Final Environmental Assessment

North Chicago Storm Sewer Project

LPDM-PJ-05-IL-2022-002

Lake County, Illinois

November 2024

FEMA

Federal Emergency Management Agency
Region 5
Department of Homeland Security
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Chicago, IL 60605

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Table of Contents

Appendices

Figures

Tables

Acronyms and Abbreviations

AA	Action Area
APE	Area of Potential Effects
BGS	below ground surface
BMP	Best Management Practice
CBRS	Coastal Barrier Resource System
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
C.F.R.	Code of Federal Regulations
ComEd	Commonwealth Edison Company
County	Lake County Stormwater Management Commission
CWA	Clean Water Act
EA	Environmental Assessment
EJ	Environmental Justice
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FQA	Floristic Quality Assessment
FQI	Floristic Quality Index
GHG	Greenhouse gas
GFL	Green For Life
HPZ	High Potential Zone

IDNR	Illinois Department of Natural Resources
IDOT	Illinois Department of Transportation
IEMA	Illinois Emergency Management Agency
IEPA	Illinois Environmental Protection Agency
IGPA	Illinois Groundwater Protection Act
ILCS	Illinois Compiled Statutes
Ill. Admin. Code	Illinois Administrative Code
LUC	Land Use Controls
mph	Miles per Hour
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPDES	National Pollution Discharge Elimination System
NRHP	National Register of Historic Places
NSGL	Naval Station Great Lakes
PDM	Pre-Disaster Mitigation
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctanesulfonic Acid
PM	Particulate Matter
PM10	Particulate Matter – Particles have diameters of 10 micrometers or smaller
PM2.5	Particulate Matter – Particles have diameters of 2.5 micrometers or smaller
RCRA	Resource Conservation and Recovery Act
SC-GHG	Social Cost of Greenhouse Gases
SHPO	State Historic Preservation Office

SOI	Secretary of the Interior
STP	Shovel Test Pit
SWPPP	Stormwater Pollution Prevention Plan
TMDL	Total Daily Maximum Load
TESC	Temporary Erosion and Sediment Control
US-41	Skokie Highway
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
<	Less Than

SECTION 1. Introduction

1.1. Project Authority

The Lake County Stormwater Management Commission (County) proposes to implement stormwater conveyance improvements and increase flood storage at several locations along Skokie Highway (US-41) south of Buckley Road (IL-137) in North Chicago, Illinois. The County applied to the Federal Emergency Management Agency (FEMA) through the Illinois Emergency Management Agency (IEMA) for a grant under FEMA's Pre-Disaster Mitigation (PDM) grant program. IEMA is the Applicant and direct recipient for the grant, and Lake County is the Subapplicant. The PDM grant program is authorized by Section 203 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1974 (42 United States Code [U.S.C.] § 5133). The PDM funds were made available through congressionally directed spending in the 2022 Department of Homeland Security Appropriations Act (Public Law No. 117–103). Under the PDM grant program, federal funds pay 75 percent of the project cost, and the remaining 25 percent comes from nonfederal funding sources.

This environmental assessment (EA) was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, 42 U.S.C. §§ 4321–4370h; the President's Council on Environmental Quality (CEQ) regulations to implement NEPA (40 Code of Federal Regulations [C.F.R.] Parts 1500 to 1508); the U.S. Department of Homeland Security's Directive No. 023-01; Revision 1, Implementation of the National Environmental Policy Act (October 31, 2014); U.S. Department of Homeland Security Instruction Manual No. 023-01-001-01, Revision 1, Implementation of the National Environmental Policy Act (November 6, 2014); FEMA Directive No. 108-01, Environmental Planning and Historic Preservation Responsibilities and Program Requirements (August 22, 2016); and FEMA Instruction 108-01-1, Instruction on Implementation of the Environmental and Historic Preservation Responsibilities and Program Requirements (August 22, 2016). FEMA is required to consider potential environmental impacts before funding or approving actions and projects. The purpose of this EA is to analyze the potential environmental impacts of the proposed project. FEMA will use the findings in this EA to determine whether to prepare an Environmental Impact Statement for the proposed project or to issue a Finding of No Significant Impact.

In accordance with federal laws and FEMA regulations, the EA process for a proposed federal action must include an evaluation of alternatives and a discussion of the potential environmental impacts. As part of this NEPA review, the requirements of other environmental laws and executive orders are addressed.

1.2. Project Location

The project area is in the City of North Chicago, Lake County, Illinois. General project coordinates are 42.304952, -87.880071 (western limit); 42.308601, -87.872299 (northern limit); 42.290143, -87.866721 (eastern limit); and 42.289536, -87.868582 (southern limit). The project area is approximately 14 acres and is directly south of Buckley Road near US-41, as shown in Figure 1.1.

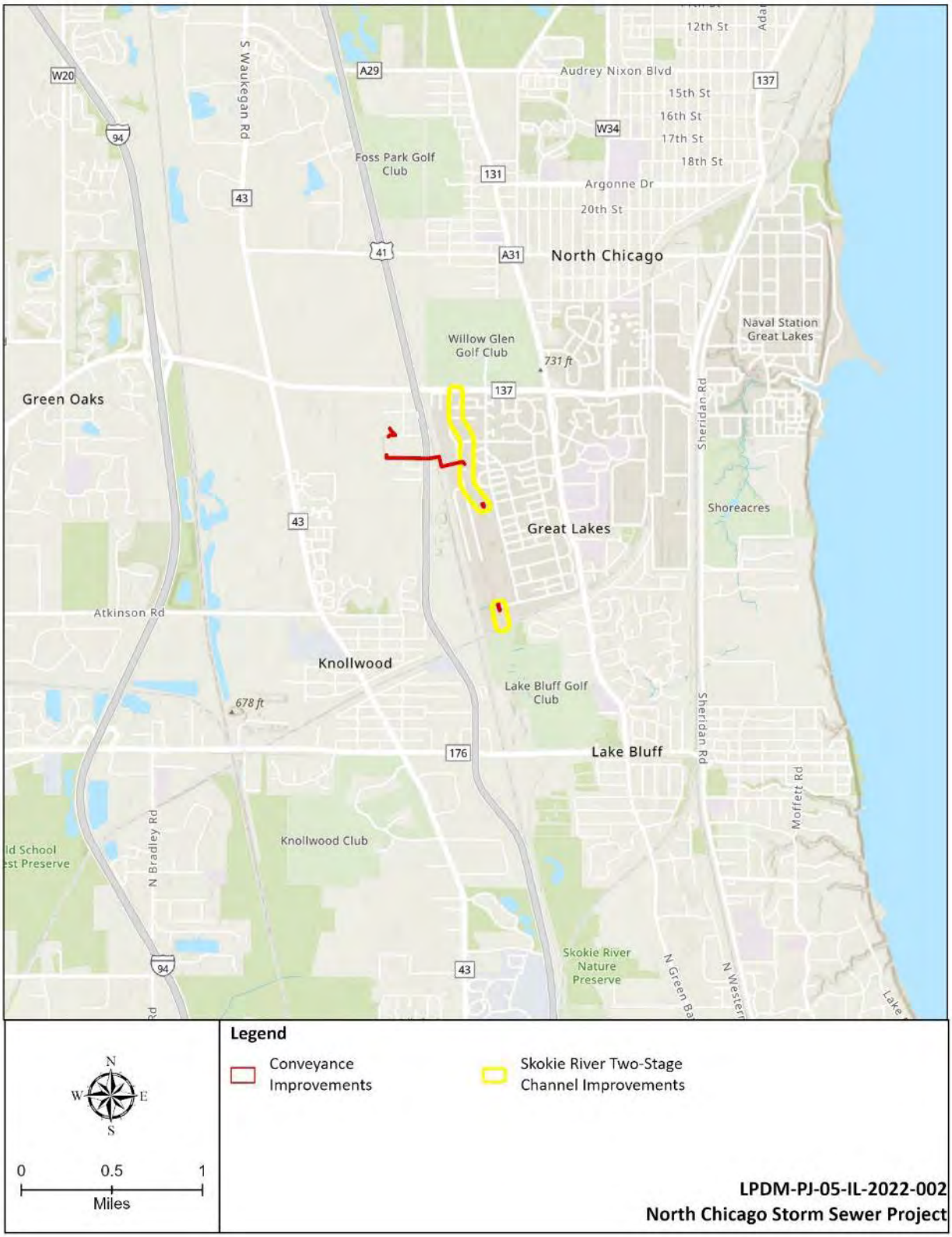

Figure 1.1. General Project Location

1.3. Purpose and Need

The objectives of FEMA's Legislative PDM grant program are to provide technical and financial assistance to states and local governments to assist in the implementation of pre-disaster hazard mitigation measures that are cost effective and designed to reduce injuries, loss of life, and damage and destruction of property, including damage to critical services and facilities resulting from natural disasters.

The purpose of the Proposed Action is to reduce flood hazards at the Strawberry Condominiums, at Navy housing, and along US-41. The project is needed because a lack of stormwater conveyance capacity and the presence of undersized storm sewers in the project area has led to flooding along US-41, at the Strawberry Condominiums, and at Navy housing east of the project area. Flooding has resulted in impacts on people, property, infrastructure, transportation, and the local economy. In July 2017, a large storm event produced over 7 inches of precipitation in 12 hours (determined to be approximately a 130-year storm) in the project area. The storm resulted in widespread flooding throughout the area because of the lack of stormwater conveyance capacity. Flood waters from this storm covered US-41, causing it to become impassable.

Climate change is increasing the frequency of flooding throughout Illinois; over the last half century, the average annual precipitation in the Midwest has generally increased by 5 to 10 percent. Additionally, rainfall during the four wettest days of the year has increased by about 35 percent, and the amount of water flowing in most streams during the worst flood of the year has increased by more than 20 percent. These patterns are expected to continue to increase over the next century, increasing the risk of future flooding (U.S. Environmental Protection Agency [EPA] 2016). See Section 8 for references listed by author or agency and year of publication. The Proposed Action is needed to reduce the risk of precipitation-induced flooding within and adjacent to the project area.

SECTION 2. Alternatives

This section describes the No Action alternative, the Proposed Action, and alternatives that were considered but dismissed.

2.1. Alternative 1 – No Action

The No Action alternative is included to describe potential future conditions if no action is taken to reduce flood risks. Under the No Action alternative, Lake County Stormwater Management Commission, or Lake County, would not have FEMA funds to implement hazard mitigation or flood risk management activities. Under this alternative, no conveyance improvements would be implemented along US-41 in North Chicago and the Skokie River in the project area would not be widened to increase flood storage capacity. Structures and roadways within and surrounding the project area would remain at risk of inundation and damage. Additionally, flood risk in the project area and vicinity would worsen because of climate change, which is increasing precipitation in the Midwest, as discussed in Section 1.3.

2.2. Alternative 2 – Proposed Action

Lake County proposes to implement conveyance improvements at several locations in North Chicago and construct a two-stage channel along the Skokie River to provide 12 acre-feet of additional flood storage capacity. Figure 2.1 shows the location of these activities.

2.2.1. CONVEYANCE IMPROVEMENTS

Conveyance improvements would include the removal and replacement of undersized storm sewers, installation of a new 60-inch relief storm sewer and restrictor plate, removal of existing culverts, installation of a box culvert, and construction of a water quality channel. Stormwater conveyance improvements would occur at five sites, including Strawberry Condominiums, Shore Crest Estates Pond/Bittersweet Avenue, US-41 at Naval Station Great Lakes (NSGL), Virginia Drive at NSGL, and Alabama Avenue at NSGL. Work at each of these locations is described in more detail in the subsections that follow.

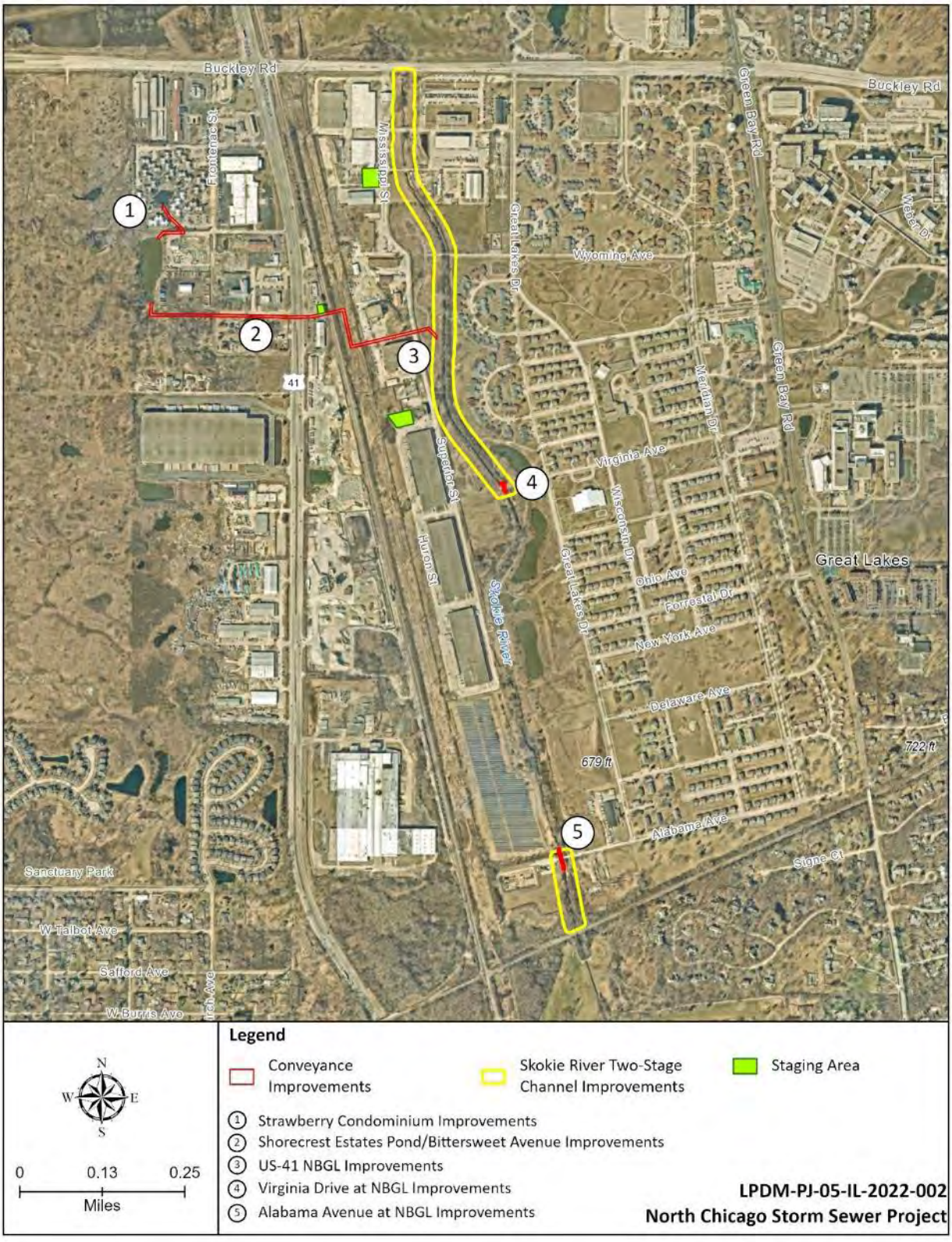

Figure 2.1. Project Area and Features

Construction at each conveyance improvement site would include clearing and removal of trees, vegetation, concrete, and other materials. Minimal tree clearing is expected as most work would occur within existing rights-of-way. Upon completion of construction, disturbed areas that were previously vegetated would be covered with topsoil, graded, and seeded with turf grass. Soil erosion and sediment control measures would be implemented prior to any land disturbance and in accordance with state and county requirements. Specifically, construction of the Proposed Action would comply with the General National Pollution Discharge Elimination System (NPDES) Permit for Stormwater Discharges from Construction Site Activities (Permit No. ILR10) or General Construction Stormwater Permit, which is required for construction disturbance of one or more acres. In accordance with the General Construction Stormwater Permit, Lake County would develop a stormwater pollution prevention plan (SWPPP) for the Proposed Action, which would require the implementation of measures to reduce pollutants in stormwater discharges and erosion and sedimentation from construction activities. Example control measures include minimizing areas of exposed soil, retaining natural buffers around waters, and installing erosion controls such as silt fencing.

