	6.60	Yes

7446-09-5[1]	Sulfur dioxide	16.26	196.00	Yes
75-73-0	Tetrafluoromethane	N/A	N/A	N/A
7783-06-4	Hydrogen sulfide	N/A	N/A	N/A
7664-41-7	Ammonia Group	425.34	2,400	Yes
75-10-5	Difluoromethane Group	N/A	N/A	N/A
76-16-4	Hexafluoroethane Group	N/A	N/A	N/A
Total Fluorides	-	2.63	5.30	Yes

1. Fluorine (CAS #7782-41-4) and sulfur dioxide (CAS #7746-09-5) modeled impacts reflect the modeled impact from modeling the contaminants individually, as opposed to the value derived from the unit modeling demonstration.

Table I-4 Part 212 and Part 257 Results – Annual Impacts

CAS #	Chemical Name	Long-Term Modeled Impact (µg/m^3)	AGC (µg/m^3)	Compliance Confirmed?
7726-95-6	Bromine	0.59	1.60	Yes
7782-41-4[1]	Fluorine	0.044	0.067	Yes
10035-10-6	Hydrogen bromide	0.01	0.1	Yes
7722-84-1	Hydrogen peroxide	0.39	3.30	Yes
7697-37-2	Nitric acid	0.61	12.30	Yes
7783-54-2	Nitrogen trifluoride	0.07	0.08	Yes
7446-09-5[1]	Sulfur dioxide	0.77	80.00	Yes
75-73-0	Tetrafluoromethane	2.98	300.00	Yes
7783-06-4	Hydrogen sulfide	0.02	2.00	Yes
7664-41-7	Ammonia Group	9.78	500	Yes
75-10-5	Difluoromethane Group	3.44E-03	50,600	Yes
76-16-4	Hexafluoroethane Group	0.02	50,400	Yes
Total Fluorides	-	0.048	0.067	Yes

1. Fluorine (CAS #7782-41-4) and sulfur dioxide (CAS #7746-09-5) modeled impacts reflect the modeled impact from modeling the contaminants individually, as opposed to the value derived from the unit modeling demonstration.

Appendix I-2
Mobile Source Methodology

I-2 Mobile Sources

The mobile source air quality analyses were performed in accordance with methodologies presented in the NYSDOT TEM, updated in March 2020 (NYSDOT 2020). The NYSDOT TEM guidance specifies use of the most recent available version of the Motor Vehicle Emission Simulator (MOVES4) emission factor model. The guidance also specifies the USEPA guidance *Using MOVES in Project-Level Carbon Monoxide Analyses* and *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas* for project-level microscale/hot-spot analyses for NEPA and SEQRA (EPA 1992, 2021). In addition to the TEM guidance, the *Federal Highway Administration (FHWA) Updated Interim Guidance on Mobile Source Air Toxic (MSAT) Analysis in NEPA Documents* was used (FHWA 2023).

The mobile source air quality analyses conducted for the project included the following: a mesoscale (regional roadway network) emission analysis for criteria pollutants and MSAT; microscale (localized intersection) air quality analyses for CO and PM, and construction analyses.

I-2.1 MOVES4 Model

The USEPA's emission model, MOVES4, was used to estimate the mobile source emission factors and energy consumption for the analyses. MOVES4 provides great flexibility to capture the influence of time of day, car and bus/truck activity, vehicle speeds, and seasonal weather effects on emission rates from vehicles. MOVES4 calculates emission-related parameters, such as total mass emissions and vehicle activity (hours operated and miles traveled). From this output, emission rates (e.g., grams/vehicle-mile for moving vehicles or grams/vehicle-hour for idling vehicles) can be determined for a variety of spatio-temporal scales.

MOVES4 requires the use of site-specific input data for traffic volumes, vehicle types, fuel parameters, age distribution, and other input, as discussed below. By using site-specific data, the emission results reflect the traffic characteristics of the roadways affected by the project.

MOVES4 was used to estimate emission burdens of criteria pollutants, MSATs, GHG and energy consumption from the mesoscale roadway network. County-specific MOVES input data were developed by the NYSDEC. These county-specific data and project-specific link-by-link traffic data were used to develop project-specific input files to demonstrate the effects of the No Action and Preferred Alternatives for each scenario and year analyzed. Table I-5 and Table I-6 describe specific MOVES inputs.

Table I-5 MOVES Run Specification Options

MOVES Tab	Model Selections
Scale	County Scale Inventory Calculation type
Time Span	Hourly time aggregation including all months, days, and hours
Geographic Bounds	Onondaga County
Vehicles/Equipment	All on-road vehicle and fuel type combinations

MOVES Tab	Model Selections
Road Type	Urban restricted and urban unrestricted road types
Pollutants and Processes	Criteria pollutants, MSATs, CO_2e and energy consumption. Processes included running exhaust, evaporative permeation, evaporative fuel leaks, and crankcase running exhaust. Brake-wear and tire-wear emissions are included in the PM results
Manage Input Data Sets	New York State Low Emission Vehicle program input database provided by NYSDEC
Output	Generated by fuel type to differentiate diesel PM from PM produced by other fuel types

Table I-6 MOVES County Data Manager Inputs

County Data Manager Tab	Data Source
Age Distribution	NYSDEC
I/M Programs	NYSDEC
Ramp Fraction	NYSDEC
Source Type Population	Created from project traffic data
Fuel	NYSDEC
Meteorology Data	NYSDEC
Hoteling	NYSDEC
Vehicle Type Vehicle-Miles Travelled	Created from project traffic data
Average Speed Distribution	Created from project traffic data
Road Type Distribution	Created from project traffic data

MOVES4 on-road data inputs include specification of the geographic boundary of the Proposed Project, and Onondaga County specific data obtained from NYSDOT and NYSDEC (e.g., fuel characteristics, vehicle inspection and maintenance program, age distribution for each vehicle type [e.g., passenger car, heavy truck]) and meteorological data. Project-specific data inputs derived from the Proposed Project traffic study data included the volume of vehicles per hour and average speed on each road link in the Proposed Project air quality regional study area. For each road link, data for the length of the link were developed for input to MOVES4 on-road. The MOVES4 on-road algorithm accounts for seasonal (i.e., winter, spring, summer, fall) variation in meteorological conditions, time of day (i.e., morning peak, mid-day, evening peak and overnight), and variation in traffic volume which can affect the production of vehicle emissions in the regional study area. MOVES4 runs were performed for the No Action and Preferred Action Alternatives for each analysis year, with results summed to produce daily and annual emissions for development of the emission inventory.

The non-road module in MOVES4 was used to provide emission factors for non-road equipment used for construction of the Proposed Project. This module was run separately from the on-road module described above. Input data to MOVES4 non-road included year of analysis, fuel type, equipment sector (e.g., construction, industrial, commercial and nine other sectors), pollutant, and emission process (e.g., exhaust). MOVES4 non-road produces emission factors that are combined with construction activity information such as type and quantity of equipment, horsepower of the equipment, type of fuel used, and duration of use to develop a construction emission inventory for each year of construction. Estimates were produced for criteria pollutants and GHG emissions.

I-2.2 Microscale Analysis

The microscale analysis consists of evaluating changes to local ambient air pollutant concentrations caused by traffic generated from the Proposed Project. The NYSDOT TEM and USEPA guidance documents, *Using MOVES in Project-Level Carbon Monoxide Analyses* and *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas*, prescribe procedures for conducting CO, PM_{10}, and $PM_{2.5}$ microscale air quality analyses. A microscale analysis consists of dispersion modeling of traffic-related air pollutant emissions for intersections and roadways determined to be of concern due to traffic volume changes or proximity of sensitive receptors. The microscale analysis was performed for the No Action and Preferred Action Alternatives.

The TEM states that the determination of whether a project requires an air quality analysis is based on the project's potential to significantly affect air quality. Although the PM_{10}/$PM_{2.5}$ USEPA hot-spot analysis guidance applies only to PM_{10}/$PM_{2.5}$ nonattainment or maintenance air quality areas, as per NYSDOT's TEM, the methodologies contained in the USEPA guidance are also used for NEPA and SEQRA purposes in both attainment and nonattainment areas.

I-2.2.1 CO Screening

NYSDOT TEM procedures for determining if a CO microscale analysis is necessary were followed. These procedures included evaluating specific criteria to determine the need for a detailed air quality analysis. The initial screening step was a LOS analysis taken from the Proposed Project's traffic study. Intersections and roadways affected by the Proposed Project were assigned a letter designation of A through F to designate their LOS in the analysis years. Intersections with a LOS of A, B, or C were not subject to further analysis. Intersections with LOS D, E, or F were additionally screened by the volume threshold screening procedure.

The CO screening was conducted for over 70 intersections in the project area, following NYSDOT's Transportation Environmental Manual (TEM) guidance. The intersection traffic used for the CO screening analysis was based on LOS and volume data from the traffic analysis (see Traffic section). Per the TEM guidance, those intersections with Build LOS of C or better pass the screening and require no further analysis. Those intersections with a Build LOS of D or worse under Build conditions, however, require further screening.

For those intersections that failed the initial screening, a volume threshold screening was conducted, and the results were compared to the thresholds in Table 3C of Section I-3 of the NYSDOT TEM Chapter 1.1. The emission factors applied within this screening are from USEPA's MOVES4 model. CO emission factors were generated for all analysis years (2027, 2031 and 2041) for both idle and the average speed within the Project corridor, 30 mph. CO emission factors were generated for both idle and the average speed within the Project corridor, 30 mph. The resulting emission factors are shown in Table I-7.

Table I-7 CO Screening Emission Factors

Mode	2027	2031	2041
Idle (grams per hour)	6.5	5.0	3.7
30 mph (grams per mile)	2.3	1.9	1.2

Upon comparison to Table 3C in the TEM, when applying the above emission factors, intersections in the Project would pass the screening and require no further analysis if they have approach volumes of less than 4,000 at any approach.

As shown in the screening tables (attached to this appendix), none of the intersections have approach volumes close to 4,000 at any approach. As such, none of the intersections in the study area meet the criteria that would warrant a CO microscale analysis. The Project would not increase traffic volumes or change other existing conditions to such a degree as to jeopardize attainment of the NAAQS for CO.

I-2.2.2 PM Microscale Analysis Methodology

Introduction

Micron is proposing to lease and ultimately purchase the approximately 1,399-acre WPCP, located at 5171 Route 31, Clay, NY 13041, from OCIDA to construct a semiconductor manufacturing facility over a continuous, phased 16-year period. The Proposed Project consists of:

1) A manufacturing facility (referred to herein as the Micron Campus) to be constructed on the 1,377 acres (1,367 acres comprised of the WPCP, South Finger, and Burnet Road ROW, plus one acre on the northwest side of the Micron Campus), which will include four DRAM production fabs, ancillary support facilities, driveways, parking, and ingress and egress roads;

2) Construction of childcare, recreation, and healthcare centers and associated amenities at 9100 Caughdenoy Road, Clay, NY (referred to herein as the Childcare Site), NY;

3) Construction of a rail spur site on approximately 38 acres west of Caughdenoy Road (this property does not have an assigned address); and

4) Leasing of approximately 360,000-500,000 sq. ft of existing warehouse space in a to-be-determined location within 20 miles of the Micron Campus.

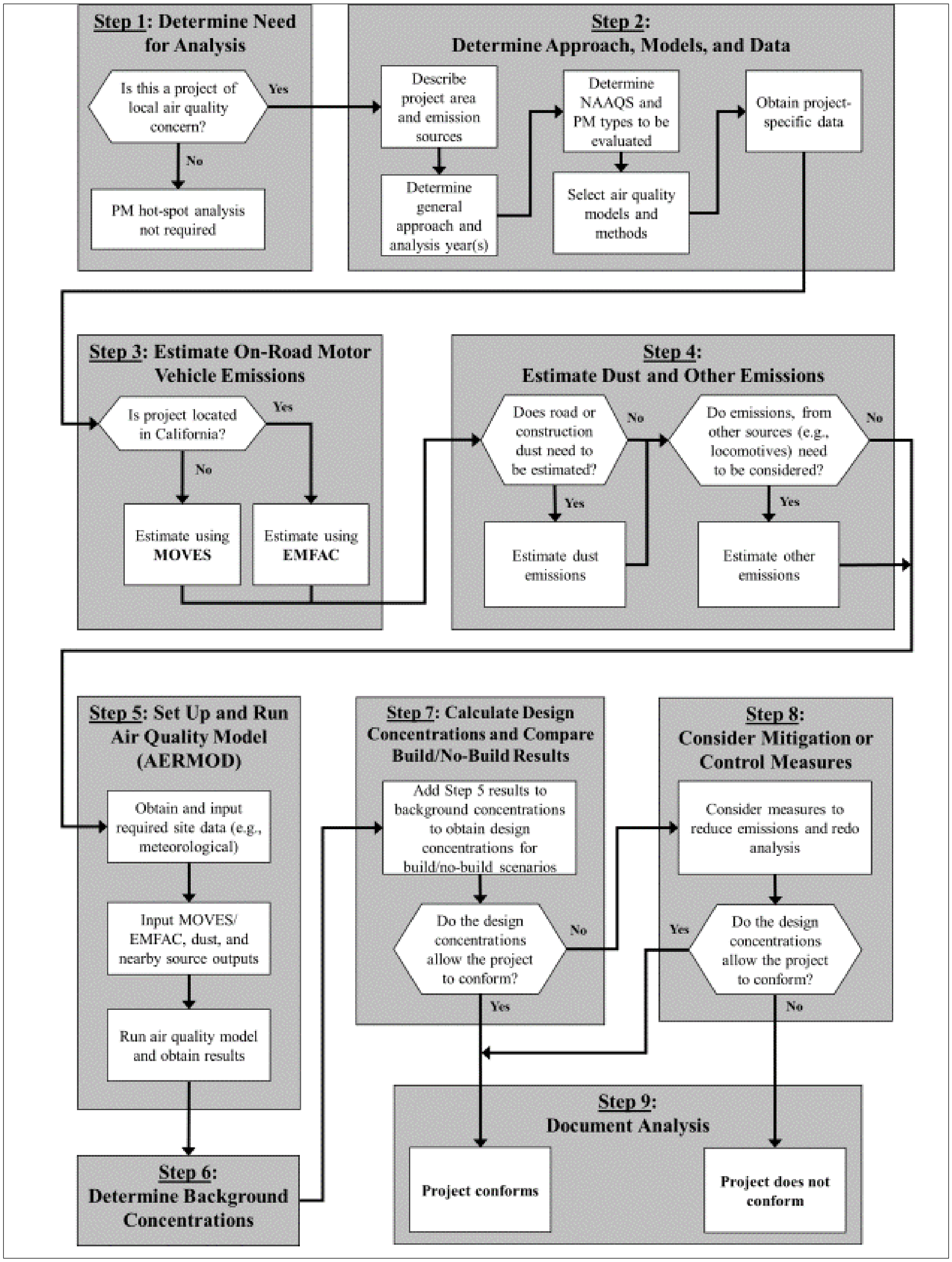
Separately, the Connected Actions would be required to support the Proposed Project. These include offsite utility infrastructure improvements and connections to the WPCP, as well as warehousing space required to support the Micron Campus.

PM Guidance

An effect of the Project includes employee and truck trips associated with operation of the four fabs. As such, a PM_{10} and $PM_{2.5}$ microscale (also known as hot-spot) analysis was undertaken to determine potential impacts from the traffic associated with Micron facility. This analysis was performed in accordance with the USEPA *Transportation Conformity Guidance for Quantitative Hot-spot Analyses in* $PM_{2.5}$ *and* PM_{10} *Nonattainment and Maintenance Areas* (USEPA, 2021).

This **PM Hot-Spot Analysis Methodology** identifies the process for conducting a project-specific microscale analysis following USEPA's nine-step process as summarized in Exhibit 3-1 of that document, presented here in Figure I-1. This figure highlights the analysis procedures for transportation conformity. It should be noted that this analysis was performed for NEPA purposes; as such, there may be some differences (i.e. a No Action analysis was conducted for this project).

Figure I-1 Overview of a PM Hot-Spot Analysis



Source: USEPA, "PM Hot-spot Guidance: Transportation Conformity Guidance for Quantitative Hot-spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas" (EPA-420-B-21-037, October 2021, page 19) (USEPA, 2021).

All modeling procedures follow the applicable guidance in NYSDOT TEM. Three analysis sites were evaluated with a detailed PM microscale analysis.

Proposed Nine-Step PM Microscale Analysis

Step 1. Determine Need for a PM Microscale Analysis

A $PM_{2.5}$ and PM_{10} (PM) microscale/hotspot analysis was conducted for NEPA and SEQRA purposes to inform the decision-making process and was performed in a manner consistent with USEPA guidance for PM hotspot analyses.

Step 2. Determine Approach, Models and Data

a. Approach

Three locations have been selected for detailed analysis. The analysis site locations, in relation to the Micron chip plant, are shown in Figure I-2. Detailed link maps are shown in Figure I-3 through Figure I-5. Modeling was conducted for the traffic mitigation scenarios associated with the project.

Descriptions of the analysis locations, as well as the reasoning behind why they were selected, are presented below. More information on the screening (volumes, LOS, etc.) are contained within Appendix I-3.

1) **Site 1**: this site was selected for analysis in order to capture several major intersections surrounding the main north-south interstate, I-81. Besides including I-81 and associated truck traffic, the intersections at this location have some of the highest volumes of any in the area. Furthermore, the land uses around this site comprise various sensitive receptors, including multiple single-family homes, Cicero Elementary School, Cicero North Syracuse High School, and Cicero United Methodist Church. Modeling at this location was able to capture potential impacts from I-81 and the following six intersections:

   - US 11 & NY 31
   - NY 31 & I-81 SB Ramp
   - NY 31 & Pardee Road/I-81 NB Ramp
   - Parking Lot/Lakeshore Spur & NY 31
   - New Country Drive/Cicero Elementary School Parking Lot & NY 31
   - Cicero North Syracuse High School West Driveway & NY 31

   This site includes intersections with some of the highest volumes under AM peak conditions (it should be noted that the highest volumes are at NY 31 & NYS Route I-481, which is a commercial area and does not have sensitive receptors). Furthermore, with the exception of the school driveways, these intersections have overall poor LOS, including LOS E and F at I-81 ramps.

2) **Site 2**: this site was selected for analysis due to the proximity to the Micron campus, as it is located at the south side of the proposed facility. This location includes many single-family homes along NY 31 as well as the below six intersections, many of which include driveways into the future Micron facility:

   - NY 31 & Caughdenoy Road
   - NY 31 & Access Road/Driveway 2
   - NY 31 & Driveway 3
   - NY 31 & Driveway 4
   - NY 31 & Driveway 5
   - NY 31 & Sterns Road

   The intersections at this site are expected to carry a substantial number of Micron employees and deliveries to the nearby entrances. As such, this site includes intersections with some of the highest total volumes and the highest AM peak volumes, the highest truck volumes, and the highest truck increments (in both AM and PM).

3) **Site 3**: this site was selected based on community concern, as it includes the construction of a new interchange with the main east-west interstate, NYS Route I-481. This site would also include the newly constructed Access Road, which would pass between two residential communities and provide direct access from NYS Route I-481 to the Micron Campus. Furthermore, multiple single-family homes would be located directly adjacent to the new interchange. The modeling at this location was able to capture potential impacts from the following intersections:

   - NYS Route I-481 and EB ramps
   - NYS Route I-481 and WB ramps
   - Access Road & Maple Road

b. <u>Analysis Years</u>

The analysis was conducted for the following years and scenarios:

- 2027 No Action & Preferred Action
- 2031 No Action & Preferred Action
- 2041 No Action, Preferred Action & Traffic Mitigation Scenarios A, B & C

Figure I-2 Analysis Locations

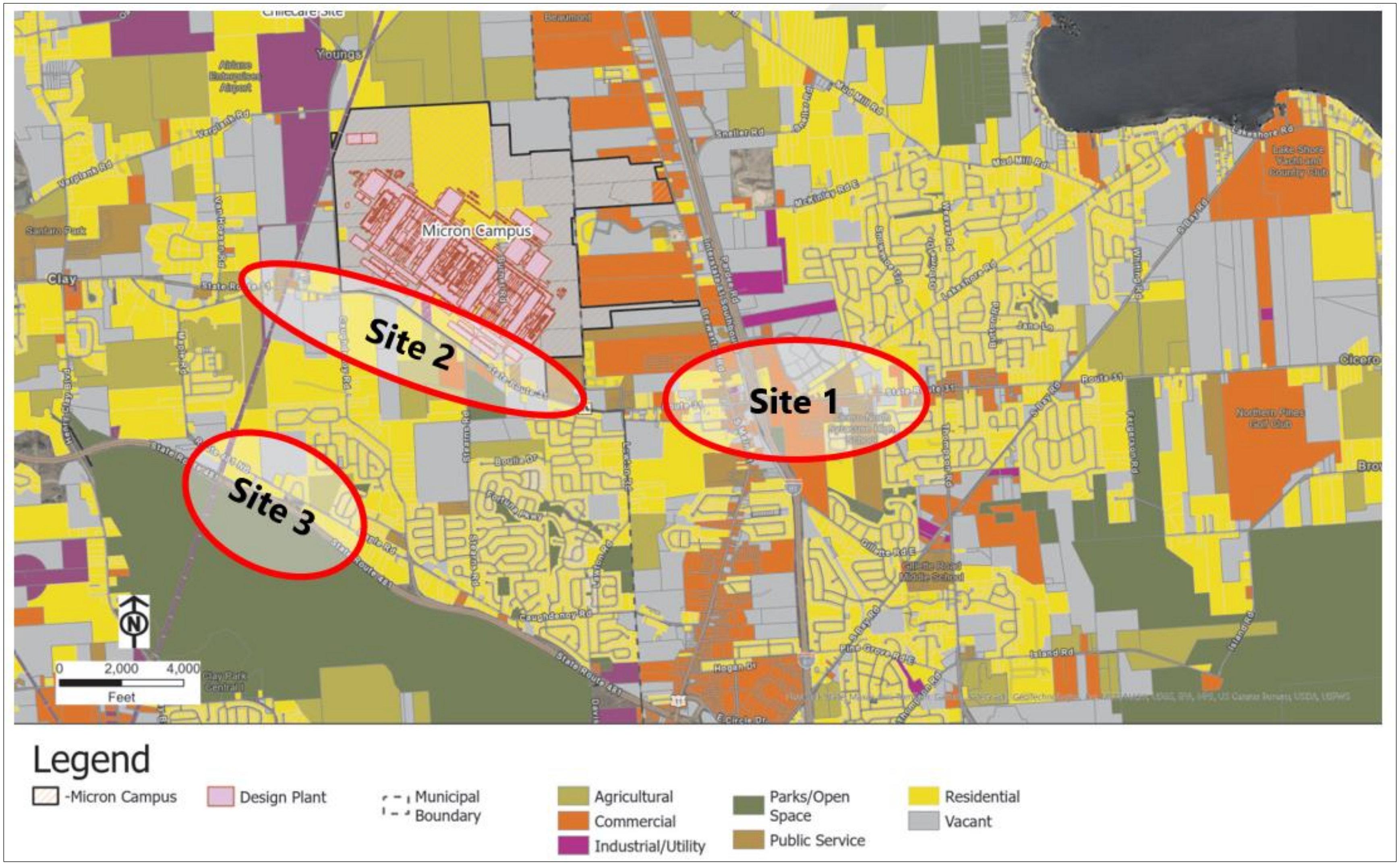
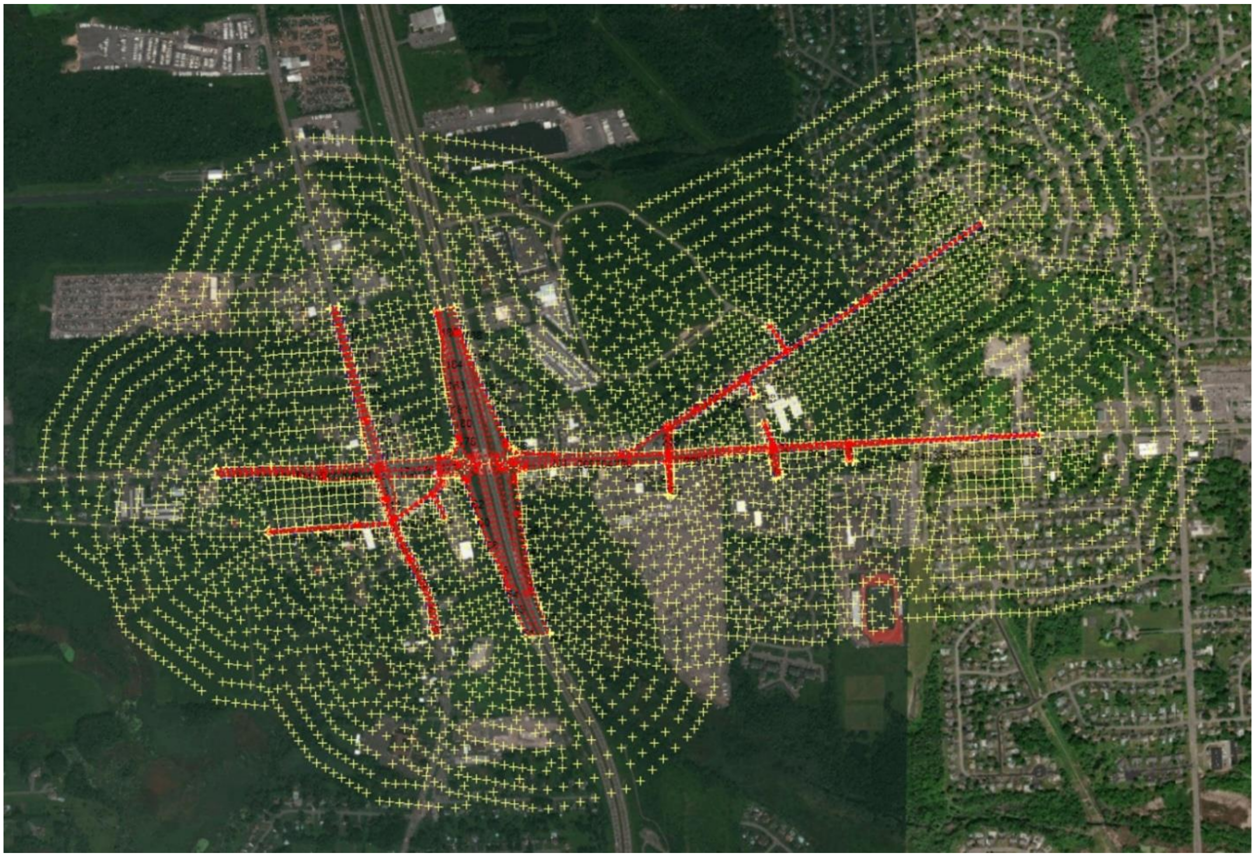
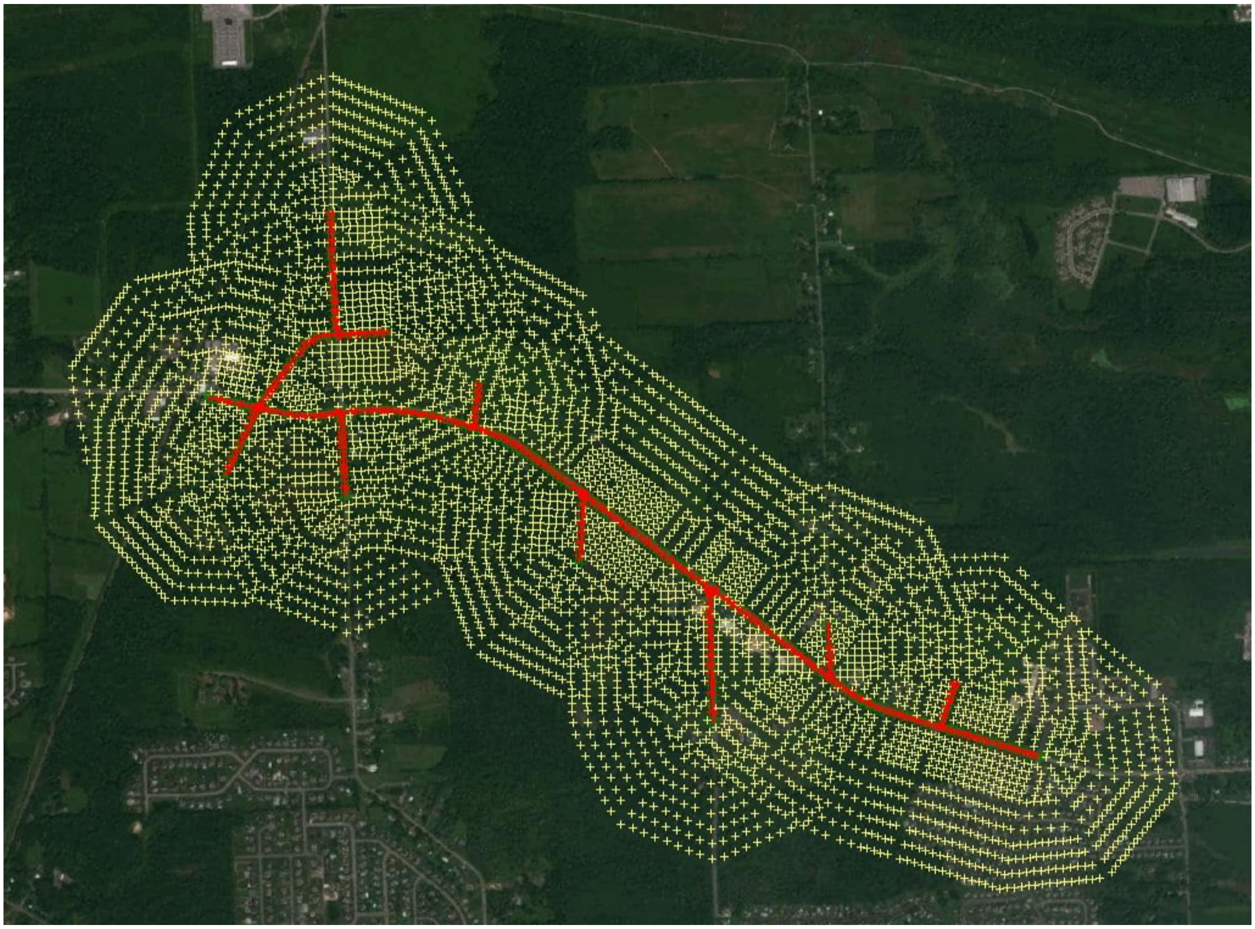


Figure I-3 Site 1



Note: Red lines indicate links modeled and yellow crosses represent receptor placement.

Figure I-4 Site 2



Note: Red lines indicate links modeled and yellow crosses represent receptor placement.

Figure I-5 Site 3

Note: Red lines indicate links modeled and yellow crosses represent receptor placement.

c. PM Emissions

The PM_{10} and $PM_{2.5}$ microscale analyses include only directly emitted PM_{10} and $PM_{2.5}$ emissions. $PM_{2.5}$ precursors are not considered in PM microscale analyses, since precursors take time at the regional level to form into secondary PM. Exhaust, brake wear, and tire wear emissions from on-road vehicles are included in the project's PM_{10} and $PM_{2.5}$ analyses. For these analyses, both running and crankcase running exhaust were considered because start exhaust is unlikely to occur on the roadways included in the model domain.

Re-entrained road dust was included in the PM_{10} analysis because the New York State Implementation Plan previously identified that such emissions contribute to PM_{10} concentrations. Road dust was not included in the $PM_{2.5}$ analysis.

d. Model

The analysis was performed using the EPA's MOVES4 emissions model, AP-42 and the AERMOD dispersion model (currently version 24142).

e. Data

The latest MOVES input parameters were obtained from NYSDOT and NYSDEC. Project-specific base traffic data, including volumes, average vehicle speeds, and facility type for each roadway section in the project area, was obtained from the project team. Vehicle volumes were obtained for AM, midday, PM, and overnight periods. The appropriate hourly meteorological data was obtained in the format required for use in AERMOD, as provided by NYSDEC. The meteorological data is representative of the terrain, climate, and topography of the study area. Surface meteorological data and upper air data from Syracuse Airport, NY was used.

Step 3. Estimate On-Road Vehicle Emissions

On-road vehicle emissions were estimated using MOVES. MOVES input parameters were provided by NYSDOT and NYSDEC. MOVES input relies on link-specific data. The PM emissions vary by time of day and time of year. Volume and speed data for each link was obtained from the traffic analysis being conducted for this project for AM, midday, PM, and overnight periods. For each intersection and analysis year, MOVES was run four (4) times (AM, PM, midday, and overnight) for one quarter. The month selected in MOVES coincides with the month with seasonal fuel that results in highest PM emissions. For every source, a set of four (4) emission factors in units of grams per mile were developed for use for each of the analysis years and for each pollutant. Based on the traffic analysis for the Proposed Project, the data was allocated into the time periods shown in Table I-8.

Table I-8 Proposed Traffic Analysis Time Period Combinations

Name	Description	From	To	# of Hours
Period 1	Overnight	6:00 PM	6:00 AM	12
Period 2	AM	6:00 AM	9:00 AM	3
Period 3	Midday	9:00 AM	3:00 PM	6
Period 4	PM	3:00 PM	6:00 PM	3

Step 4. Estimate Emissions from Road Dust, Construction and Additional Sources

Road dust emissions were included in the analysis, as described in step 2(b).

No additional sources of PM emissions were included. It is assumed that PM concentrations due to any other nearby emissions sources were included in the ambient monitor values used for background concentrations. In addition, the Proposed Project is not expected to result in changes to emissions from nearby sources.

Step 5. Select an Air Quality Model, Data Inputs and Receptors

a. Model

The USEPA's AERMOD air dispersion model, currently version 24142, was used to estimate concentrations of PM due to project operations. The model uses traffic data, emission factor data, and meteorological data to estimate concentrations of PM at a series of receptors. For each modeled alternative, the model setup includes a series of links, or roadway segments, for an approximately 1,000 feet segment of the highway. The analysis includes adjacent service roads and cross-streets, as presented in Step 2.

b. Data Inputs

Link-specific inputs include length, mixing zone width, volume, emission factor, initial vertical dimension and vertical dispersion coefficient, as well as release height above ground. The project team provided volume and speed data on the affected roadway links for the agreed-upon analysis years and scenarios. The vehicle mix, including the percentage of medium trucks, heavy trucks and buses, along with roadway grade (slope) on the affected roadway links was also obtained. Meteorological input files were obtained from NYSDEC. As recommended in EPA's "Guideline on Air Quality Models" (Appendix W to 40 CFR Part 51), five consecutive years (2019 to 2023) of the most recent and readily available meteorological data was used for the dispersion modeling analysis; meteorological data from Syracuse Airport was used. For each alternative, AERMOD was run for each of the five years of meteorological data.

c. Receptors

Receptors were placed to estimate the highest concentrations of PM_{10} and $PM_{2.5}$ to determine any possible violations of the NAAQS. Highest concentrations are expected to occur near the areas with the highest-volume roadways. Receptors were placed in a grid, as applicable. Pursuant to the NYSDOT's TEM and USEPA guidance, receptors were placed five meters (approximately 16 feet) from the source of emissions, with a grid of receptors spaced at 25 meters (approximately 82 feet) nearer to the main roadway sources and 50 meters (approximately 164 feet) farther from these sources. Receptors were placed up to 300 meters (approximately 1,000 feet) from the source of emissions (see Figure I-3 through Figure I-5).

Step 6. Determine Background Concentrations from Nearby and Other Sources

The same background concentrations used in the stationary source analyses (Section 0) were used for the PM microscale analyses. The background values were added to the AERMOD modeled design values for comparison to the NAAQS. These values are 14 ug/m^3 for 24-hour $PM_{2.5}$, 5.6 ug/m^3 for annual $PM_{2.5}$, and 33 ug/m^3 for PM_{10}.

Step 7. Calculate Design Concentrations

The model results (Step 5) were added to the background concentration(s) (Step 6) to calculate the design concentrations. The maximum design concentrations were calculated using the steps outlined in EPA's PM hot-spot guidance, which are consistent with the statistical form of the NAAQS. The design concentrations were evaluated to determine the project's potential impacts on PM_{10} and $PM_{2.5}$ concentrations in the project area.

Step 8. Consider Mitigation or Control Measures

If the project results in any violation of NAAQS, mitigation or control measures to reduce emissions in the study area may be considered by the project sponsors. Per NEPA and SEQRA, the consideration of mitigation is required for adverse effects. If such measures are considered, additional modeling will need to be completed, and new design values calculated to ensure that conformity and/or NEPA and SEQRA requirements are met. Mitigation measures may include the following:

a. Retrofitting, replacing vehicles/engines, and using cleaner fuels;
b. Reducing idling;
c. Redesigning the transportation project itself;
d. Controlling fugitive dust; and
e. Controlling other sources of emissions.

Step 9. Document the PM Hot-Spot Analysis

The PM microscale analysis and results are documented in the air quality section of the DEIS main body. Due to the large volume of input and output files created for this analysis, these files will be available electronically.

PM Hot-Spot Analysis Results

As shown in Table I-9 through Table I-11, there would be no exceedances of the NAAQS at any of the analyzed intersections; therefore, mobile source PM_{10} and $PM_{2.5}$ emissions associated with operation of the Preferred Action Alternative are not expected to have a significant adverse impact on local air quality.

Table I-9 Site 1 PM Design Concentrations (μg/m³)

Year	Scenario	Background Concentration	Modeled Concentration	Design Concentration	NAAQS	Exceed NAAQS
	24-Hour $PM_{2.5}$					
2027	No Action	14	1.41	15	35	No
	Preferred Action		1.55	16		
2031	No Action		1.17	15		
	Preferred Action		1.49	15		
2041	No Action		0.91	15		
	Preferred Action		1.16	15		
	Traffic Mitigation Scenario A		0.71	15		
	Traffic Mitigation Scenario B		0.69	15		
	Traffic Mitigation Scenario C		0.69	15		
	Annual $PM_{2.5}$					
2027	No Action	5.6	0.59	6.2	9.0	No
	Preferred Action		0.65	6.3		
2031	No Action		0.48	6.1		
	Preferred Action		0.61	6.2		
2041	No Action		0.39	6.0		
	Preferred Action		0.50	6.1		
	Traffic Mitigation Scenario A		0.30	5.9		
	Traffic Mitigation Scenario B		0.30	5.9		
	Traffic Mitigation Scenario C		0.30	5.9		
	24-Hour PM_{10}					
2027	No Action	33	29.77	63	150	No
	Preferred Action		31.99	65		
2031	No Action		32.50	66		
	Preferred Action		38.23	71		
2041	No Action		33.76	67		
	Preferred Action		40.83	74		
	Traffic Mitigation Scenario A		26.43	59		
	Traffic Mitigation Scenario B		24.65	58		
	Traffic Mitigation Scenario C		24.64	58		

Note: Values may not add up due to rounding.

Table I-10 Site 2 PM Design Concentrations (μg/m³)

Year	Scenario	Background Concentration	Modeled Concentration	Design Concentration	NAAQS	Exceed NAAQS
	24-Hour $PM_{2.5}$					
2027	No Action	14	0.44	14	35	No
	Preferred Action		0.47	14		
2031	No Action		0.48	14		
	Preferred Action		0.63	15		
2041	No Action		0.39	14		
	Preferred Action		0.59	15		
	Traffic Mitigation Scenario A		0.56	15		
	Traffic Mitigation Scenario B		0.45	14		
	Traffic Mitigation Scenario C		0.47	14		
	Annual $PM_{2.5}$					
2027	No Action	5.6	0.20	5.8	9.0	No
	Preferred Action		0.20	5.8		
2031	No Action		0.18	5.8		
	Preferred Action		0.24	5.8		
2041	No Action		0.15	5.7		
	Preferred Action		0.21	5.8		
	Traffic Mitigation Scenario A		0.21	5.8		
	Traffic Mitigation Scenario B		0.15	5.8		
	Traffic Mitigation Scenario C		0.18	5.8		
	24-Hour PM_{10}					
2027	No Action	33	13.92	47	150	No
	Preferred Action		14.67	48		
2031	No Action		18.35	51		
	Preferred Action		19.39	52		
2041	No Action		18.93	52		
	Preferred Action		20.42	54		
	Traffic Mitigation Scenario A		19.89	53		
	Traffic Mitigation Scenario B		18.81	52		
	Traffic Mitigation Scenario C		18.83	52		

Note: Values may not add up due to rounding.

Table I-11 Site 3 PM Design Concentrations (μg/m^3)

Year	Scenario	Background Concentration	Modeled Concentration	Design Concentration	NAAQS	Exceed NAAQS
	24-Hour $PM_{2.5}$					
2027	No Action	14	0.75	15	35	No
	Preferred Action		0.75	15		
2031	No Action		0.61	15		
	Preferred Action		0.63	15		
2041	No Action		0.40	14		
	Preferred Action		0.40	14		
	Traffic Mitigation Scenario A		0.40	14		
	Traffic Mitigation Scenario B		0.38	14		
	Traffic Mitigation Scenario C		0.37	14		
	Annual $PM_{2.5}$					
2027	No Action	5.6	0.26	5.9	9.0	No
	Preferred Action		0.26	5.9		
2031	No Action		0.22	5.8		
	Preferred Action		0.22	5.8		
2041	No Action		0.14	5.7		
	Preferred Action		0.14	5.7		
	Traffic Mitigation Scenario A		0.14	5.7		
	Traffic Mitigation Scenario B		0.12	5.7		
	Traffic Mitigation Scenario C		0.12	5.7		
	24-Hour PM_{10}					
2027	No Action	33	9.36	42	150	No
	Preferred Action		9.38	42		
2031	No Action		10.37	43		
	Preferred Action		10.60	44		
2041	No Action		11.02	44		
	Preferred Action		11.17	44		
	Traffic Mitigation Scenario A		11.09	44		
	Traffic Mitigation Scenario B		12.64	46		
	Traffic Mitigation Scenario C		11.94	45		

Note: Values may not add up due to rounding.

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Appendix I-3
CO & PM Screening Spreadsheets

APPENDIX J
GREENHOUSE GAS EMISSIONS, CLIMATE CHANGE, AND CLIMATE RESILIENCY

Appendix J-1
Air Application 2 GHG BACT Analysis

J-1 Air Application 2 GHG BACT Analysis

As described in Chapter 3.6, GHG Emissions, Climate Change, and Climate Resiliency, included in this appendix are the GHG control measures and BMP's as proposed for Micron's GHG BACT analysis for its PSD permitting review in support of the submitted Air Permit Application 2 (Appendix L) to NYSDEC. Please note these measures are subject to change based on ongoing regulatory review of the application package by NYSDEC.

Appendix J-2
CLCPA Analysis

APPENDIX K
SOLID WASTE HAZARDOUS WASTE, AND HAZARDOUS MATERIALS

Appendix K-1
Solid Waste, Hazardous Waste, and Hazardous Materials Methodology

K-1 Solid Waste, Hazardous Waste, and Hazardous Materials Methodology

This section defines the study area for Solid Waste, Hazardous Waste, and Hazardous Materials and explains the methodology and information sources used to describe the affected environment. This section also explains the evaluation methods used to determine the direct and indirect effects of the alternatives relating to this resource area. Potential cumulative effects relating to this resource area are evaluated in Chapter 4.

The study area for solid waste, hazardous waste, and hazardous materials is the five-county region, which was selected as an appropriate geographic area for purposes of evaluating the relationship of the alternatives to the regional capacity for solid and hazardous waste disposal and handling of hazardous materials. This is the same study area used in the EIS to analyze growth inducing effects (see Appendix C). Section 3.8 (Solid Waste, Hazardous Waste, and Hazardous Materials) includes an analysis of growth inducing effects relating to solid waste, hazardous waste, and hazardous materials.

The study area includes the Town of Clay and the Town of Cicero, and encompasses the Proposed Project (the proposed 1,377-acre Micron Campus, 38-acre Rail Spur Site, and 31-acre Childcare Site) and the proposed Connected Actions, including proposed new structures at the National Grid Clay Substation, OCWA LOWTP, and OCWA Terminal Campus, and the proposed new IWWTP at the OCDWEP Oak Orchard site.

The analysis in Section 3.8 relies on several sources, including information gathered from online resources for commercial solid and hazardous waste services, the Onondaga County LSWMP, and discussions with the OCRRA (OCRRA, 2021, 2023).

In addition, Phase I ESAs were conducted for the WPCP and the proposed Rail Spur and Childcare Sites and included limited assessments of the proposed Connected Action location utility corridors (natural gas line, water lines, and industrial wastewater conveyance). The Phase I ESAs reviewed all pertinent environmental databases and incorporated findings from site inspections where feasible. The Phase I ESAs evaluated existing site conditions for the presence of hazardous materials and other environmental conditions consistent with American Society for Testing and Materials (ASTM) Standard E1527-21, which identifies potential areas of concern where soil disturbance associated with construction would take place. The Phase I ESAs are included in Appendices K-3 through K-5. Section 3.8 summarizes the findings and conclusions of the Phase I ESAs where relevant to the analysis and describes the types of hazardous materials that would be used on-site at the Proposed Project (including chemical and petroleum bulk storage).

Section 3.8 analyzes the Proposed Project's potential to generate solid and hazardous waste and considers how hazardous materials would be handled, stored, and transported for disposal. The section evaluates: (1) the ability of the existing waste management network to accept increased waste volumes generated by the Proposed Project, taking into account anticipated induced population growth in the study area; and (2) the timing and need for expanded waste and recycling facility capacity. Section 3.8 also outlines the measures that Micron would implement to reduce solid and hazardous waste generation, including waste minimization and reuse, recycling, and recovery. The section details how the Proposed Project would comply with the Onondaga County LSWMP and with Town of Clay and Town of Cicero ordinances.

Section 3.8 lists the solid and hazardous wastes that the Proposed Project would be anticipated to generate as defined in 6 NYCRR Part 371.4. The section's estimates pertaining to waste that would be generated over the course of the construction and operation of the Proposed Project were developed based on information and data relating to waste generated during construction, expansion, and operation of projects at other Micron locations, and were appropriately scaled based on the Proposed Project's comparative square footage.

The analysis of the quantities of different waste streams that would be produced during Proposed Project operation take into account Micron's reuse, recycling, and recovery measures and are based on information from current Micron fabrication facility operations at other locations. Micron's safety procedures for handling, storing, and transporting solid and hazardous wastes from the Proposed Project also are based on related procedures that Micron employs at its existing locations. The information and data relating to the analysis of anticipated waste streams and the procedures Micron would employ have been updated as appropriate to account for differences in fabrication processes across facilities and Micron's most up-to-date waste reduction practices.

References

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Appendix K-2
Solid Waste Transfer Stations and Disposal Facilities

K-2 Solid Waste Transfer Stations and Disposal Facilities

The OCRRA Solid Waste Management Plan, which is updated every two years, provides projections for waste and recyclables and outlines the facilities that OCRRA will use for recyclables and non-hazardous, commercial, and residential waste. OCRRA's Comprehensive Solid Waste Management Plan Update for 2023-2024 outlines steps OCRRA will take to achieve plan goals, including the education of waste generators on how to reduce waste streams and set up recycling programs. Based on the most recent Onondaga County LSWMP, the MSW collected in 2021 was within OCRRA's projections, while the MSW collected in 2022 was below the projections (OCRRA, 2023).

K-2.1 Rock Cut Road Transfer Station

The RCR Transfer Station serves commercial and residential customers and is permitted to accept up to 800 tons per day of MSW, CDD, and single-stream recyclables from commercial and residential haulers (OCRRA, 2021). The RCR Transfer Station serves commercial customers on weekday mornings and early afternoons. Residential customers can access the RCR Transfer Station Monday through Saturday in the late afternoon and evening.

According to Permitted Transfer Facility Annual Reports for the RCR Transfer Station, in 2021 the facility received 85,166 tons of solid waste (an average of 370 tons per day), which included 19,080 tons of MSW (an average of 83 tons per day) and 58,266 tons of CDD (an average of 253 tons per day) (OCRRA, 2023). In 2022, it received 87,735 tons of solid waste (an average of 344 tons per day), which included 20,170 tons of MSW (an average of 79 tons per day) and 60,674 tons of CDD (an average of 238 tons per day). In 2022, the facility also received 104 tons of single-stream recyclable materials (an average of 0.71 tons per day) (OCRRA, 2023). In 2023, the facility received 94,586 tons of MSW and CDD, a seven percent increase over 2022 (OCRRA, 2024). The MSW was transferred from RCR Transfer Station to the Onondaga County WTE Facility, the CDD was transferred to Camillus Landfill, Seneca Meadows Landfill, and the WTE Facility, and the single-stream recyclables were transferred to Waste Management Recycle America.

K-2.2 Onondaga County Waste-to-Energy Facility

The WTE Facility has a permitted capacity of 361,350 tons per year (990 tons per day). The facility processed 347,604 tons of solid waste in 2021 (an average of 952 tons per day), 349,923 tons in 2022 (an average of 959 tons per day), and 347,428 tons in 2023 (an average of 952 tons per day) (OCRRA, 2023; Covanta 2024). Depending on capacity at the WTE Facility and other factors, OCRRA would decide whether to process material at the WTE Facility or to send it to a permitted landfill.

K-2.3 Ley Creek Transfer Station

OCRRA previously permitted the Ley Creek Transfer Station to accept up to 1,200 tons per day of MSW, CDD, and single-stream recyclables generated within OCRRA's service area (OCRRA, 2023). The Ley Creek Transfer Station also supported waste transfer needs for the RCR Transfer Station. After June 2022, the Ley Creek Transfer Station stopped accepting residential customers, is no longer open to the public, and currently is used as a temporary staging area to store MSW or CDD when transfer capacity is needed (OCRRA, 2023).

According to Permitted Transfer Facility Annual Reports for the Ley Creek Transfer Station, in 2021 the facility received 9,785 tons of solid waste (an average of 64 tons per day) and 216 tons of single stream recyclable materials (OCRRA, 2023). In 2022, the facility operated from January through June and received 3,587 tons of solid waste (an average of 27 tons per day), which included 3,386 tons of MSW (an average of 27 tons per day), and 73.5 tons of single stream recyclable materials (OCRRA, 2023). The MSW was transferred from Ley Creek Transfer Station to the WTE Facility and the Seneca Meadows Landfill in Waterloo, Seneca County, the CDD was transferred to Camillus Landfill, and the single-stream recyclables were transferred to Waste Management Recycle America. Independent of the Proposed Project, OCRRA currently has an application pending with NYSDEC to renew and modify its permit for the Ley Creek Transfer Station.

K-2.4 Facilities for Recyclables and Regulated Medical Waste

Commercial recyclables are collected by private haulers and are brought to facilities including Waste Management Recycle America and SMR Fibre, both located in Liverpool in Onondaga County. RMW is collected by private haulers and is brought to facilities permitted to accept such waste, including Environmental Maintenance Service, Inc., Safeguard Solutions, Inc., and Stericycle, Inc.

K-2.5 Camillus Landfill

Camillus Landfill is a privately-owned landfill in Camillus in Onondaga County that only accepts CDD (which includes brick, concrete, glass, wood, carpet, non-asbestos insulation and shingles, metals incidental to construction, plaster/drywall, plumbing fixtures, wiring, and road scrapings). All waste processed at this facility comes from Onondaga County. The landfill’s 2022 annual report estimated its remaining life to be 1 year and 6 months based on constructed capacity and 11 years and 6 months based on permitted capacity still to be constructed (Honeywell International, Inc., 2023).

K-2.6 Oswego County Energy Recovery Facility and Bristol Hill Landfill

Oswego County utilizes an energy recovery facility as well as a landfill for solid waste disposal. The Oswego County Energy Recovery Facility is permitted to accept 73,000 tons per year of CDD, industrial waste, and residential, institutional, and commercial MSW. The facility processed 48,780 tons of these wastes in 2021 and 36,056 tons in 2022 (Oswego County Department of Solid Waste, 2022a; Oswego County Department of Solid Waste, 2023a). The Bristol Hill Landfill is permitted to receive up to 100,000 tons per year (NYSDEC, 2020). The landfill received 88,123 tons in 2021 and 57,613 tons in 2022. The landfill’s 2022 annual report estimated its remaining life to be 4 years and 9 months based on constructed capacity and 25 years and 6 months based on remaining authorized landfill capacity not yet constructed (Oswego County Department of Solid Waste, 2022b; Oswego County Department of Solid Waste, 2023b).

K-2.7 Madison County Landfill

Madison County operates the Madison County Landfill for solid waste disposal in Lincoln, New York. This landfill has received an average of just under 55,000 tons per year over the 2019 through 2023 period; it is permitted to accept 60,000 tons per year (Cornerstone, 2024). The landfill's 2021 annual report estimates its remaining life to be 3 years and 2 months based on constructed capacity and 121 years and 5 months based on remaining authorized landfill capacity not yet constructed (Madison County Department of Solid Waste, 2022). Madison County solid waste management is funded solely by a user fee system, and the County has concerns with the long-term financial sustainability of this system (Cornerstone, 2024). Madison County is currently evaluating options to optimize operations in order to self-fund capital projects, one of which is to seek a permit modification from NYSDEC to accept additional tonnage, including from outside of Madison County (Cornerstone, 2024). If the landfill is instead closed, Madison County would construct a transfer station to handle waste previously sent to the landfill (Cornerstone, 2023).

K-2.8 Cortland County Landfill

Cortland County operates the Cortland County Landfill for solid waste disposal, which has received an average of 40,479 tons per year between 2018 and 2022 and is permitted to receive up to 44,500 tons per year (Cortland County, 2023; NYSDEC, 2020). The landfill's 2022 annual report estimates its remaining life to be just over 13 years (Cortland County, 2023).

K-2.9 Cayuga County Transfer Stations

Cayuga County utilizes several transfer stations, and all waste materials are transported out of the County. The former Auburn Landfill closed in 2021, and it now serves as a transfer station. Cayuga County anticipates a decreasing population between 2023 and 2032, which, combined with increased recycling efforts, is expected to gradually reduce waste generated within the County (Cayuga County Department of Planning & Economic Development, 2023). These transfer stations are only permitted to take waste generated in Cayuga County.

K-2.10 Seneca Meadows Landfill

Although it is outside the study area, OCRRA has contracted with Seneca Meadows, Inc. through December 2025 for transfer of some MSW and CDD to Seneca Meadows Landfill in Waterloo, Seneca County, which accepts asbestos, industrial ash, CDD, contaminated soil, sludge, other industrial wastes, and MSW. However, the Seneca Meadows Landfill is expected to be at capacity in the near term, with no remaining permitted capacity to be constructed. A permit application has been submitted to expand the facility, but has not yet been approved (Seneca Meadows Inc., 2023).

K-2.11 High Acres Landfill & Recycling Center

Although it is outside the study area, High Acres Landfill & Recycling Center is a privately-owned landfill in Fairport that straddles the eastern edge of Monroe County and the western edge of Wayne County and receives waste from Onondaga County. The center receives asbestos waste, CDD, industrial waste, MSW, petroleum contaminated soil, and sewage treatment plant sludge. The center's 2022 annual report estimated its remaining life to be 3 years and 6 months based on constructed capacity and 31 years and 4 months based on permitted capacity still to be constructed.

K-2.12 Tree Debris Facilities

The Jamesville and Amboy Compost Sites accept residential, commercial, and municipal yard waste (grass, leaves, and branches); the Amboy Compost Site also accepts stumps (48 inches or smaller), logs, and residential and commercial source-separated organics (OCRRA, 2023). Trunks measuring less than 10 feet in length may be accepted at OCRRA Compost Sites. Other facilities, such as Lan-Co Companies, Inc. in North Syracuse, accept tree debris and clean soil from site clearing and excavating activities. Last Chance Recycling (East Syracuse) and Clifton Recycling (Syracuse) are private facilities that accept stumps and root clusters. Various pallet manufacturers are within the study area, including McIntosh Box and Pallet Co., Inc. (Syracuse), Pallet City (Liverpool), Van Santis Pallet Repair (Liverpool), and Eudell Sales and Pallet Repair (Syracuse); these companies could be contacted for potential pallet recycling.

In addition, various sawmills in the area could be contacted for tree debris recycling opportunities, including Paradise Milling; Willey Lumber Co., Inc.; Schaack Fabricating, Inc.; McIntosh Box & Pallet Co., Inc.; Heartwood Millwork Co.; Harmatuk Millwork; E.F. Thresh Inc.; Concepts in Wood of CNY Inc.; Commercial Millwork Inc.; Christiana Millwork, Inc.; Banach Construction; B & B Lumber Company, Inc.; Wood Etc.; and Salt City Woods, Mill & Kiln, LLC. Mulch manufacturers within the study area accept clean wood waste for a fee for use in manufacturing mulch and compost, including Clifton Recycling Inc., which has locations in both Clay and Syracuse, and Mill Creek in Syracuse.

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Appendix K-3
Phase I ESA – Main Campus West

Appendix K-4

Phase I ESA – Main Campus East, Rail Spur Site, and Childcare Site

Appendix K-5
Phase I ESA – Rail Spur Parcel Addition

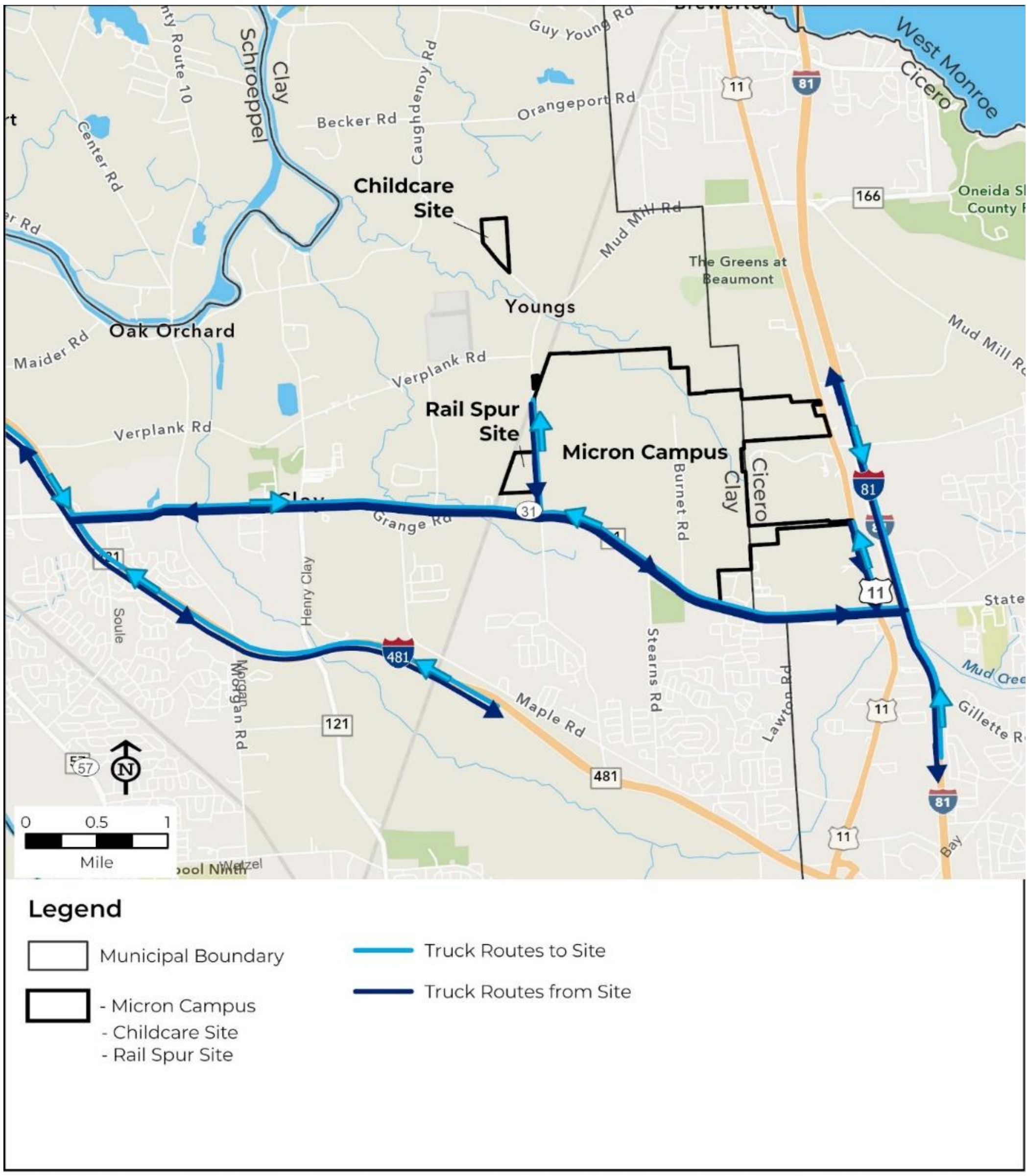
Appendix K-6
Supplemental Information: Environmental Consequences

K-6 Supplemental Information: Environmental Consequences

K-6.1 Waste and Material Truck Transport Routes

Proposed in-bound and out-bound truck routes to the Micron Campus and Rail Spur Site for transport of solid and hazardous waste and hazardous materials are shown in Figure K-1Figure K-1. All trucks loaded on the Micron Campus would exit the vicinity using only these approved truck routes. These are the most appropriate routes and take into account: (a) limiting transport through residential areas and past sensitive sites; (b) prohibiting off-site queuing of trucks entering the facility; (c) limiting total distance to major highways; and (d) overall safety in transport.

