



**U.S. Department of Transportation
Pipeline and Hazardous Materials Safety Administration**

**Natural Gas Distribution Infrastructure Safety and Modernization Grant Program
City of Norwich Department of Public Utilities
Tier 2 Site Specific Environmental Assessment
NGDISM-FY22-EA-2023-06**

PHMSA Approval:

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Overview:

The purpose of this Tier 2 Site Specific Environmental Assessment (Tier 2) is to (1) document the proposed action (the Project) and the need for the action (2) identify existing conditions; (3) assess the social, economic, and environmental effects using appropriate tools and agency coordination to comply with local, state, and federal environmental laws, regulations, and ordinances; to (4) document applicable mitigation commitments that would avoid, minimize, or mitigate potential effects; and (5) seek comments from the public. This Tier 2 analysis informs PHMSA's assessment as to whether the Project is consistent with the impacts described in the Tier 1 Nationwide Environmental Assessment for the Natural Gas Distribution Infrastructure Safety and Modernization Grant Program.¹

As part of this Tier 2, PHMSA is soliciting public comments through a public comment period. This Tier 2 is available on PHMSA's website where comments can be submitted to the contact noted below. PHMSA will accept public comments for 30 days on this Tier 2. PHMSA will consider comments received and incorporate them in the decision-making process. Consultation with appropriate agencies on related processes, regulations, and permits is ongoing. Please submit all comments to: PHMSABILGrantNEPAComments@dot.gov and reference NGDISM-FY22-EA-2023-06 in your response.

At the conclusion of the EA process, PHMSA will either issue a "Finding of No Significant Impact," further supplement this EA with additional analysis, mitigation measures, or prepare an Environmental Impact Statement.

I. Project Description/Proposed Action

Project Title	City of Norwich Department of Public Utilities (NPU)
Project Location	Norwich, Connecticut
Project Description/Proposed Action:	
<p>The Proposed Action would replace approximately 4.5 miles of existing cast iron natural gas main, associated meters and service lines within the City of Norwich, Connecticut on four separate segments depicted in Appendix A, project maps. All natural gas mains proposed for replacement are under public streets and within city owned rights-of-way (ROW). No ROW acquisition or easements are required to construct the project. The method of construction would be replacement with polyethylene (PE) pipe adjacent to existing pipes by trenching. The cover depth for most natural gas mains within the distribution network are between 30 and 48 inches. Newly installed natural gas mains would be installed at a depth of 36 inches to the top of the main. The Tier 1 EA described that the majority of site-specific projects would utilize the insertion method of pipe replacement. As described in this document, the City of Norwich would utilize an open trench method, which generally involves greater soil disturbance and use of heavy equipment and related impacts than the insertion method.</p> <p>The existing pipelines will be abandoned in place. Abandonment of the existing pipeline (versus excavation and removal) would minimize ground disturbance and facilitate the replacement process in a more efficient manner. PHMSA has specific requirements for gas and hazardous liquid pipeline abandonment, found in 49 CFR 192.727 and 195.402(c)(10). These requirements include disconnecting pipelines from all sources and supplies of gas, purging all</p>	

¹ <https://www.federalregister.gov/documents/2022/11/09/2022-24378/pipeline-safety-notice-of-availability-of-the-tier-1-nationwide-environmental-assessment-for-the>

² The Gas Piping and Technology Committee defines a *Grade 1 leak* as a leak that represents an existing or probable hazard to persons or property, and requires immediate repair or continuous action until the conditions are no longer hazardous.

combustibles and sealing the facilities left in place. By complying with PHMSA requirements for purging and sealing abandoned pipelines NPU would ensure that the abandoned pipelines pose no risk to safety in their abandoned state.

No Action:

The No Action alternative, as required under NEPA, serves as a baseline, and is used to compare impacts resulting from the Proposed Action. Under the No Action alternative, PHMSA would not fund this pipeline replacement project. Additionally, PHMSA would not be able to reduce the inventory of methane leaks and reduce safety risks by replacing pipe prone to leakage. Under this alternative, NPU would continue to use legacy cast iron, bare steel, and other leak prone pipeline material, and conduct repairs or replacements in the future using non-federal sources of funding, and potentially on an emergency basis, when a pipeline fails. Impacts and benefits associated with replacing the leak prone pipeline within Norwich with updated material would not be undertaken or would be undertaken at a later, uncertain date. The safety risks and methane leaks would persist. Impacts and benefits associated with replacing the leak prone pipeline within the City of Norwich with updated material would not be undertaken or would be undertaken at a later, uncertain date. The safety risks and methane leaks would persist. Impacts and benefits associated with replacement of leak prone pipe would not be seen in the near term. Even if pipe replacement were to happen at some point in the future, environmental mitigation actions during such a replacement would be unknown. Furthermore, existing economic losses, and increased risk associated with prolonged gas leaks would continue.

Need for the Project:

Cast iron bell joint failures have been identified as NPU's highest system risk for the last five (5) years in the Distribution Integrity Management Program (DIMP). During the period of 2017-2021 leaks on cast iron mains constituted 65.4% of the total number of leaks on gas distribution mains, and 78.8% of the hazardous (Grade 1) leaks were on cast iron mains.² Replacement of these cast iron mains would result in fewer hazardous leaks, which constitutes the greatest potential danger to life and property and reduce the methane emissions resulting from leaking distribution mains. The overall needs addressed by this project would include (1) improving upon the safe delivery of energy by reducing the likelihood of incidents, as well as methane leaks; (2) avoiding economic losses caused by pipeline failures; and (3) protecting the environment and reducing climate impacts by remediating aged and failing pipelines and pipe prone to leakage.

Description of the Environmental Setting of the Project Area:

All natural gas main replacements proposed are within highly to moderately developed urban areas. These areas have a mix of commercial/industrial use, single and multi-family residences, and places of public gatherings such as municipal buildings and one high school. These urban areas have older utility infrastructure (water, sewer, drainage, and gas) that are frequently being repaired or replaced.

² The Gas Piping and Technology Committee defines a *Grade 1 leak* as a leak that represents an existing or probable hazard to persons or property, and requires immediate repair or continuous action until the conditions are no longer hazardous.

II. Resource Review

Air Quality and Greenhouse Gases (GHG)	
Question	Information and Justification
Is the project located in an area designated by the EPA as non-attainment or maintenance status for one or more of the National Ambient Air Quality Standards (NAAQS)?	Yes, based on review of the EPA Greenbook. ³
Will the construction activities produce emissions that exceed de minimis thresholds (tons per year) described in the initial Tier 2 EA worksheet?	No
Will mitigation measures be used to capture blowdown ⁴ ?	No
Does the system have the capability to reduce pressure on the segments to be replaced? If yes, what is the lowest psi your system can reach prior to venting?	No, the system operates at a low pressure of 0.43 pounds per square inch (PSI).
Will [project proponent] commit to reducing pressure on your line to this psi prior to venting? Please calculate venting emissions based on this commitment and also provide comparison figure of venting emissions volume without pressure reduction/drawdown based on the calculation methods provide in the initial Tier 2 EA worksheet.	N/A, based on the operating pressure, 8.4 thousand cubic feet (MCF) (or 257 kg) of methane would be vented during construction.
Estimate the current leak rate per mile based on the type of pipeline material. Based on mileage of replacement and new pipeline material, estimate the total reduction of methane.	The existing methane leak rate is 19,587.1 kg/year. Replacement would result in a methane leak rate of 129.6 kg/year or a reduction of 19,457.5 kg/year. ⁵
<p>Conclusion:</p> <p>The project area is in New London County which is in a National Ambient Air Quality Standards (NAAQS) non-attainment area for ozone. Ozone is one of the six common air pollutants identified in the Clean Air Act.⁶ The Environmental Protection Agency (EPA) calls these “criteria air pollutants” because their levels in outdoor air need to be limited based on health criteria.</p> <p>No Action:</p> <p>Under the No Action alternative, existing and planned pipeline activities, including construction and maintenance activities, would continue unchanged. The project proponent would continue to use legacy cast iron, bare steel, and other leak prone pipe material. The total methane emissions for the pipelines within the project area were extrapolated over 20 years to represent the continuation of methane release under the No Action alternative. Under the No Action alternative, PHMSA estimates that 19,587.1 kg of methane would be released each year from the existing pipelines within the project area. This amounts to 391,741.5 kg of methane over a 20-year time frame. See</p>	

³ <https://www.epa.gov/green-book/green-book-national-area-and-county-level-multi-pollutant-information>

⁴ Blowdown refers to the venting of natural gas in current facilities, in order to begin rehabilitation, repair, or replacement activities.

⁵ Leak rates are based on Pre-1990 Installation emission factors found in *Table 1 Average methane emission factors for natural gas pipelines (adopted from EPA GHG Inventory, Annex 3.6, Table 3.62)* in the November 9, 2022, PHMSA: Natural Gas Distribution Infrastructure Safety and Modernization Grant Program Programmatic Environmental Assessment, Tier 1 Nationwide Environmental Analysis.

⁶ <https://www.epa.gov/ground-level-ozone-pollution/ground-level-ozone-basics>

Appendix B, Air Quality, for the methane leak rate calculations.

Proposed Action:

The Proposed Action alternative would result in minor air quality impacts associated with exhaust emissions from construction activities and the intentional venting of methane contained in the existing pipelines prior to replacement. Pipeline blowdowns are typically necessary to ensure that construction and maintenance work can be conducted safely on depressurized natural gas facilities and pipelines. PHMSA calculated construction emissions using the MOVES model to determine if the project would exceed the EPS thresholds for NAAQS.⁷ See Appendix B, Air Quality, for the emissions calculations. Due to the relatively minor scope of the proposed action, impacts to local air quality resulting from construction activities such as dust and exhaust from construction equipment, would be temporary and considered *de minimis*. Thus, the Proposed Action alternative does not require a General Conformity Analysis under Section 176(c)(4) of the CAA at proposed project sites.

Venting methane is required when service is switched from the existing line to the newly constructed line, but the volume of vented gas can depend on the ability to reduce pressure on the pipe segment or other mitigation actions. Therefore, some methane would be vented into the atmosphere during construction. Based on an operating pressure of .43 pound per square inch (PSI) and a pipe diameter that varies from 2 – 16 inches, PHMSA estimates 8 MCF of methane (or 257 kg) would be vented into the atmosphere during construction. See Appendix B, Air Quality, for the methane venting calculations.

As described in the Tier 1 EA, methane leaks from natural gas distribution pipelines increase with age and are considerably higher for cast iron and steel pipelines, as compared with plastic. Replacing leak prone pipe with newer, more durable materials would reduce leaks and methane emissions. Based on the current leak rate of the existing pipe within the project area, this project would reduce overall emissions by 19,200.5 kg of methane in the first year (when considering the methane that would be released from blowdown that would occur during construction) and would reduce 19,457.5 kg of methane per year thereafter). This amounts to a reduction of 388,892.5 kg of methane over a 20-year time frame. See Appendix B, Air Quality, for the methane reduction calculations. Therefore, it is PHMSA's assessment that the proposed project would have a net benefit to air quality and from the overall reduction of greenhouse gas emissions and that no indirect or cumulative impacts would result from the Proposed Action.

Mitigation Measures:

The City of Norwich Department of Public Utilities shall implement the following mitigation measures:

- Efficient use of on-road and non-road vehicles, by minimizing speeds and vehicles.
- Minimize excavation to the greatest extent practical.
- Use cleaner, newer, non-road equipment as practicable.
- Minimize all vehicle idling and at minimum, conform with local idling regulations.
- Ensure all vehicles and equipment are in proper operating condition.
- Ensure on-road and non-road engines meet EPA exhaust emission standards (40 CFR Parts 85, 86, and 89).
- Cover open-bodied trucks while transporting materials.
- Conduct watering, or use of other approved dust suppressants, at construction sites and on unpaved roadways, as necessary.
- Minimize the area of soil disturbance to those necessary for construction.
- Minimize construction site traffic by the use of offsite parking and shuttle buses, as necessary.

⁷ <https://www.epa.gov/general-conformity/de-minimis-tables>

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Water Resources	
Question	Information and Justification
Are there water resources within the project area, such as wetlands, streams, rivers, or floodplains? If so, would the project temporarily or permanently impact wetlands or waterways?	Yes, according to USFWS National Wetland Inventory (NWI) and the Federal Emergency Management Agency's (FEMA) National Flood Hazard Layer FIRMette maps.
Under the Clean Water Act, is a Section 401 State certification potentially required? If yes, describe anticipated permit and how project proponent will ensure permit compliance.	No
Under the Clean Water Act, is a USACE Section 404 Permit required for the discharge of dredge and fill material? If yes, describe anticipated permit and how project proponent will ensure permit compliance.	No
Under the Clean Water Act, is an EPA or State Section 402 permit required for the discharge of pollutants into the waters of the United States? Is a Stormwater Pollution Prevention Plan (SWPPP) required?	Yes, construction activities are anticipated to exceed soil disturbance thresholds and a 402 permit may be required prior to construction.
Will work activities take place within a FEMA designated floodplain? If so, describe any permanent or temporary impacts and the required coordination efforts with state or local floodplain regulatory agencies.	Yes
Will the proposed project activities potentially occur within a coastal zone ⁸ or affect any coastal use or natural resource of the coastal zone, requiring a Consistency Determination and Certification?	Yes, the project is located within a coastal zone.
<p>Conclusion:</p> <p>PHMSA reviewed NWI maps, as well as the FEMA National Flood Hazard Layer FIRMette map to assist in identifying aquatic features and other water resources in or near the project area. The project traverses within approximately 120 feet of the Shetucket River and the Shetucket River Utility Canal. No wetland habitat is located within the project area. FEMA's FIRMette map indicates the project includes areas located in FEMA Zones X or AE. Areas designated as Zone X are outside of any designated Special Flood Hazard Areas. Areas located within Zone AE, are identified as Special Flood Hazard Areas and correspond to the one percent annual chance of flooding (100-year floodplain). Areas with designated Zone AE, include where the pipeline crosses Boswell Ave and Franklin St. The project is located within a coastal zone. See Appendix C, Water Resources.</p> <p>No Action:</p> <p>Under the No Action alternative, the existing pipeline would remain in the current location and normal maintenance activities would continue without any impact anticipated to water resources. If maintenance work were to occur in close proximity to the Shetucket River or the Shetucket River Utility Canal, NPU would need to take precautions to avoid adverse impacts to these sensitive areas. Additionally, if work was to occur in an area identified as a special flood</p>	

⁸ The term "coastal zone" means the coastal waters (including the lands therein and thereunder) and the adjacent shorelands (including the waters therein and thereunder), strongly influenced by each other and in proximity to the shorelines of the several coastal states, and includes islands, transitional and intertidal areas, salt marshes, wetlands, and beaches.)

hazard area, coordination with the local Floodplain Manager may be required.

Proposed Action:

As noted above, there are two water resources identified in the project area, in close proximity to where the work would occur. However, because work is limited to the ROW, there would be no direct impact to the Shetucket River or the Shetucket River Utility Canal.

The pipeline placement work would be conducted within Zone AE. The National Flood Insurance Program (NFIP) requires a permit before new construction or development begins within any Special Flood Hazard Area to ensure that project development projects meet the requirements of the NFIP program and the local community's floodplain management ordinances. The proposed pipeline replacement is not considered new construction or development as pipes would be installed in existing, previously impacted ROW and all areas would be restored to their existing contours and condition. These activities would not affect the flood-holding capacity of the 100-year floodplain or cause any adverse impacts to the Special Flood Hazard Areas. Coordination with the Connecticut Flood Management Program is ongoing.

The project is located within a Coastal Zone and is subject to a Coastal Zone Management Act (CZMA). The Project activities consist entirely of in-kind replacement of existing infrastructure and do not constitute new development. This project type is not listed as a federal action subject to consistency review by the Connecticut Department of Energy and Environmental Protection.⁹ The pipeline placement and abandonment of the existing pipeline is not anticipated to cause any reasonably foreseeable indirect effects or cumulative effects to water resources. Therefore, it is PHMSA's assessment that there would be no adverse impacts to water resources.

Mitigation Measures:

The City of Norwich Department of Public Utilities will ensure all work, including stockpiling of material, takes place at least 120 feet from the Shetucket River. All preconstruction contours shall be restored, natural areas shall be reseeded, BMPs shall be used during construction to control sediment and erosion and prevent pollutants from entering waterways.

The City of Norwich Department of Public Utilities shall ensure that the appropriate Clean Water Act, Section 402 stormwater permit is obtained, prior to construction.

The City of Norwich Department of Public Utilities shall coordinate with the Connecticut Flood Management Program and complete all necessary permitting prior to construction.

Groundwater and Hazardous Materials/Waste	
Question	Information and Justification
Does the project have potential to encounter and impact groundwater? If yes, describe potential impacts from construction activities.	No, it is not anticipated that groundwater would be encountered while installing gas mains at 36 inches below grade based on prior projects in the area.
Will the project require boring or directional drilling that may require pits containing mud and inadvertent return fluids? If yes, describe measures that will be taken during	No

⁹ <https://portal.ct.gov/-/media/DEEP/coastal-resources/FederalConsistencyList2010pdf.pdf>

construction activities to prevent impacts to groundwater resources.	
Will the project potentially involve a site(s) contaminated by hazardous waste? Is there any indication that the pipeline was ever used to convey coal gas? If yes, PHMSA will work with the project proponent for required studies.	Yes, one brownfield is located within the project area.
Does the project have the potential to encounter or disturb lead pipes or asbestos?	No
<p>Conclusion:</p> <p>PHMSA reviewed EPA's NEPAassist website to identify any brownfield properties, hazardous waste sites, and superfund sites.¹⁰ The proposed project crosses one brownfield site on North Main St. The facility report indicates this project has not been remediated and contaminated groundwater is potentially present.¹¹ PHMSA used the USDA NRCS's web soil survey which indicates that the project area is comprised of a variety of soils. The majority of these soils within the project area are non-hydric well-drained soils where the depth to the water table is found somewhere greater than 36 inches.¹²</p> <p>No Action:</p> <p>Under the No Action alternative, the cast iron and steel pipes would remain in their current location and ongoing and routine maintenance activities would occur. Pipes would be replaced under failed circumstances. While there are no adverse impacts to groundwater anticipated by the No Action alternative, increased methane emissions are likely to occur if cast iron and steel pipes remain (EPA, PRO Fact Sheet No. 402¹³) and risks of failure is higher among these type pipes. Therefore, PHMSA anticipates an increased risk for the release of methane both as leaks and during a pipeline failure, which could result in greater impacts to soils and ground water, under the No Action alternative.</p> <p>Proposed Action:</p> <p>The majority of the new gas lines would be located next to the existing gas lines. If utilities or other logistical issues arise with replacing pipeline immediately adjacent to the existing facilities, pipeline may be placed on the opposite side of the road, but entirely contained within the current ROW. All existing gas lines would be abandoned, in accordance with PHMSA requirements, and would be purged of natural gas and sealed on each end. The new gas lines would be installed at a depth of 36 inches below grade and would be installed by cut and cover (trenching). All excavated trench materials would be stored on site and used to back fill, unless otherwise deemed unsuitable. In these cases, unsuitable soils would be hauled offsite, and the trench would be backfilled with clean soils. All disturbed areas would be re-seeded or paved (as appropriate) and restored to preexisting conditions.</p> <p>Due to the depth to groundwater exceeding construction trenching depths, PHMSA's assessment is that there would be no adverse impacts to groundwater, associated with the project. If groundwater is encountered near the brownfield site on North Main St. contamination could be encountered which would require testing and proper dewatering and disposal measures. PHMSA has not identified any indirect or cumulative effects to groundwater or hazardous</p>	

¹⁰ <https://nepassisttool.epa.gov/nepassist/nepamap.aspx?wherestr=Norwich+Ct>

¹¹ https://ordspub.epa.gov/ords/cimc/f?p=CIMC:31:::Y,31,0:P31_ID:11489

¹² <https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>

¹³ Insert Gas Main Flexible Liners at <https://www.epa.gov/sites/default/files/2016-06/documents/insertgasmainflexibleliners.pdf#:~:text=Methane%20emissions%20reductions%20come%20from%20lower%20leakage%20rates,pipe%20and%20external%20corrosion%20in%20unprotected%20steel%20piping.>

materials.