Excavated materials would be hauled off-site to a designated disposal location. Equipment would be staged in parking lots and previously disturbed areas near the project area, as shown in Figure 2.1. Staging would impact up to approximately 1 acre. The construction contractor would also establish temporary construction entrances to the site. Post-construction, the temporary construction entrances and staging areas would be cleared and restored to their pre-construction condition.

Lake County would coordinate with the affected public and private utilities, including Commonwealth Edison Company (ComEd), Union Pacific Railroad, and Skokie Consolidated Drainage District for the relocation of utility equipment and would also coordinate with the Illinois Department of Transportation (IDOT) to secure the necessary easements for the US-41 roadway improvements.

Strawberry Condominium Improvements

Proposed improvements include the removal and replacement of the existing outlet control structure at the southern end of Strawberry Pond (latitude and longitude: 42.305731, -87.879668) and the replacement of approximately 490 feet of existing 18- to 24-inch storm sewer with a 36- to 42-inch storm sewer. These improvements would extend from the southeastern end of Strawberry Pond (approximate coordinates: 42.305730, -87.879614) to the northern edge of Shore Crest Estates Pond (approximate coordinates: 42.304895, -87.879794) and would cross Strawberry Condominium residential property and the Krugel Cobbles Inc. industrial property. The total area of disturbance for stormwater improvements at this location would be approximately 0.22 acres, with a maximum disturbance depth of 10 feet.

Shore Crest Estates Pond/Bittersweet Avenue Improvements

Proposed improvements include the removal and replacement of the existing outlet control structure at the southern outlet of the Shore Crest Estates Pond (approximate coordinates: 42.303559, -87.879979) and the removal and replacement of approximately 1,200 feet of the existing 36-inch storm sewer with a 60-inch storm sewer. The majority of the new storm sewer would

be installed in the right-of-way of Bittersweet Avenue and would extend from the outlet control structure at Shore Crest Estates Pond and end just west of US-41 (approximate coordinates: 42.303290, -87.876364). These improvements would occur at the Shore Crest Estates Pond and the Mulch Center properties. The total area of disturbance at this location would be approximately 0.6 acres with a maximum disturbance depth of 10 feet.

US-41 and Naval Station Great Lakes Improvements

Proposed improvements would include the construction of 48-inch and 60-inch relief storm sewers that would extend from just west of US-41 (approximate coordinates: 42.303290, -87.876364) to a drainage swale at the outfall to the Skokie River (approximate coordinates: 42.302690, -87.871543). These improvements would occur on five properties, including two Jazzy Motors properties, a Union Pacific Railroad property, ComEd property, and within the public right-of-way at Bittersweet Avenue and US-41.

Because of limited pipe cover under US-41 and constraints with existing utilities, a twin 48-inch storm sewer would be installed in the upstream portion of the improvements area, from just west of US-41 to east of Union Pacific Railroad. A total of four junction chambers would be required to accommodate the twin 48-inch storm sewer. A steel restrictor plate would be installed at this sewer on the east side of US-41. The restrictor plate would have a 16.5-inch opening that would control the release of stormwater and would be used to ensure there are no adverse downstream impacts on downstream Skokie River flood elevations. The twin 48-inch storm sewer would transition to a 60-inch relief sewer, which would run approximately 300 feet southeast through ComEd right-of-way before turning east along the right-of-way under Erie Court. The storm sewer would run through the middle of ComEd right-of-way to reduce impacts on NSGL security fencing and would adhere to ComEd offset requirements from their existing transmission towers. An approximately 94-foot section of sewer along Erie Court would be converted to a 48-inch by 76-inch elliptical pipe on the NSGL property to avoid impacts on critical fiber optic lines in this location. At the junction of Vermont Avenue and Vermont Court, the storm sewer would turn southeast where it would connect with a 5-foot-wide drainage swale that would be planted with native species and would end at the Skokie River. The total length of the 60-inch storm sewer would be approximately 1,000 feet.

The total area of disturbance at this location would be approximately 0.6 acres with a maximum disturbance depth of approximately 15 feet. There would be no ground disturbance at the Union Pacific Railroad property as the pipe would be bored underneath the properties.

Virginia Drive at Naval Station Great Lakes Improvements

Proposed improvements include the removal of approximately 200 feet of a triple 7-foot by 4-foot elliptical corrugated metal pipe and the restoration of this area as natural open channel. This work would be within the Skokie River channel in the Skokie Consolidated Drainage District boundary area at the NSGL, west of the intersection of Great Lakes Drive and Virginia Drive and east of Superior Street. Construction work within the Skokie River would be conducted during dry conditions, as discussed in more detail in Section 2.2.2. The total area of disturbance would be approximately

3,200 square feet (0.07 acre) and the maximum width, length, and depth of disturbance would be 80 feet, 40 feet, and 10 feet, respectively.

Alabama Avenue at Naval Station Great Lakes Improvements

Proposed improvements include the removal of approximately 38 feet of a 12-foot by 7-foot elliptical corrugated metal pipe and the construction of approximately 38 feet of a 12-foot by 7-foot box culvert. This work would be within the Skokie River channel in the Skokie Consolidated Drainage District boundary area at NSGL at Alabama Avenue. Construction work within the Skokie River would be conducted during dry conditions, as discussed in more detail in Section 2.2.2. The total area of disturbance would be approximately 1,200 square feet (0.03 acre) and the maximum width, length, and depth of disturbance would be 30 feet, 40 feet, and 10 feet, respectively.

2.2.2. SKOKIE RIVER TWO-STAGE CHANNEL

The existing Skokie River within the project area would be widened into a two-stage channel to increase flood storage capacity. As shown in Figure 2.1, the channel improvements would extend along the Skokie River from Buckley Road south to Virginia Avenue and from Alabama Avenue south to the Elgin, Joliet, and Eastern Railway. Construction would avoid Land Use Controls (LUC) sites and a Superfund site along the Skokie River. Land use controls are measures to limit access to or restrict uses of a site to avoid exposure to contaminants or prevent activities that could reduce the effectiveness of remediation. The improvements would occur within the Skokie Consolidated Drainage District easement at NSGL and span 50 feet on either side of the channel. An additional temporary construction easement would span 20 feet on either side of the Skokie Consolidated Drainage District easement. The two-stage channel improvements would impact approximately 3,860 feet of stream and result in a total disturbance area of roughly 11.6 acres. The maximum depth of ground disturbance would be approximately 6 feet.

Excavation and grading would be required to widen the Skokie River to create floodplain benches above the bottom of the channel. The bottom of the channel would be bounded by channel slopes, then a flat floodplain "bench," and the proposed finished slopes. The channel slopes would have a ratio of approximately 2 horizontal units to 1 vertical unit and would be approximately 2 to 3 feet high. The floodplain bench width would vary but would be generally 3 times the main channel width. The proposed finished slopes would have a ratio of approximately 3 to 4 horizontal units to 1 vertical unit. Figure 2.2 shows a typical two-stage channel design.

A limited Phase II Environmental Site Assessment was conducted in October 2023 to evaluate subsurface soil conditions along the two-stage channel project area for the presence of contaminants, including volatile and semi-volatile organic compounds, polychlorinated biphenyls, pesticides, metals, perfluorooctanesulfonic acid (PFOS), and perfluorooctanoic acid (PFOA) (A3E Consultants 2023). A total of 43 soil borings were conducted to 10 feet below the ground surface within the proposed two-stage channel area. Analytical results identified the presence of heavy metals, including barium, manganese, selenium, and arsenic, at concentrations that exceed their respective soil remediation objectives at multiple soil boring locations; additionally, PFOS and PFOA were detected in soil samples at concentrations exceeding their laboratory method detection limit at

multiple soil boring locations. During construction, soils within the two-stage project area would be tested for contamination by a geotechnical engineer. Contaminated soils would be excavated in their entirety and properly disposed of at the Green For Life (GFL) Zion Illinois Landfill (701 North Green Bay Road, Zion, Illinois) or another licensed waste facility for handling such material, in accordance with applicable federal, state, and local regulatory requirements, such as the federal Resource Conservation and Recovery Act (RCRA) and Illinois state regulations pertaining to management of hazardous waste (Title 35 Ill. Admin. Code, Parts 700-739).

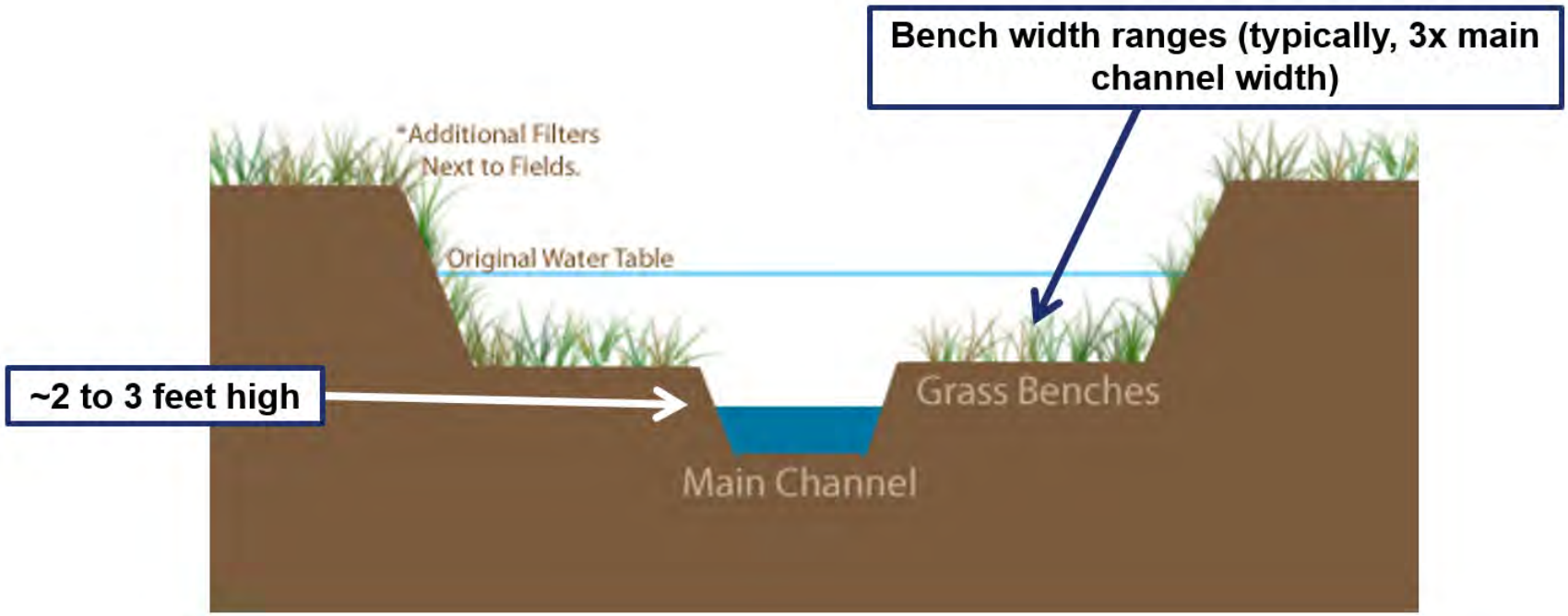

Figure 2.2. Two-Stage Channel Typical Design

Channel widening would not occur within LUC 13/Site 2, LUC 12/Site 3, and Site 24. Site 24 was formerly used as a waste disposal site and it is currently enrolled under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also known as Superfund, as the Panhandle Fill Area (Naval Station Great Lakes n.d.). A non-time critical removal action began in December 2020 and a Phase II Environmental Site Assessment is planned for the site in 2024 or later. LUC 13/Site 2 and LUC 12/Site 3 were formerly landfills; currently, LUCs are implemented on these sites and annual long-term groundwater monitoring is being conducted. Because of monitoring requirements and established LUCs, these sites are excluded from the project area.

To maintain existing access across the Skokie River, channel widening would not occur where West Connecticut Avenue, West Colorado Avenue, or West Wyoming Avenue cross the Skokie River. At these locations, culvert infrastructure would not be removed and the channel would retain its original width. As mentioned in Section 2.2.1, the culvert at Alabama Avenue would be replaced; thus, the channel would not be widened at this location.