Figure K-1 Truck Routes to and from Micron Campus and Rail Spur Site



Community: Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS. Data Source: NYS Office of Information Technology Services Geospatial Services and NYS Department of Taxation and Finance's Office of Real Property Tax Services (ORPTS) and AKRF study area survey

As part of the Proposed Project, Micron would work closely with equipment and material suppliers to reduce its energy and water consumption and waste generation. Micron also would seek LEED Gold or Platinum certification for the proposed Micron Campus Fab and Administration buildings and the childcare center, healthcare center, and recreation center. Micron would employ reuse, recycle, and recovery and waste minimization strategies to reduce the amount of materials that would be sent to the WTE Facility, landfills, or other disposal sites, in accordance with the programs and procedures described below.

K-6.2 Micron Waste Minimization Procedure

As part of the Proposed Project, Micron would employ a detailed waste minimization procedure incorporating strategies such as material substitution, process modification, segregation and characterization, reclamation, inventory management and control, and chemical redistribution. This procedure would reduce waste streams through reuse, recycling, and recovery, and would prioritize waste source reduction methods and technologies, such as raw material substitution using non-hazardous or less toxic materials. Inventory management and control would help reduce unnecessary waste due to expiration. Some raw materials and byproducts could be reused, and some chemicals could be used past their expiration dates.

The waste minimization program effectiveness at the Proposed Project would be continuously evaluated and updated to meet requirements of Federal regulations and Micron's Global Sustainability Standards. See Appendix K-12 for an example Micron waste minimization procedure that would be adapted for the Proposed Project.

K-6.3 Micron Reuse of Used Materials

As part of the Proposed Project, Micron would use reasonable efforts to avoid unnecessary disposal of used materials by identifying such materials that may be appropriate for continued use or reuse. Some items would be reused, while others may be donated or sold. Micron would provide one or more appropriate locations within the Proposed Project buildings for employees and others to submit materials for potential reuse.

K-6.4 Micron Recycling Program

As part of the Proposed Project, Micron would implement procedures to collect the following types of non-hazardous wastes at appropriate collection points within the Proposed Project buildings to ensure these materials are recycled rather than sent to a waste-to-energy facilities or landfills: cardboard; batteries; paper; plastic chemical bottles and drums[22]; precious metals, premium scrap metals, and IP materials; plastic; metals; computer components; wood and pallets; wafer boats; scrap wafers and blue scrap (silicon); and print and toner cartridges.

[22] Plastic chemical bottles and drums qualify for recycling if they meet the definition of "RCRA Empty", defined as having removed as much from the container as possible via common practical means (e.g., pouring, pumping) such that no more than one inch of material remains on the bottom or no more than three percent by weight of the total capacity of the container remains (no more than 0.3% by weight for containers greater than 119 gallons in size). Alternatively, empty plastic bottles and drums could be reused to collect hazardous waste throughout the facility.

The recycling program effectiveness at the Proposed Project would be continuously evaluated and updated to meet Micron's Global Sustainability Standards. See Appendix K-12 for an example Micron Recycling and Solid Waste Program that would be adapted for the Proposed Project.

K-6.5 PaintCare Program

PaintCare Inc., a non-profit 501(c)(3) organization, encourages paint manufacturers (paint producers) to plan and operate paint stewardship programs in U.S. states and jurisdictions that pass paint stewardship laws. PaintCare has launched programs across the country following the passage of similar laws in California, Colorado, Connecticut, the District of Columbia, Maine, Minnesota, New York, Rhode Island, Vermont, and Washington, and is developing programs in Illinois and Maryland. In the states where PaintCare operates, businesses can take their unwanted, leftover paint to a PaintCare drop-off site. There are several drop-off sites within the Syracuse NY area.

Micron will integrate a policy/procedure for the Proposed Project to recycle the paint waste generated at the site via the PaintCare program. Prior to the offsite disposal at a PaintCare location, Micron will properly store the unused and/or waste containers of paint products to prevent spills from occurring.

K-6.6 Micron Universal Waste Procedure

Micron also would develop a universal waste procedure for the Proposed Project to minimize the disposal of universal waste (more common forms of hazardous waste, such as aerosols, batteries, fluorescent bulbs, and mercury-containing equipment) at waste-to-energy facilities and landfills. Under this procedure, Micron would be able to hold and accumulate universal waste on-site for up to one year in accordance with applicable regulations. Universal waste would be kept in closed and properly labeled tanks, containers, or transport vehicles prior to transport to approved treatment facilities. See Appendix K-12 for an example Micron universal waste procedure that would be adapted for the Proposed Project.

Appendix K-7
Draft Micron Soil Materials Management Plan

Appendix K-8
Draft Micron Construction Waste Management Plan

Appendix K-9
Micron Hazardous Waste Contingency Plan (Outline)

Appendix K-10
OCRRA Waste Capacity Availability

Appendix K-11
2024 Micron Technology, Inc. Sustainability Report

Appendix K-12
Example Micron Procedures

APPENDIX L
HUMAN HEALTH AND SAFETY

Appendix L-1

Use, Management, and Disposal of Per- and Polyfluoroalkyl Substances at the Micron New York Semiconductor Fabrication Facilities

L-1 Use, Management, and Disposal of Per- and Polyfluoroalkyl Substances at the Micron New York Semiconductor Fabrication Facilities

This Appendix supplements the discussion in FEIS Chapter 3.8 and incorporates where appropriate Appendix C of the "Final Programmatic Environmental Assessment for Modernization and Expansion of Existing Semiconductor Fabrication Facilities under the CHIPS Incentives Program" (NIST, 2024).

L-1.1 Background

Per- and polyfluoroalkyl substances (PFAS) are a group of manufactured fluorinated organic chemicals. The term "PFAS" is generally used as a broad, general, and nonspecific term that does not necessarily indicate whether a particular compound is harmful but may merely communicate as a technical matter that the compound has a fully fluorinated methyl or methylene carbon moiety. Under the broadest definitions of PFAS, the term can group together gases, liquids, and solids with vastly different properties and hazards (SIA, 2023c).

Only a small number of PFAS, primarily perfluorooctanoic acid (PFOA) and perfluoroctane sulfonate (PFOS), have been well-studied for their environmental deposition mechanisms, human and animal exposure effects, or toxicological effects. The science around PFAS is relatively new and evolving. This includes not only developing knowledge of the types and nature of PFAS but also on-going advancements in methods of detection, changing regulatory requirements and emerging ways to avoid, minimize, manage and mitigate the storage, use and disposal of PFAS.

Depending on how PFAS are defined, there are thousands of different PFAS manufactured and used throughout the global economy. PFAS are widely used due to their unique characteristics, such as water, heat, oil, and chemical-resistant qualities among other features. These substances have been used in a wide range of products, including in the manufacture of nonstick cookware, water-repellent clothing, stain resistant fabrics and carpets, some cosmetics and personal care products, some firefighting foams, and products that resist grease, water, and oil. They are also used in critical industries such as aerospace, automotives, defense, electronics, and healthcare/medical devices.

There is growing international attention on PFAS due to the potential health effects and persistence in the environment. Most scientific and regulatory attention has been directed at two specific PFAS compounds – PFOA and PFOS – though both regulatory and scientific focus are expanding beyond these two substances. While additional regulation of PFAS is anticipated, these substances may be used consistent with legal requirements.

Semiconductor manufacturers use PFAS as an essential material in multiple steps in the fabrication process (SIA 2023c). The general process for semiconductor manufacturing includes the following steps: oxidation, lithography, etching, deposition, ion implantation, metallization and interconnects, passivation, chemical mechanical planarization, dicing, testing and quality control. PFAS are most utilized during the lithography, etching, and certain deposition processes, in addition to being used throughout some general processes and equipment (e.g., wet chemical process, heat-transfer fluids (HTFs), assembly, test, packaging and substrate (ATPS), pump fluids and lubricants, and articles) (SIA 2023c).[23]

This Appendix further describes the various PFAS definitions, analytical techniques for measuring the presence of PFAS, the existing regulatory landscape for managing PFAS, as well as intended use and disposal of PFAS for the Micron Project. It then expands on Micron's overall chemical management practices for responsible use of these critical substances at the Micron Campus, based on available information and design progress to date. Next, this Appendix describes avoidance and minimization strategies for PFAS that are being considered and will be implemented, to the extent feasible and practicable, including (i) identification and implementation of non-PFAS alternatives, and (ii) requirements for wastewater treatment, air emissions controls, and recycling and disposal frameworks.

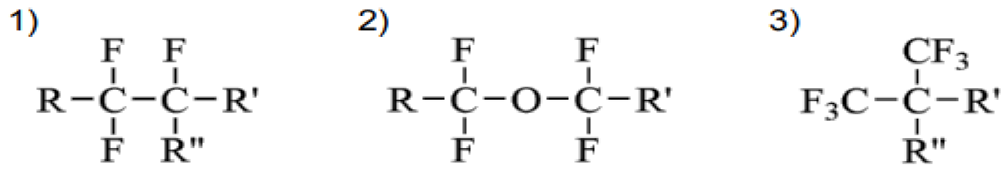
Overall, the FEIS including this Appendix summarize the available information to identify PFAS use and management, address the associated potential risks to the environment and human health, and identify the procedural controls and BMPs that will be implemented to manage such risks consistent with all applicable state and local permits. As a result, the Proposed Project's storage, use, wastewater discharge and disposal of PFAS containing substances would not be anticipated to result in significant adverse effects.

L-1.2 What are PFAS?

PFAS are a group of manufactured fluorinated organic chemicals that are characterized by their carbon and fluorine bonds. The definition of PFAS is evolving and varies by organization. For instance, the Organisation for Economic Co-operation and Development (OECD) defines PFAS as fluorinated substances that contain at least one fully fluorinated methyl or methylene carbon atom (without any H/Cl/Br/I atom attached to it), i.e. with a few noted exceptions, any chemical with at least a perfluorinated methyl group (–CF3) or a perfluorinated methylene group (–CF2–)) (OECD, 2021). The OECD publishes a list of thousands of PFAS falling within its definition that is searchable by chemical abstracts service (CAS) number. The OECD list containing thousands of PFAS chemicals is available at: . Similarly, the United States Environmental Protection Agency (USEPA) has defined PFAS under section 8(a)(7) of the Toxic Substances Control Act (TSCA) and the TSCA implementing regulations at 40 C.F.R. Part 705, as any chemical substance or mixture that contains at least one of the following three sub-structures (): (1) R-(CF2)-CF(R′)R″, where both the CF2 and CF moieties are saturated carbons (carbons which are single-bonded to their maximum stable number of atoms or groups); (2) R-CF2OCF2-R′, where R and R′ can either be F, O, or saturated carbons; and (3) CF3C(CF3)R′R″, where R′ and R″ can either be F or saturated carbons. USEPA published a list of known PFAS that is searchable by CAS number, available at .

[23] Note, however, that these processes and uses are meant to describe practices in the semiconductor industry generally, and may not be applicable to Micron's operations.

Figure - TSCA PFAS-Defining Sub-Structures



New York State uses a different approach, defining PFAS as "a class of fluorinated organic chemicals containing at least one fully fluorinated carbon atom." N.Y. Envtl. Conserv. Law Sec. 37-0101(7) (defining hazardous substances); see, e.g., N.Y. Gen. Bus. Law Sec. § 391-u(f) (providing restrictions on the sale and use of PFAS-containing firefighting foams). New York does not currently publish a list of substances that meet this definition. See .

PFAS may be characterized as either long-chain (containing six or more linked carbon atoms) or short-chain (containing fewer than six carbon atoms) (ITRC, 2020).[24] To date, most PFAS regulatory efforts have focused on addressing long-chain PFAS; short-chain PFAS may be more environmentally mobile and degrade faster, making them less persistent (ITRC 2023a). An overview of potential risks associated with PFAS is available in Appendix C of the "Final Programmatic Environmental Assessment for Modernization and Expansion of Existing Semiconductor Fabrication Facilities under the CHIPS Incentives Program" (NIST 2024).

For purposes of the FEIS, the lead agencies did not exclude consideration of any PFAS based on these definitions, taking a broad view to review potential impacts of the Proposed Project. The agencies also did not limit consideration to currently regulated PFAS or to long-chain or short-chain PFAS.

L-1.3 Analytical Developments and Challenges

While some PFAS substances are detectable at very low concentrations (in the single digit parts per trillion (ppt) levels), depending on the environmental media, technology for detection of other PFAS is still evolving and requires the continued development and validation of effective detection methodologies. (NIST 2024). Various federal and state agencies, including USEPA, are engaged in these development efforts (NIST 2024). Industry groups, such as the Semiconductor Industry Association, have supported or explored the review and development of PFAS-detection metrologies (Droz 2025). Semiconductor Industry Association (SIA) members have developed a roadmap and goals for development of PFAS abatement and advanced analytical and sensing methods. SIA members participating in the Semiconductor PFAS Consortium are also exploring options for research through university-led projects or by individual companies.

Available PFAS detection methods vary depending on the medium (i.e., potable drinking water, wastewater, source air emissions, or solid waste) (USEPA 2024e). These methodologies are in various stages of validation. USEPA has developed several methods to detect PFAS in potable drinking water sources in support of the Safe Drinking Water Act (SDWA). Methods 533, 537.1

[24] Perfluoroalkane sulfonic acids are typically considered to be short-chain if they have fewer than 6 carbons, while perfluoro carboxylic acids are considered short-chain if they have less than 8 carbons (ITRC 2020).

version 2.0, and 537 can detect up to 29 PFAS compounds in drinking water (USEPA 2019, 2025a). USEPA has developed methods for analyzing aqueous non-potable water samples primarily through the Clean Water Act (CWA) and methods for solid waste (SW-846) under the Resource Conservation and Recovery Act (RCRA). USEPA Method 8327 applies to the detection of 24 PFAS in non-potable water (wastewater, surface water, or groundwater), whereas Methods 1633 and 1633A detect 40 PFAS in wastewater, surface water, groundwater, soil, biosolids, sediment, landfill leachate, and fish tissue (USEPA 2024c). Method 1633A has been validated and is pending approval for inclusion in the Code of Federal Register, with USEPA indicating that it may be used in various applications, including National (or authorized State) Pollutant Discharge Elimination System (NPDES or SPDES) permits (USEPA 2024e).

USEPA has posted two Other Test Methods (OTM) for PFAS and fluorinated compounds in source air emissions. OTMs are test methods that have not yet been subject to the federal rulemaking process. EPA's posting of an OTM technique is not "an endorsement by EPA regarding the validity of the test method nor a regulatory approval of the test method," but a mechanism to promote scientific discussion on an analytical technique. (USEPA 2025b, USEPA 2025c). OTM-45 focuses on approximately 50 semi-volatile and particulate-bound PFAS, whereas OTM-50 measures 30 specific volatile fluorinated compounds (potential indicators of PFAS) from stationary sources (USEPA 2025b, USEPA 2025c). Laboratories capable of performing OTM-45 and OTM-50 are currently limited in number. USEPA is currently accepting feedback on OTM-45 and OTM-50 from the scientific community to support future validation of these methods (USEPA 2024e).

Method 1633 and OTM-45 were developed alongside Method 1621. Method 1621 was designed to detect adsorbable organic fluorine in aqueous matrices, thus allowing the method to broadly screen for thousands of known PFAS (and other) compounds at the part per billion level in aqueous (water) samples (USEPA 2024d). Method 1621 currently is not required for CWA compliance monitoring at the national level, but USEPA is considering whether to promulgate it as a mandatory test method through rulemaking (USEPA 2024e).

There are also a range of more experimental metrologies under development for analysis of PFAS in semiconductor wastewater, including total oxidizable precursor (TOP) assay, total organic fluorine (TOF), adsorbable organic fluorine (AOF), and ^{19}F nuclear magnetic resonance (NMR), which are briefly discussed below. None of these methods has been standardized or validated by USEPA for measurements in wastewater or other media.

The TOP assay is a method for estimating precursor PFAS concentrations by oxidizing them into measurable perfluoroalkyl acids (PFAAs), preserving fluorinated chain length for electrofluorination-based precursors. However, it cannot detect non-oxidizable PFAS, such as ether acids, and may underestimate PFAS in semiconductor wastewater due to incomplete oxidation or exclusion of short-chain products (Droz 2025).

TOF methods, often used synonymously with total fluorine analysis, are used to estimate total organic fluorine by subtracting measured fluoride ion concentrations from the total organic and inorganic fluorine measured. TOF methods have high detection limits and may overestimate organic fluorine if fluoride is not efficiently removed. Thus, TOF's accuracy is challenged by high fluoride backgrounds in semiconductor effluent, which can interfere with accurate quantification. The method also has questionable application for distinguishing low levels of PFAS when high non-PFAS containing fluorine is present (Droz 2025). Additionally, these methods detect non-PFAS substances.

AOF methods, including USEPA Method 1621, are intended to capture a broad spectrum of PFAS including unknowns and total organic fluorine estimation. Yet, they suffer from variable recovery for short-chain and neutral PFAS and are challenged by high fluoride backgrounds in semiconductor effluent, which can interfere with accurate quantification (Droz 2025).

^{19}F NMR spectroscopy analyzes for the ^{19}F isotope of fluorine and may offer the ability to distinguish organic from inorganic fluorine, with minimal sample preparation, and applicability to fluoropolymers. It is non-destructive and tolerates diverse sample conditions, but its low sensitivity, susceptibility to interference from paramagnetic ions, and lack of standardized methods for wastewater analysis limit its routine use (Droz 2025).

The lack of validated methods for accurately identifying and quantifying the full range of PFAS in various media creates challenges for PFAS regulation and management. Government and industry groups, including semiconductor trade groups in which Micron actively participates, are working to advance these capabilities. USEPA has identified development of additional PFAS test methods as a priority (USEPA 2025d).[25]

L-1.4 PFAS Regulatory Regime

PFAS regulation is rapidly evolving at the federal and state level. USEPA has finalized multiple regulations and guidance on PFAS use, reporting, monitoring, treatment, and cleanup, while New York State has enacted its own standards, often ahead of and more stringent than federal requirements. Additional PFAS regulation is anticipated to emerge as the Proposed Project is constructed and operated. Lawful and responsible use of PFAS continues to be permitted, particularly in critical industry sectors. Recognizing that these may change over the life of the Proposed Project, the current regulatory schemes relevant to the planned Micron Campus in Clay, NY and, with which Micron will be required to comply, are discussed below.

In April 2024, USEPA promulgated final maximum contaminant levels (MCLs) under the Safe Drinking Water Act for six PFAS substances in drinking water: PFOS, PFOA, hexafluoropropylene oxide dimer acid (HFPO-DA, a.k.a. GenX), perfluorohexanesulfonic acid (PFHxS), perfluorononanoic acid (PFNA), and perfluorobutanesulfonic acid (PFBS). USEPA set final MCLs for PFOA and PFOS at 4 ppt each, and limits for PFHxS, PFNA, and HFPO-DA at 10 ppt each (40 CFR § 141.61(c)(2)). The Hazard Index MCL defines when the combined levels of two or more of PFHxS, PFNA, HFPO-DA, and PFBS require action. A mixture with combined levels of two or more of these four PFAS that is greater than 1 (unitless) indicates an exceedance of health protective levels. For the Hazard Index MCL, USEPA set health-based water concentration (HBWC) levels for PFHxS (10 ppt), PFNA (10 ppt), HFPO-DA (10ppt), and PFBS (2,000 ppt). The individual ratios of PFAS concentrations to HBWCs are then summed across the mixture to yield the hazard index (40 CFR § 141.61(c)(2)(i)). While USEPA has announced plans to alter the compliance deadline from 2029 to 2031 for PFOA and PFOS and to rescind

[25] USEPA Administrator Zeldin announced plans to “Ramp up the development of testing methods to improve detection and strategies to address PFAS” (USEPA 2025d).

requirements for the other four PFAS, USEPA has not published a proposed (or final) rulemaking (USEPA 2025e). However, in September 2025, USEPA asked the United States Court of Appeals for the D.C. Circuit to vacate the individual MCLs for PFNA, PFHxS and HFPO-DA, the Hazard Index MCL, and the associated maximum contaminant levels goals in *American Water Works Ass'n v. EPA*, Case No. 24-1188 (D.C. Cir.). USEPA did not ask the court to vacate the MCLs for PFOA and PFOS. Limits and controls established for specific PFAS prioritized for regulation would reasonably be expected to provide controls for other PFAS as well. (USEPA 2024a).

New York State has set drinking water standards for PFOA and PFOS at 10 ppt each. The New York State Department of Environmental Conservation (NYSDEC) also has established guidance values for PFOA and PFOS in surface water sources at 6.7 and 2.7 ppt, respectively (NYSDEC 2023). NYSDEC has issued draft guidance (TOGS 1.3.14) to implement these guidance values in SPDES permits issued to POTWs, including for the existing Oak Orchard WWTP SPDES permit (NYSDEC 2024).

In May 2024, USEPA finalized a rule designating PFOA and PFOS as hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 102(a) (89 Fed. Reg. 39,124 (May 8, 2024)). In addition to bringing these two PFAS into CERCLA's liability framework, the rulemaking also establishes reportable quantity thresholds for releases of these substances to the environment. In September 2025, USEPA confirmed its intent to retain these designations under CERCLA. (USEPA 2025f). New York was one of the first states in the nation to make a similar hazardous substance designation of PFOA and PFOS.

In February 2024, USEPA proposed, but has not finalized, a new rule to list nine PFAS as hazardous constituents, which if finalized would authorize USEPA to address releases of these PFAS at permitted hazardous waste facilities under the RCRA corrective action requirements (89 Fed. Reg. 8606 (Feb. 8, 2024)). At this time, USEPA has not proposed listing any PFAS as hazardous wastes under RCRA. USEPA's current interim guidance on PFAS destruction and disposal describes the agency's latest assessment of the available methods for treatment and management of the PFAS-containing waste (USEPA 2024b). This and other guidance assess suitable methods for disposal and management of PFAS-containing materials. Such disposal activities also must comply with applicable law for the safe and proper disposal of any generated solid and hazardous waste.

USEPA also released a final rule under the Emergency Planning and Community Right-to-Know Act (EPCRA) that added certain PFAS to the list of Lower Thresholds for Chemicals of Special Concern. This rule increases reporting of PFAS to the Toxic Release Inventory (TRI) program beginning with the 2024 reporting year (due July 2025) by eliminating the de minimis exemption that allowed facilities to avoid reporting information on PFAS when those chemicals were used in small concentrations. Under this rule, certain PFAS will be subject to the same reporting requirements as other chemicals of special concern and USEPA will receive more comprehensive data on PFAS. Chemicals of special concern are excluded from the de minimis exemption, may not be reported on Form A (Alternate Threshold Certification Statement), and may have limits on the use of range reporting. In May 2024, USEPA published a new rule adding seven PFAS to the TRI list of reportable chemicals. In compliance with EPCRA TRI reporting, Micron would report the manufacture, process, or other use of any individual TRI-listed PFAS that exceed reporting thresholds.

USEPA finalized a PFAS Reporting Rule in October 2023, under TSCA Section 8(a)(7). The rule requires manufacturers and importers of PFAS or PFAS-containing articles in any year from 2011 to 2022 to report detailed data on chemical identity, uses, volumes, byproducts, exposures, disposal methods, and health/environmental effects. Because the Proposed Project has not been constructed and has not manufactured or imported any substance during the lookback period, this rule will not be applicable to the Proposed Project.

In 2017, certain chemical manufacturers entered into an agreement with USEPA pursuant to TSCA Section 5 to conduct testing and data collection on photoacid generators (PAGs) and onium compounds used in semiconductor manufacturing. Device manufacturers, including Micron, partnered in this effort in order to provide use and treatment conditions for these photolithography materials. Such upfront testing was initiated to test the persistence and bioaccumulation potential of these PAGs and is intended to ensure that the semiconductor industry's uses of certain PFAS will not result in harmful environmental releases or human health risks, while allowing critical uses by important industry sectors like semiconductors (USEPA 2023).[26]

Presently, there are no federal regulations that specifically address air emissions of PFAS, as a group or individually. However, fluorinated greenhouse gases (F-GHGs), some of which may be defined as PFAS, may become "regulated NSR pollutants" that are "subject to regulation" at sites subject to Prevention of Significant Deterioration (PSD) permitting (40 CFR § 52.21(b)(49)(i), (iv)) and Best Available Control Technology requirements, if such emissions exceed regulatory thresholds. USEPA has proposed, but not finalized, a rule to rescind its 2009 greenhouse gas endangerment finding (which serves as the foundation for certain greenhouse gas emissions regulation), but the proposal does not expressly rescind regulation of greenhouse gas emissions under the PSD program (90 Fed. Reg. 36,288 (Aug. 1, 2025)). F-GHGs also may be required to be reported under USEPA's Mandatory Greenhouse Gas Reporting Rule (40 C.F.R. Part 98). USEPA has proposed, but not finalized, a rule to reconsider the Mandatory Greenhouse Gas Reporting Rule (90 Fed. Reg. 44,591 (Sept. 16, 2025)).

NYSDEC has not promulgated regulations specific to air emissions of PFAS, but regulates air emissions of all contaminants, including PFAS, as part of its air toxics program. Like other emissions of air contaminants from process emission sources, emissions of compounds that could potentially be classified as PFAS are subject to 6 NYCRR Part 212. New York's state air toxics program establishes air quality guideline concentrations (both annual guideline concentrations (AGC) and short-term guideline concentrations (SGC)) for several non-criteria pollutants and requires these non-criteria pollutant emissions to be controlled adequately based on their potential health effects (6 NYCRR Part 212). When NYSDEC has not established air quality standards for a compound that may be emitted from an industrial facility, it follows a process published in the Division of Air Resources guidance "DAR-1: Guidelines for the Evaluation and Control of Ambient Air Contaminants Under 6 NYCRR Part 212" to derive an AGC and/or SGC for that compound that informs the levels of emissions control needed to protect public health. Such

[26] USEPA's announcement discussed the preexisting testing agreements with photolithography material manufacturers and US-based semiconductor device manufacturers (USEPA 2023).

reviews are based on the best available science and a rigorous review of publicly available literature.

Because some F-GHGs also have a high global warming potential (GWP), many of these gases have been subject to regulation implementing international treaties, such as the United Nations Framework Convention on Climate Change, the Kyoto Protocol, and the Kigali Amendment to the Montreal Protocol (SIA 2023b). This includes USEPA's regulations implementing the American Innovation and Manufacturing (AIM) Act through its Hydrofluorocarbons (HFC) Phasedown Rules, which currently provide for application-specific allowances for the etching of semiconductor material or wafers and the cleaning of chemical vapor deposition chambers within the semiconductor manufacturing sector (40 CFR 84.13(a)(4)). Similarly, New York State has finalized restrictions on the sale, distribution, and purchase of certain high GWP HFCs (6 NYCRR 494).

L-1.5 Overview of Semiconductor Fabrication Facility (Fab) PFAS Use

L-1.5.1General Overview of PFAS Use in Semiconductor Fabrication

Semiconductors play a critical and foundational role in the U.S. economy, technology leadership, and national security. Semiconductors enable innovation in sectors throughout the economy – ranging from telecommunications and healthcare to transportation and energy – and play a pivotal role in the emerging technologies of the future, including artificial intelligence, 5G/6G networks, and quantum computing. Semiconductor fabrication process technologies are dynamic, reflecting rapid, ongoing cycles of innovation in the design and manufacture of semiconductors.

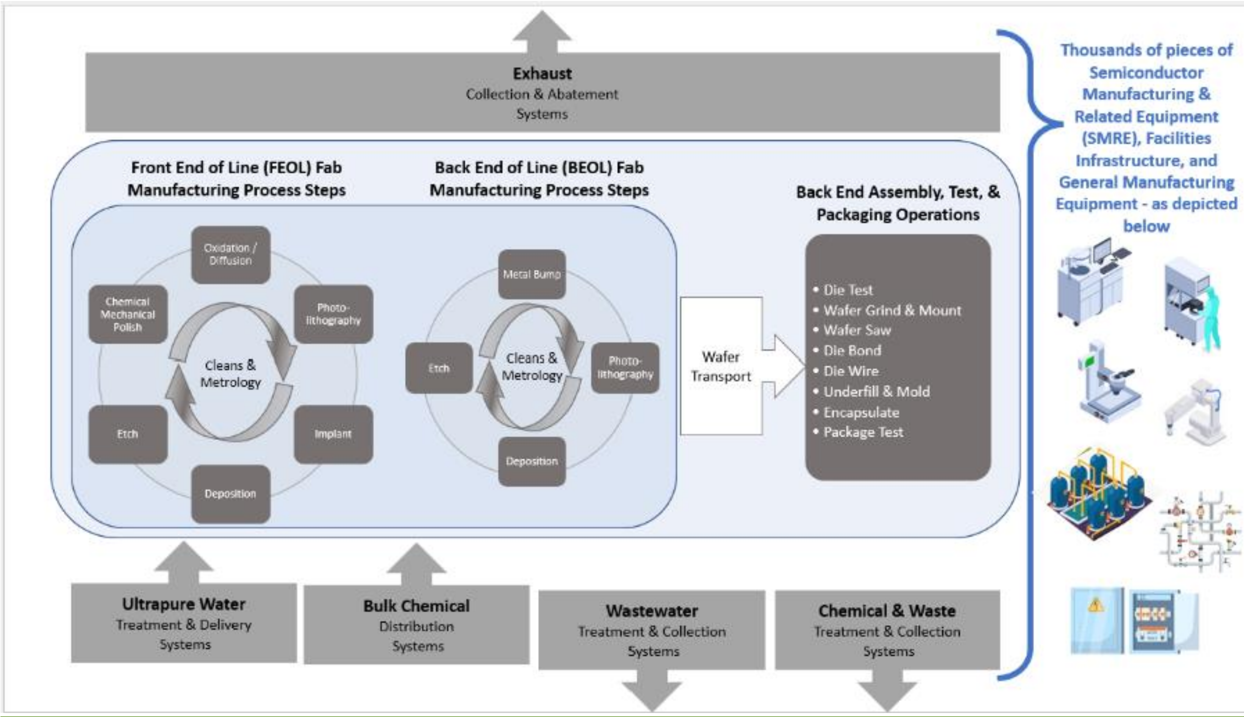
PFAS have enabled the manufacture of modern semiconductors through a range of uses: (1) fab infrastructure, tools, and parts; (2) fabrication process chemistries and indirect fabrication support needs; and (3) substances used to create packaging materials for products that incorporate semiconductors. Some, but not all, of these categories of chemicals and materials may contain PFAS. The Semiconductor PFAS Consortium, of which Micron is a member, has made efforts to identify these uses, to explain how PFAS is important to their functionality (including with respect to the protection of workers), and to identify potential releases and exposure pathways for typical use cases of these PFAS-containing materials in the manufacture of semiconductors. This Section V provides background on each of these categories of use, but the first two categories (infrastructure/parts and chemical usage) are the primary areas of focus for the Proposed Project, which will include front-end semiconductor fabrication.[27] As further background, below refers to the process steps and supporting facilities that may use PFAS-containing materials (SIA 2023b).

PFAS are used in semiconductor fabrication due to their many useful structural and chemical properties, such as heat resistance, high purity, chemical resistance, chemical stability, low molecular polarization, low outgassing, high vapor pressures, low enthalpies of vaporization, relatively low viscosity, and desirable solubility (SIA 2023c). There are no known non-PFAS alternatives for many of these functions. Developing and implementing substitutes for these

[27] As discussed herein, the third category would be less relevant for the Proposed Project but is included for additional information.

materials could take years, if not decades (SIA 2023a, SIA 2023c). This FEIS has been prepared for the Proposed Project based on available information.

Figure - Overview of semiconductor manufacturing process steps, operations, and systems



Source: SIA 2023d.

Fab infrastructure, tools, and parts. Fab infrastructure, tools, and parts refers to the thousands of individual pieces of semiconductor manufacturing and related equipment that support individual process steps and functions within a modern semiconductor fab (SIA 2023d). This category of materials includes certain equipment used to manufacture, measure, assemble, or test semiconductor products. It includes certain equipment that processes silicon wafers; equipment component parts; and auxiliary, support, or peripheral equipment (chemical controllers, chemical delivery systems, vacuum pumps). It also includes items such as structures, piping, ductwork, effluent treatment systems, valve manifold boxes, filtration, and heaters (SIA 2023d). Various components of fab infrastructure, tools, and parts may contain PFAS, while other components do not. also refers to the process steps and supporting facilities that may use PFAS-containing articles (SIA 2023d). Due to the functions of PFAS, a wide range of these materials may contain PFAS. As such, the Proposed Project may use equipment, parts, and other infrastructure that was manufactured with PFAS, and the PFAS-content of such used equipment would be a consideration in the management of these materials when they reach end-of-life, as discussed further below.

Fabrication process and indirect support chemistries. Fabrication process chemistries include chemicals that come into contact with the wafer to fabricate semiconductors, while indirect support chemistries include chemicals that are used to support the fab infrastructure and fab maintenance processes. Some of the chemicals used in semiconductor fabrication contain PFAS. Sources of PFAS in process chemistries include some photolithography and dry etch chemistries. Indirect support chemistries used to support fab infrastructure can include some heat transfer fluids, refrigerants, and lubricants/greases. PFAS also may be present in chemical delivery systems and shipping packaging delivered to the facility, with the potential to leach into the chemicals used in fabrication process chemistries and indirect support chemistries. As these chemical uses have the potential to be included in various semiconductor fabrication waste streams, these uses for the Proposed Project are discussed in more detail in subsection C below.

Packaging materials. Packaging materials include the combination of materials and structural elements that connect an integrated circuit to a printed circuit board, interposer, or device, while protecting the package from outside environmental influences. The package allows the integrated circuit to connect to other components on the printed circuit board (SIA 2023e). In other words, these are the materials used to create a product containing semiconductors. Some of these materials are made with PFAS. PFAS may be found in assembly and test packaging substrates, printed circuit boards, die attach adhesive, mold compounds, and other materials (SIA 2023e). The Proposed Project is not anticipated to include any significant assembly and test (i.e., back-end) operations that incorporate integrated circuits (or semiconductors) into such packaging materials and thus is not anticipated to involve use or disposal of such packaging materials. Therefore, this Appendix does not include further discussion of packaging materials.

The semiconductor industry is a highly competitive business sector, where continuous innovation in memory and storage technologies is essential for maintaining market leadership. The chemistry, materials, and processes are fundamental to how a company like Micron drives innovation to make its product, and such information is among the most valuable information that a semiconductor manufacturer possesses. This innovation has produced numerous patents with approximately 60,000 patents granted to Micron alone (and counting). Such proprietary and trade secret information includes trade names, supplier details, chemical abstract series numbers, and chemical constituents. These details are protected under strict confidentiality measures to prevent risks like reverse engineering and competitive harm.

While these uses are critical to semiconductor fabrication, published information suggests that the semiconductor industry's PFAS uses comprise a very small percentage (potentially around 1%) of the overall PFAS market (SIA 2024). For example, a recent article calculates the amount of PFAS used in different industry sectors in Europe and concludes that the electronics sector as a whole uses a very small amount of overall PFAS, and the semiconductor industry is just a portion of this small amount (Lim 2023).

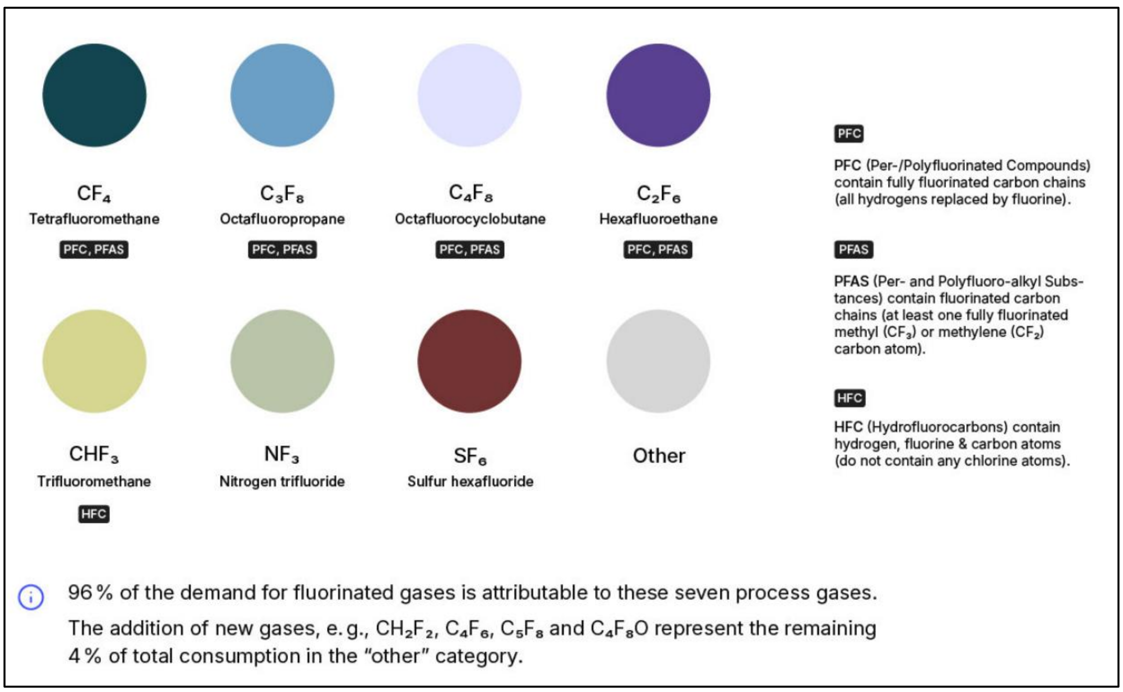
L-1.5.2Relative Volumes of PFAS Compounds Used in Fabrication Process and Indirect Support Chemistries in Semiconductor Fabrication

As semiconductor manufacturing is a highly automated, enclosed process that takes place in a cleanroom environment, published information suggests that a small percentage of the PFAS used in the process are estimated to have the potential to enter the environment during semiconductor production (ECHA 2023, Hess 2024). There also appears to be a very small amount of PFAS that may remain in the final chip (ECHA 2023). Nonetheless, most of what remains of PFAS usage is anticipated to be found in industrial wastewater (Hess 2024).

In the context of front-end manufacturing, PFAS are an essential ingredient of chemicals used in semiconductor fabrication processes and indirect support chemistries. PFAS are a critical component of lithography chemicals. In solvent cleaners and heat transfer fluids, non-polymeric ionic PFAS such as perfluorobutanesulfonate (PFBS) are commonly used (Hess 2024). PFAS are also commonly found fluoropolymers used in fab infrastructure and tooling, such as polytetrafluoroethylene (PTFE), paraformaldehyde (PFA), polyvinylidene difluoride (PVDF), ethylene tetrafluoroethylene (ETFE) and fluorinated ethylene propylene (FEP) (Hess 2024).The composition of PFAS chemicals, however, is unique to their specific application and varies by company, facility, and product type. See generally Table C-4 to NIST's Programmatic Environmental Assessment (NIST, 2024) (reproduced as Exhibit B to this Appendix) (describing key PFAS use applications in semiconductor fabrication generally and their criticality to the process).[28]

Several specialty gases used in etching and chamber cleaning are fluorinated gases (also known as F-gases). The seven process gases presented in below generally account for 96% of emissions from fluorinated gases that may be used in a fab: tetrafluoromethane (CF4), octofluropropane (C3F8), octafluorobutane (C4F8), hexafluoroethane (C2F6), trifluoromethane (CHF3), nitrogen trifluoride (NF3) and sulfur hexafluoride (SF6). Some fluorinated gases also fall under the PFAS category, including CF4, C2F6, C4F8 and C3F8.[29]

Figure - Seven Fluorinated Gases Used in Chip Production



Source: Hess (2024)

[28] The Proposed Project ultimately might not employ precisely the same PFAS use applications described therein, but any such differences are not expected to alter the FEIS's analysis of PFAS-related effects of the Proposed Project.

[29] Note that these percentages are meant to describe PFAS usage in semiconductor fabrication generally and not necessarily the precise usage percentages or types to be used at the Micron Campus.

L-1.5.3 Fabrication Process and Indirect Support Chemistries to be Used in Micron's New York Semiconductor Fabs

Micron will be required to have a policy to secure full chemical disclosure from all chemical suppliers, including through the use of non-disclosure agreements with these suppliers, to ensure that it has sufficient information to evaluate regulatory compliance and worker safety. Such information is tightly controlled and not publicly shared, reinforcing the critical importance of safeguarding intellectual property and technological edge. This information will, however, be shared confidentially with USEPA and NYSDEC to the extent required by law.

Semiconductor fabrication involves the use of these carefully selected and proprietary chemistries, some of which may contain PFAS. While maintaining confidentiality of Micron's proprietary and trade secret information, this section provides additional detail on plans for use of fabrication process and indirect support chemistries that may contain PFAS at the Proposed Project. Further detailed information about these critical PFAS uses in semiconductor fabrication is available at .[30] While the specific number and order of processing steps that will be used at the Proposed Project is proprietary, front-end semiconductor fabrication facilities generally use the PFAS compounds discussed herein, and follow the same series of semiconductor device manufacturing steps as detailed in the SIA fabrication literature. The Proposed Project will be a front-end manufacturing site or fab that generally will use process steps consistent with those described generally in Table 2.2-1 to NIST's Programmatic Environmental Assessment (NIST, 2024) (reproduced as Exhibit A to this Appendix) and the SIA-produced video entitled, "The Chemistry of Semiconductor Episode 2: Manufacturing the Miraculous," which is available at

Key PFAS-containing fabrication process chemistries include photolithography materials and dry etch gases, while indirect support chemistries include heat transfer fluids, refrigerants, and lubricants/greases. The concentration of PFAS varies by chemical and can be as low as less than 0.1 percent PFAS by weight.

Photolithography Materials. Photolithography is a patterning process that defines where to add or remove materials in each step of the fabrication of integrated circuits. Specialized fluorinated organic chemicals serve several important roles in performing photolithographic patterning processes (Ober 2022). Generally, photolithography chemicals are tuned for specific applications and products and are among the most proprietary chemicals used in semiconductor fabrication. There are three main types of photolithography materials – PAGs, surfactants, and other additives.

PAGs are a vital component of many semiconductor photolithography formulations. Semiconductor patterning performance depends on the PAG's ability to interact directly or indirectly with photons and disassociate to form the catalytic photoacid (SIA 2023f). The effectiveness of the PAG molecule to generate targeted, well-defined, repeatable patterns depends on these attributes: (a) ability to generate a strong nonnucleophilic acid; (b) high control of photoacid diffusion; (c) good solubility in existing lithography solvent and good miscibility with matrix polymers; (d) high stability; and (e) exacting wavelength-dependent transparency and

[30] Additional information is available on SIA's website at https://www.semiconductors.org/the-chemistry-of-semiconductors/

absorption in resist formulations. PFAS-containing PAGs meet each of these attributes, but the semiconductor industry continues to explore alternatives to PFAS. Full transition to non-fluorinated PAGs would require extensive research and development, and it will be many years (even decades) before implementation can be accomplished (SIA 2023f).

PAGs generally consist of fluorinated sulphonic acids and sulphonates that are generally small-chain PFAS (C1-C4). Perfluorobutanesulfonic acid (PFBS) is a commonly used PAG, but semi-fluorinated sulphonates are becoming more common and generally range from C1-C2 and can be fully or partially fluorinated. Surfactants may also be used in photolithography materials and are used to improve wettability and reduce pattern collapse during development (SIA 2023g). Some extreme ultraviolet (EUV) lithography rinses contain a fully fluorinated sulphonamide. Other additives in photoresist chemicals include quenchers and polymers that may contain PFAS-based functional groups like -CF2 or -CF3. Generally, photolithography chemicals include fully and partially fluorinated small-chain sulphonates.

Plasma (Dry) Etch Gases. Plasma (dry) etching uses a partially ionized gas in a vacuum reactor to selectively remove material from a wafer's surface. Plasma (dry) etching is essential for transferring lithographic patterns into semiconductor metal and dielectric layers in modern chips. Etch gases are useful for a specific application, as the structure of each F-GHG used determines the affinity of the fluorine ion to the chemicals and elements on the wafer to be etched. Since this process is performed on a nanometer scale, the properties of the etch gas are critical to ensuring that the desired geometry is achieved in a precise fashion. Therefore, the etch gas must be carefully selected to ensure the proper function in the etching process. Plasma (dry) etching and chamber cleaning gases include HFCs (such as difluoromethane (CH2F2)), perfluorocarbons (PFCs) (such as tetrafluoromethane (CF4)), and unsaturated fluoroalkenes (i.e., molecules with double bonded carbons) (SIA 2023b).[31] These are smaller molecules, some of which are not defined as PFAS by USEPA and OECD, typically in the C1-C4 range, and some of these substances are also referred to as fluorinated greenhouse gases.

Heat Transfer Fluids and Refrigerants. HTFs are an indirect support chemistry that enables optimal performance of multiple types of fabrication tools. Many HTFs are PFAS-based and are used depending on the application. Many semiconductor processes require precise operational temperature control, making the equipment and processes highly dependent on fluorinated heat transfer fluids (F-HTFs). These fluids support both heating and cooling needs during fabrication (i.e., dry etch and thin-film deposition) and product testing, ensuring chips perform reliably in final electronic devices. Factors that influence the selection of an HTF material include: operational temperature range, physical properties, viscosity, and others, like particle formation / contamination.

F-HTFs can include perfluoropolyethers (PFPEs), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), hydrofluoroethers (HFEs), hydrofluoroolefins (HFOs), fluorinated ketones, and other fluorinated liquids (SIA 2023h), some of which are not currently classified as PFAS by USEPA and OECD. PFC structures vary widely and include straight-chained, branched, and fully fluorinated substances. Some types are long-chained fluorinated polymers or substances

[31] Dry etch and chamber cleaning processes also use other non-PFAS fluorinated gases, like nitrogen trifluoride (NF3) and sulfur hexafluoride (SF6) (Hess 2024).

of unknown or variable composition (UVCB) with various functional groups (i.e., no sulphonic acid or carboxylic acid functional groups) (SIA 2023h). Structure depends on the application, which dictates the physical properties required.

Like heat transfer fluids, refrigerants used in the refrigerant cycle of equipment chillers provide precise operational temperature control to support dry etch, thin-film deposition and device test applications. Fluorinated refrigerants have the ability to meet multiple performance requirements at once. They possess high boiling points, low vapor points, and low kinematic viscosity at working temperatures (SIA 2023h). Fluorinated refrigerants may include PFCs, HFCs, HFOs, fluorinated ketones and other fluorinated liquids. Where appropriate, the Micron Campus will also use non-fluorinated refrigerants, like CO2.

Lubricants and Greases. High-performance PFAS-containing lubricants are essential within the semiconductor manufacturing process because of their ability to meet multiple performance requirements simultaneously. These requirements include the need to prevent particle creation and outgassing while providing effective lubrication within the extreme physical environments present in manufacturing processes, and remaining inert to other chemistries used in certain manufacturing process steps (SIA 2023i). The most commonly used lubricants in various semiconductor applications are polytetrafluoroethylene (PTFE) and perfluoropolyether (PFPE), typically in cleanroom tools such as vacuum pumps (SIA 2023i). PTFE is a fluoropolymer that is also approved by the U.S. Food and Drug Administration (USFDA) for use in medical devices implanted in persons and for food contact uses (USFDA 2025).

Because PFAS-containing fabrication process chemistries (e.g., photolithography, plasma (dry) etch) may come into contact with the wafer during the fabrication process, PFAS may be present in process-related wastewater and/or air emissions. Heat transfer fluids tend to evaporate and may be found in fugitive air emissions. Residual levels of process chemistries, indirect support chemistries, and lubricants and greases may be found in materials sent for reuse, recycling, or disposal.

L-1.6 Measures to Avoid and Minimize PFAS Use and Discharge

L-1.6.1 Non-PFAS Alternatives for Potential Use in Semiconductor Fabrication

The semiconductor industry and its chemical suppliers engaged in a concerted, multi-year effort to transition away from using PFOS and PFOA as fabrication process chemistries by substituting with short-chain compounds (SIA 2023j). Notwithstanding, many semiconductor applications depend on PFAS due to certain chemical properties, such as low surface tension, high stability, and compatibility. Despite extensive research, no viable PFAS-free alternatives exist for many key uses in semiconductor fabrication. Replacing these materials is a complex, multi-year process, and may involve significant technical, containment, transport, safety, and supply chain challenges. Until proven alternatives emerge, the industry has committed to using PFAS chemistries safely and responsibly. Exhibit B also describes key PFAS use applications in semiconductor fabrication and their criticality to the process.

Implementation of non-PFAS alternatives requires research, testing, and time. (SIA 2023c). This timeline consists of four phases: research, development, integration, and ramp to high-volume manufacturing (HVM).

- **Research and innovation** of chemistries for use in semiconductor fabrication can begin as much as 15 years before manufacturing ramp, and much of it is never explored in subsequent phases.
- **Development** involves the exploration of a pared down list of research chemistries (focusing on proof of concept and the development of prototype materials, processes, and equipment) to evaluate application requirements.
- **Integration** focuses on qualification and verification of new chemistries in fab processes to evaluate function, reliability, and scale.
- **Ramp to HVM** is the implementation of the new process or chemistry, including optimization of the process to streamline HVM processes. (SIA 2023c).

The timeline to implement non-PFAS alternatives varies based on factors like chemical availability and associated process changes, with shorter times needed for drop-in replacements and longer times needed where new chemistry or technology must be invented:

- **Three to four years**: If a suitable non-PFAS alternative already exists and does not require infrastructure changes, it typically takes 3–4 years to test and implement it in HVM.
- **Three to 10-plus years**: When a viable alternative needs tooling or process changes, it can take 3 to over 10 years to modify systems, qualify the solution, and integrate it into HVM.
- **Five to 25-plus years – invention required**: If no existing alternative meets performance needs, new chemicals or fabrication methods must be invented, which can take 5 to over 25 years and may not ultimately succeed.
- **No alternative achievable**: In some cases, no non-PFAS alternative can deliver the necessary chemical functionality, making replacement unfeasible. (SIA 2023c).

Micron is active in numerous initiatives designed to support the further reduction of PFAS usage. These include engagement in external research of PFAS-free alternatives through the National Science Foundation/Semiconductor Research Corporation Research Center for Environmentally Benign Materials, and Micron's leadership in semiconductor industry PFAS consortiums (including the SIA's Semiconductor PFAS Consortium and the SEMI PFAS Initiative) working to reduce PFAS consumption or eliminate use where possible, identify alternatives, and minimize and control emissions or discharges. While novel projects to reduce or substitute essential materials such as these often take many years and are usually based on guidelines from regulatory agencies, Micron is engaged in these industry efforts to accelerate these evaluations in advance of potential regulation (Micron 2025) and will continue its involvement in initiatives like these, as appropriate.

Additionally, recognizing that challenges remain as of today, Micron will continue to work with HTF vendors to identify non-PFAS replacements, where feasible based on market availability, operational safety, and other considerations. For instance, some candidate materials meet temperature range requirements but are flammable, posing safety and other risks. Switching materials would require extensive retooling and raise concerns about possible wafer contamination resulting in yield loss and increased field failures. Indeed, advantages of PFAS-containing HTFs include that they are inert and non-flammable. Similarly, Micron has represented to the lead agencies that it is exploring non-PFAS dry etch gases, but progress has been limited due to fluorine's critical role in these processes. Efforts have focused on identifying lower GWP molecules, including unsaturated fluorocarbons. Finally, manufacturers and users also are working to identify non-PFAS photolithography materials. While most PFAS-containing surfactants have been phased out, critical materials like post-EUV rinses still rely on PFAS. Efforts are also underway to identify non-PFAS containing PAGs. Photolithography materials are some of the most complex, tailored, and specific materials in the semiconductor industry and an extensive amount of research and development is needed to support next generations of memory technology. Photolithography vendors have been researching alternate materials since industry efforts began to remove PFOS and PFOA but have not yet found non-PFAS PAGs for cutting edge technology like EUV. There has been some success with earlier generation materials such as those supporting 193 nanometer (nm) or earlier lithography technologies, but the materials needed for smaller line and space are not yet available (Ober 2022).

L-1.6.2PFAS Wastewater Treatment for the Proposed Project

Wastewater from semiconductor fabrication facilities contains PFAS that must be treated and managed in accordance with the law and applicable permits prior to discharge. Industrial wastewater generated by the Proposed Project will be treated on the Micron Campus either for reuse or to levels necessary to meet PFAS discharge limitations and conditions contained in an Industrial Wastewater Discharge Permit (IWDP) to be issued to Micron by Onondaga County Department of Water Environment Protection (OCDWEP). The IWDP will set limits that must be met at the point of discharge from the Micron Campus, prior to being sent as secondary residual wastewater via the wastewater conveyance to the Industrial Wastewater Treatment Plant (IWWTP) at the Oak Orchard Site.

To accept new discharges from the Micron Campus, OCDWEP has applied for an updated SPDES permit for discharge of treated wastewater to the Oneida River. As discussed in FEIS Section 3.8.3.2, it is anticipated that NYSDEC will require effluent monitoring for PFAS and other compounds in OCDWEP's SPDES permit, including sampling for approximately 40 compounds using EPA Method 1633/1633A and leveraging state guidance values, as applicable (NYSDEC 2025).[32]

Micron's proposed wastewater discharges to the Oak Orchard IWWTP will require an IWDP issued by OCDWEP, establishing PFAS discharge limits and other terms consistent with the USEPA-approved pretreatment program and the requirements of the Oak Orchard WWTP SPDES permit for PFAS. Establishment of the discharge requirements of these compounds will be subject to any changes in regulatory or SPDES permit requirements. Periodic monitoring and reporting of these compounds by Micron will be required (NYSDEC 2025; USEPA 2022). Monitoring for PFAS compounds will also be conducted by OCDWEP prior to discharge to the Oneida River (NYSDEC 2025), in accordance with its SPDES permit conditions.

In order to meet these effluent limitations in its IWDP, the Proposed Project will include PFAS wastewater treatment at the Micron Campus. As discussed in FEIS Section 3.8.3.2, Micron is evaluating various wastewater treatment technologies and their effectiveness to address the wastewater matrix anticipated for a high-volume semiconductor fabrication facility. Wastewater at the Micron Campus may include a mix of the following types of PFAS in ppt-level concentrations: perfluoroalkyl carboxylic acids, perfluorosulfonic acids, fluorotelomer sulfonic acids, perfluoroalkane sulfonamides, perfluoroalkane sulfonamidoacetic acids, perfluoroalkane

[32] NYSDEC guidance is also consistent with USEPA's December 5, 2022 memo encouraging POTWs to impose PFAS monitoring provisions in indirect discharge permits issued to industrial users (USEPA 2022, NYSDEC 2025).

sulfonamide ethanols, per- and polyfluoroether carboxylic acids, ether sulfonic acids, and fluorotelomer carboxylic acid (SIA 2025).

Due to the evolving nature, complexity, and rapid innovation of treatment options, Micron has not yet determined which specific technologies will be included in the Proposed Project for implementation at the Micron Campus. As summarized in Exhibit C of this Appendix, a suite of candidate technologies is available for potential inclusion in the Proposed Project. Promising developments include technologies that may break the carbon-fluorine bonds, thereby reducing cost and risk associated with secondary waste streams. Such technologies may be used in tandem with other proprietary technologies that Micron similarly is scrutinizing for appropriateness. Detailed, site-specific design will determine the technology or technologies selected based on factors such as their suitability and configuration for semiconductor fabrication wastewater systems, scalability, the candidate technologies' capabilities, the commercial viability of the treatment vendors, the feasibility of any necessary pretreatment, and their operational characteristics, but the existence of effective treatment and destruction technologies is not currently in doubt.

Micron continues to evaluate technologies and methods for managing PFAS in wastewater. Micron's early evaluations suggest that the most effective wastewater treatment approach for the Proposed Project is anticipated to involve at least two strategies: (1) direct piping of certain segregated streams (including materials that may be beneficially reused or disposed) to collection systems; and (2) localized segregation and concentration technologies at relevant process streams at the Micron Campus prior to discharge to the IWWTP.

As the first strategy, Micron would pipe certain streams, such as used process solvent potentially containing PFAS, to closed bulk storage systems. As discussed above, the PFAS content and reuse potential of these materials may vary. These streams would be segregated from wastewater discharge and instead will be managed in accordance with the framework described in Section VI.D. of this Appendix. Such materials would be collected, reused (onsite or offsite), recycled, treated, or disposed in accordance with applicable legal requirements by licensed and permitted treatment and disposal facilities.

As the second strategy, for waste streams that will ultimately be discharged to wastewater, Micron would identify locations within the processes with the most concentrated PFAS as the best candidates for localized PFAS segregation and concentration technologies at or near those locations. Such localized application of segregation and concentration technologies appear most effective when installed where PFAS levels are more concentrated and have fewer potentially interfering non-PFAS constituents (as compared to the facility's final discharge point).

If additional treatment is needed after these localized upstream measures in order to comply with IWDP effluent limitations, Micron may explore installation of PFAS wastewater treatment further downstream at a location on the Micron Campus prior to the permitted IWDP final effluent discharge monitoring location(s). This option may require an additional concentration step and risk reduced effectiveness due to the presence of other non-PFAS constituents or other factors. Use of the segregation and concentration technologies would then require management of the concentrated PFAS stream either through pairing with a PFAS destruction technology or management in accordance with the framework discussed in Section VI.D. of this Appendix. Concentrated PFAS from the segregation step would be collected in a bulk system or other container for offsite disposal or routed for further treatment (such as a PFAS destruction technology) before it is collected for offsite disposal at a licensed and permitted treatment or disposal facility. If a treatment medium, such as a resin or granular activated carbon is used, the treatment medium would be sent by Micron to an offsite facility for regeneration, as needed, or for disposal at an offsite licensed facility at end-of-life. Such offsite management or disposal will be in accordance with applicable legal requirements and the framework discussed in this Appendix.

Regardless of the final technologies or mechanisms selected, Micron will be required to meet discharge limits that OCDWEP will impose in Micron's IWDP, which will necessitate implementation of PFAS wastewater pretreatment on the Micron Campus.

Micron also intends to work with OCDWEP to develop a plan to reuse treated Oak Orchard IWWTP effluent volumes as makeup water for the Micron Campus' cooling towers and other mechanical systems. Only treated effluent from the IWWTP that is not recycled and returned to the Micron Campus would be discharged into the Oneida River. This discharge would comply with the Oak Orchard WWTP's approved permit and applicable regulations, as discussed in FEIS Section 3.10.3.2.

Micron also has focused efforts on investigating and testing possible wastewater treatment options as the development of technology in this area continues to evolve. Micron continues to participate in industry-wide initiatives, local partnerships, and exploration of alternatives with key suppliers. Micron is working with various semiconductor industry groups to pursue PFAS pollution prevention and treatment options (Micron 2025). This FEIS does not displace the anticipated more detailed forthcoming permitting processes and associated decisions that are not yet made.