Mitigation Measures:

The City of Norwich Department of Public Utilities will identify appropriate construction and restoration activities to minimize the potential impacts to groundwater. All impacted areas would be restored to pre-construction conditions.

If groundwater is encountered near the brownfield site on North Main St., the City of Norwich Department of Public Utilities will follow proper testing and disposal protocols in accordance with Connecticut Hazardous Waste Management Regulations.

Soils

Will all bare soils be stabilized using methods in Appendix 3? Will additional measures be required?	Yes, erosion and sediment control would be utilized during the project. All impacted areas would be restored to pre-construction contours.
Will the project require unique impacts related to soils?	No

Conclusion:

PHMSA obtained a soil map for the project area from the USDA, NRCS's web soil survey which indicates that the project area is comprised of a variety of soil types. Because this is an urban area taking place below city streets, the soil is anticipated to be disturbed and contain a mixture of fill and other materials. See Appendix C, Water Resources, for a soils map.¹⁴

No Action:

Under the No Action alternative, the cast iron pipes would remain in their current location and soils would remain in their current state and condition. Pipes would be replaced under failed circumstances. While there are no adverse impacts to groundwater anticipated by the No Action alternative, increased methane emissions are likely to occur if cast iron and steel pipes remain (EPA, PRO Fact Sheet No. 402¹⁵) and risks of failure is higher among these type pipes. Therefore, PHMSA anticipates an increased risk for the release of methane both as leaks and during a pipeline failure, which could result in greater impacts to soils and ground water under the No Action alternative.

Proposed Action:

The pipeline would be installed approximately 36 inches deep and trench widths would range from 24 inches to 30 inches. The trench would be backfilled and paved daily. Therefore, PHMSA's assessment is that there would be no adverse impacts associated with soils resulting from the Proposed Action alternative. Additionally, there are no indirect or cumulative impacts anticipated as NPU would restore all areas to pre-construction conditions.

Mitigation Measures:

The City of Norwich Department of Public Utilities shall utilize best management practices, as appropriate, to control sediment and erosion during construction which may include silt fencing, check dams, and promptly covering all bare areas. All impacted areas shall be restored to pre-construction conditions.

¹⁴ <https://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>

¹⁵ <https://19january2021snapshot.epa.gov/sites/static/files/2016-06/documents/insertgasmainflexibleliners.pdf>

Biological Resources	
Question	Information and Justification
Based on review of IPaC and NOAA Fisheries database, are there any federally threatened or endangered species and/or critical habitat potentially occurring within the geographic range of the project area? ¹⁶ If no, no further analysis is required.	Yes, based on review of the USFWS's Information for Planning and Consultation (IPaC) and NOAA Fisheries database. Additionally, CT state resources were reviewed to identify potential state listed species.
Will the project impact any areas in or adjacent to habitat for Federally, listed threatened or endangered species or their critical habitat? If no, provide justification and avoidance measures. If yes, PHMSA will work with the project proponent to conduct necessary consultation with resource agencies.	No
<p>Conclusion:</p> <p>The project area is built out and is comprised of both commercial and residential areas. The only areas that contain vegetation and pervious surfaces are located in residential backyards or vegetated buffer areas along the streets. PHMSA requested an official species list through the USFWS's IpaC website. See Appendix D, Biological Resources, for the IPaC species list. The endangered northern long-eared bat (NLEB), (<i>Myotis septentrionalis</i>), endangered Atlantic sturgeon (<i>Acipenser oxyrinchus oxyrinchus</i>), and endangered shortnose sturgeon (<i>Acipenser brevirostrum</i>) are within the geographical range of the project. Additionally, the candidate¹⁷ monarch butterfly (<i>Danaus plexippus</i>) was identified as a species that could potentially occur in the project area. There is no designated critical habitat within the project area. No additional state listed species were identified as potentially occurring within the project area. See Appendix D, Biological Resources.</p> <p>No Action:</p> <p>Under the No Action alternative, existing conditions would remain, and normal maintenance activities would occur. The project area is in an urbanized environment and therefore has very limited biological resources present. Additionally, the project area does not contain suitable habitat for listed species, therefore no impacts to biological resources would occur under the No Action alternative.</p> <p>Proposed Action:</p> <p>The project area is in an urbanized environment where the areas of disturbance would be mainly within/under existing paved streets. Because these areas are within ROW that has been previously impacted (pipeline laid in the ground in close proximity to the location where new pipes would be laid and subsequently paved), the immediate project area has very limited biological resources present. Additionally, the project area does not contain suitable habitat for species potentially occurring within the project area. Atlantic and shortnose sturgeon are known to inhabit the Shetucket River for portions of their lifecycles. The Shetucket River is located approximately 120 feet away from the project area. To prevent indirect, offsite sedimentation, no staging of equipment or stockpiling of material would occur within 1,000 feet of the river. All pipeline replacement work would be contained within the existing disturbed ROW. Therefore, in accordance with Section 7 of the Endangered Species Act PHMSA's assessment is that the project would have no effect to federally threatened or endangered species and no other adverse impacts to biological resources would result from the proposed project. Additionally, there are no indirect or cumulative impacts anticipated as no impacts to habitat or species would occur.</p>	

¹⁶ <https://ipac.ecosphere.fws.gov/> and <https://www.fisheries.noaa.gov/species-directory/threatened-endangered>

¹⁷ Candidate species receive no statutory protection under the Endangered Species Act.

Mitigation Measures:

The City of Norwich Department of Public Utilities shall utilize best management practices, as appropriate, to control sediment and erosion during construction which may include silt fencing, check dams, and promptly covering all bare areas. All impacted areas shall be restored to pre-construction conditions.

The City of Norwich Department of Public Utilities shall ensure all material stockpile areas are protected from runoff and be located no closer than 1,000 feet from the Shetucket River.

The City of Norwich Department of Public Utilities shall confine all natural gas main installations to the existing roadway ROW limits.

Cultural Resources	
Question	Information and Justification
Does the project include any ground disturbing activities, modifications to buildings or structures, or construction or installation of any new aboveground components?	Yes, the project includes ground disturbing activities. No modifications to building or structures or new aboveground components are required.
Is the project located within a previously identified local, state, or National Register historic district or adjacent to any locally or nationally recognized historic properties? This information can be gathered from the local government and/or State Historic Preservation Office. ¹⁸	Yes, the project takes place within the Greenville Historic District and the Chelsea Parade Historic District.
Does the project or any part of the project take place on tribal lands or land where a tribal cultural interest may exist? ¹⁹	No.
Are there any nearby properties or resources that either appear to be or are documented to have been constructed more than 45 years ago? ²⁰ Does there appear to be a group of properties of similar age, design, or method of construction? Any designed landscapes such as a park or cemetery? Please provide photographs to show the context of the project area and adjacent properties.	Yes.
Has the entire area and depth of construction for the project been previously disturbed by the original installation or other activities? If so, provide any documentation of prior ground disturbances.	Yes, the project includes work within the existing disturbed ROW.
Will project implementation require removal or disturbance of any stone or brick sidewalk, roadway, or landscape materials or other old or unique features? Please provide photos of the project area that include the	No

¹⁸ Many SHPOs have an [online system](https://www.nps.gov/subjects/nationalregister/state-historic-preservation-offices.htm) at <https://www.nps.gov/subjects/nationalregister/state-historic-preservation-offices.htm> that can tell you previously identified historic properties in your project area. The [National Register list](https://www.nps.gov/subjects/nationalregister/database-research.htm) at <https://www.nps.gov/subjects/nationalregister/database-research.htm> can also be accessed online.

¹⁹ The SHPO may have information on areas of tribal interest, or a good source is the [HUD TDAT website](https://egis.hud.gov/TDAT/) at <https://egis.hud.gov/TDAT/>.

²⁰ Local tax and property records or historic maps may indicate dates of construction.

roadway and sidewalk materials in the project and staging areas.	
<p>Conclusion:</p> <p>PHMSA must consider the impact of projects for which they provide funding on historic and archeological properties²¹ in accordance with Section 106 of the National Historic Preservation Act (Section 106). Pursuant to 36 CFR 800.4(a)(1), the Area of Potential Effects (APE) is defined as the geographic area(s) within which the Undertaking may directly or indirectly affect historic resources. Based on the proposed scope of work, PHMSA has delineated the APE for this project to encompass the existing ROW, which includes the limits of disturbance and any staging or access areas. See Appendix E, Cultural Resources, for a map of the APE.</p> <p>No Action:</p> <p>Under the No Action alternative, existing conditions would remain, and normal maintenance activities would occur. These activities could result in ground disturbance that might affect historic resources. However, no federal funding would be applied and therefore Section 106 would not be required.</p> <p>Proposed Action:</p> <p>PHMSA identified properties based on available information on previously identified historic properties in the APE, including the National Register of Historic Places (NRHP) database and data received from the Connecticut Division of Historical Resources. U.S. DOT staff also conducted research to determine if there are any previously unidentified properties within the APE that are 45 years of age or older and may be eligible for the NRHP. The Greenville Historic District and the Chelsea Parade Historic District are the only NRHP-listed historic properties located within the APE. There are no known archaeological sites in the APE and based on the evaluation, there is low potential for intact significant resources in the APE and no additional survey is needed. See Appendix E, Cultural Resources for additional information about the APE and the properties identified.</p> <p>PHMSA has determined the Proposed Project would not alter any of the characteristics or contributing features of the Districts that qualify them for inclusion in the NRHP. Project work is limited to the replacement of existing pipelines. The Undertaking would not result in lasting physical, visual, or audible effects to the Districts. In accordance with 36 CFR Part 800.5, PHMSA's assessment is that the Undertaking would have No Adverse Effect on historic properties.</p> <p>A letter was sent on November 7, 2023, to the Connecticut State Historic Preservation Officer (SHPO), federally recognized tribes with a potential interest in the project area, and all consulting parties outlining the Section 106 process, including a description of the undertaking, delineation and justification of the APE, identification of historic properties and an evaluation and proposed finding of no adverse effects. PHMSA has requested comments on the Section 106 process, identification of historic properties, and proposed finding within 30 days of receipt of the letter. See Appendix E, Cultural Resources, for additional information.</p>	
<p>Mitigation Measures:</p> <p>The City of Norwich Department of Public Utilities shall notify PHMSA immediately of any changes to the scope of work that may change the impacts to historic properties or the areas that may be impacted, including location of work, depth of construction, or change in construction methods.</p> <p>Staging should be confined to paved areas; if staging cannot be confined to paved areas, geotextile fabric or other</p>	

similar protective measures (such as pressure distributing mats) must be laid in any affected unpaved area to minimize ground disturbance, prevent soil compaction, and protect archaeological features and artifacts.

If, during project implementation, and features or human remains are discovered or effects to historic properties occur that were not anticipated during the Section 106 process, PHMSA must be immediately notified and all construction in the area of the discovery must halt until further direction is provided.

Section 4(f)	
Question	Information and Justification
Are there Section 4(f) properties within or immediately adjacent to the project area? If yes, provide a list of properties or as an attachment.	Yes, one Section 4(f) property is located adjacent to the project area.
Will any construction activities occur within the property boundaries of a Section 4(f) property? If so, please detail these activities and indicate if these are temporary or permanent uses of the Section 4(f) property. Further coordination with PHMSA is required for all projects that might impact a Section 4(f) property.	N/A
<p>Conclusion:</p> <p>Section 4(f) of the US Department of Transportation (USDOT) Act of 1966 as amended (Section 4(f)) (49 U.S.C. § 303(c)); is a federal law that applies to transportation projects that require funding or other approvals by the USDOT. Section 4(f) prohibits the Secretary of Transportation from approving any program or project which requires the use of any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or any land from an historic site of national, state, or local significance unless:</p> <ul style="list-style-type: none"> • There is no feasible and prudent alternative to the use of the land; • The program or project includes all possible planning to minimize harm to such park, recreational area, wildlife and waterfowl refuge, or historic site, resulting from such use. <p>PHMSA conducted a review of potential Section 4(f) properties within the project area. One Section 4(f) recreational park was identified, the Chelsea Parade. This park is immediately adjacent to the project area along Crescent Street. See Page 1, Appendix A, Project Maps for the location of this park.</p> <p>No Action:</p> <p>Under the No Action alternative, there would be no change to existing pipeline infrastructure pursuant to federal funding provided by the Program. Therefore, there would be no use of Section 4(f) property under the No Action alternative.</p> <p>Proposed Action:</p> <p>Under the Proposed Action alternative, all construction activities would occur outside of the Section 4(f) property boundary. In addition, access to the facility would remain throughout the duration of construction and no physical use of the park would occur. In addition, as described in the Noise section of this Tier 2 EA, no adverse impacts associated with construction noise have been identified that could affect the use of this property. Therefore, PHMSA has determined there would be no use of any Section 4(f) resources.</p>	

Mitigation Measures:**Land Use and Transportation**

Question	Information and Justification
Will the full extent of the project boundaries remain within the existing right-of-way or easements? If no, please describe any right-of-way acquisitions or additional easements needed.	Yes, all work on mains would take place within the existing ROW. All natural gas service work from the main to the private property building/structure being served, with coordination, permission, and approval from the property owner under existing access agreements.
Will the project result in detours, transportation restrictions, or other impacts to normal traffic flow or to existing transportation facilities during construction? Will there be any permanent change to existing transportation facilities? If so, what are the changes, and how would changes affect the public?	Yes, while no road closures are expected, alternating one-way traffic patterns are proposed. Emergency vehicles and school buses would be prioritized to immediately travel through the construction zone. No impacts to existing public bus stops would occur.
Will the project interrupt or impede emergency response services from fire, police, ambulance or any other emergency or safety response providers? If so, describe any coordination that will occur with emergency response providers?	No, NPU attends monthly safety meetings with local fire, police, and ambulance services to coordinate various activities these organizations are engaged in. NPU would continuously update EMS groups of our planned and ongoing construction activities at these meetings.

Conclusion:

The project is located in an urban area comprised of both industrial, commercial, and residential areas.

No Action:

Under the No Action alternative, leak prone pipes would remain in their current location. No changes to land use would occur. Normal maintenance activities would occur, and pipes would be replaced under failed circumstances.

Proposed Action:

The pipeline would be installed within the existing infrastructure ROW or existing access easements with all work occurring under paved roadways or along street edges within previously disturbed soils associated with roadways. The trench would be backfilled and paved daily. Therefore, PHMSA has determined that there would be no permanent change to land use. The project is replacing/upgrading the existing pipe and would not include new pipeline to serve any additional areas. Additionally, there are no indirect impacts anticipated as land use remains the same.

During construction, there may be short-term impacts to adjacent residences, businesses and normal traffic patterns. Potential impacts include an increase in noise, dust, and transportation accessibility, as a result of construction and construction staging. Local and state regulations guide the transport of machinery, equipment, and automobiles around the construction areas. Temporary traffic impacts including one lane closures may occur on the local road network and adjacent pedestrian routes may be routed to the opposite side of the street. The project would not result in detours. Regular flow of traffic would be maintained. Therefore, because the work consists of the replacement of existing pipeline, would not convert any new areas into a different use and impacts would only occur during construction, PHMSA has determined that impacts related to land use are considered minor and temporary.

PHMSA considered the cumulative effects of this action with ongoing and planned transportation related construction projects that could cumulatively impact land use and transportation. NPU currently has several infrastructure-related projects on going within or near the project area. All municipalities and businesses must abide by the same requirements and coordinate with state and local agencies on any disruptions to normal traffic patterns. Through this coordination, the overall cumulative effects of multiple projects occurring would be minimized by planning and scheduling efforts with responsible agency oversight. Land use changes are not anticipated as the projects are occurring in an urbanized area that is built out and therefore would not change the existing residential or commercial use.

Mitigation Measures:

The City of Norwich Department of Public Utilities shall establish traffic control plans that minimize disruption to the community and coordinate construction schedules and parking impacts with property owners, emergency services, transit facility operators and schools.

Noise and Vibration	
Question	Information and Justification
Will the project construction occur for longer than a month at a single project location?	No, construction activities would not occur longer than 1-3 days, depending on the size of the property frontage.
Will the project location be in proximity (less than 50-ft.) to noise sensitive receivers (residences, schools, houses of worship, etc.)? If so, what measures will be taken to reduce noise and vibration impacts to sensitive receptors?	Yes, within 50 feet of the project are residences, schools, houses of worship. Service work is completed utilizing small excavation equipment and is done exclusively during normal working hours which starts at 7:00 am and ends no later than 5:00 pm.
Will the project require high-noise and vibration inducing construction methods? If so, please specify.	No, high-noise and vibration inducing construction methods are not required.
Will the project comply with state and local ordinances? If so, identify applicable ordinances and limitations on noise/vibration times or sound levels.	The City of Norwich does not have a noise ordinance however the Norwich Police Department (NPD) enforces excessive noise disturbances under disturbing the peace regulations. NPU's standard policy, which the NPD has accepted, is that scheduled routine work, such as the work proposed in the project, begins no earlier than 7:00 am and ends no later than 5:00 pm. This requirement would be stipulated in the project plans and specifications.
Will construction activities require large bulldozers, hoe ram, or other vibratory equipment within 20 feet of a structure?	No
<p>Conclusion:</p> <p>The project is located in the urban area of Norwich, CT. The ambient noise in the project area consists of a combination of environmental noise from road traffic, construction, industry, the built environment, population density and other sources. There are several sensitive noise receptors (residences, schools, etc.) located adjacent to the streets where work would occur.</p> <p>No Action:</p> <p>Under the No Action, the project would not move forward and the pipelines along the designated streets in the project</p>	

area would not be replaced at this time, and likely would not be replaced all at once. It is likely that these pipelines would be repaired or replaced due to a leak under emergency conditions. If replacement or repairs occur under emergency conditions, noise from construction equipment would add to that of the current ambient noise and would be of a shorter duration.