Construction equipment would be staged in parking lots near the project area, such as parking lots for the NSGL. The construction contractor would also establish temporary construction entrances to the site, which would be located along the two-stage channel project area at Alaska Avenue and Alabama Avenue. Post-construction, the temporary construction entrances and staging areas would be cleared and restored to their pre-construction condition. As mentioned previously, Lake County would follow all requirements from the General Construction Stormwater Permit, including development of a SWPPP and implementation of sedimentation and pollution control measures. Per the SWPPP, erosion and sedimentation control barriers and containment systems would be implemented to capture sediment and pollutants from the work area before stormwater is discharged into the stream. Construction work within the Skokie River would be conducted during dry conditions. Prior to construction, the channel would be dewatered; the water would be diverted using channels, cofferdams, or pumps to create dry conditions. The dewatering or diversion system would be monitored to ensure it working properly and in accordance with a dewatering plan and temporary erosion and sediment control (TESC) plan to limit erosion and sedimentation from water diversion activities. Further, these activities would be conducted in accordance with conditions in the 404 permit and 401 certification, as applicable.

All vegetation within the 100-foot-wide corridor along the Skokie River would be removed for construction. Immediately upon completion of grading, channel slopes would be stabilized with a permanent erosion control blanket. As soon as feasible, the floodplain bench would be seeded with a wetland seed mix and an upland seed mix would be applied to the proposed finished slopes. Four inches of high-quality topsoil would be applied to the surface of the proposed finished slopes, either from topsoil removed from the site and temporarily stockpiled on-site during construction or imported to the project area.

2.2.3. CONSTRUCTION DURATION AND MAINTENANCE

Construction of the Proposed Action would occur over approximately 16 months. Construction activities, including vegetation removal, and restoration activities would occur in the spring, summer, and fall. Work would not occur in the winter (between December and February).

The City of North Chicago would be responsible for the long-term maintenance of improvements made to the city storm sewer system. IDOT would be responsible for the long-term maintenance of the improvements made to their stormwater infrastructure. Skokie Consolidated Drainage District would be responsible for the improvements made to their drainage system, which includes the two-stage channel and conveyance improvements at the Virginia Drive and Alabama Avenue sites. Finally, Lake County would ensure the long-term maintenance of the 60-inch storm sewer constructed at the NSGL. There would be a 3- to 5-year maintenance and monitoring period in which Lake County would ensure that native vegetation is established. Once native vegetation is established, Lake County would conduct periodic maintenance of the area to ensure invasive species are not reintroduced in the area.

2.3. Alternatives Considered but Eliminated from Further Consideration

2.3.1. SEPARATE STORM SEWER IMPROVEMENT PROJECTS

Initially, improvements to increase storm sewer capacity at each location listed in Section 2.2.1 were considered as standalone projects; however, each project, if implemented alone, would either not significantly reduce localized flooding or would increase flood elevations in downstream areas. Thus, the series of stormwater conveyance improvements need to be conducted together to avoid adverse impacts. This alternative would not meet the purpose and need and was eliminated from further consideration.

2.3.2. CONSTRUCTION OF A COMPENSATORY FLOODWATER STORAGE RESERVOIR

In addition to the storm sewer capacity and conveyance improvements described in Section 2.2.1, a flood storage reservoir, or a combination of reservoirs, was assessed. The alternative proposed a reservoir on Lake Bluff Golf Course property designed to hold up to 8 acre-feet of stormwater volume. However, constructing a reservoir within the Lake Bluff Golf Course property would have complications related to ownership, project timing, and public opinion and was not considered to be feasible. Additionally, this alternative would have fewer environmental benefits than the Proposed Action because it would not restore the Skokie River. Therefore, this alternative was eliminated from further consideration.

SECTION 3. Affected Environment and Consequences

This section describes the environment potentially affected by the alternatives, evaluates potential environmental impacts, and recommends measures to avoid or reduce those impacts. When possible, quantitative information is provided to establish potential impacts. The significance of potential impacts is based on the criteria listed in Table 3.1. The study area generally includes the project area and access and staging areas needed for the Proposed Action. If the study area for a particular resource category is different from the project area, the differences will be described in the appropriate subsection.

Table 3.1. Evaluation Criteria for Potential Impacts

Impact Scale	Criteria
Negligible	The resource area would not be affected, or changes or benefits would be either nondetectable or, if detected, would have impacts that would be slight and local. Impacts would be well below regulatory standards, as applicable.
Minor	Changes to the resource would be measurable, although the changes would be small and localized. Impacts or benefits would be within or below regulatory standards, as applicable. Mitigation measures would reduce any potential adverse impacts.
Moderate	Changes to the resource would be measurable and have either localized or regional-scale impacts/benefits. Impacts would be within or below regulatory standards, but historical conditions would be altered on a short-term basis. Mitigation measures would be necessary to reduce any potential adverse impacts.
Major	Changes would be readily measurable and would have substantial consequences on a local or regional level. Impacts would exceed regulatory standards. Mitigation measures to offset the adverse impacts would be required to reduce impacts, though long-term changes to the resource would be expected.

3.1. Resources Considered and Dismissed

Based on a preliminary screening of resources and the project's geographic location, the following resources do not require a detailed assessment.

- *Seismic Hazards.* Executive Order (EO) 13717, Establishing a Federal Earthquake Risk Management Standard, does not apply because there is low seismic risk in the project area based on seismic hazard maps developed by the U.S. Geological Survey (USGS) (USGS 2018). *See Section 8 for references listed by author or agency and year of publication*.

- *Farmland Soils.* The U.S. Census Bureau (2010) designated Lake County as part of the Chicago Urbanized Area. Therefore, the Farmland Protection Policy Act of 1981, 7 U.S.C. §§ 4201 *et seq.*, is not applicable to the No Action or Proposed Action alternatives and no further compliance work is necessary (7 C.F.R. § 658.2[a]).

- *Coastal Barrier Resources System (CBRS).* The Coastal Barrier Resources Act, 16 U.S.C. §§ 3501–3510, is not applicable because the project is not within or near a CBRS unit (U.S. Fish and Wildlife Service [USFWS] 2019a).

- *Coastal Zone Management.* The Coastal Zone Management Act, 16 U.S.C. §§ 1451–1464, Ch. 33, enacted in 1972, is not applicable. The project area is adjacent to the coastal zone, which extends from Lake Michigan to Green Bay Road (Illinois Department of Natural Resources [IDNR] 2011). However, the Coastal Zone Management Act only applies to areas within the coastal zone and therefore does not apply to the Proposed Action.

- *Sole Source Aquifers.* There are no sole source aquifers regulated by the Safe Drinking Water Act of 1974, 42 U.S.C. §§ 300f *et seq.*, near the project area (EPA 2023a).

- *Essential Fish Habitat.* The Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. §§1801 *et seq.,* does not apply because there are no Habitat Areas of Particular Concern and no essential fish habitat areas identified at the project site according to the National Oceanic and Atmospheric Administration Essential Fish Habitat Mapper (National Marine Fisheries Service 2023).

- *Wild and Scenic Rivers.* The Wild and Scenic Rivers Act, 16 U.S.C. §§1271 *et seq.*, is not applicable because there are no federally designated wild and scenic rivers in the project area based on a review of the National Wild and Scenic Rivers System website maintained by the National Park Service (National Park Service 2021).

- *Land Use and Zoning.* According to the North Chicago Zoning Map (City of North Chicago 2023a), land uses in and near the project area include residential, commercial, industrial, and public land (for the NSGL and Skokie River). Implementation of the No Action and Proposed Action alternatives would not result in any changes to zoning in the project area. For the Proposed Action, all work would occur within easements and no property would be acquired. The Proposed Action would not affect any structures. Thus, there would be no change to land use because of the Proposed Action.

3.2. Physical Environment

3.2.1. GEOLOGY, TOPOGRAPHY, SOILS

Soils in the project area were identified using the U.S. Department of Agriculture Natural Resources Conservation Service Web Soil Survey (accessed November 2023). Soils in the project area primarily include Peotone silty clay loam, Clayey Orthents, Ozaukee silt loam, Frankfort silt loam, and Grays silt

loam. These soil types drain poorly and are characterized by slopes ranging from 0 to 4 percent (Natural Resources Conservation Service 2023). Underlying bedrock in the project area is 10 to 20 feet underground and consists of Wilhelmi Formation and various types of dolomite (Illinois State Geological Survey 2005).

As discussed in Section 2.2, a limited Phase II Environmental Site Assessment conducted in October 2023 to evaluate subsurface soil conditions along the two-stage channel project area identified the presence of heavy metals, including barium, manganese, selenium, and arsenic, at concentrations that exceed their respective soil remediation objectives at multiple soil boring locations; additionally, PFOS and PFOA were detected in soil samples at concentrations exceeding their laboratory method detection limit at multiple soil boring locations. Thus, soil contamination is present throughout the project area.

Topography in the project area was determined using USGS topographic maps. The project area is a small depression within generally flat topography. Elevations in the project area range between 670 and 690 feet (USGS 2023).

Alternative 1 – No Action

Under the No Action alternative, there would be no construction-related short-term impact on soils, geology, or topography. However, in the long term, the risk of flooding would not be reduced and could in fact worsen because of increasing precipitation as a result of climate change. Flooding would not be expected to affect geology or alter topography because of the gentle slopes in the area. However, floodwaters would deposit debris and sediment on the ground surface that could physically damage soil and smother and kill vegetation (Soil Science of American and American Society of Agronomy n.d.). Loss of vegetation would further contribute to erosion in the flooded area. The No Action alternative would have minor long-term adverse impacts on soils in the project area and vicinity, depending on the extent, frequency, and duration of flood events.

Alternative 2 – Proposed Action

The Proposed Action would have minor short-term adverse impacts on soils and topography during the construction period, which is expected to last up to 16 months. The Proposed Action area would require earthwork and grading over approximately 14 acres. These grading activities would have the potential to generate sediments. Erosion and sediment control measures would be implemented in accordance with national, state, and county requirements. Specifically, construction of the Proposed Action would comply with the General Construction Stormwater Permit, as discussed in Section 2.2, which is required for construction disturbance of one or more acres. In accordance with the General Construction Stormwater Permit, the County would develop a SWPPP for the Proposed Action, which would require implementation of measures to reduce pollutants in stormwater discharges and prevent sediment from leaving the construction site. Additionally, the County would develop a TESC plan to limit erosion and sedimentation from water diversion activities. Example control measures include minimizing areas of exposed soil, retaining natural buffers around waters, and installing erosion controls.

As mentioned in Section 2.2, a limited Phase II Environmental Site Assessment conducted in October 2023 identified soil contamination in the two-stage channel project area. Thus, there is a potential for contaminated soils to be encountered during excavation and grading activities. During construction, soils within the two-stage channel project area would be tested for contamination. Contaminated soils would be excavated in their entirety and properly disposed of at a licensed waste facility for handling such material, in accordance with applicable federal, state, and local regulatory requirements. Further, all construction activities would follow requirements in the SWPPP. Thus, there is limited potential that these soils would be spread during construction activities.

The maximum depth of disturbance at most conveyance improvement sites would be 10 feet with the exception of the US-41 and NSGL Improvements site, where the maximum depth of excavation would be 15 feet. The maximum depth of ground disturbance for the two-stage channel would be approximately 6 feet. As stated previously, bedrock in the area is at 10 to 20 feet below ground surface (BGS). Thus, construction of the conveyance improvements would have negligible adverse impacts on geology.

Overall, the Proposed Action would have minor long-term benefits on soils from the reduced risk of flooding and associated risk of sediment and debris deposition that could kill vegetation. Additionally, the Proposed Action would include restoring the Skokie River channel with a wetland and upland native seed mix, as described in Section 2.2. The wetland vegetation along the channel would be adapted to soils that are saturated for a significant portion of the growing season. Wetland plants reduce soil erosion by holding soil in place during floods with their roots (EPA n.d.). Additionally, the excavation and proper disposal of contaminated soils at a licensed waste facility in accordance with applicable federal, state, and local regulatory requirements is also expected to improve the soil quality within the project area by removing contaminated soils from the project area. The Proposed Action would also have negligible benefits on topography from reshaping the Skokie River into a two-stage channel to provide increased flood storage.

3.2.2. WATER RESOURCES AND WATER QUALITY

Water resources within the project area include surface water, groundwater, stormwater, and drinking water (wetlands are evaluated in Section 3.3.2). Water quality is the condition of a water body as it relates to purposes such as recreation, scenic enjoyment, human health, and aquatic habitat (EPA 2023b). Water quality is regulated by both the Clean Water Act (CWA) and Illinois state statutes.

The CWA of 1977, 33 U.S.C. §§1251 *et seq.*, regulates the discharge of pollutants into water, with various sections falling under the jurisdiction of the U.S. Army Corps of Engineers (USACE) and EPA or as delegated to the state. Section 303(d) of the CWA requires states to identify waters where current pollution control technologies alone cannot meet the water quality standards set for that water body. The Illinois Environmental Protection Agency (IEPA) manages the Total Maximum Daily Load (TMDL) List and the Inventory of Impaired Waters in accordance with Section 303(d) of the CWA. Under Section 303(d), states must develop TMDLs for impaired waterbodies. A TMDL establishes the

maximum amount of a pollutant or contaminant allowed in a water body and serves as a planning tool for restoring water quality.

Additionally, under Section 402 of the CWA, regulation of both point and nonpoint pollutant sources, including stormwater runoff, has been delegated to the state and is administered by the IEPA. The state has issued a General Construction Stormwater Permit and projects must request authorization to work under this permit when there would be more than 1 acre of ground disturbance. As part of the NPDES permit, a SWPPP is required to be prepared and implemented by the project proponent.

Section 404 of the CWA establishes USACE permit requirements for the discharge of dredged or fill materials into waters of the United States. USACE administers Section 404 of the CWA. Activities that require a Section 404 permit also usually require a Section 401 certification. IEPA administers Section 401 of the CWA and issues water quality certifications for federally permitted activities to ensure they will not violate state water quality standards.

The Illinois Groundwater Protection Act (IGPA), 415 Ill. Comp. Stat. § 55/1 *et seq.*, protects groundwater as a natural and public resource, with special provisions targeting drinking water wells. The IGPA applies to activities that have the potential to impact groundwater quality, such as hazardous waste handling and storage, solid waste disposal, and pesticide and fertilizer use (IEPA 1988). For these activities, the IGPA requires minimum setback zones of 200 to 400 radial feet around community water supply wells and prohibits new potential primary and secondary sources of contamination and new potential routes of contamination within these areas. Maximum setback zones of 1,000 feet may be required around community water supply wells depending on factors such as the regulated activity or the regional gradient (IEPA 1995; IEPA 2023).

The project area is within the Lake Michigan watershed, in Hydrologic Unit Code 712000301, and lies west of Lake Michigan (Illinois State Water Survey 2011; USFWS 2023). Additionally, the project area is within the Skokie River headwaters. The Skokie River occupies an excavated channel that runs the length of NSGL within the project area. At some locations, the channel has meandered slightly and created depositional areas within the channel bottom that supports wetland vegetation. The channel is designated as a water of the United States with occasional wetland fringe.