Micron will continue evaluating available and evolving tools to manage PFAS in wastewater to support its industrial wastewater discharge permit application and required discharge limits. Selection of wastewater treatment technology(ies) for the Micron Campus will consider the factors discussed here and other considerations that may become available as part of its reviews. Micron will be required to comply with the terms of an IWDP.

L-1.6.3PFAS in Air Emissions Control and Abatement Technologies for the Proposed Project

Although there are no specific federal or state standards for PFAS individually or as a group, all air pollutants (including PFAS) anticipated from Micron's future operations have been evaluated and process gas emissions will be controlled or otherwise managed. FEIS Sections 3.6 and 3.7 provide a thorough and comprehensive analysis of project-associated emissions. Appendix I of the FEIS provides an assessment of the air modeling conducted, including modeling performed for mobile and stationary sources for criteria and non-criteria pollutants associated with the Proposed Project. In sum, the Micron Campus will be a stationary source of air pollutants subject to stringent permitting and emissions controls.

For air pollution control and safety reasons, semiconductor fabs are equipped with highly segregated exhaust systems for fabrication processes. Acid exhaust ducts carry a mixture of corrosive gases and particulate from multiple process tools to central or house wet scrubbers, while solvent exhaust ducts carry volatile organic compounds (VOCs) from various processes to central or house thermal oxidizers. For certain processes, abatement is installed on the process tool itself, often referred to as point-of-use (POU) abatement or as a process equipment exhaust conditioner (PEEC). These process exhausts include both unreacted input materials and reaction byproducts. For example, C-F input gases may form C-F byproducts in the plasma process. Inorganic fluorine compounds or F2 may generate C-F byproducts when etching or cleaning carbon-containing films (SIA 2023b). Captured fabrication process exhausts will be routed to emissions controls, with built-in redundancy.

Most anticipated PFAS-containing air emissions (over 90%) from semiconductor manufacturing come from plasma (dry) etching and chamber cleaning processes (Hess 2024). Micron anticipates that these processes will use substances that may be considered PFAS, such as HFCs (like difluoromethane (CH2F2)), PFCs (like tetrafluoromethane (CF4)), and unsaturated fluoroalkenes (i.e., molecules with double bonded carbons) (SIA 2023b). These processes also may use non-PFAS substances like nitrogen trifluoride (NF3) and sulfur hexafluoride (SF6) (Hess 2024). These same gases are anticipated as air emissions from Micron's operations. All etch and chamber cleaning processes will be equipped with control devices, such as POUs, with a destruction removal efficiency that corresponds to each fluorinated gas, as set forth in Table 6.17 of the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (IPCC 2023). These emissions will be treated using controls like regenerative catalytic systems (RCS) or POU thermal oxidizers with up to 99% destruction efficiency for most compounds. (IPCC 2023).

Anticipated air pollutants from the Micron Campus are being evaluated for compliance with federal and state ambient air quality standards pursuant to the state's stationary source permitting process. Additionally, the Micron Campus is anticipated to be a major source under the Prevention of Significant Deterioration (PSD) Program, triggering Best Available Control Technology (BACT) requirements for emissions of carbon monoxide, nitrogen oxides, and regulated New Source Review (NSR) pollutants, including fluorinated greenhouse gases that may be defined as PFAS. Again, these gases may be treated using RCS or POU thermal oxidizers, which can reach 99% destruction removal efficiency for most compounds.

Under NYSDEC's air toxics program (6 NYCRR Part 212), all non-criteria air pollutants (including PFAS) are regulated using annual and short-term guideline concentrations (AGC/SGC) based on their potential health effects. Where no AGC/SGC exists for a compound, NYSDEC derives such values per the Division of Air Resources guidance, "DAR-1: Guidelines for the Evaluation and Control of Ambient Air Contaminants Under 6 NYCRR Part 212," based on the best available science on the potential toxicological effects of each compound (NYSDEC 2021). This includes guidelines for anticipated PFAS emissions, which may be subject to air dispersion modeling and/or emissions controls to protect public health and safety.

Fugitive emissions of fluorinated heat transfer fluids from process chillers would be minimized through efficient use and maintenance practices. Micron is proposing GHG BACT for the proposed HTFs via good design, usage monitoring to ensure efficient usage, and heightened maintenance practices. Ultimately, NYSDEC will condition Micron's air permit appropriately. Micron is evaluating the opportunity to use the low-GWP and/or non-PFAS HTFs that are technically viable to meet the heat transfer needs of each desired application. Similarly, potential fugitive emissions from refrigerants would be reduced by transitioning to alternative lower GWP substances, where feasible.

GHG emissions from the Proposed Project are subject to New York's Climate Leadership and Community Protection Act (CLCPA) Analysis, including potential PFAS emissions from F-GHGs. NYSDEC is conducting a contemporaneous review of the Proposed Project under the CLCPA pursuant to "DAR-21: The Climate Leadership and Community Protection Act and Air Permit Applications" guidance (NYSDEC 2022), which entails assessment of direct, upstream, and downstream GHG emissions from the Proposed Project, including the Micron Campus. A copy of Micron's CLCPA Analysis has been appended to the FEIS as Exhibit J.

Additionally, as many F-GHGs are also PFAS chemistries in the broadest definition, the semiconductor industry has made significant efforts to address potential PFAS air emissions from semiconductor fabrication processes as part of its efforts to reduce climate change. These efforts include development of F-GHG emissions abatement technologies, alternative chemistries and processes (where feasible), process optimization to reduce gas consumption, and recovery and recycling technologies (SIA 2023b). Additionally, the development of abatement technologies continues to evolve and the destruction removal efficiencies of these devices and measures can be further fine-tuned after operation commences. The benefit of these efforts will be reflected in the stationary source permit for the Micron Campus.

L-1.6.4 PFAS Materials Management and Solid Waste Treatment and Disposal Framework for the Proposed Project

Waste material, including waste containing PFAS, is regulated at the state and local level as solid waste.[33] Under 6 NYCRR Part 360.2(a), NYSDEC regulations define when a material qualifies as a solid waste. These well-established solid waste requirements are intended to protect human health and the environment by providing acceptable and licensed facilities for management of solid wastes. Licensed solid waste management facilities have improved over time, and historic, inactive facilities are not necessarily representative of state-of-the-art facilities today.

In considering management of PFAS-containing waste, USEPA emphasizes that it is "important to distinguish between a potential environmental release and a direct human exposure. A PFAS release does not inherently imply direct and immediate human exposure and a release does not necessarily present an unacceptable risk to specific populations" (USEPA 2024b). USEPA has developed a framework for "decision-makers who need to identify the most effective means for destroying or disposing of PFAS-containing materials and wastes" (USEPA 2024b). This framework for choosing a technology to destroy or dispose PFAS-containing wastes considers the type of PFAS (including unknown PFAS), concentration, volume, availability of analytical methods, whether a particular treatment technology is available at the scale needed, engineering controls to prevent or minimize release of PFAS into the environment, performance of the technology being considered, whether there are non-PFAS materials in the waste that may affect the technology's performance, and other detailed considerations (USEPA 2024b). Micron will consider these and other factors in evaluating and determining appropriate disposal and

[33] Two specific PFAS compounds, PFOA and PFOS, have been designated as hazardous substances under CERCLA and by New York state to facilitate cleanup of PFAS-contaminated sites. Designation of hazardous substances is distinct from listing a substance as hazardous waste or regulating a material that exhibits hazardous characteristics as a hazardous waste. Presently, PFAS is not a listed hazardous waste, is not included in the list of compounds for the toxicity characteristic, and is not understood to fall under another category for hazardous waste designation.

destruction options for PFAS-containing wastes from the Proposed Project. This will also support use of emerging treatment technologies where appropriate, effective, and available.

Micron will also consider and evaluate disposal and destruction options for consistency with New York's framework for solid waste management. For instance, key considerations in determining management of a waste are the concentration and type of PFAS. For a waste that is predominantly PFAS, Micron would apply stringent management approaches, such as destruction of the material (by incineration or another destruction technology).[34] At the other end of the spectrum, some predominantly non-PFAS materials might have nominal concentrations of PFAS. Depending on the materials, some have the potential to be beneficially used in a manner that minimizes the potential for environmental release and also comports with public policy that favors reuse and reduction of waste as discussed below. This would be assessed on an individual basis considering the profile of the material and state and local requirements.

As discussed in the FEIS, Micron will be required to have a policy to implement its reuse, recycle and recovery (RRR) Program and will identify opportunities to minimize waste generation, based on vendor availability, commercial and technical feasibility, and professional judgment. Recognizing that there is no one-size-fits-all technology or treatment program for PFAS-containing waste material, Micron through its RRR Program will implement feasible, practicable, and necessary measures to reuse, recycle, and recover materials or waste generated at the facility.

Waste that is destined for treatment or disposal would be properly managed onsite to minimize potential for any release and would be collected via licensed private haulers for transport to permitted private facilities authorized to receive the waste. (FEIS Sec. 3.8.3.2). Non-hazardous drummed used solvents would be collected via private haulers for transport to authorized off-site incineration facilities for energy recovery or for other RRR activities. The non-RRR portions of this waste would be collected via licensed private haulers for transport to private, active industrial waste facilities and landfills identified in FEIS Table 3.8-8. The non-hazardous solid waste generated on-site would either be disposed of at the WTE Facility for energy recovery or, depending on the waste type, collected via private hauler for transport to active landfills. (FEIS Sec. 3.8.3.2). The FEIS also addresses disposal and RRR management methods Micron would employ to address hazardous materials generated during operations. (FEIS Sec. 3.8.3.2). Wastes containing PFAS would be subject to the foregoing framework and protocols.

For certain wastes, Micron would implement its RRR Program in a manner that follows applicable NYSDEC requirements such as the Beneficial Use Determination (BUD) program. When a material is put to a beneficial use that is consistent with a NYSDEC-approved BUD, the material is not considered a solid waste under the agency's solid waste regulations at 6 NYCRR Part 360. 6 NYCRR § 360.12(c) sets forth categories of pre-determined beneficial uses where the materials in question cease to be wastes as long as they are used in a manner specified in the applicable provision (e.g., industrial wastes historically used as an ingredient in a manufacturing process). Where a proposed reuse is not covered under a pre-determined BUD, the waste generator can seek a case-specific BUD. Case-specific BUDs typically are for waste material used as a

[34] *See* USEPA 2024b, at pp. 45, 53, and 60 (citing studies and concluding that "Incineration may be a viable PFAS destruction technology if done under certain conditions" and describing favorable conditions). EPA further describes that "temperatures above approximately 1,100°C / 2,012°F may result in high destruction efficiencies and few detectable fluorinated products of incomplete combustion." (USEPA 2024b).

substitute for a component material in the manufacture of a product, or as a substitute for a commercial product. Consistent with its RRR Program, Micron will consider petitioning NYSDEC under 6 NYCRR § 360.12(d) for case-specific BUDs for certain wastes. A BUD petition must include detailed information, including but not limited to "analytical data concerning the chemical and physical characteristics of the waste and of each type of proposed product, and the chemical and physical characteristics of any analogous raw material or commercial product for which the waste is proposed to be an effective substitute" and a "demonstration that the management of the waste when used in accordance with the beneficial use will not adversely affect public health and the environment.…" 6 NYCRR § 360.12(d)(2)(iv) & (vii). Thus, to the extent Micron seeks a case-specific BUD for any waste material containing PFAS, its eligibility for beneficial reuse can be assessed under NYSDEC's BUD program, as appropriate.

Micron represents that it is also focused on identifying appropriate disposal or RRR operations for PFAS-containing wastes such as solvent waste and end-of-life fab infrastructure (e.g., tools, tubing, exhaust ducts). This includes designing fabrication processes to segregate certain waste streams that may contain PFAS for management at off-site permitted treatment and disposal facilities. To the extent that these end-of-life materials are PFAS-containing, Micron would be required to have a program to manage such materials consistent with the applicable regulatory requirements and the framework discussed in this Section VI(D).

As discussed above, it is anticipated that Micron will segregate process solvent waste containing PFAS from facility wastewater streams to closed bulk systems for off-site management by licensed and permitted treatment and disposal facilities, or for appropriate RRR operations, unless and until better methods are available. Micron would dispose or otherwise manage materials known to contain regulated PFAS in accordance with regulation and as appropriate given its content and characteristics.

USEPA's current interim guidance on PFAS destruction and disposal describes the agency's latest assessment of the available methods for treatment and management of the PFAS-containing waste (USEPA 2024b). Micron will use this and other guidance to assess suitable methods for disposal and management of PFAS-containing materials. Such disposal activities also must comply with applicable law for the safe and proper disposal of any generated solid and hazardous waste. Regulatory agencies with permitting authority will have confidential access to specific PFAS compounds used at the Micron Campus and thus would have the ability to assess whether the treatment technology used for the Proposed Project is sufficient to achieve compliance with applicable laws and regulations. The FEIS does not displace the anticipated more detailed forthcoming permitting processes and associated decisions that are not yet made.

L-1.6.5PFAS Chemical Management Practices for the Proposed Project

As discussed in FEIS Sections 3.9.2 and 3.9.3.2, Micron employs extensive care and precautions to protect workers, consumers, and the environment. Micron employs the Semiconductor Equipment and Materials International (SEMI) S2 standard, which establishes standards for design and installation of manufacturing processes to avoid or reduce workplace hazards, including for gas effluent handling, exhaust ventilation, fire risk avoidance and minimization, and electrical design and hazards. These efforts include use of enclosed automated chemical delivery systems (which physically separate workers from the production process) to minimize potential worker safety risks and exposures. Micron would also use advanced leak detection and employ toxic gas monitoring for hazardous chemical usage. Generally, PFAS-containing compounds are a component of other chemistries used in the facility, whereby generally applicable exposure controls would also protect workers from potential PFAS exposures. For instance, PAGs (which can be PFAS-containing chemicals) that are used in EUV lithography are typically 3-15% of an overall lithography formulation (Choi 2007). Chemical management practices that minimize potential exposures to other substances during processes like photolithography would also reduce potential exposures to the PFAS used in such processes (USEPA 2023).[35]

More generally, Micron controls and mitigates chemical and process hazards in the workplace by employing the principles of the NIOSH Hierarchy of Controls (i.e., elimination, substitution, engineering, administrative, and personal protective equipment (PPE)), as well as USEPA's waste management hierarchy for source reduction, reuse, recycling, treatment and disposal. Micron incorporates these approaches in its evaluation and approval of chemical usage. Micron requires its chemical suppliers to provide full disclosure to Micron of all substances used in the semiconductor fabrication process and conducts a comprehensive review before those chemicals are approved for use in Micron facilities. Through this process, Micron identifies sources of PFAS in its fabrication process chemistries and can make efforts to identify possible non-PFAS containing alternative chemistries where available and feasible. However, review of alternative chemistries may involve evaluation of chemistries that introduce other health, safety, process safety, and environmental risks.

Micron worked with the semiconductor industry collectively to eliminate PFOS and PFOA from fabrication process chemistries. Micron also is working with the semiconductor industry to investigate PFAS applications throughout the manufacturing process, research the feasibility of substitutes, explore opportunities to reduce PFAS use and implement process changes, and pursue treatment options. The industry formed the Semiconductor PFAS Consortium and the SEMI PFAS Initiative to improve its understanding of the availability of alternatives, optimize uses of PFAS in the manufacturing process, and direct adoption of abatement and treatment technologies. This includes ongoing efforts to develop industrial hygiene measurement techniques to monitor for potential PFAS exposures.

Also discussed in FEIS Section 3.3.4.2, the Proposed Project will be subject to stormwater prevention permits, stormwater best management practices, chemical storage and management practices, and spill prevention measures that would avoid or minimize the potential for spills, stormwater runoff, or significant releases of hazardous substances that could cause significant adverse effects on environmental resources. Specifically, the SPDES stormwater permit and Micron's chemical management programs will address the protocols for managing hazardous materials and the potential for accidental leaks. This includes management of PFAS-containing chemicals, which vary in PFAS concentration by chemical.

[35] USEPA's announcement acknowledged that use of "PFAS will not result in worker, general population or consumer exposure and are not expected to result in releases to the environment, which such PFAS are used in a closed system with occupational protections as is generally the practice in the manufacture of some semiconductors and other electronic components" (USEPA 2023).

L-1.7 Cumulative Effects of PFAS Uses from the Proposed Project

Cumulative effects analysis properly focuses on the incremental effects of the Proposed Project and Connected Actions, rather than a similarly detailed accounting of separate projects or historical sources or releases. Chapter 4 of the FEIS on cumulative effects also references rather than repeats analysis of growth inducing effects discussed in Chapter 3. Based on this analysis for use, treatment, and disposal of PFAS, the Proposed Project is not anticipated to have significant adverse cumulative effects.

The FEIS is inherently based on currently available information and what is reasonably foreseeable. Specific potential PFAS uses and releases from various future commercial and residential uses, or the availability or utilization of any non-PFAS alternatives associated with those uses, are not presently known or reasonably determinable at this time. Other future projects, including potential developers on the White Pine Science and Technology Park and projects identified in Table 4.2-1, will be required to comply with all applicable regulatory requirements concerning PFAS and, where required, their own applicable wastewater discharge limits imposed by OCDWEP and other requirements, including for PFAS. Additional details regarding potential use or disposal of ubiquitous PFAS by other projects are not essential to inform a reasoned choice among the alternatives for or to evaluate significant cumulative environmental effects of the Proposed Project.

As discussed above, the semiconductor industry's PFAS uses are critical, but comprise a very small percentage of the overall PFAS market relative to other industries' uses of PFAS (potentially around 1%) (SIA 2024; Lim 2023). The concentration of PFAS anticipated to be used in Micron's operations varies by chemical and can be as low as under 0.1 percent PFAS by weight. Micron and the semiconductor industry are engaged in efforts to identify non-PFAS alternatives for these critical uses, but limited drop-in substitutes are available and the development of alternatives could take many years, where possible.

It is anticipated that the Micron Campus will be subject to a range of regulatory requirements that will directly or indirectly limit potential PFAS discharges and emissions from its operations. As discussed above, this includes anticipated discharge limits for certain PFAS requiring the installation of PFAS wastewater treatment and periodic monitoring of PFAS concentrations in wastewater. It also includes rigorous air permitting and air emissions control requirements. Micron will also apply a framework for management of PFAS-containing wastes that is consistent with legal requirements, EPA guidance, and other factors. Compliance with these relevant laws, regulations, and guidance would reduce the potential for cumulative impacts within the analysis area.

Other potential sources of PFAS in the analysis area would be subject to similar laws and regulations and would have access to similar guidance documents. Other future projects can be reasonably anticipated to comply with associated discharge limits and other requirements. This includes anticipated development of the White Pine Science and Technology Park, for which any significant industrial users discharging to OCDWEP are anticipated to be subject to indirect discharge permits from OCDWEP with PFAS discharge limits and monitoring requirements. To the extent these sources constitute stationary sources of air pollutants, they would be subject to rigorous permitting and air pollution controls under applicable laws and regulations. These sources must also comply with relevant laws and regulations governing disposal of PFAS-containing materials and could employ USEPA guidance on best practices for such materials management (USEPA 2024b). Specific potential PFAS uses and releases from various commercial and residential uses are not presently known or reasonably determinable at this time.

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EXHIBIT A

General Overview of Semiconductor Manufacturing Process and Equipment, Excerpt from Table 2.2-1 from NIST's "Final Programmatic Environmental Assessment for Modernization and Expansion of Existing Semiconductor Fabrication Facilities under the CHIPS Incentives Program" (NIST 2024)[36]

[36] Note this exhibit is intended to provide an overview of semiconductor manufacturing processes and equipment generally. Some of these processes and equipment may not be relevant to Micron's anticipated operations at the New York semiconductor fabrication facilities.

Process Step	Semiconductor Manufacturing Equipment (SME)	Pollution Control and Water and Energy Conservation Trends
Oxidation	• Dry or wet thermal oxidation equipment. • Plasma-enhanced CVD equipment. • Electrochemical anodic oxidation equipment. • Diffusion/oxidation furnaces.	Manufacturers are increasingly using single wafer cleaning processes, which increase energy and water consumption per wafer; however, fabs also are increasing process and non-process (cooling and abatement) water reuse to offset this increased water demand.
Lithography	• Wafer and photomask handlers, including front-opening unified pods (FOUPs) and other types of automated wafer handling systems. • Resist processes (tracks) coat photoresists on wafers (typically by spin-coating, which spins the wafer to spread deposited photoresist), develop them (dissolve portions hit by light), and bake them (harden undissolved photoresist to prepare for etching). • Scanners and steppers are used to produce light that passes through the photomask (e.g., EUV scanners, argon fluoride (ArF) scanners, ArF immersion scanners, krypton fluoride steppers, and i-line steppers). • Mask aligners. • Electron-beam lithography (chip- and/or mask-making). • Laser lithography (mask-making). • Ion-beam lithography (mask-making). • Imprint lithography.	Transition to increased use of EUV lithography over DUV lithography may initially greatly increase the energy consumption per mask step; however, EUV reduces process complexity, which, depending on the productivity of the EUV lithography tools, can reduce the consumption of water, chemicals, and energy needed in the process.
Etching	• Dry (gas) etching, which may include equipment for conductor etching, dielectric etching, ion milling, and/or dry stripping. • Dry cleaning equipment.	Currently, per- and polyfluoroalkyl substances (PFAS) are used in lithography and etching. PFAS compounds contain the stable carbon-fluorine bond, making decomposition into smaller, nontoxic molecules difficult.

Process Step	**Semiconductor Manufacturing Equipment (SME)**	**Pollution Control and Water and Energy Conservation Trends**
	• Wet etching and wet cleaning equipment.	PFAS compounds are resistant to hydrolytic, photolytic, and oxidative reactions, which limit wastewater treatment technologies to high temperature (high cost) processes or adsorption onto a medium. Adsorption has limitations on the ability to remove small molecules and requires disposal of the medium. To determine the removal efficiency of such technologies, analytical methods for the detection of PFAS compounds in wastewater are needed; however, currently available methods for detection are limited to only a few chemistries. This has posed challenges to permitting and control authorities who have begun to include PFAS monitoring requirements in permits. See **Appendix C** for more detailed information on PFAS use in fabs. Dry etching and thin-film deposition (TFD) chamber cleaning use and emit powerful and long-lived, high global warming potential (GWP) fluorinated greenhouse gases (F-GHGs), including perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), nitrogen trifluoride (NF_3), and hydrofluorocarbons (HFCs). TFD, diffusion, and dry removal of photoresist use and emit nitrous oxide (N_2O). Fabs are reducing these emissions through abatement, alternative chemistries, and process optimization.
Deposition and Passivation	• CVD equipment, including plasma CVD, low • CVD, high temperature CVD, and atomic layer • deposition equipment. • PVD equipment. • Electrochemical coating. • Spin-coating. • Rapid thermal processing.	Deposition and dry etching use high GWP F-GHGs, including PFCs, HFCs, and N_2O. Fabs are reducing these emissions through abatement, alternative chemistries, and process optimization. Dry etching and TFD chamber cleaning use and emit F-GHGs, including PFCs, SF_6, NF_3, and HFCs. TFD, diffusion, and dry removal of photoresist use and emit N_2O.

Process Step	**Semiconductor Manufacturing Equipment (SME)**	**Pollution Control and Water and Energy Conservation Trends**
	• Tube-based diffusion and deposition. • Deposition (non-integrated circuits). • TFD chamber cleaning, which can occur through three different processes: in-situ plasma, in-situ thermal, and remote plasma, with remote plasma becoming the dominant technology.	Fabs are reducing these emissions through abatement, alternative chemistries, and process optimization.
Ion Implantation	• Low to medium current ion implanters. • High current ion implanters. • High voltage ion implanters. • Ultra-high dose doping ion implanters.	There are no notable pollution control or water and energy conservation trends for ion implantation.
Metallization and Interconnects	• Sputtering. • CVD. • Interconnects for silicon-based chips were historically made of aluminum, but now are typically made of copper and cobalt. • Spin-coating is most typically used to deposit insulator layers between metal interconnects.	The number of chip-to-chip interconnects is expected to continue to increase, increasing the demand for materials and the need for PFC abatement. Changes in metallization over time may include new formulations for copper electrochemical deposition, including extending copper plating bath life or recycling for reuse.
Chemical Mechanical Planarization	• Chemical mechanical planarization tools use chemical slurries and polishing pads to press and flatten the wafer.	Fabs are trending toward more three-dimensional structures over the traditional planar structure, requiring more masking, deposition, etching, and polishing steps per wafer to achieve the required transistor density on the device. This requires more tools, cleanroom space, and ultra-pure water (UPW) to support a given number of wafers, which drives greater water, energy, and chemical demand. Specific drivers of increasing fab emissions include: (1) The increasing complexity of devices, reflected in an increasing number of layers per device; and (2) The decreasing linewidths of the devices, which are achieved through multiple patterning and etching steps for

Process Step	Semiconductor Manufacturing Equipment (SME)	Pollution Control and Water and Energy Conservation Trends
		each layer. Each turn or step for each layer requires the use of F-GHGs to etch patterns. Each deposition step increases the need for F-GHGs to clean TFD chambers.
Dicing	• Wafer bonders and aligners are used to join silicon wafers prior to dicing. • Dicing tools.	There are no notable pollution control or water and energy conservation trends for dicing.
Testing and Quality Control	• Memory test. • System-on-a-chip (SoC) test. • Burn-in test. • Linear and discrete test. • Handlers and probers. • Inspection and measuring equipment, including scanning electron microscopes, atomic force microscopes, optical inspection systems, and wafer probes. • Certain metrology and inspection systems.	There are no notable pollution control or water and energy conservation trends for testing and quality control. Fluorinated heat transfer fluids (F-HTFs) are used for temperature control in manufacturing processes, cleaning, soldering, and thermal shock testing. These high-molecular-weight, fully fluorinated compounds are typically liquid at room temperatures and pressures but evaporate during use (which often occurs at high temperatures) to enter the atmosphere. Fluorinated compounds are potent, long-lived GHGs. They include perfluoroamines, perfluoromorpholines, perfluoropolyethers (PFPEs), and long-chain perfluorocarbons. F-HTF abatement methods include monitoring and repairing leaks, and recovery and proper disposal of F-HTFs upon chiller servicing or retirement.

Source: NIST 2024.

EXHIBIT B

Key PFAS Use Applications in Semiconductor Fabrication Generally, Excerpt from NIST "Final Programmatic Environmental Assessment for Modernization and Expansion of Existing Semiconductor Fabrication Facilities under the CHIPS Incentives Program" (NIST 2024)[37]

[37] Note this exhibit is intended to provide an overview of PFAS use applications in the semiconductor industry generally. Some of these uses may be applicable to anticipated uses for Micron's New York semiconductor fabrication operations.

Semiconductor Fabrication Process(es)	Use Application for PFAS	Function	Types of PFAS-Containing Materials in Use	PFAS Criticality
Photolithography	PAGs	Precursor for the photo-acid catalyst needed for CARs, PBO/PI, BARCs, and color filter resists.	Perfluoroalkyl-sulfonates C4 or lower and C4 or lower substituted superacid anions, such as C1. For some advanced resists, these are bound to polymers.	PFAS component of PAGs generates strong acids that do not show side reactions that interfere with the chemical amplification process.
Photolithography	Photoresists – polymers	Control pattern profile in EUV lithography.	C1 PFAS polymer	Increases absorbance, improves dissolution properties, and increases resolution.
Photolithography	Pattern collapse mitigation/ EUV anti- collapse rinses	Prevent pattern collapse.	PFAS-containing materials are used in many formulations that mitigate pattern collapse issues, including fluorinated surfactants, surface modification treatment materials, displacement fluids, and organic solvents.	Low surface tension and high contact angle to reduce capillary forces.
Photolithography	Top Anti-Reflective Coatings (TARCs)	Control of thin film interference effects in resists.	Fluorinated water and developer-soluble polymers	High fluorine content is needed to achieve the low refractive index needed to effectively suppress film interference effects.

Semiconductor Fabrication Process(es)	**Use Application for PFAS**	**Function**	**Types of PFAS-Containing Materials in Use**	**PFAS Criticality**
Photolithography	Surface protectors/ immersion barriers (immersion topcoats)	Protection of the resist from immersion liquid and of the exposure process equipment from contamination. Prevent water film pulling and resist component leaching in immersion topcoats.	Spin-on barriers: water-insoluble and developer-soluble polymers with fluorinated side chains. Embedded barriers (in situ topcoats): oligomeric or low molecular weight polymeric highly fluorinated compounds. Fluoroalcohol methacrylate polymers with high water contact angles (>90°).	Soluble in casting solvents and developer, insoluble in water, and do not intermix with photoresists. Hydrophobicity and control of contact angle, inertness under 193 nanometer (nm) radiation, and transparency.
Photolithography	Surfactants	Improved coating uniformity in photoresists, PBO/PI, BARCs, and color filter resists.	Longer-chain PFAS (C6-C8) and telomer alcohols form polymer backbones. Now mostly replaced by C4 pendant chains.	Low surface tension and control of contact angle.
Photolithography	PBO/PI	Provide protection from electrical, thermal, mechanical, and moisture-related impacts.	Water-insoluble C1 PFAS polymers	C1 PFAS groups, attached to the polymer backbone, provide solubility in environmentally friendly casting solvents and enable aqueous development.
Plasma etch, chamber clean, and deposition	Back end of line (BEOL) interconnect patterning (damascene)	Definition of trench and via patterns in dielectric films before filling with metal.	Octafluorocyclobutane (C_4F_8)/(RC318) Hexafluoro-1,3-butadiene (C_4F_6) Tetrafluoromethane (CF_4)/(R14) Trifluoromethane (CHF_3)/(R23)	Selectivity to mask materials, selectivity to different dielectrics (ability to stop on certain layers), and profile control of trench/via sidewalls.
Plasma etch, chamber clean, and deposition	High-aspect ratio channel (3D NAND)	Definition of ultra-high-aspect-ratio channel in multiple dielectric layers.	C_4F_8 C_4F_6 CF_4 CHF_3	Selectivity to mask materials, selectivity to different dielectrics, profile control of channel, and high-etch-rate anisotropic process.

Semiconductor Fabrication Process(es)	Use Application for PFAS	Function	Types of PFAS-Containing Materials in Use	PFAS Criticality
Plasma etch, chamber clean, and deposition	Waveguide fabrication in silicon photonics processes	Patterning of waveguides into silicon and silicon-based dielectric materials.	CF_4 CHF_3	Selectivity to mask materials and ability to reduce line-edge and line-width roughness of patterned features to reduce transmission losses caused by scattering.
Plasma etch, chamber clean, and deposition	Front end of line (FEOL) hard mask patterning	Transfers lithographic patterns into a hard mask for subsequent definition of transistors.	CF_4 CHF_3	Selectivity to mask materials, ability to reduce line-edge and line-width roughness of patterned features to reduce transmission losses caused by scattering, and ability to detect process endpoints from the optical emission signature of carbon-containing byproducts such as C-O and C-N.
Plasma etch, chamber clean, and deposition	FEOL spacer patterning	Define spacer structures (dielectric encapsulation that protects the sidewalls of transistor features).	CHF_3	High selectivity to transistor gate materials and underlying substrate.
Plasma etch, chamber clean, and deposition	Through-silicon via etch	Create deep via structures through entire wafers for packaging applications.	C_4F_8 C_4F_6	Thermal resistance, inertness toward aggressive chemicals, nonflammability, low vapor pressure and off-gassing at high operating temperatures and low pressures, and good stick-slip behavior.

Semiconductor Fabrication Process(es)	Use Application for PFAS	Function	Types of PFAS-Containing Materials in Use	PFAS Criticality
Plasma etch, chamber clean, and deposition	Cleaning processes for CVD and PVD chambers	Remove deposit buildup on chamber walls to ensure reproducibility and prevent yield loss caused by contamination.	CF_4 Hexafluoroethane (C_2F_6)/(R116) Octafluoropropane (C_3F_8)/(R-218)	N/A
Plasma etch, chamber clean, and deposition	Deposition precursors for ALD	Improved volatility and stability of ligands for the uniformity of metal deposition and reproducibility of processes.	Transition metal compounds containing the 1,1,1- trifluoro-2,4-pentane-dionate and 1,1,1,5,5,5-hexafluoro- 2,4-pentane-dionate ligands	No known viable alternatives.
Plasma etch, chamber clean, and deposition	Surface treatment processes for area-selective ALD processes	Remove metal-oxide contaminants from surfaces before deposition.	N/A	Unknown
Miscellaneous wet chemical processes (wet chemical etching; planarization; electroplating; and wafer cleaning, rinsing and drying)	Wet etching	Facilitate entry of the wet etchant into - and reaction products out of - a capillary space by reducing the surface tension of the fluid and the contact angle with the solid. Adsorb to a surface to prevent the deposition of metals that are introduced into the solution during an etching process or to suppress etching of one material while another material is preferentially removed. Mitigate the formation of air bubbles.	Aqueous etch/clean formulations Organic-based etch formulations	PFAS additives are critical for some, but not all wet-etch applications. The requirement for a PFAS additive depends on the physical dimensions and aspect ratio of the device feature being etched, and the particular set of materials exposed to the etchant during etching.

Semiconductor Fabrication Process(es)	Use Application for PFAS	Function	Types of PFAS-Containing Materials in Use	PFAS Criticality
Miscellaneous wet chemical processes	Chemical mechanical planarization (CMP)	Surfactants and surface-active materials disperse the particles, provide slurry stability, control the wettability of films and polishing pads, and reduce corrosion.	Oxide CMP slurries Metal CMP slurries Post-CMP cleaning solutions	Fluorinated surfactants are critical to achieving CMP performance requirements in certain situations. In particular, they enable selective film inhibition and the wetting of low-surface-energy substrates.
Miscellaneous wet chemical processes	Cleaning/ stripping	Some wafer clean/strip formulations and cleaning operations conducted on parts outside of clean rooms require organic solvents to provide the necessary solvency and fluid-handling characteristics.	In some applications, these mixtures comprise fluorinated organic solvents and/or fluorinated organic alternatives.	PFAS-containing solvent mixtures are critical for some, but not all solvent-clean applications. The requirement for a PFAS depends on the material properties of the substance that needs removing.
Miscellaneous wet chemical processes	Plating and electroless plating	Surfactants and surface-active materials reduce surface tension to improve wetting and access to the plating bath solution; and mitigate hydrogen gas inclusion and bubble and/or mist formation.	Fluorinated surfactants	Fluorinated surfactants can achieve low aqueous surface tensions. Fluoroalkyl acid surfactants are uniquely strong acids that remain ionized and hydrophilic even if the pH of the plating solution approaches zero.
Lubrication	Oils and greases in vacuum pumps	Effective lubrication of bearings, gears, and seals.	Perfluoropolyether (PFPE) oil Greases containing PFPE base oils with PTFE thickener	Thermal resistance, inertness toward aggressive chemicals, nonflammability, low vapor pressure and outgassing at high operating temperatures and low pressures, stability under high shear forces, low aggression to metals and elastomers. No known viable alternative for PTFE-thickened greases

Semiconductor Fabrication Process(es)	**Use Application for PFAS**	**Function**	**Types of PFAS-Containing Materials in Use**	**PFAS Criticality**
Lubrication	Greases and solids used in vacuum processing environments	Lubrication within low- pressure and high-temperature environments that require high purity for low wafer contamination.	Greases containing PFPE base oils with PTFE thickener Greases containing multiply- alkylated cyclopentane (MAC) base oils with PTFE thickener PTFE in solid lubricants	Thermal resistance, inertness toward aggressive chemicals, nonflammability, low vapor pressure and outgassing at high operating temperatures and low pressures, complete oxidation resistance, and good stick-slip behavior. No known viable alternative for PTFE-thickened greases and PTFE solids.
Lubrication	Greases and solids used to lubricate robotic systems, O-rings, and seals	Effective lubrication and sealing within low-pressure and high-temperature environments that require high purity for low wafer contamination.	Greases containing PFPE base oils with PTFE thickener PTFE in solid lubricants	Thermal resistance, inertness toward aggressive chemicals, nonflammability, low vapor pressure and outgassing at high operating temperatures and low pressures, complete oxidation resistance, and good stick-slip behavior. No known viable alternative for PTFE-thickened greases and PTFE solids.
Lubrication	Greases used in photolithograph y applications	Effective lubrication of moving parts within environments exposed to UV light.	Greases containing PFPE base oils with PTFE thickener	Low outgassing and UV stability. No known viable alternative for PTFE- thickened greases.

Semiconductor Fabrication Process(es)	Use Application for PFAS	Function	Types of PFAS-Containing Materials in Use	PFAS Criticality
Lubrication	Greases used to lubricate gears and bearings	Effective lubrication.	Greases containing PFPE base oils with PTFE thickener	Thermal resistance, inertness toward aggressive chemicals, nonflammability, low vapor pressure and outgassing at high operating temperatures and low pressures, stability under high shear forces, and low aggression to metals and elastomers. No known viable alternative for PTFE- thickened greases
Lubrication	Greases and solids used to lubricate linear guides, slides, ball screws, and valves	Effective lubrication of mechanical parts that move at high speeds within environments that require high purity for low wafer contamination.	Greases containing PFPE base oils with PTFE thickener PTFE in solid lubricants	Thermal resistance, inertness toward aggressive chemicals, nonflammability, low vapor pressure and outgassing at high operating temperatures and low pressures, and good stick-slip behavior. No known viable alternative for PTFE-thickened greases and PTFE solids.
Heating and cooling	HTFs	F-HTFs are used to transfer heat between process equipment and chillers to provide precise temperature control for specific manufacturing operations.	F-HTF classes include: PFPEs Perfluorocarbons (PFCs) Hydrofluorocarbons (HFCs) Hydrofluoroethers (HFEs) Hydrofluoroolefins (HFOs) Fluorinated ketones Other fluorinated liquids	F-HTFs are electrically nonconductive, compatible with all construction materials including sensitive electrical components, nonflammable, and useful within the operational range required for the manufacturing and testing of semiconductor products. No known viable alternative can meet all these requirements at once.

Semiconductor Fabrication Process(es)	**Use Application for PFAS**	**Function**	**Types of PFAS-Containing Materials in Use**	**PFAS Criticality**
Heating and cooling	Refrigerants	Fluorinated refrigerants are used within closed systems that undergo repeated phase changes to help transfer heat from process equipment to a facility's central cooling system.	Fluorinated refrigerant classes include: PFCs HFCs HFOs Fluorinated ketones Other fluorinated liquid	The most critical performance requirement of the refrigerant is the ability to maintain the lowest operational set point while avoiding a catastrophic phase shift to a solid form, as the refrigerant must remain in a gaseous or liquid form to remain pumpable and useful for temperature control.
ATPS	Substrate/printe d circuit board	PFAS-containing substrate materials exhibit low dielectric constants and loss, have low moisture absorptivity, can be used over a wide temperature range, and are nonflammable.	PTFE-containing dielectric polymers	Among all polymeric dielectrics, PFAS-containing polymers have the lowest dielectric constants (1.9 to 2.1) and are widely used as substrate materials. Alternatives are viable though with greater dielectric constants.
ATPS	Encapsulants	Encapsulants provide environmental and mechanical isolation of semiconductors and wire bonds in addition to heat conductivity to ensure optimum semiconductor performance.	Fluorinated polymers	PFAS provide low thermal expansion while being electrically insulator and hydrophobic. Alternatives are viable.
ATPS	Release layer	Fluorinated polymers act as "anti-adhesion" or release layers for temporary bonding debonding.	Fluorinated polymers	Fluorinated polymers act as strong release layers but are not critical; alternatives are viable.

Semiconductor Fabrication Process(es)	**Use Application for PFAS**	**Function**	**Types of PFAS-Containing Materials in Use**	**PFAS Criticality**
ATPS	Adhesive tapes	As a generic adhesive, PFAS-containing materials can help prevent sticking of thermal or UV-curable materials to an applicator during processing.	N/A	Strong alternatives are viable.
ATPS	Flux/surfactants	PFAS-containing chemicals can help control flux spread during high-temperature exposure, so that the flux can remain in the solder joint area during soldering and improve the solder joint quality and yield.	N/A	PFAS-containing surfactants are typically more heat-resistant, with wetting properties that control spread.
ATPS	Die overcoat/ adhesive	Packaging applications need hermetic and chemical resistance adhesive coatings.	N/A	Adhesive materials required for use in semiconductor packaging must have the ability to simultaneously meet ultra-low dielectric constant property targets as well as reliability requirements such as adhesion to ultra-low roughness and unroughened copper under high-humidity, high-temperature conditions.
ATPS	Underfills	Underfills are typically polymer materials that bind the package to the printed circuit board and reduce stress on the solder joints.	Fluorinated polymers and fluorinated rubbers, such as: Vinylidene fluoride-propylene hexafluoride copolymer; and Tetrafluoroethylene-propylene copolymer.	Underfill will contain approximately 50% silica materials, with the remainder polymeric materials with high viscosity and low volatility.

Semiconductor Fabrication Process(es)	Use Application for PFAS	Function	Types of PFAS-Containing Materials in Use	PFAS Criticality
ATPS	Mold compounds, release layers, and films	Mold compounds are used as a protective outer layer covering most or all of the semiconductor package substances.	PTFE or ethylene tetrafluoroethylene (ETFE)	PTFE is essential for release sheets and there are currently no known alternatives.
ATPS	Thermal interface materials	In order to prevent dual-layer thermal interfaces from ripping, tearing or otherwise losing or disrupting their dielectric or thermal properties during assembly, the material-comprising layer must be tear-resistant and have a high tensile strength.	Fluorinated resins: Fluorocarbon resins; Fluororesins; and Fluorinated polyalkyl ether.	Fluorinated resins help achieve high thermal conductivity and can also help hold the components during processing due to high viscosity and elasticity.
ATPS	Die passivation	PFAS-containing materials are used as part of the controlled collapse of chip connection (C4) bumping process that connects the chip to the interposer.	PFAS-containing polyimide, polybenzoxazole and other epoxy-based passivation.	There are no known alternatives.
Miscellaneous	Articles	PFAS-containing articles includes essential equipment that processes substrates (silicon wafers, reticles); its component parts; and its auxiliary, support or peripheral equipment (chemical controllers, chemical delivery systems, vacuum pumps)	FP and non-FP components containing PTFE, PVDF, FFKM, and PFBS	The potential substitution of fluoropolymers with alternative materials is problematic, because in general, identifying an alternative that meets the characteristics required for each fluoropolymer article has not been successful and will require invention.

Source: NIST 2024

EXHIBIT C

Overview of PFAS Wastewater Treatment Technologies

Section 3.8.3.2 of the FEIS discusses PFAS wastewater treatment technologies that currently exist and that are in the process of development. This assessment includes review segregation and concentration technologies, as well as destruction capabilities. It also includes review of removal or destruction efficacy of various chain lengths, effectiveness of technologies alone or in combination, and management options for PFAS-containing materials generated during treatment.

Commonly discussed technologies that are available for treatment of wastewater containing PFAS include reverse osmosis and nanofiltration (membranes used to filter out PFAS, effectively removing them from the water), granular activated carbon (adsorption), ion exchange resins (which selectively capture and remove PFAS from wastewater), foam fractionation (segregates PFAS using air injection), and advanced oxidation processes (used to break PFAS down).[38] The effectiveness of these technologies depends on a range of factors, and USEPA has indicated that several of these technologies are capable of co-removing both those PFAS substances subject to drinking water limits and other PFAS (USEPA 2024a).

As the technology continues to evolve, substantial research supports application of these technologies for PFAS treatment and destruction capabilities.[39] For instance, published literature discusses focused study of four separation technologies – nanofiltration followed by reverse osmosis, PFAS-selective ion exchange, granular activated carbon, foam fractionation – and PFAS-specific destruction technologies, such as electrochemical oxidation. For instance, nanofiltration has been identified as a removal technology capable of achieving over 90% removal of a PFAS:

> Treatment of the fab wastewater, containing high concentrations of perfluorocarboxylic acids (PFCAs), including trifluoroacetic acid (TFA: 96,413 ng/L), perfluoropropanoic acid (PFPrA: 11,796 ng/L), and perfluorobutanoic acid (PFBA: 504 ng/L), resulted in ≥92 % rejection of all PFAS while achieving 90% water recovery in a semi-batch configuration. These findings demonstrate nanofiltration as a promising technology option for incorporation in treatment trains targeting PFAS removal from wastewater matrices.

(Griffon 2024).

Similarly, granular activated carbon (GAC) has been studied and determined to be effective. The Orange County Water District's 2021 report found that GAC and certain other

[38] 40 CFR 141.61(d), Table 3 (identifying anion exchange, GAC, reverse osmosis and nanofiltration as best available technology, treatment technique, or other means available for achieving compliance with the MCLs for all regulated PFAS).

[39] See, e.g., USEPA 2024a (discussing leachate treatments); ITRC 2023b (discussing several treatment technologies, including foam fractionation); Griffin 2024 (nanofiltration and reverse osmosis), OCWD 2021 (PFAS-selective ion exchange); Medina 2022 (granular activated carbon); Duinslaeger 2022 (electrochemical destruction); Amen 2023.

adsorption media "showed the strongest performance" with respect to later initial PFOA breakthrough and the lowest sustained PFOA effluent concentration during 13 months of pilot testing (OCWD 2021). The 2021 report has been cited as the nation's largest PFAS adsorptive media pilot test at that time, with the evaluation of 14 treatment media. The assessment used USEPA Method 537.1 and water that contained seven PFAS compounds, including some short-chain compounds (PFBS and PFHxA) and other longer chain compounds (such PFOA and PFOS). A 2022 publication provides further support particularly for long-chain removal by adsorption (Medina 2022). The 2022 study showed that adsorbents (including ion exchange resins) and GAC can effectively remove certain PFAS in certain applications or as part of a treatment train. They also are effective for polishing. The study further suggests that appropriate considerations in selection of treatment options includes effectiveness in removal of short- and ultrashort-chains, the frequency of changeouts, and waste handling requirements.

Foam fractionation also has been used effectively for industrial wastewater and other applications involving PFAS. This technology uses the surfactant properties of PFAS to separate these substances from wastewater. It injects air to create bubbles in a PFAS-containing liquid, because PFAS molecules tend to accumulate at the air-water interfaces due to their hydrophobic and hydrophilic ends. This causes the PFAS to adsorb to the surface of the rising bubbles. As the bubbles reach the top, they form a foam layer that can be skimmed off and managed separately. Benefits of this method include its relatively low energy requirements, scalability, and effectiveness in concentrating PFAS from dilute solution. It has been demonstrated for wastewater treatment with long-chain PFAS, and additional research is underway to evaluate effectiveness for short-chain PFAS (ITRC 2023b). This technology also requires optimization of bubble size and flow rates to maximize removal efficiency.

Additional developments appear promising for PFAS destruction (as distinguished from separation methods). For instance, certain destruction technologies like electrochemical oxidization, nonthermal plasma, hydrothermal alkaline treatment, and supercritical water oxidation, have been shown to be effective for treatment of high concentration, low volume liquids but may be less suitable for high volume, low concentration liquids (ITRC 2023b).

Appendix L-2
Relevant OSHA Standards

~~L-1~~L-2Relevant OSHA Standards

OSHA promulgates general industry safety and health standards under the Occupational Safety and Health Act, which are codified at 29 C.F.R. Part 1910, and construction safety and health standards under the Contract Work Hours and Safety Standards Act, which are codified at 29 C.F.R. Part 1926. Table L-1 provides descriptions of the OSHA general industry and construction standards most relevant to semiconductor manufacturing projects.

Table L-1 OSHA General Industry and Construction Standards

Standard	Description
General Industry Standards	
29 C.F.R. Part 1910, Subpart D	Walking-working surfaces: requirements for stairways, ladders, fall protection, and training.
29 C.F.R. Part 1910, Subpart G, § 1910.94	Ventilation: protection against abrasives, surface coatings, and respirable dusts.
29 C.F.R. Part 1910, Subpart G, § 1910.95	Occupational noise exposure: guidelines for workplace noise protection.
29 C.F.R. Part 1910, Subpart H, § 1910.119	Hazardous materials: process safety management (PSM) of highly hazardous chemicals.
29 C.F.R. Part 1910, Subpart H, §§ 1910.123-126	Hazardous materials: requirements for dipping and coating operations.
29 C.F.R. Part 1910, Subpart I, §§ 1910.132, 134	PPE: general requirements and specific respiratory protection.
29 C.F.R. Part 1910, Subpart J, § 1910.147	General environmental controls: hazardous energy controls (lockout / tagout procedures).
29 C.F.R. Part 1910, Subpart Z	Toxic and hazardous substances: employee exposure requirements.
29 C.F.R. Part 1910, Subpart Z, § 1910.1000	PELs: maximum allowable substance concentrations.
29 C.F.R. Part 1910, Subpart Z, § 1910.1200	Hazard communication: classification and information requirements consistent with the United Nations Globally Harmonized System of Classification and Labelling of Chemicals, including requirements relating to container labeling, safety data sheets, and employee training.
Construction Standards	
29 C.F.R. Part 1926, Subpart C	General safety and health provisions: requirements for safety training and education, first aid, fire protection, housekeeping, sanitation, and PPE.

Standard	Description
29 C.F.R. Part 1926, Subpart D	Occupational health and environmental controls: requirements for medical services and first aid; occupational noise exposure; non-ionizing radiation; gases, vapors, fumes, dusts, and mists; ventilation; and hazard communication.
29 C.F.R. Part 1926, Subpart E	PPE: general requirements and specific respiratory protection.
29 C.F.R. Part 1926, Subpart H	Requirements for handling, storage, use, and disposal of waste materials.
29 C.F.R. Part 1926, Subpart I	Hand and power tools: requirements for hand tools, power-operated hand tools, abrasive wheels, jack-lever, screw and hydraulic tools, air receivers, and mechanical power transmission apparatus.
29 C.F.R. Part 1926, Subpart J	Welding and cutting: requirements for gas and arc welding, cutting, fire prevention, and ventilation.
29 C.F.R. Part 1926, Subpart L	Scaffolds: requirements for scaffolding, aerial lifts, and associated training.
29 C.F.R. Part 1926, Subpart M	Fall protection: requirements for fall arrest and protection systems and practices and training requirements.
29 C.F.R. Part 1926, Subpart P	Excavations: requirements for protective systems, soil classifications, and specific excavation requirements.
29 C.F.R. Part 1926, Subpart Q	Concrete and masonry construction: requirements for concrete equipment and tools, cast-in-place, and pre-cast concrete.
29 C.F.R. Part 1926, Subpart R	Steel erection: requirements for hoisting and rigging, structural steel assembly, anchorage, beams and columns, joists, engineering, falling object protection, and training.
29 C.F.R. Part 1926, Subpart Z	Toxic and hazardous substances: requirements relating to worker exposure to toxic and hazardous substances, including air contaminants and carcinogens.
29 C.F.R. Part 1926, Subpart AA	Confined spaces: requirements for workplace permit-required confined spaces, entries, training, rescue, and emergency services.
29 C.F.R. Part 1926, Subpart CC	Cranes and derricks: requirements for ground conditions, assembly and disassembly of crane operations, hoisting, operations, signals, work area control, qualifications, training, inspections, and evaluations.

Appendix L-32
Micron Emergency Response Management System

~~L-2~~L-3 Micron Emergency Response Management System

Micron's ERMS encompasses an emergency program, a crisis management program, and emergency event response procedures. The overall purpose of the ERMS is to plan and prepare for and respond to any EHS-related events that may occur at Proposed Project sites, including the Micron Campus, that would require an emergency response by Micron's dedicated internal ERT. Examples of EHS-related events that would require an emergency response would include fires, chemical leaks or spills, odors, and employee falls, injuries, and illnesses.

Micron manages the ERT under its Global EHS Department. The ERT is comprised of trained Micron employees certified in OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) standards, State and National EMT-B standards (an entry-level certification for emergency medical care), and confined space and high-angle rescue training. An on-site Occupational Medical Director (physician) oversees the ERT's medical response protocols in accordance with the National Incident Management System/Incident Command System (NIMS/ICS) (a standardized approach to incident management developed by the U.S. Department of Homeland Security). In addition, ERT members are certified to implement all of Micron's internal emergency response plans, procedures, and protocols, and receive specialized gas and chemicals training, fire response training, drill and evacuation protocol training, and instruction and guidance from Micron's EHS management professionals.

Micron's existing internal policy is to require all of its front-end manufacturing facilities to employ a minimum of two dedicated EMT personnel on each shift to ensure minimum coverage by two EMT personnel 24 hours per day, 7 days per week. Micron also provides training to operations personnel to support the ERT as needed, including training in American Heart Association (AHA) cardiopulmonary resuscitation (CPR) guidelines, semi-automatic defibrillator (AED) training, first aid training, OSHA HAZWOPER training. For example, Micron has trained more than 100 employees at its existing facility in Boise, ID in these techniques to support the ERT team during emergency event response.

The Micron Campus would include an EHS Control Room staffed 24/7 to serve as an emergency event control center and provide emergency event notifications to the ERT. EHS Control Room technicians will be certified in Emergency Medical Dispatch (EMD) National Standard Curriculum and the requirements of local dispatch agencies (e.g., local 911 dispatch). EMD certification ensures that personnel adhere to efficient communication and response protocols when requesting local county or city emergency response services. The EHS Control Room will also monitor fire alarm, toxic gas monitoring, emergency exhaust, and other systems, and will coordinate dispatch of ERT and active off-site first responders, as needed.

During an emergency event response, an ERT Captain will assume command and control of the event and will be responsible for: controlling access to the event area; ordering any necessary evacuation; securing area conditions (such as by shutting down equipment); mobilizing ERT and other resources; coordinating with off-site first responders (as needed); and overseeing event mitigation, stabilization, and recovery efforts and demobilizing resources following the response. The ERT also will conduct after-action reviews and disseminate lessons learned to site personnel promote continuous improvement. If an emergency event exceeds the ERT capacity, Micron would activate its Crisis Management Team (CRT), which is comprised of senior leadership personnel who are trained to support ERT event mitigation, stabilization, and recovery efforts.

The ERT will maintain a less than five-minute response time when responding to all emergency events and other incidents on-site. The ERT will conduct weekly trainings with operations personnel supporting the ERT to ensure adequate support is available to assist with emergency response efforts. To ensure readiness, the ERT also regularly trains with local first responders.

Event Determination

Micron will develop a risk ranking system for emergency event response management as follows:

- Level 1 Event – a relatively minor event requiring a standard level of emergency response (e.g., responding to an employee injury).
- Level 2 Event – a relatively uncommon event with serious impacts that may escalate beyond ERT capacity and warrant activation of the CRT (e.g., power loss with tools down).
- Level 3 Event – a catastrophic event with major impacts exceeding ERT capacity that requires CMT support (e.g., fire beyond control capabilities of ERT).

Micron also will maintain a registry of risk ranked events and develop response protocols to those events in accordance with the requirements of ISO 14001 (Environmental Management Systems) and ISO 45001 (Occupational Health and Safety Management Systems) standards. The ERT also maintains risk matrices for each Micron facility that specify appropriate preventative measures and corrective actions based on the estimated likelihood and severity of various hazard scenarios, taking into account each facility's layout and location and relevant risk factors, such as disease outbreaks (H1N1, COVID-19), weather and storm warnings, vehicle, rail, or aircraft incidents, earthquake, flood, and fire risk, site evacuation, workplace incidents, and chemical releases.

Local EMS Engagement

Micron's ERMS and ERT are intended to minimize the potential need to call on local EMS to the greatest extent practicable. However, Micron would contact local police, fire, or EMS in any situation that would warrant or require assistance from first responders or a 911 response. Such situations would include active fires, confined space rescues, loss of consciousness, loss of life, potential loss of limb or sight, chest pain, or other situations that the on-site Occupational Medical Director or other appropriate personnel determine warrants such a response. Micron has conducted a comprehensive review of its ERMS and ERT protocols and has coordinated with external agencies to ensure its protocols would be sufficient to respond to large-scale incidents. As part of this effort, Micron met with Clay and Syracuse fire department representatives to establish clear expectations and assess respective response capabilities.

Micron's response capabilities would include: CPR and AED use; emergency medical trauma care (e.g., bleed control, splitting, and burn management); medication administration (e.g., oxygen, epinephrine, Narcan, aspirin); confined space and high-angle rescue; initial chemical and hazardous materials (hazmat) response; and limited fire response (i.e., use of extinguishers). For chemical or hazardous materials incidents requiring local fire service response, Micron would coordinate with Clay Fire and the Syracuse Fire Department, which employs a specialty hazmat response unit that is available to respond to incidents in Clay based on an existing mutual aid agreement with Clay Fire. Micron has engaged with both fire departments to discuss the scope of these services and the mutual aid framework to ensure continued collaboration and effective emergency response planning. Micron also has engaged with NAVAC and NOVA to discuss the scope of their EMS capabilities. NAVAC and NOVA anticipate having adequate capacity to respond to future incidents at the Micron Campus. For additional analysis of the Proposed Project's effects on police, fire, and EMS capacities, see Section 3.14 (Community Facilities, Open Space, and Recreation).

Micron On-site Clinics

Micron would establish three different clinics as components of the Proposed Project: the healthcare center at the Childcare Site, an on-site construction occupational health clinic at the Micron Campus dedicated to construction workers, and an on-site operational occupational medical clinic at the Micron Campus dedicated to operational employees. The healthcare center at the Childcare Site would provide care to Micron employees and would be staffed with appropriate family health medical providers.

The construction occupational health clinic would provide care to Proposed Project construction workers, including injury and illness management. The construction clinic would be staffed with an occupational medical physician or physician's assistant, registered nurse or licensed nurse practitioner, physical therapist (or similar), and other medical support staff. The ERT would transport injured construction worker or personnel to the construction clinic for medical care, as appropriate. In an emergency event requiring an immediate 911 call, the ERT or other Micron personnel overseeing construction would immediately call 911, which would dispatch local EMS. Otherwise, should the level of care needed exceed the construction clinic's capacities, the ERT would assist in transporting workers to the nearest and most appropriate healthcare facility, such as a hospital or urgent care center.

The operational occupational medical clinic would provide care to Micron Campus employees, including occupational health, illness, and injury care and management. The operational clinic would be headed by the Occupational Medical Director and would be staffed with occupational medical physician or physician assistants, registered nurses or licensed nurse practitioners, and physical therapist (or similar) supported by third party medical staff. The ERT would transport injured Micron Campus employees or personnel to the operational clinic for medical care, as appropriate. In an emergency event requiring an immediate 911 call, the ERT or other Micron personnel overseeing campus operations would immediately call 911, which would dispatch local EMS. Otherwise, should the level of care needed exceed the operational clinic's capacities, the ERT would assist in transporting personnel to the nearest and most appropriate healthcare facility, such as a hospital or urgent care center.

Appendix L-43

Micron Global EHS Construction Performance Standard

APPENDIX M
TRANSPORTATION AND TRAFFIC

APPENDIX N
NOISE AND VIBRATION

APPENDIX O
VISUAL EFFECTS AND COMMUNITY CHARACTER

Appendix O-1
Visual Effects and Community Character Methodology

O-1 Visual Effects and Community Character Methodology

O-1.1 Study Area and Methodology

This section defines the study area for visual effects and community character and explains the methodology used to describe the affected environment. This section also explains the evaluation methods used to determine the direct and indirect effects of the Preferred Action Alternative on visual effects and community character.

Study Area

The study area for visual effects and community character includes: (1) the area within a five-mile radius around the proposed Micron Campus site, consistent with the Final SEQRA Scope (see Appendix A-2); and (2) the areas within quarter-mile radii around the Rail Spur Site, the Childcare Site, the Clay Substation expansion area, GRS 147, the OCWA Terminal Campus, the OCWA LOWTP, and the IWWTP, given that these other components of the Proposed Project and Connected Actions would primarily involve smaller-scale development with more limited off-site visibility. The remaining components of the Connected Actions would be of limited above-ground height or would be buried underground (e.g., the natural gas line and the wastewater conveyance), and therefore are not included in the visual effects analysis.

Affected Environment

Section 3.13 (Visual Effect and Community Character) analyzes the potential visual effects of the components of the Proposed Project and Connected Actions noted above within the study area, their potential effects on designated aesthetic resources, and their potential effects on community character. These three parts of the analysis are explained below.