Proposed Action:

Excavators, dump trucks, skid steers, rollers, pavers, and other similar construction equipment would be used to excavate a trench, lay pipe, compact soils and re-pave the affected areas. Pipeline may be installed in some areas via directional bore methods where drill rigs, excavators, reamers, and similar equipment would be used to install pipeline by horizontal directional drilling.

Individual pieces of equipment may generate noise levels of 80 to 90 dBA at a distance of 50 feet. Sensitive noise receptors are likely to experience temporary noise impacts while outdoors in the vicinity of the work; however, PHMSA has determined that the noise impacts would be minor and temporary and no adverse vibration impacts would result from the proposed work.

PHMSA considered the cumulative effects of this action with ongoing and planned transportation related construction projects that could cumulatively have an impact on the noise and vibration impacts within the City of Norwich. Urban areas often have other construction or maintenance projects on going which could occur within or near the project area which would contribute to increased noise. These construction and maintenance projects could occur at the same time as the Proposed Action alternative and would contribute to an increase in cumulative noise effects during construction. However, adhering to state and local noise ordinances would ensure the project does not cause cumulatively more than minor adverse noise or vibration impacts.

Mitigation Measures:

The City of Norwich Department of Public Utilities will ensure all work is completed Monday through Friday between the hours of 7:00 am and 5:00 pm and will require project inspectors to monitor the condition of construction equipment and direct contractor to repair excessively loud equipment.

Environmental Justice	
Question	Information and Justification
Using the EPA EJScreen or census data ²² , is the project located in an area of minority and/or low-income individuals as defined by USDOT Order 5610.2(c)? If so, provide demographic data for minority and/or low-income individuals within ½ mile from the project area as a percentage of the total population.	Yes, based on review of socioeconomic data using the EPAs EJScreen, the population residing within the general project area contains 22% low income and 26% minority populations.
Will the project displace existing residents or workers from their homes and communities? If so, what is the expected duration?	No
Will the project require service disruptions to homes and communities? If so, what is the expected communication and outreach plan to the residents and the duration of the	Yes, outages are only expected on the day a natural gas service is tied over to a new natural gas main. This work only happens with communication, coordination, and

²² <https://www.census.gov/quickfacts/fact/table/US/PST045222>

outages?	<p>permission granted by the property owner. Communications include an initial door hanger provided at the beginning of the project with a description of the project and a request to contact NPU at a convenient time to arrange for a site visit, then a site visit would take place to locate where the property owner would like the service to be installed and to establish a date convenient for the property owner to have the service installed, then a communication a day or two before the service is installed confirming the work is still permitted to take place.</p>
Are there populations with Limited English Proficiency located in the project area? If so, what measures will be taken to provide communications in other languages?	<p>Yes, for customers with language barriers many of NPU customer service representatives are bi-lingual and have access to language translators if needed. The NPU website has built in language translators for ESL residents. Additionally, doorhangers and other written project notifications would be sent in the prevailing local languages, such as Spanish, Creole, and Mandarin.</p>
<p>Conclusion:</p> <p>Executive Order (E.O.) 14096—"Revitalizing Our Nation's Commitment to Environmental Justice for All" was enacted on April 21, 2023. E.O. 14096 on environmental justice does not rescind E.O. 12898 – "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," which has been in effect since February 11, 1994 and is currently implemented through DOT Order 5610.2C. This implementation would continue until further guidance is provided regarding the implementation of the new E.O. 14096 on environmental justice.</p> <p>PHMSA reviewed socioeconomic data using the EPAs EJScreen and found the population residing within the project area contains 22% low income and 26% minority populations. The percentage of these populations is equal to the New London County average. See Appendix F, Environmental Justice, for socioeconomic data.</p> <p>No Action:</p> <p>Under the No Action alternative, existing and planned pipeline activities, including construction and maintenance activities, would continue unchanged. The project proponent would continue to use leak prone pipe material that could lead to safety incidents and service disruptions. Additionally, if a pipeline segment is not repaired or replaced prior to failure, it is likely to be associated with even more emissions under the No Action alternative. Thus, emissions benefits to the community associated with repairing or replacing existing pipelines with updated material would not be achieved and the incident risks and leaks would remain. There may be some degree of air pollution associated with construction activity for maintenance and repairs of existing pipelines under the No Action alternative, either through planned repair or replacement efforts or unplanned, emergency repairs or replacements.</p> <p>Proposed Action:</p> <p>The Proposed Action alternative would result in an overall reduction in GHG emissions. Construction activities would result in minor temporary air quality impacts. Noise impacts associated with construction are anticipated to be minor. Traffic impacts would be temporary and only minor disruptions or delays would occur. However, removal of leak prone pipe would reduce leaks and the potential for incidents, resulting in an increase in pipeline safety across the system while also improving operation and reliability. Therefore, consistent with Executive Order 12898 and DOT Order 5610.2(c), PHMSA's assessment is that the project would not result in disproportionately high and adverse effects on</p>	

minority or low-income populations, or other underserved and disadvantaged communities. The project would have an overall beneficial effect on environmental justice populations and would not result in indirect or cumulative impacts.

Mitigation Measures:

The City of Norwich Department of Public Utilities shall provide advanced public notifications of service disruptions and construction schedules to all affected parties including residents and businesses adjacent to the project area.

Safety	
Question	Information and Justification
Has a risk profile been developed to describe the condition of the current infrastructure and potential safety concerns?	Yes, cast iron bell joint failures have been identified as NPU's highest natural gas system risk for the last five (5) years in the Distribution Integrity Management Program (DIMP). During the period of 2017-2021 leaks on cast iron natural gas mains constituted 65.4% of the total number of leaks on gas distribution mains, and 78.8% of the hazardous (Grade 1) leaks were on cast iron mains.
Has a public awareness program been developed and implemented that follows the guidance provided by the American Petroleum Institute (API) Recommended Practice (RP) 1162?	Yes, NPU has a Public Awareness Program that is developed and implemented in collaboration with the Northeast Gas Association and audited periodically by CT State Regulators. The Program follows guidance provided by API 1162.
Does the project area include pipes prone to leakage?	Yes, during the period of 2017-2021 leaks on cast iron mains constituted 65.4% of the total number of leaks on gas distribution mains, and 78.8% of the hazardous (Grade 1) leaks were on cast iron mains. The replacement of unprotected steel mains are also included in this project and are highly prone to leaking, particularly at mechanical joints and/or other fitting types.
Will construction safety methods and procedures to protect human health and prevent/minimize hazardous materials releases during construction, including personal protection, workplace monitoring and site-specific health and safety plans, be utilized? If yes, document measures and reference appropriate safety plans.	Yes, NPU employs a full time Safety Professional that regularly conducts safety trainings reinforcing company safety standards and policies. Additionally, the Safety Professional conducts regular site safety inspections/audits on construction activities and issues follow up reporting summarizing whether crews were compliant with OSHA and company safety standards, and if not, makes recommendations for improvements. The Safety Professional holds Certified Safety Professional (CSP) certification, Construction Health and Safety Technician (CHST) certification, and Certified Utility Safety Professional (CUSP) certification. Additionally, NPU employs a Compliance & Training Specialist that helps assure all gas safety procedures are followed through training and inspections.
Has an assessment of the project been performed to analyze the risk and benefits of implementation?	Yes, DIMP plan serves as the analysis of risk and benefit of replacing cast iron mains on an accelerated schedule.

Conclusion:

The proposed project would replace cast iron pipeline. Pipelines that are known to leak based on the material include cast iron, bare steel, wrought iron, and historic plastics with known issues (PIPES Act of 2020). PHMSA establishes safety regulations for all pipelines (49 CFR Parts 190-199). In 2011, following major natural gas pipeline incidents, DOT and PHMSA issued a Call to Action to accelerate the repair, rehabilitation, and replacement of the highest-risk pipeline infrastructure. Among other factors, pipeline age and material are significant risk indicators. Pipelines constructed of cast and wrought iron, as well as bare steel, are among the pipelines that pose the highest risk. PHMSA continues to encourage legacy pipeline repair or replacement to increase the safety of these segments of the gas distribution systems. Pipeline incidents can result in death, injury, property damage, and environmental damage.

No Action:

Under the No Action alternative, cast iron pipes would remain in their current location, state, and condition. Normal maintenance activities would occur, and pipes would be replaced under failed circumstances. Safety risks resulting from existing leak prone pipes remaining in place would persist until the existing pipes are replaced.

Proposed Action:

The proposed project is necessary to replace cast iron pipe. This replacement is in alignment with NPU's DIMP plan, increasing the overall safety of the community.

The project would reduce the risk profile of existing pipeline systems prone to methane leakage and would also benefit disadvantaged rural and urban communities with the safe provision of natural gas. The project responds to the need to address the potentially unsafe condition of the natural gas distribution system of pipelines. The repair, rehabilitation, or replacement of pipelines would be constructed in accordance with industry best practices and would comply with all local, state, and federal regulations, including those for safety.

The abandonment of the existing pipeline would be conducted in accordance with PHMSA requirements found in 49 CFR 192.727 and 195.402(c)(10). These requirements include disconnecting pipelines from all sources and supplies of gas, purging all combustibles and sealing the facilities left in place. These requirements for purging and sealing abandoned pipelines would ensure that the abandoned pipelines are properly purged and cleaned and pose no risk to safety in their abandoned state. Therefore, PHMSA's assessment is that this replacement project would improve the overall safety of NPU's infrastructure.

Mitigation Measures:

The City of Norwich Department of Public Utilities shall use standard construction safety methods and procedures; and conduct regular safety audits of crews performing work in the field and subsequent follow-up reporting and/or training, as required.

The City of Norwich Department of Public Utilities shall ensure their DIMP procedures are updated as necessary, the work is constructed in accordance with industry best practices and the project will comply with all local, state, and federal regulations, including those for safety.

III. Public Involvement

On November 9, 2022, PHMSA published a Federal Register notice (87 FR 67748) with a 30-day comment period soliciting comments on the “Tier 1 Nationwide Environmental Assessment for the Natural Gas Distribution Infrastructure Safety and Modernization Grant Program.” During the 30-day comment period, PHMSA received one comment letter from the APGA on various aspects of the program and air quality related analysis in the EA on December 9, 2022. This APGA letter is available for public review at the Docket No: PHMSA-2022-0123.²³ PHMSA reviewed the comment letter and determined the comments were not substantial and did not warrant further analysis. One comment provided by the APGA indicated that the majority of construction methods used for pipe replacements would be replacement by open trenching and that some may want to abandon the existing pipe rather than removing it for replacement. Any departures from methods described in the Tier 1 EA will require additional documentation from the project proponent, as reflected in this Tier 2.

As part of this Tier 2, PHMSA is soliciting public comments through a public comment period. This Tier 2 is available on PHMSA’s website where comments can be submitted to the contact noted below. PHMSA will accept public comments for 30 days on this Tier 2. PHMSA will consider comments received and incorporate them in the decision-making process. Consultation with appropriate agencies on related processes, regulations, and permits is ongoing. Please submit all comments to: PHMSABILgrantNEPAComments@dot.gov and reference NGDISM-FY22-EA-2023-06 in your response.

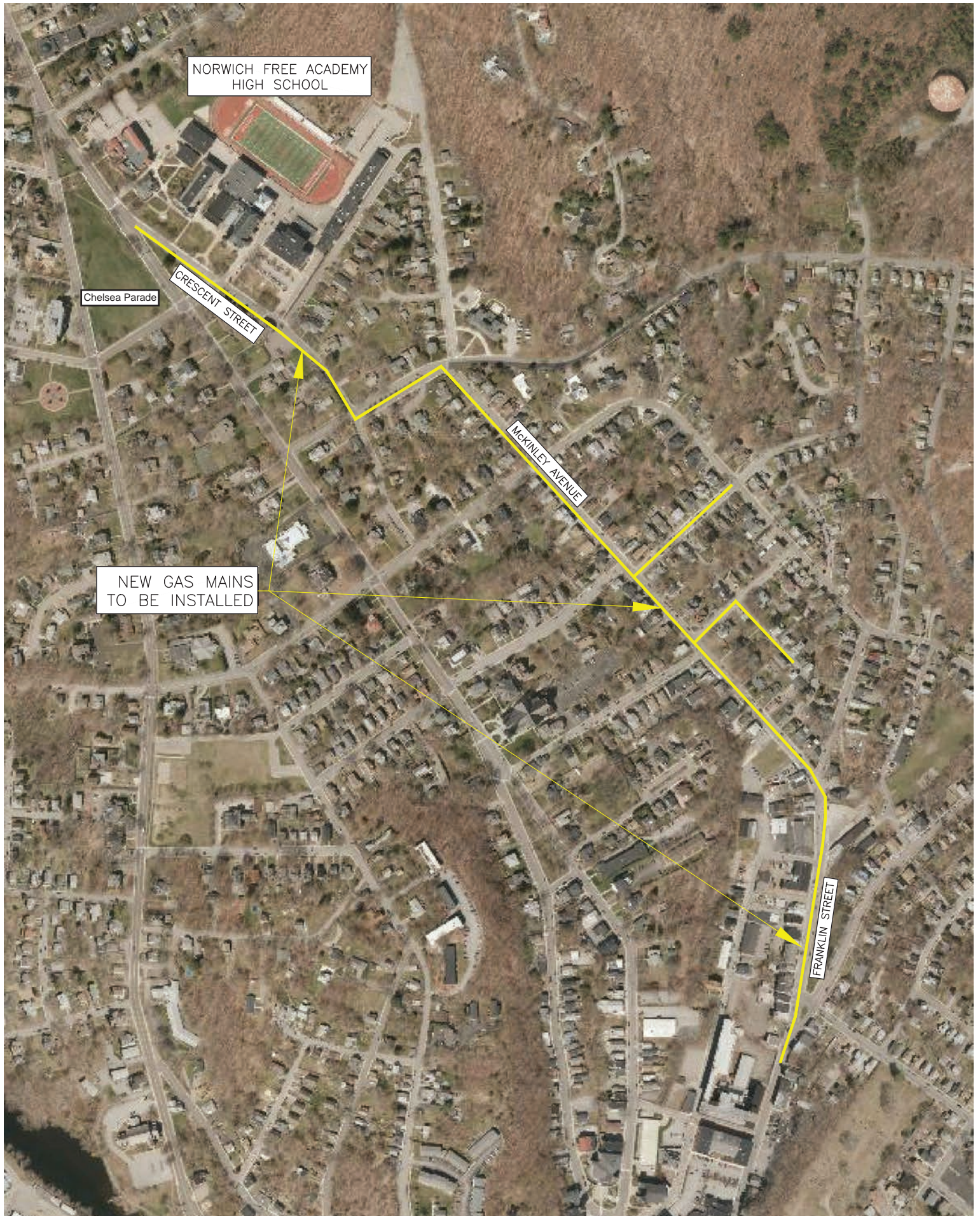
²³ <https://www.regulations.gov/document/PHMSA-2022-0123-0002/comment>

Appendix A

Project Map

NORWICH PUBLIC UTILITIES 2022 NGDISM TIER 2 SSEA

PHASE 1 - NFA PROJECT AREA



**NORWICH PUBLIC UTILITIES 2022 NGDISM TIER 2 SSEA
PHASE 1 - NORTH MAIN STREET (SOUTH) PROJECT AREA**



NORWICH PUBLIC UTILITIES 2022 NGDISM TIER 2 SSEA

PHASE 2 - ASYLUM STREET PROJECT AREA



NORWICH PUBLIC UTILITIES 2022 NGDISM TIER 2 SSEA
PHASE 2 - NORTH MAIN STREET (NORTH) PROJECT AREA



Appendix B

Air Quality

Table 1 Average methane emission factors for natural gas pipelines (adapted from EPA GHG Inventory, Annex 3.6, Table 3.6-2)

Pipeline Material	Pre-1990 Installation (kg/mile)	1990-2020 Installation (kg/mile)	Average Rate (kg/mile/year)
Cast Iron	4,597.40	1,157.30	2,877.35
Unprotected steel	2,122.30	861.3	1,491.80
Protected steel	59.1	96.7	77.90
Plastic	190.9	28.8	109.85

Table 2 No Action Leak Rate

Pipeline Material Type	Average Rate (kg/mile/year)	Miles	Current Methane Leak Rate (kg/year)
Cast Iron	4,594.4	4.06	18653.3
Unprotected Steel	2,122.3	.44	933.8
Total Annual Methane Emissions			19587.1
20-year Methane Emissions			391741.5

Table 3 Proposed Action Leak Rate

Pipeline Material Type	Average Rate (kg/mile/year)	Miles	New Methane Leak Rate (kg/year)
Plastic	28.8	4.5	129.6
Year 1 Methane Reduction			12900.5
Annual Methane Reduction			19457.5
20-year Methane Reduction			389149.5

PHMSA estimated methane emissions from pipeline blowdowns, which are typically necessary to ensure that construction and maintenance work Equation 1 was used to estimate blowdown emissions in MCF, assuming a pipeline diameter (d) and pressure (P).

$$E_{blowdown} = V \times \frac{P_{pipe} + P_{atm}}{P_{atm}} \quad (1)$$

Where the pipeline volume (V) is calculated by multiplying the cross-sectional area of the pipe by the length of pipeline (L):

$$V = \pi \times \frac{d^2}{4} \times L \quad (2)$$

Table 4 Proposed Action - Methane Blowdown

Normal Operating Pressure	Phase 1					Phase 2				
Diameter = inches	16	2	2	2	4	16	8	6	4	2
Blowdown Pressure (psi)	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
Length of Blowdown = feet	2330	980	4230	1350	3030	780	8750	1410	550	400
Blowdown MCF	3.35	0.02	0.09	0.03	0.27	1.12	3.14	0.28	0.05	0.01
Total	8.4 MCF (257 kg)									