An assessment of the waters of the United States including wetlands in the project area was completed on July 29 and August 5, 2022, in accordance with USACE regional wetland delineation procedures (Lake County Stormwater Management Commission 2022). The assessment mapped wetlands and surface waters that were identified during the survey. The study area that was assessed in 2022 was larger than the project area for the Proposed Action; thus, only the surface waters identified in the assessment that are within the project area are included in this EA. Surface waters in the project area generally include Strawberry Pond, Shore Crest Estates Pond 1, and the Skokie River, as shown in Figure 3.1 and Table 3.2. These surface waters are fringed with wetlands in places and there are additional wetlands adjacent to the project area. Wetlands in the project area and vicinity are discussed in Section 3.3.2.

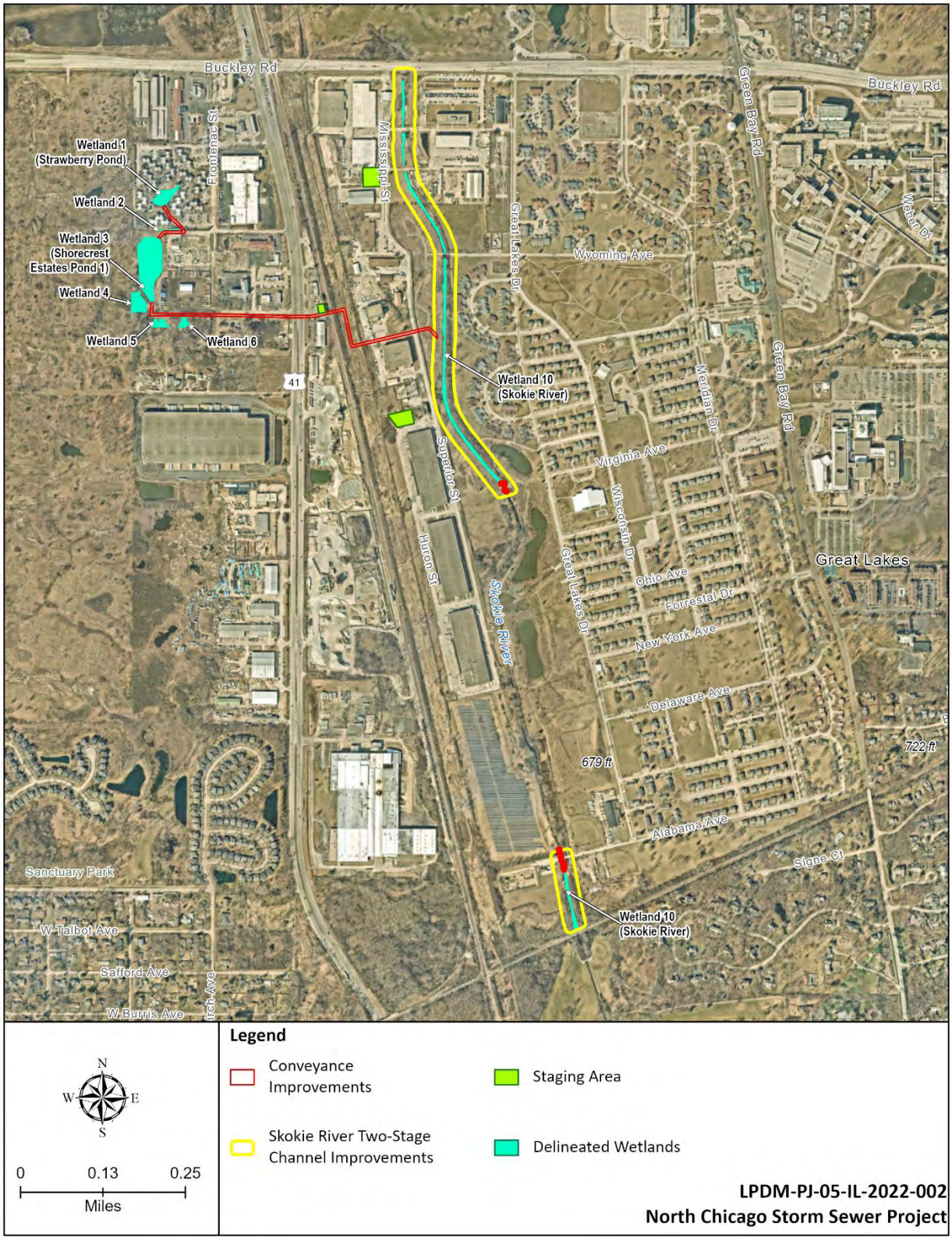

Figure 3.1. Project Area Surface Waters and Wetlands

Table 3.2. Surface Waters/Wetlands in Project Area

Name	Community Type	Total Area of Waters/Wetlands (Acres)	Area of Waters/Wetlands Impacted (Acres)
Waters/Wetland 1 (Strawberry Pond)	Excavated pond with wetland fringe	0.4	0.003
Wetland 2	Drainage swale and lawn	0.05	0
Waters/Wetland 3 (Shore Crest Estates Pond)	Excavated pond with wetland fringe	1.8	0.01
Wetland 4	Wetland complex – variety of habitats including emergent, wet prairie, scrub shrub, and woodland	0.4	0
Wetland 5	Degraded wet prairie and emergent wetland	0.17	0
Wetland 6	Wooded wetland	0.12	0
Waters/Wetland 10 (Skokie River)	Skokie River	2.08	2.08
		TOTAL	**2.09**

Source: Lake County Stormwater Management Commission. 2022. Skokie River Regional Floodplain Enhancement Project: Strawberry Condominiums, Naval Station Great Lakes, and US Route 41 Waters of the United States – Wetland Assessment. CBBEL Project No. 220179. August 2022. Rosemont, Illinois.

Note: This Lake County Wetland Assessment and FQA includes areas that have since been removed from the current project area; thus, only surface waters and wetlands mapped in Exhibit 7 that are within the current project area are included in this table.

The surface water bodies in the project area are within an urbanized watershed that is impacted by runoff from residential, commercial, and industrial development. Impervious surfaces surrounding the ponds and Skokie River, including roads and parking lots, increase runoff and may contaminate surface waters with pollutants, such as motor oil, sediments, and salts during winter months. As discussed in Section 2.2 and 3.2.1, a limited Phase II Environmental Site Assessment, conducted in October 2023 to evaluate subsurface soil conditions along the two-stage channel project area, identified the presence of heavy metals at concentrations exceeding their respective soil remediation objectives and PFOS and PFOA at concentrations exceeding their laboratory method detection limit at multiple soil boring locations. Thus, soil contamination is present throughout the two-stage channel project area.

EPA's "How's My Waterway" tool designates the Skokie River as impaired based on the latest 303(d) report from 2022 (IEPA 2022a). While certain designated uses, including aesthetic quality and fish consumption, were not assessed for the Skokie River channel in the project area, IEPA found the

designated uses of aquatic life and primary contact were impaired. Impaired parameters (i.e., water quality parameters that do not meet state or tribal specific water quality standards and/or thresholds) affecting aquatic life are chloride, dissolved oxygen, total phosphorus, and total suspended solids. Impaired parameters affecting primary contact are fecal coliform. There is an applicable TMDL in place for chloride, fecal coliform, and total phosphorous in the North Branch Chicago River, which includes the Skokie River through the project area. Strawberry Pond and Shore Crest Estates Pond are not included in the 303(d) assessment (EPA 2024a; IEPA 2022a).

There are two drinking water wells near the Strawberry Condominiums. One well is 500 feet north of the conveyance improvements, and the other is less than 100 feet. These wells are listed as municipal water supply wells, which are wells that serve residences and residential facilities. The total depth for these two wells is marked as 215 feet and 295 feet, respectively (Illinois State Geological Survey 2023).

A sand and gravel aquifer underlies the majority of the northern portion of the project area and a major rock aquifer underlies the entire project area; these aquifers are generally 300 to 500 feet BGS (Illinois State Geological Survey 2023; Illinois State Geological Survey 2015). As mentioned in Section 3.1, there are no sole source aquifers underlying the project area.

Alternative 1 – No Action

Under the No Action alternative, there would be no construction-related short-term impact on surface waters or groundwater quality. The No Action alternative would not reduce the risk of flooding in the project area. During flood events, floodwaters in the project area and vicinity could carry sediments and pollutants, such as oil and grease from roadways or contaminants from other sources, such as buildings or sewer systems, into the Skokie River and ponds in and near the project area. Contaminated surface water could percolate into shallow groundwater beneath the project area. However, the drinking water wells and aquifers beneath the project area are greater than 200 feet BGS, much deeper than the bedrock underlying the project area at 10 to 20 feet BGS (Section 3.2.1). Any contaminated water that percolates into the ground would be unlikely to reach these deeper wells and aquifers. Thus, the No Action alternative would have a minor to moderate long-term adverse impact on surface water and negligible long-term adverse impact on the quality of shallow groundwater depending on the duration and scale of flooding.

Alternative 2 – Proposed Action

The Proposed Action would have minor short-term adverse impacts on water quality from construction-related activities, which could result in the release of pollutants or sediments into surface waters. Construction activities would be temporary, and Lake County would manage construction to prevent pollutants from entering stormwater runoff, and thus surface waters, in compliance with the Illinois NPDES General Construction Stormwater Permit, as discussed in Section 3.2.1. Lake County would implement a SWPPP prior to construction, in accordance with the General Construction Stormwater Permit. The SWPPP would require the implementation of measures to reduce pollutants in stormwater discharges and prevent erosion and sedimentation from

construction activities. Example control measures include minimizing areas of exposed soil, retaining natural buffers around waters, and installing erosion controls.

As discussed in Section 2.2, the construction of certain conveyance improvements and the two-stage channel would occur within the Skokie River channel. Construction work within the Skokie River channel would be conducted during dry conditions. Prior to construction, the channel would be dewatered; water would be diverted using bypass channels, cofferdams, or pumps to create dry conditions. The dewatering or diversion system would be monitored to ensure it is working properly and in accordance with a dewatering plan and TESC plan to limit erosion and sedimentation from water diversion activities.

The Proposed Action would impact up to 2.09 acres of surface waters and wetlands, as shown in Figure 3.1 and Table 3.2. Because the Proposed Action would involve construction and dredging in the Skokie River, the Proposed Action would require a USACE Section 404 permit, which regulates the discharge of dredged and fill material into waters of the United States. The County would be required to coordinate with USACE to determine the required permit authorization needed. Depending on the type of Section 404 permit that would be required for the Proposed Action, an individual water quality certification may or may not be required from IEPA. If an individual Section 401 water quality certification is needed, IEPA may require an antidegradation assessment of the potential impacts of the project on water quality that would include a wetland delineation and physical, biological, and chemical characterization of the existing water body.

As mentioned previously, soil contamination is present in the two-stage channel project area. Thus, there is a potential for contaminated soils to be exposed during excavation and grading activities. During construction, soils within the two-stage channel project area would be tested for contamination. Contaminated soils would be excavated in their entirety and properly disposed of at a licensed waste facility for handling such material in accordance with applicable federal, state, and local regulatory requirements. All construction activities under the Proposed Action would follow requirements in the SWPPP and excavated materials, excess fill, and debris generated by the Proposed Action would not be disposed of in surface waters. Thus, there is limited potential that these soils would be spread during construction activities and contaminate surface water bodies.

As described in the existing conditions, there are two municipal water supply wells near the Strawberry Condominiums that are greater than 200 feet BGS. The Proposed Action would not include hazardous waste handling and storage, solid waste disposal, and pesticide and fertilizer use; thus, the IGPA-required setbacks would not apply (IEPA 1995; IEPA 2023).

In addition to these drinking water wells, there are aquifers underlying the project area at 300 to 500 feet BGS. As explained previously, these drinking water wells and aquifers are much deeper than the bedrock underlying the project area at 10 to 20 feet BGS, so any contaminated water that percolates into the ground would be unlikely to reach the wells and aquifers. Thus, the Proposed Action would not impact the quality of the groundwater in these deeper wells and aquifers.

The Proposed Action would have minor long-term benefits on surface water quality and negligible benefits on the quality of shallow groundwater. By increasing flood capacity within the storm sewer system and Skokie River channel, the Proposed Action would reduce the risk of flooding within residential and business sites near the project area. Thus, the Proposed Action would reduce the risk that floodwaters would transfer sediments and pollutants from impervious surfaces or other sources such as buildings or sewer systems into surface waters or percolate into shallow groundwater. Additionally, the excavation and proper disposal of contaminated soils at a licensed waste facility in accordance with applicable federal, state, and local regulatory requirements would improve water quality within the project area by removing contaminated soils from within the Skokie River two-stage channel project area.

3.2.3. FLOODPLAIN MANAGEMENT (EXECUTIVE ORDER 11988)

EO 11988, *Floodplain Management*, requires federal agencies to minimize occupancy and modification of the floodplain. Specifically, EO 11988 prohibits federal agencies from funding construction in the 100-year floodplain (1 percent annual chance of flood) unless there are no practicable alternatives. FEMA's regulations for complying with EO 11988 are found in 44 C.F.R. Part 9.

The Illinois Rivers, Lakes, and Streams Act (615 Ill. Comp. Stat. § 5/4.9 *et seq.*) requires permits for any construction within a floodway in Cook, DuPage, Kane, Lake, McHenry, and Will counties. All projects within designated floodways are subject to the Floodway Construction in Northeastern Illinois regulations (17 Illinois Administrative Code [Ill. Admin. Code] Part 3708). Permits for floodway construction are issued by IDNR and require project proponents to follow conditions for specific project types, such as utility and storm sewer outfall and outlet channel projects. According to the regulations, authorized projects must not increase the elevation of the floodway, result in erosion, or result in aboveground structures in the floodway.

According to Flood Insurance Rate Map (FIRM) Number 17097C0167K, effective September 18, 2013, the western portion of the project area is entirely within an area of minimal flood hazard (Zone X), as shown in Figure 3.2. FIRM Number 17097C0186K, effective September 18, 2013, covers the eastern portion of the project area, including the area along the Skokie River (Figure 3.2). According to this FIRM, the project area along the Skokie River is almost entirely within the 100-year floodplain. This includes Zone AE, an area subject to inundation by the 1 percent annual chance flood, and Zone AE – Regulatory Floodway, which refers to the channel of a watercourse and the adjacent land that must be reserved to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height (FEMA 2024; FEMA 2020). As discussed in Section 1.3, the project area and vicinity are prone to flooding along US-41, the Strawberry Condominiums, and Navy housing because of a lack of stormwater conveyance capacity and the presence of undersized storm sewers.