Visual Effects

First, the EIS includes a broad analysis of the potential visual effects of the Preferred Action Alternative from the standpoint of an average viewer positioned at various vantage points or "viewpoints" within range of the Proposed Project and Connected Action components noted above. This broad analysis is intended to provide a general sense of how the more visible Proposed Project and Connected Action components would "look" once they are fully constructed.

Designated Aesthetic Resources

Second, the EIS separately analyzes the potential aesthetic impacts of the identified Proposed Project and Connected Action components on designated aesthetic resources, which are specific locations that have been formally "designated" or "inventoried" as part of Federal or State programs as having national or statewide importance based on their aesthetic qualities.

This part of analysis in Section 3.13 (Visual Effect and Community Character) of the EIS has been conducted in accordance with NYSDEC Program Policy DEP-00-2.[40] DEP-00-2 applies only to designated aesthetic resources, which are locations that have been formally designated at the Federal or State level and that are visited because of their beauty. Although not all designated aesthetic resources are historic properties that are listed or eligible for inclusion in the National Register of Historic Places (NRHP) or the New York State Register of Historic Places (NYSRHP), and not every historic property is a designated aesthetic resource, some historic properties are designated aesthetic resources. For example, Niagara Falls is a designated aesthetic resource because it is both visited by people drawn to its natural beauty and is formally designated as a State park.

DEP-00-2 defines an "aesthetic impact" as "a detrimental effect on the perceived beauty of a place or structure" where a project's visibility "clearly interfere[s] with or reduce[s] the public's enjoyment or appreciation of the appearance of a significant place or structure", i.e., of a designated aesthetic resource. Further, DEP-00-2 defines a "significant aesthetic impact" (i.e., one that would be a significant effect under SEQRA) as an aesthetic impact "that cause[s] a diminishment of the public enjoyment and appreciation of an inventoried resource, or one that impairs the character or quality of such a place." To evaluate whether an aesthetic impact is significant, agencies consider the "magnitude" (severity, size, or extent) and "importance" (how many people would be impacted or affected) of a proposed action. However, NYSDEC notes that "[t]he fact that a project is large, by itself, should not be a trigger" for significance.

Therefore, just because a Proposed Project or Connected Action component could be visible from a viewpoint at a particular designated aesthetic resource would not necessarily mean that the component would have a significant aesthetic impact on that designated aesthetic resource. Instead, such determinations must be made based on the designated aesthetic resource's context within the surrounding landscape and the similarity of structures or features around it, the resource's distance from project components, and the extent to which visibility of any project components from the standpoint of the resource would diminish public enjoyment and appreciation of the resource or impair the character or quality of the resource.

The analysis of both general visual effects as well as potential effects on designated aesthetic resources is limited to the study area described above.

Community Character

Although there is some overlap between the concept of visual effects and the concept of community character, and both are discussed in Section 3.13 (Visual Effect and Community Character), the EIS analyzes the potential effects of the Proposed Project and Connected Actions on community character not based on DEP-00-2, but rather in accordance with the SEQR Handbook, which notes that, "community character relates not only to the built and natural environments of a community, but also to how people function within and perceive that community"; the Handbook also notes that because this concept is difficult to define by

[40] NYSDEC Program Policy DEP-00-2, "Assessing and Mitigating Visual and Aesthetic Impacts" (revised 2019). As noted in the policy, where NYSDEC is an involved agency in a SEQRA review, as is the case for this EIS, NYSDEC may suggest the use of the policy by the lead agency. OCIDA agreed to use the policy for purposes of analyzing the effects of the Preferred Action Alternative on designated aesthetic resources.

quantitative measures, agencies may rely on municipal planning documents and zoning "as expressions of the community's desired future state or character . . . generally, through the exercise of their zoning and planning powers, municipalities are given the job of defining their own character" (NYSDEC, 2020, p. 84).

O-1.2 Proposed Project

Consistent with the methodology outlined above, the Final SEQRA Scope, and the 2021 WPCP SGEIS, and based on a review of online databases and other sources, a total of 19 designated aesthetic resources were identified within the Proposed Project portion of the study area, listed in Table O-1.

Table O-1 Designated Aesthetic Resources (Proposed Project)

#	Designated Resources
Listed or Eligible for Inclusion in National or State Registers of Historic Places	
1	Schroeppel House
2	NYS Barge Canal Historic District (including Erie Canalway National Heritage Corridor)
3	Stone Arabia School Museum
4	Property on Brewerton Rd
Local	
5	Oneida Shores County Park
6	Three Mile Bay Wildlife Management Area (WMA)
7	Hamlin Marsh WMA
8	Riverwalk Nature Trail
9	Cicero Swamp WMA
10	Meltzer Park
11	Plank Road Park
12	Santaro Ballfields at Legacy Sports Park / Clay Park North
13	Town of Clay Green Area / Clay Central Park / Hamlin Marsh
14	The Greens at Beaumont
15	Lock 23 State Canal Park
16	Fort Brewerton Park

17	Heritage Park
18	Cherrington Park
19	Clay Historical Park

Second, a list of viewpoints in the study area to support an analysis of potential effects on both the designated aesthetic resources and other (undesignated) locations of interest or importance for purposes of the broader visual effects analysis were identified. This broader list of viewpoints includes viewpoints at each designated aesthetic resource, as well as a wider array of viewpoints at various other locations, including electrical and power substations, local roads, major thoroughfares, commercial and office spaces, public parks, religious institutions, schools, residential areas, cemeteries, and golf courses. Some of these viewpoints were previously included in the SGEIS and others were added specifically for purposes of this EIS. As shown in Table O-2, a total of 76 viewpoints were identified (including viewpoints at designated aesthetic resources, identified in the table with an asterisk (*)). No viewpoints were identified at Three Mile Bay WMA or Riverwalk Nature Trail due to distance from the Micron Campus and/or lack of public access. The NYS Barge Canal Historic District is represented by several viewpoints in the table (#s 36, 64, 65, 12, 37, 38, 39, 40, 46, and 42).

Table O-2 Selected Viewpoints (Proposed Project)

#	Viewpoint Location	Use
Viewpoints from SGEIS		
1	Entry to Clay Substation on Caughdenoy Rd	Utility
3[41]	SW corner of NYS Route 31 and Caughdenoy Rd intersection	Road
4	Caughdenoy Rd – south of site	Road
5	Maple Rd and Caughdenoy Rd	Road
6	5755 Boulia Dr	Residential
7*	Meltzer Park parking lot	Park
8	Immanuel Church parking lot	Roadway
9	Town of Clay Offices entrance on NYS Route 31	Public Offices
10	SW corner of Morgan Rd and NYS Route 31	Commercial
11	Entry to Great Northern Mall on Morgan Rd	Commercial
12	Henry Clay Blvd extension south of Glosky Island	Roadway

[41] There is no Viewpoint #2 in this analysis in order to maintain the numbering used in the SGEIS, which similarly did not include a Viewpoint #2.

13	NE corner of Henry Clay Blvd and Orchard Rd	Roadway
14	SE corner of Orchard Rd and Orangeport Rd	Open Field
15	Intersection of Jacob Ln and Bear Springs Rd	Residential
16	Intersection of Orangeport Rd and Peregrin Ln	Residential
17	Calvary Church off of Mud Mill Rd	Church
18	Brewerton Elementary School – south side of entryway	Public School
19*	East entry of Plank Road Park in parking lot of Mud Mill Rd	Public Park
20	Driveway of Airlane Enterprises – off Verplank Rd	Commercial
21	4592 Verplank Rd	Residential
22*	Parking lot of Santaro Memorial Park – off Henry Clay Blvd	Public Park
23*	Parking lot of Hamlin Marsh WMA – off Henry Clay Blvd	Public Park
24*	Town of Clay Green Area – off Henry Clay Blvd	Public Park
25	Intersection of Lehman St and Caughdenoy Rd	Roadway
26	Pine Plains Cemetery – off Henry Clay Blvd	Public Cemetery
27	Intersection of Route 11 and Caughdenoy Rd	Commercial
28	Hayes Airfield	Roadway
29	Northern Onondaga Library – on Knowledge Ln	Public Library
30*	Parking lot of The Greens at Beaumont golf club	Golf Course
31	Intersection of Mud Mill Rd and Sneller Rd – east of I-81	Roadway
32	Along Sneller Rd – east of I-81	Roadway
33	NYS Route 31 in front of plaza – across from school	Commercial
34	Heron Marsh	Open Field
35	Meltzer Court	Residential
36*	Schroeppel House	Historic
37*	Lock 23 State Canal Park	Public Park
38	Winter Harbor Marina	Commercial
39	Riveredge Airpark	Commercial

40*	Fort Brewerton Park	Public Park
41	Central Square Middle School	Public School
42	Lakeshore Baptist Church	Church
43*	Stone Arabia School Museum	Historic
44*	Heritage Park	Public Park
45	Bear Road Elementary School – off Chestnut St	Public School
46*	Oneida Shores County Park – from parking lot off Ladd Rd	Public Park
47	Gillette Rd Middle School off South Bay Rd	Public School
48	Believers Chapel off Island Rd just west of Cicero Swamp WMA	Church
49	Intersection of South Bay Rd and East Pine Grove Rd – SE corner	Residential
50	Soule Road Middle School – off Soule Rd	Public School
51	Morgan Road Elementary School	Public School
52	Bear Rd at Sandy Ln	Residential/Roadway
53	Buckley Road Baptist Church – off Buckley Rd	Church
New Viewpoints		
54	Brewerton Rd and Meltzer Court	Roadway
55	Parking lot of Spring Village Apartments – on Knowledge Ln	Residential
56	American Homes of Syracuse – entrance off Brewerton Rd	Commercial
57	Entry to Adesa Syracuse – off Route 11	Commercial
58	Syracuse Sports Center – off Meltzer Court	Facility
59	Cottages at Garden Grove	Residential
60	Cicero United Methodist Church	Church
61	Parking lot at Cicero Golf Store off Route 11	Commercial / Open Field
62	Intersection of Verplank Rd and Morgan Rd	Roadway
63*	Entry to Santaro Park Ballfields – off Henry Clay Blvd	Public Park
64	Intersection of Morgan Rd and Oak Orchard Rd	Roadway
65	Entry to Oak Orchard site – off Oak Orchard Rd	Roadway

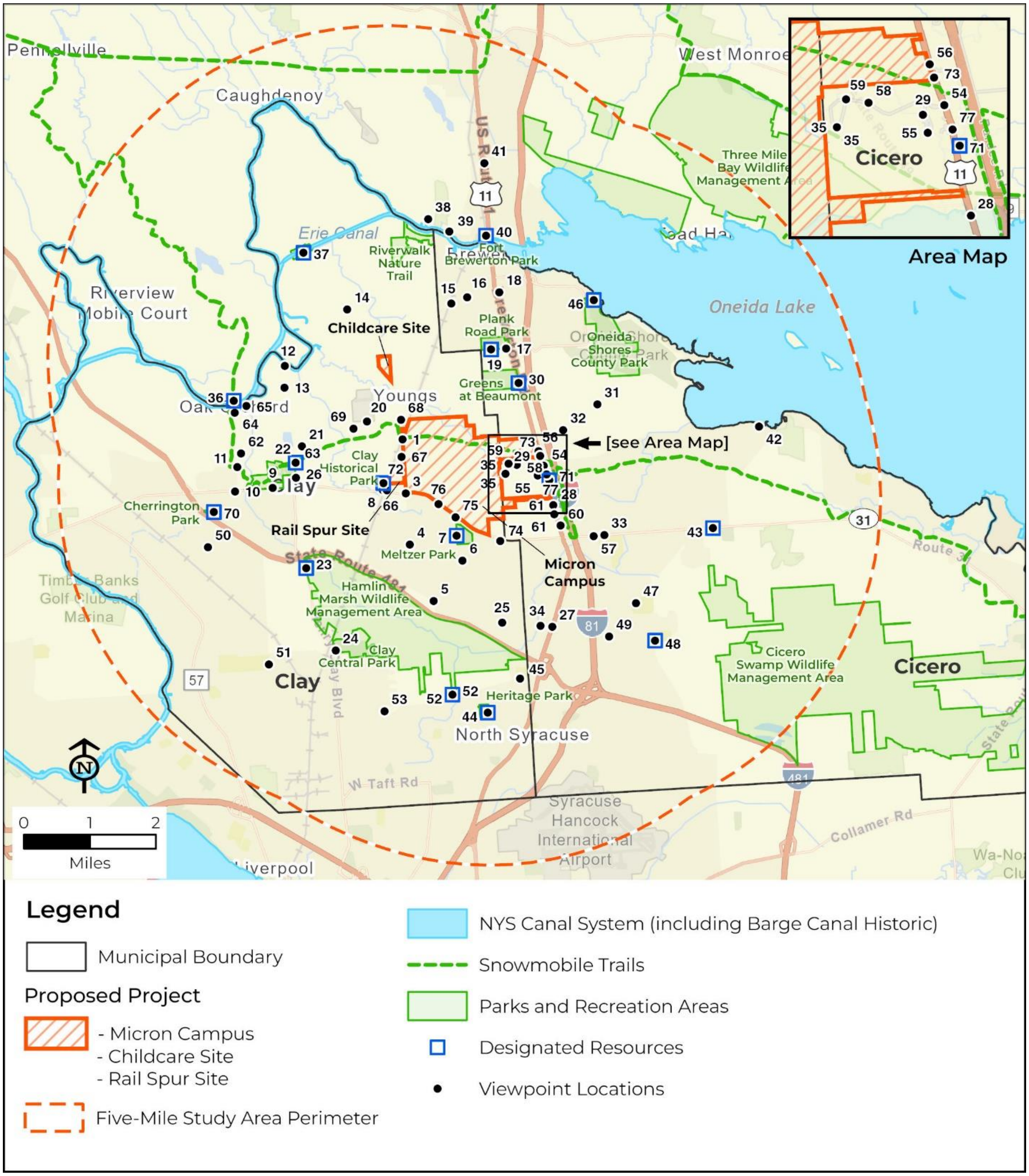
66	Parking lot of Freight Yard Brewing – off NYS Route 31	Commercial
67	Parking lot of Jerome Fire Equipment – off Caughdenoy Rd	Commercial
68	Verplank Rd and Caughdenoy Rd intersection	Roadway
69	Verplank Rd and Van Hoesen Rd intersection	Roadway
70*	Cherrington Park	Public Park
71*	Property on Brewerton Rd	Eligible for State / National Register
72*	Clay Historical Park	Public Park
73	Route 11 and the transmission lines near McKinley Rd	Roadway
74	Barcaldine Dr. and NYS Route 31	Roadway
75	Stearns road and NYS Route 31	Roadway
76	NYS Route 31 near 5158 NYS Route 31	Roadway
77	Route 11 near CJ's Car America	Roadway

Sources: WPCP Draft SGEIS, May 2021; April 2023 AKRF site visits. Note: * = designated aesthetic resource.

Next, an Esri GIS "bare earth" viewshed analysis was conducted to screen the viewpoints for theoretical, potential visibility of the Micron Campus. This GIS analysis conservatively accounted for existing ground elevation (i.e., ridgelines), elevation of the Micron Campus, and proposed building heights without considering existing or proposed vegetation or structures that may break actual line-of-sight. Due to the relatively flat topography, this analysis only screened out two viewpoints that would not have line-of-sight to the Micron Campus.

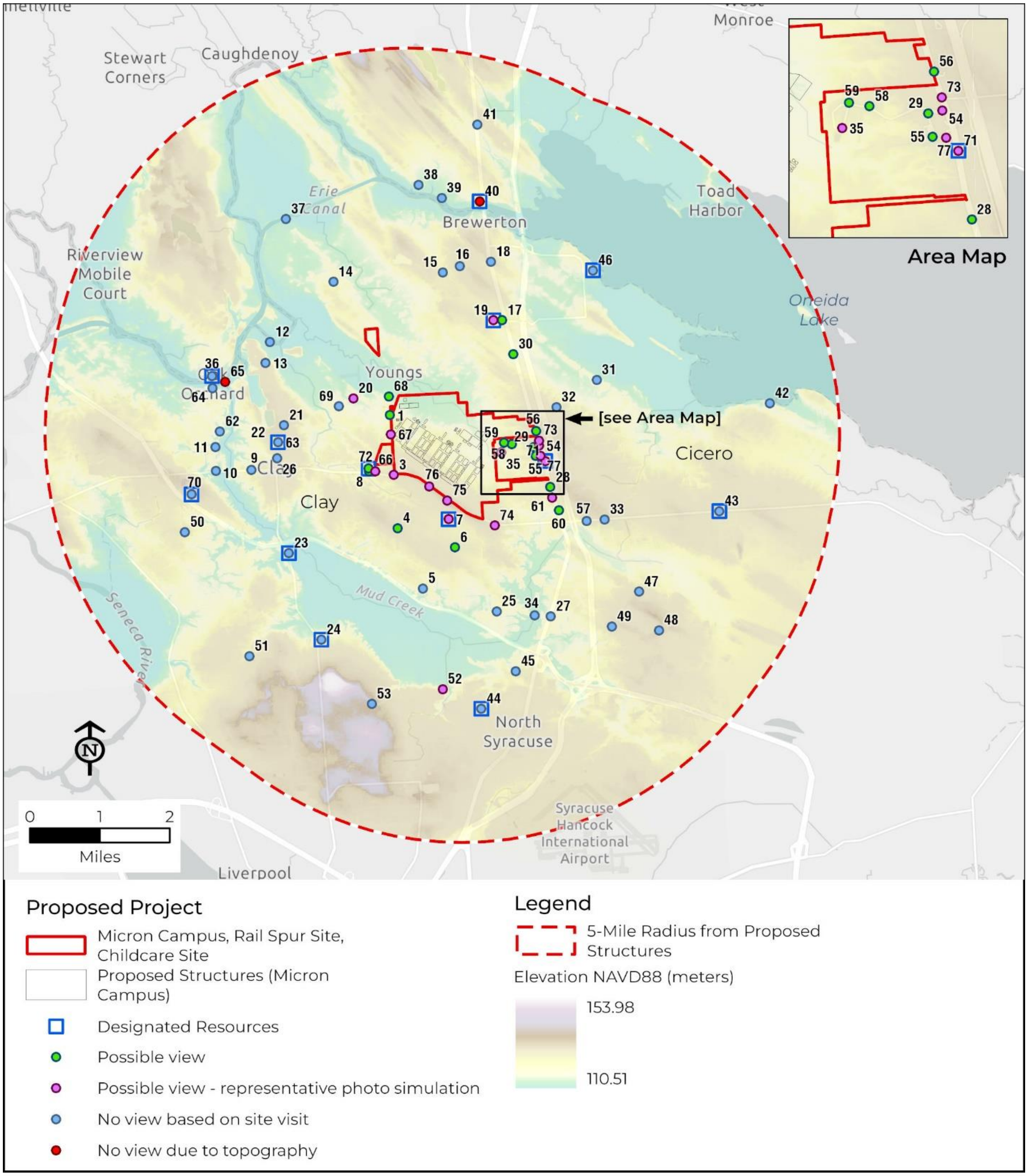
Figure O-1 on the next page shows a map of the 76 viewpoints. Figure O-2 on the following page shows the elevation results from the viewshed analysis. The two viewpoints that were screened out are shown in red: Viewpoint 40 (Fort Brewerton Park, a designated aesthetic resource) and Viewpoint 65.

Figure O-1 Proposed Project Study Area and Viewpoints



Sources: World Street Map: Esri; HERE; Garmin; SafeGraph; METI/NASA; USGS; USEPA; NPS; USDA; NYS.

Figure O-2 Viewshed Analysis



Elevation NAVD88 (meters):
Light Gray Base: Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS
Light Gray Reference: Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS
Sources: World Street Map: Esri; HERE; Garmin; SafeGraph; METI/NASA; USGS; USEPA; NPS; USDA; NYS.

Finally, site visits were conducted to evaluate the potential visibility of the Micron Campus from all remaining viewpoints. Based on site visit photographs taken at each viewpoint (which are included in Appendix O-3), it was determined that the Micron Campus would not be visible from a number of the remaining viewpoints due to factors such as thick vegetation or atmospheric interference, and therefore excluded them from further analysis; those excluded viewpoints are shown in blue in Figure O-2.

For the remaining list of viewpoints, the potential lines of sight to the Proposed Project or Connected Action structures were reviewed, and a representative sample of 17 of these viewpoints was selected to prepare photo simulations of how the relevant Proposed Project structures (or Connected Action structures – see below) would appear from those viewpoints based on 3D renderings of the relevant structures and visual simulations using GIS, computer-aided design, and graphic editing software.[42] A standard 6-foot-tall observer height was used to represent a standardized viewer perspective from the viewpoints. The results of these photo simulations are shown in the photo simulation figures in Section 3.13 (Visual Effect and Community Character). For additional information on how certain viewpoints for representative photo simulations were selected, see Appendix O-2.

O-1.3 Connected Actions

A total of 5 designated aesthetic resources within a quarter-mile radius of the Connected Actions were identified: three within a ¼-mile radius of the Oak Orchard site (Schroeppel House, New York State Barge Canal Historic District, and the Erie Canalway National Heritage Corridor[43]); one within a ¼-mile radius of GRS 147 (Clay Park North); and one within a ¼-mile radius of the OCWA Terminal Campus (Cherrington Park). Seven viewpoints were identified for these potential views of the Connected Actions (including some viewpoints previously identified for the Proposed Project). These additional viewpoints were selected either because they were located at one of the designated aesthetic resources or because they were located at an open space resource used by the public where one of the Connected Actions would potentially be visible. In addition, a viewpoint from Morgan Square Senior Apartments was added based on a potential view of the OCWA Terminal Campus from that location. These viewpoints are included in Section 3.13 (Visual Effect and Community Character) in Figures 3.13-2 and 3.13-3.

References

New York State Department of Environmental Conservation (NYSDEC). (2020). The SEQR Handbook, Fourth Edition, 2020. Division of Environmental Permits. https://www.dec.ny.gov/docs/permits_ej_operations_pdf/seqrhandbook.pdf.

[42] Esri ArcGIS Pro 3.3, Bentley MicroStation 2023, and Adobe Photoshop 2024.

[43] The Erie Canalway National Heritage Corridor is within the larger NYS Barge Canal Historic District.

Appendix O-2
Supplemental Information: Affected Environment

O-2 Supplemental Information: Affected Environment

This section provides additional context on the existing character of the areas surrounding the proposed Micron Campus site and the selection process for viewpoint photo simulations.

Immediately East of Micron Campus Site

The area immediately east of the proposed Micron Campus in the Town of Cicero consists primarily of low-lying and heavily vegetated wetlands. Moving east along the U.S. Route 11 commercial corridor are a senior living facility and several multifamily developments. U.S. Route 11 has predominantly changed to commercial uses. Although several single-family homes in the corridor may have partial views of the Micron Campus, there is generally dense vegetation between corridor commercial developments and the Micron Campus site. The viewpoints in this area are listed in Table O-3. Residents near the proposed Micron Campus could experience a longer-duration change in visibility from the Proposed Project compared to workers and visitors transiting the commercial corridor and drivers on Route 11 or I-81.

Most views of the Micron Campus from Route 11 would be partially screened by buildings or vegetation. Viewpoint 35, located at the senior living facility, was chosen for a photo simulation because it is the viewpoint in this area closest to the proposed Micron Campus site. Viewpoint 71 was chosen for a photo simulation because the building is a designated aesthetic resource and is representative of other viewpoints along Route 11 and farther east in the study area. Viewpoints 61, 73, and 77 were chosen for photo simulations because of their higher potential for open views of the Micron Campus.

Table O-3 Viewpoints Immediately East of Micron Campus Site

#	Location	Use
28	Hayes Airfield	Roadway
29	Northern Onondaga Library – on Knowledge Ln	Public Library
35	Meltzer Court	Residential
54	Brewerton Rd and Meltzer Court	Roadway
55	Parking lot of Spring Village Apartments on Knowledge Ln	Residential
56	American Homes of Syracuse entrance off Brewerton Rd	Commercial
58	Syracuse Sports Center off Meltzer Court	Sports Facility
59	Cottages at Garden Grove	Residential
60	Cicero United Methodist Church	Church
61	Parking lot at Cicero Golf Store off Route 11	Commercial / Open Field
71*	Property on Brewerton Rd	Eligible for NYSRHP / NRHP

73	Route 11 and transmission lines near McKinley Rd	Roadway
77	Route 11 near CJ's Car America	Roadway

Sources: WPCP Draft SGEIS, May 2021; April 2023 site visit. Notes: bold = photo simulation; * = designated aesthetic resource.

1-5 Miles East of Micron Campus Site

Northeast of the Micron Campus site and east of I-81 is a mix of farmland, heavily vegetated and vacant land, and residential subdivisions. This area also includes the NYS Route 31 commercial corridor. The area is generally flat, with the easternmost sections sloping gently down toward Oneida Shores County Park and Oneida Lake. None of the viewpoints in this area, listed in Table O-4, would have unobstructed views of the Micron Campus, due to distance and dense intervening vegetation. Therefore, no photo simulations were created for these viewpoints.

Table O-4 Viewpoints 1-5 Miles East of Micron Campus Site

#	Location	Use
31	Intersection of Mud Mill Rd and Sneller Rd – east of I-81	Roadway
32	Along Sneller Rd – east of I-81	Roadway
33	NYS Route 31 in front of plaza – across from school	Commercial
42	Lakeshore Baptist Church	Church
43*	Stone Arabia School Museum	Historic
46*	Oneida Shores County Park – from parking lot off Ladd Rd	Public Park
47	Gillette Rd Middle School off South Bay Rd	Public School
48	Believers Chapel off Island Rd / just West of Cicero Swamp WMA	Church
49	Intersection of South Bay Rd and East Pine Grove Rd – SE corner	Residential
57	Entry to Adesa Syracuse off Route 11	Commercial

Sources: WPCP Draft SGEIS, May 2021; April 2023 site visit. Notes: * = designated aesthetic resource.

North of Micron Campus Site

The area immediately north of the Micron Campus site is a low-density area with large residential lots, wetlands, and farmland, with intermittent residential subdivisions approximately 2 miles farther north. Beyond the subdivisions, the land starts to gently slope down toward the Oneida River. Although none of the viewpoints in this area, listed in Table O-5, would have unobstructed views of the Micron Campus, due to distance and intervening vegetation, a photo simulation was created for Viewpoint 19, located 1.5 miles from the Micron Campus site, to provide an example of how the Micron Campus would appear at that distance partially screened by intervening trees and vegetation.

Table O-5 Viewpoints North of Micron Campus Site

#	Location	Use
14	SE corner of Orchard Rd and Orangeport Rd	Open Field
15	Intersection of Jacob Ln and Bear Springs Rd	Residential
16	Intersection of Orangeport Rd and Peregrin Ln	Residential
17	Calvary Church off of Mud Mill Rd	Church
18	Brewerton Elementary School – south side of entryway	Public School
19*	East entry of Plank Rd Park – parking lot of Mud Mill Rd	Public Park
30*	Parking Lot of Skyline Country Club	Golf Course
37*	Lock 23 State Canal Park	Public Park
38	Winter Harbor Marina	Commercial
39	Riveredge Airpark	Commercial
40*	Fort Brewerton Park	Public Park
41	Central Square Middle School	Public School

Sources: WPCP Draft SGEIS, May 2021; April 2023 site visit. Notes: bold = photo simulation; * = designated aesthetic resource.

Immediately West of Micron Campus Site

Lands to the west of the Micron Campus site are a mix of low-density residential uses with farmland and dense vegetation, along with a few industrial uses, such as the Clay Substation, large electrical lines, and the CSX Railroad. This area also includes public and institutional uses, such as houses of worship and the Clay Historical Park off NYS Route 31. Residences and employees at local businesses in the area and viewers on Caughdenoy Road and NYS Route 31 would have partial to unscreened and open views of the Micron Campus. The viewpoints in this area are listed in Table O-6. Viewpoints 3 and 67 were chosen for representative photo simulations because they are immediately adjacent to the Micron Campus site, with open views similar to others along Caughdenoy Road. Viewpoints 20 and 66 were chosen to represent rural viewpoints further to the northwest and the view from properties farther down NYS Route 31, respectively. Viewpoint 72 was chosen to represent a view of the Rail Spur Site from Clay Historic Park.

Table O-6 Viewpoints Immediately West of Micron Campus Site

#	Location	Use
1	Entry to substation on Caughdenoy Rd	Utility
3	SW corner of NYS Route 31 and Caughdenoy Rd	Road

8	Immanuel Church parking lot	Roadway
20	Driveway of Airlane Enterprises off Verplank Rd	Commercial
66	Parking lot of Freight Yard Brewing off NYS Route 31	Commercial
67	Parking lot of Jerome Fire Equipment off Caughdenoy Rd	Commercial
68	Verplank Rd and Caughdenoy Rd intersection	Roadway
69	Verplank Rd and Van Hoesen Rd intersection	Roadway
72*	Clay Historic Park	Public Park

Sources: WPCP Draft SGEIS, May 2021; April 2023 site visit. Notes: bold = photo simulation; * = designated aesthetic resource.

1-5 Miles West of Micron Campus Site

More substantial commercial development occurs to the west of the Micron Campus site along NYS Route 31, along with community parkland and sports fields such as Clay Park North, and areas of undeveloped, vegetated land. The area north toward the Oneida River becomes less developed, with low-density residential uses, farmland, wetlands, and public utilities, including the Oak Orchard site and a solar farm. None of the viewpoints in this area, listed in Table O-7, would have unobstructed views of the Micron Campus, due primarily to low-lying areas obstructing sightlines, dense vegetative screening, or intervening existing buildings. Therefore, no photo simulations were created for these viewpoints.

Table O-7 Viewpoints 1-5 Miles West of Micron Campus Site

#	Location	Use
9	Town of Clay Offices entrance on NYS Route 31	Public Offices
10	SW corner of Morgan Rd and NYS Route 31	Commercial
11	Entry to Great Northern Mall on Morgan Rd	Commercial
12	Henry Clay Blvd extension south of Glosky Island	Roadway
13	NE corner of Henry Clay Blvd and Orchard Rd	Roadway
21	4592 Verplank Rd	Residential
22*	Parking lot of Santaro Memorial Park off Henry Clay Blvd	Public Park
26	Pine Plains Cemetery – off Henry Clay Blvd	Public Cemetery
36*	Schroeppel House	Historic
50	Soule Road Middle School – off Soule Rd	Public School
62	Intersection of Verplank Rd and Morgan Rd	Roadway

63*	Entry to Santaro Park Ballfields off Henry Clay Blvd (Clay Park North)	Public Park
64	Intersection of Morgan Rd and Oak Orchard Rd	Roadway
65	Entry to Oak Orchard site – off Oak Orchard Rd	Roadway
70*	Cherrington Park	Park

Sources: WPCP Draft SGEIS, May 2021; April 2023 site visit. Notes: * = designated aesthetic resource.

Immediately South of Micron Campus Site

NYS Route 31 is a commuter corridor that runs along the southern boundary of the proposed Micron Campus site and connects to I-81 less than a mile away. The area south of NYS Route 31 includes low-density residential development, several large vacant lots, large residential properties, a multifamily development, and smaller lot subdivisions. The area is relatively flat and slopes gently down toward NYS Route 481. The eastern portion of the area toward the Route 11 commercial corridor includes low-lying areas near wetlands. Some residents in the area would have partial to open views of the Micron Campus. Viewers at Meltzer Park, a designated aesthetic resource, also may have views of the Micron Campus. The viewpoints in this area are listed in Table O-8. Viewpoint 7 (Meltzer Park) was chosen for a representative photo simulation because of its proximity to the Micron Campus site. Viewpoints 74, 75, and 76 also were chosen for photo simulations because of their proximity to and potential open views of the Micron Campus.

Table O-8 Viewpoints Immediately South of Micron Campus Site

#	Location	Use
4	Caughdenoy Rd – south of Micron Campus site	Road
5	Maple Rd and Caughdenoy Rd	Road
6	5755 Boulia Dr	Residential
7*	Meltzer Park parking lot	Park
25	Intersection of Lehman St and Caughdenoy Rd	Roadway
27	Intersection of Route 11 and Caughdenoy Rd	Commercial
34	Heron Marsh	Open Field
74	Barcaldine Dr and NYS Route 31	Roadway
75	Stearns Rd and NYS Route 31	Roadway
76	NYS Route 31 near 5158 NYS Route 31	Roadway

Sources: WPCP Draft SGEIS, May 2021; April 2023 site visit. Notes: bold = photo simulation; * = designated aesthetic resource.

South of NYS Route 481

The area immediately south of NYS Route 481 is flat, low-lying, and contains the Hamlin Marsh. Farther south, the land starts to slope back up, and includes smaller lot subdivisions, as well as Clay Central Park and Heritage Park. Bear Road runs along the south side of Hamlin Marsh and has some of the highest points in the area. The viewpoints in this area are listed in Table O-9. Viewpoint 52 was chosen for a representative photo simulation because it is adjacent to the Hamlin Marsh WMA, a designated aesthetic resource, and because its higher elevation would include an unobstructed view of the Micron Campus.

Table O-9 Viewpoints South of NYS Route 481

#	Location	Use
23*	Parking lot of Hamlin WMA – off Henry Clay Blvd	Public Park
24*	Town of Clay Green Area – off Henry Clay Blvd	Public Park
44*	Heritage Park	Public Park
45	Bear Rd. Elementary School off Chestnut St	Public School
51	Morgan Road Elementary School	Public School
52	Bear Rd at Sandy Ln	Residential/Roadway
53	Buckley Road Baptist Church – off Buckley Rd	Church

Sources: WPCP Draft SGEIS, May 2021; April 2023 site visit. Notes: bold = photo simulation; * = designated aesthetic resource.

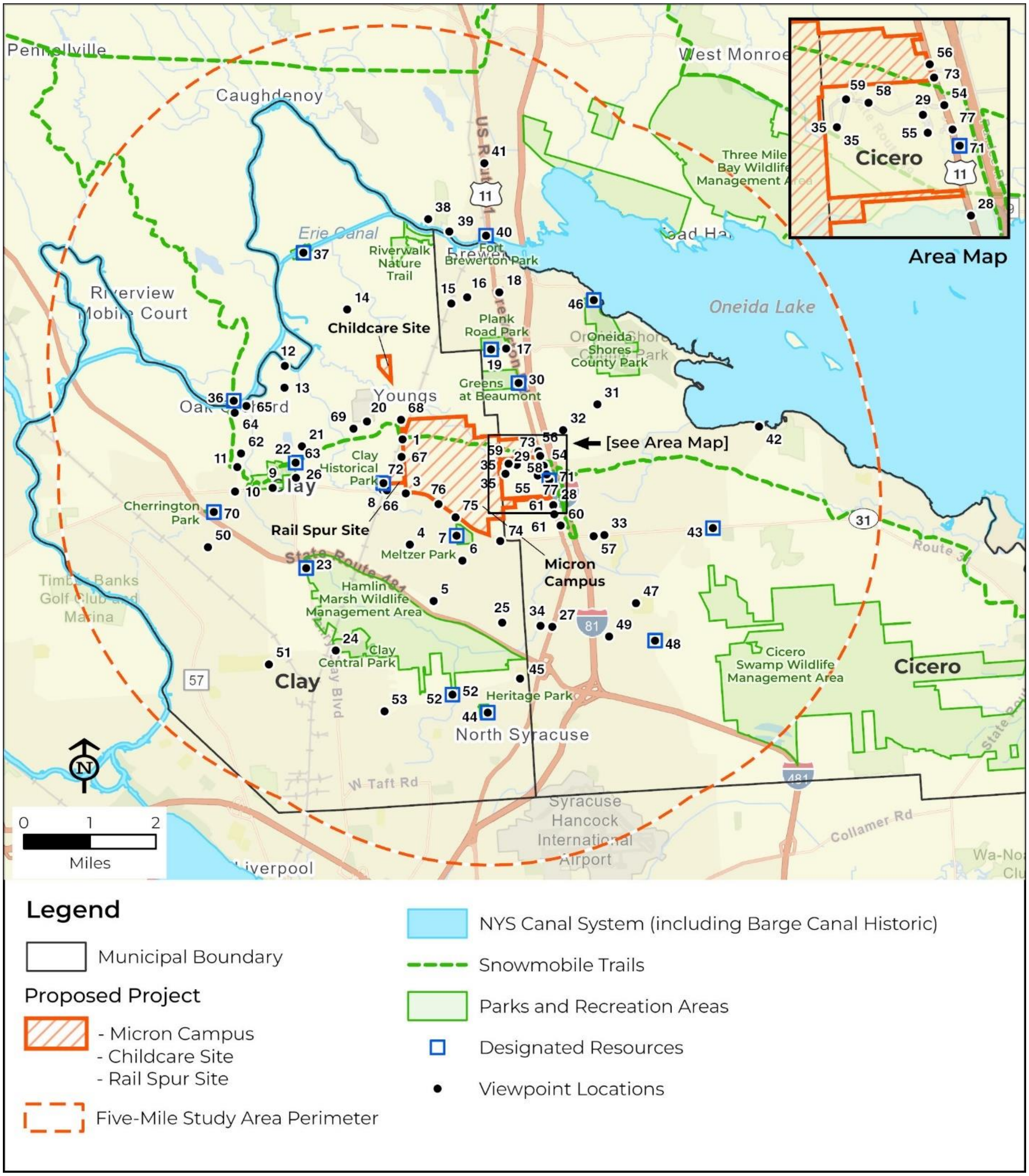
References

JMT of New York, Inc. (2021). White Plains Commerce Park (WPCP) Draft Supplementary Generic Environmental Impact Statement (SGEIS). Prepared for the Onondaga County Industrial Development Agency. May 2021.

Appendix O-3
Site Visit Viewpoint Photographs

O-3 Site Visit Viewpoint Photographs

Figure O-3 All Potential Viewpoints (Photo Key)



Sources: World Street Map: Esri; HERE; Garmin; SafeGraph; METI/NASA; USGS; USEPA; NPS; USDA; NYSDEC.

Figure O-4 Viewpoints 1 & 3

Figure O-5 Viewpoints 4 & 5

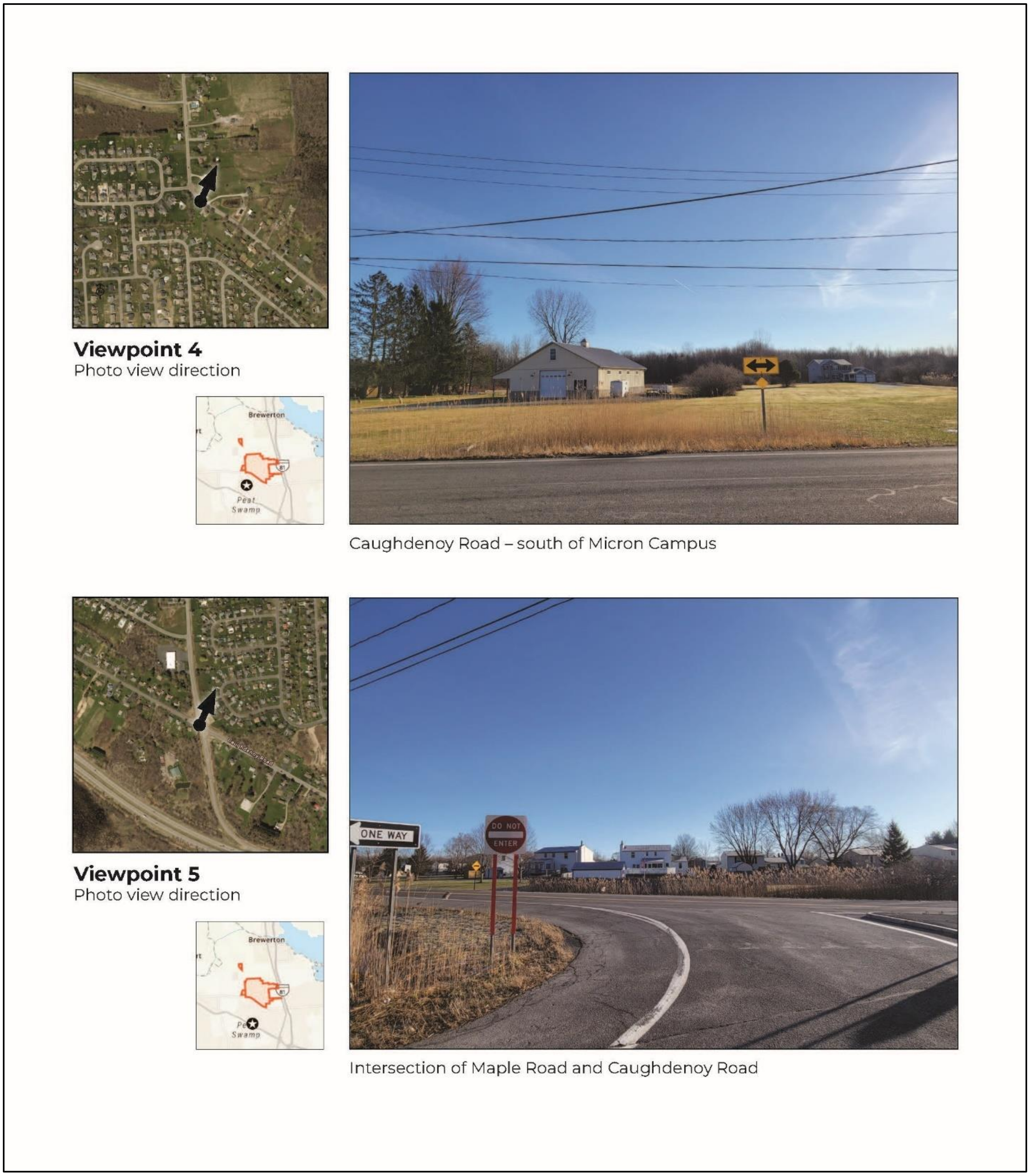


Figure O-6 Viewpoints 6 & 7

Viewpoint 6
Photo view direction

5755 Boulia Drive

Viewpoint 7
Photo view direction

Meltzer Park parking lot - a designated resource off Stearns Road

Figure O-7 Viewpoints 8 & 9

Viewpoint 8
Photo view direction

Immanuel Church Parking Lot - off NYS Route 31

Viewpoint 9
Photo view direction

Town of Clay Offices entrance on NYS Route 31

Figure O-8 Viewpoints 10 & 11

Viewpoint 10
Photo view direction

Intersection of Morgan Road and NYS Route 31

Viewpoint 11
Photo view direction

Entry to Great Northern Mall on Morgan Road

Figure O-9 Viewpoints 12 & 13

Figure O-10 Viewpoints 14 & 15

Viewpoint 14
Photo view direction

Intersection of Orchard Road and Orangeport Road

Viewpoint 15
Photo view direction

Intersection of Jacob Lane and Bear Springs Road

Figure O-11 Viewpoints 16 & 17

Viewpoint 16
Photo view direction

Intersection of Orangeport Road and Peregrin Lane

Viewpoint 17
Photo view direction

Calvary Church - off of Mud Mill Road

Figure O-12 Viewpoints 18 & 19

Viewpoint 18
Photo view direction

Brewerton Elementary School – southside of entryway on Miller Road

Viewpoint 19
Photo view direction

Plank Road Park - a designated resource off Mud Mill Road

Figure O-13 Viewpoints 20 & 21

Viewpoint 20
Photo view direction

Driveway of Airlane Enterprises – off Verplank Road

Viewpoint 21
Photo view direction

4592 Verplank Road

Figure O-14 Viewpoints 22 & 23

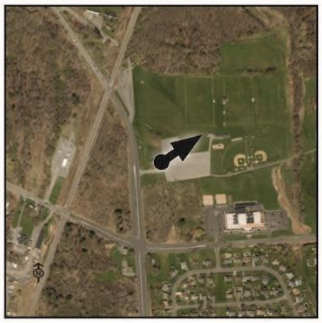
Viewpoint 22
Photo view direction

Parking lot of Santaro Memorial Park - off Henry Clay Boulevard

Viewpoint 23
Photo view direction

Hamlin Wildlife Management Area - a designated resource off Henry Clay Boulevard

Figure O-15 Viewpoints 24 & 25



Viewpoint 24
Photo view direction

Town of Clay Green Area - off Henry Clay Boulevard

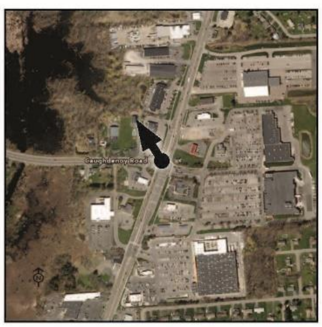
Viewpoint 25
Photo view direction

Intersection of Lehman St and Caughdenoy Road

Figure O-16 Viewpoints 26 & 27

Viewpoint 26
Photo view direction

Pine Plains Cemetery – off Henry Clay Boulevard



Viewpoint 27
Photo view direction

Intersection of U.S Route 11 and Caughdenoy Road

Figure O-17 Viewpoints 28 & 29

Figure O-18 Viewpoints 30 & 31

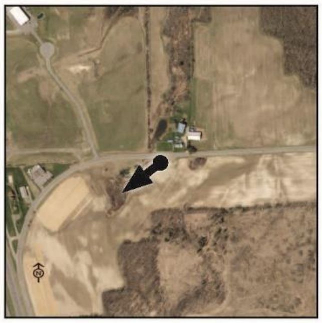
Viewpoint 30
Photo view direction

Greens at Beaumont Golf Club - a designated resource on U.S. Route 11

Viewpoint 31
Photo view direction

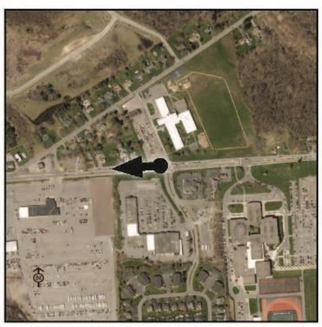
Intersection of Mud Mill Road and Sneller Road – east of I-81

Figure O-19 Viewpoints 32 & 33



Viewpoint 32
Photo view direction

Along Sneller Road - east of I-81



Viewpoint 33
Photo view direction

Intersection of NYS Route 31 and New Country Drive – across from school

Figure O-20 Viewpoints 34 & 35

Viewpoint 34
Photo view direction

Heron Marsh on Caughdenoy Road - near U.S. Route 11

Viewpoint 35
Photo view direction

The Cottages at Garden Grove - Meltzer Court

Figure O-21 Viewpoints 36 & 37

Schroeppel House - a designated resource off of Morgan Road

Lock 23 State Canal Park - a designated resource off Lock Road

Figure O-22 Viewpoints 38 & 39

Winter Harbor Marina - on County Route 37

Riveredge Airpark - on County Route 37

Figure O-23 Viewpoints 40 & 41

Fort Brewerton Park - a designated resource on dockside Drive

Central Sq. Middle School - off U.S. Route 11

Figure O-24 Viewpoints 42 & 43

Viewpoint 42
Photo view direction

Lakeshore Baptist Church - on Lakeshore Road

Viewpoint 43
Photo view direction

Stone Arabia School Museum - a designated resource on NYS Route 31

Figure O-25 Viewpoints 44 & 45

Viewpoint 44
Photo view direction

Heritage Park - a designated resource off Chestnut Street

Viewpoint 45
Photo view direction

Bear Road Elementary School off Chestnut Street

Figure O-26 Viewpoints 46 & 47

Figure O-27 Viewpoints 48 & 49

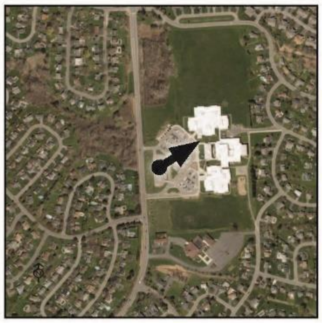
Viewpoint 48
Photo view direction

Believers Chapel off Island Road Just West of Cicero Swamp Wildlife Management Area - a designated resource

Viewpoint 49
Photo view direction

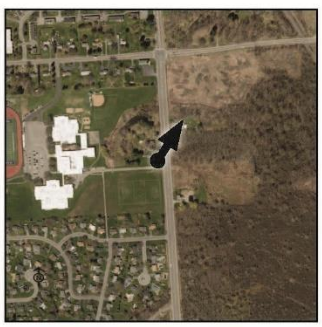
Intersection of South Bay Road and East Pine Grove Road

Figure O-28 Viewpoints 50 & 51



Viewpoint 50
Photo view direction

Soule Road Middle School - off Soule Road



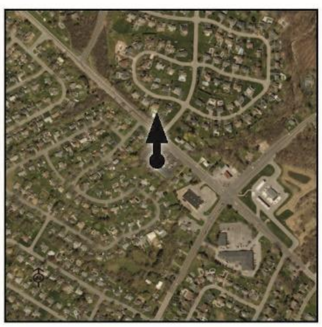
Viewpoint 51
Photo view direction

Morgan Road Elementary School - off Wetzel Road

Figure O-29 Viewpoints 52 & 53

Viewpoint 52
Photo view direction

Hamlin Marsh Wildlife Management Area - a designated resource near the intersection of Bear Road and Sandy Lane



Viewpoint 53
Photo view direction

Buckley Road Baptist Church - off Buckley Road

Figure O-30 Viewpoints 54 & 55

Viewpoint 54
Photo view direction

Intersection of Brewerton Road and Meltzer Court

Viewpoint 55
Photo view direction

Parking Lot of Spring Village Apts - on Knowledge Lane

Figure O-31 Viewpoints 56 & 57

Viewpoint 56
Photo view direction

American Homes of Syracuse - off U.S Route 11

Viewpoint 57
Photo view direction

Adesa Syracuse - off U.S. Route 11

Figure O-32 Viewpoints 58 & 59

Viewpoint 58
Photo view direction

Syracuse Sports Center - off Meltzer Court

Viewpoint 59
Photo view direction

Cottages at Garden Grove - on Meltzer Court

Figure O-33 Viewpoints 60 & 61

Viewpoint 60
Photo view direction

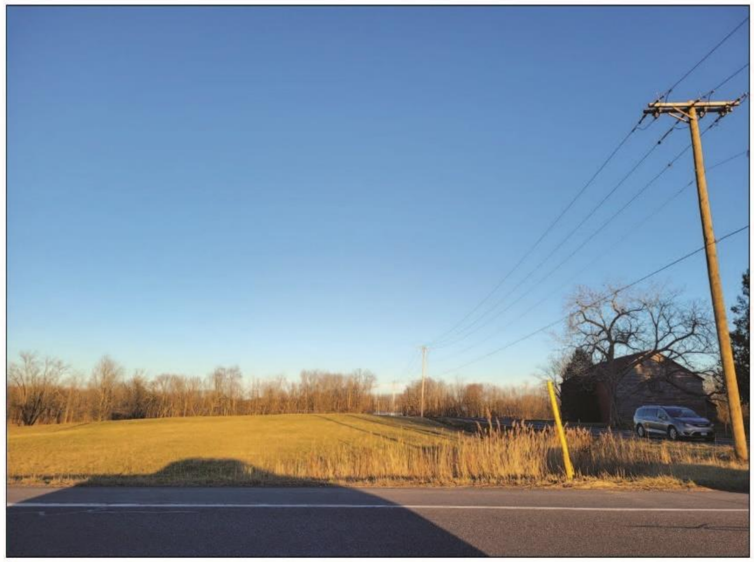
Cicero United Methodist Church - on U.S. Route 11

Viewpoint 61
Photo view direction

Cicero Golf Store - off U.S. Route 11

Figure O-34 Viewpoints 62 & 63

Viewpoint 62
Photo view direction



Intersection of Verplank Road and Morgan Road

Viewpoint 63
Photo view direction

Santaro Park Ballfields - a designated resource off Henry Clay Boulevard

Figure O-35 Viewpoints 64 & 65

Intersection of Morgan Road and Oak Orchard Road

Oak Orchard Sewage Treatment - off Oak Orchard Road

Figure O-36 Viewpoints 66 & 67

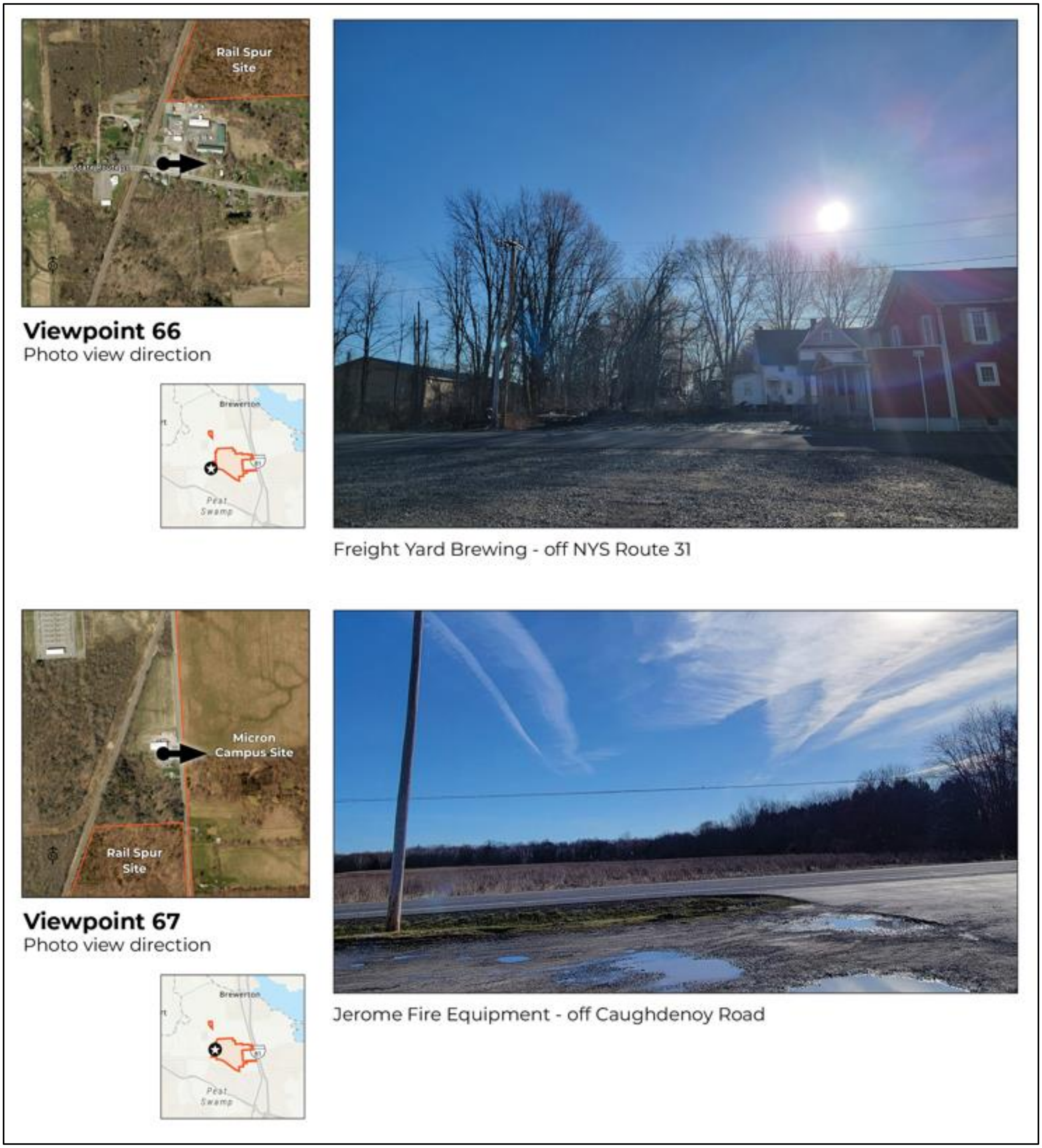


Figure O-37 Viewpoints 68 & 69

Viewpoint 68
Photo view direction

Verplank Road. and Caughdenoy Road Intersection

Viewpoint 69
Photo view direction

Verplank Road. and Van Hoesen Road Intersection

Figure O-38 Viewpoints 70 & 71

Cherrington Park - a designated resource off Trotwood Lane

8642 Brewerton Road - a residence eligible for listing on the State/
National Register of Historic Places

Figure O-39 Viewpoints 72 & 73

Figure O-40 Viewpoints 74 & 75

Viewpoint 74
Photo view direction

Intersection of Barcaldine Drive and NYS Route 31

Viewpoint 75
Photo view direction

Intersection of Stearns road and NYS Route 31

Figure O-41 Viewpoints 76 & 77

Viewpoint 76
Photo view direction

NYS Route 31 near 5158 NYS Route 31

Viewpoint 77
Photo view direction

CJ's Car America - off U.S. Route 11

APPENDIX P
COMMUNITY FACILITIES, OPEN SPACE, AND RECREATION

Appendix P-1
Community Facilities, Open Space, and Recreation Methodology

P-1 Methodology and Study Areas

This section defines the study areas for community facilities, open space, and recreation. Section 3.14 (Community Facilities, Open Space, and Recreation) analyzes the direct and indirect effects of the alternatives on community facilities, open space, and recreation as shown in Table P-1 below.[44]

Table P-1 Community Facilities, Open Space, and Recreation Study Areas

Resource	Direct and (Non-Growth Inducing) Indirect Effects	Growth Inducing Effects
Police, Fire, EMS, and Schools	Towns of Clay and Cicero	Five-County Region
Healthcare Facilities	Onondaga County	Five-County Region
Open Space and Recreation	1-mile radius from the WPCP	Onondaga County

For police and fire services, EMS, and schools, the Towns of Clay and Cicero were selected as the relevant study area for direct and (non-growth inducing) indirect effects because the Proposed Project would be primarily served by, and potentially gradually affect, those types of community facilities within those two municipalities as a result of activities associated with the long-term build-out and operation of the proposed Micron Campus, Rail Spur Site, and Childcare Site. Police, fire, and EMS (and healthcare facilities, discussed below) may experience increased demands for their services, such as calls for first responders in the event of construction or operation incidents. Section P-2 of this appendix provides additional information on existing police, fire, and EMS facility capacity and staffing and service levels.

As noted in Section 3.14.3.2, because 2,700 of the projected 4,200 construction workers are within the commuter shed for the Proposed Project, and only 1,400 of the 1,500 in-migrating construction workers would locate within the regional study area (including approximately 100 locating in the Towns of Clay and Cicero (local study area)) (see Section 3.15 (Socioeconomic Conditions) and Appendix Q) there would be minimal effects from Proposed Project construction activities on the school districts serving the Towns of Clay and Cicero. The anticipated in-migrating workers for operation and the indirect effects on school districts in the five-county region due to demand from induced population growth are discussed together under Growth Inducing Effects in Section 3.14.3.2. Appendix P-3 provides additional context and data on area school districts relevant to that analysis.

For healthcare facilities, Onondaga County was selected as the relevant study area for direct and (non-growth inducing) indirect effects because there are very few such facilities in the Towns of Clay and Cicero, and because the Proposed Project would potentially need to rely on (and could affect) healthcare facility capacity in the broader Onondaga County area, including in

[44] As noted in Section 3.14.2, the Connected Actions would not directly displace community facilities and would generate only a nominal increase in employees over their long-term operation. Therefore, Section 3.14 (Community Facilities, Open Space, and Recreation) and this appendix do not further evaluate the effects of the Connected Actions on community facilities, but do consider their effects on open space and recreation.

the City of Syracuse, and not just the Towns of Clay and Cicero.

For open space and recreational resources, the area within a 1-mile radius of the WPCP was selected as the relevant study area for direct and (non-growth inducing) indirect effects because the Proposed Project would potentially displace, encroach on, or adversely affect parks and other open spaces primarily within that area. These resources generally include open spaces that are accessible to the public on a regular basis for active and passive recreation, such as parks, walking paths, and trails, whether publicly owned, or privately owned with access to the public. The Proposed Project and Connected Actions could potentially cause losses to these resources through direct encroachment or closure, alter the uses of the resources so that they no longer serve the same user population, limit their public access, or cause increases in noise, air emissions, or odors that could affect their usefulness and recreational value.