*Table 5 Construction Emissions
by Equipment Type*

Equipment Type	CO	NOx	VOC	PM10	PM2.5	CO2	CH4
Backhoe/Excavator	37.53644	233.0632	19.65188	10.85461	10.52897	1126707	0.750006
Tractor	9.071245	32.85229	1.587364	1.804146	1.750022	107309.3	0.110607
Paver/Screed	0.455605	1.650014	0.079726	0.090614	0.087895	5389.638	0.005555
Roller	6.397574	39.29663	3.318358	1.89563	1.838762	189965.5	0.126644
Dump Truck	40.27493	250.0665	21.08559	11.64651	11.29712	1208906	0.804723

**Table 6 Total Project
Emissions**

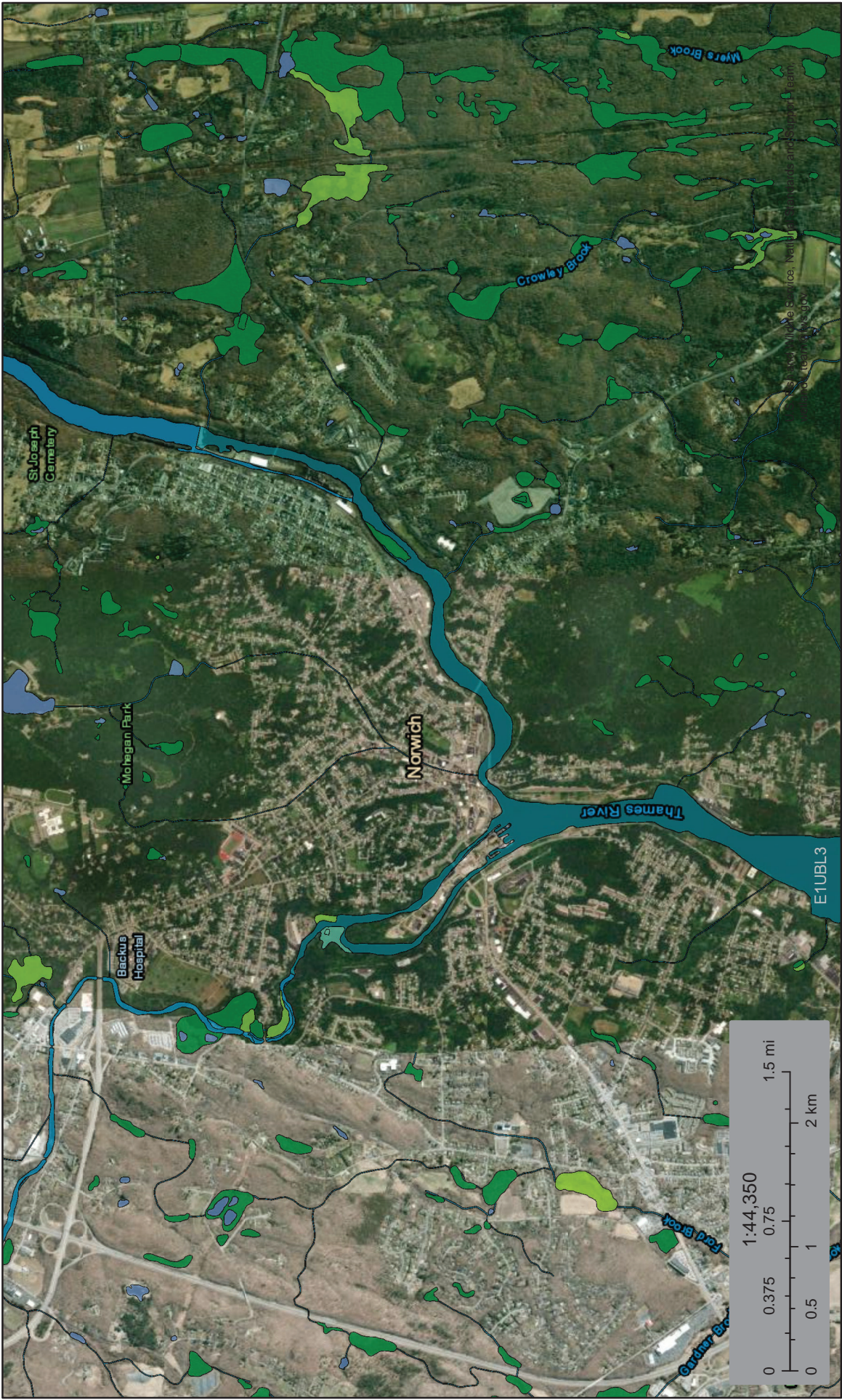
	CO	NOx	VOC	PM10	PM2.5	CO2	CH4
kg	93.73579	556.9286	45.72292	26.29151	25.50276	2638278	1.797535
short tons	0.103326	0.613908	0.050401	0.028981	0.028112	2908.2	0.001981

Equipment Type	# Pieces of Equipment	Model Year	Rated Engine Power Range (hp)	Fuel Type	Operating Hours	Load Factor	CO Emissions Rate (kg/hr)	NOx Emissions (kg/hr)	VOC Emissions (kg/hr)	PM10 Emissions (kg/hr)	PM2.5 Emissions (kg/hr)	CO2 Emissions (kg/hr)	CH4 Emissions (kg/hr)
Backhoe/Excavator	1	2022	300 < hp ≤ 600	Diesel	7484	0.59	0.0085	0.0528	0.0045	0.0025	0.0024	255.1674	0.0002
Tractor	1	2022	100 < hp ≤ 175	Diesel	7484	0.21	0.0058	0.0209	0.0010	0.0011	0.0011	68.2786	0.0001
Paver/Spread	1	2022	100 < hp ≤ 175	Diesel	104	0.759	0.0058	0.0209	0.0010	0.0011	0.0011	68.2786	0.0001
Roller	1	2022	175 < hp ≤ 300	Diesel	2220	0.59	0.0049	0.0300	0.0025	0.0014	0.0014	145.0339	0.0001
Dump Truck	1	2022	300 < hp ≤ 600	Diesel	8030	0.59	0.0085	0.0528	0.0045	0.0025	0.0024	255.1674	0.0002

Appendix C

Water Resources

Wetlands



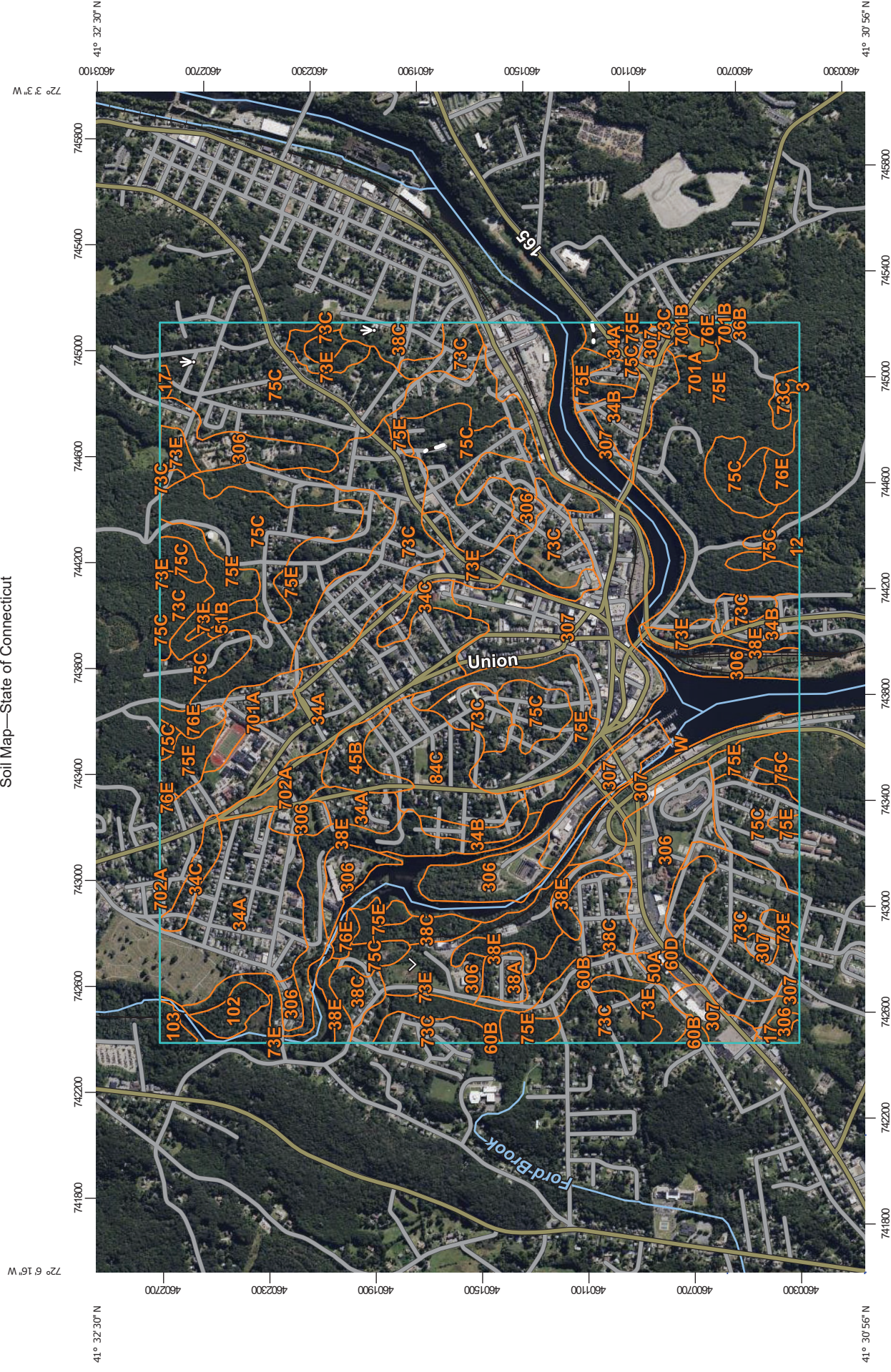
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

September 25, 2023

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

Soil Map—State of Connecticut



Map Scale: 1:20,400 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL: <https://websoilsurvey.sc.egov.usda.gov/>

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut

Survey Area Data: Version 22, Sep 12, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 14, 2022—Oct 6, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	0.5	0.0%
12	Raypol silt loam	0.1	0.0%
17	Timakwa and Natchaug soils, 0 to 2 percent slopes	3.0	0.2%
34A	Merrimac fine sandy loam, 0 to 3 percent slopes	163.8	10.1%
34B	Merrimac fine sandy loam, 3 to 8 percent slopes	28.4	1.7%
34C	Merrimac fine sandy loam, 8 to 15 percent slopes	14.6	0.9%
36B	Windsor loamy sand, 3 to 8 percent slopes	0.1	0.0%
38A	Hinckley loamy sand, 0 to 3 percent slopes	6.8	0.4%
38C	Hinckley loamy sand, 3 to 15 percent slopes	50.2	3.1%
38E	Hinckley loamy sand, 15 to 45 percent slopes	52.0	3.2%
45B	Woodbridge fine sandy loam, 3 to 8 percent slopes	12.1	0.7%
50A	Sutton fine sandy loam, 0 to 3 percent slopes	3.0	0.2%
51B	Sutton fine sandy loam, 0 to 8 percent slopes, very stony	3.1	0.2%
60B	Canton and Charlton fine sandy loams, 3 to 8 percent slopes	14.0	0.9%
60D	Canton and Charlton soils, 15 to 25 percent slopes	17.8	1.1%
73C	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	174.5	10.7%
73E	Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky	62.4	3.8%
75C	Hollis-Chatfield-Rock outcrop complex, 3 to 15 percent slopes	242.3	14.9%
75E	Hollis-Chatfield-Rock outcrop complex, 15 to 45 percent slopes	266.3	16.4%
76E	Rock outcrop-Hollis complex, 3 to 45 percent slopes	16.7	1.0%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
84C	Paxton and Montauk fine sandy loams, 8 to 15 percent slopes	38.9	2.4%
102	Pootatuck fine sandy loam	7.7	0.5%
103	Rippowam fine sandy loam	3.3	0.2%
306	Udorthents-Urban land complex	140.0	8.6%
307	Urban land	169.3	10.4%
701A	Ninigret fine sandy loam, 0 to 3 percent slopes	16.7	1.0%
701B	Ninigret fine sandy loam, 3 to 8 percent slopes	0.3	0.0%
702A	Tisbury silt loam, 0 to 3 percent slopes	10.2	0.6%
W	Water	105.7	6.5%
Totals for Area of Interest		1,623.6	100.0%

Appendix D

Biological Resources



United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104



In Reply Refer To:
Project Code: 2024-0014229
Project Name: Norwich Pipeline Repair and Maintenance

November 08, 2023

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

Updated 4/12/2023 - Please review this letter each time you request an Official Species List, we will continue to update it with additional information and links to websites may change.

About Official Species Lists

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Federal and non-Federal project proponents have responsibilities under the Act to consider effects on listed species.

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested by returning to an existing project's page in IPaC.

Endangered Species Act Project Review

Please visit the “**New England Field Office Endangered Species Project Review and Consultation**” website for step-by-step instructions on how to consider effects on listed

species and prepare and submit a project review package if necessary:

<https://www.fws.gov/office/new-england-ecological-services/endangered-species-project-review>

NOTE Please do not use the **Consultation Package Builder** tool in IPaC except in specific situations following coordination with our office. Please follow the project review guidance on our website instead and reference your **Project Code** in all correspondence.

Northern Long-eared Bat - (Updated 4/12/2023) The Service published a final rule to reclassify the northern long-eared bat (NLEB) as endangered on November 30, 2022. The final rule went into effect on March 31, 2023. You may utilize the **Northern Long-eared Bat Rangewide Determination Key** available in IPaC. More information about this Determination Key and the Interim Consultation Framework are available on the northern long-eared bat species page:

<https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis>

For projects that previously utilized the 4(d) Determination Key, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective. If your project was not completed by March 31, 2023, and may result in incidental take of NLEB, please reach out to our office at newengland@fws.gov to see if reinitiation is necessary.

Additional Info About Section 7 of the Act

Under section 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to determine whether projects may affect threatened and endangered species and/or designated critical habitat. If a Federal agency, or its non-Federal representative, determines that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Federal agency also may need to consider proposed species and proposed critical habitat in the consultation. 50 CFR 402.14(c)(1) specifies the information required for consultation under the Act regardless of the format of the evaluation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<https://www.fws.gov/service/section-7-consultations>

In addition to consultation requirements under Section 7(a)(2) of the ESA, please note that under sections 7(a)(1) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Please contact NEFO if you would like more information.

Candidate species that appear on the enclosed species list have no current protections under the ESA. The species' occurrence on an official species list does not convey a requirement to

consider impacts to this species as you would a proposed, threatened, or endangered species. The ESA does not provide for interagency consultations on candidate species under section 7, however, the Service recommends that all project proponents incorporate measures into projects to benefit candidate species and their habitats wherever possible.

Migratory Birds

In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see:

<https://www.fws.gov/program/migratory-bird-permit>

<https://www.fws.gov/library/collections/bald-and-golden-eagle-management>

Please feel free to contact us at **newengland@fws.gov** with your **Project Code** in the subject line if you need more information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat.

Attachment(s): Official Species List

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office

70 Commercial Street, Suite 300

Concord, NH 03301-5094

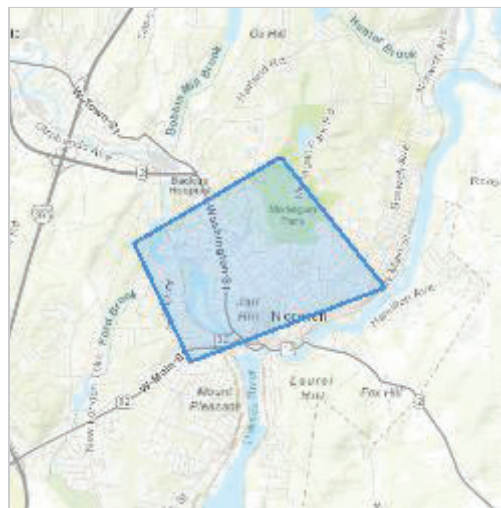
(603) 223-2541

PROJECT SUMMARY

Project Code: 2024-0014229
Project Name: Norwich Pipeline Repair and Maintenance
Project Type: Pipeline - Onshore - Maintenance / Modification - Below Ground
Project Description: The Proposed Action would replace approximately 4.5 miles of existing cast iron natural gas main, associated meters and service lines within the City of Norwich, Connecticut. All natural gas mains proposed for replacement are under public streets and within city owned rights-of-way.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@41.534131849999994,-72.07848978692556,14z>



Counties: New London County, Connecticut

ENDANGERED SPECIES ACT SPECIES

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Pipeline and Hazardous Materials Safety Administration

Name: Travis Mast

Address: 55 Broadway

City: Cambridge

State: MA

Zip: 01452

Email: travis.mast@dot.gov

Phone: 6174943782



Drawn Action Area & Overlapping S7 Consultation Areas

Area of Interest (AOI) Information

Area : 8,039.7 acres

Sep 26 2023 10:01:06 Eastern Daylight Time



Summary

Name	Count	Area(acres)	Length(mi)
Atlantic Sturgeon	2	604.48	N/A
Shortnose Sturgeon	1	302.24	N/A
Atlantic Salmon	0	0	N/A
Sea Turtles	0	0	N/A
Atlantic Large Whales	0	0	N/A
In or Near Critical Habitat	0	0	N/A

Atlantic Sturgeon

#	Feature ID	Species	Lifestage	Behavior	Zone	From	Until	From (2)	Until (2)	Area(acres)
1	ANS_THA_SUB_MAF	Atlantic sturgeon	Subadult	Migrating & Foraging	Thames River	01/01	12/31	N/A	N/A	302.24
2	ANS_THA_ADU_MAF	Atlantic sturgeon	Adult	Migrating & Foraging	Thames River	01/01	12/31	N/A	N/A	302.24

Shortnose Sturgeon

#	Feature ID	Species	Life Stage	Behavior	Zone	From	Until	From (2)	Until (2)	Area(acres)
1	SNS_THA_ADU_MAF	Shortnose sturgeon	Adult	Migrating & Foraging	Thames River	04/01	11/30	N/A	N/A	302.24

Appendix E

Cultural Resources



PROJECT REVIEW COVER FORM

This is: ☒ a new submittal ☐ supplemental information ☐ other Date Submitted: _____

PROJECT INFORMATION

Project Name: PHMSA Pipeline Replacement Project in the City of Norwich, Connecticut

Project Proponent: Pipeline and Hazardous Materials Safety Administration (PHMSA)
The individual or group sponsoring, organizing, or proposing the project.

Project Street Address: North Main Street (North), North Main Street (South), McKinley Avenue, and Asylum Street
Include street number, street name, and or Route Number. If no street address exists give closest intersection.