Alternative 1 – No Action

The No Action alternative would have no short-term impact on floodplains because construction would not occur. In the long term, stormwater conveyance improvements would not occur, and

floodplain storage capacity would not be increased. Thus, the risk of flooding would not be reduced, and because of climate change, flood events would increase in intensity and duration (as discussed in Sections 1.3 and 3.2.5). Natural functions of floodplains including maintenance of water quality, as discussed in Section 3.2.2, and habitat values, as discussed in Sections 3.3.1 and 3.3.2, would be adversely affected by flooding. There would continue to be periodic flooding along US-41, Strawberry Condominiums, and at Navy housing, and structures and infrastructure at these locations would continue to be at risk of loss of life and property damage during future storm events. Therefore, the No Action alternative would have moderate long-term adverse impacts on people, property, and infrastructure near the project area.

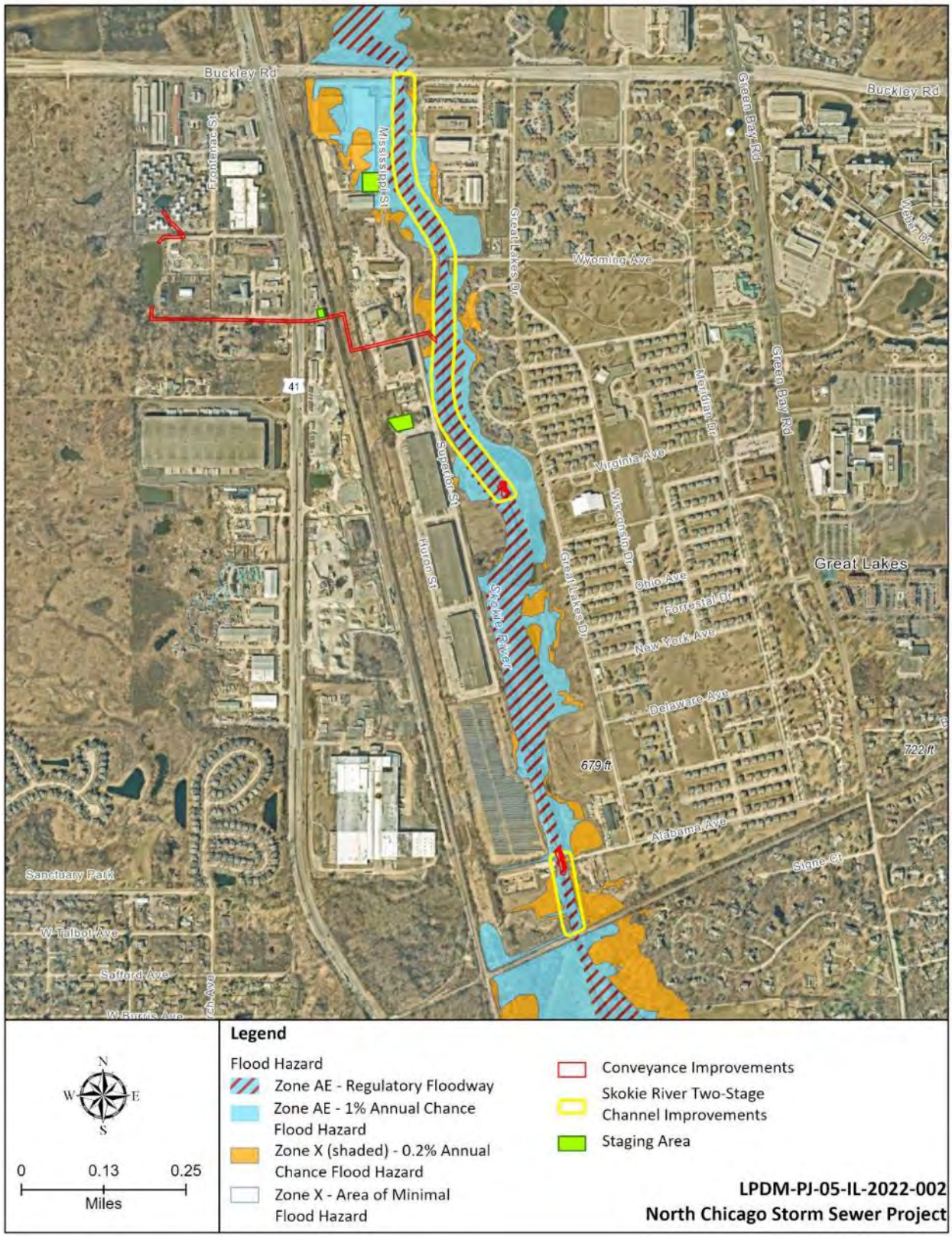

Figure 3.2. Project Area Floodplains

Alternative 2 – Proposed Action

The Proposed Action would result in minor short-term adverse impacts on the 100-year floodplain because of construction in the floodplain. As shown in Figure 3.2, the two-stage channel project area is almost entirely within the 100-year floodplain (primarily Zone AE and Zone AE – Regulatory Floodway); this would result in approximately 11.6 acres of disturbance to floodplains. Construction activities could cause an accidental release of hazardous waste (e.g., fuels, oils) from equipment use and ground-disturbing activities could cause sediment to enter the Skokie River. Because the Proposed Action would involve more than 1 acre of ground disturbance, a General Construction Stormwater Permit would be required, as discussed in Sections 3.2.1 and 3.2.2. This permit would require the development of a SWPPP and implementation of measures to reduce pollutants in stormwater discharges and erosion and sedimentation from construction activities. Prior to construction, the channel would be dewatered; water would be diverted using bypass channels, cofferdams, or pumps to create dry conditions, as described in Section 2.2, which would minimize the potential for soil and contaminants to enter the water.

As mentioned in Section 2.2, soil contamination is present within the 100-year floodplain and regulatory floodplain of the Skokie River. Thus, there is a potential for contaminated soils to be exposed in the floodplain during excavation and grading activities. During construction, soils within the two-stage channel project area would be tested for contamination. Contaminated soils would be excavated in their entirety and properly disposed of at a licensed waste facility for handling such material in accordance with applicable federal and state regulatory requirements. All construction activities under the Proposed Action would follow requirements in the SWPPP and excavated materials, excess fill, and debris generated by the Proposed Action would not be disposed of in the floodplain or floodway. Thus, there is limited potential that contaminated soils within the floodplain and floodway would be spread during construction.

Additionally, trees and vegetation would be removed from the site during grading activities, which could result in exposed soils that could erode resulting in loss of soils and downstream sedimentation. Removal of trees would temporarily reduce the habitat functions of the floodplain. However, the existing riparian habitat along the Skokie River channel is generally low quality, as the vegetation is dominated by nonnative and invasive species and the surrounding areas are heavily developed, as discussed in Section 3.3.1. Temporarily impacted areas would be restored with native vegetation following construction, which would stabilize exposed soils and reestablish native habitats.

The Proposed Action could result in minor long-term adverse impacts on the floodplain because disturbance and excavation of the floodplain would alter the path of water during high water events. The Skokie River would be widened within the two stage channel project area except at the West Connecticut Avenue, West Colorado Avenue, West Wyoming Avenue, and Alabama Avenue crossings, as discussed in Section 2.2. Thus, the Skokie River would retain its original width at these crossings and outside of the project area. Based on hydraulic modeling of the Proposed Action, flows at the locations where the channel narrows to its original width would be relatively slow (less than 3 feet per second) and would not be likely to cause erosion. Further, the County would conduct all activities

within the floodplain in accordance with Lake County's Floodplain Management Regulations. The County would coordinate with the local floodplain administrator and IDNR for any necessary permits to conduct floodplain work, such as an IDNR permit that regulates construction within the floodway and requires that there be no increase in base flood elevations in the floodway. According to hydraulic modeling, the Proposed Action would not increase flood elevations within the floodplain or in areas upstream or downstream of the project area.

The Proposed Action would result in moderate long-term benefits on floodplains. By increasing the capacity of storm sewers, installing the restrictor plate, and increasing floodwater storage capacity by 12 acre-feet, the Proposed Action would reduce the risk of flooding at Strawberry Condominiums, along US-41, and at Navy housing. According to hydraulic modeling conducted for the Proposed Action, flood elevations would be reduced at the Strawberry Condominiums, along US-41, and at Navy housing by approximately 0.59 feet, 0.36 feet, and 0.25 feet for the 100-year storm event, respectively. Therefore, the Proposed Action would reduce the risk of loss of life and property damage from flooding.

Additionally, restoration of the Skokie River channel, including planting wetland and upland seed mixes along channel banks, would increase the potential of the project area to filter potential contaminants and benefit habitat functions. The excavation and proper disposal of contaminated soils at a licensed facility is also expected to improve beneficial values of floodplains (e.g., water quality) within the project area by removing contaminated soils from the project area.

Appendix A provides the eight-step decision-making process for floodplains.

3.2.4. AIR QUALITY

The Clean Air Act, as amended, requires EPA to establish National Ambient Air Quality Standards (NAAQS) for six pollutants harmful to human and environmental health, including ozone, nitrogen dioxide, carbon monoxide, sulfur dioxide, lead, and particulate matter (PM) (including PM that is less than 10 micrometers in diameter [PM10] and fine PM less than 2.5 micrometers in diameter [PM2.5]). Fugitive dust, which is considered a component of PM, can also affect air quality. Fugitive dust is released into the air by wind or human activities, such as construction, and can have human and environmental health impacts. Federally funded actions in nonattainment and maintenance areas for these pollutants are subject to conformity regulations (40 C.F.R. Parts 51 and 93) to ensure that emissions of air pollutants from planned federally funded activities would not cause any violations of the NAAQS, increase the frequency or severity of NAAQS violations, or delay timely attainment of the NAAQS or any interim milestone. Under the general conformity regulations, a determination for federal actions is required for each criteria pollutant or precursor in nonattainment or maintenance areas where the action's direct and indirect emissions have the potential to emit one or more of the six criteria pollutants at rates equal to or exceeding the prescribed *de minimis* rates for that pollutant. According to the EPA Green Book (updated February 29, 2024), Lake County is currently in moderate nonattainment status for 8-hour ozone; all other criteria pollutants (carbon monoxide, sulfur dioxide, PM, nitrogen dioxide, and lead) are in attainment (EPA 2024b).

Alternative 1 – No Action

Under the No Action alternative, temporary construction-related emissions would not occur because conveyance improvements and two-stage channel construction would not be implemented. Therefore, there would be no short-term adverse impacts on air quality.

In the long term, the risk of flooding would not be reduced. Periodic flood events could result in road closures, causing traffic congestion and diversion of vehicles away from flooded areas. Construction equipment would be used to repair flood damage. Emissions from equipment used for flood-related repairs and additional vehicle emissions generated by flood-related road detours (i.e., longer trips result in more emissions) could result in negligible emissions of criteria pollutants within this nonattainment area. These emissions would be temporary, localized, and unlikely to result in a NAAQS exceedance. Therefore, there would be a negligible long-term adverse impact on air quality from emissions resulting from equipment used for flood-related repairs and additional vehicle emissions generated by flood-related road detours.

Alternative 2 – Proposed Action

Construction of the Proposed Action would have minor short-term adverse impacts on air quality. On-site construction equipment and on-road construction-related vehicles would produce emissions that could increase the levels of some pollutants, including carbon monoxide, volatile organic compounds, nitrogen dioxide, ozone, and PM. Gasoline engines produce relatively high levels of carbon monoxide. Because EPA mandates the use of ultra-low sulfur diesel fuel for all highway and nonroad diesel engines, sulfur dioxide emitted from the Proposed Action's construction activities would have negligible adverse impacts. Dust-generating construction activities also have the potential to affect air quality. Dust generated by construction activities is a source of PM10 and PM2.5. Therefore, PM and carbon monoxide are the primary air pollutants of concern for construction activities. Construction work would take up to 16 months, so vehicle and equipment use, as well as ground-disturbing activities in the project area, would be temporary and localized.

Applicable best management practices (BMPs) from EPA's Construction Emission Control Checklist (included in Appendix B) would be implemented to mitigate air quality impacts. BMPs include, but are not limited to, the following:

- Keep vehicles and equipment idling times as short as possible.
- Regularly maintain diesel engines to keep exhaust emissions low. Follow the manufacturer's recommended maintenance schedule and procedures.
- Cover or wet areas of exposed soils to reduce fugitive dust.
- Prevent spillage of soil and excavated material and limit speeds to 15 miles per hour (mph) when hauling material and operating non-earthmoving equipment on areas of exposed soil within the project area. Limit speed of earthmoving equipment to 10 mph.

Because of the short-term nature of air quality impacts and implementation of BMPs, the potential emissions from project activities would be below *de minimis* thresholds for the General Conformity Rule. Therefore, the project would be exempt from a conformity determination.

There would be no long-term impacts on air quality from implementation of the Proposed Action, as it would not include a source of long-term permanent emissions.

3.2.5. CLIMATE

Climate change refers to changes in the Earth's climate caused by a general warming of the atmosphere. Its primary cause is emissions of greenhouse gases (GHGs), including carbon dioxide and methane. Climate change can affect species distribution, temperature fluctuations, and weather patterns.

EO 13990, *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*, directed federal agencies to review and address regulations that conflict with national objectives, such as reducing GHG emissions, strengthening climate resilience, and prioritizing environmental justice (EJ) and public health. CEQ's *National Environmental Policy Act Guidance on Consideration of Greenhous Gas Emissions and Climate Change* was published in the Federal Register on January 9, 2023. The new guidance provides best practices for climate change analyses, including actions such as considering GHG emissions and climate change impacts during the identification of alternatives, quantifying a Proposed Action's projected GHG emissions or reduction using best available data, and providing social cost of GHG estimates to translate climate impacts into a more accessible metric of dollars. Social cost of GHG estimates represent the societal value or cost of GHG emissions changes resulting from actions that impact cumulative global emissions in a small or marginal way. Federal agencies have used social cost of GHG metrics to estimate the impacts of their actions on the climate for over a decade (Environmental and Energy Law Program 2022). EPA's Report on the Social Cost of Greenhouse Gases was published in November 2023. The report provided new estimates for the social cost of greenhouse gases (SC-GHG), which reflect recent advances in the scientific literature on climate change and its economic impacts and incorporate recommendations made by the National Academies of Science, Engineering, and Medicine (EPA 2023c).