For growth inducing effects, the above study areas shift, consistent with the overarching growth inducing effects methodology and study area in Appendix C of this EIS, to the five-county region, with the exception that, for open space and recreational resources, the growth inducing effects study area is limited to Onondaga County, because areas outside of Onondaga County would not be anticipated to experience induced growth at a scale likely to result in significant effects on those resources.

The analysis in Section 3.14 was developed through research into community facilities in the study areas, including via direct consultation, state databases, and online research of the various service providers, including police, fire, EMS, and healthcare facility websites. Open space and recreational resources were identified through field observations, online research, and review of prior environmental documents, as well as information from state and local parks and recreation agencies.

Appendix P-2
Healthcare Facilities

P-2 Healthcare Facilities

As noted in Section 3.14.2.2, there is an existing network of healthcare facilities in Onondaga County operated by nonprofit and private entities that provide services on a fee-for-service model. This section provides additional information on healthcare facilities in the broader five-county region, including nonprofit hospitals with emergency departments, clinics with emergency departments, private urgent care centers, and private practices and specialist offices.

There are four nonprofit hospitals in Onondaga County, all of which are located in the City of Syracuse, roughly ten miles away from the WPCP. There are also two nonprofit hospitals in Madison County, one in Cayuga County, one in Oswego County, and none in Cortland County.

St. Joseph's Hospital Health Center in Syracuse is a Level 3 Perinatal Center, SAFE Designated Hospital, and Primary Stroke Center (NYS Health Profiles). It has 451 beds and serves approximately 20,000 inpatients, 53,000 emergency services patients, and more than 787,000 outpatients a year (St. Joseph's Health, 2022). NYS Health Profiles reports the median time from emergency room arrival to departure for discharge at 311 minutes, with 5 percent of patients leaving before being seen.

University Hospital SUNY Health Science Center (Upstate University Hospital) in Syracuse is an AIDS Center, Burn Center, Comprehensive Stroke Center, Level 1 Adult Trauma Center, and SAFE Designated Hospital (NYS Health Profiles). It has 438 beds and serves approximately 67,000 adult emergency services patients and 27,000 pediatric emergency services patients a year (Upstate Medical University, n.d.). NYS Health Profiles reports the median time from emergency room arrival to departure for discharge at 291 minutes, with 3 percent of patients leaving before being seen. To address existing long wait times and overcrowding, Upstate University Hospital plans to expand its undersized emergency room, which is the only Level 1 Trauma Center in Central New York. The new emergency room would increase the number of trauma center beds from 35 to 120 to better serve both the existing population and anticipated regional growth (Dowty, 2024).

Upstate University Hospital at Community General (Upstate Community Hospital) in Syracuse is a Level 1 Perinatal Center (NYS Health Profiles). It has 314 beds and serves approximately 33,000 emergency services patients annually (Upstate Community Hospital, n.d.).

Crouse Hospital in Syracuse is a Comprehensive Stroke Center and Regional Perinatal Center (NYS Health Profiles). It has 465 beds and serves approximately 23,000 inpatients, 56,000 emergency services patients, and more than 600,000 outpatients a year (Crouse Hospital, 2025). NYS Health Profiles reports the median time from emergency room arrival to departure for discharge at 200 minutes, with 1 percent of patients leaving before being seen.

Oneida Health Hospital in Oneida is a Level 1 Perinatal Center and SAFE Designated Hospital (NYS Health Profiles). It has 101 beds, and its emergency department serves an average of 21,000 patients a year (Oneida, 2025). NYS Health Profiles reports the median time from emergency room arrival to departure for discharge at 187 minutes with 2 percent of patients leaving before being seen.

Community Memorial Hospital in Hamilton is a SAFE Designated Hospital (NYS Health Profiles). It has 25 beds and serves approximately 93,000 outpatients, 10,000 emergency room patients, and admitted 2,000 patients annually (Community Memorial, 2025). NYS Health Profiles reports the median time from emergency room arrival to departure for discharge at 124 minutes.

Auburn Community Hospital in Auburn is a Primary Stroke Center and Level 1 Perinatal Care Center with 99 total beds (NYS Health Profiles). NYS Health Profiles reports the median time from emergency room arrival to departure for discharge at 233 minutes, with 5 percent of patients leaving before being seen.

Oswego Hospital in Oswego is a Level 1 Perinatal Center with 132 total beds (NYS Health Profiles) NYS Health Profiles reports the median time from emergency room arrival to departure for discharge at 189 minutes, with 9 percent of patients leaving before being seen.

In addition to hospitals, the five-county region is served by clinics with emergency rooms, private urgent care centers, primary care facilities, and specialists' offices. The U.S. Department of Health and Human Services designates health professional shortage areas (HPSAs), which are geographic areas where there are insufficient health care providers to meet the health care needs of that population. Staffing shortages in the healthcare industry can mean longer wait times in an emergency room, months-long waits to see a primary care physician or specialist, and an inability to obtain a primary care provider.

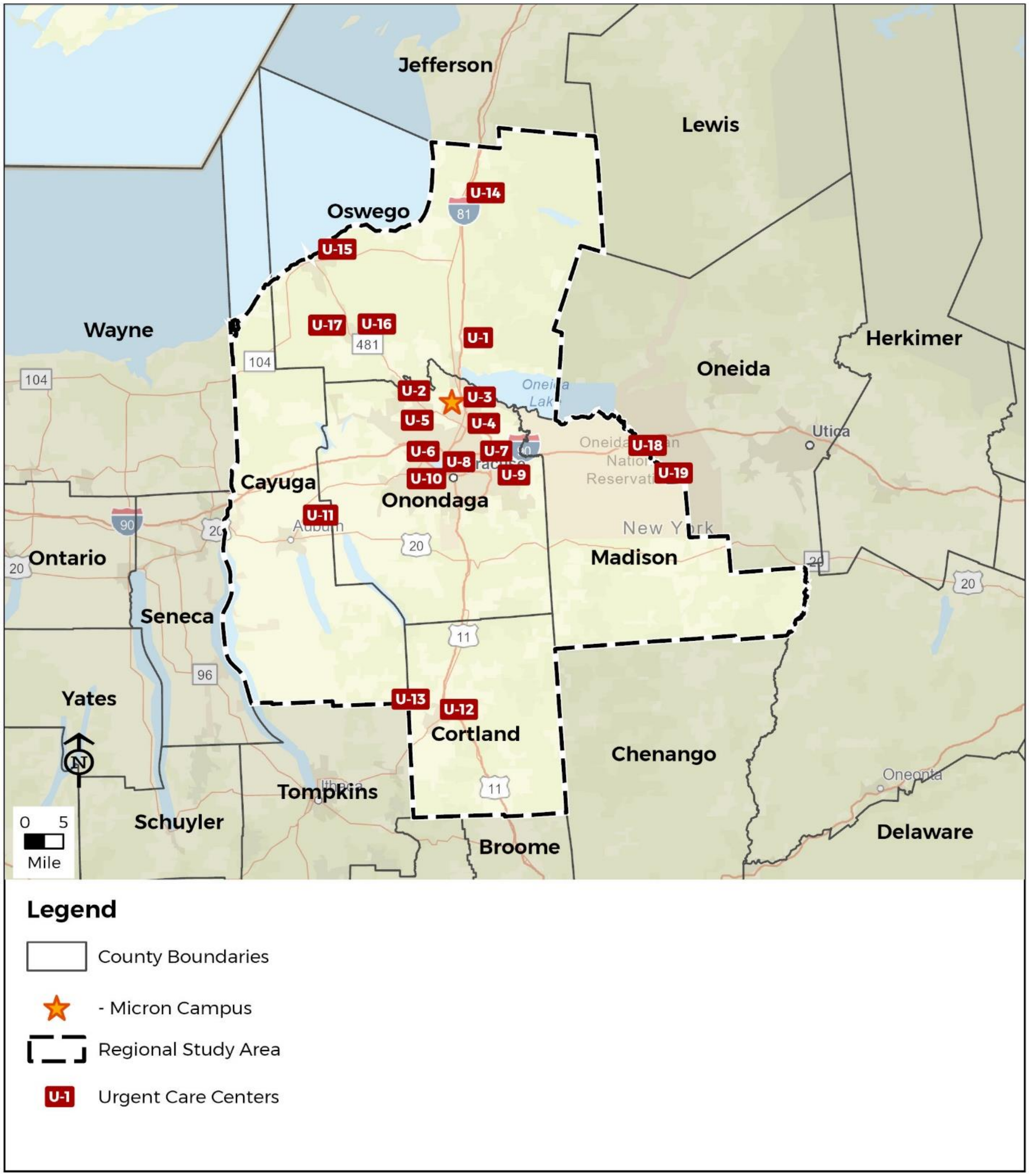
According to the HRSA Map Tool, in Onondaga County, portions of the City of Syracuse and the Onondaga Nation (referred to on the HRSA Map Tool as Indian Village) are currently MUAs. In Oswego County, the Oswego Service Area, which covers most of the northern and eastern portion of the county, is identified as an MUA (HRSA Map Tool). In Cayuga County, the Fleming Town Service Area and Cato Town Service Area are identified as MUAs (HRSA Map Tool). In Cortland County, the Cincinnatus Town Service Area and Cold Spring Town Service Area are identified as MUAs (HRSA Map Tool). There are no MUAs in Madison County (HRSA Map Tool). Across the five-county region, shortage areas include primary care physicians, dentists, and mental health professionals serving low-income and Medicaid-eligible populations (HPSA Find, n.d.).

Rural communities can face additional challenges in attracting health professionals due to population decline, aging populations, and a shrinking labor force. In the five-county region, Onondaga, Madison, and Oswego Counties are considered non-rural, and Cayuga and Cortland Counties are considered rural. The Health Foundation for Western & Central New York and New York Statewide Senior Action Council, Inc. conducted a focus group study on Central New York that assessed barriers and solutions to accessing healthcare. That report found that "the lack of medical services, providers, reliable transportation and a decreasing number of physicians in rural communities leaves residents vulnerable and isolated from receiving care." (Health Foundation of Western and Central New York, 2019).

Figure P-1 Hospitals and Clinics with Emergency Departments in Five-County Region

Sources: NYSDOH and online search engines.

Figure P-2 Urgent Care Centers in Five-County Region



Sources: NYSDOH and online search engines.

Table P-2 Hospitals

Map	Facility Name	Address	Beds
H-1	St. Joseph's Hospital Health Center	301 Prospect Ave, Syracuse, NY 13203	451
H-2	Upstate University Hospital	750 East Adams St, Syracuse, NY 13210	438
H-3	Upstate Community Hospital	4900 Broad Rd, Syracuse, NY 13215	314
H-4	Crouse Hospital	736 Irving Ave, Syracuse, NY 13210	465
H-5	Auburn Community Hospital	17 Lansing St, Auburn, NY 13210	99
H-6	Oneida Health Hospital	321 Genesee St, Oneida, NY 13421	101
H-7	Community Memorial Hospital, Inc.	150 Broad St, Hamilton, NY 13346	25
H-8	Oswego Hospital	110 W Sixth St, Oswego, NY 13126	132

Source: NYS Health Profiles.

Table P-3 Clinics with an Emergency Department

Map	Facility Name	Address
C-1	Fingerlakes Medical Care Center	303 Grant Ave, Auburn, NY 13021
C-2	Urgent Medical Care of Skaneateles	803 West Genesee St, Skaneateles, NY 13152
C-3	Cortland Regional Medical Center	134 Homer Ave, Cortland, NY 13045
C-4	Samaritan Family Health Center	830 Washington St, Watertown, NY 13601
C-5	Central Square Medical Health Center	3045 East Ave, Central Square, NY 13036

Source: NYS Health Profiles.

Table P-4 Urgent Care Centers

Map	Facility Name	Address
U-1	Central Square Urgent Care	3045 East Ave, Central Square, NY 13036
U-2	WellNow Urgent Care	3840 NY-31, Bayberry, NY 13090
U-3	Drakos Urgent Care	5586 Legionnaire Dr, Cicero, NY 13039
U-4	WellNow Urgent Care	7851 Brewerton Rd #1, Cicero, NY 13039
U-5	WellNow Urgent Care	7375 Oswego Rd, Liverpool, NY 13090
U-6	WellNow Urgent Care	4995 Wintersweet Dr, Liverpool, NY 13088

U-7	WellNow Urgent Care	6227 Thompson Rd, Syracuse, NY 13206
U-8	WellNow Urgent Care	1600 Erie Blvd E, Syracuse, NY 13210
U-9	WellNow Urgent Care	6870 E Genesee St, Fayetteville, NY 13066
U-10	Quick Care	819 S Salina St, Syracuse, NY 13202
U-11	WellNow Urgent Care	271 Grant Ave, Auburn, NY 13021
U-12	WellNow Urgent Care	1092 NY-222, Cortland, NY 13045
U-13	Cortland Urgent Care	1129 Commons Ave, Cortland, NY 13045
U-14	Pulaski Urgent Care	3858 NY-13, Pulaski, NY 13142
U-15	WellNow Urgent Care	200 E 1st St, Oswego, NY 13126
U-16	Fulton Urgent Care	510 S 4th St Suite 600, Fulton, NY 13069
U-17	WellNow Urgent Care	514 S 2nd St, Fulton, NY 13069
U-18	Quick Care	603 Seneca St, Oneida, NY 13421
U-19	WellNow Urgent Care	109 Genesee St, Oneida, NY 13421

Source: Online search engines.

Appendix P-3
School Growth Projections

P-3 School Growth Projections

This section provides supporting information and data for the induced growth analysis of school districts in Section 3.14.3.2. Specifically, the estimated changes shown in Table 3.14-7 of the numbers and percentages of school-aged children (SAC) (K-5, middle school, and high school aged children) that would be projected to occur over the 21-year period from 2020 to 2041 due to induced growth were derived as explained below.

First, estimates of the current numbers of SAC per household were generated from merged U.S. Census Bureau ACS 2022 5-year estimates and person- and household-level Public Use Microdata Sample (PUMS) data, filtered for households with one or more working aged household members, in Public Use Microsample Areas (PUMAs) corresponding to the five-county region (PUMAs 00701, 00702, 00703, 00704, 00600, and 01500), Onondaga County (PUMAs 00701, 00702, 00703, and 00704), and the Cicero-Clay-Lysander-Van Buren area (PUMA 00702). In addition, the percent of households with SAC and children of all ages was calculated for those three areas. These estimates of the current numbers and percentages of SAC in these areas are shown in Table P-5 and Table P-6 below.

Table P-5 Estimated Current School Aged Children (SAC) per Household

Category	Households	Children	Avg. SAC per Household
Five-County Region			
K-5	158,514	47,742	0.30
Middle School	158,514	25,524	0.16
High School	158,514	41,305	0.26
Total	**158,514**	**114,571**	**0.72**
Onondaga County			
K-5	110,723	34,198	0.31
Middle School	110,723	17,851	0.16
High School	110,723	28,976	0.26
Total	**110,723**	**81,025**	**0.73**
Cicero-Clay-Lysander-Van Buren			
K-5	28,450	8,669	0.30
Middle School	28,450	4,920	0.17
High School	28,450	7,496	0.26
Total	**28,450**	**21,085**	**0.74**

Source: U.S. Census Bureau ACS 2022 5-year estimates and PUMS data.

Table P-6 Percent of Households with Children Aged K-12 and All Ages

Area	K-12	All Ages
Study Area (Five-County Region)	41.3%	51.0%
Onondaga County	40.2%	50.3%
Cicero-Clay-Lysander-Van Buren	41.6%	51.0%

Source: U.S. Census Bureau ACS 2022 5-year estimates and PUMS data.

Second, estimated increases in the numbers of SAC per household, relative to the estimates reflected in the tables above, that would be likely to occur due to induced household growth were calculated based on induced growth estimates and data in the 2022 REMI Study and growth projections from the SMTC. This resulted in low and high estimates for K-5, middle school, and high school SAC populations for the five-county region. For additional context, estimates specific to the Towns of Clay and Cicero were also generated. These induced growth projections were generated for the years 2035 and 2041. These results are shown in Table P-7 and Table P-8 below.

Table P-7 Estimated Increases in School Aged Children in 2035

Locality	K-5		Middle School		High School		Total	
	Low	High	Low	High	Low	High	Low	High
Onondaga	1,245	1,782	650	930	1,055	1,510	2,949	4,222
Clay/Cicero	328	470	186	267	284	406	798	1,143
Oswego	89	268	48	144	77	232	214	644
Cayuga	50	151	27	81	43	131	120	362
Madison	47	140	25	75	40	121	112	336
Cortland	29	87	15	46	25	75	69	208
Total	**1,460**	**2,428**	**765**	**1,276**	**1,241**	**2,069**	**3,465**	**5,773**

Table P-8 Estimated Increases in School Aged Children in 2041

	K-5		Middle School		High School		Total	
	Low	High	Low	High	Low	High	Low	High
Onondaga	1,620	2,300	846	1,201	1,373	1,949	3,839	5,449
Clay/Cicero	427	606	242	344	369	524	1,039	1,475

Oswego	159	434	85	232	138	375	382	1,040
Cayuga	89	244	48	130	77	211	214	584
Madison	83	226	44	121	72	196	199	543
Cortland	51	140	27	75	44	121	123	336
Total	**2,003**	**3,343**	**1,050**	**1,758**	**1,704**	**2,852**	**4,758**	**7,953**

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APPENDIX Q
Socioeconomic Conditions

Appendix Q-1
Socioeconomic Conditions Assessment Methodology

Q-1 Socioeconomic Conditions Methodology

This section defines the study areas used for the socioeconomic conditions analysis in Section 3.15 and explains the methodology, data, and sources of information used to describe the affected environment in Section 3.15.2 and evaluate direct and indirect effects on socioeconomic conditions under the No Action Alternative and the Preferred Action Alternative in Section 3.15.3. The growth inducing effects of the Preferred Action Alternative are described under Growth Inducing Effects in Section 3.15.3.2.

Q-1.1 Local and Regional Study Areas

A study area relevant to analyzing socioeconomic conditions is the area within which a project is most likely to affect population, housing, and economic activities. The Preferred Action Alternative would directly affect socioeconomic conditions in the Town of Clay and the Town of Cicero, as the Proposed Project footprint intersects both towns. The area encompassing these towns was therefore selected as the local study area for Section 3.15 (see Figure 3.15-1).

The Proposed Project also would indirectly affect socioeconomic conditions in a broader region. The outer boundary of this regional area would be shaped by the anticipated Micron employee commuter shed, where existing and new residents who would work at the Proposed Project would be most likely to reside and, in turn, would be most likely to indirectly influence surrounding socioeconomic conditions. Based on existing commuter patterns, most Micron employees would likely reside within an approximately 45-minute travel distance from the Proposed Project.[45] In addition, According the REMI Study, 85 percent of induced job growth and 90 percent of induced residential growth from Micron establishing a four-fab semiconductor manufacturing facility in Onondaga County would occur within the five-county region (REMI, 2022).[46]

Based on these factors, the five-county region was selected as the regional study area for analyzing socioeconomic conditions (see Figure 3.15-2). The regional study area is the same as the growth inducing effects study area described in Appendix C of the EIS. The local study area encompasses all Proposed Project and Connected Action components except for the water supply improvements, which would be encompassed within the regional study area.

Q-1.2 Analysis Framework

Using the data sources specified below, Section 3.15 identifies existing conditions and trends with respect to demographics, housing, labor and economic activities, and community fiscal health to establish a baseline for evaluating the incremental effects of the alternatives on socioeconomic conditions as follows:

[45] According to U.S. Census Bureau (USCB) ACS 2022 estimates, approximately 90 percent of the working labor force in the regional study area would have commute times of 45 minutes or less.

[46] A copy of the REMI Study is included in Appendix C-2.

- **No Action Alternative** – Section 3.15 describes the anticipated socioeconomic conditions in the future without development of the Proposed Project or Connected Actions, based on the existing socioeconomic conditions and trends identified in the affected environment.
- **Preferred Action Alternative** – Section 3.15 describes the anticipated socioeconomic conditions development of the Proposed Project and Connected Actions in three future analysis years:
  - 2027 – This year, when Phase 1 of the Micron Campus construction would occur, was selected to describe potential short-term effects on labor supply and housing markets.
  - 2035 – This year was selected to describe potential medium-term effects when Fabs 1 and 2 would be in operation and construction of Fab 3 would be underway.
  - 2041 – This year was selected to describe longer-term effects when all four fabs would be in operation.

The Proposed Project would generate thousands of new jobs both on-site and off-site through business-to-business supply chain services, and would stimulate local and regional development through induced residential and worker spending. Section 3.15 evaluates growth inducing effects holistically in combination with other present or reasonably foreseeable actions regardless of what agency or person would undertake those other actions.

Q-1.3 Data Sources

Many sources of information are used for a socioeconomic assessment. Table Q-1 describes key data sources and how they are used. Other sources are referenced in text and specified in Section 3.15.

Table Q-1 Data Sources

Data Source	Description
USCB Decennial Census	100% survey-based Census data used to present population and housing trends since 1950.
ACS 5-year estimates	Sample Census data that estimates residential demographics, housing, and workers. The 2006-2010 5-year estimates were used as benchmarks against the recent 2019-2023 5-year estimates.
USCB Center for Economic Studies Longitudinal Employer-Household Dynamics (LEHD)	The LEHD program creates statistics on employment, earnings, and job flows at detailed levels of geography and industry and for different demographic groups and uses this data to create partially synthetic data on worker residential patterns. LEHD data was used to identify the types of jobs held by residents and workers in the study areas and to support projections of the places of residence for Proposed Project-generated workers and induced residential growth.
NYSDOL Quarterly Census of Employment and Wages (QCEW)	QCEW provides quarterly employment and wage data reported by employers covered under the New York State Unemployment Insurance Law and was used to estimate business establishments by industry and average industry wages.

ESD / REMI Study	The REMI Study, sponsored by ESD, estimates the economic and fiscal effects of the Proposed Project based on econometric modeling, using preliminary project information and industry assumptions. Section 3.15 relies in part on the REMI Study to evaluate direct, indirect, and induced job and residential growth, as well as local and regional tax revenue projections.
Syracuse Metropolitan Transportation Council (SMTC)	SMTC is the metropolitan planning organization for the greater Syracuse area. SMTC provided local projections based on known development projects and transportation patterns used to refine Proposed Project-generated population growth projections.
OCIDA	OCIDA is a government organization that provides information and services to relocating companies, expanding companies, and local businesses. Section 3.15 used information from OCIDA (cited in text where applicable).
Office of the New York State Comptroller (NYSOSC)	NYSOSC provides independent fiscal oversight of State and local finances. Section 3.15 uses NYSOSC FSMS data, which measures levels of fiscal stress (difficulty in maintaining budgetary solvency) for both local governments and school districts by applying an entity's reported annual financial information to a set of standard financial indicators.
Micron	Micron provided direct construction and operational job estimates, information on worker in-migration rates from its Boise, ID facility, and information on the Proposed Project's planned community investments in New York State.
Primary and Secondary Research Sources	Section 3.15 uses primary and secondary research sources (cited in text where applicable), including the Town of Clay budget, real estate websites, town and county comprehensive plans, and other studies relevant to socioeconomic conditions in the study areas.

Q-1.4 Evaluation Methods

Section 3.15 evaluates socioeconomic effects as follows:

- **Direct effects** – Effects of the Proposed Project or Connected Actions that could potentially displace residents, businesses, or community amenities.
- **Indirect effects** – Proposed Project or Connected Action off-site influences on demographics, housing, business conditions, or municipal fiscal health. Proposed Project or Connected Action construction activities or on-site operations also could place demands on or community services or increase the cost of services for others. Conversely, the Proposed Project or Connected Actions could introduce new infrastructure, community amenities, or local community investments benefitting an area. These activities could positively or negatively affect municipal fiscal health and taxing jurisdictions.
- **Geographic Allocation of Effects** – Proposed Project and Connected Action operations could create increased demands for workers and housing as a result of workers moving to the area seeking jobs. This in-migration could affect housing and labor markets and place additional demands on local municipal services, including schools. Accordingly, Section 3.15 considers the potential geographic allocation of such effects based on projections of new households within the study areas and quantified estimates of potential new

populations in local communities, as a method to evaluate potential new demands on municipalities.

The Proposed Project would introduce new job opportunities, grow local economies, generate additional tax revenues and PILOT, and, over the 20-year term of the Green CHIPS CIF, would invest $500 million in local and regional initiatives that advance identified community needs. Section 3.15 gives appropriate weight to these anticipated social and economic benefits as part of the SEQRA analysis, which is necessary to support decision-making and findings that must balance social and economic considerations against environmental effects that cannot be avoided or mitigated.

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Appendix Q-2
Supplemental Information: Affected Environment

Q-2 Supplemental Information: Affected Environment

This section provides supplemental information on the affected environment within the local and regional study areas.

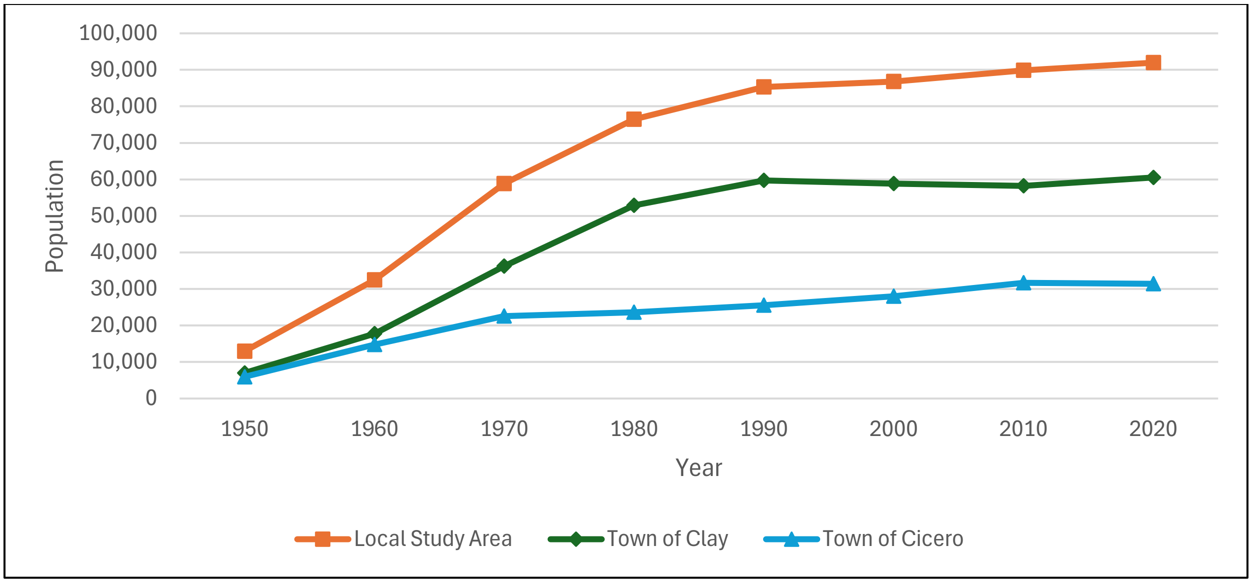
Q-2.1 Population and Demographics

Q-2.1.1 Local Study Area

Population

As shown in Figure Q-1 and Table Q-2 below, the local study area population increased rapidly between the 1950s to the 1980s but has seen a slower growth rate since 1990.

Figure Q-1 Local Study Area Population Growth 1950-2020



Source: USCB Decennial Census 1950-2020.

Table Q-2 Local Study Area Population 1950-2020

Area	1950	1960	1970	1980	1990	2000	2010	2020
Town of Clay	7,001	17,760	36,274	52,838	59,749	58,805	58,206	60,527
Town of Cicero	5,956	14,725	22,539	23,648	25,560	27,982	31,682	31,435
Local Study Area	12,957	32,485	58,813	76,486	85,309	86,787	89,838	91,962

Source: USCB Decennial Census 1950-2020.

In 2023, the local study area had an estimated population of 91,301 residents. The population increased by approximately 2.6 percent between 2010 and 2023, which was slightly higher than the overall 1.7 percent growth rate in Onondaga County (see Table Q-3).

Table Q-3 Local Study Area Population 2010-2023

Area	2010	2023	% Change 2010-2023
Town of Clay	58,206	60,083	3.2%
Town of Cicero	31,632	31,218	-1.3%
Local Study Area	89,838	91,301	1.6%
Onondaga County	467,026	471,611	1.0%

Source: USCB Decennial Census 2010 and ACS 2019-2023 5-year estimates. Note: Onondaga County is presented for purposes of comparison.

Households

The local study area contained an estimated 37,778 households in 2023, an 8.1 percent increase since 2010 (see Table Q-4). In 2023, the average household size in the local study area was 2.42 persons (2.38 in the Town of Clay and 2.46 in the Town of Cicero).

Table Q-4 Local Study Area Household Sizes 2010-2023

Area	2010		2023		% Change 2010-2023	
	Households	Avg. Size	Households	Avg. Size	Households	Avg. Size
Town of Clay	22,684	2.56	25,143	2.38	10.8%	-7.0%
Town of Cicero	12,252	2.52	12,635	2.46	3.1%	-2.4%
Local Study Area	34,936	2.54	37,778	2.42	8.1%	-4.7%
Onondaga County	183,542	2.45	194,963	2.31	6.2%	-5.7%

Source: ACS 2006-2010 and 2019-2023 5-year estimates. Note: Onondaga County is presented for purposes of comparison.

Household Income

Average household income refers to the sum of all incomes earned by members of a household, divided by the number of households, whereas median household income is defined as the middle-income value when all household incomes are arranged in order. As shown in Table Q-5, in 2023 the local study area had an average household income of $105,650 and a median household income of $88,167. In 2022, about 16 percent of households were considered low-income, defined as a household income greater than 130 percent of the U.S. Department of Health and Human Services Poverty Guideline, but at or below 60 percent of the State median income.

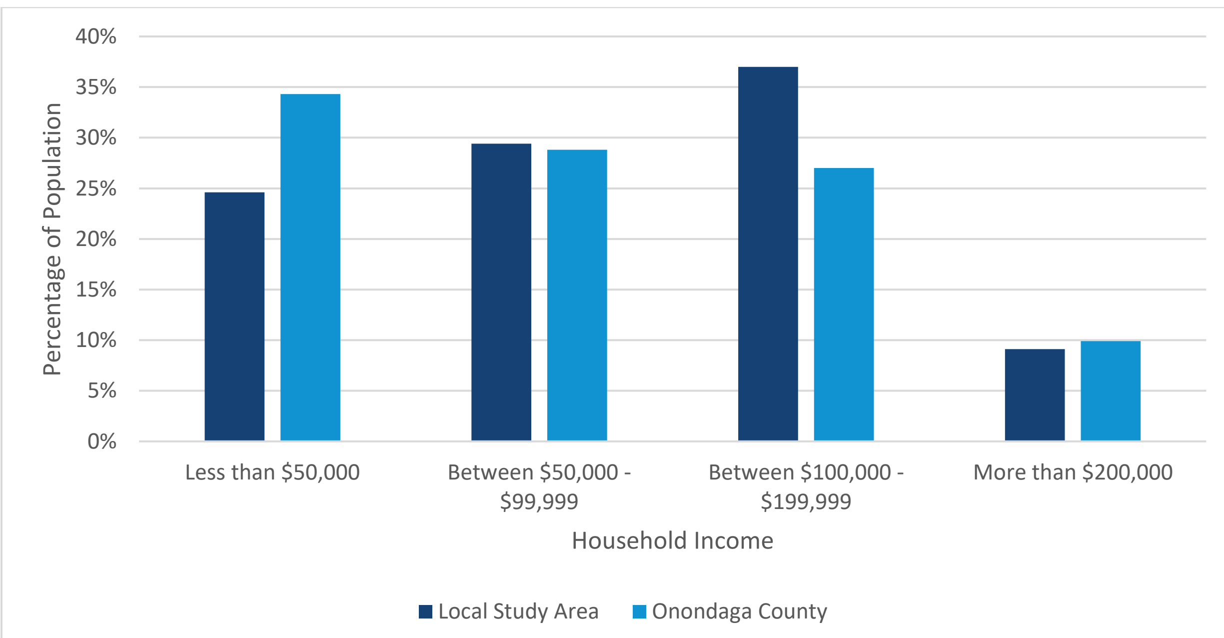
Table Q-5 Local Study Area Household Incomes 2010-2023

Area	2010		2023		% Change 2010-2023	
	Average	Median	Average	Median	Average	Median
Town of Clay	$101,097	$87,214	$101,349	$89,837	0.2%	3.0%
Town of Cicero	$102,706	$91,467	$114,208	$98,005	11.2%	7.1%
Local Study Area	$101,661	$88,167	$105,650	$90,592	3.9%	2.8%
Onondaga County	$93,173	$71,063	$99,134	$74,740	6.4%	5.2%

Source: ACS 2006-2010 and 2019-2023 5-year estimates. Notes: All dollar values are presented in 2023 dollars. Onondaga County is presented for purposes of comparison.

As shown in Figure Q-2, relative to Onondaga County as a whole, the local study area has a larger proportion of households earning over $100,000 (46.1 percent of households) and a lower proportion of households earning under $50,000 annually (24.6 percent of households). Thus, the local study area is higher-income than Onondaga County overall.

Figure Q-2 Local Study Area Household Income Distribution



Source: ACS 2019-2023 5-year estimates.

Poverty Status

UCSB defines "living in poverty" or poverty status in the ACS as "total income less than the official poverty threshold" (USCB, 2025). USCB calculates poverty by monetary income thresholds updated annually based on the U.S. BLS Consumer Price Index for All Urban Consumers (CPI-U) and assigns those thresholds to families by geography and family size and age composition. If a family's total income is below the poverty threshold for its geography, size, and age composition, then all family members are considered to be living in poverty.

As shown in Table Q-6, the percentage of those younger than 18 in the local study area living in poverty more than doubled between 2010 and 2023, from 5.5 percent to 15.0 percent (a 272 percent increase). Child poverty in New York State has increasingly become a concern, with nearly one in five children in the state living in poverty in 2022 (NYSOSC, 2024).

Table Q-6 Local Study Area Residents Living in Poverty

Area	2010		2023	
	Under 18	18 and Older	Under 18	18 and Older
Town of Clay	5.0%	4.5%	12.9%	7.4%
Town of Cicero	6.5%	6.2%	18.8%	6.5%
Local Study Area	5.5%	5.1%	15.0%	7.1%
Onondaga County	19.2%	11.9%	21.3%	11.9%

Source: ACS 2006-2010 and 2019-2023 5-year estimates. Note: Onondaga County is presented for purposes of comparison.

Race and Ethnicity

As shown in Table Q-7, roughly 86 percent of the population in the local study area identifies as not Hispanic or Latino and white alone, although this percentage has decreased since 2010. Of the population in the local study area identifying as Hispanic or Latino, 0.9 percent identify as white alone. The largest minority group identifies as two or more races, although black or African American alone is the largest single race minority group.

Table Q-7 Local Study Area Population, Race, and Ethnicity 2010-2023

Category	2010 (% of Total)	2023 (% of Total)	% Change 2010-2023
Total population on which data were collected			
Total population	88,962 (100%)	91,301 (100%)	2.6%
Not Hispanic or Latino			
Not Hispanic or Latino	87,281 (98.1%)	87,421 (95.8%)	0.2%
White alone	80,916 (91%)	77,954 (85.4%)	-3.7%
Black or African American alone	2,910 (3.3%)	2,905 (3.2%)	-0.2%
American Indian and Alaska Native alone	451 (0.5%)	74 (0.1%)	-83.6%
Asian alone	1,768 (2.0%)	2,070 (2.3%)	17.1%

Native Hawaiian and Other Pacific Islander alone	9 (0.0%)	20 (0.0%)	122.2%
Some other race alone	13 (0.0%)	223 (0.2%)	1615.4%
Two or more races	1,214 (1.4%)	4,175 (4.6%)	243.9%
Hispanic or Latino			
Hispanic or Latino	1,681 (1.9%)	3,880 (4.4%)	130.8%
White alone	1,202 (1.4%)	778 (0.9%)	-35.3%
Black or African American alone	109 (0.1%)	75 (0.1%)	-31.2%
American Indian and Alaska Native alone	0 (0.0%)	62 (0.1%)	N/A
Asian alone	28 (0.0%)	0 (0.0%)	-100.0%
Native Hawaiian and Other Pacific Islander alone	0 (0.0%)	46 (0.1%)	N/A
Some other race alone	240 (0.3%)	907 (1.0%)	277.9%
Two or more races	102 (0.1%)	2,012 (2.2%)	1872.5%

Source: ACS 2006-2010 and 2019-2023 5-year estimates. Note: Columns may not sum due to rounding. "Hispanic or Latino" is an ethnic category in which one can identify as one or more races. This table presents races of individuals who identify as Hispanic or Latino separate from those who identify as not Hispanic or Latino.

Poverty Status by Race and Ethnicity

Table Q-8 through Table Q-10 show detailed race and ethnicity information for residents living in poverty in the local study area. The percentage of residents younger than 18 living in poverty in the Town of Clay increased from 5.0 percent to 12.8 percent (a 256 percent increase), and in the Town of Cicero the increase was even more pronounced (from 6.5 percent to 17.1 percent, or a 263 percent increase). Although non-Hispanic whites make up the largest shares of the overall population in the local study area, a greater percentage of minority populations, such as those identifying as black or African American alone, are living in poverty. As shown in Table Q-8, the local study area population identifying as Pacific Islander is a small percentage of the overall population, but almost three fourths of that group (63.6 percent) live in poverty.

Table Q-8 Local Study Area Residents Living in Poverty 2023

Category	Population for Whom Poverty Status Is Determined	Population Below Poverty Level	% Below Poverty Level
Total population in area	94,173 (100%)	-	-
White alone	78,042 (82.8%)	5,813	8.1%

Black or African American alone	2,955 (3.1%)	707	23.9%
American Indian and Alaska Native alone	136 (0.1%)	0	0.0%
Asian alone	2,050 (2.1%)	185	1.1%
Native Hawaiian and Other Pacific Islander alone	66 (0.7%)	42	63.6%
Some other race alone	1,116 (1.1%)	161	14.4%
Two or more races	6,025 (6.4%)	989	16.4%
Hispanic or Latino	3,783 (4.02%)	752	19.9%
White alone, not Hispanic or Latino	77,264 (82.04%)	5,692	7.4%

Source: ACS 2019-2023 5-year estimates.

Table Q-9 Town of Clay Residents Living in Poverty 2023

Category	Population for Whom Poverty Status Is Determined	Population Below Poverty Level	% Below Poverty Level
Total population in Town	62,908 (100%)	-	-
White alone	49,778 (79.1%)	3,527	7.1%
Black or African American alone	2,393 (3.8%)	553	23.1%
American Indian and Alaska Native alone	68 (0.1%)	0	0.0%
Asian alone	1,409 (2.3%)	178	12.5%
Native Hawaiian and Other Pacific Islander alone	66 (0.1%)	42	63.6%
Some other race alone	950 (1.5%)	149	15.7%
Two or more races	4,879 (7.8%)	634	13.0%
Hispanic or Latino	3,355 (5.3%)	717	21.4%
White alone, not Hispanic or Latino	49,108 (78.1%)	3,420	7.0%

Source: ACS 2019-2023 5-year estimates.

Table Q-10 Town of Cicero Residents Living in Poverty 2023

Category	Population for Whom Poverty Status Is Determined	Population Below Poverty Level	% Below Poverty Level
Total population in Town	31,265 (100%)	-	-
White alone	28,246 (90.4%)	2,286	8.1%
Black or African American alone	562 (1.8%)	154	27.4%
American Indian and Alaska Native alone	68 (0.2%)	0	0.0%
Asian alone	631 (2.0%)	7	1.1%
Native Hawaiian and Other Pacific Islander alone	0	0	0.0%
Some other race alone	166 (0.5%)	12	7.2%
Two or more races	1,146 (3.7%)	355	31.0%
Hispanic or Latino	428 (1.4%)	35	8.2%
White alone, not Hispanic or Latino	28,156 (90.1%)	2,272	8.1%

Source: ACS 2019-2023 5-year estimates.

Q-2.1.2 Regional Study Area

Population

As shown in Table Q-11, the regional study area population increased rapidly between the 1950s to the 1980s but has seen a slower growth rate since 1990.

Table Q-11 Regional Study Area Population 1950-2020

Area	1950	1960	1970	1980	1990	2000	2010	2020
Regional Study Area	572,408	678,836	759,840	771,685	791,140	780,716	781,939	785,114
Onondaga County	341,719	423,028	472,746	463,920	468,973	458,336	467,026	476,516
Oswego County	77,181	86,118	100,897	113,901	121,771	122,377	122,109	117,525

Madison County	46,214	54,635	62,864	65,150	69,120	69,441	73,442	68,016
Cayuga County	70,136	73,942	77,439	79,894	82,313	81,963	70,026	76,248
Cortland County	37,158	41,113	45,894	48,820	48,963	48,599	49,336	46,809
New York State	14,830,192	16,782,304	18,236,967	17,558,072	17,990,455	18,976,457	19,378,102	20,201,249

Source: USCB Decennial Census 1950-2020.

As shown in Table Q-12, the regional study area includes approximately 779,000 residents. Except for Onondaga County, which includes the area's largest metropolitan area, counties in the region have experienced a decline in overall population since 2010. As detailed in Table Q-12, the regional study area experienced significant population growth between 1950 and 1970, consistent with State trends. Since 1990, although the State has continued to experience steady population growth, the regional study area population has remained steady.

Table Q-12 Regional Study Area Population 2010-2023

Area	2010	2023	% Change 2010-2023
Onondaga County	467,026	471,611	1.0%
Oswego County	122,109	117,945	-3.4%
Madison County	73,431	67,572	-8.0%
Cayuga County	80,026	75,464	-5.7%
Cortland County	49,336	46,401	-5.9%
Regional Study Area	791,928	778,993	-1.6%
New York State	19,378,096	19,872,319	2.6%

Source: USCB Decennial Census 2010 and ACS 2023 5-year estimates. Note: New York State is presented for purposes of comparison.

Households

As shown in Table Q-13, the regional study area included 317,760 households in 2023, a 3.8 percent increase since 2010. The majority of regional study area households are located in Onondaga County (61 percent, or 194,963 households).

Table Q-13 Regional Study Area Household Sizes 2010-2023

Area	2010		2023		% Change 2010-2023	
	Households	Avg. Size	Households	Avg. Size	Households	Avg. Size
Onondaga County	183,542	2.45	194,963	2.31	6.2%	-5.7%
Oswego County	45,749	2.55	47,132	2.40	3.0%	-5.9%
Madison County	26,851	2.52	25,563	2.42	-4.8%	-4.0%
Cayuga County	32,038	2.34	31,334	2.29	-2.2%	-2.1%
Cortland County	17,901	2.57	18,768	2.28	4.8%	-11.3%
Regional Study Area	306,081	2.50	317,760	2.34	3.8%	-6.4%
New York State	7,205,740	2.59	7,668,956	2.51	6.4%	-3.1%

Source: ACS 2006-2010 and 2019-2023 5-year estimates. Note: New York State is presented for purposes of comparison.

Some data sources suggest the potential for regional population decline. For example, the Cornell Program on Applied Demographics predicts an overall decline in population throughout all counties in the regional study area through 2040 and a nearly 2 percent population decline in Onondaga County from an estimated 466,395 residents in 2024 to 457,256 residents by 2040.[47]

By contrast, according to SMTC MPA data,[48] the Syracuse MPA is already projected to experience household growth not associated with or induced by the Proposed Project, with projected increases of approximately 8,000 households by 2040 (a 3.7 percent increase over 2020 Census estimates).

The EIS conservatively assumes that the population growth projected in the SMTC MPA data will occur in the regional study area under the No Action Alternative (i.e., even without the Proposed Project).

Household Income

As shown in Table Q-14, regional study area average and median annual household incomes in 2023 were lower than the State average and median. Although there has been real income growth in the regional study area since 2010, it has not kept pace with New York State's overall income growth rates over the same period.

[47] Cornell Program on Applied Demographics County Projections to 2040.

[48] The MPA includes all of Onondaga County, the Town of Sullivan in Madison County, the Towns of Hasting, Schroeppel, and West Monroe in Oswego County, and a portion of the Town of Granby in Oswego County.

Table Q-14 Regional Study Area Household Incomes 2010-2023

Area	2010		2023		% Change 2010-2023	
	Average	Median	Average	Median	Average	Median
Onondaga County	$93,173	$71,063	$99,134	$74,740	6.4%	5.2%
Oswego County	$79,077	$63,571	$88,158	$68,461	11.5%	7.7%
Madison County	$90,259	$74,806	$96,461	$73,141	6.9%	-2.2%
Cayuga County	$81,066	$67,893	$86,559	$66,583	6.8%	-1.9%
Cortland County	$80,617	$63,578	$82,947	$67,527	2.9%	6.2%
Regional Study Area	$88,809	$69,225	$95,095	$71,924	7.1%	3.9%
New York State	$112,710	$77,973	$125,909	$84,578	11.7%	8.5%

Source: ACS 2006-2010 and 2019-2023 5-year estimates. Notes: All dollar values are presented in 2023 dollars. New York State is presented for purposes of comparison.

Overall, regional study area household incomes are lower compared to households in New York State. The regional study area has a greater percentage of households in the lower income brackets shown in Table Q-15 (i.e., less than $50,000 and between $50,000 and $99,000) and a lower percentage of regional households are in higher income brackets (between $100,000-$199,000 and more than $200,000).

Table Q-15 Regional Study Area Household Income Distribution 2023

Area	Total Households	Less than $50,000	$50,000–$99,000	$100,000–$199,000	More than $200,000
Onondaga County	194,963	34.3%	28.8%	27.0%	9.9%
Oswego County	47,132	37.3%	29.5%	27.2%	6.1%
Madison County	25,563	33.6%	30.6%	27.4%	8.5%
Cayuga County	31,334	37.5%	31.7%	24.7%	6.1%
Cortland County	18,768	36.1%	33.7%	24.3%	6.0%
Regional Study Area	317,760	35.3%	29.7%	26.7%	8.6%
New York State	7,668,956	31.7%	25.2%	26.9%	16.4%

Source: ACS 2019-2023 5-year estimates. Note: All dollar values are presented in 2023 dollars. New York State is presented for purposes of comparison.

Poverty Status

The percentage of the regional study area population living in poverty increased between 2010 and 2023 (see Table Q-16). Syracuse had the highest child poverty rate (48.4 percent) among all U.S. cities as of the 2020 Census.[49] There are numerous local, regional, national, and even global factors that have contributed to this increase in poverty, including slowing employment with industries leaving the area, a high inflationary environment, lapsing support programs, and low exposure to economic opportunity (NYSOSC, 2022). Onondaga and Oswego Counties have higher shares of their population under 18 living in poverty compared with New York State as a whole (21.3 percent and 25.7 percent, respectively). Oswego, Cayuga, Cortland Counties have a higher percentage of adults living in poverty than in the State. Madison County has a lesser percentage of adults and those under 18 living in poverty than in the State (9.0 percent and 12.7 percent, respectively).

Table Q-16 Regional Study Area Residents Living in Poverty

Area	2010		2023	
	Under 18	18 and Older	Under 18	18 and Older
Onondaga County	19.2%	11.9%	21.3%	11.9%
Oswego County	20.0%	13.8%	25.7%	14.1%
Madison County	13.6%	8.6%	12.7%	9.0%
Cayuga County	20.4%	9.7%	18.7%	12.5%
Cortland County	15.7%	13.7%	11.7%	13.1%
Regional Study Area	18.7%	11.8%	20.5%	12.1%
New York State	19.9%	12.4%	18.2%	12.5%

Source: ACS 2006-2010 and 2019-2023 5-year estimates. Note: New York State is presented for purposes of comparison.

Race and Ethnicity

As shown in Table Q-17, about 81 percent of the regional study area population identifies as white alone. The largest minority group is black or African American alone.

Table Q-17 Regional Study Area Population, Race, and Ethnicity 2010-2023

Category	2010 (% of Total)	2023 (% of Total)	% Change 2010-2023
Total population on which data were collected			
Total population	788,694 (100%)	778,993 (100%)	-1.2%
Not Hispanic or Latino			
Not Hispanic or Latino	764,665 (97.0%)	742,132 (95.3%)	-2.9%
White alone	676,950 (85.8%)	628,787 (80.7%)	-7.1%

[49] USCB Decennial Census, 2020.

Black or African American alone	53,566 (6.8%)	53,450 (6.9%)	-0.2%
American Indian and Alaska Native alone	4,351 (0.6%)	2,345 (0.3%)	-46.1%
Asian alone	16,091 (2.0%)	21,409 (2.8%)	33.0%
Native Hawaiian and Other Pacific Islander alone	182 (0.0%)	91 (0.0%)	-50.0%
Some other race alone	802 (0.1%)	3,027 (0.4%)	277.4%
Two or more races	12,723 (1.6%)	33,023 (4.2%)	159.6%
Hispanic or Latino			
Hispanic or Latino	24,029 (3.0%)	36,861 (4.7%)	53.4%
White alone	14,017 (1.8%)	9,300 (1.2%)	-33.7%
Black or African American alone	1,933 (0.2%)	3,171 (0.4%)	64.0%
American Indian and Alaska Native alone	358 (0.0%)	707 (0.1%)	97.5%
Asian alone	102 (0.0%)	56 (0.0%)	-45.1%
Native Hawaiian and Other Pacific Islander alone	205 (0.0%)	244 (0.0%)	19.0%
Some other race alone	5,231 (0.7%)	9,035 (1.2%)	72.7%
Two or more races	2,183 (0.3%)	14,348 (1.8%)	557.3%

Source: ACS 2006-2010 and 2019-2023 5-year estimates. Note: This table presents races of individuals who identify as Hispanic or Latino separate from those who identify as not Hispanic or Latino.

Poverty Status by Race and Ethnicity

Table Q-18Tables Q-18 to Q-23 through Table Q-23 show residents living in poverty by race and ethnicity in the regional study area and in each county in the regional study area.

Table Q-18 Regional Study Area Residents Living in Poverty 2023

Category	Population for Whom Poverty Status Is Determined	Population Below Poverty Level	% Below Poverty Level
Total population within area	774,153 (100%)	-	-
White alone	611,985 (79.1%)	68,741	11.2%

Black or African American alone	51,797 (6.7%)	17,964	34.7%
American Indian and Alaska Native alone	2,816 (0.4%)	787	28.0%
Asian alone	17,491 (2.3%)	2,911	16.6%
Native Hawaiian and Other Pacific Islander alone	317 (0.0%)	100	31.6%
Some other race alone	10,623 (1.4%)	2,917	27.5%
Two or more races	45,831 (5.9%)	9,503	20.7%
Hispanic or Latino	33,293 (4.3%)	9,689	29.1%
White alone, not Hispanic or Latino	603,871 (78%)	66,404	11.0%

Source: ACS 2019-2023 5-year estimates.

Table Q-19 Onondaga County Residents Living in Poverty 2023

Category	Population for Whom Poverty Status Is Determined	Population Below Poverty Level	% Below Poverty Level
Total population within area	477,241 (100%)	-	-
White alone	344,613 (72.2%)	33,789	9.8%
Black or African American alone	48,765 (10.2%)	16,997	34.9%
American Indian and Alaska Native alone	2,359 (0.5%)	662	28.1%
Asian alone	15,752 (3.3%)	2,659	16.9%
Native Hawaiian and Other Pacific Islander alone	261 (0.1%)	54	20.7%
Some other race alone	7,733 (1.6%)	1,836	23.7%
Two or more races	31,954 (6.7%)	6,887	21.6%
Hispanic or Latino	25,804 (5.4%)	7,436	28.8%
White alone, not Hispanic or Latino	388,673 (71.0%)	32,019	9.5%

Source: ACS 2019-2023 5-year estimates.

Table Q-20 Oswego County Residents Living in Poverty 2023

Category	Population for Whom Poverty Status Is Determined	Population Below Poverty Level	% Below Poverty Level
Total population within area	115,301 (100%)	-	-
White alone	105,481 (91.5%)	16,421	15.6%
Black or African American alone	599 (0.5%)	303	50.6%
American Indian and Alaska Native alone	132 (0.1%)	81	61.4%
Asian alone	736 (0.6%)	146	19.8%
Native Hawaiian and Other Pacific Islander alone	45 (0.0%)	42	93.3%
Some other race alone	1,021 (0.9%)	394	38.6%
Two or more races	4,481 (3.9%)	1,211	27.0%
Hispanic or Latino	2,806 (2.4%)	1,076	38.4%
White alone, not Hispanic or Latino	104,516 (90.6%)	16,203	15.5%

Source: ACS 2019-2023 5-year estimates.

Table Q-21 Madison County Residents Living in Poverty 2023

Category	Population for Whom Poverty Status Is Determined	Population Below Poverty Level	% Below Poverty Level
Total population within area	63,238 (100%)	-	-
White alone	57,692 (91.2)	5,380	9.3%
Black or African American alone	576 (0.9%)	165	28.7%
American Indian and Alaska Native alone	232 (0.4%)	32	13.8%
Asian alone	204 (0.3%)	18	8.8%
Native Hawaiian and Other Pacific Islander alone	0 (0.0%)	0	0.0%

Some other race alone	395 (0.6%)	117	29.6%
Two or more races	2,942 (4.7%)	321	10.9%
Hispanic or Latino	1,197 (1.9%)	209	17.5%
White alone, not Hispanic or Latino	57,353 (90.7%)	5,298	9.2%

Source: ACS 2019-2023 5-year estimates.

Table Q-22 Cayuga County Residents Living in Poverty 2023

Category	Population for Whom Poverty Status Is Determined	Population Below Poverty Level	% Below Poverty Level
Total population within area	74,183 (100%)	-	-
White alone	64,934 (87.9%)	8,244	12.7%
Black or African American alone	1,177 (1.6%%)	404	34.3%
American Indian and Alaska Native alone	54 (0.1%)	1	1.9%
Asian alone	447 (0.6%)	34	7.6%
Native Hawaiian and Other Pacific Islander alone	7 (0.0%)	0	0.0%
Some other race alone	1,026 (1.4%)	403	39.3%
Two or more races	4,364 (5.9%)	828	19.0%
Hispanic or Latino	2,174 (2.9%)	547	25.2%
White alone, not Hispanic or Latino	64,312 (86.7%)	8,114	12.6%

Source: ACS 2019-2023 5-year estimates.

Table Q-23 Cortland County Residents Living in Poverty 2023

Category	Population for Whom Poverty Status Is Determined	Population Below Poverty Level	% Below Poverty Level
Total population within area	44,190 (100%)	-	-
White alone	39,265 (88.9%)	4,907	12.5%
Black or African American alone	680 (1.5%)	95	14.0%
American Indian and Alaska Native alone	39 (0.1%)	11	28.2%
Asian alone	352 (0.8%)	54	15.3%
Native Hawaiian and Other Pacific Islander alone	4 (0.0%)	4	100.0%
Some other race alone	448 (1.0%)	167	37.3%
Two or more races	2,090 (4.7%)	256	12.3%
Hispanic or Latino	1,312 (3.0%)	421	32.1%
White alone, not Hispanic or Latino	39,017 (88.3%)	4,770	12.2%

Source: ACS 2019-2023 5-year estimates.

Q-2.2 Real Property, Housing, Relocation, and Displacement

Q-2.2.1 Local Study Area

In 2023, the local study area included roughly 19 percent of the housing units in Onondaga County (see Table Q-24).

Table Q-24 Local Study Area Housing Units

Category	Local Study Area		Onondaga County	
	2010	2023	2010	2023
Total Housing Units	37,287	39,586	202,357	211,683
Occupied	95.8%	95.4%	92.7%	92.1%
Vacant	4.2%	4.6%	7.3%	7.9%

Source: ACS 2006-2010 and 2019-2023 5-year estimates.

Approximately three-quarters of the local study area housing units are single-family detached homes (see Table Q-25).

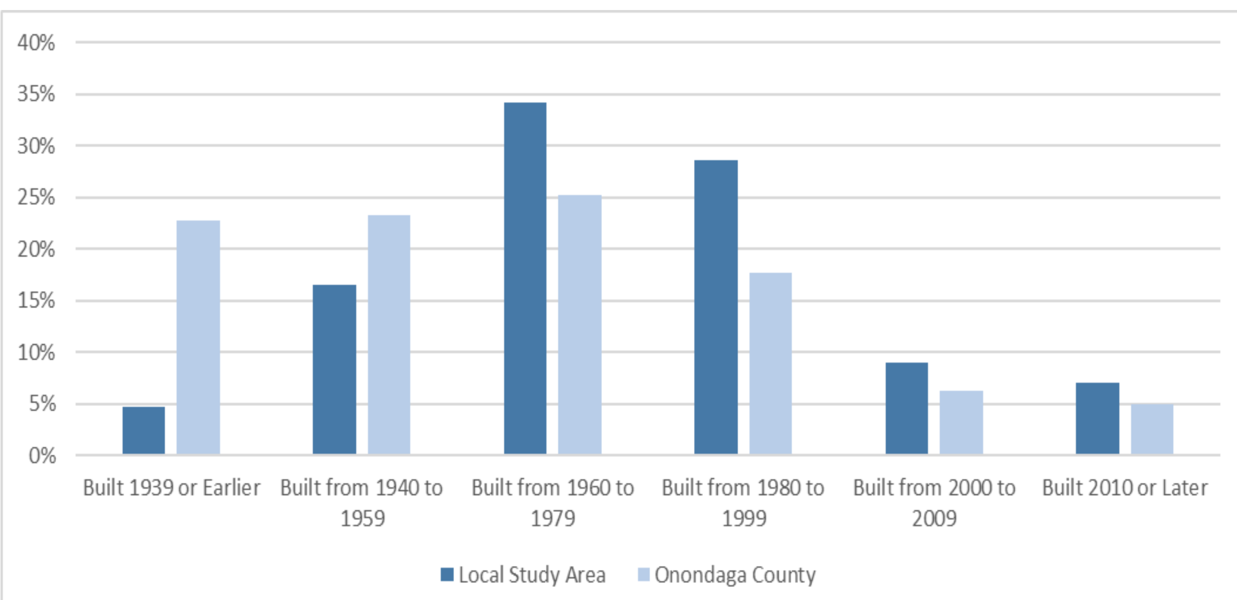
Table Q-25 Local Study Area Housing Unit Types

Unit Type	Local Study Area		Onondaga County	
	2010	2023	2010	2023
1 Unit	77.4%	77.9%	65.5%	67.2%
Detached	73.0%	72.8%	61.9%	63.3%
Attached	4.4%	5.1%	3.6%	3.9%
2 to 4 Units	4.7%	3.5%	14.9%	13.2%
5 to 49 Units	14.5%	15.1%	13.9%	13.2%
50 Units or More	2.0%	2.3%	4.3%	5.1%
Other	1.4%	1.2%	1.3%	1.3%

Source: ACS 2006-2010 and 2019-2023 5-year estimates.

As shown in Figure Q-3 and Table Q-26, about one-third of the housing units in the local study area were built in the 1960s and 1970s, creating a slightly younger housing stock compared to Onondaga County as a whole.

Figure Q-3 Local Study Area Year Housing Unit Built



Source: ACS 2019-2023 5-year estimates.

Table Q-26 Local Study Area Year Housing Unit Built

Area	Median Year	1939 or Earlier	1940 to 1959	1960 to 1979	1980 to 1999	2000 to 2009	2010 or Later
Town of Clay	1977	3.5%	14.5%	40.1%	27.4%	7.4%	7.0%
Town of Cicero	1980	7.0%	20.4%	22.8%	30.7%	12.2%	6.9%
Local Study Area	1979	4.7%	16.5%	34.2%	28.6%	9.0%	7.0%
Onondaga County	1963	22.8%	23.2%	25.2%	17.7%	6.2%	4.9%

Source: ACS 2019-2023 5-year estimates. Note: Onondaga County is presented for purposes of comparison.

In 2022, approximately three-quarters of occupied units in the local study area were owner-occupied, with a slight reduction since 2010 (see Table Q-27).