City or Town: Norwich County: New London
Please use the municipality name and **not** the village or hamlet.

PROJECT DESCRIPTION (REQUIRED)

Please summarize the project below. In a separate attachment, describe the project in detail. As applicable, provide any information regarding past land use, project area size, renovation plans, demolitions, and/or new construction.
Undertaking will replace 4.5 miles of cast iron natural gas main, associated meters and service lines by means of cut and cover (trenching).
All work will take place within the existing right-of-way (ROW).

List all state and federal agencies involved in the project and indicate the funding, permit, license or approval program pertaining to the proposed project:

Agency Type	Agency Name	Program Name
<input type="checkbox"/> State <input checked="" type="checkbox"/> Federal	PHMSA	Natural Gas Distribution Infrastructure Safety and Modernization Grant Program
<input type="checkbox"/> State <input type="checkbox"/> Federal		
<input type="checkbox"/> State <input type="checkbox"/> Federal		
<input type="checkbox"/> State <input type="checkbox"/> Federal		

If there is no state or federal agency involvement, please state the reason for your review request:

FOR SHPO USE ONLY

Based on the information submitted to our office for the above named property and project, it is the opinion of the Connecticut State Historic Preservation Office that no historic properties will be affected by the proposed activities.*

Jonathan Kinney
Deputy State Historic Preservation Officer

Date

*All other determinations of effect will result in a formal letter from this office



PROJECT REVIEW COVER FORM

CULTURAL RESOURCES IDENTIFICATION

Background research for previously identified historic properties within a project area may be undertaken at the SHPO's office. To schedule an appointment, please contact Catherine Labadia, 860-500-2329 or Catherine.labadia@ct.gov. Some applicants may find it advantageous to hire a qualified historic preservation professional to complete the identification and evaluation of historic properties.

Are there any historic properties listed on the State or National Register of Historic Places within the project area? (Select one)

☒ Yes ☐ No ☐ Do Not Know

If yes, please identify: Greenville Historic District and the Chelsea Parade Historic District

Architecture

Are there any buildings, structures, or objects within the Area of Potential Effects (houses, bridges, barns, walls, etc.)? The area of potential effects means the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties. If you're not sure, check "I don't know."

☐ Yes (attach clearly labeled photographs of each resource and applicable property cards from the municipality assessor)

☒ No (proceed to next section)

☐ I don't know (proceed to next section)

Date the existing building/structures/objects were constructed: _____

If the project involves rehabilitation, demolition, or alterations to existing buildings older than 50 years, provide a work plan

(If window replacements are proposed, provide representative photographs of existing windows).

Archeology

Does the proposed project involve ground disturbing activities?

☒ Yes (provide below or attach a description of current and prior land use and disturbances. Attach an excerpt of the soil survey map for the project area. These can be created for free at: <https://websoilsurvey.nrcs.usda.gov>

Although locations within the APE could be considered sensitive for archaeological resources, the APE is limited to the existing ROW, and has likely been previously disturbed up to the proposed ground disturbance depth of 44-58 inches below grade.

☐ No

CHECKLIST (Did you attach the following information?)

Required for all Projects <input checked="" type="checkbox"/> Completed Form <input checked="" type="checkbox"/> Map clearly labelled depicting project area <input checked="" type="checkbox"/> Photographs of current site conditions <input type="checkbox"/> Site or project plans for new construction	Required for Projects with architectural resources <input type="checkbox"/> Work plans for rehabilitation or renovation <input type="checkbox"/> Assessor's Property Card Required for Projects with ground disturbing activities <input type="checkbox"/> Soil survey map
Suggested Attachments, as needed <input checked="" type="checkbox"/> Supporting documents needed to explain project <input checked="" type="checkbox"/> Supporting documents identifying historic properties <input checked="" type="checkbox"/> Historic maps or aerials (available at http://magic.lib.uconn.edu or https://www.historicaerials.com/)	

PROJECT CONTACT

Name: Kathering Giraldo Firm/Agency: U.S. DOT

Address: 55 Broadway

City: Cambridge State: MA Zip: 02142

Phone: 857-320-1359 Email: k.giraldo@dot.gov

Federal and state laws exist to ensure that agencies, or their designated applicants, consider the impacts of their projects on historic resources. At a minimum, submission of this completed form with its attachments constitutes a request for review by the Connecticut SHPO. The responsibility for preparing documentation, including the identification of historic properties and the assessment of potential effects resulting from the project, rests with the federal or state agency, or its designated applicant. The role of SHPO is to review, comment, and consult. SHPO's ability to complete a timely project review largely depends on the quality of the materials submitted. Please mail the completed form with all attachments to the attention of: Environmental Review, State Historic Preservation Office, 450 Columbus Boulevard, Suite 5, Hartford, CT. **Electronic submissions are not accepted at this time.**



U.S. Department
of Transportation
**Pipeline and Hazardous
Materials Safety
Administration**

1200 New Jersey Avenue, SE
Washington, DC 20590

November 7, 2023

Environmental Review
Jonathan Kinney
Deputy State Historic Preservation Officer
State Historic Preservation Office
450 Columbus Boulevard, Suite 5
Hartford, CT

Section 106 Consultation: PHMSA Pipeline Replacement Project in the City of Norwich, Connecticut
Grant Recipient: City of Norwich Department of Public Utilities (NPU)
Project Location: City of Norwich, Connecticut

Dear Jonathan Kinney:

The Pipeline and Hazardous Materials Safety Administration (PHMSA) provides funds authorized under the Natural Gas Distribution Infrastructure Safety and Modernization Grant Program. PHMSA proposes to provide funds to the City of Norwich (Grant Recipient) for the replacement of pipeline (Undertaking). PHMSA is initiating consultation for the above referenced Undertaking in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, and the associated implementing regulations, 36 CFR Part 800 (Section 106).

Project Description/Background

The Undertaking will replace 4.5 miles of cast iron natural gas main, associated meters, and service lines by means of cut and cover (trenching). The Undertaking will take place along North Main Street (North), North Main Street (South), Norwich Free Academy (NFA) area (McKinley Avenue), and Asylum Street. All work will take place within the existing right-of-way (ROW). The staging areas for the project will be on City property; however, a specific staging area has not been identified. Project location maps are enclosed in **Attachment A**. Photographs showing the overall character of the project areas are included in **Attachment B**.

All natural gas main replacements proposed are within highly to moderately developed urban areas. These areas have a mix of commercial/industrial use, single and multi-family residences, and places of public gatherings such as municipal buildings and one high school. These urban areas have older utility infrastructure (water, sewer, drainage, and gas) that are frequently being repaired or replaced.

The existing pipelines being replaced are between 2 to 16 inches in diameter and will be replaced with equivalent diameters. At most locations, the replacement gas lines will be located within 2 to 3 feet laterally of the existing pipeline toward the shoulder of roads. The existing pipelines will be abandoned in place. Abandonment of the existing pipeline (versus excavation and removal) will minimize ground disturbance and facilitate the replacement process in a more efficient manner. Gas mains are installed with 6 inches of bedding sand under the pipe to protect the main from damage from protruding objects. Therefore, the total

depth of excavation is 36 inches plus pipe diameter plus 6 inches of bedding sand. A typical gas main excavation trench is 24 to 30 inches wide, and all gas main excavations will be entirely under existing pavement.

Area of Potential Effects (APE)

Pursuant to 36 CFR 800.4(a)(1), the Area of Potential Effects (APE) is defined as the geographic area(s) within which the Undertaking may directly or indirectly affect historic resources. Due to the scale and nature of the Undertaking, which is limited to the replacement of pipelines within existing ROW, PHMSA has delineated the APE for this Undertaking to encompass the existing ROW, which include the limits of disturbance and staging and access areas. The APE extends to the depth of proposed ground disturbance of between 44 inches and 58 inches below grade. The Undertaking does not have the potential to cause visual or audible effects after the completion of construction. The existing ROW encompasses various roads, signage, sidewalks, and grassy areas throughout the City of Norwich. The APE is shown on the maps in **Attachment A**.

Identification and Evaluation

To identify historic properties in the APE, U.S. Department of Transportation (U.S. DOT) staff who meet the Secretary of the Interior's (SOI) Professional Qualification Standards reviewed available information on previously identified historic properties in the APE, including the National Register of Historic Places (NRHP) database and data gathered from the Connecticut State Historic Preservation Office and the Connecticut Cultural Resources Information System (ConnCRIS). U.S. DOT staff also conducted research to determine if there are any previously unidentified properties within the APE that are 45 years of age or older and may be eligible for the NRHP.

Historic Architecture

The Greeneville Historic District and the Chelsea Parade Historic District are the only NRHP-listed historic properties located within the APE (*see* Table 1). The location of the NRHP-listed historic properties within the APE is shown on the APE map in **Attachment A**.

The Greeneville Historic District encompasses a historically significant industrial village that was created to support and sustain water-powered industry from 1828 to c. 1940 by industrialist William P. Greene. Although part of the City of Norwich after 1875, from its creation in 1833 to after World War I, Greeneville remained a relatively independent and self-sufficient, working-class community. Greeneville Historic District contains a large, cohesive collection of generally well-preserved domestic, institutional, and commercial architecture. While much of the architecture has the vernacular character expected in a mill town, the district also includes Greek Revival, Second Empire, Italianate, and Carpenter Gothic architectural styles.

The Chelsea Parade Historic District is historically significant as a record of the residential growth and urbanization of Norwich during the 19th century, making it an early example of a major development in the state's urban and village landscapes and the transformation of commons into cultivated parks intended as amenities to surrounding neighborhoods (Criterion A). The historic district is also architecturally significant for the well-preserved houses that embody the distinctive characteristics of many diverse styles, ranging from the Federal style to the Colonial Revival of the early 20th century. There are also many examples of the domestic architecture of the Victorian period, including the Gothic Revival, Italianate, Second Empire, Stick, Queen Anne and Shingle styles (Criterion C).

A review of the APE found no additional above-ground resources that have the potential to be affected by the Undertaking.

Table 1. Previously Identified Above-Ground Resources in the APE

Historic Name	Designations	Significance	Map No.
Greenville Historic District	Listed	Criterion A: industry, community planning and development Criterion B: association with industrialist William P. Greene Criterion C: engineering, architecture	Historic District 1
Chelsea Parade Historic District	Listed	Criterion A: social history Criterion C: architecture, landscape architecture	Historic District 2

Archaeology

On behalf of PHMSA, the Connecticut State Historic Preservation Office reviewed the APE for the presence of previously recorded archeological sites and previously conducted archeological surveys. No previously recorded archaeological sites were identified within, or immediately adjacent to, the APE.

The soil types within the APE are classified as Urban Land, Merrimac fine sandy loam, Hinckley loamy sand, Hollis-Chatfield-Rock outcrop complex and Charlton-Chatfield complex. The most encountered soil along the APE is associated with Urban Land. Urban Land consists of areas where the soil has been altered or obscured by buildings, industrial areas, paved parking lots, sidewalks, roads, and railroad yards. However, some of the APE is within soils that occur in uplands blanketing glacial till. Rock outcrops may cover the surface in these areas. It would be expected that rock overhangs in many of the areas with steeper, rocky topography would have also been used as short-term shelters. Most of eastern Connecticut lies within the Thames River drainage basin. Parts of the APE are located near the Yantic and Shetucket Rivers, which are fed by numerous smaller tributaries which form a relatively dense and complicated drainage network.

Although locations within the APE could be considered sensitive for archaeological resources, the APE is limited to the existing ROW, some of which has been previously disturbed up to the proposed ground disturbance depth of 44-58 inches below grade due to prior pipeline installation as shown in the as-built drawings in **Attachment C**. Furthermore, all gas main excavations will be entirely under existing pavement. Due to the lack of significant archaeological sites in the vicinity of the APE and the previous ground disturbance that has occurred, there is low probability for intact significant archaeological resources to be present in the APE, and no archaeological survey is recommended at this time.

Determination of Effect

Based on the aforementioned identification and evaluation, PHMSA has determined that there are two historic properties as defined in 36 CFR 800.16(l) within the APE: the NRHP-listed Greenville Historic District and the Chelsea Parade Historic District.

While the NRHP-listed historic properties are located in the APE, the Undertaking will not alter any of the characteristics or contributing features of these historic properties that qualify them for inclusion in the NRHP in a manner that would diminish their integrity. No character-defining materials or features will be removed or altered as a result of the Undertaking. Therefore, the Undertaking does not have the potential to adversely affect any of the identified above-ground historic properties. Project work is limited to the replacement of existing pipelines in areas that demonstrate a low probability for intact significant archaeological resources. The Undertaking will not result in lasting physical, visual, or audible effects to

NRHP-listed historic properties. The Undertaking also does not include land acquisition, nor would it limit access to or change the use of any of the historic properties identified above.

While the exact staging areas for the Undertaking are currently unknown, staging should be confined to paved areas; if staging cannot be confined to paved areas, geotextile fabric or other similar protective measures (such as pressure distributing mats) must be laid in any affected unpaved area to minimize ground disturbance, prevent soil compaction, and protect archaeological features and artifacts.

In accordance with 36 CFR Part 800.5, PHMSA has determined the Undertaking will have No Adverse Effect on historic properties.

Consulting Party Outreach

PHMSA identified parties that may be interested in the Project and its effects on historic properties. PHMSA invites the individuals/organizations copied on this letter to participate as Section 106 consulting parties. Invited parties should indicate their willingness to participate as a consulting party and provide comments on the enclosed form (**Attachment C**) within 30 calendar days from the date on this letter. Note that a non-response is considered to be a declination to participate; however, interested parties can request to join consultation at any time in the process. If any invited party expresses concern about the Project's potential effects to historic properties, PHMSA will consult with the party to resolve those concerns prior to project implementation.

PHMSA will also invite the following federally recognized tribes to participate in consultation by separate letter:

- Mashantucket Pequot Indian Tribe
- Mohegan Tribe of Indians of Connecticut
- Narragansett Indian Tribe

Request for Section 106 Concurrence

Based on the information presented above, PHMSA has determined that the Undertaking will result in No Adverse Effect to properties that are either in, or eligible for inclusion in, the NRHP. PHMSA is submitting this Undertaking to your office for your review and comment. PHMSA requests your concurrence with this determination of effect within 30 calendar days of the date of this letter. Should you need additional information please contact Kat Giraldo, Section 106 specialist, at PHMSASection106@dot.gov or 857-320-1359.

Sincerely,



Matt Fuller
Senior Environmental Protection Specialist

MF/kg

cc: Travis Mast, Environmental Protection Specialist, USDOT Volpe Center
Renee Taylor, PHMSA Grant Specialist
Barry Ellison, Jr., City of Norwich Department of Public Utilities
Norwich Historical Society
Norwich Historic District Commission
Greeneville Neighborhood Revitalization Commission

Enclosures:

Attachment A: Project Location and APE Maps

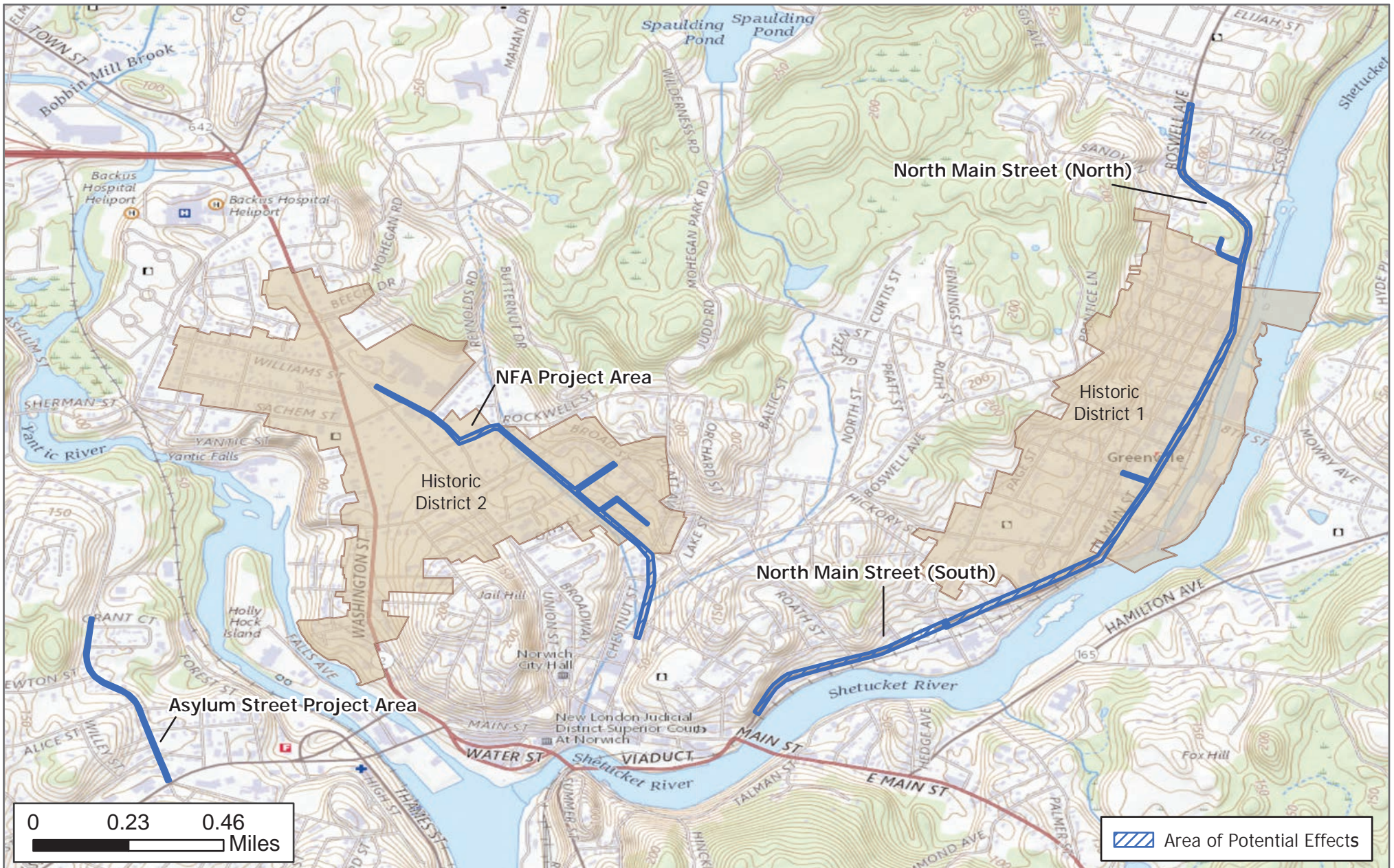
Attachment B: Project Area Photographs

Attachment C: Consulting Party Response Form

ATTACHMENT A

Project Location and APE Maps

Area of Potential Effects Map



Name: Norwich, Connecticut Gas Line Replacement

Scale: 20,000

Total Acreage: 24

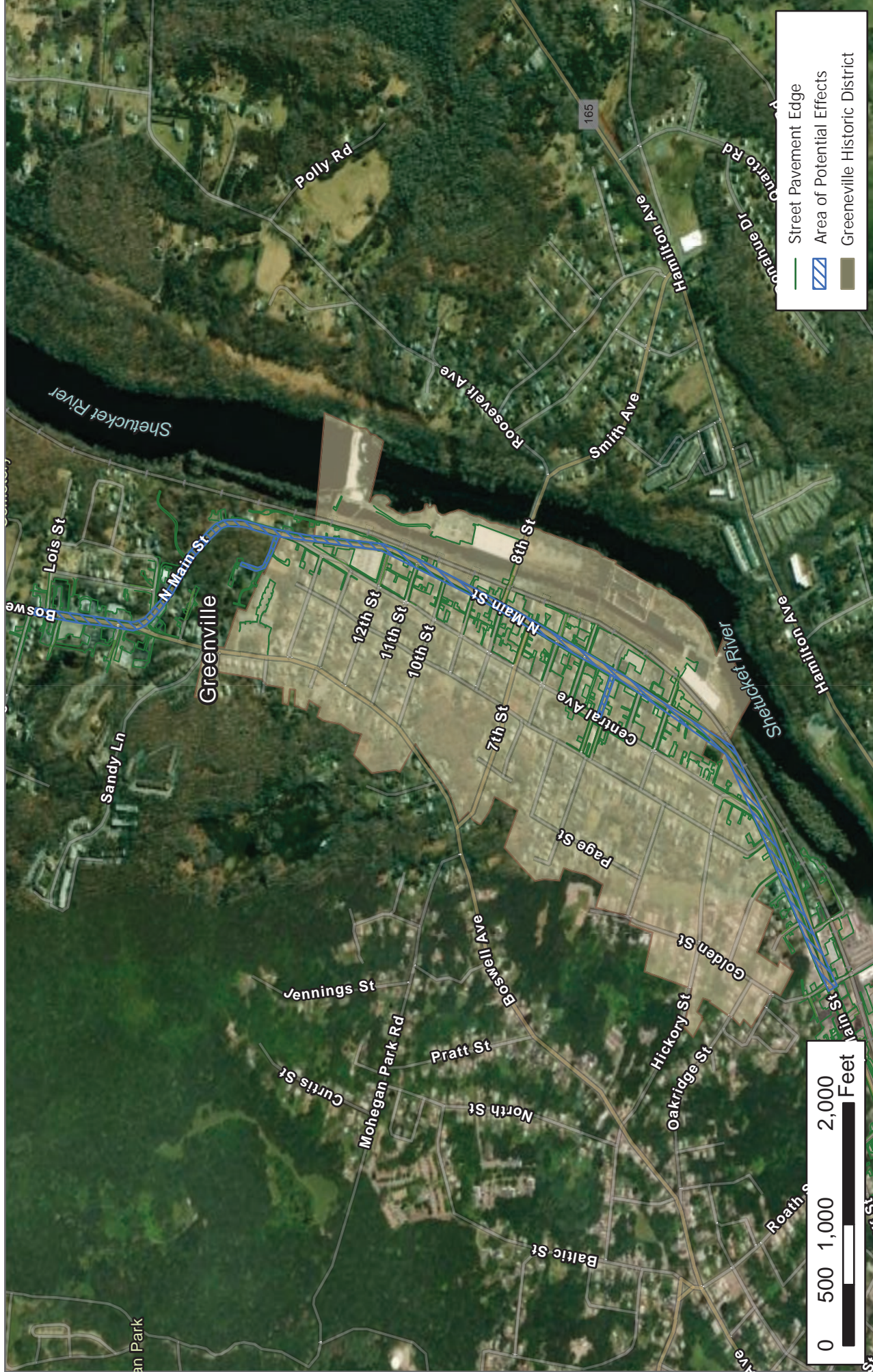
USGS Basemap: SE Connecticut Planning Region

Norwich, CT, New London County

Service Layer Credits: USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed April, 2023.



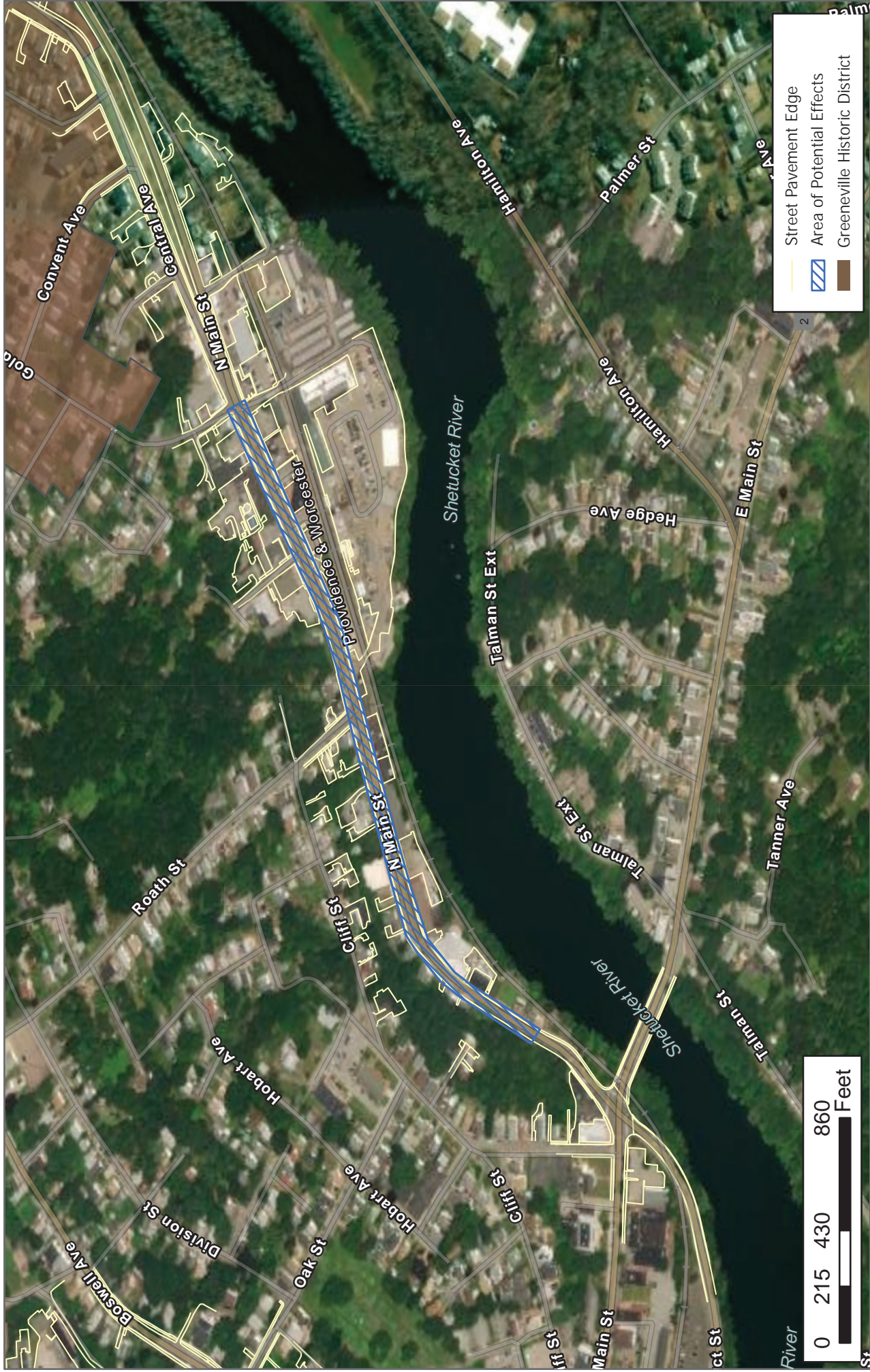
Area of Potential Effects Map



Name: Norwich, Connecticut Gas Line Replacement
North Main Street (North) Project Area
Scale: 14,000
Total Acreage: 12
Norwich, CT, New London County

Service Layer Credits: Esri Community Maps Contributors, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, State of Connecticut, Maxar

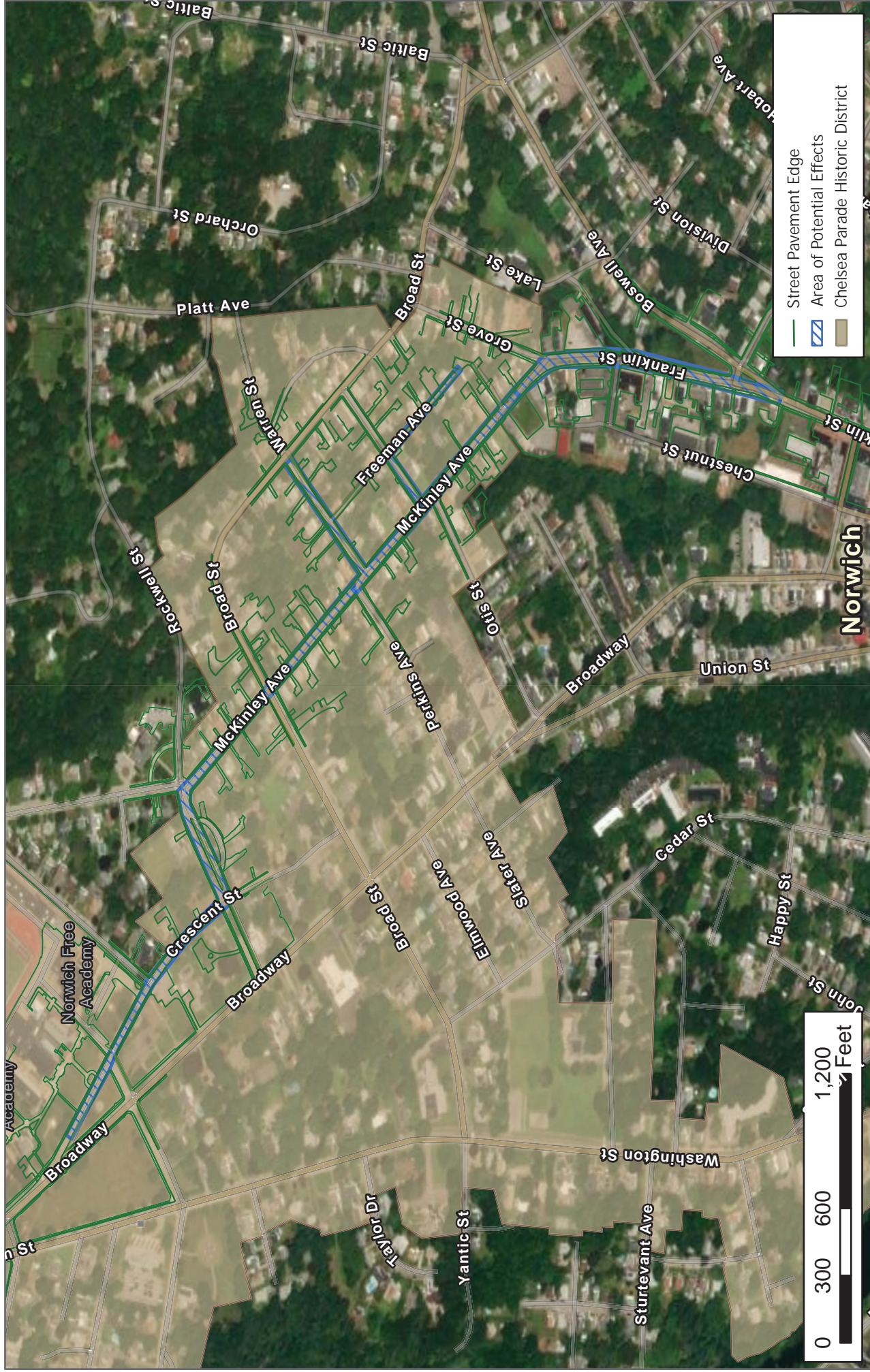
Area of Potential Effects Map



Name: Norwich, Connecticut Gas Line Replacement
North Main Street (South) Project Area
Scale: 6,000
Total Acreage: 3.5
Norwich, CT, New London County

Service Layer Credits: Esri Community Maps Contributors, MassGIS, UConn/CTDEEP, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, State of Connecticut, Maxar

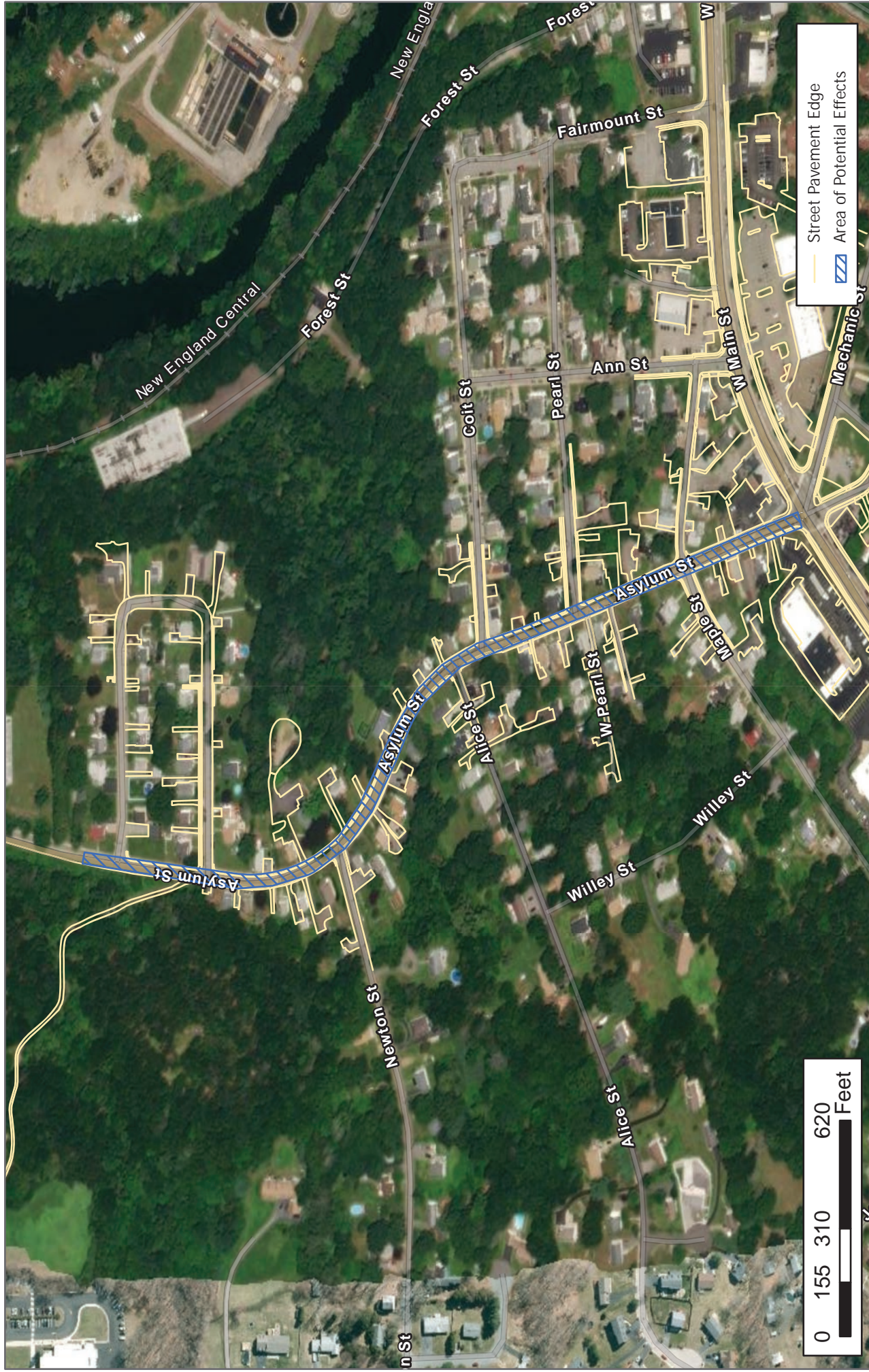
Area of Potential Effects Map



Name: Norwich, Connecticut Gas Line Replacement
NFA Project Area
Scale: 8,500
Total Acreage: 6.5
Norwich, CT, New London County

Service Layer Credits: Esri Community Maps Contributors, MassGIS, UConn/CTDEEP, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, State of Connecticut, Maxar

Area of Potential Effects Map



Name: Norwich, Connecticut Gas Line Replacement
Asylum Street Project Area
Scale: 4,500
Total Acreage: 1.75
Norwich, CT, New London County

Service Layer Credits: Esri Community Maps Contributors, MassGIS, UConn/CTDEEP, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, State of Connecticut, Maxar

ATTACHMENT B

Project Area Photographs

Phase 1 – North Main Street (South)

173 North Main Street (NPU Customer Service Center)



67 North Main Street



29 North Main Street



72/74/76 North Main Street



84 North Main Street



118 North Main Street



156 North Main Street



Phase 2 – Asylum Street

52 Asylum Street



118 Asylum Street



154 Asylum Street



89 Asylum Street



Phase 2 – North Main Street (North)