According to U.S. Climate Data, which collects data on average climate conditions in cities around the country, the temperature in Waukegan, Illinois, about 2.5 miles north of the City of North Chicago, ranges from an average low of 12 degrees Fahrenheit in January to an average high of 82 degrees Fahrenheit in July (U.S. Climate Data 2024). The area receives an average of approximately 32 inches of precipitation annually, which falls throughout the year, with the highest precipitation levels occurring in summer and early fall and lowest in winter (U.S. Climate Data 2024).

The climate in the midwestern United States is changing. Between 1900 and 2010, temperatures increased in the region by over 1.5 degrees Fahrenheit, and temperatures are projected to continue increasing across the Midwest at an accelerating rate. In addition to increasing temperatures, climate change is intensifying storms and leading to greater precipitation across the entire region.

U.S. Global Change Research Program projections indicate that precipitation will continue to increase, especially in the winter and spring seasons (EPA 2014).

Alternative 1 – No Action

No construction would occur under the No Action alternative. Because no construction would occur, it is assumed that there would be no SC-GHG associated with the No Action alternative. Therefore, this alternative would have no short-term impacts on climate.

As described in the existing conditions and in Sections 1.3 and 2.1, climate change is expected to increase the frequency and intensity of precipitation events in the Midwest, resulting in increased flood events. Thus, periodic flooding in the project area would be expected to increase in frequency and duration and the No Action alternative would not effectively protect against climate change. As mentioned in Section 3.2.4, periodic flood events could result in road closures, causing traffic congestion and diversion of vehicles away from flooded areas. Equipment use for flood-related repairs and additional vehicle emissions generated by flood-related road detours (i.e., longer trips result in more emissions) could result in negligible emissions of greenhouse gases. Because the No Action alternative would result in intermittent emissions from the use of construction equipment for flood-related repairs and would not improve community resilience to climate change, it would have moderate long-term adverse impacts related to climate change.

Alternative 2 – Proposed Action

The Proposed Action would result in temporary GHG emissions from construction activities and use of vehicles and equipment with diesel and gasoline engines. Table 3.3 depicts the breakdown of GHG emissions based on the construction equipment type that is expected to be used for construction of the Proposed Action. Construction of the Proposed Action is expected to produce approximately 1,490 metric tons of GHG emissions.

Table 3.3. Short-Term Construction Greenhouse Gas Emissions

Construction Equipment	Equipment Type	Carbon Dioxide Emissions (metric ton)	Methane Emissions (metric ton)	Nitrous Oxide Emissions (metric ton)	CO_2e[1] Emissions (metric ton)
Dump Truck	On-road	356	<1[2]	<1	368
Worker Pickup Truck	On-road	61	<1	<1	61
Air Compressor	Off-road	125	<1	<1	125
Asphalt Paver	Off-road	66	<1	<1	66
Bulldozer	Off-road	272	<1	<1	272
Concrete Vibrator	Off-road	43	<1	<1	43

Construction Equipment	Equipment Type	Carbon Dioxide Emissions (metric ton)	Methane Emissions (metric ton)	Nitrous Oxide Emissions (metric ton)	CO_2e[1] Emissions (metric ton)
Crawler Crane	Off-road	63	<1	<1	63
Excavator	Off-road	90	<1	<1	90
Hydraulic Hammer	Off-road	43	<1	<1	43
Hydromulcher	Off-road	43	<1	<1	43
Impact Hammer	Off-road	43	<1	<1	43
Other	Off-road	171	<1	<1	171
Roller	Off-road	50	<1	<1	50
Tractor, Loader, Backhoe	Off-road	8	<1	<1	8
Vibratory Hammer	Off-road	43	<1	<1	43
Total[3]	—	**1,475**	**<1**	**<1**	**1,490**

Notes:

[1] *CO_2e is the mass of carbon dioxide emissions with the same global warming potential as one unit of mass of another GHG.*

[2] *< is less than.*

[3] *Totals may not be exact because of rounding.*

An SC-GHG analysis, in adjusted 2023 dollars, was performed to estimate GHG emissions from construction. The total SC-GHG for the project is estimated to be approximately $354,400, as shown in Table 3.4. Social costs represent an estimate of the dollar value of global climate-related damage attributable to the project's incremental contribution to global GHG emissions. Historically underserved communities would disproportionately bear these costs. Impacts on underserved populations are discussed in more detail in Section 3.5.4. Table 3.4 summarizes the SC-GHG for the on-road and off-road equipment that would be used to construct the Proposed Action. Appendix B provides a detailed breakdown of the SC-GHG calculations and additional details on assumptions.

Table 3.4. Social Cost of Greenhouse Gas Emissions Summary in 2023 Dollars of Global Climate-Related Damage

Social Cost of GHG in Adjusted 2023 Dollars[1]	Proposed Action[2]
Social cost of GHG (On-road)	$102,296
Social cost of GHG (Off-road)	$252,061
Total social cost of GHG[3]	**$354,358**

Notes:

[1] *U.S. Bureau of Labor Statistics does not have complete 2024 dollar value data currently. Values from 2023 were used as a surrogate.*

[2] *Social cost of GHG are global damage cost estimates and may not represent project-related climate damage costs or cost reductions to communities in the project area specifically. While projections are based on the best available science at the time of publication, social cost of GHG estimates may underestimate actual climate damage costs because of various climate damage categories not being considered (such as ocean acidification).*

[3] *Total may not be exact because of rounding.*

The BMPs described in Section 3.2.4 and Appendix B would be implemented to reduce emissions from equipment use. GHG-generating construction activities would be temporary and would last up to 16 months. Thus, the Proposed Action would have minor short-term adverse impacts related to GHG emissions during construction.

The Proposed Action would not be a long-term source of GHG emissions. The Proposed Action would not increase or exacerbate climate impacts on underserved communities in the project area in the long term. Additionally, the Proposed Action would strengthen North Chicago's resilience to climate change impacts, particularly increased precipitation events, by providing increased flood conveyance and storage. Thus, the Proposed Action would result in minor long-term benefits by increasing community resilience to climate change impacts.

3.3. Biological Environment

3.3.1. TERRESTRIAL AND AQUATIC ENVIRONMENT

IDNR is responsible for the conservation of wildlife resources in the state through the implementation of a suite of wildlife management laws and regulations; these include the Wildlife Code (520 Ill. Comp. Stat. § 5/2.37), Wildlife Habitat Management Areas Act (520 Ill. Comp. Stat. § 20), and the Wildlife Conservation Measures and Practices regulations (17 Ill. Admin. Code, Part 635).

EO 13112, *Invasive Species*, requires federal agencies to prevent the introduction of invasive species and provide for their control to minimize the economic, ecological, and human health impacts caused by invasive species. Invasive plants are capable of altering an area's biodiversity for both plant and animal life by dominating areas where they have become established and crowding out native vegetation (U.S. Forest Service 2024). The Illinois Wildlife Action Plan sets goals and actions for conservation across the state and includes an Invasive Species Campaign, which

identifies the actions determined to be most needed for statewide management of all groups of invasive species (IDNR 2024).

The project area is in the Chiwaukee Prairie region, which was historically characterized by distinctive tallgrass prairies, fens, marshes, scrub oak forests, and sand prairies. Almost all the prairies have since been replaced by agricultural, residential, commercial, and industrial land uses, though some state parks and natural areas preserve the original character of the area (EPA 2006). Throughout much of the project area, including the areas that border the Skokie River channel, the dominant vegetation comprises invasive species such as buckthorn, reed canary grass (*Phalaris arundinacea*), and common reed (*Phragmites australis*). Trees along the Skokie River channel generally include willow, cottonwood, sycamore, and box elder. Other emergent herbaceous vegetation along the Skokie River channel includes sedge, bulrush, and cattail.

A floristic quality assessment (FQA) of the wetlands within and adjacent to the project area was completed in July and August 2022 (Lake County Stormwater Management Commission 2022). FQAs are used to assess an area's ecological quality based on the composition of plant species occurring in the area. An FQA includes two key metrics to measure plant composition in the study area: the native mean C-value, which reflects a plant's tolerance to disturbance (species with higher C-values have lower tolerance to disturbance), and the native floristic quality index (FQI), which provides a measure of the overall vegetative quality of the site by taking into account both the C-values of species present as well as the number of native plant species observed (species richness). Generally, wetlands with native mean C-values greater than 3.5 are considered high quality. Areas with native FQIs between 1 to 19 are generally considered to have low vegetative quality, those with native FQIs between 20 to 35 are considered to have high vegetative quality, and those with native FQIs above 35 are considered "exceptional" or "Natural Area" quality (USFWS 2019b; Pleasant Valley Conservancy 2023; Colorado Natural Heritage Program 2024).

Table 3.5 summarizes the findings of the FQA for the wetlands that occur within the project area. More details about wetlands in and around the project area are included in Table 3.2 and their locations are shown in Figure 3.1.

Table 3.5. Floristic Quality Assessment Summary

Delineated Area	Community Type	Native Mean C-Value	Native FQI
Waters/Wetland 1 (Strawberry Pond)	Excavated pond with wetland fringe	3.48	16.68
Wetland 2	Drainage swale and lawn	1	1
Waters/Wetland 3 (Shore Crest Estates Pond)	Excavated pond with wetland fringe	2.41	9.94

Delineated Area	Community Type	Native Mean C-Value	Native FQI
Wetland 4	Wetland complex – variety of habitats including emergent, wet prairie, scrub shrub, and woodland	2.76	17.03
Wetland 5	Degraded wet prairie and emergent wetland	2.38	9.5
Wetland 6	Wooded wetland	1.91	6.33
Waters/Wetland 10 (Skokie River)	Skokie River	1.95	8.72

Source: Lake County Stormwater Management Commission. 2022. Skokie River Regional Floodplain Enhancement Project: Strawberry Condominiums, Naval Station Great Lakes, and US Route 41 Waters of the United States – Wetland Assessment. CBBEL Project No. 220179. August 2022. Rosemont, Illinois.

Note: The Lake County Wetland Assessment and FQA includes areas that have since been removed from the current project area; thus, only wetlands and waters mapped in Exhibit 7 that are within the current project area are included in the table.

As summarized in Table 3.5, none of the wetlands assessed at the project area have native mean C-values that are over 3.5 and none of the wetlands have native FQIs above 20; therefore, the vegetative quality within the wetlands in the project area is considered low (USFWS 2019b).

Aquatic habitat within the project area includes the wetlands summarized in Table 3.5, and described further in Section 3.3.2, and the Skokie River channel (also included in Table 3.5 as Waters/Wetland 10). The Skokie River originates north of the project area in Park City where a small stormwater channel enters the Greenbelt Forest Preserve. The Skokie River is approximately 20 miles long and terminates south of the project area at the Skokie Lagoons (Friends of the Chicago River 2024). The portion of the Skokie River within the project area is classified as an intermittent stream (USGS 2024). As mentioned in Section 2.2, portions of the Skokie River within and adjacent to the project area flow through areas where the soils have been contaminated by heavy metals, pesticides, PFOS, and PFOA.

Based on a review of wildlife species that have been recorded in nearby nature preserves in Lake County, amphibians and reptiles including the green frog (*Rana clamitans*), American toad (*Bufo americanus*), bullfrog (*Rana catespeiana*), northern leopard frog (*Rana pipiens*), and painted turtle (*Chrysemys picta*) have potential to use the wetland/aquatic habitats in the project area (Lake County Forest Preserves 2021a). The Skokie Lagoons, which are approximately 12.5 miles south of the project area, are stocked by the Forest Preserve District of Cook County with bluegill (*Lepomis macrochirus*), channel catfish (*Ictalurus punctatus*), crappie (*Pomoxis* spp.), and other fish (IDNR 2023); however, it is unlikely that these fish travel upstream far enough to be present in the portion of the Skokie River that occurs within the project area. Additionally, the portion of the Skokie River within the project area is categorized as intermittent, indicating that it is dry for extended periods of time, which therefore precludes fish presence (USFWS 2024). Other species including the coyote

(*Canis latrans*), eastern chipmunk (*Tamias striatus*), gray squirrel (*Sciurus carolinensis*), opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), white-footed mouse (*Peromyscus leucopus*), white-tailed deer (*Odocoileus virginianus*), and common garter snake (*Thamnophis sirtalis*) are common in the project vicinity and may occur within or near the wetland and upland portions of the project area (Lake County Forest Preserves 2021a). A multitude of bird species are also frequently observed in the project vicinity; a list of some of the bird species that may use the project area for nesting or foraging is presented in Section 3.3.4.

As described above, most of the vegetation that occurs within project area is currently dominated by invasive plant species, which have reduced the overall plant diversity in the project area and created generally low-quality habitats, especially in the areas along the Skokie River channel. Invasive insects including the Japanese beetle (*Popillia japonica*), emerald ash borer (*Agrilus planipennis),* spongy moth (*Lymantria dispar*), and Asian long-horned beetle (*Anoplophora glabripennis*) have been known to occur in Lake County and have the potential to pose threats to native hardwood trees and shrubs in the project area (University of Georgia 2023; Lake County Forest Preserves 2021b).

Alternative 1 – No Action

Under the No Action alternative, no construction would occur; therefore, there would be no impacts on upland or aquatic habitats in the short term. Because no flood mitigation measures would be implemented under this alternative, structures and roadways within and surrounding the project area would remain at risk of inundation and damage. Periodic flooding of structures and roadways could result in pollutants, soils, and other contaminants being deposited in terrestrial and aquatic habitats within the project area. Vegetation in the project area could be smothered and killed by pollutants and sediments deposited by floodwaters, which could lead to the expansion of invasive species that thrive in newly disturbed areas (Lozon and MacIsaac 1997). Because the vegetative quality is low within the project area (especially the portion of the project area along roadways and the Skokie River channel) and invasive plants including buckthorn already dominate the project area, these impacts would not substantively alter the existing terrestrial or aquatic habitat; therefore, the No Action alternative would have negligible long-term adverse impacts on terrestrial and aquatic resources within the project area.

Alternative 2 – Proposed Action

Construction of the Proposed Action would have minor short-term adverse impacts on terrestrial and aquatic habitats and species in the project area. Construction of the conveyance structures would require ground disturbance and disturbance or removal of vegetation within work areas; however, as described in Section 2.2, tree clearing associated with the conveyance improvement work would be limited since most work would occur within roadways and associated rights-of way. Work related to the Skokie River two-stage channel widening would require all vegetation, including some trees, within the 100-foot-wide river corridor to be removed. Mammals, birds, reptiles, amphibians, and other wildlife that use the riparian vegetation along the Skokie River channel would be affected by the loss of habitat. There is also potential for direct harm to terrestrial and aquatic wildlife resulting from the use of heavy equipment in the project area. Construction work within the Skokie River channel would be completed under dry conditions by dewatering, diverting, or temporarily stopping

the flow during construction. Therefore, aquatic habitat would be reduced or temporarily unavailable to aquatic life within the Skokie River channel during construction minimizing the potential for heavy equipment to directly impact aquatic species.