Table Q-27 Local Study Area Renter vs. Owner-Occupied Units 2010-2023

Area	2010		2023	
	Owner Occupied	Renter Occupied	Owner Occupied	Renter Occupied
Town of Clay	73.3%	26.7%	71.7%	28.3%
Town of Cicero	80.4%	19.6%	80.7%	19.3%
Local Study Area	75.8%	24.2%	74.7%	25.3%
Onondaga County	66.0%	34.0%	65.7%	34.3%

Source: ACS 2006-2010 and 2019-2023 5-year estimates. Note: Onondaga County is presented for purposes of comparison.

In 2023, there were an estimated 1,808 vacant housing units in the local study area. As shown in Table Q-28, of these units, approximately 15 percent were rental vacancies, 23.4 percent were seasonal vacancies, and 6.4 percent were vacant listings for sale.

Table Q-28 Local Study Area Vacancy Status 2010 and 2023

Type of Vacancy	Local Study Area		Onondaga County	
	2010	2023	2010	2023
Total	1,425	1,808	18,329	16,720
For Rent	36.7%	14.8%	30.9%	20.8%
Rented, Not Occupied	5.3%	7.1%	4.4%	5.6%
For Sale Only	11.2%	6.4%	9.8%	8.2%
Sold, Not Occupied	3.3%	4.7%	4.9%	4.7%

For Seasonal, Recreational, or Occasional Use	17.5%	23.4%	10.7%	16.3%
For Migrant Workers	0.0%	0.0%	0.0%	0.1%
Other Vacant	26.0%	43.7%	39.2%	44.4%

Source: ACS 2006-2010 and 2019-2023 5-year estimates. Note: Other vacant is a classification for all other types of vacancies, such as a housing unit held for occupancy by a caretaker or janitor, or held for personal reasons of the owner.

As shown in Table Q-29, the average and median gross rents in the local study area in 2023 were both just over $1,100 per month, slightly higher than Onondaga County overall.

Table Q-29 Local Study Area Average and Median Gross Rents

Area	Average Gross Rent			Median Gross Rent		
	2010	2023	% Change	2010	2023	% Change
Town of Clay	$1,117	$1,229	10.0%	$1,071	$1,185	10.6%
Town of Cicero	$977	$871	-10.8%	$1,012	$984	-2.8%
Local Study Area	$1,077	$1,138	5.7%	$1,060	$1,143	7.8%
Onondaga County	$1,007	$1,082	7.4%	$993	$1,067	7.5%

Source: ACS 2006-2010 and 2019-2023 5-year estimates. Notes: All dollar values are presented in 2023 dollars. Onondaga County is presented for purposes of comparison.

About 42 percent of local study area renters are considered rent burdened, and about 17 percent of renters are severely rent burdened. As shown in Table Q-30, these rates are slightly below those for Onondaga County.

Table Q-30 Local Study Area Rent Burdened Households

Category	Local Study Area		Onondaga County	
	Estimate	% of Total	Estimate	% of Total
Total Renter Households	9,560	-	66,950	-
30 to 49 Percent	2,356	24.6%	14,033	21.0%
50 Percent or More	1,639	17.1%	17,380	26.0%

Source: ACS 2019-2023 5-year estimates. Notes: According to U.S. Department of HUD guidelines, a household is rent burdened if it pays more than 30 percent of its gross income toward rent and is severely rent burdened if it pays 50 percent or more of its gross income toward rent. Onondaga County is presented for purposes of comparison.

Table Q-31 presents the monthly owner costs as a percentage of household income for those with and without a mortgage in the local study area. Homeowners in the local study area were less mortgage burdened in 2023 than in 2010.

Table Q-31 Local Study Area Monthly Owner Costs as % of Household Income

Category	2010		2023	
	Units w/ Mortgage	Units w/o Mortgage	Units w/ Mortgage	Units w/o Mortgage
Housing Units	19,691	6,778	18,233	9,985
Less than 30 Percent	75.1%	84.7%	82.8%	88.1%
30 Percent or More	24.6%	14.6%	16.9%	11.4%
50 Percent or More	7.3%	5.9%	6.8%	5.7%
Not Computed	0.2%	0.7%	0.3%	0.6%

Source: ACS 2006-2010 and 2018-2023 5-year estimates.

Table Q-32 presents the median home value for the local study area and Onondaga County. In 2023, the median home value in the local study area was $193,560, which was similar to that of Onondaga County ($185,300).

Table Q-32 Local Study Area Median Home Value, Owner-Occupied Units

Area	2010	2022	% Change
Town of Clay	$183,983	$190,800	3.7%
Town of Cicero	$198,006	$204,800	3.4%
Local Study Area	$186,063	$193,560	4.0%
Onondaga County	$174,447	$185,300	6.2%

Source: ACS 2006-2010 and 2019-2023 5-year estimates. Note: All dollar values are presented in 2023 dollars.

As shown in Table Q-33, January 2025 median sale prices for homes showed increased performance against those in January 2024, with the Town of Clay seeing an increase in median sale prices and sale volumes while the Town of Cicero experienced a slight increase in sale prices with a decrease in sale volumes.[50]

[50] Year-over-year percentages are based on transactions in April 2023 and April 2024, and do not necessarily reflect annual year-to-year trends.

Table Q-33 Local Study Area Housing Market Trends

Area	Median Sale Price (Jan. 2025)	Change in Median Sale Price Year-Over-Year (Jan. 2025 vs. Jan. 2024)	Homes Sold (Jan. 2025)	Change in Homes Sold Year-Over-Year (Jan. 2025 vs. Jan. 2024)
Town of Clay	$270,000	+21.3%	36	+50.0%
Town of Cicero	$273,750	+6.5%	24	-14.3%
Onondaga County	$239,000	+13.8%	299	+0.0%
City of Syracuse	$139,500	-0.7%	74	- 15.9%

Source: Redfin.com; compiled by AKRF Jan. 2025. Note: Redfin.com provides Jan. 2025 data and offers comparisons to Jan. 2024.

The local study area will be experiencing growth in housing stock; identified planned projects are expected to generate an estimated over 4,000 new residential units. One of the largest planned projects is within the Town of Cicero: Lakeshore Village, a 602-unit multi-family housing development, will contain a variety of housing options, such as apartments, condominiums, single-family homes, and townhomes. Other planned residential and mixed-used projects anticipated in the local study area will introduce single-family homes and a mix of townhomes and apartments, as well as commercial retail, office space, and restaurants. In addition to these known projects, there is general growth and development anticipated within the local study area over the next two decades. Based on SMTC projections, up to 6,800 new households could be introduced within the Towns of Clay and Cicero by 2041. This predicted population growth is consistent with historic population trends for the area.

Q-2.2.2 Regional Study Area

Most of the housing units in the regional study area are concentrated in Onondaga County. The regional study area's housing stock is aging, both in smaller communities and metropolitan centers including Syracuse. Average and median gross rent in the regional study area is lower than that of New York State as a whole, and median house value has increased over the past decade. The region experienced a 2.9 percent increase in total housing units between 2010 and 2023 (see Table Q-34). All counties in the region increased the number of housing units except Madison County, which decreased by 3.4 percent since 2010.

Table Q-34 Regional Study Area Housing Units 2010-2023

Area	2010	2023	% Change 2010–2023
Onondaga County	202,357	211,683	4.6%
Oswego County	53,598	54,697	2.1%
Madison County	31,753	30,676	-3.4%
Cayuga County	36,489	36,768	0.8%
Cortland County	20,577	20,842	1.3%

Regional Study Area	344,774	354,666	2.9%
New York State	8,108,092	8,539,536	5.3%

Source: ACS 2006-2010 and 2019-2023 5-year estimates.

Table Q-35 shows the age of the housing stock in the regional study area. The regional study area has a younger housing stock than New York State overall. Of the counties within the regional study area, Cayuga County has the highest percentage of housing built in 1939 or earlier while Oswego County has the newest housing stock with approximately 38 percent being constructed in 1980 or later.

Table Q-35 Regional Study Area Year Housing Unit Built

Area	Median Year	1939 or Earlier	1940 to 1959	1960 to 1979	1980 to 1999	2000 to 2009	2010 or Later
Onondaga County	1963	22.8%	23.2%	25.2%	17.7%	6.2%	4.9%
Oswego County	1971	28.0%	13.1%	21.0%	25.7%	7.3%	4.9%
Madison County	1964	31.3%	14.9%	19.9%	20.8%	8.3%	4.6%
Cayuga County	1958	36.1%	15.3%	20.0%	17.6%	6.7%	4.4%
Cortland County	1961	33.9%	15.1%	24.9%	18.4%	4.7%	3.0%
Regional Study Area	1963	26.4%	19.6%	23.6%	19.3%	6.5%	4.7%
New York State	1958	30.5%	22.2%	22.1%	13.7%	6.3%	5.3%

Source: ACS 2019-2022 5-year estimates.

As shown in Table Q-36, approximately two-thirds of housing units in the regional study area are owner-occupied; Madison County has the largest percentage of owner-occupied units.

Table Q-36 Regional Study Area Renter vs. Owner-Occupied Units 2010-2023

Area	2010		2023	
	Owner Occupied	Renter Occupied	Owner Occupied	Renter Occupied
Onondaga County	66.0%	34.1%	65.7%	34.3%
Oswego County	73.6%	26.4%	73.9%	26.1%
Madison County	76.1%	23.9%	78.4%	21.6%
Cayuga County	71.8%	28.2%	71.9%	28.1%
Cortland County	66.3%	33.7%	66.4%	33.6%
Regional Study Area	68.6%	31.4%	68.6%	31.4%

New York State	55.2%	44.8%	54.3%	45.7%

Source: ACS 2006-2010 and 2019-2023 5-year estimates. Note: New York State is presented for purposes of comparison.

The regional study area had 36,906 vacant units in 2023 (see Table Q-37). The distribution of vacancy types in the regional study area is comparable to that of New York State.

Table Q-37 Regional Study Area Vacancy Status 2023

Area	Total	For Rent	Rented, No Occupied	For Sale	Sold, Not Occupied	For Seasonal, Recreational, or Occasional Use	For Migrant Workers	Other Vacant
Cayuga County	5,434	3.8%	1.7%	4.8%	6.5%	49.4%	0.5%	33.3%
Cortland County	2,074	11.3%	8.2%	6.9%	11.0%	28.2%	0.0%	34.4%
Madison County	5,113	3.1%	1.7%	4.1%	4.6%	47.6%	0.7%	38.2%
Onondaga County	16,720	20.8%	5.6%	8.2%	4.7%	16.3%	0.1%	44.4%
Oswego County	7,565	6.4%	2.7%	7.4%	1.3%	49.2%	0.0%	33.1%
Regional Study Area	36,906	12.4%	4.1%	6.9%	4.6%	32.9%	0.2%	39.0%
New York State	870,580	16.1%	4.6%	5.5%	4.5%	35.5%	0.1%	33.7%

Source: ACS 2019-2023 5-year estimates. Note: New York State is presented for purposes of comparison.

The average and median gross rent in the regional study area is lower than that of New York State (see Table Q-38). The counties in the regional study area have seen mixed growth in average and median rents, but all were at or below the growth rates for New York State between 2010 and 2023.

Table Q-38 Regional Study Area Average and Median Gross Rents

Area	Average Gross Rent			Median Gross Rent		
	2010	2023	% Change	2010	2023	% Change
Onondaga County	$1,007	$1,082	7.4%	$993	$1,067	7.45%
Oswego County	$880	$944	7.3%	$933	$943	1.07%
Madison County	$908	$853	-6.1%	$969	$891	-8.05%

Cayuga County	$865	$884	2.2%	$882	$895	1.47%
Cortland County	$858	$940	9.6%	$919	$911	-0.87%
Regional Study Area	$962	$1,026	6.7%	$968	$1,017	5.06%
New York State	$1,479	$1,742	17.8%	$1,370	$1,576	15.04%

Source: ACS 2006-2010 and 2019-2023 5-year estimates. Note: All dollar values are presented in 2023 dollars. New York State is presented for purposes of comparison.

Like the local study area, most regional study area owner-occupied households with or without a mortgage spend less than 30 percent of their household income on monthly owner costs (see Table Q-39).

Table Q-39 Regional Study Area Monthly Owner Costs as % of Household Income

	2010 (Regional)		**2023 (Regional)**		**2010 (NYS)**		**2023 (NYS)**	
	Units w/ Mortgage	**Units w/o Mortgage**	**Units w/ Mortgage**	**Units w/o Mortgage**	**Units w/ Mortgage**	**Units w/o Mortgage**	**Units w/ Mortgage**	**Units w/o Mortgage**
Housing Units:	136,066	73,982	127,769	90,121	2,597,200	1,379,988	2,436,230	1,728,563
Less than 30 Percent	71.7%	82.7%	78.1%	84.9%	58.5%	76.9%	67.0%	79.7%
30 Percent or More	28.0%	16.7%	21.5%	14.0%	41.12%	22.3%	32.5%	19.1%
50 Percent or More	9.6%	6.3%	8.7%	6.7%	17.8%	10.0%	14.6%	9.6%
Not Computed	0.3%	0.6%	0.4%	1.1%	0.4%	0.8%	0.5%	1.3%

Source: ACS 2006-2010 and 2019-2023 5-year estimates. Note: New York State is presented for purposes of comparison.

As shown in Table Q-40, approximately 45 percent of renter households in the region are rent burdened, allocating 30 percent or more of their household income to housing costs.

Table Q-40 Regional Study Area Rent Burdened Households

Category	**Regional Study Area**		**New York State**	
	No.	**%**	**No.**	**%**
Total Renter Households	99,870	-	3,504,163	-
30 to 49 Percent	20,846	20.9%	783,729	22.4%
50 Percent or More	24,692	24.7%	922,344	26.3%

Source: ACS 2019-2023 5-year estimates. Note: New York State is presented for purposes of comparison.

In 2023, the median house value in the region was $172,455, an 11 percent increase from 2010, with Onondaga County having the highest value at $185,300 (see Table Q-41). Despite home value increases throughout the regional study area, the regional median home values were less than half of New York State overall.

Table Q-41 Regional Study Area Median House Value

Area	2010	2023	% Change 2010–2022
Onondaga County	$174,447	$185,300	6.2%
Oswego County	$123,403	$139,600	13.1%
Madison County	$156,638	$176,800	12.9%
Cayuga County	$137,987	$164,200	19.0%
Cortland County	$133,360	$158,100	18.6%
Regional Study Area	$155,464	$172,455	10.9%
New York State	$426,162	$403,000	-5.4%

Source: ACS 2006-2010 and 2019-2023 5-year estimates. Note: All values are in 2023 dollars. New York State is presented for purposes of comparison.

As shown in Table Q-42, the regional study area has seen positive recent trends in median sale prices, with Oswego and Cayuga Counties seeing the largest increases. All counties in the regional study area except for Onondaga County experienced an increase in the number of homes sold year-over-year, with Oswego County seeing the highest increase.

Table Q-42 Regional Study Area Housing Market Trends

Area	Median Sale Price (Jan. 2025)	Change in Median Sale Price Year-Over-Year (Jan. 2025 vs. Jan. 2024)	Homes Sold (Jan. 2025)	Change in Homes Sold Year-Over-Year (Jan. 2025 vs. Jan. 2024)
Onondaga County	$239,000	+13.8%	299	+0.0%
Oswego County	$199,250	+ 22.6%	68	+ 44.7%
Madison County	$242,500	+15.5%	40	+ 21.2%
Cayuga County	$199,999	+33.3%	43	+ 10.3%
Cortland County	$160,500	+ 13.3%	24	+ 33.3%

Source: Redfin.com; compiled by AKRF Jan. 2025. Note: Redfin.com provides Jan. 2025 data and offers comparisons to Jan. 2024.

Table Q-43presents an aggregated summary of housing market trends in the regional study area and Seneca County over the last three years. The housing market has slowed down, with fewer listings and sales in 2023 than in 2021, however, the median sale price has increased overall.

Table Q-43 Historic Housing Market Trends

Year	New Listings (YTD)*	Closed Sales (YTD)	Days on Mkt. Until Sale (YTD)	Median Sales Price (YTD)	Avg. Sales Price (YTD)	% List Price Received (YTD)	Months Supply of Inventory
2021	8,649	6,272	27	$170,000	$204,937	101.4%	1.9
2022	7,826	6,044	23	$185,000	$228,501	102.7%	1.9
2023	6,511	4,641	25	$200,000	$241,629	102.8%	2.5

Source: CNYrealtor.com; compiled by AKRF. Note: *YTD data is through August of given year and is from the Greater Syracuse Association of Realtors, which aggregates data for 2021-2023 for an area comprising Onondaga, Oswego, Madison, Cayuga, Oneida, and Seneca Counties.

A 2015 report issued by the Central New York Regional Economic Development Council (CNYREDC) observed that "the Central New York region faces stark, serious, and persistent challenges" and that "the region's housing stock is aging, especially in smaller communities. In Madison County, 43 percent of the housing stock was built before 1939. This number rises to 44 percent in the city of Syracuse, 56.8 percent in the city of Cortland, 56.6 percent in the city of Auburn, and 56.2 percent in the city of Oswego" (CNYREDC, 2015, p. 19).

As observed in Plan Onondaga, "Onondaga County is experiencing many similar housing and demographic trends to those occurring nationally. The County's housing market is characterized as soft, similar to many areas across upstate New York where lower housing demand and stagnant property values have limited housing growth . . . [The County] has experienced slow to stable population growth, aging housing stock, and increasing percentages of older adults . . . [and] is comprised of a wide variety of neighborhoods that vary in condition, housing types, the built environment, and demographic composition . . . while the housing market in Onondaga County has historically been regarded as affordable, the cost of housing continues to rise" (Onondaga County, 2023, p. 102-103).

The City of Syracuse observed in its Comprehensive Plan 2040, "the City contains some of the County's oldest neighborhoods where 48 percent of the housing was built before 1939"; one component of the plan's "vision for the future" is that the "City will foster and support a vibrant economy and a culturally diverse community with a variety of housing and neighborhood types", suggesting that the City of Syracuse would be able to absorb new housing (City of Syracuse, 2012, p. 14, 19).

A similarly aging housing stock was observed in the Cortland County Consolidated Housing Plan: "Cortland County has an older housing stock, a large percentage of which is considered substandard"; the plan notes that the supply of affordable housing in the county is not meeting current demand, establishes objectives to address the issue: "Objective #1: Improve the condition of the existing housing stock in the community"; "Objective #2: Increase the level of homeownership"; "Objective #3: Increase access to affordable, quality rental properties" (Cortland County, 2017, p. 51, 57-61).

Q-2.3 Labor Force and Business Conditions

Q-2.3.1 Local Study Area

The local study area is located in close proximity to the City of Syracuse, a major metropolitan area in Central New York, and approximately 25 percent of those who live in the local study area work in Syracuse. Local study area residents are employed across a variety of industries, with a notable concentration in service industries. As observed in Plan Onondaga, "over 80 percent of Onondaga County's employers have fewer than 20 workers" (Onondaga County, 2023, p. 13). The County economy is largely comprised of small, local businesses.

In 2023, approximately two-thirds of all local study area residents 16 years and older, slightly more than 50,000 residents, were members of the labor force (see Table Q-44). The local study area has a higher labor force participation rate and a lower unemployment rate than Onondaga County.

Table Q-44 Local Study Area Employment

Category	Local Study Area		Onondaga County	
	2010	2023	2010	2023
Pop. 16 and older	70,037	73,926	368,475	383,092
In Labor Force	50,456 (72.0%)	50,249 (68.0%)	237,600 (64.5%)	241,238 (63.0%)
Armed Forces	116 (0.2%)	171 (0.2%)	486 (0.1%)	637 (0.2%)
Civilian	50,340 (71.9%)	50,078 (67.7%)	237,114 (64.4%)	240,601 (62.7%)
Employed	47,734 (68.2%)	47,941 (64.9%)	221,848 (60.2%)	228,336 (59.6%)
Unemployed	2,606 (3.7%)	2,137 (2.9%)	15,266 (4.1%)	12,265 (3.2%)
Not in Labor Force	19,581 (28.0%)	23,677 (32.0%)	130,875 (35.5%)	141,854 (37.0%)

Source: ACS 2006-2010 and 2019-2023 5-year estimates. Note: Onondaga County is presented for purposes of comparison.

The local study area has a wide distribution of workers by different age groups, and nearly half of workers are between the ages of 25 and 44 (see Table Q-45). The percentage of workers aged 60 years and over has increased since 2010, consistent with trends in Onondaga County.

Table Q-45 Local Study Area Workers by Age

Category	Local Study Area		Onondaga County	
	2010	2023	2010	2023
16 to 19 Years	4.2%	2.7%	4.4%	3.4%
20 to 24 Years	8.5%	8.0%	9.7%	9.2%

25 to 44 Years	43.5%	43.4%	41.3%	42.2%
45 to 54 Years	26.1%	20.7%	25.6%	19.4%
55 to 59 Years	9.8%	9.6%	9.6%	9.7%
60 to 64 Years	5.1%	9.1%	5.6%	9.2%
65 Years and Older	2.8%	6.5%	3.8%	7.0%

Source: ACS 2006-2010 and 2019-2023 5-year estimates. Note: Onondaga County is presented for purposes of comparison.

As shown in Table Q-46, the rate of educational attainment for residents 25 years and older in the local study area is similar to that of Onondaga County.

Table Q-46 Local Study Area Educational Attainment

Area	Less Than High School	High School	Some College or Higher	Bachelor's Degree or Higher
Local Study Area	5.7%	94.3%	69.2%	35.9%
Onondaga County	8.3%	91.7%	67.4%	38.1%

Source: ACS 2019-2023 5-year estimates. Note: Onondaga County is presented for purposes of comparison.

A 2022 CNYREDC report observed that "the current state labor force is getting older. Since 2011, the number of employees between the age of 45 and 54 has significantly decreased while the number of 55+ has increased" (CNYREDC, 2022, p. 15). As observed in Plan Onondaga, "Onondaga County is similar to other upstate New York counties in that the population is older and aging. The median age is 39 and roughly 30% of households have someone 65 years or older residing in them"; the County, similar to Upstate New York generally, has experienced "increasing percentages of older adults" in the population (Onondaga County, 2023, p. 102, 105).

As shown in Table Q-47, the top five employment sectors for the local residential labor force, i.e., in which local study area residents are employed, are healthcare, education, retail trade, manufacturing, and accommodation and food services. Table Q-48 presents the full listing organized by NAICS sector.

Table Q-47 Local Study Area Top 5 Jobs of Local Residents 2022

Industry	Percentage of Labor Force
Health Care and Social Assistance	15.4%
Educational Services	13.1%
Retail Trade	11.3%
Manufacturing	8.4%
Accommodation and Food Services	8.0%

Source: USCB LEHD Program OnTheMap Home Area Profile Analysis data, primary jobs, 2022.

Table Q-48 Local Study Area Top Jobs of Local Residents by Industry 2022

Industry	Local Study Area		Onondaga County	
	No.	%	No.	%
Total Employees	42,329	-	192,320	-
Agriculture, Forestry, Fishing and Hunting	80	0.2%	722	0.4%
Mining, Quarrying, and Oil and Gas Extraction	10	0.0%	46	0.0%
Utilities	492	1.2%	1,766	0.9%
Construction	1,732	4.1%	7,574	3.9%
Manufacturing	3,573	8.4%	15,029	7.8%
Wholesale Trade	2,217	5.2%	8,388	4.4%
Retail Trade	4,770	11.3%	20,420	10.6%
Transportation and Warehousing	2,079	4.9%	8,435	4.4%
Information	710	1.7%	3,168	1.6%
Finance and Insurance	1,896	4.5%	7,442	3.9%
Real Estate and Rental and Leasing	591	1.4%	2,617	1.4%
Professional, Scientific, and Technical Services	2,892	6.8%	12,102	6.3%
Management of Companies and Enterprises	643	1.5%	2,967	1.5%
Administration and Support, Waste Management, and Remediation	1,968	4.6%	10,537	5.5%
Educational Services	5,566	13.1%	28,868	15.0%
Health Care and Social Assistance	6,502	15.4%	30,604	15.9%
Arts, Entertainment, and Recreation	422	1.0%	2,177	1.1%
Accommodation and Food Services	3,375	8.0%	15,346	8.0%
Other Services (excluding Public Administration)	1,362	3.2%	6,117	3.2%
Public Administration	1,449	3.4%	7,995	4.2%

Source: USCB LEHD Program OnTheMap Home Area Profile Analysis data, primary jobs, 2022. Note: Onondaga County is presented for purposes of comparison.

As shown in Table Q-49, the top five employment sectors in the local study area for all workers in the study area (regardless of whether they also are local residents) are retail trade, healthcare, accommodation and food services, manufacturing, and transportation. The local residential labor force and all workers employed in the local study area overlap in the retail trade, accommodation and food services, healthcare and social assistance, and manufacturing sectors; the differences are that more local residents are employed in the educational services sector, whereas among all workers in the local study area, more are employed in transportation and warehousing than education. Table Q-50 presents the full list organized by NAICS industry sector.

Table Q-49 Local Study Area Top 5 Jobs of All Workers 2022

Industry	Percent of Labor Force
Retail Trade	21.8%
Accommodation and Food Services	11.3%
Health Care and Social Assistance	10.1%
Manufacturing	9.1%
Transportation and Warehousing	7.6%

Source: USCB LEHD Program OnTheMap Home Area Profile Analysis data, primary jobs, 2022.

Table Q-50 Local Study Area Top Jobs of All Workers by Industry 2022

Industry	Local Study Area		Onondaga County	
	No.	%	No.	%
Total Employees	31,981	-	229,481	-
Agriculture, Forestry, Fishing and Hunting	15	0.0%	751	0.3%
Mining, Quarrying, and Oil and Gas Extraction	0	0.0%	15	0.0%
Utilities	896	2.8%	2,421	1.1%
Construction	1,923	6.0%	10,341	4.5%
Manufacturing	2,904	9.1%	19,475	8.5%
Wholesale Trade	1,775	5.6%	11,971	5.2%
Retail Trade	6,966	21.8%	23,615	10.3%
Transportation and Warehousing	2,423	7.6%	11,120	4.8%
Information	315	1.0%	3,611	1.6%
Finance and Insurance	674	2.1%	8,352	3.6%
Real Estate and Rental and Leasing	535	1.7%	3,119	1.4%
Professional, Scientific, and Technical Services	1,444	4.5%	14,428	6.3%

Management of Companies and Enterprises	65	0.2%	3,624	1.6%
Administration and Support, Waste Management, and Remediation	1,035	3.2%	12,348	5.4%
Educational Services	2,357	7.4%	35,225	15.3%
Health Care and Social Assistance	3,243	10.1%	36,559	15.9%
Arts, Entertainment, and Recreation	256	0.8%	2,370	1.0%
Accommodation and Food Services	3,603	11.3%	16,823	7.3%
Other Services (excluding Public Administration)	1,245	3.9%	7,205	3.1%
Public Administration	307	1.0%	6,108	2.7%

Source: USCB LEHD Program OnTheMap Home Area Profile Analysis data, primary jobs, 2022. Note: Onondaga County is presented for purposes of comparison.

According to Plan Onondaga, the "largest employers in the County include Syracuse University, SUNY Upstate Medical University, the Syracuse City School District, National Grid, the United States Army, Lockheed Martin, and Crouse Hospital (Onondaga County, 2023, p. 12). These major employers align with the most popular labor force sectors for Onondaga County residents. As the City of Syracuse is a major economy within Onondaga County, many businesses and workers are located there. The Town of Clay is the next most populous municipal district within the County and employs workers across a similar distribution of industries to Onondaga County, as compared to the Town of Cicero, where approximately one-quarter of the resident labor force is employed in the retail trade sector.

Over time, the Town of Clay economy has become less dependent on agricultural industries. As noted in the Town of Clay Local Waterfront Revitalization Plan, "While many acres of land remain in agricultural use, the importance of agriculture as a viable means of commerce in the Town greatly diminished through the 1900s, particularly over the last 30 years. While many parcels of land remain zoned for agricultural use, relatively few acres remain commercially agricultural" (Town of Clay, 2012). Many workers are part of service sectors or work in manufacturing and professional, scientific, and technical services. Recently, the Town of Clay was selected for a new, state-of-the-art Amazon distribution center. The fulfillment center is anticipated to be the company's second largest facility in the world and will further establish the Town of Clay as a regional economic center (Town of Clay, 2022).

Q-2.3.2 Regional Study Area

The regional study area is experiencing similar trends to the local study area, with an aging, shrinking workforce and a net export of talent. CNYREDC's 2015 report observed that "among higher degree holders, the region is a net exporter of talent, with many individuals who obtain postgraduate degrees leaving after graduation" (CNYREDC, 2015, p. 19). Retail trade has the largest number of businesses and the median annual wage cost in the regional study area is competitive with national levels. The region has experienced a slight decline in its labor force since 2010 (see Table Q-51).

Table Q-51 Regional Study Area Employment Status 16 Years and Older

Category	2010		2023	
	Regional	NYS	Regional	NYS
In Labor Force	399,640	9,808,150	393,198	10,226,460
Armed Forces	0.1%	0.2%	0.2%	0.2%
Civilian	63.4%	63.5%	61.5%	62.8%
Employed	58.9%	58.8%	58.3%	58.9%
Unemployed	4.5%	4.8%	3.2%	3.9%
Not in Labor Force	36.5%	36.3%	38.3%	37.0%

Source: ACS 2006-2010 and 2019-2023 5-year estimates. Note: New York State is presented for purposes of comparison.

As shown in Table Q-52, the regional study area and New York State workforces largely consist of workers within the 25- to 44-year-old age brackets (approximately 40 and 44 percent, respectively). The percentage of workers aged 65 years and over has increased for both geographies, suggesting more individuals are working beyond the retirement age.

Table Q-52 Regional Study Area Workers by Age

Age Group	2010		2023	
	Regional	NYS	Regional	NYS
16 to 19 Years	4.6%	3.2%	3.9%	2.6%
20 to 24 Years	9.8%	8.9%	9.4%	8.0%
25 to 44 Years	40.7%	45.1%	40.8%	44.6%
45 to 54 Years	26.0%	24.0%	19.7%	20.2%
55 to 59 Years	9.6%	9.0%	10.1%	9.9%
60 to 64 Years	5.5%	5.6%	9.1%	7.9%
65 Years and Over	3.9%	4.1%	7.0%	6.8%

Source: ACS 2006-2010 and 2019-2023 5-year estimates. Note: New York State is presented for purposes of comparison.

Most regional study area residents aged 25 or older received some college education or more. As shown in Table Q-53, the regional study area has a greater percentage of individuals with a high school diploma (91.3 percent) compared to New York State (87.9 percent). However, New York State has a higher percentage of the population with a college degree or higher compared to the regional study area.

Table Q-53 Regional Study Area Educational Attainment Age 25 and Older 2023

Area	Less Than High School	High School	Some College or Higher	Bachelor's Degree or Higher
Regional Study Area	8.7%	91.3%	63.2%	32.8%
Onondaga County	8.3%	91.7%	67.4%	38.1%
Oswego County	10.0%	90.0%	53.3%	21.9%
Madison County	6.7%	93.3%	59.5%	28.0%
Cayuga County	11.1%	88.9%	57.9%	23.9%
Cortland County	9.1%	90.9%	59.2%	28.3%
New York State	12.1%	87.9%	63.3%	39.6%

Source: ACS 2019-2023 5-year estimates. Note: New York State is presented for purposes of comparison.

The regional study area employs workers across a variety of industries, with a large concentration of jobs in service industries. The retail trade industry has the largest number of business establishments. The overall workforce is aging; the percentage of workers aged 65 years and older has increased for the region and New York State since 2010, suggesting more individuals are working beyond the retirement age. The median annual wage cost in the regional study area is competitive with national levels.

As with the local study area, the regional study area employs residents across a variety of industries, with a concentration of jobs in the service industries. Table Q-54 shows the top five employment sectors in which regional study area residents were employed in 2022. Table Q-55 shows the full list organized by NAICS industry sector.

Table Q-54 Regional Study Area Top 5 Jobs of Regional Residents 2022

Industry	Percentage of Labor Force
Healthcare and Social Assistance	15.1%
Educational Services	14.3%
Retail Trade	10.8%
Manufacturing	9.4%
Accommodation and Food Services	8.3%

Source: USCB LEHD Program OnTheMap Home Area Profile Analysis data, primary jobs, 2022.

Table Q-55 Regional Study Area Top Jobs of Regional Residents by Industry 2022

Industry	Regional Study Area	
	No.	%
Total Employees	317,576	-
Agriculture, Forestry, Fishing and Hunting	2,444	0.8%
Mining, Quarrying, and Oil and Gas Extraction	240	0.1%
Utilities	3,708	1.2%
Construction	13,804	4.3%
Manufacturing	29,934	9.4%
Wholesale Trade	13,246	4.2%
Retail Trade	34,216	10.8%
Transportation and Warehousing	13,005	4.1%
Information	4,679	1.5%
Finance and Insurance	11,586	3.6%
Real Estate and Rental and Leasing	3,975	1.3%
Professional, Scientific, and Technical Services	17,863	5.6%
Management of Companies and Enterprises	4,238	1.3%
Administration and Support, Waste Management, and Remediation	15,089	4.8%
Educational Services	45,569	14.3%
Health Care and Social Assistance	48,040	15.1%
Arts, Entertainment, and Recreation	3,367	1.1%
Accommodation and Food Services	26,366	8.3%
Other Services (excluding Public Administration)	9,995	3.1%
Public Administration	16,212	5.1%

Source: USCB LEHD Program OnTheMap Home Area Profile Analysis data, primary jobs, 2022.

Regional study area businesses employ workers across a variety of industry sectors, with a concentration of jobs in the service industries. Table Q-56 shows the top five employment sectors within the regional study area; Table Q-57 shows the full list organized by NAICS industry sector.

Of the estimated 318,293 workers employed in the regional study area in 2022, approximately 75 percent lived within the regional study area.[51]

Table Q-56 Regional Study Area Top 5 Jobs of All Workers 2022

Industry	Percentage of Labor Force
Educational Services	16.1%
Healthcare and Social Assistance	15.1%
Retail Trade	10.8%
Manufacturing	9.5%
Accommodation and Food Services	8.0%

Source: USCB LEHD Program OnTheMap Home Area Profile Analysis data, primary jobs, 2022.

Table Q-57 Regional Study Area Top Jobs of All Workers by Industry 2022

Industry	Regional Study Area	
	No.	%
Total Employees	318,293	-
Agriculture, Forestry, Fishing and Hunting	2,665	0.8%
Mining, Quarrying, and Oil and Gas Extraction	155	0.0%
Utilities	4,348	1.4%
Construction	14,318	4.5%
Manufacturing	30,259	9.5%
Wholesale Trade	14,145	4.4%
Retail Trade	34,397	10.8%
Transportation and Warehousing	13,054	4.1%
Information	4,083	1.3%
Finance and Insurance	9,980	3.1%
Real Estate and Rental and Leasing	3,760	1.2%
Professional, Scientific, and Technical Services	16,913	5.3%

[51] USCB OnTheMap Inflow/Outflow Analysis data, primary jobs, 2022.

Management of Companies and Enterprises	3,995	1.3%
Administration and Support, Waste Management, and Remediation	14,655	4.6%
Educational Services	51,103	16.1%
Health Care and Social Assistance	48,066	15.1%
Arts, Entertainment, and Recreation	3,275	1.0%
Accommodation and Food Services	25,398	8.0%
Other Services (excluding Public Administration)	9,792	3.1%
Public Administration	13,932	4.4%

Source: USCB LEHD Program OnTheMap Home Area Profile Analysis data, primary jobs, 2022.

As shown in Table Q-58, the retail trade industry has the largest number of business establishments in the region. Retail trade businesses are the third most common businesses in New York State. Other sectors that have a high concentration of establishments in the regional study area include construction, other services (excluding public administration), health care and social assistance, accommodation and food services, and professional, scientific, and technical services.

Table Q-58 Regional Establishments and Wages by Industry 2023

Industry	Establishments	Avg. Annual Emp.	Avg. Wage 2023
Agriculture, Forestry, Fishing and Hunting	287	3,002	$46,599
Mining, Quarrying, and Oil and Gas Extraction	18	156	$75,795
Construction	1,914	14,101	$77,716
Manufacturing	737	30,433	$81,073
Wholesale Trade	934	13,433	$84,869
Retail Trade	2,383	36,938	$39,089
Transportation and Warehousing	633	17,288	$50,529
Information	299	3,691	$69,837
Finance and Insurance	951	9,854	$96,460
Real Estate and Rental and Leasing	692	4,155	$57,389
Professional, Scientific, and Technical Services	1,767	16,506	$87,737

Management of Companies and Enterprises	142	4,407	$100,761
Administration and Support, Waste Management, and Remediation	1,176	15,948	$50,701
Educational Services	513	46,045	$71,163
Health Care and Social Assistance	1,867	52,710	$65,365
Arts, Entertainment, and Recreation	382	4,996	$26,733
Accommodation and Food Services	1,773	27,508	$26,416
Other Services (excluding Public Administration)	1,871	10,769	$41,394
Public Administration	414	18,339	$74,622

Source: NYSDOL QCEW, 2024. Note: Average wages are presented in 2023 dollars.

According to the Vision CNY: Central New York Regional Sustainability Plan Comprehensive Economic Development Strategy (June 2020), as of 2020, Central New York's labor force "has remained stable over the past ten years [and] [t]he median annual wage cost in the five-county area is estimated to equal $43,820 which is competitive with national levels and below major metropolitan areas in the northeast." (p. 6).

The 2022 CNYREDC Report states that "strategic growth in the following four areas will create revenue generation coupled with the undisputed multiplier effect in regional jobs and income, while providing significant goods and service revenue generation well beyond our geographic footprint", identifying the four areas as: (1) Agribusiness; (2) High-Tech Manufacturing; (3) Research and Development at Institutions of Higher Education; and (4) Smart Systems Clusters (CNYREDC, 2022, p. 17).

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Appendix Q-3
Supplemental Information: Environmental Consequences

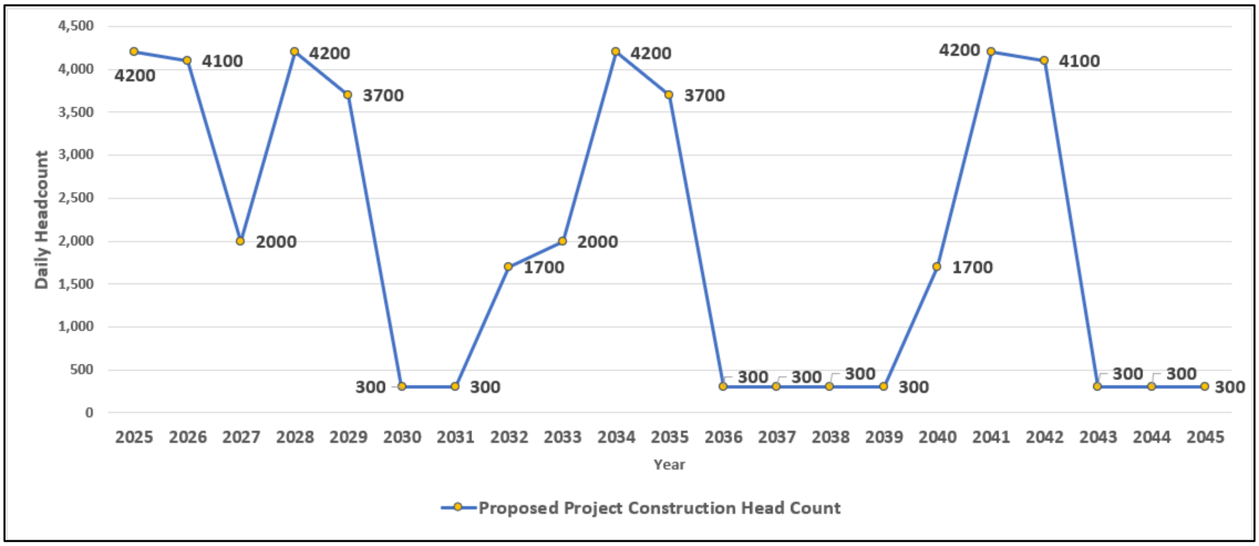
Q-3 Supplemental Information: Environmental Consequences

This section provides supplemental information related to the analysis of the environmental consequences of the Proposed Project, as discussed in Section 3.15.3.

Q-3.1 Proposed Project Construction Effects

Micron estimates that construction of the Proposed Project would require approximately 4,200 construction workers on-site daily at the peaks of the construction schedule. Figure Q-4~~Figure Q-4~~ depicts projected on-site construction worker demand over the approximately 20-year period from 2025 to full operational capacity in 2045.

Figure Q-4 On-Site Micron Campus Construction Jobs 2025-2045*



Source: Micron, Sept. 2024. Note: *Construction job estimates shown in this figure are representative of the on-site construction associated with the Micron Campus and Rail Spur Site. The Childcare Site would require an additional approximately 125 on-site construction workers daily during peak construction periods.

In addition to laborers who support general construction tasks, materials handling, and site preparation, the construction of Fabs involves numerous specialized trades, including:

- Electricians: Responsible for electrical installations, wiring, and ensuring power distribution within the facility.
- Mechanical Workers: Handle HVAC (heating, ventilation, and air conditioning) systems, plumbing, and mechanical equipment installation.
- Welders: Join metal components, fabricate structures, and create secure connections.
- Pipe Fitters: Install and maintain piping systems for water, gas, and other utilities.
- Concrete Workers: Construct foundations, floors, and structural elements using concrete.
- Carpenters: Build wooden structures, formwork, and interior finishes.

- Steelworkers: Erect steel structures, including beams and columns.

Micron, Onondaga County, OCIDA, and ESD have taken the following steps to realize local economic opportunities from construction activity:

- Micron has entered into a Project Labor Agreement with local trade unions, which establishes a framework for labor-management cooperation and stability throughout the construction. This agreement outlines the use of the Center for Military Recruitment, Assessment and Veterans Employment and its "Helmets to Hardhats" program.[52] It also requires contractors to donate one cent per hour for each craft hour worked on the project to the Pathways for Apprenticeship program, part of Syracuse Build, to promote representation of minorities and women in the project workforce.

- As part of Micron's commitment to increase supplier diversity, Micron would aim for 30 percent of the Proposed Project's eligible construction spend and 20 percent of its eligible ongoing annual operating spend to be awarded to companies owned by individuals from traditionally underrepresented communities, with priority given to New York State Certified Minority/Women Owned Business Enterprises and Service-Disabled Veteran Owned Businesses. Micron would encourage construction contractors and subcontractors to use Syracuse Build as a first-source model to identify candidates for hiring from disadvantaged populations.

- Micron has also committed to working with state and local partners and construction contractors and subcontractors to establish a target percentage of the construction workforce to be from disadvantaged populations. Micron would encourage contractors to conduct focused recruiting and pipeline development activities to strive, in good faith, to meet the target, and Micron would require contractors to report their results.

- Micron is among the first signatories to U.S. Department of Commerce CHIPS Women in Construction Framework, which establishes best practices to double the number of women in construction over the next decade.

The bulk of Micron on-site manufacturing jobs would fall into three categories, each with a mix of specific jobs and skillsets:

- Leadership (~10%): directors, managers, and supervisors. Typical qualifications for managers are a Bachelor of Arts or Bachelor of Science degree or equivalent training and experience and five years of leadership experience. Typical qualifications for supervisors are an Associate of Arts or Associate of Science degree or Production Operations Management Certificate or equivalent training and experience. For directors, a Bachelor of Arts or Science degree or equivalent training and experience and eight years of leadership experience is required.

[52] Center for Military Recruitment, Assessment and Veterans Employment, Helmets to Hardhats, https://helmetstohardhats.org/.

- Engineering & Professional (~44%): the bulk of needed roles are equipment engineers and process engineers. Engineering roles require a Bachelor of Science in Engineering or a relevant discipline; Micron provides specific on-the-job training for the role's function.
- Technicians (~36%): the bulk of needed roles are equipment technicians and process technicians. Technician roles require the same minimum qualifications; Micron provides specific on-the-job training for the role's function. The qualifications are an Associate of Arts or Science degree or completion of a Micron Apprenticeship Program, another approved certification, or a combination of certifications under development with Micron community college partners or equivalent training and experience.

The overall scale of the Proposed Project's construction (4,200 workers on-site during peak periods) and its specialized construction and equipment installation needs (e.g., cleanroom specialists) would place challenges on a labor market already experiencing shortages in skilled trade labor. Nationally, the construction industry has faced significant shortages of skilled labor for nearly two decades, having never fully recovered from the loss of over 1 million workers during the Great Recession. There has been difficulty attracting younger workforce members to the skilled trades, particularly given emphasis on a college educational experience over vocational and apprenticeship schools (Huang, 2024).

Specific to fab construction, as noted in a 2023 McKinsey & Company report, prior to the CHIPS Act, large-scale fab construction has not occurred in the United States in more than 20 years, so there are fewer builders who possess the experience, capabilities, and expertise to deliver these specialized projects (McKinsey & Company, 2023).

Micron anticipates that the Proposed Project's construction labor needs would be partially met by existing labor force participants residing within a reasonable commuting distance of the Micron Campus. Out of all occupations, construction workers tend to have the longest commute times, averaging approximately 33 minutes, compared to 27 minutes for all occupations.[53] Within the regional study area, approximately four percent of all workers commute over 60 minutes, with some commuting 90 minutes or longer. Therefore, the outer limits of a construction worker commuter shed may be expected to extend as far as 90 miles from the Micron Campus (see Figure Q-5 on the next page). In 2021, approximately 47,000 construction industry workers resided in this commuter shed.[54]

A vast majority of construction workers are expected to have more reasonable day-to-day commute times offered by home locations within this assessment's regional study area (shown in red outline in Figure Q-5). In 2021, the regional study area had approximately 13,300 residents working in the construction industry, and nearly 14,000 construction workers were active in the

[53] ACS 2014 data.

[54] USCB OnTheMap Home Area Profile Analysis data.

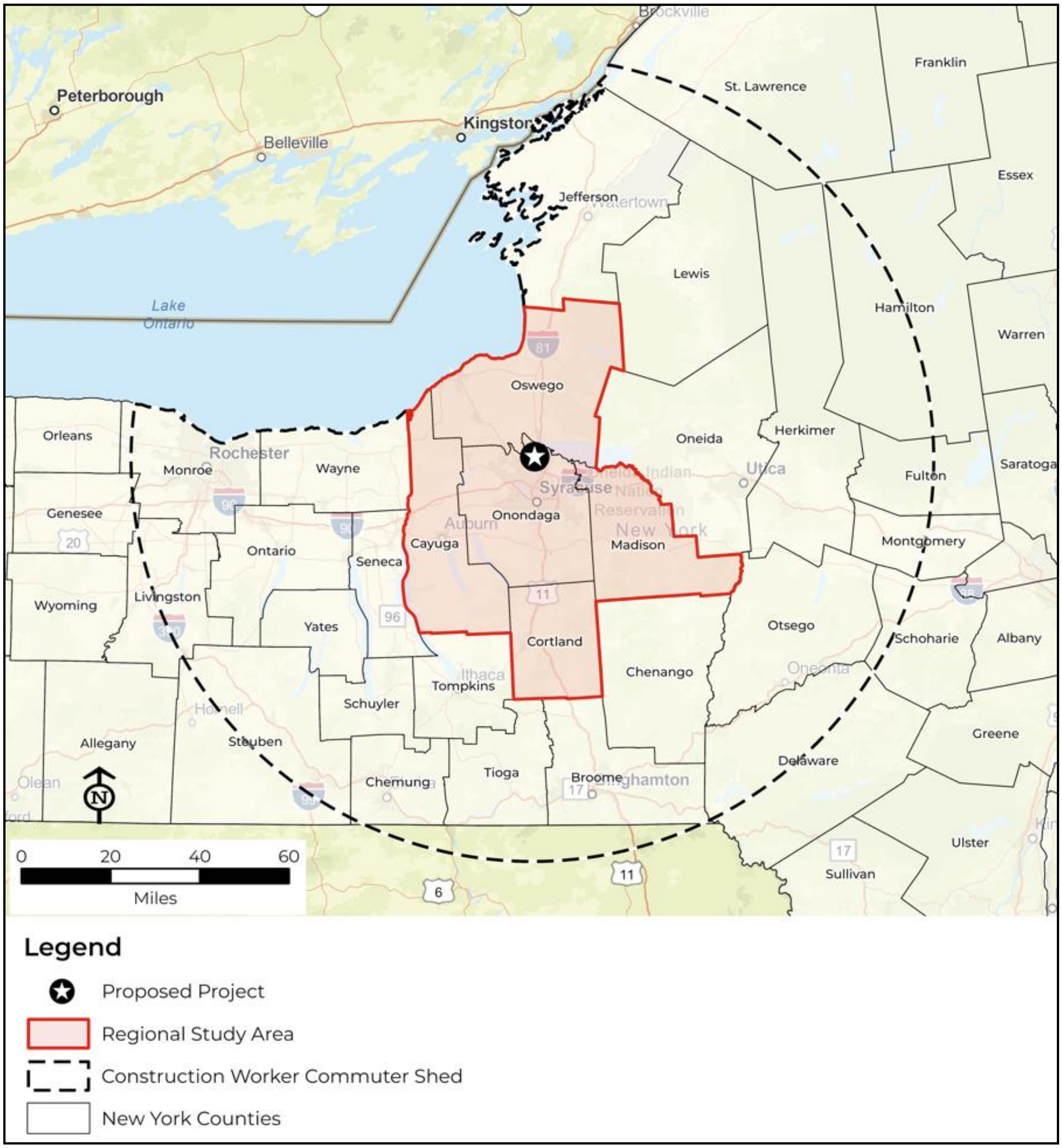
region. These numbers have fluctuated over time in line with national industry trends, but overall have grown by 13 and 20 percent, respectively, since 2002.[55]

Micron consulted the North America's Building Trades Union (NABTU)[56] to estimate the number of workforce participants from the commuter shed who may be available for construction of the Proposed Project. Based on projected availability of union labor when accounting for other projects, including the Syracuse I-81 project's construction, it is estimated that approximately 2,700 workforce participants from the commuter shed might be available for construction of the Proposed Project. Given the scale of the Proposed Project's construction combined with the need for specialized construction skill sets, the Proposed Project would require an additional approximately 1,500 construction industry workers who currently reside outside the commuter shed. Based on Census data on commuting distances and housing densities, it is estimated that approximately 1,400 of those 1,500 in-migrating construction workers would locate within the regional study area (including approximately 100 locating within the local study area), with the remaining approximately 100 in-migrating construction workers locating outside of the regional study area but within the commuter shed.

[55] USCB OnTheMap Home Area Profile Analysis and Work Area Profile Analysis data. In 2002, approximately 11,500 regional study area residents worked in the construction industry, and approximately 11,600 construction workers were active in the region.

[56] NABTU is a labor organization representing more than 3 million skilled craft professionals in the United States and Canada and is composed of 14 national and international unions and over 330 provincial, state, and local building and construction trade councils (*see* https://nabtu.org/).

Figure Q-5 Outer Limits of Construction Worker Commuter Shed



Source: World Street Map: Esri; HERE; Garmin; FAO; NOAA; USGS; USEPA; NPS.

Q-3.2 Proposed Project Operational Effects

Micron, Onondaga County, OCIDA, ESD, and other important actors have already taken the following steps to realize local economic opportunities from the Proposed Project's operations:

- Onondaga County has provided a $10 million grant to Syracuse University (matched by the University) to launch the Syracuse University Center for Advanced Semiconductor Manufacturing. The center is part of a more than $100 million investment in strategically transforming science, technology, engineering, and math and expanding the College of Engineering and Computer Science (ECS) at Syracuse University over the next five years. Housed in the University's Center for Science and Technology and situated within ECS, the new center would position the University and Central New York as a global leader in research and education on the intelligent manufacturing of semiconductors (Syracuse University News, 2024).

- Micron is partnering with Syracuse University's D'Aniello Institute for Veteran and Military Families, supporting veteran skill development for advanced manufacturing jobs and transitions into Micron and other industry roles. Micron aspires to hire more than 1,500 veterans in the region over two decades (Micron, 2022).

- Onondaga Community College has started construction on a $15 million clean room, expected to open in 2025, and launched a new degree program that could lead to technician jobs at Micron (Onondaga Community College, 2024).

- Micron is expanding strategic partnerships with other regional universities including Clarkson, Rensselaer Polytechnic Institute, and Cornell. The strong network of northeastern universities would enhance the company's existing partnership with Rochester Institute of Technology and further increase representation of students throughout the engineering and science pipeline. These programs expand equitable access to education, increase retention and prepare all students—especially students from underrepresented groups and rural areas—for productive and fulfilling engineering careers.

- Micron has established an internship program to prepare students for full-time positions as engineers, scientists, and other critical roles in the semiconductor industry.

- Micron, OCIDA, ESD, and the County have agreed to a community benefits investment fund of $500 million ("Green CHIPS Community Fund") for Central New York communities that shall be used to develop the local workforce, invest in education throughout Central New York, promote affordable housing, and provide additional benefits to Central New York communities. In April 2023, Governor Kathy Hochul and Micron announced the members of the Micron Community Engagement Committee, including representatives from Central New York and Micron that will support the company's community investment strategy (Micron, 2023).[57]

[57] As noted in the press release, the Committee is made up of local stakeholders to ensure meaningful, ground-up participation and discussion of Micron's implementation and impacts to the larger region and will also include five

The scale of the Proposed Project and the highly specialized nature of some jobs would necessitate hiring from outside of the regional labor pool, leading to in-migration of new workers and their families. The place-of-residence of these new worker households was estimated using regional commuting distances and housing densities, Micron in-migration rates from other projects, and data from SMTC. As shown in Table Q-59, by 2035 (Fabs 1-3 are expected to be operational by the end of 2035), approximately 700 new (in-migrating) Micron worker households are projected to locate in the Towns of Clay and Cicero. Approximately 2,600 new Micron households are projected within Onondaga County, including over 800 within the City of Syracuse. The regional study area would receive a projected 3,800 new households with in-migrating Micron workers, accounting for both construction and operational jobs and including those in the local study area. By 2041, when all four fabs would be operational, there would be 770 new households due to construction and permanent operational workers in the local study area, and more than 2,900 new Micron households in other communities in Onondaga County, including approximately 940 in Syracuse. By 2041, the regional study area would receive a projected 4,200 new households (accounting for both construction and operational jobs).

Table Q-59 Projected Micron Worker Household Growth in 2035 and 2041

Area	2035		2041	
	New Worker Households	% Change Since 2000	New Worker Households	% Change Since 2000
Regional Study Area	3,800	1.2%	4,200	1.3%
Onondaga County	2,604	1.3%	2,919	1.5%
Clay	428	1.7%	480	1.9%
Cicero	260	2.0%	291	2.3%

Source: AKRF projections based on data from the REMI Study and SMTC. Note: The increase in household units is calculated from baseline 2020 household unit data.

ex-officio members. The formation of this group is a critical component of the Community Investment Framework agreement made between New York State and Micron in October 2022.

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APPENDIX R
ENVIRONMENTAL JUSTICE

Appendix R-1
Supplemental Methodology and Summary of Public Outreach

R-1 Supplemental Methodology ~~and Summary of Public Outreach~~

R-1.1 Methodology and Guidance

The environmental justice analysis is based on the following state guidance, policies, and proposed regulations:

- ~~New York State Department of Environmental Conservation (~~NYSDEC, ~~),~~ "Environmental Justice Siting Law Interim Guidance" (December 2024)
- NYSDEC, Commissioner Policy (CP)-29, "Environmental Justice and Permitting" (March 2003)
- NYSDEC, Division of Environmental Permits, (DEP) 24-1, "Permitting and Disadvantaged Communities" (May 2024)
- NYSDEC's Proposed Amendments to 6 NYCRR Part 617 (Full EAF).

Several resources were utilized for the analysis presented in Section 3.16, including the New York State Disadvantaged Communities Criteria Map, which identifies census tracts throughout New York State that meet the disadvantaged community criteria as defined by the Climate Justice Working Group (CJWG), and NYSDEC's ~~Disadvantaged Communities Assessment Tool (~~DACAT. ~~).~~[58]

Minority and low-income communities were initially identified based on a review of NYSDEC's ArcGIS Webmap of Potential EJ Areas as designated in the 2020 updates. Data on race and ethnicity and poverty was then gathered for the block groups in the study area and for the reference counties and New York State as a whole, from the U.S. Census Bureau (American Community Survey [ACS] 2019-2023 5-Year Estimates).

The environmental justice analysis consisted of the following basic steps:

1) Identify study area where environmental justice concerns will be considered
2) Map environmental justice communities, which include DACs and minority and low-income communities, and collect data
3) Assess potential impacts to environmental justice communities based on other technical analyses, including whether there would be a disproportionate pollution burden
4) Summarize the benefits of the Preferred Action Alternative for environmental justice communities
5) Summarize outreach to environmental justice communities.

[58] The Climate Act charged the CJWG with the development of criteria to identify disadvantaged communities to ensure that overburdened communities benefit from the State's clean energy programs.

R-1.2 Disadvantaged Communities

See Table R-1 through Table R-4 for detailed information on the study area's disadvantaged communities, including their levels of burdens and vulnerabilities compared to the rest of the census tracts in the state (i.e., percentiles).

R-1.3 Minority and Low-Income Populations by Census Tract and Block Group

See Table R-5 for a breakdown of the race, ethnicity, and income characteristics for each block group in the study area and for the study area as a whole.