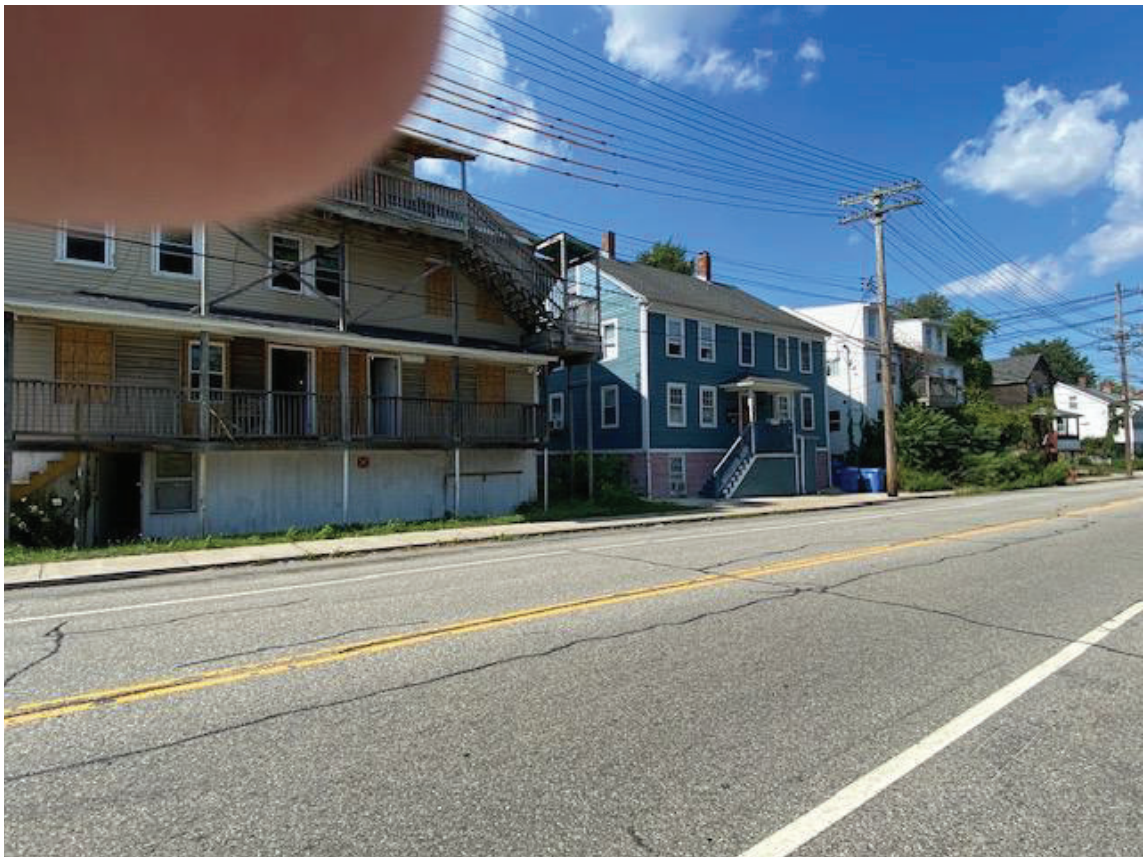
360/362 North Main Street



444 North Main Street (Norwich Fire Department)



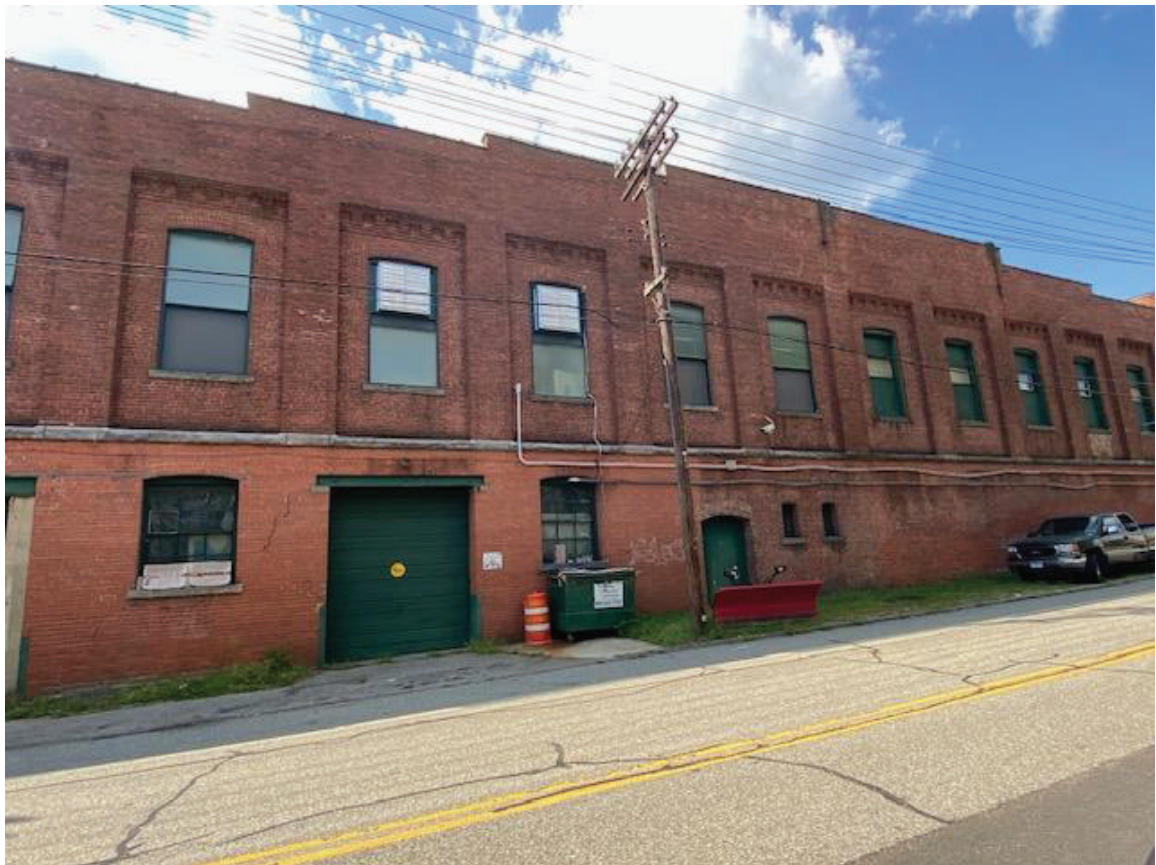
532 North Main Street



576 North Main Street



385 Central Ave (rear of building fronts on North Main Street)



744 North Main Street



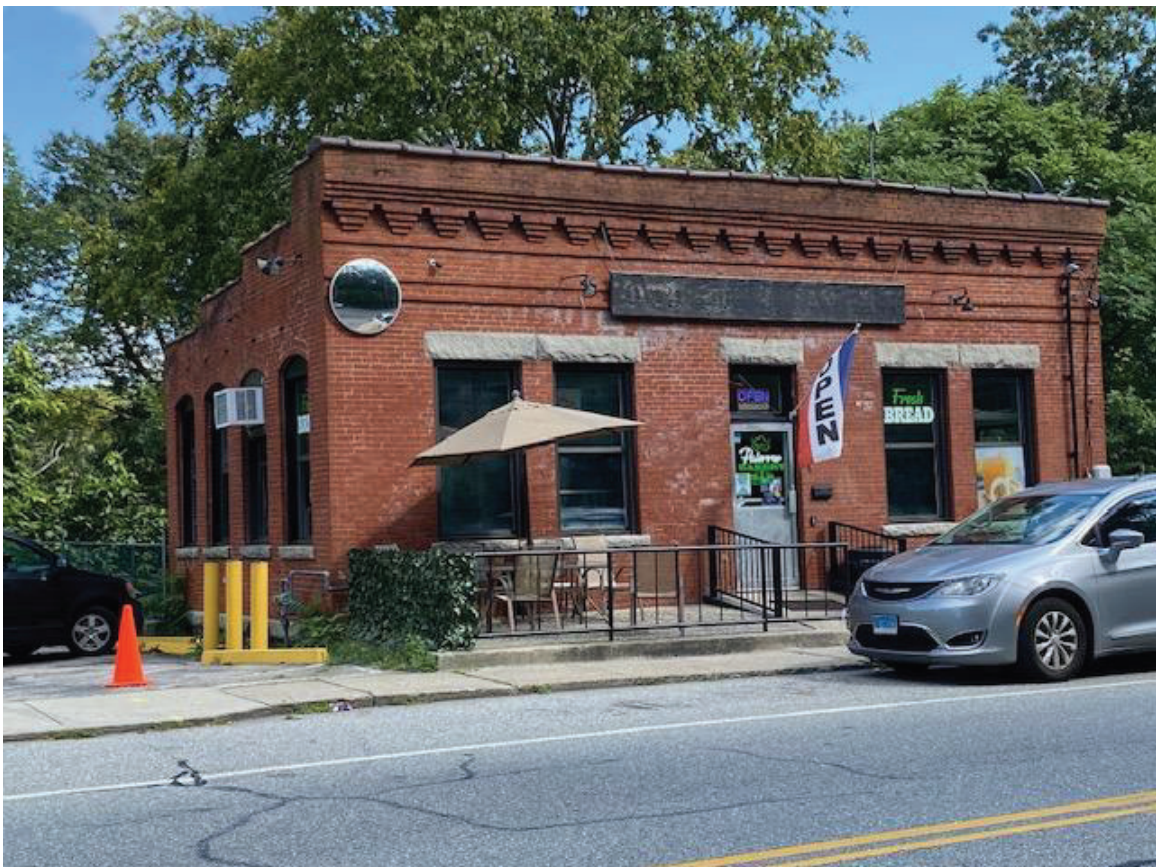
724 Boswell Avenue



715 Boswell Avenue



685 North Main Street



475 North Main Street



387 North Main Street



Phase 1 – NFA Area

132-176 Franklin Street



210 Franklin Street



282 Franklin Street



336 Franklin Street



34 McKinley Ave



148 McKinley Avenue



277 Broadway (rear)



277 Broadway (side)



92 Crescent Street (Norwich Free Academy (NFA))
(Local High School)



26 Carroll Avenue



35 Carroll Avenue



6 Beech Drive



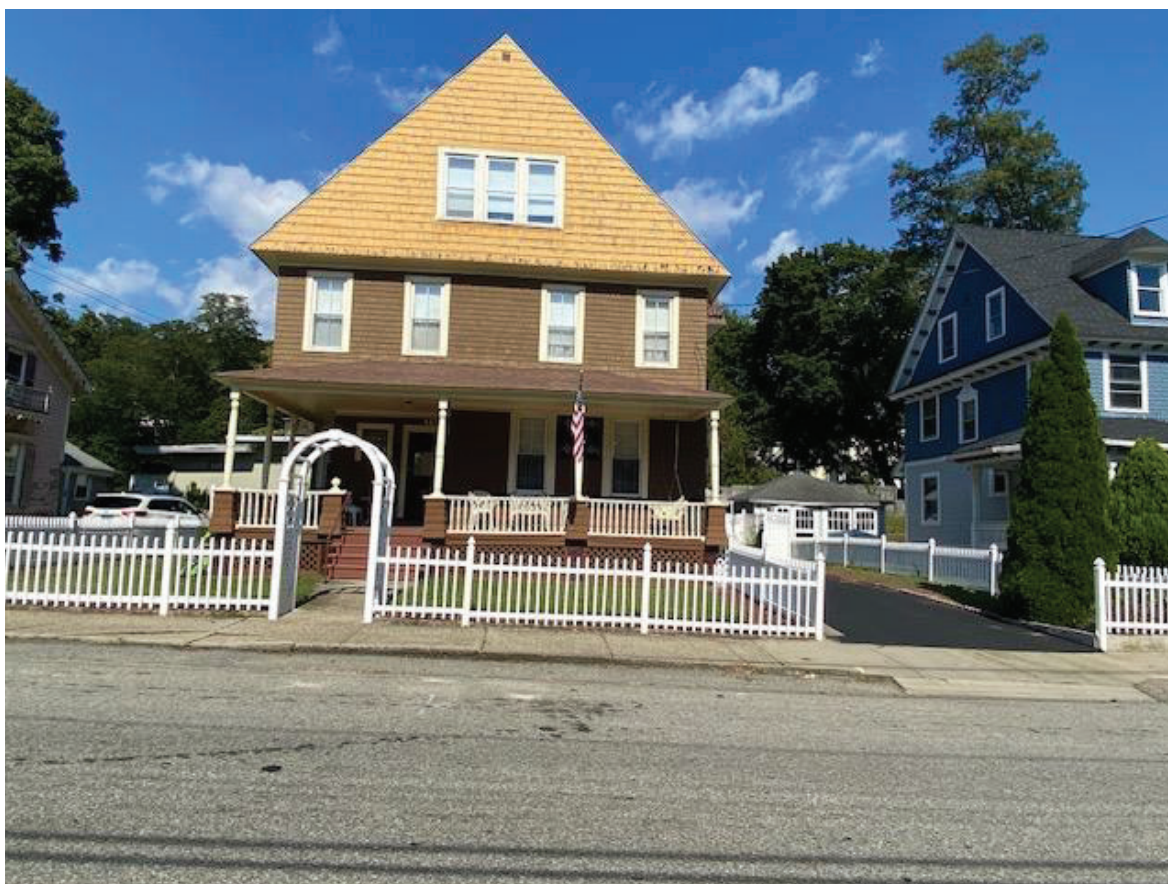
83 Beech Drive



1 Rockwell Terrace (fronts on Rockwell Street)



147 McKinley Avenue



97 McKinley Avenue



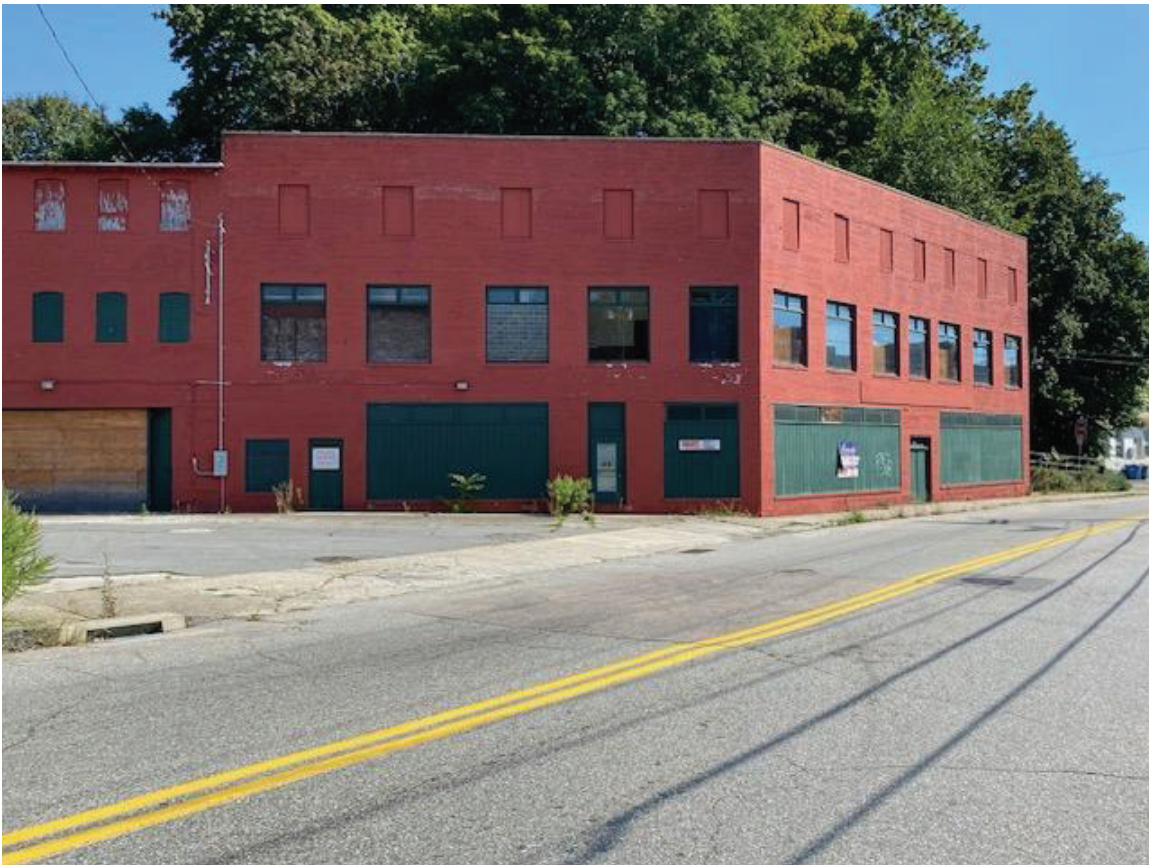
63 McKinley Avenue



19 McKinley Avenue



299 Franklin Street



191 Franklin Street



169 Franklin Street



ATTACHMENT C
Consulting Party Response Form

Section 106 Consulting Party Response Form

Pipeline and Hazardous Materials Safety Administration (PHMSA)

Natural Gas Distribution Infrastructure Safety and Modernization Grant Program

Project Name/Location:

Date:

Organization:

Name:

Affiliation:

Address:

Phone Number:

E-mail:

k.giraldo@dot.gov

Please check one of the following:

☐ **Yes**, I, or my organization, would like to participate in consultation on the project's potential effects to historic properties. I, or my organization, has a legal or economic relation to the project or affected properties or have a concern with the project's effects on historic properties.

☐ **No**, I, or my organization, do(es) not wish to participate as a consulting party for the project.

Do you know of any other potential consulting parties that should be contacted? If so, please list the name, email, or other contact information below.

Comments:

Please return by:

Please return to: Katheryn Giraldo
USDOT Volpe Center
55 Broadway Cambridge, MA
E-mail: PHMSASection106@dot.gov

Appendix F

Environmental Justice

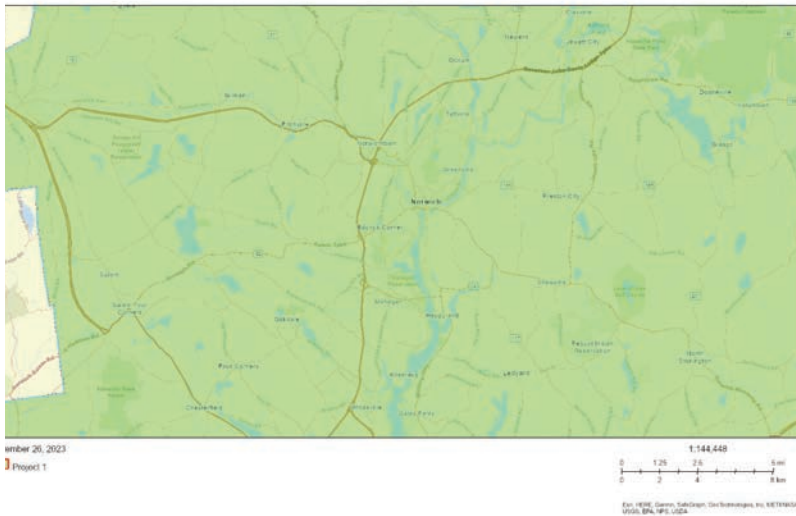


EJScreen Community Report

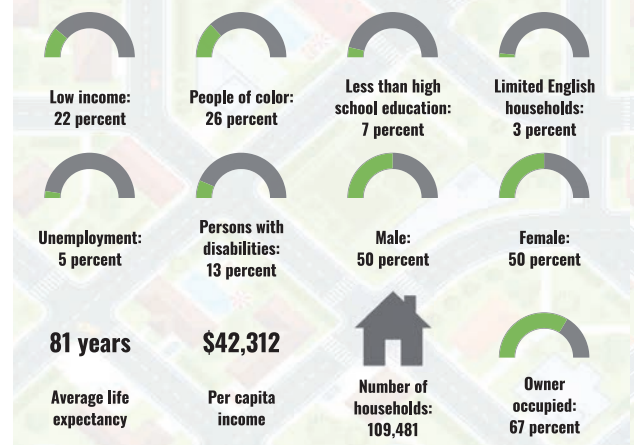
This report provides environmental and socioeconomic information for user-defined areas, and combines that data into environmental justice and supplemental indexes.