The existing riparian habitat along the Skokie River channel is generally low quality, and the vegetation is dominated by nonnative and invasive species and the surrounding areas are heavily developed, which means the diversity of terrestrial species expected would also be low. As described in Section 2.2, the soils within and adjacent to the project area are contaminated by heavy metals, pesticides, PFOS, and PFOA and thus do not currently support healthy, natural terrestrial or aquatic ecosystems. Therefore, wildlife choosing to inhabit the terrestrial habitat within the project area are likely acclimated to low-quality, human-altered environments and may be able to relocate to nearby habitat areas of equal or higher quality. Most of the wildlife species expected to be present in the project area are highly mobile and would be expected to be able to avoid dangerous equipment and situations during construction. Construction-related noise and activity disturbances would be short term (less than 16 months), and wildlife species in the project area are expected to be generally acclimated to urban levels of noise and activity given the residential, commercial, and industrial land uses that surround the project area. Compliance with the conditions described in the Illinois NPDES General Construction Stormwater Permit and USACE Section 404 permit, as discussed in Sections 2.2 and 3.2.2, would reduce the potential for sediment and other pollutants to enter terrestrial and aquatic habitats via stormwater runoff.

Immediately following construction of the conveyance improvements, disturbed areas that were previously vegetated would be covered with topsoil, graded, and seeded with turf grass to prevent future erosion. Native species would be planted along the drainage swale that leads to the Skokie River. Immediately following work associated with the Skokie River two-stage channel, ditch slopes would be stabilized through the installation of permanent erosion control blanket protection. As soon as feasible, a wetland seed mix would be applied to the floodplain bench immediately adjacent to the channel and an upland seed mix would be applied to the proposed finished slopes. The wetland seed mix would include native cover crop, grass, sedge, and rush species, such as annual rye (*Lolium multiflorum*), river bulrush (*Bolboschoenus fluviatilis*), and prairie cord grass (*Spartina pectinata*). The upland mix would include native grass species such as little bluestem (*Schizachyrium scoparium*) and annual rye as well as native flowering forb species, such as prairie trillium (*Trillium recurvatum recurvatum*). The native plants would be monitored over a 3- to 5-year period to ensure they become established. Although riparian trees and shrubs are expected to reestablish along the Skokie River channel over time, this loss of riparian trees/shrubs is considered to be a permanent impact for the purposes of this impact evaluation since it is difficult to predict how long it would take for new species to establish along the channel and would take years for newly established trees to grow to the sizes of the existing trees. Therefore, the loss of riparian trees and shrubs would result minor adverse long-term impacts on the terrestrial habitats and species within the project area.

As described in Section 2.2, the Proposed Action would include the excavation and disposal of contaminated soils within the project area in accordance with applicable federal, state, and local regulations. As described in Section 3.2.2, the excavation of contaminated soils is expected to improve water quality and, therefore, the aquatic habitat within the project area. Because the

Proposed Action would reduce the risk of flooding within and adjacent to the project area, the potential for pollutants and sediments to be deposited by floodwaters in the terrestrial and aquatic habitats within the project area would be reduced. Although the removal of riparian vegetation would reduce the amount of shade over the Skokie River, overall, the Proposed Action is expected to have minor long-term benefits on aquatic habitats and species resulting from increased water quality.

3.3.2. WETLANDS (EXECUTIVE ORDER 11990)

EO 11990, *Protection of Wetlands*, requires federal agencies to consider alternatives to work in wetlands and limits potential impacts on wetlands if there are no practicable alternatives. FEMA regulation 44 C.F.R. Part 9, Floodplain Management and Protection of Wetlands, sets forth the policy, procedures, and responsibilities to implement and enforce EO 11990 and prohibits FEMA from funding activities in a wetland unless no practicable alternatives are available. Activities that disturb wetlands may also require a permit from USACE under Section 404 of the CWA, as discussed in Section 3.2.2.

A waters of the United States/wetland assessment of the project area was completed on July 29 and August 5, 2022, in accordance with USACE regional wetland delineation procedures (Lake County Stormwater Management Commission 2022). The assessment maps wetlands and surface waters that were identified during the survey, although the study area that was assessed in 2022 was larger than the project area for the Proposed Action; thus, only the wetlands identified in the assessment that are within the project area are included in this EA. These wetlands include Waters/Wetland Areas 1, 2, 3, 4, 5, 6, and 10 (Lake County Stormwater Management Commission 2022) as shown in Figure 3.1 and Table 3.2. The surface waters identified in the project area are fringed by wetland habitat in places (Lake County Stormwater Management Commission 2022).

Alternative 1 – No Action

Under the No Action alternative, there would be no short-term impacts on wetlands in the project area because no flood mitigation measures would be implemented within the project area. Thus, the risk of precipitation-induced flooding within and around the project area would not be reduced. Periodic flooding of structures and roadways in and around the project area could result in pollutants, soils, and other contaminants being deposited in wetlands within the project area. The deposition of pollution and sediment in wetlands from flood events could reduce the wetlands' water quality, smother and kill existing plants, and continue to promote invasive species establishment and growth in the degraded wetlands. Because the vegetative quality is low within the project area (especially the portion of the project area along roadways and the Skokie River channel) and invasive plants including buckthorn are already present, these impacts would not drastically alter the existing wetlands within the project area; therefore, the No Action alternative would have negligible long-term adverse impacts on wetlands.

Alternative 2 – Proposed Action

Construction of the conveyance improvements would require trees, vegetation, concrete, and other materials to be cleared and removed from conveyance improvement sites, which overlap or are adjacent to Waters/Wetland Areas 1, 2, 3, 4, 5, and 6 (Table 3.2 provides a descriptions of these

features). Construction of the Skokie River two-stage channel would require excavation and grading that would clear all trees, vegetation, and other materials from the 100-foot-wide river corridor, which overlaps with Waters/Wetland 10 (Table 3.2). Thus, the Proposed Action would have up to 2.09 acres of impacts on surface waters and wetlands. Prior to construction, the portion of the Skokie River within the project area (Waters/Wetland 10) would be dewatered; water would be diverted using bypass channels, cofferdams, or pumps to create dry conditions, which would minimize the potential for soil and contaminants to enter the water. Excavation and vegetation removal activities would result in temporary physical and biological impacts resulting from an alteration of drainage patterns, reduction of habitat, and the potential for dust deposition, sedimentation, and release of hazardous materials (such as petroleum fuels). However, compliance with the conditions described in the Illinois NPDES General Construction Stormwater Permit, as discussed in Sections 2.2 and 3.2.2, would reduce the potential for sediments and other pollutants to enter the wetland via stormwater runoff. Excavated materials would be hauled off-site to a licensed location and would not be stored or disposed of in the wetland. As mentioned in Section 3.2.2, the Proposed Action would require a USACE Section 404 permit, which regulates the discharge of dredged and fill material into water bodies. Therefore, compliance with the applicable permits would reduce the potential for impacts. The Proposed Action is expected to have minor short-term adverse impacts on wetlands.

Immediately following construction, areas disturbed by construction of the conveyance improvements would be planted with turf grass to reduce future erosion and potential sedimentation of nearby wetlands. Areas disturbed by construction of the Skokie River two-stage channel would be stabilized through the installation of permanent erosion control blankets. The floodplain bench would be constructed where any potential existing fringe wetlands are currently located and would create more potential wetland habitat than currently exists. The floodplain bench, including wetland areas, would be replanted with a wetland seed mix including native cover crop, grass, sedge, and rush species, as described in Sections 2.2 and 3.3.1. The Proposed Action would also remove soils contaminated with heavy metals, pesticides, PFOS, and PFOA from wetland areas, which is expected to increase water quality within wetlands. Healthy wetlands provide many ecosystem functions including filtering potential contaminants and attenuating floodwaters; thus, improving the quality of the wetlands in the project area is expected to improve the overall habitat quality within the project area. Implementation of the Proposed Action would reduce the risk of precipitation-induced flooding and the associated deposition of pollutants and sediments into nearby wetlands. Therefore, the Proposed Action would have a minor long-term beneficial effect on wetlands within and adjacent to the project area.

Appendix A provides the eight-step decision-making process for wetlands.

3.3.3. THREATENED AND ENDANGERED SPECIES

The Endangered Species Act (ESA) of 1973, 16 U.S.C. Section 1531–1544, provides a framework for the conservation of endangered and threatened species and their habitats. USFWS and the National Marine Fisheries Service are the lead federal agencies for implementing the ESA. The ESA requires that federal agencies ensure that actions they fund, authorize, or carry out are not likely to

jeopardize the continued existence of any listed species (including plant species) or result in the destruction or adverse modification of designated critical habitats for such species. The ESA also prohibits any action that causes a "take" of any listed species. The term "take" is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, capture, or collect, or to attempt to engage in any such conduct."

Information on the presence of threatened and endangered species was obtained from a review of the USFWS Information for Planning and Consultation system (USFWS 2024a), the Illinois Natural Heritage Database (Illinois Natural Heritage Database 2023), and the findings of a wetland delineation and FQA conducted in 2022 (Lake County Stormwater Management Commission 2022). Based on this review, six federally listed species and one non-essential experimental population have the potential to be present in the project vicinity, as presented in Table 3.6.

Table 3.6. Federally Listed Species With the Potential to Occur in the Project Area

Species	Federal Status
Mammals	
Northern long-eared bat (*Myotis septentrionalis*)	Endangered
Insects	
Rusty patched bumble bee (*Bombus affinis*)	Endangered
Karner blue butterfly (*Lycaeides melissa samuelis*)	Endangered
Birds	
Rufa red knot (red knot) (*Calidris canutus rufa*)	Threatened
Whooping crane (*Grus americana*)	Experimental populations, non-essential
Plants	
Eastern prairie fringed orchid (*Platanthera leucophaea*)	Threatened
Pitcher's thistle (*Cirsium pitcher*)	Threatened

The potential for the species presented in Table 3.6 to occur within the project area is described in the following paragraphs. No designated critical habitat occurs within the project area.

The northern long-eared bat is a medium-sized bat found across the eastern and north-central United States. Northern long-eared bats typically spend most of the year roosting underneath bark or in cavities of both live trees and snags in forested habitats and overwinter in caves or mines (hibernacula) (USFWS 2022). The nearest known bat hibernaculum is in LaSalle County, and suitable hibernation habitat is not present within or near the project area. Although there are trees in the project area that could provide roosting habitat for these bats, the species typically inhabits large

tracts of contiguous forests, which are not present within or near the project area. Additionally, FEMA has not identified any known maternity sites in the project vicinity. FEMA has determined there is low potential for the northern long-eared bat to occur in the project area.

The rusty patched bumble bee occurs across the eastern United States and northern Midwest areas. The rusty patched bumble bee is a social colonial species with an annual life cycle that begins in early spring when queens emerge from their overwintering sites, which are typically in upland forests and woodlands. In the summer, the queen selects a nesting area (generally 1 to 4 feet underground in abandoned rodent nests or small mammal burrows) and produces workers that forage for nectar and pollen (USFWS 2024b). The southern portion of the project area is partially within a USFWS-mapped High Potential Zone (HPZ) for the rusty patched bumble bee (Figure 3.3). However, the project area is dominated by invasive species and the surrounding areas are generally disturbed or landscaped, indicating that the potential foraging habitat in and around the project area is of marginal quality; further, the project area is not expected to support nesting or overwintering habitat because the wetland soils are too moist. A review of aerial imagery taken in March 2022 and July 2022 indicates that the areas within the HPZ lack floral resources and are densely vegetated by riparian trees; therefore, suitable foraging, nesting, and overwintering habitats are not expected to occur within the HPZ. FEMA has determined there is low potential for the rusty patched bumble bee to occur within the project area.

The red knot is a small migratory shorebird. This species breeds and raises young along the Great Lakes shoreline or more northern areas and overwinters in southern areas. Red knots typically forage and roost in sparsely vegetated coastal marine and estuarine habitats with large areas of exposed intertidal substrates or around shorelines of large lakes or freshwater marshes (USFWS 2021). Although the project area and Lake Michigan are within the species' mapped range, no occurrences of red knots have been recorded in Lake County (Illinois Natural Heritage Database 2023). Furthermore, the project area lacks suitable shoreline or marsh habitat. Therefore, these species are not expected to occur in the project area owing to the lack of occurrences of these species in the project vicinity and the absence of suitable habitat within and adjacent to the project area.

The Karner blue butterfly is a small butterfly that occurs throughout the Great Lakes region of the United States and typically inhabits oak savannas, grasslands, and pine-barren habitats. Karner blue butterfly larvae are reliant on wild blue lupine (*Lupinus perennis*) as their sole food source (USFWS 2024c), which was not observed in the project area during the 2022 FQA (Lake County Stormwater Management Commission 2022). The species has been observed in Lake County only once, which was in 2001 (Illinois Natural Heritage Database 2023). No suitable habitat to support the Karner blue butterfly exists within or adjacent to the project area; therefore, the species is not expected to occur.

The whooping crane is endemic to North America and historically occurred throughout the United States east of the Rocky Mountains. The species nests in Canada and overwinters in coastal marshes in Texas, although there are some nonmigratory populations in Florida and Louisiana. Suitable overwintering habitat consists of estuarine marshes, bays, and tidal flats. During migration,

whooping cranes occur throughout a variety of habitats including croplands and palustrine wetlands. Although whooping cranes have been recorded using wetlands smaller than 1 acre during migration, the species typically prefers stopover sites featuring large blocks of suitable habitat near feeding sites (USFWS 2024d; USFWS 2006). Whooping cranes cannot land on trees and therefore cannot use wetland areas dominated by trees. Given that the project area is relatively small, surrounded by urbanized land, and that portions of the Skokie River channel are dominated by trees, it is not considered to contain suitable habitat for this species. Although the project area is within the species' mapped range, no occurrences have been recorded in Lake County (Illinois Natural Heritage Database 2023). Therefore, the whooping crane is not expected to occur within or adjacent to the project area.