Table R-1 Disadvantaged Communities, Part 1

DAC Tract	County[1]	City_ Town	R, S, U[2]	Tribal Design-ation	HH Low Count Flag	Popu-lation	House-holds	Rank in State	Rank in Rest of State (Outside NYC)	Com-bined Score	Burden Percen-tile	Vulnera-bility Percentile	Burden Score	Vulnera-bility Score	Ben-zene	PM 2.5	Truck Traffic	Vehi-cular Traffic	Waste-water Dis-charge	Housing Vacancy Rate
36011040300	C	Port Byron village	R	No	No	4,116	1,655	58	76	85	78	47	38	46	8	13	80	24	67	78
36067011700	On	Baldwinsville village	S	No	No	3,639	1,640	56	74	83	85	38	41	42	17	12	71	26	79	34
36067014600	On	De Witt	S	No	No	4,763	1,652	65	81	88	88	46	42	46	30	4	79	48	63	69
36067014300	On	East Syracuse village	S	No	No	2,955	1,391	67	82	89	89	47	43	46	36	5	75	34	68	77
36067013701	On	Galeville	S	No	No	4,808	2,107	71	85	92	93	46	46	46	45	11	90	60	70	22
36067012000	On	Jordan village	R	No	No	5,741	2,298	62	78	86	89	40	43	43	8	11	87	18	75	71
36067012800	On	Lakeland	S	No	No	2,970	1,224	58	76	84	97	21	50	34	27	12	90	58	74	10
36067013600	On	Liverpool village	S	No	No	3,073	1,430	53	72	82	65	48	35	47	43	11	82	66	79	52
36067014400	On	Lyncourt	S	No	No	2,357	942	79	89	96	94	55	47	50	40	7	82	42	72	85
36067014000	On	Mattydale	S	No	No	3,429	1,313	55	73	83	74	45	37	46	44	11	93	72	64	84
36067016200	On	Nedrow	S	No	No	2,335	885	57	75	84	44	62	31	53	9	5	91	17	0	38
36067940000	On	Nedrow	R	Yes	Yes	156	127	0	0	0	15	0	25	0	3	4	91	23	0	0
36067012900	On	Solvay village	S	No	No	2,458	963	74	86	93	82	64	39	54	29	11	9	13	57	81
36067000100	On	Syracuse city	U	No	No	740	486	70	84	91	95	38	48	43	44	10	90	97	68	93

DAC Tract	County[1]	City_ Town	R, S, U[2]	Tribal Design-ation	HH Low Count Flag	Popu-lation	House-holds	Rank in State	Rank in Rest of State (Outside NYC)	Com-bined Score	Burden Percen-tile	Vulnera-bility Percentile	Burden Score	Vulnera-bility Score	Ben-zene	PM 2.5	Truck Traffic	Vehi-cular Traffic	Waste-water Dis-charge	Housing Vacancy Rate
36067000200	On	Syracuse city	U	No	No	3,481	1,353	83	92	100	39	90	30	70	45	11	39	52	59	89
36067000400	On	Syracuse city	U	No	No	4,139	1,586	66	81	88	36	74	30	59	44	11	11	36	50	50
36067000501	On	Syracuse city	U	No	No	2,408	888	93	97	109	56	97	33	76	47	10	83	90	67	92
36067000600	On	Syracuse city	U	No	No	3,133	1,338	88	95	104	28	97	28	76	46	11	11	35	62	89
36067000700	On	Syracuse city	U	No	No	1,621	605	78	89	96	19	90	26	70	46	10	5	25	58	86
36067000800	On	Syracuse city	U	No	No	3,009	1,000	77	88	95	19	89	26	69	46	10	7	33	52	85
36067001000	On	Syracuse city	U	No	No	4,133	2,024	69	83	90	52	73	32	58	43	8	14	32	62	79
36067001400	On	Syracuse city	U	No	No	3,099	852	83	92	100	18	95	26	74	47	10	7	28	64	95
36067001500	On	Syracuse city	U	No	No	2,777	844	77	88	95	12	91	24	71	47	9	8	23	61	92
36067001600	On	Syracuse city	U	No	No	3,449	1,896	79	89	96	34	86	29	67	47	9	62	85	54	74
36067001701	On	Syracuse city	U	No	No	2,189	919	63	79	87	37	71	30	57	44	8	44	85	34	90
36067001702	On	Syracuse city	U	No	No	2,615	1,081	70	84	91	53	73	33	58	43	7	67	75	51	76

DAC Tract	County[1]	City_ Town	R, S, U[2]	Tribal Designation	HH Low Count Flag	Population	Households	Rank in State	Rank in Rest of State (Outside NYC)	Combined Score	Burden Percentile	Vulnerability Percentile	Burden Score	Vulnerability Score	Benzene	PM 2.5	Truck Traffic	Vehicular Traffic	Wastewater Discharge	Housing Vacancy Rate
36067001800	On	Syracuse city	U	No	No	3,048	1,444	63	80	87	44	70	31	56	41	7	73	59	57	4
36067001900	On	Syracuse city	U	No	No	4,070	1,970	62	79	86	54	64	33	53	39	6	73	70	64	38
36067002000	On	Syracuse city	U	No	No	2,001	919	90	96	106	60	92	34	72	37	10	11	29	65	85
36067002101	On	Syracuse city	U	No	No	2,546	1,101	96	98	113	82	94	40	74	45	9	84	78	66	94
36067002300	On	Syracuse city	U	No	No	1,509	794	95	98	112	60	98	34	78	49	9	88	96	63	96
36067002400	On	Syracuse city	U	No	No	2,026	839	83	92	100	21	94	26	73	46	8	32	94	36	83
36067002700	On	Syracuse city	U	No	No	1,866	917	70	84	91	19	83	26	65	34	9	4	42	64	82
36067003000	On	Syracuse city	U	No	No	1,705	697	96	98	113	51	100	32	81	46	8	27	52	62	88
36067003200	On	Syracuse city	U	No	No	3,298	1,551	75	87	94	64	74	35	59	49	8	82	95	51	50
36067003400	On	Syracuse city	U	No	No	1,393	672	71	84	91	37	78	30	61	46	8	66	80	0	95
36067003500	On	Syracuse city	U	No	No	2,437	1,063	77	88	95	36	84	30	65	42	7	58	50	0	87
36067003601	On	Syracuse city	U	No	No	2,512	893	81	90	98	35	88	29	68	38	6	74	37	50	77

DAC Tract	County[1]	City_ Town	R, S, U[2]	Tribal Designation	HH Low Count Flag	Population	Households	Rank in State	Rank in Rest of State (Outside NYC)	Combined Score	Burden Percentile	Vulnerability Percentile	Burden Score	Vulnerability Score	Benzene	PM 2.5	Truck Traffic	Vehicular Traffic	Wastewater Discharge	Housing Vacancy Rate
36067003602	On	Syracuse city	U	No	No	2,244	890	55	74	83	49	58	32	51	36	6	78	36	60	78
36067003800	On	Syracuse city	U	No	No	2,301	801	89	95	105	54	93	33	72	26	8	28	33	38	88
36067003900	On	Syracuse city	U	No	No	3,037	1,055	85	93	101	10	99	23	78	31	7	12	21	44	97
36067004000	On	Syracuse city	U	No	No	1,387	464	93	97	109	31	100	29	80	41	8	19	36	61	96
36067004200	On	Syracuse city	U	No	No	2,245	840	93	97	108	67	93	36	73	44	7	79	90	0	68
36067004301	On	Syracuse city	U	No	No	1,502	470	86	94	102	27	95	28	74	43	7	88	97	0	93
36067005100	On	Syracuse city	U	No	No	2,257	845	76	87	94	15	90	25	70	46	7	4	42	0	94
36067005200	On	Syracuse city	U	No	No	2,070	711	77	88	95	21	88	26	68	30	7	11	26	0	92
36067005300	On	Syracuse city	U	No	No	1,930	515	88	95	104	33	96	29	75	29	7	86	83	0	93
36067005400	On	Syracuse city	U	No	No	2,376	831	86	94	103	30	95	28	74	46	6	76	82	0	95
36067005500	On	Syracuse city	U	No	No	3,563	1,820	81	91	98	40	87	30	68	34	6	87	67	0	81
36067005700	On	Syracuse city	U	No	No	1,801	738	53	72	82	3	79	20	62	27	6	10	31	0	85

DAC Tract	County[1]	City_ Town	R, S, U[2]	Tribal Design-ation	HH Low Count Flag	Popu-lation	House-holds	Rank in State	Rank in Rest of State (Outside NYC)	Com-bined Score	Burden Percen-tile	Vulnera-bility Percentile	Burden Score	Vulnera-bility Score	Ben-zene	PM 2.5	Truck Traffic	Vehi-cular Traffic	Waste-water Dis-charge	Housing Vacancy Rate
36067005800	On	Syracuse city	U	No	No	1,982	658	81	91	98	9	96	23	75	40	6	5	26	0	96
36067005900	On	Syracuse city	U	No	No	1,591	567	85	93	101	27	94	28	73	38	6	78	78	0	91
36067006000	On	Syracuse city	U	No	No	3,577	1,531	65	81	88	23	77	27	61	15	6	22	25	0	70
36067006101	On	Syracuse city	U	No	No	3,850	1,466	83	92	99	21	94	26	73	20	5	88	67	0	86
36067006102	On	Syracuse city	U	No	No	1,842	1,305	67	82	89	31	76	29	60	16	5	97	56	0	77
36075021101	Os	Fulton city	S	No	No	3,370	1,393	71	84	91	75	65	37	54	19	8	32	41	76	88
36075021102	Os	Fulton city	S	No	No	2,294	929	78	88	96	70	75	36	59	19	8	49	47	77	78
36075021104	Os	Fulton city	S	No	No	2,771	1,174	65	81	88	68	61	36	52	17	8	36	37	79	75
36075021200	Os	Fulton city	R	No	No	6,522	2,518	78	88	96	77	72	38	58	10	8	11	4	71	18
36075021601	Os	Oswego city	S	No	No	2,597	1,324	80	90	97	86	69	41	56	17	7	20	43	79	73
36075021602	Os	Oswego city	S	No	No	3,360	1,168	79	89	96	77	73	38	58	17	7	9	32	70	74
36075021603	Os	Oswego city	S	No	No	3,939	1,669	56	74	83	64	52	35	48	16	7	11	14	78	66

DAC Tract	County[1]	City_ Town	R, S, U[2]	Tribal Design-ation	HH Low Count Flag	Popu-lation	House-holds	Rank in State	Rank in Rest of State (Outside NYC)	Com-bined Score	Burden Percen-tile	Vulnera-bility Percentile	Burden Score	Vulnera-bility Score	Ben-zene	PM 2.5	Truck Traffic	Vehi-cular Traffic	Waste-water Dis-charge	Housing Vacancy Rate
36075021604	Os	Oswego city	S	No	No	3,955	1,809	79	89	96	77	73	38	58	17	7	27	41	79	84
36075021605	Os	Oswego city	S	No	No	3,619	1,524	83	92	100	95	60	48	52	17	7	25	45	73	78

Source: NYS Final Disadvantaged Communities Map (NYSERDA, 2023)
Notes: Scores/percentiles compared to rest of census tracts in state.
1 Counties: C=Cayuga; On=Onondaga; Os=Oswego
2 R-rural; S=suburban; U=urban

Table R-2 Disadvantaged Communities, Part 2

DAC Tract	County[1]	City_ Town	Indus-trial Land Use	Active Land-fills	Major Oil Storage Facil-ities	Muni-cipal Waste Com-busters	Power Gene-ration Facil-ities	RMP Sites	Reme-diation Sites	Scrap Metal Proces s-ing	Agri-cultu-ral Land Use	Coastal Flood and Storm Risk	Extreme Heat Pro-jections (Days Above 90 Degrees in 2050)	Drive Time to Urgent /Critical Care	Inland Flooding Risk	Low Vege-tative Land Cover
36011040300	C	Port Byron village	12	0	0	0	0	11	0	0	91	0	56	97	61	5
36067011700	On	Baldwinsville village	33	0	0	0	0	55	0	0	84	0	56	90	69	27
36067014600	On	De Witt	60	0	0	0	26	95	57	0	38	0	45	71	70	42
36067014300	On	East Syracuse village	92	0	0	0	52	100	57	0	17	0	48	71	67	51
36067013701	On	Galeville	89	0	0	0	0	78	92	0	44	0	56	65	81	44
36067012000	On	Jordan village	38	0	0	0	0	58	57	0	95	0	56	93	63	12
36067012800	On	Lakeland	88	0	0	0	27	91	96	75	45	0	56	87	81	43
36067013600	On	Liverpool village	0	0	0	0	0	72	79	0	0	0	56	72	21	37
36067014400	On	Lyncourt	95	0	41	0	17	99	94	75	41	0	52	55	50	47
36067014000	On	Mattydale	0	0	0	0	0	57	0	0	12	0	56	68	59	34
36067016200	On	Nedrow	86	0	0	0	0	49	0	0	77	0	56	75	8	27
36067940000	On	Nedrow	0	0	0	0	0	25	0	0	60	0	56	86	0	12

DAC Tract	County[1]	City_ Town	Indus-trial Land Use	Active Land-fills	Major Oil Storage Facil-ities	Muni-cipal Waste Com-busters	Power Gene-ration Facil-ities	RMP Sites	Reme-diation Sites	Scrap Metal Process-ing	Agri-cultu-ral Land Use	Coastal Flood and Storm Risk	Extreme Heat Pro-jections (Days Above 90 Degrees in 2050)	Drive Time to Urgent /Critical Care	Inland Flooding Risk	Low Vege-tative Land Cover
36067012900	On	Solvay village	98	0	0	0	55	99	96	0	35	0	56	73	41	54
36067000100	On	Syracuse city	73	0	0	0	0	68	100	0	32	0	56	58	75	59
36067000200	On	Syracuse city	62	0	0	0	0	69	0	0	0	0	56	52	0	58
36067000400	On	Syracuse city	0	0	0	0	0	80	0	0	54	0	56	62	0	48
36067000501	On	Syracuse city	28	0	0	0	0	71	0	0	0	0	56	24	0	76
36067000600	On	Syracuse city	63	0	0	0	0	75	0	0	0	0	56	43	0	64
36067000700	On	Syracuse city	0	0	0	0	0	81	0	0	0	0	56	47	0	64
36067000800	On	Syracuse city	0	0	0	0	0	83	0	0	0	0	56	54	0	55
36067001000	On	Syracuse city	80	0	0	0	10	98	79	0	6	0	56	64	0	53
36067001400	On	Syracuse city	0	0	0	0	0	78	0	0	0	0	56	26	0	73

DAC Tract	County[1]	City_ Town	Indus-trial Land Use	Active Land-fills	Major Oil Storage Facil-ities	Muni-cipal Waste Com-busters	Power Gene-ration Facil-ities	RMP Sites	Reme-diation Sites	Scrap Metal Proces s-ing	Agri-cultu-ral Land Use	Coastal Flood and Storm Risk	Extreme Heat Pro-jections (Days Above 90 Degrees in 2050)	Drive Time to Urgent /Critical Care	Inland Flooding Risk	Low Vege-tative Land Cover
36067001500	On	Syracuse city	0	0	0	0	0	83	0	0	0	0	56	25	0	60
36067001600	On	Syracuse city	33	0	0	0	0	81	0	0	0	0	56	10	0	67
36067001701	On	Syracuse city	52	0	0	0	0	89	0	0	0	0	56	43	0	52
36067001702	On	Syracuse city	0	0	0	0	0	92	0	0	32	0	56	53	0	48
36067001800	On	Syracuse city	78	0	0	0	0	96	0	0	0	0	56	62	0	54
36067001900	On	Syracuse city	28	0	0	0	56	99	0	0	0	0	56	65	0	50
36067002000	On	Syracuse city	84	0	0	0	0	97	87	75	0	0	56	62	0	58
36067002101	On	Syracuse city	60	0	0	0	0	82	79	0	0	0	56	40	38	67
36067002300	On	Syracuse city	38	0	0	0	0	76	57	0	0	0	56	3	0	78
36067002400	On	Syracuse city	0	0	0	0	0	82	0	0	0	0	56	14	0	61

DAC Tract	County[1]	City_ Town	Indus-trial Land Use	Active Land-fills	Major Oil Storage Facil-ities	Muni-cipal Waste Com-busters	Power Gene-ration Facil-ities	RMP Sites	Reme-diation Sites	Scrap Metal Proces s-ing	Agri-cultu-ral Land Use	Coastal Flood and Storm Risk	Extreme Heat Pro-jections (Days Above 90 Degrees in 2050)	Drive Time to Urgent /Critical Care	Inland Flooding Risk	Low Vege-tative Land Cover
36067002700	On	Syracuse city	0	0	0	0	0	90	0	0	0	0	56	56	0	49
36067003000	On	Syracuse city	82	0	0	0	0	56	100	0	0	0	56	30	9	66
36067003200	On	Syracuse city	60	0	0	0	0	45	57	0	9	0	56	11	10	92
36067003400	On	Syracuse city	73	0	0	0	0	87	79	0	0	0	56	3	0	68
36067003500	On	Syracuse city	90	0	0	0	0	90	98	0	0	0	56	28	0	57
36067003601	On	Syracuse city	47	0	0	0	0	92	0	0	7	0	53	44	0	54
36067003602	On	Syracuse city	0	0	0	0	49	95	57	0	0	0	56	59	0	47
36067003800	On	Syracuse city	0	0	0	0	0	71	0	0	58	0	56	44	58	47
36067003900	On	Syracuse city	0	0	0	0	0	53	0	0	0	0	56	37	13	52
36067004000	On	Syracuse city	73	0	0	0	0	60	57	0	0	0	56	23	11	60

DAC Tract	County[1]	City_ Town	Indus-trial Land Use	Active Land-fills	Major Oil Storage Facil-ities	Muni-cipal Waste Com-busters	Power Gene-ration Facil-ities	RMP Sites	Reme-diation Sites	Scrap Metal Process-ing	Agri-cultu-ral Land Use	Coastal Flood and Storm Risk	Extreme Heat Pro-jections (Days Above 90 Degrees in 2050)	Drive Time to Urgent /Critical Care	Inland Flooding Risk	Low Vege-tative Land Cover
36067004200	On	Syracuse city	88	0	0	0	0	50	87	0	8	0	56	13	55	65
36067004301	On	Syracuse city	0	0	0	0	0	45	0	0	13	0	56	3	0	74
36067005100	On	Syracuse city	0	0	0	0	0	48	0	0	12	0	56	45	30	46
36067005200	On	Syracuse city	28	0	0	0	0	55	0	0	0	0	56	39	66	50
36067005300	On	Syracuse city	76	0	0	0	0	48	0	0	0	0	56	19	25	55
36067005400	On	Syracuse city	0	0	0	0	0	53	0	0	0	0	56	47	0	62
36067005500	On	Syracuse city	82	0	0	0	0	63	0	0	23	0	52	58	0	41
36067005700	On	Syracuse city	0	0	0	0	0	47	0	0	9	0	56	49	6	31
36067005800	On	Syracuse city	0	0	0	0	0	52	0	0	0	0	56	49	26	46
36067005900	On	Syracuse city	0	0	0	0	0	57	0	0	0	0	56	52	0	55

DAC Tract	County[1]	City_ Town	Indus-trial Land Use	Active Land-fills	Major Oil Storage Facil-ities	Muni-cipal Waste Com-busters	Power Gene-ration Facil-ities	RMP Sites	Reme-diation Sites	Scrap Metal Process-ing	Agri-cultu-ral Land Use	Coastal Flood and Storm Risk	Extreme Heat Pro-jections (Days Above 90 Degrees in 2050)	Drive Time to Urgent /Critical Care	Inland Flooding Risk	Low Vege-tative Land Cover
36067006000	On	Syracuse city	21	0	0	0	0	53	0	75	56	0	56	66	9	22
36067006101	On	Syracuse city	0	0	0	0	0	64	0	0	0	0	56	58	0	43
36067006102	On	Syracuse city	12	0	0	0	0	78	0	0	27	0	56	69	0	32
36075021101	Os	Fulton city	68	0	0	0	0	98	87	0	48	0	46	20	72	43
36075021102	Os	Fulton city	86	0	0	0	0	99	87	0	40	0	46	5	60	46
36075021104	Os	Fulton city	89	0	0	0	0	100	0	0	48	0	46	38	66	37
36075021200	Os	Fulton city	49	0	0	17	0	81	57	91	86	0	49	83	68	4
36075021601	Os	Oswego city	0	0	71	0	53	89	0	0	37	95	52	33	27	57
36075021602	Os	Oswego city	47	0	70	0	53	94	0	0	55	79	61	26	0	41
36075021603	Os	Oswego city	12	0	0	0	2	78	0	0	63	50	53	54	44	29

DAC Tract	County[1]	City_ Town	Indus-trial Land Use	Active Land-fills	Major Oil Storage Facil-ities	Muni-cipal Waste Com-busters	Power Gene-ration Facil-ities	RMP Sites	Reme-diation Sites	Scrap Metal Process-ing	Agri-cultu-ral Land Use	Coastal Flood and Storm Risk	Extreme Heat Pro-jections (Days Above 90 Degrees in 2050)	Drive Time to Urgent /Critical Care	Inland Flooding Risk	Low Vege-tative Land Cover
36075021604	Os	Oswego city	12	0	0	0	16	81	0	0	69	63	9	61	58	31
36075021605	Os	Oswego city	92	0	30	0	52	94	57	75	60	92	2	85	36	41

Source: NYS Final Disadvantaged Communities Map (NYSERDA, 2023)
Notes: Scores/percentiles are compared to rest of census tracts in state.
[1] Counties: C=Cayuga; On=Onondaga; Os=Oswego

Table R-3 Disadvantaged Communities, Part 3

DAC Tract	County[1]	City_ Town	% Asian	% Black	Redlining	% Latino	Limited English Profi-ciency	% Native American/Indig e-nous	% Below 80% AMI	% Below Federal Poverty	% w/o College Degree	% Single Parent House -hold	Unem - ploy- ment Rate	Asthma ED Visits	COPD ED Visits
36011040300	C	Port Byron village	2	16	0	19	0	53	50	36	95	62	19	19	79
36067011700	On	Baldwinsville village	34	28	0	17	0	88	64	44	54	69	26	9	47
36067014600	On	De Witt	61	66	2	47	80	73	54	69	21	78	44	22	42
36067014300	On	East Syracuse village	4	33	33	11	0	17	63	66	87	62	8	22	42
36067013701	On	Galeville	36	51	34	8	53	19	65	38	75	35	33	30	50
36067012000	On	Jordan village	8	13	0	16	13	78	24	56	68	63	68	9	47
36067012800	On	Lakeland	1	35	0	12	32	40	43	27	74	53	68	19	46
36067013600	On	Liverpool village	29	62	0	30	18	94	57	46	52	74	87	30	50
36067014400	On	Lyncourt	66	55	33	7	37	49	28	38	90	49	94	22	42
36067014000	On	Mattydale	28	47	62	25	24	0	55	74	93	70	6	15	55

DAC Tract	County [1]	City_ Town	% Asian	% Black	Redlining	% Latino	Limited English Proficiency	% Native American/Indigenous	% Below 80% AMI	% Below Federal Poverty	% w/o College Degree	% Single Parent Household	Unem-ployment Rate	Asthma ED Visits	COPD ED Visits
36067016200	On	Nedrow	22	73	76	13	14	99	59	53	86	54	91	15	52
36067940000	On	Nedrow	0	0	0	0	0	0	0	0	0	0	0	0	0
36067012900	On	Solvay village	20	71	33	36	44	98	76	69	80	90	52	19	46
36067000100	On	Syracuse city	47	66	62	27	0	42	45	33	7	7	0	79	97
36067000200	On	Syracuse city	62	80	21	53	9	40	82	86	90	85	85	79	97
36067000400	On	Syracuse city	64	73	14	53	51	24	72	70	55	28	86	60	78
36067000501	On	Syracuse city	90	78	80	56	71	35	95	90	93	96	98	79	97
36067000600	On	Syracuse city	81	77	24	38	68	96	80	87	98	76	83	79	97
36067000700	On	Syracuse city	89	71	33	44	77	96	79	94	94	94	91	60	78
36067000800	On	Syracuse city	75	82	19	61	58	28	88	92	93	89	88	60	78
36067001000	On	Syracuse city	10	79	27	24	0	49	81	93	64	86	23	67	87
36067001400	On	Syracuse city	93	83	68	16	89	13	98	99	96	92	100	79	97

DAC Tract	County[1]	City_ Town	% Asian	% Black	Redlining	% Latino	Limited English Profi-ciency	% Native American/Indig e-nous	% Below 80% AMI	% Below Federal Poverty	% w/o College Degree	% Single Parent House -hold	Unem - ploy- ment Rate	Asthma ED Visits	COPD ED Visits
36067001500	On	Syracuse city	90	78	24	45	82	97	94	88	94	89	50	63	92
36067001600	On	Syracuse city	51	77	5	39	54	81	88	90	71	21	77	63	92
36067001701	On	Syracuse city	47	73	26	21	48	100	71	82	40	84	42	67	87
36067001702	On	Syracuse city	53	76	24	48	58	88	66	75	79	82	40	67	87
36067001800	On	Syracuse city	51	67	23	43	34	92	71	78	43	82	52	57	74
36067001900	On	Syracuse city	44	64	24	18	34	84	54	63	51	63	73	57	74
36067002000	On	Syracuse city	49	62	72	37	30	73	94	84	93	80	79	60	83
36067002101	On	Syracuse city	24	69	100	51	30	86	88	99	81	55	98	60	83
36067002300	On	Syracuse city	83	79	74	36	72	96	97	99	80	77	99	79	97
36067002400	On	Syracuse city	64	74	73	69	71	97	86	96	70	86	67	63	92
36067002700	On	Syracuse city	36	66	64	43	18	95	70	83	57	83	73	60	83
36067003000	On	Syracuse city	15	85	100	91	71	99	100	99	97	99	98	90	99

DAC Tract	County[1]	City_ Town	% Asian	% Black	Redlining	% Latino	Limited English Profi-ciency	% Native American/Indig-e-nous	% Below 80% AMI	% Below Federal Poverty	% w/o College Degree	% Single Parent House-hold	Unem-ploy-ment Rate	Asthma ED Visits	COPD ED Visits
36067003200	On	Syracuse city	76	75	78	27	38	92	86	92	14	3	81	79	97
36067003400	On	Syracuse city	75	83	70	40	46	49	91	99	18	90	53	40	60
36067003500	On	Syracuse city	67	82	26	52	29	92	81	98	38	60	95	40	60
36067003601	On	Syracuse city	23	92	16	64	67	89	90	93	66	98	97	57	74
36067003602	On	Syracuse city	54	87	14	33	55	50	67	78	38	51	56	46	15
36067003800	On	Syracuse city	6	85	28	81	61	82	91	95	97	100	84	65	87
36067003900	On	Syracuse city	23	90	29	65	65	48	94	99	97	98	82	90	99
36067004000	On	Syracuse city	19	86	74	79	76	93	91	99	99	94	99	90	99
36067004200	On	Syracuse city	24	94	76	65	59	0	100	100	100	100	100	73	94
36067004301	On	Syracuse city	82	79	75	46	42	87	100	100	86	87	99	73	94
36067005100	On	Syracuse city	0	94	21	71	40	14	84	89	93	99	71	74	88
36067005200	On	Syracuse city	1	95	29	38	8	87	67	91	96	96	97	90	99

DAC Tract	County[1]	City_ Town	% Asian	% Black	Redlining	% Latino	Limited English Profi-ciency	% Native American/Indig e-nous	% Below 80% AMI	% Below Federal Poverty	% w/o College Degree	% Single Parent House-hold	Unem-ploy-ment Rate	Asthma ED Visits	COPD ED Visits
36067005300	On	Syracuse city	6	98	68	47	48	94	96	99	98	99	100	73	94
36067005400	On	Syracuse city	0	95	62	34	22	84	89	93	96	96	97	74	88
36067005500	On	Syracuse city	68	86	27	28	46	94	83	93	37	92	84	73	94
36067005700	On	Syracuse city	0	88	18	42	24	98	73	85	64	92	89	65	87
36067005800	On	Syracuse city	4	92	32	66	32	95	89	97	96	99	100	74	88
36067005900	On	Syracuse city	37	91	62	52	50	92	89	88	97	88	97	67	92
36067006000	On	Syracuse city	39	82	22	2	0	91	72	63	89	83	91	65	87
36067006101	On	Syracuse city	6	88	62	38	4	96	93	96	84	97	97	67	92
36067006102	On	Syracuse city	84	73	0	17	47	81	84	90	43	12	5	67	92
36075021101	Os	Fulton city	0	1	0	15	0	60	80	86	88	83	41	39	95
36075021102	Os	Fulton city	14	17	0	52	0	44	82	95	97	64	94	39	95
36075021104	Os	Fulton city	16	0	0	14	0	52	57	74	74	58	91	39	95

DAC Tract	County[1]	City_ Town	% Asian	% Black	Redlining	% Latino	Limited English Proficiency	% Native American/Indige-nous	% Below 80% AMI	% Below Federal Poverty	% w/o College Degree	% Single Parent House-hold	Unem-ploy-ment Rate	Asthma ED Visits	COPD ED Visits
36075021200	Os	Fulton city	9	9	0	31	9	47	69	83	85	79	87	39	95
36075021601	Os	Oswego city	20	47	0	37	6	61	80	86	37	77	62	59	99
36075021602	Os	Oswego city	32	15	0	24	4	82	76	97	73	69	99	59	99
36075021603	Os	Oswego city	39	17	0	25	26	29	38	70	36	67	65	59	99
36075021604	Os	Oswego city	11	36	0	26	12	65	69	79	74	70	90	59	99
36075021605	Os	Oswego city	29	47	0	13	11	1	60	83	70	71	85	59	99

Source: NYS Final Disadvantaged Communities Map (NYSERDA, 2023)
Notes: Scores/percentiles compared to rest of census tracts in state.
[1] Counties: C=Cayuga; On=Onondaga; Os=Oswego

Table R-4 Disadvantaged Communities, Part 4

DAC Tract	County 1	City_ Town	Disabled House-holds	Low Birth Weight	MI (Heart Attack) Rates	Health Insurance Rate	% Age Over 65	Premature Deaths	% w/o Internet Access	Energy Afford-ability	Homes Built Before 1960	Mobile Homes	Housing Cost Burden	% Renter-Occupied Homes
36011040300	C	Port Byron village	77	29	89	85	60	67	78	94	28	96	7	22
36067011700	On	Baldwinsville village	78	40	55	49	92	35	51	58	31	0	23	58
36067014600	On	De Witt	25	64	58	32	44	57	28	26	40	0	42	46
36067014300	On	East Syracuse village	93	64	58	54	53	57	89	58	65	17	25	63
36067013701	On	Galeville	80	65	63	40	77	28	77	58	57	1	51	38
36067012000	On	Jordan village	89	40	55	34	77	35	69	83	33	87	16	22
36067012800	On	Lakeland	34	34	44	41	83	12	32	26	23	58	3	23
36067013600	On	Liverpool village	78	65	63	48	55	28	32	26	23	0	38	57
36067014400	On	Lyncourt	72	64	58	80	55	57	65	58	70	80	4	31
36067014000	On	Mattydale	80	30	26	61	37	30	75	58	66	14	19	49
36067016200	On	Nedrow	86	30	62	62	31	13	78	58	81	0	99	7

DAC Tract	County 1	City_ Town	Disabled House-holds	Low Birth Weight	MI (Heart Attack) Rates	Health Insurance Rate	% Age Over 65	Premature Deaths	% w/o Internet Access	Energy Afford-ability	Homes Built Before 1960	Mobile Homes	Housing Cost Burden	% Renter-Occupied Homes
36067940000	On	Nedrow	0	0	0	0	0	0	0	0	0	0	0	0
36067012900	On	Solvay village	86	34	44	52	27	12	80	58	77	0	14	71
36067000100	On	Syracuse city	47	91	76	2	82	97	68	6	28	0	7	89
36067000200	On	Syracuse city	94	91	76	85	19	97	94	83	94	0	47	67
36067000400	On	Syracuse city	60	70	42	63	68	89	72	58	90	14	57	33
36067000501	On	Syracuse city	73	92	88	80	7	99	100	98	82	0	24	93
36067000600	On	Syracuse city	99	92	88	69	50	99	98	94	60	55	46	85
36067000700	On	Syracuse city	49	70	42	90	6	89	98	83	81	0	44	76
36067000800	On	Syracuse city	78	70	42	75	20	89	71	83	87	0	75	67
36067001000	On	Syracuse city	88	42	64	41	54	81	66	58	55	0	73	77
36067001400	On	Syracuse city	72	92	88	37	16	99	95	98	83	0	62	80
36067001500	On	Syracuse city	86	83	67	69	9	61	97	94	88	0	39	74

DAC Tract	County 1	City_ Town	Disabled House-holds	Low Birth Weight	MI (Heart Attack) Rates	Health Insurance Rate	% Age Over 65	Premature Deaths	% w/o Internet Access	Energy Afford-ability	Homes Built Before 1960	Mobile Homes	Housing Cost Burden	% Renter-Occupied Homes
36067001600	On	Syracuse city	100	83	67	87	98	61	98	58	36	3	64	98
36067001701	On	Syracuse city	83	42	64	35	44	81	58	58	81	0	25	58
36067001702	On	Syracuse city	50	42	64	27	22	81	60	58	78	0	47	54
36067001800	On	Syracuse city	73	62	50	30	24	70	40	58	95	0	36	64
36067001900	On	Syracuse city	61	62	50	43	46	70	79	58	91	0	41	45
36067002000	On	Syracuse city	93	88	83	88	29	96	93	83	91	0	91	69
36067002101	On	Syracuse city	100	88	83	95	12	96	99	94	96	0	52	84
36067002300	On	Syracuse city	95	91	76	46	27	97	98	94	64	0	85	93
36067002400	On	Syracuse city	95	83	67	44	12	61	97	94	69	22	60	81
36067002700	On	Syracuse city	98	88	83	71	48	96	87	58	86	0	17	70
36067003000	On	Syracuse city	83	98	90	40	15	100	99	98--	49	0	69	93
36067003200	On	Syracuse city	52	91	76	63	1	97	72	26	24	0	15	98

DAC Tract	County 1	City_ Town	Disabled House-holds	Low Birth Weight	MI (Heart Attack) Rates	Health Insurance Rate	% Age Over 65	Premature Deaths	% w/o Internet Access	Energy Afford-ability	Homes Built Before 1960	Mobile Homes	Housing Cost Burden	% Renter-Occupied Homes
36067003400	On	Syracuse city	12	74	45	29	0	93	39	94	44	22	87	93
36067003500	On	Syracuse city	89	74	45	73	7	93	90	94	64	0	38	87
36067003601	On	Syracuse city	69	62	50	59	19	70	76	83	58	0	91	66
36067003602	On	Syracuse city	79	72	15	51	33	16	73	58	47	2	56	59
36067003800	On	Syracuse city	89	93	55	23	16	82	97	98	55	0	88	71
36067003900	On	Syracuse city	98	98	90	63	2	100	97	98	72	35	79	84
36067004000	On	Syracuse city	94	98	90	75	6	100	96	100	60	0	79	84
36067004200	On	Syracuse city	82	100	79	23	3	91	99	98	49	0	44	97
36067004301	On	Syracuse city	91	100	79	30	2	91	97	98	12	0	79	98
36067005100	On	Syracuse city	68	96	63	60	20	93	97	98	72	21	65	69
36067005200	On	Syracuse city	99	98	90	31	16	100	95	83	87	0	30	71
36067005300	On	Syracuse city	49	100	79	41	33	91	93	98	73	0	65	76

DAC Tract	County 1	City_ Town	Disabled House-holds	Low Birth Weight	MI (Heart Attack) Rates	Health Insurance Rate	% Age Over 65	Premature Deaths	% w/o Internet Access	Energy Afford-ability	Homes Built Before 1960	Mobile Homes	Housing Cost Burden	% Renter-Occupied Homes
36067005400	On	Syracuse city	95	96	63	79	25	93	99	99	92	0	84	69
36067005500	On	Syracuse city	84	100	79	47	4	91	89	83	29	0	71	90
36067005700	On	Syracuse city	45	93	55	60	38	82	87	58	78	0	54	41
36067005800	On	Syracuse city	74	96	63	52	16	93	97	98	98	30	76	60
36067005900	On	Syracuse city	92	81	94	70	30	15	96	98	60	20	82	59
36067006000	On	Syracuse city	88	93	55	51	39	82	89	58	77	31	39	51
36067006101	On	Syracuse city	99	81	94	46	96	15	98	94	50	30	93	71
36067006102	On	Syracuse city	99	81	94	49	99	15	95	58	12	0	54	95
36075021101	Os	Fulton city	92	64	93	45	43	77	74	94	75	0	36	53
36075021102	Os	Fulton city	85	64	93	67	37	77	48	94	50	0	62	63
36075021104	Os	Fulton city	94	64	93	38	37	77	75	83	60	54	20	58
36075021200	Os	Fulton city	84	64	93	31	46	77	61	94	20	96	90	26

DAC Tract	County 1	City_ Town	Disabled House-holds	Low Birth Weight	MI (Heart Attack) Rates	Health Insurance Rate	% Age Over 65	Premature Deaths	% w/o Internet Access	Energy Afford-ability	Homes Built Before 1960	Mobile Homes	Housing Cost Burden	% Renter-Occupied Homes
36075021601	Os	Oswego city	41	60	100	60	19	24	48	83	67	11	66	66
36075021602	Os	Oswego city	31	60	100	69	16	24	46	83	47	51	84	69
36075021603	Os	Oswego city	74	60	100	33	53	24	57	58	49	42	50	40
36075021604	Os	Oswego city	86	60	100	66	73	24	84	83	53	5	47	60
36075021605	Os	Oswego city	71	60	100	43	35	24	23	83	85	1	52	51

Source: NYS Final Disadvantaged Communities Map (NYSERDA, 2023)
Notes: Scores/percentiles compared to rest of census tracts in state.
[1] Counties: C=Cayuga; On=Onondaga; Os=Oswego

Table R-5 Minority and Low-Income Populations by Census Tract and Block Group

Census Tract	Block Group	Total Population	White		Black		Asian		Indigenous Nations		Other		Hispanic		Total Minority		Poverty Rate (%)	EJ Community
			#	%	#	%	#	%	#	%	#	%	#	%	#	%		Y/N
Cayuga County																		
402.01	1	810	736	92.0%	0	0.0%	0	0.0%	0	2.1%	24	1.9%	50	4.0%	74	8.0%	13.1%	N
402.01	2	685	631	92.7%	0	0.0%	0	0.0%	1	0.1%	36	4.6%	17	2.7%	54	7.3%	19.8%	N
402.01	3	1,138	994	88.5%	0	0.0%	11	0.9%	0	0.0%	131	10.3%	2	0.3%	144	11.5%	10.9%	N
402.02	1	966	869	95.4%	0	0.0%	0	0.0%	0	0.0%	39	4.6%	58	0.0%	97	4.6%	15.3%	N
402.02	2	1,082	1,065	96.8%	0	0.0%	0	1.2%	4	0.6%	3	0.7%	10	0.7%	17	3.2%	5.3%	N
Madison County																		
304.03	1	1,652	1,596	90.3%	2	0.2%	0	1.5%	0	0.0%	35	6.5%	19	1.6%	56	9.7%	1.3%	N
304.03	3	1,342	1,228	93.0%	0	0.0%	6	0.7%	0	0.0%	81	5.7%	27	0.6%	114	7.0%	4.9%	N
304.04	2	1,266	1,212	97.5%	0	0.0%	20	0.8%	0	0.0%	12	0.0%	22	1.7%	54	2.5%	14.4%	N
Onondaga County																		
City of Syracuse																		
1	1	1,082	850	82.5%	92	7.8%	48	3.0%	18	1.2%	17	0.5%	57	5.0%	232	17.5%	13.2%	N
2	1	2,323	1,241	48.0%	293	27.9%	265	9.4%	198	0.5%	298	7.3%	28	7.0%	1,082	52.0%	31.3%	Y
2	2	1,321	755	52.5%	475	40.5%	16	2.2%	0	0.0%	75	4.8%	0	0.0%	566	47.5%	43.9%	Y
3	1	592	361	67.1%	99	14.0%	73	8.1%	0	0.0%	23	1.2%	36	9.6%	231	32.9%	10.4%	N

Census Tract	Block Group	Total Population	White		Black		Asian		Indigenous Nations		Other		Hispanic		Total Minority		Poverty Rate (%)	EJ Community
			#	%	#	%	#	%	#	%	#	%	#	%	#	%		Y/N
3	2	1,007	349	36.2%	436	46.5%	154	7.7%	0	0.0%	38	4.3%	30	5.3%	658	63.8%	24.3%	Y
4	1	1,699	1,370	84.5%	124	7.4%	132	3.5%	0	0.0%	7	0.4%	66	4.1%	329	15.5%	7.3%	N
4	2	1,166	574	51.1%	209	15.4%	28	4.6%	0	0.0%	355	28.9%	0	0.0%	592	48.9%	12.9%	N
4	3	1,045	589	64.8%	128	12.1%	54	9.4%	0	0.0%	136	0.0%	138	13.7%	456	35.2%	10.4%	N
5.01	1	1,061	488	32.6%	215	33.1%	63	18.7%	0	0.0%	23	2.5%	272	13.1%	573	67.4%	47.0%	Y
5.01	2	1,001	313	28.5%	508	33.9%	76	27.9%	0	0.0%	72	6.5%	32	3.2%	688	71.5%	44.9%	Y
6	1	1,490	831	61.0%	198	12.5%	229	14.1%	0	0.0%	16	0.0%	216	12.4%	659	39.0%	11.3%	N
6	2	541	220	54.5%	163	22.9%	41	6.0%	0	0.0%	117	16.6%	0	0.0%	321	45.5%	40.5%	Y
6	3	781	206	24.4%	437	62.5%	76	5.7%	0	0.0%	62	7.4%	0	0.0%	575	75.6%	58.7%	Y
7	1	706	183	40.3%	115	23.2%	70	7.4%	0	0.0%	165	15.4%	173	13.6%	523	59.7%	36.6%	Y
7	2	967	164	23.3%	141	32.5%	376	38.5%	0	0.0%	34	5.6%	252	0.0%	803	76.7%	21.3%	Y
8	1	1,768	547	38.6%	364	16.2%	189	14.2%	0	0.0%	457	16.6%	211	14.3%	1,221	61.4%	30.0%	Y
8	2	1,642	687	31.0%	343	41.2%	311	9.8%	0	0.0%	273	17.0%	28	0.9%	955	69.0%	41.4%	Y
9	1	843	638	82.4%	44	5.6%	49	4.3%	0	0.0%	53	5.0%	59	2.7%	205	17.6%	26.1%	Y
9	2	1,398	1,170	78.4%	44	5.1%	0	0.0%	0	0.0%	132	12.9%	52	3.6%	228	21.6%	3.6%	N
9	3	1,203	1,040	89.3%	0	0.0%	45	1.8%	0	0.0%	14	3.3%	104	5.7%	163	10.7%	3.8%	N
10	1	1,106	493	53.1%	528	40.4%	17	0.6%	0	0.0%	24	2.2%	44	3.7%	613	46.9%	16.1%	N

Census Tract	Block Group	Total Population	White		Black		Asian		Indigenous Nations		Other		Hispanic		Total Minority		Poverty Rate (%)	EJ Community
			#	%	#	%	#	%	#	%	#	%	#	%	#	%		Y/N
10	2	996	722	61.6%	0	3.1%	0	0.0%	0	0.0%	0	5.1%	274	30.3%	274	38.4%	18.7%	N
10	3	1,080	416	57.5%	523	36.7%	80	3.4%	0	0.0%	40	2.4%	21	0.0%	664	42.5%	34.9%	Y
10	4	806	467	61.6%	77	20.7%	0	0.0%	0	0.0%	152	10.2%	110	7.5%	339	38.4%	21.0%	N
14	1	1,171	114	11.3%	634	46.8%	381	39.6%	0	0.0%	42	2.4%	0	0.0%	1,057	88.7%	49.0%	Y
14	2	1,842	630	29.7%	503	31.7%	626	35.2%	0	0.0%	19	1.3%	64	2.1%	1,212	70.3%	50.3%	Y
14	3	359	150	45.4%	103	16.6%	85	30.2%	0	0.0%	7	4.8%	14	3.1%	209	54.6%	10.2%	Y
15	1	1,380	715	59.9%	207	13.1%	117	11.1%	0	0.0%	83	7.2%	258	8.7%	665	40.1%	25.0%	Y
15	2	1,119	167	17.9%	443	27.3%	245	41.9%	0	0.9%	244	6.0%	20	5.9%	952	82.1%	41.2%	Y
16	1	1,765	1,259	62.1%	270	17.3%	130	8.5%	0	1.3%	38	2.0%	68	8.8%	506	37.9%	26.1%	Y
16	2	1,623	612	33.6%	449	30.8%	101	5.8%	23	2.6%	108	3.7%	330	23.5%	1,011	66.4%	28.2%	Y
17.01	1	1,320	770	72.1%	486	21.3%	29	1.4%	15	4.1%	0	0.0%	20	1.1%	550	27.9%	29.1%	Y
17.01	2	1,176	757	63.7%	179	24.6%	73	0.0%	0	0.0%	61	4.8%	106	6.8%	419	36.3%	15.1%	N
17.02	1	831	605	47.8%	71	36.9%	14	1.0%	0	0.0%	63	5.5%	78	8.9%	226	52.2%	8.1%	N
17.02	2	1,820	1,005	56.2%	116	6.0%	130	10.8%	0	5.0%	62	8.1%	507	13.9%	815	43.8%	26.1%	Y
18	1	888	652	68.1%	126	18.4%	0	0.0%	0	0.0%	61	7.7%	49	5.8%	236	31.9%	29.2%	Y
18	2	799	512	80.1%	0	0.0%	190	13.7%	0	0.0%	45	1.9%	52	4.3%	287	19.9%	8.0%	N
18	3	1,120	972	66.5%	71	13.0%	38	4.1%	0	3.6%	34	5.7%	5	7.2%	148	33.5%	12.0%	N

Census Tract	Block Group	Total Population	White		Black		Asian		Indigenous Nations		Other		Hispanic		Total Minority		Poverty Rate (%)	EJ Community
			#	%	#	%	#	%	#	%	#	%	#	%	#	%		Y/N
19	1	668	543	60.1%	0	21.8%	0	0.0%	0	0.0%	118	16.0%	7	2.1%	125	39.9%	3.7%	N
19	2	754	481	70.5%	192	19.7%	0	0.0%	0	0.0%	59	6.4%	22	3.4%	273	29.5%	11.1%	N
19	3	1,304	1,179	85.4%	0	2.4%	18	2.9%	0	0.0%	107	9.4%	0	0.0%	125	14.6%	23.0%	Y
19	4	1,195	825	85.9%	238	4.5%	8	0.0%	0	0.0%	124	9.5%	0	0.0%	370	14.1%	5.8%	N
19	5	581	406	78.5%	27	0.0%	0	0.0%	0	0.0%	131	19.5%	17	2.0%	175	21.5%	6.3%	N
20	1	973	581	58.0%	191	19.9%	0	0.0%	20	3.2%	81	9.2%	100	9.8%	392	42.0%	18.7%	N
20	2	1,093	726	79.7%	138	7.6%	0	0.0%	0	0.0%	193	9.7%	36	3.0%	367	20.3%	35.2%	Y
21.01	1	676	271	39.7%	293	45.7%	0	10.0%	60	0.0%	51	3.7%	1	0.7%	405	60.3%	45.3%	Y
21.01	2	1,234	794	48.7%	230	29.6%	0	0.0%	58	2.4%	64	6.3%	88	13.1%	440	51.3%	40.5%	Y
21.01	3	495	380	67.0%	57	20.5%	0	0.0%	0	0.0%	41	10.0%	17	2.5%	115	33.0%	48.7%	Y
23	1	913	185	20.2%	574	64.8%	120	11.7%	34	3.3%	0	0.0%	0	0.0%	728	79.8%	61.7%	Y
23	2	788	461	60.6%	221	26.0%	50	6.4%	6	1.4%	44	3.3%	6	2.4%	327	39.4%	35.9%	Y
24	1	1,126	417	26.4%	268	17.6%	51	2.9%	29	4.2%	31	20.2%	330	28.7%	709	73.6%	56.1%	Y
24	2	1,130	485	58.3%	183	22.6%	1	0.1%	0	0.0%	87	11.3%	374	7.6%	645	41.7%	15.1%	N
27	1	666	445	57.8%	161	35.1%	0	0.0%	0	0.0%	15	2.4%	45	4.7%	221	42.2%	43.7%	Y
27	2	1,131	795	73.8%	70	3.5%	0	0.0%	0	3.3%	65	6.0%	201	13.3%	336	26.2%	16.0%	N
29.01	1	1,905	1,770	87.7%	18	2.1%	7	1.0%	8	0.7%	25	1.4%	77	7.1%	135	12.3%	16.0%	N

Census Tract	Block Group	Total Population	White		Black		Asian		Indigenous Nations		Other		Hispanic		Total Minority		Poverty Rate (%)	EJ Community
			#	%	#	%	#	%	#	%	#	%	#	%	#	%		Y/N
29.01	2	918	808	93.9%	33	0.0%	4	0.8%	0	0.0%	41	1.7%	32	3.6%	110	6.1%	16.0%	N
30	1	891	180	22.7%	214	22.9%	9	0.9%	31	3.7%	0	0.0%	457	49.9%	711	77.3%	50.9%	Y
30	2	1,037	111	8.6%	618	69.0%	12	1.2%	0	0.0%	83	6.6%	213	14.7%	926	91.4%	28.4%	Y
32	1	1,753	1,280	69.4%	211	14.5%	92	5.2%	19	1.5%	6	0.7%	145	8.7%	473	30.6%	20.6%	N
32	2	1,300	477	44.9%	288	22.3%	270	18.0%	38	2.7%	21	0.5%	206	11.5%	823	55.1%	45.7%	Y
34	1	520	295	62.8%	114	17.3%	34	8.6%	0	0.0%	4	0.8%	73	10.5%	225	37.2%	55.9%	Y
34	2	1,255	438	32.9%	172	23.3%	271	15.8%	0	0.0%	38	1.9%	336	26.1%	817	67.1%	30.1%	Y
35	1	1,814	996	55.1%	399	27.9%	18	3.5%	25	1.7%	112	3.9%	264	7.8%	818	44.9%	33.9%	Y
35	2	365	95	21.1%	222	38.2%	15	6.3%	0	0.0%	5	1.3%	28	33.2%	270	78.9%	40.8%	Y
36.01	1	1,140	272	18.6%	546	44.0%	18	0.7%	0	0.4%	40	2.5%	264	33.8%	868	81.4%	25.8%	Y
36.01	2	841	279	23.7%	370	61.4%	0	0.0%	0	0.0%	117	8.8%	75	6.1%	562	76.3%	36.0%	Y
36.02	1	1,413	343	16.2%	660	45.9%	151	15.7%	7	0.3%	146	11.9%	106	9.9%	1,070	83.8%	30.6%	Y
36.02	2	1,189	410	31.2%	437	49.8%	67	5.0%	1	0.0%	107	4.8%	167	9.2%	779	68.8%	3.8%	Y
38	1	1,056	281	19.7%	228	38.6%	0	0.0%	0	0.0%	192	12.2%	355	29.5%	775	80.3%	56.8%	Y
38	2	1,001	214	28.8%	367	30.5%	1	0.1%	0	0.0%	155	14.3%	264	26.2%	787	71.2%	62.1%	Y
39	1	1,515	276	18.9%	674	40.4%	33	2.3%	18	1.5%	157	8.9%	357	28.1%	1,239	81.1%	77.9%	Y
39	2	1,023	146	18.8%	620	45.2%	0	0.0%	27	4.4%	113	10.4%	117	21.2%	877	81.2%	39.7%	Y

Census Tract	Block Group	Total Population	White		Black		Asian		Indigenous Nations		Other		Hispanic		Total Minority		Poverty Rate (%)	EJ Community
			#	%	#	%	#	%	#	%	#	%	#	%	#	%		Y/N
39	3	1,074	321	36.6%	284	22.0%	13	0.0%	2	0.2%	267	17.2%	187	23.9%	753	63.4%	35.2%	Y
40	1	1,275	338	22.2%	241	26.5%	0	0.0%	0	1.7%	54	5.5%	642	44.1%	937	77.8%	58.4%	Y
42	1	1,384	5	1.4%	1,021	75.7%	0	0.0%	0	0.0%	111	5.2%	247	17.7%	1,379	98.6%	88.5%	Y
42	2	1,214	188	15.0%	503	50.2%	10	1.1%	0	0.0%	134	4.3%	379	29.4%	1,026	85.0%	61.7%	Y
43.01	1	1,841	881	48.4%	576	26.3%	228	15.8%	0	0.0%	72	4.3%	84	5.2%	960	51.6%	60.5%	Y
43.02	1	724	351	43.3%	46	8.1%	191	29.3%	0	0.0%	8	1.2%	128	18.1%	373	56.7%	50.8%	Y
43.02	2	2,574	1,725	67.9%	190	6.0%	460	19.6%	32	0.0%	23	1.2%	144	5.2%	849	32.1%	100.0%	Y
43.02	3	663	465	71.1%	111	19.8%	75	9.1%	0	0.0%	0	0.0%	12	0.0%	198	28.9%	57.6%	Y
43.02	4	3,667	2,326	59.9%	208	6.8%	842	23.7%	0	0.0%	103	2.9%	188	6.7%	1,341	40.1%	0.0%	N
44.01	1	482	392	88.0%	29	2.1%	0	0.0%	0	0.0%	39	6.1%	22	3.8%	90	12.0%	45.4%	Y
44.01	2	738	632	79.3%	11	4.5%	39	5.5%	0	0.0%	24	4.8%	32	6.0%	106	20.7%	44.5%	Y
44.01	3	1,812	1,152	61.6%	279	15.7%	114	3.5%	0	0.0%	207	11.4%	60	7.9%	660	38.4%	22.1%	N
45	1	570	312	59.2%	112	24.8%	3	2.7%	68	0.0%	63	12.9%	12	0.3%	258	40.8%	10.9%	N
45	2	493	414	84.3%	32	7.2%	47	8.1%	0	0.0%	0	0.0%	0	0.4%	79	15.7%	42.2%	Y
45	3	933	669	79.7%	119	8.6%	92	8.6%	0	0.0%	53	3.1%	0	0.0%	264	20.3%	41.8%	Y
46	1	1,659	1,114	65.2%	271	14.6%	73	5.2%	0	0.0%	150	11.4%	51	3.6%	545	34.8%	13.7%	N
46	2	974	653	67.9%	261	25.3%	0	0.0%	25	1.9%	0	0.0%	35	4.9%	321	32.1%	8.3%	N

Census Tract	Block Group	Total Population	White		Black		Asian		Indigenous Nations		Other		Hispanic		Total Minority		Poverty Rate (%)	EJ Community
			#	%	#	%	#	%	#	%	#	%	#	%	#	%		Y/N
46	3	675	608	88.7%	67	11.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	67	11.3%	4.7%	N
46	4	996	798	71.7%	51	4.6%	13	1.2%	0	0.0%	91	14.8%	43	7.6%	198	28.3%	0.0%	N
46	5	472	207	51.1%	212	34.0%	5	2.6%	0	0.0%	29	9.1%	19	3.3%	265	48.9%	1.4%	N
48	2	680	616	91.2%	27	5.3%	0	0.0%	0	0.0%	29	1.4%	8	2.1%	64	8.8%	5.6%	N
50	1	1,357	633	42.5%	416	32.5%	19	3.9%	0	0.0%	127	8.5%	162	12.6%	724	57.5%	13.5%	Y
52	1	1,524	35	4.1%	1,221	80.4%	0	0.0%	0	0.0%	21	1.7%	247	13.8%	1,489	95.9%	24.8%	Y
52	2	400	40	2.3%	351	90.4%	0	0.0%	0	0.0%	0	5.4%	9	2.0%	360	97.7%	13.9%	Y
53	1	663	33	4.0%	503	74.8%	0	0.0%	0	0.0%	0	0.0%	127	21.2%	630	96.0%	0.0%	Y
53	2	1,361	232	15.7%	962	64.9%	8	0.4%	0	0.0%	144	15.3%	15	3.7%	1,129	84.3%	42.4%	Y
54	1	1,333	122	8.9%	965	70.8%	0	0.0%	45	4.4%	139	10.4%	62	5.5%	1,211	91.1%	64.1%	Y
54	2	1,113	128	12.3%	894	78.4%	0	0.0%	0	0.6%	39	0.1%	52	8.6%	985	87.7%	34.2%	Y
55	1	510	268	47.9%	91	24.6%	70	6.7%	0	0.0%	46	8.5%	35	12.3%	242	52.1%	28.9%	Y
55	2	1,256	565	35.9%	300	33.5%	42	2.5%	27	2.5%	134	12.7%	188	13.0%	691	64.1%	17.9%	Y
55	3	1,675	749	53.9%	638	28.7%	160	9.2%	0	0.0%	43	1.6%	85	6.5%	926	46.1%	16.9%	N
56.01	1	1,603	1,274	72.0%	11	4.2%	120	10.8%	0	0.0%	69	4.1%	129	9.0%	329	28.0%	11.5%	N
56.02	1	4,578	2,874	59.2%	406	9.0%	789	19.8%	26	0.2%	109	1.9%	374	10.0%	1,704	40.8%	57.1%	Y
58	1	539	214	14.1%	302	77.1%	0	0.0%	0	0.0%	15	7.3%	8	1.5%	325	85.9%	46.1%	Y

Census Tract	Block Group	Total Population	White		Black		Asian		Indigenous Nations		Other		Hispanic		Total Minority		Poverty Rate (%)	EJ Community
			#	%	#	%	#	%	#	%	#	%	#	%	#	%		Y/N
58	2	464	82	25.0%	203	42.2%	0	0.0%	0	0.0%	65	12.4%	114	20.4%	382	75.0%	37.9%	Y
58	3	1,137	258	19.5%	329	43.2%	0	0.0%	0	0.0%	508	32.3%	42	5.0%	879	80.5%	55.6%	Y
59	1	996	130	10.9%	760	73.5%	0	0.0%	0	0.0%	96	14.8%	10	0.8%	866	89.1%	29.1%	Y
59	2	747	121	18.9%	264	36.6%	0	0.0%	0	0.0%	325	37.1%	37	7.3%	626	81.1%	14.3%	Y
60	1	757	395	46.0%	74	5.9%	85	21.6%	0	0.0%	21	0.7%	182	25.8%	362	54.0%	27.1%	Y
61.01	1	2,104	961	48.0%	1,036	41.5%	0	0.0%	25	1.3%	62	4.2%	20	5.0%	1,143	52.0%	44.6%	Y
61.01	2	516	221	32.0%	278	61.0%	0	1.7%	0	0.9%	17	4.4%	0	0.0%	295	68.0%	28.3%	Y
61.01	3	1,758	517	15.1%	1,077	74.2%	0	0.0%	0	0.4%	24	1.4%	140	9.0%	1,241	84.9%	28.4%	Y
61.02	1	904	629	72.3%	164	17.1%	25	2.1%	0	0.0%	24	0.0%	62	8.4%	275	27.7%	25.5%	Y
61.02	2	1,182	442	44.7%	165	8.6%	388	33.7%	0	0.0%	78	7.3%	109	5.8%	740	55.3%	18.2%	Y
61.03	1	1,802	1,359	81.2%	72	4.4%	55	4.2%	0	0.0%	148	4.3%	168	6.0%	443	18.8%	1.7%	N
61.03	2	409	310	72.6%	92	23.4%	2	4.0%	0	0.0%	5	0.0%	0	0.0%	99	27.4%	35.6%	N
Town of Cicero																		
101	1	1,031	1,005	99.2%	0	0.0%	0	0.0%	0	0.0%	12	0.8%	14	0.0%	26	0.8%	5.4%	N
101	2	1,684	1,436	86.9%	29	1.5%	43	2.3%	0	0.0%	62	3.0%	114	6.3%	248	13.1%	4.9%	N
102	1	1,029	957	96.2%	0	0.0%	0	0.0%	0	0.0%	28	0.8%	44	3.0%	72	3.8%	1.2%	N
102	2	1,110	1,093	98.3%	0	0.0%	2	0.2%	0	0.0%	15	1.5%	0	0.0%	17	1.7%	0.0%	N

Census Tract	Block Group	Total Population	White		Black		Asian		Indigenous Nations		Other		Hispanic		Total Minority		Poverty Rate (%)	EJ Community
			#	%	#	%	#	%	#	%	#	%	#	%	#	%		Y/N
102	3	1,766	1,612	97.0%	146	1.8%	8	0.5%	0	0.0%	0	0.0%	0	0.8%	154	3.0%	1.8%	N
102	4	2,345	1,924	85.6%	0	0.0%	50	0.0%	0	0.0%	315	12.1%	56	2.3%	421	14.4%	41.8%	Y
103.01	1	515	471	90.8%	0	0.0%	0	0.0%	0	0.0%	44	9.2%	0	0.0%	44	9.2%	2.0%	N
103.01	2	580	533	93.2%	0	0.0%	5	0.0%	0	0.0%	42	6.8%	0	0.0%	47	6.8%	18.5%	N
103.01	3	1,381	1,239	88.3%	109	5.1%	11	4.1%	0	0.0%	22	1.3%	0	1.3%	142	11.7%	6.4%	N
103.01	4	842	814	95.5%	0	0.0%	0	0.0%	0	2.5%	0	0.0%	28	2.0%	28	4.5%	10.0%	N
103.01	5	1,931	1,882	95.0%	1	1.2%	48	0.9%	0	0.0%	0	0.0%	0	2.9%	49	5.0%	16.7%	N
103.21	1	979	940	95.9%	13	0.6%	0	0.0%	0	0.0%	0	0.0%	26	3.5%	39	4.1%	1.3%	N
103.21	2	2,162	1,903	91.0%	59	0.0%	89	3.9%	0	0.0%	111	5.1%	0	0.0%	259	9.0%	0.0%	N
103.22	1	1,529	1,392	92.7%	13	0.0%	95	6.7%	7	0.0%	7	0.6%	15	0.0%	137	7.3%	2.8%	N
103.22	2	1,187	1,057	87.0%	0	0.0%	61	4.0%	0	0.0%	69	8.3%	0	0.7%	130	13.0%	0.9%	N
103.22	3	649	546	91.7%	5	0.3%	64	8.1%	21	0.0%	13	0.0%	0	0.0%	103	8.3%	0.7%	N
104	1	1,729	1,689	98.2%	0	0.1%	16	0.5%	0	0.0%	23	1.1%	1	0.1%	40	1.8%	10.6%	N
104	2	2,256	2,030	92.3%	30	1.3%	95	3.2%	0	0.0%	47	1.5%	54	1.8%	226	7.7%	4.6%	N
105	1	1,240	1,143	93.8%	8	0.8%	20	1.4%	0	0.0%	37	2.4%	32	1.6%	97	6.2%	2.4%	N
105	2	1,054	1,009	95.7%	6	1.2%	5	0.7%	0	0.0%	34	1.6%	0	0.8%	45	4.3%	5.0%	N
106	1	891	839	97.9%	0	0.0%	3	0.4%	0	0.0%	17	1.6%	32	0.0%	52	2.1%	9.0%	N