New London County, CT

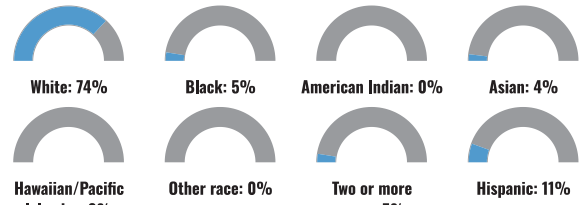
County: New London
Population: 269,131
Area in square miles: 771.96



COMMUNITY INFORMATION



BREAKDOWN BY RACE



BREAKDOWN BY AGE



LIMITED ENGLISH SPEAKING BREAKDOWN



LANGUAGES SPOKEN AT HOME

LANGUAGE	PERCENT
English	87%
French, Haitian, or Cajun	1%
Other Indo-European	2%
Chinese (including Mandarin, Cantonese)	1%
Tagalog (including Filipino)	1%
Other Asian and Pacific Island	1%
Total Non-English	13%

www.epa.gov/ejscreen

Notes: Numbers may not sum to totals due to rounding. Hispanic population can be of any race. Source: U.S. Census Bureau, American Community Survey (ACS) 2017-2021. Life expectancy data comes from the Centers for Disease Control.

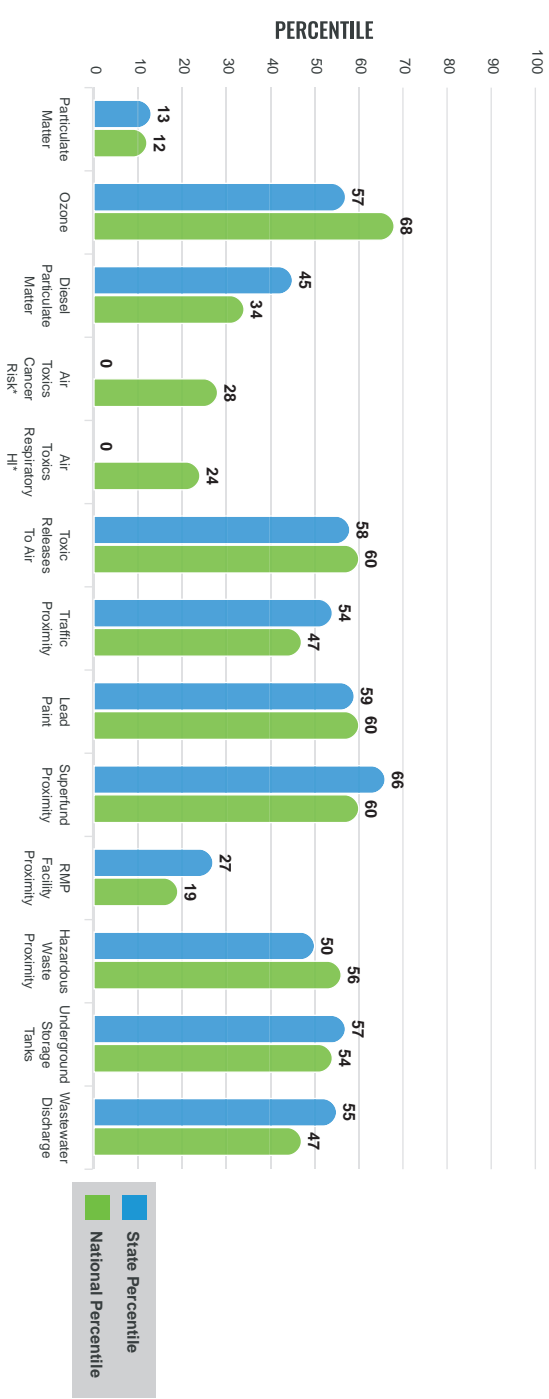
Environmental Justice & Supplemental Indexes

The environmental justice and supplemental indexes are a combination of environmental and socioeconomic information. There are thirteen EJ indexes and supplemental indexes in EJScreen reflecting the 13 environmental indicators. The indexes for a selected area are compared to those for all other locations in the state or nation. For more information and calculation details on the EJ and supplemental indexes, please visit the [EJScreen website](#).

EJ INDEXES

The EJ indexes help users screen for potential EJ concerns. To do this, the EJ index combines data on low income and people of color populations with a single environmental indicator.

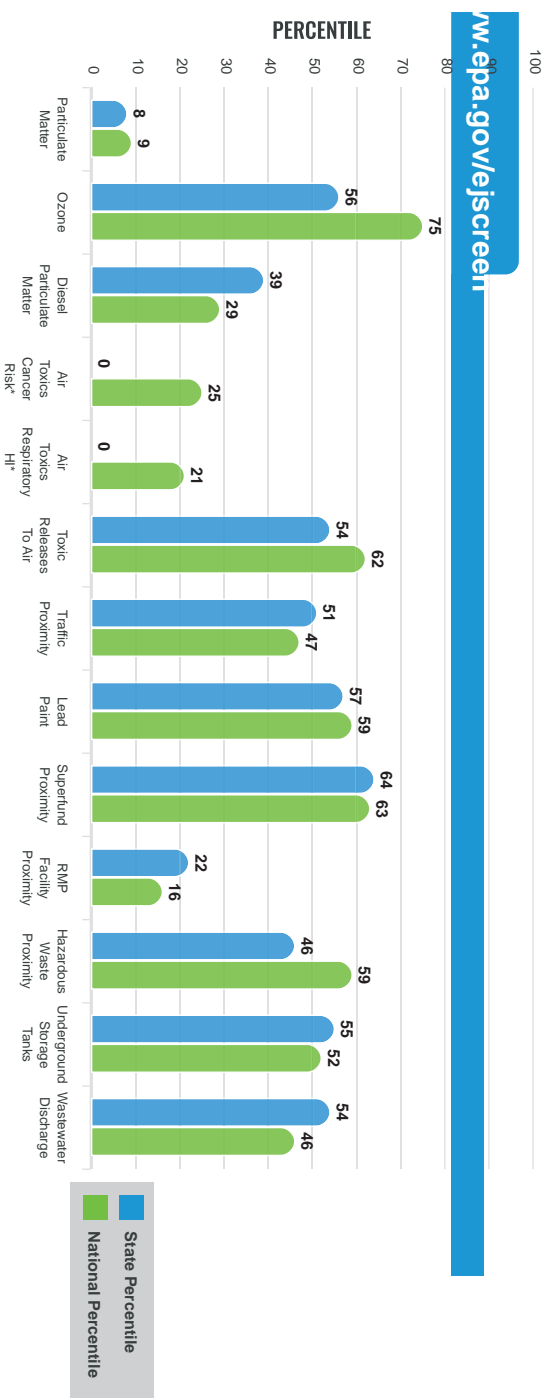
EJ INDEXES FOR THE SELECTED LOCATION



SUPPLEMENTAL INDEXES

The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on percent low-income, percent linguistically isolated, percent less than high school education, percent unemployed, and low life expectancy with a single environmental indicator.

SUPPLEMENTAL INDEXES FOR THE SELECTED LOCATION



These percentiles provide perspective on how the selected block group or buffer area compares to the entire state or nation.

Report for County: New London

EJScreen Environmental and Socioeconomic Indicators Data

SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA
POLLUTION AND SOURCES					
Particulate Matter ($\mu\text{g}/\text{m}^3$)	5.79	7.27	3	8.08	7
Ozone (ppb)	67.2	69.7	31	61.6	86
Diesel Particulate Matter ($\mu\text{g}/\text{m}^3$)	0.123	0.183	21	0.261	23
Air Toxics Cancer Risk* (lifetime risk per million)	19	21	0	25	1
Air Toxics Respiratory HI*	0.2	0.24	0	0.31	1
Toxic Releases to Air	2,300	3,600	51	4,600	75
Traffic Proximity (daily traffic count/distance to road)	91	230	52	210	54
Lead Paint (% Pre-1960 Housing)	0.4	0.44	47	0.3	66
Superfund Proximity (site count/km distance)	0.13	0.13	77	0.13	75
RMP Facility Proximity (facility count/km distance)	0.062	0.27	16	0.43	14
Hazardous Waste Proximity (facility count/km distance)	1.5	3.2	36	1.9	69
Underground Storage Tanks (count/km ²)	2.2	4.6	54	3.9	61
Wastewater Discharge (toxicity-weighted concentration/m distance)	0.026	0.4	79	22	74
SOCIOECONOMIC INDICATORS					
Demographic Index	24%	28%	56	35%	40
Supplemental Demographic Index	11%	12%	57	14%	39
People of Color	26%	34%	52	39%	45
Low Income	22%	23%	61	31%	41
Unemployment Rate	5%	6%	54	6%	59
Limited English Speaking Households	3%	5%	60	5%	67
Less Than High School Education	7%	9%	57	12%	45
Under Age 5	5%	5%	58	6%	50
Over Age 64	18%	18%	57	17%	61
Low Life Expectancy	17%	18%	47	20%	29

*Diesel particulate matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: <https://www.epa.gov/haps/air-toxics-data-update>.

www.epa.gov/ejscreen

Superfund	1
Hazardous Waste, Treatment, Storage, and Disposal Facilities	28
Water Dischargers	359
Air Pollution	200
Brownfields	43
Toxic Release Inventory	41

Schools	87
Hospitals	6
Places of Worship	168

Other environmental data:

Air Non-attainment	Yes
Impaired Waters	Yes

Selected location contains American Indian Reservation Lands*	Yes
Selected location contains a "Justice40 (CEJST)" disadvantaged community	Yes
Selected location contains an EPA IRA disadvantaged community	Yes

Report for County: New London

EJScreen Environmental and Socioeconomic Indicators Data

HEALTH INDICATORS

INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Low Life Expectancy	17%	18%	47	20%	29
Heart Disease	5.8	5.7	50	6.1	44
Asthma	10.4	10.5	47	10	66
Cancer	6.6	6.7	36	6.1	57
Persons with Disabilities	12.8%	11.6%	67	13.4%	52

CLIMATE INDICATORS

INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Flood Risk	11%	11%	63	12%	70
Wildfire Risk	0%	0%	0	14%	0

CRITICAL SERVICE GAPS

INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Broadband Internet	10%	11%	58	14%	47
Lack of Health Insurance	4%	5%	56	9%	30
Housing Burden	Yes	N/A	N/A	N/A	N/A
Transportation Access	Yes	N/A	N/A	N/A	N/A
Food Desert	Yes	N/A	N/A	N/A	N/A

Footnotes

Report for County: New London

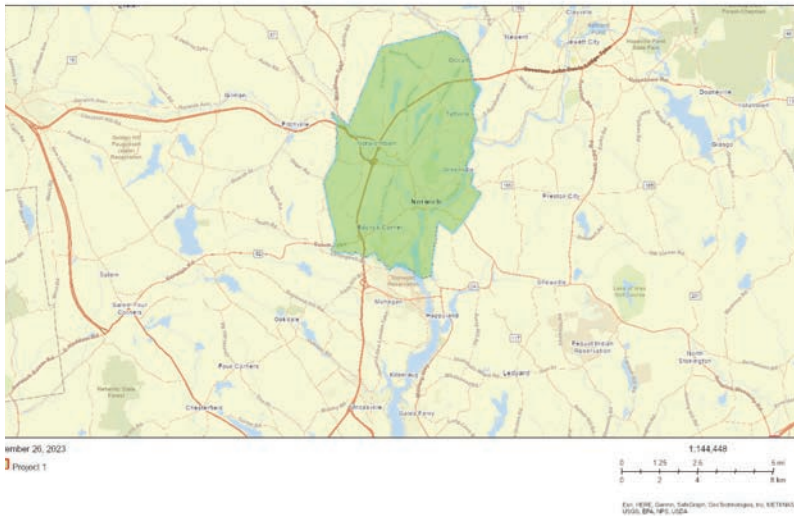


EJScreen Community Report

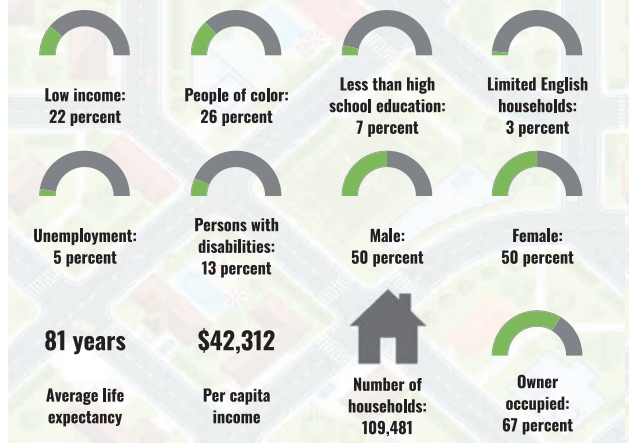
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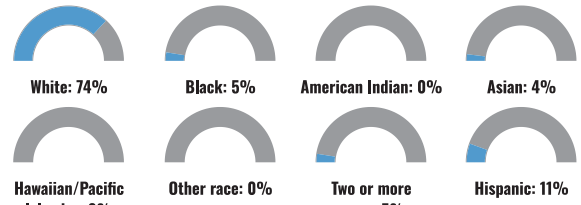
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Population: 269,131
Area in square miles: 771.96



COMMUNITY INFORMATION



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BREAKDOWN BY AGE



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www.epa.gov/ejscreen

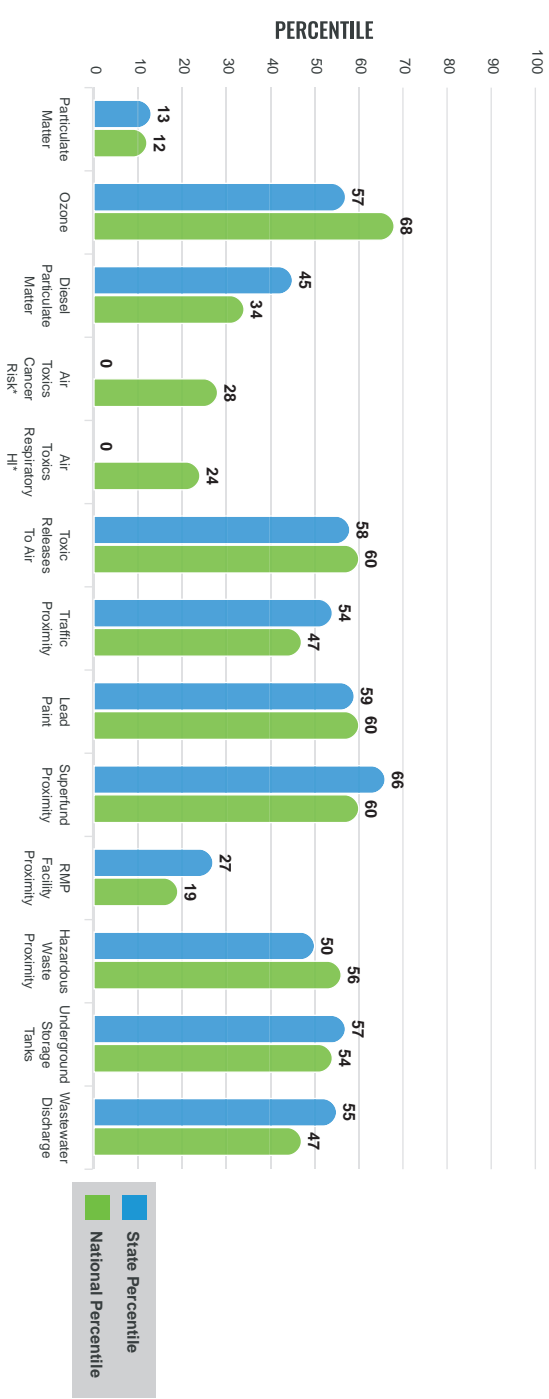
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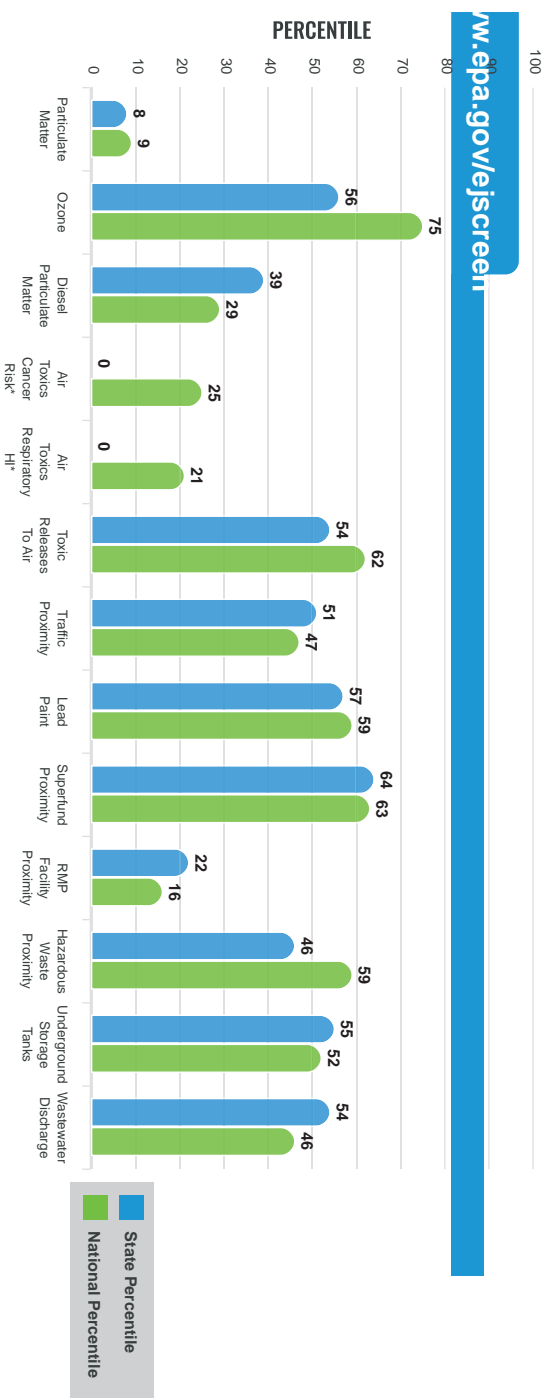
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SUPPLEMENTAL INDEXES FOR THE SELECTED LOCATION



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Report for County: Norwich

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www.epa.gov/ejscreen

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Report for County: Norwich

EJScreen Environmental and Socioeconomic Indicators Data

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Footnotes

Report for County: Norwich

www.epa.gov/ejscreen