Census Tract	Block Group	Total Population	White		Black		Asian		Indigenous Nations		Other		Hispanic		Total Minority		Poverty Rate (%)	EJ Community
			#	%	#	%	#	%	#	%	#	%	#	%	#	%		Y/N
106	2	1,295	1,248	96.8%	24	2.0%	0	0.0%	0	0.0%	23	1.2%	0	0.0%	47	3.2%	11.3%	N
107	1	793	705	87.7%	41	5.8%	7	0.0%	0	0.0%	31	5.1%	9	1.4%	88	12.3%	12.4%	N
107	2	1,240	1,030	92.7%	87	0.5%	9	0.8%	4	0.6%	97	4.2%	13	1.2%	210	7.3%	10.2%	N
Town of Clay																		
108	1	714	670	84.0%	28	2.1%	0	0.0%	0	0.0%	16	2.7%	0	11.1%	44	16.0%	25.2%	Y
108	2	1,303	1,177	89.6%	0	0.0%	2	0.0%	0	0.0%	121	10.4%	3	0.0%	126	10.4%	13.9%	N
108	3	1,941	1,511	97.8%	0	0.0%	8	0.8%	0	0.0%	97	1.4%	325	0.0%	430	2.2%	12.0%	N
108	4	736	580	83.4%	34	3.8%	42	3.8%	0	0.0%	49	5.1%	31	3.8%	156	16.6%	15.8%	N
109	1	1,091	993	91.9%	0	0.7%	0	0.0%	0	0.0%	98	7.4%	0	0.0%	98	8.1%	15.5%	N
109	2	1,363	1,288	98.0%	5	0.3%	11	1.4%	0	0.0%	0	0.0%	59	0.3%	75	2.0%	14.6%	N
110.11	1	792	758	96.1%	23	2.1%	0	0.0%	0	0.0%	7	1.2%	4	0.6%	34	3.9%	19.8%	N
110.11	2	476	404	87.7%	0	0.0%	30	6.0%	0	0.0%	0	0.0%	42	6.3%	72	12.3%	6.3%	N
110.11	3	1,107	958	86.6%	14	3.0%	0	0.0%	0	0.0%	11	1.3%	124	9.1%	149	13.4%	11.7%	N
110.11	4	1,215	842	73.0%	73	5.5%	60	3.5%	0	0.0%	132	12.5%	108	5.5%	373	27.0%	4.1%	N
110.12	1	973	906	78.4%	0	1.4%	67	10.8%	0	0.0%	0	2.7%	0	6.6%	67	21.6%	7.6%	N
110.12	2	1,475	1,368	92.3%	2	0.1%	0	0.0%	0	0.0%	6	0.6%	99	6.9%	107	7.7%	1.9%	N
110.12	3	1,453	956	67.3%	260	17.5%	55	4.4%	4	1.4%	74	2.8%	104	6.7%	497	32.7%	4.8%	N

Census Tract	Block Group	Total Population	White		Black		Asian		Indigenous Nations		Other		Hispanic		Total Minority		Poverty Rate (%)	EJ Community
			#	%	#	%	#	%	#	%	#	%	#	%	#	%		Y/N
110.21	1	767	727	79.4%	5	14.0%	14	1.1%	0	0.0%	21	2.9%	0	2.5%	40	20.6%	23.7%	Y
110.21	2	2,092	1,954	88.6%	50	2.8%	32	3.3%	0	0.0%	8	1.6%	48	3.6%	138	11.4%	14.4%	N
110.22	1	1,375	1,276	94.9%	22	0.6%	4	0.2%	0	0.0%	40	2.9%	33	1.4%	99	5.1%	11.2%	N
110.22	2	1,634	1,511	93.6%	19	0.5%	11	0.5%	0	0.0%	93	5.4%	0	0.0%	123	6.4%	5.8%	N
111.01	1	1,176	1,129	90.5%	0	0.0%	0	8.1%	17	1.4%	0	0.0%	30	0.0%	47	9.5%	2.3%	N
111.01	2	1,099	671	65.2%	0	0.0%	0	0.0%	0	0.0%	255	19.1%	173	15.7%	428	34.8%	12.9%	N
111.01	3	1,510	1,382	85.7%	0	6.2%	88	5.2%	0	0.0%	40	2.1%	0	0.9%	128	14.3%	8.6%	N
111.01	4	318	201	66.7%	77	9.2%	0	19.8%	0	0.0%	40	4.3%	0	0.0%	117	33.3%	0.0%	N
111.01	5	1,290	995	89.6%	140	8.7%	112	0.0%	0	0.0%	22	0.0%	21	1.6%	295	10.4%	10.9%	N
111.02	1	1,141	309	32.1%	226	15.7%	10	0.8%	0	0.0%	8	1.2%	588	50.3%	832	67.9%	53.8%	Y
111.02	2	1,578	928	52.5%	323	23.2%	56	3.3%	0	0.0%	20	1.0%	251	20.0%	650	47.5%	5.7%	N
111.02	3	835	480	46.8%	160	31.6%	113	16.4%	0	0.0%	63	4.5%	19	0.6%	355	53.2%	8.5%	Y
112.01	1	966	719	71.8%	43	5.8%	0	0.0%	0	0.0%	80	9.1%	124	13.3%	247	28.2%	23.5%	Y
112.01	2	979	922	94.8%	0	0.0%	0	0.0%	9	0.8%	17	1.4%	31	2.9%	57	5.2%	34.0%	Y
112.01	3	1,296	1,158	89.8%	0	0.0%	45	5.1%	0	0.0%	93	5.1%	0	0.0%	138	10.2%	0.8%	N
112.01	4	1,067	936	84.3%	22	4.1%	0	0.0%	0	0.0%	0	0.3%	109	11.3%	131	15.7%	8.2%	N
112.02	1	1,800	1,622	90.5%	0	0.0%	62	2.4%	9	0.0%	38	3.4%	69	3.6%	178	9.5%	3.3%	N

Census Tract	Block Group	Total Population	White		Black		Asian		Indigenous Nations		Other		Hispanic		Total Minority		Poverty Rate (%)	EJ Community
			#	%	#	%	#	%	#	%	#	%	#	%	#	%		Y/N
112.02	2	1,675	1,176	77.8%	135	3.5%	59	3.1%	3	0.0%	111	3.8%	191	11.8%	499	22.2%	0.5%	N
112.02	3	704	677	96.6%	0	0.0%	18	2.8%	0	0.0%	9	0.6%	0	0.0%	27	3.4%	14.1%	N
112.31	1	1,117	997	94.2%	10	2.5%	40	0.0%	0	0.0%	47	1.4%	23	1.9%	120	5.8%	3.4%	N
112.31	2	1,890	1,534	81.7%	75	3.7%	0	0.0%	0	0.0%	211	12.1%	70	2.5%	356	18.3%	6.7%	N
112.31	3	1,785	1,308	76.3%	84	7.0%	48	4.7%	0	0.0%	99	4.2%	246	7.8%	477	23.7%	14.5%	N
112.32	1	1,581	1,141	68.2%	65	3.9%	3	0.2%	0	0.0%	285	22.9%	87	4.9%	440	31.8%	9.2%	N
112.32	2	1,293	1,158	88.8%	11	0.9%	58	3.8%	0	0.0%	29	2.3%	37	4.2%	135	11.2%	2.5%	N
112.32	3	1,469	1,373	88.9%	15	1.6%	0	0.0%	0	0.0%	75	8.9%	6	0.6%	96	11.1%	0.5%	N
112.41	1	607	432	82.2%	131	10.0%	19	0.0%	0	0.0%	25	7.9%	0	0.0%	175	17.8%	0.7%	N
112.41	2	1,884	1,652	86.4%	60	3.2%	57	2.5%	0	0.2%	55	3.5%	60	4.0%	232	13.6%	1.8%	N
112.42	1	700	396	61.7%	0	0.0%	42	0.0%	0	0.0%	261	38.3%	1	0.0%	304	38.3%	0.5%	N
112.42	2	827	751	93.3%	0	0.0%	14	0.0%	0	0.0%	11	2.2%	51	4.5%	76	6.7%	4.4%	N
112.42	3	2,137	1,813	82.3%	88	6.8%	90	5.2%	0	0.0%	41	1.7%	105	4.0%	324	17.7%	0.6%	N
112.42	4	2,773	2,094	87.0%	53	2.4%	62	3.7%	0	0.0%	548	4.4%	16	2.5%	679	13.0%	2.6%	N
113	1	704	678	94.3%	0	0.0%	0	0.0%	0	0.0%	15	3.0%	11	2.8%	26	5.7%	0.0%	N
113	2	1,310	1,260	96.1%	0	0.0%	0	0.0%	0	0.0%	50	3.9%	0	0.0%	50	3.9%	2.1%	N
113	3	572	562	86.9%	0	0.0%	0	0.0%	0	0.0%	10	13.1%	0	0.0%	10	13.1%	6.7%	N

Census Tract	Block Group	Total Population	White		Black		Asian		Indigenous Nations		Other		Hispanic		Total Minority		Poverty Rate (%)	EJ Community
			#	%	#	%	#	%	#	%	#	%	#	%	#	%		Y/N
113	4	1,493	1,124	75.9%	81	6.0%	107	6.7%	0	0.0%	38	3.2%	143	8.2%	369	24.1%	3.2%	N
Town of Lysander																		
114.01	1	704	629	89.3%	0	0.0%	57	8.1%	0	0.0%	0	0.0%	18	2.6%	75	10.7%	0.0%	N
114.01	2	1,383	1,259	91.0%	64	4.6%	0	0.0%	1	0.1%	23	1.7%	36	2.6%	124	9.0%	20.8%	N
114.01	3	945	939	99.4%	3	0.3%	0	0.0%	0	0.0%	0	0.0%	3	0.3%	6	0.6%	7.5%	N
114.01	4	2,023	2,000	98.9%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	23	1.1%	23	1.1%	0.9%	N
114.01	5	2,030	2,004	98.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	26	1.3%	26	1.3%	1.0%	N
114.02	1	967	939	97.1%	0	0.0%	0	0.0%	0	0.0%	28	2.9%	0	0.0%	28	2.9%	19.6%	N
114.02	2	743	679	91.4%	0	0.0%	0	0.0%	0	0.0%	39	5.2%	25	3.4%	64	8.6%	8.5%	N
114.02	3	1,333	1,264	94.8%	0	0.0%	0	0.0%	0	0.0%	33	2.5%	36	2.7%	69	5.2%	0.0%	N
114.02	4	1,091	1,058	97.0%	1	0.1%	1	0.1%	1	0.1%	23	2.1%	7	0.6%	33	3.0%	2.8%	N
115	1	2,001	1,646	82.3%	23	1.1%	212	10.6%	0	0.0%	18	0.9%	102	5.1%	355	17.7%	0.0%	N
115	2	2,055	1,519	73.9%	172	8.4%	36	1.8%	0	0.0%	287	14.0%	41	2.0%	536	26.1%	13.7%	N
115	3	1,748	1,592	91.1%	8	0.5%	37	2.1%	0	0.0%	111	6.4%	0	0.0%	156	8.9%	1.9%	N
115	4	490	437	89.2%	0	0.0%	53	10.8%	0	0.0%	0	0.0%	0	0.0%	53	10.8%	6.3%	N
116	1	745	745	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	9.5%	N
116	2	1,972	1,745	88.5%	4	0.2%	0	0.0%	0	0.0%	192	9.7%	31	1.6%	227	11.5%	2.2%	N

Census Tract	Block Group	Total Population	White		Black		Asian		Indigenous Nations		Other		Hispanic		Total Minority		Poverty Rate (%)	EJ Community
			#	%	#	%	#	%	#	%	#	%	#	%	#	%		Y/N
116	3	2,245	1,903	84.8%	0	0.0%	61	2.7%	0	0.0%	163	7.3%	118	5.3%	342	15.2%	2.6%	N
116	4	547	547	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	13.9%	N
Town of Van Buren																		
117	1	2,934	2,668	85.9%	103	3.3%	17	0.1%	0	0.0%	38	0.8%	108	9.9%	266	14.1%	15.5%	N
117	2	1,433	1,349	93.8%	12	0.9%	0	0.0%	9	0.7%	44	3.0%	19	1.7%	84	6.2%	6.9%	N
118	1	1,115	1,067	94.4%	0	0.0%	0	0.0%	0	0.0%	48	5.6%	0	0.0%	48	5.6%	2.2%	N
118	2	1,255	1,026	89.9%	0	0.0%	30	1.9%	0	0.0%	62	1.2%	137	7.0%	229	10.1%	11.9%	N
118	3	1,401	1,364	99.1%	0	0.0%	0	0.0%	0	0.0%	9	0.9%	28	0.0%	37	0.9%	9.8%	N
118	4	862	459	70.1%	138	5.8%	5	0.5%	0	0.0%	67	5.0%	193	18.5%	403	29.9%	10.8%	N
118	5	1,366	1,277	90.2%	0	0.0%	0	0.0%	0	0.0%	89	9.8%	0	0.0%	89	9.8%	13.2%	N
119	1	1,234	1,207	98.4%	2	0.0%	0	0.0%	0	0.0%	25	1.6%	0	0.0%	27	1.6%	5.7%	N
119	2	972	896	90.2%	0	0.0%	0	0.0%	0	0.0%	21	1.4%	55	8.4%	76	9.8%	1.0%	N
119	3	1,080	1,080	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.0%	N
119	4	594	584	98.6%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	10	1.4%	10	1.4%	2.7%	N
Town of Elbridge																		
120	1	320	320	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.0%	N
120	2	1,688	1,551	95.8%	20	0.0%	8	0.3%	0	0.0%	70	2.8%	39	1.1%	137	4.2%	10.6%	N

Census Tract	Block Group	Total Population	White		Black		Asian		Indigenous Nations		Other		Hispanic		Total Minority		Poverty Rate (%)	EJ Community
			#	%	#	%	#	%	#	%	#	%	#	%	#	%		Y/N
Town of Camillus																		
121	1	1,582	1,397	89.7%	19	1.5%	0	0.0%	29	2.3%	96	4.2%	41	2.3%	185	10.3%	9.9%	N
121	2	1,033	940	96.5%	4	0.6%	0	0.0%	0	0.0%	37	0.7%	52	2.2%	93	3.5%	2.4%	N
121	3	1,739	1,534	90.4%	28	2.0%	87	4.7%	0	0.0%	55	1.2%	35	1.7%	205	9.6%	4.0%	N
124	4	1,062	880	98.2%	0	0.0%	0	0.0%	0	0.0%	176	1.3%	6	0.5%	182	1.8%	18.9%	N
125	1	825	612	75.3%	90	10.5%	0	0.0%	1	0.1%	29	3.1%	93	10.9%	213	24.7%	7.9%	N
126	1	627	598	98.1%	0	0.0%	6	0.0%	0	0.0%	0	0.0%	23	1.9%	29	1.9%	8.8%	N
127	1	688	633	87.9%	50	6.3%	0	0.0%	0	0.0%	0	0.0%	5	5.7%	55	12.1%	2.8%	N
127	2	1,392	1,206	89.1%	11	0.0%	0	0.3%	0	0.0%	39	0.0%	136	10.6%	186	10.9%	12.9%	N
Town of Geddes																		
128	1	1,019	824	87.0%	70	6.0%	0	0.0%	0	0.0%	10	0.0%	115	7.0%	195	13.0%	0.9%	N
128	2	615	533	89.1%	0	0.0%	70	9.9%	0	0.0%	12	1.0%	0	0.0%	82	10.9%	5.8%	N
128	3	1,047	866	89.5%	17	0.0%	0	0.0%	12	1.0%	135	7.9%	17	1.6%	181	10.5%	3.6%	N
129	1	1,151	802	76.0%	207	14.3%	0	0.0%	0	0.0%	70	6.5%	72	3.2%	349	24.0%	8.7%	N
129	2	1,051	858	82.0%	2	0.4%	0	0.0%	22	2.3%	4	3.1%	165	12.1%	193	18.0%	18.7%	N
130	1	883	825	97.4%	0	0.0%	0	0.0%	0	0.0%	10	1.3%	48	1.3%	58	2.6%	0.0%	N
130	2	1,087	929	77.1%	59	22.9%	0	0.0%	0	0.0%	6	0.0%	93	0.0%	158	22.9%	43.7%	Y

Census Tract	Block Group	Total Population	White		Black		Asian		Indigenous Nations		Other		Hispanic		Total Minority		Poverty Rate (%)	EJ Community
			#	%	#	%	#	%	#	%	#	%	#	%	#	%		Y/N
130	3	1,647	1,487	93.3%	0	0.0%	56	2.2%	0	0.0%	35	1.3%	69	3.2%	160	6.7%	5.8%	N
130	4	771	704	88.8%	0	1.7%	31	1.4%	3	0.3%	0	0.0%	33	7.8%	67	11.2%	8.4%	N
131	1	913	755	85.0%	21	0.3%	12	1.1%	0	0.0%	124	13.5%	1	0.0%	158	15.0%	2.3%	N
131	2	1,084	995	92.6%	0	0.0%	0	0.0%	0	0.0%	6	1.7%	83	5.7%	89	7.4%	3.8%	N
131	3	1,430	1,338	86.4%	0	2.7%	9	0.6%	0	0.0%	55	8.7%	28	1.7%	92	13.6%	1.3%	N
132	1	1,082	926	81.1%	104	3.7%	0	0.8%	15	1.2%	0	2.6%	37	10.6%	156	18.9%	10.1%	N
132	2	2,137	1,792	82.6%	199	11.9%	13	0.7%	6	0.5%	70	3.4%	57	1.0%	345	17.4%	3.7%	N
Town of Salina																		
133	1	724	557	89.6%	4	0.8%	122	2.4%	0	0.0%	30	3.2%	11	3.9%	167	10.4%	20.3%	N
133	2	946	724	78.4%	71	6.8%	124	10.7%	0	0.0%	19	2.8%	8	1.2%	222	21.6%	23.2%	Y
133	3	934	824	92.1%	0	0.0%	0	0.0%	0	0.0%	21	0.5%	89	7.4%	110	7.9%	3.7%	N
134	1	557	501	91.2%	12	2.4%	0	0.0%	0	0.0%	44	6.5%	0	0.0%	56	8.8%	14.7%	N
134	2	2,308	2,040	94.1%	210	3.5%	11	0.5%	0	0.0%	47	1.9%	0	0.0%	268	5.9%	4.1%	N
134	3	974	966	99.1%	0	0.0%	8	0.9%	0	0.0%	0	0.0%	0	0.0%	8	0.9%	0.0%	N
134	4	1,407	1,116	85.1%	71	2.7%	1	0.1%	0	0.0%	106	5.6%	113	6.5%	291	14.9%	14.0%	N
135	1	1,100	814	83.3%	68	7.0%	39	0.0%	0	0.0%	91	9.7%	88	0.0%	286	16.7%	7.4%	N
135	2	2,409	1,907	80.0%	10	0.0%	243	10.8%	0	0.0%	13	0.0%	236	9.2%	502	20.0%	2.2%	N

Census Tract	Block Group	Total Population	White		Black		Asian		Indigenous Nations		Other		Hispanic		Total Minority		Poverty Rate (%)	EJ Community
			#	%	#	%	#	%	#	%	#	%	#	%	#	%		Y/N
135	3	1,232	1,015	85.7%	18	0.9%	138	9.2%	0	0.0%	32	1.8%	29	2.4%	217	14.3%	8.0%	N
135	4	441	419	89.0%	0	2.9%	0	0.0%	0	0.0%	0	2.5%	22	5.6%	22	11.0%	2.9%	N
136	1	776	744	83.4%	0	0.0%	28	1.8%	0	0.0%	4	14.8%	0	0.0%	32	16.6%	3.6%	N
136	2	1,104	897	83.3%	46	4.6%	57	4.8%	0	0.0%	38	2.4%	66	4.8%	207	16.7%	21.8%	N
136	3	1,300	1,157	87.4%	54	4.7%	0	0.0%	0	0.0%	16	1.6%	73	6.3%	143	12.6%	28.5%	Y
137.01	1	778	656	85.9%	56	7.9%	15	0.0%	0	0.0%	51	6.2%	0	0.0%	122	14.1%	7.9%	N
137.01	2	1,980	1,818	81.6%	14	2.2%	25	7.1%	0	0.0%	23	7.6%	100	1.5%	162	18.4%	3.7%	N
137.01	3	514	507	98.3%	0	0.0%	0	0.0%	0	0.0%	7	1.7%	0	0.0%	7	1.7%	18.1%	N
137.01	4	928	875	97.6%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	53	2.4%	53	2.4%	0.0%	N
138	1	1,099	955	88.6%	5	0.5%	7	0.6%	0	0.0%	44	2.6%	88	7.7%	144	11.4%	13.1%	N
138	2	946	848	91.5%	6	0.2%	0	0.0%	0	0.0%	86	7.7%	6	0.5%	98	8.5%	9.5%	N
139	1	1,822	1,447	77.1%	0	0.5%	147	7.2%	19	0.8%	182	12.0%	27	2.5%	375	22.9%	8.9%	N
139	2	887	814	86.8%	0	0.0%	43	6.7%	11	0.0%	19	2.3%	0	4.2%	73	13.2%	15.1%	N
140	1	1,326	1,289	93.2%	0	0.0%	0	0.0%	0	0.0%	20	1.2%	17	5.6%	37	6.8%	7.0%	N
140	2	1,444	1,003	75.2%	134	0.0%	47	3.7%	0	0.0%	125	10.4%	135	10.7%	441	24.8%	6.7%	N
140	3	553	234	42.4%	44	11.7%	97	22.0%	0	0.0%	77	6.5%	101	17.3%	319	57.6%	14.3%	Y
142	1	1,034	869	87.2%	20	0.0%	14	1.5%	35	3.8%	96	7.5%	0	0.0%	165	12.8%	9.5%	N

Census Tract	Block Group	Total Population	White		Black		Asian		Indigenous Nations		Other		Hispanic		Total Minority		Poverty Rate (%)	EJ Community
			#	%	#	%	#	%	#	%	#	%	#	%	#	%		Y/N
142	2	1,655	1,096	71.9%	100	9.0%	203	2.4%	16	1.9%	210	12.4%	30	2.4%	559	28.1%	5.6%	N
142	3	1,767	1,001	66.3%	504	14.4%	146	8.1%	0	0.0%	71	5.6%	45	5.5%	766	33.7%	31.3%	Y
Town of De Witt																		
143	1	1,241	951	84.1%	58	4.6%	14	0.9%	0	0.0%	85	3.6%	133	6.8%	290	15.9%	12.8%	N
143	2	711	608	90.2%	0	0.0%	18	4.1%	0	0.0%	21	3.3%	64	2.4%	103	9.8%	8.7%	N
143	3	1,087	1,039	94.9%	0	0.0%	4	0.4%	0	0.0%	31	3.2%	13	1.5%	48	5.1%	8.3%	N
144	1	924	920	96.2%	4	0.3%	0	0.0%	0	0.0%	0	3.6%	0	0.0%	4	3.8%	9.3%	N
144	2	469	283	72.4%	128	21.8%	18	4.2%	0	0.0%	27	1.6%	13	0.0%	186	27.6%	26.5%	Y
144	3	795	655	82.2%	0	0.0%	13	1.7%	0	0.0%	127	16.1%	0	0.0%	140	17.8%	7.7%	N
145	1	703	575	87.7%	58	11.1%	0	0.0%	0	0.0%	34	1.3%	36	0.0%	128	12.3%	2.6%	N
145	2	2,444	2,024	85.1%	74	5.6%	151	2.0%	19	1.0%	115	2.9%	61	3.4%	420	14.9%	13.2%	N
145	3	874	796	92.0%	0	0.0%	0	0.0%	0	0.0%	62	5.5%	16	2.4%	78	8.0%	8.7%	N
146	1	2,506	989	38.4%	591	22.5%	134	6.4%	55	0.0%	268	13.4%	469	19.3%	1,517	61.6%	15.0%	Y
146	2	1,191	913	75.0%	72	9.8%	124	9.4%	8	0.5%	19	1.2%	55	4.2%	278	25.0%	6.8%	N
146	3	532	521	95.6%	10	2.0%	1	0.2%	0	0.0%	0	2.2%	0	0.0%	11	4.4%	5.3%	N
146	4	556	478	63.5%	0	26.4%	30	2.0%	0	0.0%	24	5.3%	24	2.8%	78	36.5%	1.3%	N
147	1	837	787	99.4%	0	0.0%	5	0.6%	0	0.0%	45	0.0%	0	0.0%	50	0.6%	0.6%	N

Census Tract	Block Group	Total Population	White		Black		Asian		Indigenous Nations		Other		Hispanic		Total Minority		Poverty Rate (%)	EJ Community
			#	%	#	%	#	%	#	%	#	%	#	%	#	%		Y/N
147	2	1,338	987	70.0%	217	16.4%	52	3.9%	0	0.0%	82	9.8%	0	0.0%	351	30.0%	1.1%	N
147	3	1,111	687	82.0%	301	0.0%	64	8.0%	19	2.6%	15	2.2%	25	5.2%	424	18.0%	20.1%	N
147	4	1,326	749	67.0%	21	1.8%	348	19.1%	0	0.0%	208	12.1%	0	0.1%	577	33.0%	0.9%	N
147	5	1,424	1,097	80.7%	69	4.4%	138	7.6%	0	0.0%	120	7.3%	0	0.0%	327	19.3%	11.5%	N
148	1	566	516	90.5%	0	0.0%	0	0.0%	0	0.0%	11	0.0%	39	9.5%	50	9.5%	0.0%	N
148	3	1,372	1,165	82.9%	18	2.0%	99	7.9%	0	0.0%	56	4.7%	34	2.5%	207	17.1%	3.9%	N
148	2	1,732	1,365	82.8%	167	9.6%	127	6.2%	0	0.0%	64	0.8%	9	0.6%	367	17.2%	11.6%	N
149	1	2,034	1,583	78.8%	176	10.0%	36	0.4%	9	1.0%	137	5.7%	93	4.0%	451	21.2%	7.1%	N
Town of Manlius																		
150	3	1,653	1,456	84.0%	3	1.3%	49	4.5%	0	0.0%	107	9.1%	38	0.9%	197	16.0%	1.1%	N
154	1	1,685	1,303	73.6%	12	0.0%	44	3.6%	0	0.0%	135	4.0%	191	18.8%	382	26.4%	6.0%	Y
154	2	1,735	1,699	97.6%	0	0.0%	14	1.1%	0	0.0%	22	1.3%	0	0.0%	36	2.4%	5.5%	N
154	3	1,149	1,099	89.3%	0	0.0%	0	7.0%	22	1.6%	23	1.7%	5	0.3%	50	10.7%	6.0%	N
154	4	1,235	1,235	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3.3%	N
155	1	1,581	1,402	85.9%	36	2.4%	95	8.0%	0	0.0%	34	2.7%	14	1.0%	179	14.1%	3.4%	N
155	2	1,218	1,080	94.0%	26	1.5%	13	0.9%	0	0.0%	99	3.5%	0	0.0%	138	6.0%	2.7%	N
156.01	1	1,030	928	92.1%	29	1.5%	0	0.0%	0	0.0%	56	4.4%	17	2.0%	102	7.9%	3.7%	N

Census Tract	Block Group	Total Population	White		Black		Asian		Indigenous Nations		Other		Hispanic		Total Minority		Poverty Rate (%)	EJ Community
			#	%	#	%	#	%	#	%	#	%	#	%	#	%		Y/N
156.01	2	1,098	1,054	99.3%	14	0.4%	6	0.0%	0	0.0%	24	0.3%	0	0.0%	44	0.7%	1.1%	N
Town of Onondaga																		
161	1	2,595	1,599	65.1%	225	7.5%	632	22.9%	2	0.2%	121	4.2%	16	0.2%	996	34.9%	2.7%	Y
Oswego County																		
204	1	1,651	1,569	97.3%	4	0.0%	10	0.7%	0	0.0%	47	2.0%	21	0.0%	82	2.7%	14.3%	N
204	2	1,223	1,199	96.7%	0	0.0%	0	0.9%	0	0.0%	24	2.4%	0	0.0%	24	3.3%	1.3%	N
204	3	2,095	2,068	97.6%	9	0.5%	0	0.0%	0	0.0%	15	1.8%	3	0.1%	27	2.4%	18.7%	N
204	4	311	287	90.8%	15	2.5%	0	4.0%	0	0.0%	9	2.7%	0	0.0%	24	9.2%	6.9%	N
205.01	2	955	896	91.3%	0	0.0%	1	1.0%	0	0.0%	45	6.7%	13	1.1%	59	8.7%	11.0%	N
205.02	2	1,723	1,558	91.4%	4	1.0%	9	0.2%	2	0.1%	106	4.8%	44	2.5%	165	8.6%	7.8%	N
206	2	4,008	3,682	89.8%	0	0.0%	0	0.0%	1	0.0%	90	2.6%	235	7.5%	326	10.2%	9.7%	N
207.03	1	1,116	1,045	94.6%	0	0.0%	0	0.0%	0	0.0%	71	5.4%	0	0.0%	71	5.4%	14.8%	N
207.03	2	1,189	1,142	95.4%	0	0.0%	0	0.0%	4	0.4%	7	0.6%	36	3.6%	47	4.6%	4.7%	N
207.03	3	1,460	1,397	97.0%	0	0.0%	16	1.2%	0	0.0%	32	0.6%	15	1.3%	63	3.0%	4.9%	N
207.03	4	1,273	1,218	91.8%	0	0.0%	18	1.1%	3	0.3%	34	3.3%	0	3.5%	55	8.2%	29.8%	Y
207.04	1	731	666	94.9%	0	0.0%	0	0.0%	0	0.0%	65	5.1%	0	0.0%	65	5.1%	6.0%	N
207.04	2	1,402	1,371	96.1%	0	0.0%	0	1.4%	0	0.0%	16	1.1%	15	1.3%	31	3.9%	5.5%	N

Census Tract	Block Group	Total Population	White		Black		Asian		Indigenous Nations		Other		Hispanic		Total Minority		Poverty Rate (%)	EJ Community
			#	%	#	%	#	%	#	%	#	%	#	%	#	%		Y/N
207.05	1	750	721	97.4%	0	0.0%	0	0.0%	0	0.0%	26	2.6%	3	0.0%	29	2.6%	31.3%	Y
207.05	2	1,198	1,123	95.3%	0	0.0%	0	0.1%	0	0.0%	75	4.6%	0	0.0%	75	4.7%	20.9%	N
207.06	1	1,537	1,500	97.0%	2	0.7%	2	0.2%	1	0.1%	26	1.9%	6	0.1%	37	3.0%	17.2%	N
207.06	2	870	868	99.8%	0	0.0%	0	0.0%	0	0.0%	2	0.2%	0	0.0%	2	0.2%	17.0%	N
207.07	1	1,893	1,799	96.3%	8	0.0%	0	0.0%	0	0.0%	31	1.5%	55	2.2%	94	3.7%	11.5%	N
208	1	1,908	1,654	85.9%	0	0.0%	0	0.0%	0	0.0%	69	4.3%	185	9.8%	254	14.1%	24.3%	Y
208	2	1,556	1,458	84.8%	7	7.1%	3	0.3%	0	0.0%	26	2.4%	62	5.4%	98	15.2%	34.1%	Y
209.01	1	1,090	1,013	94.3%	3	0.1%	0	0.0%	0	0.0%	27	1.4%	47	4.2%	77	5.7%	11.2%	N
209.01	2	1,303	1,212	93.3%	0	0.0%	0	0.0%	0	0.0%	73	5.2%	18	1.5%	91	6.7%	28.4%	Y
209.03	1	876	713	84.0%	0	0.0%	0	0.0%	0	0.0%	117	11.5%	46	4.5%	163	16.0%	38.4%	Y
209.03	2	631	619	98.4%	0	0.0%	0	0.0%	0	0.0%	9	1.6%	3	0.0%	12	1.6%	3.7%	N
209.03	3	1,018	983	95.3%	19	2.7%	0	0.0%	0	0.0%	0	0.0%	16	2.0%	35	4.7%	13.8%	N
209.04	1	761	725	100.0%	0	0.0%	0	0.0%	0	0.0%	20	0.0%	16	0.0%	36	0.0%	0.0%	N
209.04	2	1,143	1,079	91.5%	0	0.0%	0	0.8%	0	0.0%	62	6.9%	2	0.9%	64	8.5%	7.8%	N
209.05	1	1,131	1,073	98.3%	0	0.0%	58	0.4%	0	0.0%	0	0.0%	0	1.3%	58	1.7%	0.9%	N
210.01	1	1,059	1,040	99.6%	0	0.0%	0	0.0%	0	0.0%	19	0.4%	0	0.0%	19	0.4%	1.9%	N
210.01	2	1,483	1,392	91.6%	5	0.9%	0	0.0%	0	0.0%	11	0.7%	75	6.7%	91	8.4%	18.5%	N

Census Tract	Block Group	Total Population	White		Black		Asian		Indigenous Nations		Other		Hispanic		Total Minority		Poverty Rate (%)	EJ Community
			#	%	#	%	#	%	#	%	#	%	#	%	#	%		Y/N
210.02	1	2,076	2,029	97.5%	0	0.0%	0	0.0%	0	0.0%	35	1.8%	12	0.7%	47	2.5%	13.3%	N
210.03	1	1,032	966	92.6%	0	0.0%	0	0.0%	0	0.0%	26	2.7%	40	4.7%	66	7.4%	16.9%	N
211.01	1	591	443	71.3%	43	5.6%	0	0.0%	0	0.0%	40	8.9%	65	14.2%	148	28.7%	23.0%	N
211.01	2	398	328	90.5%	7	0.8%	0	0.0%	0	0.0%	15	3.0%	48	5.8%	70	9.5%	30.8%	Y
211.01	3	1,318	1,179	86.9%	17	1.3%	0	0.0%	0	0.0%	27	0.4%	95	11.4%	139	13.1%	37.9%	Y
211.01	4	1,082	1,038	98.2%	16	1.1%	0	0.0%	0	0.0%	28	0.7%	0	0.0%	44	1.8%	13.6%	N
211.02	1	1,699	1,514	89.4%	32	0.9%	0	0.3%	0	0.0%	112	6.3%	41	3.0%	185	10.6%	42.4%	Y
211.02	2	654	528	70.5%	0	0.0%	0	0.0%	0	0.4%	40	9.0%	86	20.1%	126	29.5%	40.4%	Y
211.03	1	1,329	1,270	95.0%	0	1.0%	6	0.6%	1	0.1%	52	3.3%	0	0.0%	59	5.0%	11.1%	N
211.03	2	1,609	1,577	98.6%	20	1.1%	0	0.0%	0	0.0%	8	0.0%	4	0.3%	32	1.4%	9.1%	N
211.04	1	630	580	93.4%	0	0.0%	0	0.0%	2	0.0%	48	6.6%	0	0.0%	50	6.6%	21.0%	N
211.04	2	1,010	898	99.2%	8	0.0%	0	0.0%	4	0.0%	0	0.0%	100	0.8%	112	0.8%	1.4%	N
211.04	3	1,019	912	94.0%	14	0.0%	17	2.9%	0	0.0%	25	1.9%	51	1.2%	107	6.0%	34.2%	Y
212.01	1	1,130	1,123	99.6%	0	0.0%	0	0.0%	5	0.4%	0	0.0%	2	0.0%	7	0.4%	24.9%	Y
212.02	1	1,152	1,013	97.5%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	139	2.5%	139	2.5%	30.3%	Y
212.02	2	1,482	1,391	89.4%	0	0.0%	88	10.2%	0	0.0%	0	0.0%	3	0.4%	91	10.6%	11.1%	N
212.03	1	1,949	1,820	97.0%	13	0.5%	0	0.0%	2	0.2%	22	1.3%	92	1.1%	129	3.0%	8.7%	N

Census Tract	Block Group	Total Population	White		Black		Asian		Indigenous Nations		Other		Hispanic		Total Minority		Poverty Rate (%)	EJ Community
			#	%	#	%	#	%	#	%	#	%	#	%	#	%		Y/N
212.03	2	797	777	100.0%	0	0.0%	0	0.0%	0	0.0%	17	0.0%	3	0.0%	20	0.0%	2.7%	N
213	1	1,309	1,257	94.1%	2	0.1%	2	0.1%	2	0.0%	29	4.7%	17	0.9%	52	5.9%	14.2%	N
213	2	1,223	1,163	94.0%	0	0.0%	0	0.0%	0	0.0%	29	2.3%	31	3.6%	60	6.0%	13.2%	N
213	3	1,969	1,691	87.0%	0	0.0%	29	1.6%	70	3.8%	130	5.6%	49	2.0%	278	13.0%	26.9%	Y
214.01	1	1,803	1,769	98.4%	3	0.2%	0	0.0%	0	0.0%	8	0.0%	23	1.3%	34	1.6%	16.7%	N
214.01	2	2,802	2,383	88.8%	83	2.8%	47	1.7%	0	0.0%	105	1.6%	184	5.2%	419	11.2%	7.7%	N
214.01	3	421	364	97.4%	12	2.6%	45	0.0%	0	0.0%	0	0.0%	0	0.0%	57	2.6%	48.1%	Y
214.01	4	3,254	1,893	56.5%	522	16.0%	130	4.1%	8	0.3%	81	1.0%	620	22.1%	1,361	43.5%	17.6%	Y
214.02	1	1,740	1,588	92.6%	6	0.1%	14	0.4%	0	0.0%	87	4.3%	45	2.6%	152	7.4%	8.3%	N
215.01	1	1,589	1,446	90.2%	0	0.0%	30	1.8%	0	0.0%	57	4.7%	56	3.3%	143	9.8%	10.2%	N
215.01	2	1,348	1,278	95.6%	0	0.2%	0	0.0%	0	0.2%	50	3.7%	20	0.2%	70	4.4%	9.7%	N
215.03	1	1,061	919	87.5%	1	0.1%	0	0.0%	0	0.0%	64	5.2%	77	7.2%	142	12.5%	1.7%	N
215.03	2	1,225	1,173	94.3%	0	0.0%	12	0.9%	0	0.0%	37	3.2%	3	1.5%	52	5.7%	3.6%	N
215.04	2	1,570	1,447	96.9%	0	0.0%	0	0.0%	0	0.0%	109	3.1%	14	0.0%	123	3.1%	8.5%	N
215.05	1	2,150	1,957	90.5%	71	0.2%	24	1.1%	0	0.0%	86	5.9%	12	2.4%	193	9.5%	13.5%	N
216.01	1	586	496	87.3%	0	0.0%	0	0.0%	0	0.0%	60	6.3%	30	6.4%	90	12.7%	13.8%	N
216.01	3	807	685	83.1%	0	2.7%	32	3.2%	0	0.0%	47	5.1%	43	5.8%	122	16.9%	14.6%	N

Census Tract	Block Group	Total Population	White		Black		Asian		Indigenous Nations		Other		Hispanic		Total Minority		Poverty Rate (%)	EJ Community
			#	%	#	%	#	%	#	%	#	%	#	%	#	%		Y/N
216.02	1	1,737	1,541	90.6%	19	1.2%	70	3.4%	0	0.0%	75	2.8%	32	2.0%	196	9.4%	33.1%	Y
216.02	2	1,194	963	86.1%	90	4.4%	37	2.3%	0	0.0%	40	3.5%	64	3.7%	231	13.9%	44.6%	Y
216.03	1	849	707	87.0%	0	0.0%	50	1.3%	0	0.0%	92	10.5%	0	1.3%	142	13.0%	22.1%	N
216.03	2	1,373	1,303	91.4%	0	0.0%	0	1.1%	0	0.0%	33	1.3%	37	6.2%	70	8.6%	10.4%	N
216.03	3	1,211	1,203	98.5%	0	0.0%	8	0.4%	0	0.0%	0	1.1%	0	0.0%	8	1.5%	5.7%	N
216.04	1	1,532	1,298	92.7%	0	0.0%	33	1.3%	13	0.3%	32	3.4%	156	2.2%	234	7.3%	20.9%	N
216.04	2	1,541	1,498	95.8%	0	0.1%	8	0.8%	0	0.0%	23	2.9%	12	0.4%	43	4.2%	25.6%	Y
216.04	3	1,911	1,706	89.6%	23	1.4%	37	2.5%	0	0.0%	65	4.1%	80	2.5%	205	10.4%	16.4%	N
216.05	1	1,211	1,113	93.1%	0	0.0%	0	0.0%	0	0.0%	12	1.3%	86	5.7%	98	6.9%	41.2%	Y
216.05	2	622	579	92.6%	0	0.0%	17	4.1%	0	0.0%	9	2.3%	17	0.9%	43	7.4%	22.5%	Y
216.05	3	402	389	95.8%	0	0.0%	0	0.0%	0	0.0%	9	3.6%	4	0.6%	13	4.2%	14.6%	N
216.05	4	1,023	723	81.1%	5	0.0%	0	0.0%	0	0.0%	144	18.9%	151	0.0%	300	18.9%	39.0%	Y
Study Area		291,420	203,079	69.7%	38,605	13.2%	12,554	4.3%	1,040	0.4%	16,753	5.7%	19,389	6.7%	88,341	30.3%	17.8%	N/A

Source: U.S. Census Bureau, American Community Survey (ACS) 2023 5-Year Estimates
The racial and ethnic categories provided are further defined as: White (White alone, not Hispanic or Latino); Black (Black or African American alone, not Hispanic or Latino); Asian. Total minority population includes all persons other than Non-Hispanic White. Poverty rate refers to the percentage of the population living below poverty level.

APPENDIX R-2
SUMMARY OF PUBLIC OUTREACH

R-1.4 Summary of Public Outreach

The Proposed Project has included a robust public outreach program. The Proposed Project also includes opportunities for public comment through the environmental review process, including scoping. Scoping includes a public opportunity to comment on purpose and need, alternatives, and topics to be covered in the ~~environmental impact statement (~~EIS.~~).~~ A public scoping meeting pursuant to SEQRA was held on October 11, 2023 and a Final Scope was issued on December 14, 2023. Subsequently, a public scoping meeting was held on March 19, 2024, at the Town of Clay Town Hall Board Room. Additionally, a public hearing and public comment period on this Draft EIS will allow the public to provide input on the Proposed Project. Using the public comment as input, the Lead Agencies will prepare a final EIS ~~(FEIS)~~ to clarify or update the technical analyses. The FEIS will include a summary Response to Comments sections documenting how public comments was addressed. The ~~Record of Decision (~~ROD~~)~~ documents the Lead Agency's conclusions (or findings) relative to environmental impacts and mitigation. Publication of the ROD completes the federal environmental review process. In addition, a Findings Statement will complete the SEQRA process.

A series of stakeholder focus groups were held to provide stakeholders with information on key topics identified from the scoping meeting; socialize early analysis results and potential mitigation; and answer questions and establish relationships with local stakeholders. Outreach was conducted to a variety of community-based organizations with representation from a variety of interest groups~~potential environmental justice populations~~ including minority populations, refugee and immigrants, LGBTQ populations, low-income populations, people with disabilities, and at-risk youth groups. Separate Focus Groups were held with a number of environmental and climate advocacy organizations.

The Project also includes coordination with the Onondaga Nation and other Indigenous Nations.

In addition, extensive public outreach has been conducted as part of the Community Investment Framework between Micron and New York State Governor Hochul under New York State's Green CHIPS Program. Over the course of 13 months, the CEC, Micron and New York State officials engaged with almost 13,000 diverse members of the public in the Central New York (CNY) region to compile community priorities in areas such as education, workforce development, job opportunities, and support for Minority-, Women-,Veteran-Owned Business Enterprises and small businesses, as well as housing, healthcare, child care, transportation, and infrastructure. Public outreach included focus groups, public events, canvassing, digital engagement and mailers, amongst others, reaching 316 organizations, 3,239 survey respondents, and 1,301 individuals through focus groups, 1:1 interviews, public meetings and other events.

Micron continues to consider the input received during these public outreach events as the development of the Proposed Project advances. Public outreach, including to DACs and low-income and minority communities, will continue throughout the NEPA/SEQRA environmental review process, as well as during construction, as appropriate.

R-1.4.1 Pre-Scoping Environmental Justice Outreach

Micron conducted two environmental justice focus groups, in addition to a public open house (Syracuse Open House on August 1, 2023) prior to the scoping period to provide an opportunity for community members to learn more about the Proposed Project and the upcoming environmental review process. Micron representatives along with technical team members attended both focus groups and engaged in dialogue with attendees, answered questions and solicited feedback.

8/1/2023 Environmental Justice Focus Group

The purpose of the environmental justice focus group held on August 1, 2023 was to provide an overview of the Proposed Project and next steps for environmental review, solicit feedback ~~from environmental justice communities~~ on Proposed Project elements prior to scoping, and gain understanding of community priorities. This environmental justice focus group had over 30 attendees from various environmental and community-based organizations in the greater Syracuse metro area. The Proposed Project team presented information about the Proposed Project and environmental review process, followed by two discussions with representatives from Micron participating and answering questions and soliciting feedback from the community. Key Issues discussed included onsite energy usage, wetland mitigation, transportation, water quality and usage, housing, childcare, jobs, and public outreach during environmental review.

Organizations Invited:

100 Black Men of Syracuse, BIPOC

Access CNY, Senior and Disabled persons

ARISE, Senior and Disabled persons

Alliance for Clean Energy-NY, Environmental

Catholic Charities, Low Income

Citizen's Climate Lobby – Syracuse, Environmental

Clean Communities of CNY, Environmental

Climate Change Awareness & Action, Environmental

CNY Solidarity Coalition,

Dunbar Center, BIPOC

Haudensosaunee Environmental~~Enivronmental~~ Task Force, BIPOC/Environmental

GreeningUSA, Environmental

Interfaith Works, Immigrant and Refugee

Jubilee Homes, Low Income

La Liga Spanish Action League Onondaga County, BIPOC/Spanish Speaking

New York Civil Liberties Union - CNY Chapter,

New York League of Conservation Voters, Environmental

Onondaga Environmental Institute, Environmental

~~(~~Refugee and Immigrant Self Empowerment (RISE), Immigrant and Refugee

Sierra Club - Central and Northern NY, Environmental

SAGE Upstate, LGBTQ

Samaritan Center, Low Income
SUNY Environmental Science & Forestry, Environmental
Syracuse NAACP, BIPOC
Syracuse Peace Council, BIPOC, Immigrant and Refugee, LGBTQ organizations
Urban Jobs Task Force, BIPOC, Low Income
YWCA of Onondaga County, Women and Children, Low Income

Attendees (31 total participants)

Paul Joslyn, Access CNY
Tania Anderson, ARISE
Dylan Seaver, Atlantic States Legal Foundation
Cassidy McMann, Atlantic States Legal Foundation
Mike Melara, Catholic Charities
Tom Colabufo Central Square School District
Kevin Schwab, CenterState Corporation for Economic Opportunity
Zac Bellinger, Citizen's Climate Lobby – Syracuse
Martha Viglietta, Citizen's Climate Lobby – Syracuse
Yvonne Chu, Climate Change Awareness & Action
Peter Wirth, Climate Change Awareness & Action
Peter McCarthy, CNY Solidarity Coalition
Scott Kushner, GreeningUSA
John Przepiora, GreeningUSA
Walt Dixie, Jubilee Homes
Elisa Morales, La Liga Spanish Action League Onondaga County
Julie Melancon, NYS DEC
Kevin Balduzzi, NYS DEC
Gregory Michel, Onondaga Earth Corps
Babette Barker, Onondaga Earth Corps
Ed Michalenko, Onondaga Environmental Institute
Haji Adnan, RISE~~ (Refugee and Immigrant Self Empowerment)~~
Rhea Jezer, Sierra Club - Central and Northern NY
Deka Dancil, NYCLU
Aggie Lane, Urban Jobs Task Force
David Bottar, CNYRPDB
Hazel Powless, Haudenosaunee Environmental Task Force
Nate Butera, National Grid
Travis Glazier, National Grid
Rich Puchalski, Syracuse United Neighbors
Steve Gawlik, NYS Empire State Development (ESD)~~Steve Gull, Not identified~~

9/14/2023 Environmental Justice Focus Group

Another environmental justice focus group was held on September 14, 2023, to provide an overview of the Proposed Project and next steps for environmental review, solicit feedback ~~from environmental justice communities~~ on project elements prior to scoping, and gain understanding of community priorities.

Organizations invited:

La Casita Cultural Center, Spanish-language
La Liga - The Spanish Action League of Onondaga County, Spanish-language
Syracuse NAACP, BIPOC
100 Black Men of Syracuse, BIPOC
~~Refugee and Immigrant Self Empowerment (~~RISE,~~),~~ Immigrant and Refugee
Syracuse Peace Council, BIPOC, Immigrant and Refugee, LGBTQ organizations
Northside Urban Partnership (Northside UP) BIPOC
Somali Bantu Community Association of Onondaga County, Immigrant and Refugee
Center for Community Alternatives, BIPOC
Neighbors of the Onondaga Nation, BIPOC, Indigenous
Dunbar Center, BIPOC
New American Women's Empowerment, Immigrant and Refugee
Syracuse Community Connections, BIPOC, Immigrant and Refugee, LGBTQ organizations
Southside Community Coalition, BIPOC, Immigrant and Refugee, LGBTQ organizations
SAGE Upstate, BIPOC, Immigrant and Refugee, LGBTQ organizations
Transgender Alliance, LGBTQ organizations
Eastern Farmworkers, Low-income
Catholic Charities of Onondaga County, Low-income
Jubilee Homes, Low-income
Samaritan Center, Low-income
Workers Center of Central New York, Low-income
Interfaith Works CNY, BIPOC, Immigrant and Refugee
Onondaga County Division on Aging and Youth, Seniors and disabled persons
Access CNY, Seniors and disabled persons
Arise NY, Seniors and disabled persons
YWCA of Onondaga County, Women and children, Low Income

Attendees (13 total participants):

Paul Joslyn, Access CNY
Tania Anderson, ARISE
Kate Holmes, Catholic Charities of CNY, Low-Income and Refugee Services
Linda Brown Roberson, NYS NAACP
Haji Adnan, RISE~~Refugee and Immigrant Self Empowerment~~

Tyla WorrllWore, Urban Jobs Task Force
Hazel Powless, Onondaga Nation
Fanny Villarreal, YWCA Syracuse & Onondaga County
Serge Ilambo, RISERefugee and Immigrant Self-Empowerment
Larry Williams, Syracuse Community Connections
Jimmy Monto Syracuse District 5 Councilor, CNY PrideLGBTQ+ Victory Fund
Tim Penix, Micron Community Engagement Committee Vice Chair
Elisa Morales, La Liga Spanish Action League Onondaga County

R-1.4.2 Additional Micron Led Public Outreach Events led outreach events to Environmental Justice Communities

Outreach Initiative	Date	Purpose	Location
CenterState Meet & Greet with Micron Technology	10/24/2022	Meet and greet with Micron executives and business leaders to learn more about the company, hosted by CenterState CEO's Racial equality and Inclusion team – invite sent to Onondaga Nation	Century Club Syracuse NY
CenterState Meet & Greet with Micron Technology	10/25/2022	Meet and greet with Micron executives and business leaders to learn more about the company, hosted by CenterState CEO's Racial equality and Inclusion team – invite sent to Onondaga Nation	Guadalajara's Mexican Grill Syracuse, NY
CenterState Meet & Greet with Micron Technology	10/26/2022	Meet and greet with Micron executives and business leaders to learn more about the company, hosted by CenterState CEO's Racial equality and Inclusion team – invite sent to Onondaga Nation	Landmark Theatre Syracuse, NY
Community Meetings with Onondaga Nation	January 2023- August 2023 (three meetings)	Learn more about the cultural norms of the Onondaga Nation	Onondaga Nation
STEM education community engagement	3/15/2023	Community engagement meeting/Intro to Micron and STEM education with families in CNY	Liverpool Public Library
Women's History Month Community event (collaboration with SCSD, city council, Mayor's office)	3/16/2023	Celebration of women in tech and discussion about Micron/hands on activities	Syracuse City School District Professional Development Center
Community celebration of girls in tech	6/24/2023	Culminating community celebration of Girls Going Tech in CNY	Museum of Science and Technology
Tribal Nations Meeting	07/14/2023	Tribal Nations Informal Consultation meeting	333 W Washington St. Syracuse, NY
Chip Camp	07/2023	Provide students opportunity to become familiar with Micron and Semiconductor industry, 10 students from Onondaga Nation attended	Onondaga Community College Syracuse, NY
Micron 101 (collaboration with Syracuse University and OnPoint for College)	7/29/2023	Half-day session with community members discussing Micron and the Micron Foundation	Community Folk Art Center

Outreach Initiative	Date	Purpose	Location
Museum of Science and Technology	7/31/2023	Ribbon cutting for Micron exhibit	Museum of Science and Technology
Clay Site walking through with Tribal Nations	8/11/2023	Site walk through with Tribal Nations representatives	4936 Verplank Road, Clay, NY
Community Engagement Committee Focus Group - Oswego County Micron Steering Committee	9/15/2023	Gather feedback on priorities for Micron's $500 million community investment led by CEC member Kristi Eck	Virtual
Who is Micron? What is a semiconductor?	9/16	Community education effort in Auburn, NY designed to expand our messaging and partnerships for youth focused programming	Harriett Tubman Memorial AME Zion Church (Auburn, NY)
Oswego County PreK-16 Action Group	9/18	Leadership forum to discuss Micron and ongoing collaboration	CiTiBOCES
OCMBOCES leadership meeting	9/19	Leadership forum to discuss Micron and ongoing collaboration	OCMBOCES

R-1.5 The Community Investment Framework

In October 2022, as part of New York State's Green CHIPS legislation, Micron and Governor Hochul signed a Memorandum of Understanding for the Micron Community Investment Framework. In that agreement, Micron and New York State made robust commitments to community and sustainability, including: (1) the establishment of a $500 million CIF to support education, workforce, housing and other community investments (2) a commitment to volunteering and giving in CNY; and (3) Micron agreed to set diverse hiring and contracting goals, sustainability requirements, and other community investments. The CIF was created in partnership with ESD with Micron contributing $250 million, ESD contributing $100 million and the remaining $150 million in funding raised from local, statewide and national partners.

In April 2023,~~Additionally, NY~~ Governor Kathy Hochul and Micron formed the Central New York Community Engagement Committee (CEC). The CEC will help Micron and ESD identify community priorities and ensure meaningful, ground-up participation for directing community investments of the $500 million CIF within CNY. The CEC is composed of a diverse set of ~~) consisting of diverse~~ stakeholders and ex-officio members, including community members and representatives of local government, community-based organizations, philanthropic organizations, educational institutions, faith-based organizations, tribal organizations, veterans' organizations, and the business community. The CEC also includes representation from~~will help~~ Micron and ESD.

R-1.5.1 Public Outreach

In its first year, the CEC, Micron ~~identify community priorities~~ and ESD engaged nearly 13,000~~ensure meaningful, ground-up participation for directing community investments. The CEC~~

~~has reached 12,752~~ Central New Yorkers and~~, engaged~~ 316 community organizations in public hearings, focus groups, one-on-one interviews and online surveys to identify and compile local priorities for inclusive growth and benefits to the CNY region. These engagements included:~~and hosted 50 events.~~

- Public ~~Micron continues to consider the input received during these public outreach~~ events and meetings attended by over a thousand Central New Yorkers;
- Canvassing efforts in communities across the region;
- Presentations provided online and in-person;
- Focus groups targeted at diversity and under-represented groups; and
- Digital engagements~~as the development of the Proposed Project advances. Public outreach~~, including regular mass emails, online surveys, and a website available in both Spanish and English.

The CEC, Micron, and ESD reviewed and analyzed its public engagements at monthly meetings, adapting and refining its outreach efforts to strive for a comprehensive representation of the CNY region's diverse communities and ensure that the voices of the underrepresented and marginalized groups were heard and integrated into the planning process. To ensure inclusivity, the CEC provided materials in Spanish and employed bilingual facilitators at events. The CEC compiled its findings in the Community Priorities Document (CPD), published in June 2024. In the CPD, the CEC identified immediate priority areas, including education, workforce development, supports for minority, women and veteran-owned small businesses, housing and childcare. The CEC~~to environmental justice populations,~~ will continue to meet regularly and engage the public and revisit the CPD, as needed to ensure that it continues to reflect the needs and perspectives of CNY throughout the two-decade duration of the CIF.

R-1.5.2 Commitments to Diverse Business Contracting and Employment Opportunities

In the Community Investment Framework, Micron committed to use good faith efforts to achieve 30 percent of eligible~~NEPA/SEQRA environmental review process, as well as during~~ construction spend from eligible categories with businesses owned by socially and economically disadvantaged individuals (SEDI).[59] Micron has also pledged to use good faith efforts to achieve

[59] A company will be considered a SEDI company if it is 51% owned, operated, and controlled by one or more individuals of underrepresented groups, including the following underrepresented populations: Women Owned Business, Minority Owned Business, Rural Businesses, Person(s) with Disability Owned Business, LGBT+ Owned Business, Veteran Owned Business and Service-Disabled Veteran Owned Business, Small Business Administration 8(a) program or Historically Underutilized Business Zone, and as may be defined by U.S. Department of Commerce for purposes of CHIPS.

20 percent of eligible operating spend with SEDI-owned businesses.[60] To ensure that these goals are met, Micron will require applicable Tier 1 and Tier 2 suppliers to establish spend goals on their contracts as well. Micron hosted an opportunities and awareness session for local and diverse subcontractors, vendors, suppliers and professional service providers in Syracuse.

In addition, in the CIF, Micron has pledged to work with state and local partners and construction contractors and subcontractors to establish a target percentage of the construction workforce to be from disadvantaged populations. Micron will encourage construction contractors and subcontractors to use Syracuse Build as a first source model to identify candidates for hiring from disadvantaged populations. Micron has also committed to establishing a target percentage of permanent hires and internships for facility operations to be made from targeted census tracts and historically disadvantaged populations. See also Appendix Q.

The CIF also includes commitments to encourage the use of public transit, build a childcare facility adjacent to fab complex and conduct focused recruiting and pipeline development activities with the Syracuse STEAM School and Syracuse City School District.

R-1.5.3 CIF Priority Funding for Housing

In the CPD, the CEC recognized housing in CNY, as one of several areas of immediate priority for funding under the $500 million CIF.[61] ESD commissioned a comprehensive regional housing study that found that the CNY region will need to dramatically increase housing production in the near-term and made policy recommendations to achieve the required expansion. In July 2024, ESD gathered a panel of local, state and national leaders and housing experts for a summit at LeMoyne College to review the study and discuss potential solutions for financing, zoning updates and areas where the state can assist effectively in the growth of available housing, including to accommodate the induced growth associated with the Proposed Project. The first round of applications for the CIF closed in January 2025, with initial awards forthcoming. The next round of submissions under the CIF will be in the near future.

[60] As part of the Governor's Office of Semiconductor Expansion, Management and Integration (GO-SEMI), GO-SEMI staff are engaging small and diverse businesses in CNY and across the state to build a robust database of SEDI-owned firms potentially eligible for contracts. Governor Hochul $200 million ON-RAMP program will also provide robust wraparound services to connect diverse and skilled New Yorkers with careers in dynamic, high-growth advanced manufacturing industries such as semiconductors.

[61] Governor Hochul has also made housing and affordability a priority, enacting several programs aimed at increased production of housing through unlocking $650 million in state funding for Pro-Housing communities and $100 million in capital funding to assist with infrastructure to build new housing.

References

New York State Energy Research and Development Authority (NYSERDA). (2023). *Final Disadvantaged Communities (DAC) 2023* [Map]. NYS Open Data. https://data.ny.gov/en/Energy-Environment/Final-Disadvantaged-Communities-DAC-2023-Map/6mn4-5vvzappropriate.