The eastern prairie fringed orchid occurs throughout the Great Lakes region in wet or mesic prairie habitats and wetland communities including sedge meadows, fens, and marsh edges. Suitable habitat typically consists of grass- or sedge-dominated areas with a low proportion of invasive species (USFWS 2019b). Although the species has been observed in Lake County on multiple occasions (Illinois Natural Heritage Database 2023), the FQA conducted in 2022 concluded that the habitat within the project area is of low quality and dominated by invasive plants, as described in Section 3.3.1 (Lake County Stormwater Management Commission 2022). Thus, given that the eastern prairie fringed orchid is typically found in areas with a low proportion of invasive plant species, it is not expected to occur in or around the project area.

The Pitcher's thistle is endemic to the beaches and grassland dunes of Lakes Michigan, Superior, and Huron. The species has been extirpated from Illinois (USFWS 2002) but has since been experimentally reintroduced (USFWS 2024e). The results of the 2022 FQA found no Pitcher's thistle plants present in the project area (Lake County Stormwater Management Commission 2022). Because the project area does not contain suitable coastal dune habitat to support this species, the Pitcher's thistle is not expected to occur within or adjacent to the project area.

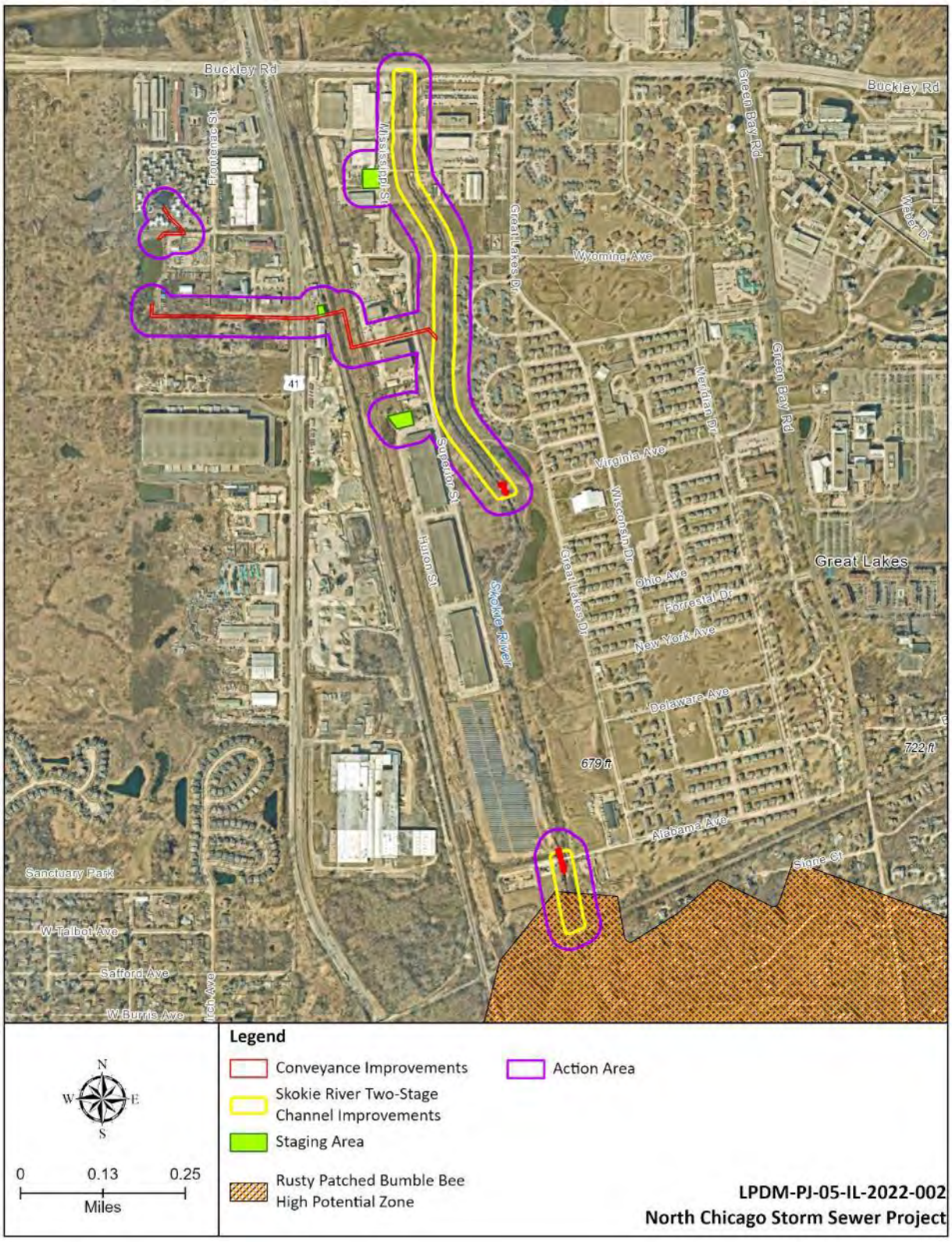

Figure 3.3. Rusty Patched Bumble Bee High Potential Zone

Alternative 1 – No Action

No construction or other actions to mitigate flood hazards within the project area would occur under the No Action alternative. Therefore, habitat conditions within the project area would remain low quality. Contaminated soils would not be removed, and the establishment and growth of invasive vegetation would be expected to continue. There would be no short- or long-term impacts on federally listed species.

Alternative 2 – Proposed Action

Of the disturbances that would occur in association with the Proposed Action, noise from the activities generated by heavy equipment is expected to have the farthest-reaching impacts on listed species. Thus, the action area (AA) for this project includes a 150-foot buffer around the areas where work and staging would occur; at this distance, noise from construction activities is expected to dissipate into that of the relatively high ambient noise level of the surrounding area.

Construction of the conveyance improvements and the Skokie River two-stage channel would require a maximum of approximately 14 acres of ground disturbance. The exact number of trees that would be removed has not yet been determined, but less than 14 acres of tree removal would occur; construction of conveyance improvements would require minimal tree clearing as work would mostly occur within the right-of-way and the two-stage channel project area contains few large trees and is mostly dominated by invasive species, such as buckthorn. The removal and trimming of native trees identified as preferred northern long-eared bat roosting trees would be minimized to the maximum extent practicable; however, it is expected that removal of at least some native trees would be required. Similarly, the timing of tree removal and thinning would be scheduled to comply with the seasonal restrictions outlined in the Available Conservation Measures section in the November 30, 2022, ruling for the species (i.e., tree removal and thinning would be performed during the northern long-eared bat hibernation period, between November 1 through March 30) to the maximum extent practicable (87 Federal Register 73503), though it is likely that some tree removal work would be completed during the northern long-eared bat's roosting season. The potential for the northern long-eared bat to occur within the AA is considered low since the AA is not part of a contiguous tract of forest. FEMA has completed the USFWS's Range-wide Northern Long-eared Bat Determination Key (Appendix C), and the results indicate that the Proposed Action is not reasonably certain to cause incidental take of the northern long-eared bat and is consistent with a determination of ***may affect, but is not likely to adversely affect***.

Marginal foraging habitat for the rusty patched bumble bee occurs throughout the northern portions of the AA and would therefore be impacted by grading and excavation activities. Overwintering and nesting habitat is not expected to occur within the AA, and no suitable habitat (foraging, overwintering, or nesting) occurs within the portion of the AA within the designated HPZ. Upon completion of the Proposed Action, the portion of the AA along the two-stage channel would be restored with native upland and wetland seed mixes, which could improve foraging habitat in the AA for the RPBB in the long term. FEMA has completed the assisted determination key for the rusty patched bumble bee, which indicated that the Proposed Action ***may affect, but is not likely to adversely affect*** the rusty patched bumble bee (Appendix C).

As described previously, suitable habitat for the red knot, Karner blue butterfly, eastern prairie fringed orchid, Pitcher's thistle, and whooping crane does not occur in or adjacent to the project area; therefore, these species are not expected to occur in the AA and would not be affected by implementation of the Proposed Action.

The Proposed Action is expected to have negligible to minor short-term adverse impacts on the northern long-eared bat and rusty patched bumble bee from construction disturbances and vegetation removal, as described above. In the long term, the Proposed Action would increase the vegetative quality of the habitat areas within the AA, which would have minor benefits on the rusty patched bumble bee by increasing the quality of foraging habitat in the area and removing contaminated soils, especially within the mapped HPZ in the southern portion of the AA. The Proposed Action is expected to have no long-term impact on the northern long-eared bat, as the Proposed Action is not expected to substantially increase or decrease the availability or quality of northern long-eared bat habitat in the AA.

On July 24, 2024, USFWS concurred with FEMA's determination that the Proposed Action "may affect but is not likely to adversely affect" both the northern long-eared bat and the rusty patched bumble bee, and with FEMA's determination that the Proposed Action would have "no effect" on the red knot, Karner blue butterfly, eastern prairie fringed orchid, Pitcher's thistle, and whooping crane (Appendix C).

3.3.4. MIGRATORY BIRDS AND BALD AND GOLDEN EAGLES

A migratory bird is any species or family of birds native to the United States or its territories as a result of natural biological or ecological processes. The Migratory Bird Treaty Act of 1918, as amended, 16 U.S.C. §§ 703–712, protects migratory birds and their nests, eggs, and body parts from harm, sale, or other injurious actions. All native birds, including common species, are protected by the Migratory Bird Treaty Act.

The Bald and Golden Eagle Protection Act of 1940, 16 U.S.C. §§ 668 *et seq.*, prohibits the take, possession, sale, or other harmful action of any bald eagle (*Haliaeetus leucocephalus*) or golden eagle (*Aquila chrysaetos*), alive or dead, including any part, nest, or egg (16 U.S.C. § 668[a]). The Act requires any activities resulting in potential disturbance to be restricted within 660 feet of any identified active eagle nest to dates outside of the nesting season.

The project area is within the Mississippi Flyway, and many migratory bird species could forage, roost, or nest in forested and vegetated areas within the project area. Migratory birds are most likely to nest in the project area between April 1 and October 10 (USFWS 2024a). Birds commonly found in the project vicinity include the Canada goose (*Branta canadensis*), American crow (*Corvus brachyrhynchos*), American goldfinch (*Spinus tristis*), mourning dove (*Zenaida macroura*), and American robin (*Turdus migratorius*) (Cornell Lab of Ornithology 2024; Lake County Forest Preserves 2021b). Golden eagles are not likely to occur within the project area, as they nest on rocky cliffs and typically avoid developed areas with high levels of human activity (USFWS 2024f). Bald eagles have been frequently observed in the project vicinity (Cornell Lab of Ornithology 2024). Bald eagles

typically breed between October 15 and August 31 and nest in tall trees adjacent to water bodies, which are not present in the project area (USFWS 2024a). Other migratory birds with potential to occur in the project area include, but are not limited to, the black-billed cuckoo (*Coccyzus erythropthalmus*), bobolink (*Dolichonyx oryzivorus*), cerulean warbler (*Dendroica cerulea*), and red-headed woodpecker (*Melanerpes erythrocephalus*) (USFWS 2024a).

Alternative 1 – No Action

Under the No Action alternative, no flood reduction measures would be constructed and, therefore, no short-term impacts on migratory birds would occur. Habitat within the project area would remain low quality but would continue to support some migratory bird species. Because there would be no activities that would directly result in the destruction of eggs, nests, or birds, there would be no effect under the Migratory Bird Treaty Act. Therefore, the No Action alternative would have no short- or long-term impacts on migratory birds.

Alternative 2 – Proposed Action

Under the Proposed Action, vegetation that could support breeding migratory birds within the project area would be removed or disturbed by grading, excavation, and other construction activities. It is expected that at least some vegetation clearing would occur during the migratory bird nesting season. Construction activities and vegetation removal occurring during migratory bird nesting season could result in the destruction of nests, eggs, or young birds in nests. Given the potential for project work to affect migratory birds, the Proposed Action would be subject to the prohibitions of the Migratory Bird Treaty Act. The County would be responsible for obtaining and complying with federal and state laws for the protection of migratory birds prior to initiating work. Given that the County would comply with the Migratory Bird Treaty Act, the Proposed Action would have minor short-term adverse impacts on species protected under the Migratory Bird Treaty Act. Because there is no suitable habitat for bald eagles in the project area or within 660 feet of the project area, there would be no impact on bald eagles. The project area does not provide suitable nesting, roosting, or foraging habitat for bald eagles.

The Proposed Action would reduce the risk of future flooding and associated erosion and sedimentation within the project area and would remove some contaminated soils, which could have benefits on vegetation within the project area in the long term (Section 3.3.1). Invasive species along the channel would be removed and the two-stage channel would be restored with a wetland and upland native seed mix. This would potentially increase the availability of nesting habitat for migratory bird species in the long term. Thus, the Proposed Action would have minor long-term benefits on migratory birds. The Proposed Action would have no long-term impact on bald eagles, as the Proposed Action is not expected to increase or decrease the available bald eagle habitat in the project area.

3.4. Hazardous Materials

Hazardous materials and wastes are regulated under several federal laws, including the EPA's regulations concerning Hazardous Waste Management System, 40 C.F.R. Part 260; the RCRA of

1976; the Solid Waste Act; the Toxic Substances Control Act; the CERCLA as amended by the Superfund Amendments and Reauthorization Act; and the Clean Air Act of 1970. The RCRA, 42 U.S.C. §§ 6901 *et seq.*, administered by EPA, manages the generation, transportation, treatment, storage, and disposal of hazardous wastes. The Hazardous and Solid Waste Amendments of 1984, Pub. L. 98-616 (Nov. 8, 1984), 98 Stat. 3221, amended the RCRA and provided additional requirements for the disposal of hazardous waste. CERCLA, 42 U.S.C. §§ 9601 *et seq.*, also known as the Superfund Act, provides funds to remediate abandoned or uncontrolled hazardous waste sites, also known as Superfund sites. CERCLA also grants EPA with the authority to hold responsible parties accountable for hazardous waste releases at closed or abandoned waste sites. Further, Occupational Safety and Health Administration standards under the Occupational Safety and Health Act, 29 U.S.C. §§ 651 – 678, seek to minimize adverse impacts on worker health and safety (29 C.F.R. Part 1926). Evaluating hazardous substances and wastes includes consideration of whether any hazardous material would be generated by the proposed activity and/or already exists at or in the general vicinity of the site (40 C.F.R. § 312.10).

IEPA implements portions of the RCRA. Illinois state regulations pertaining to management of hazardous wastes are included in Title 35 Ill. Admin. Code, Parts 700-739. These regulations include standards for hazardous waste generators and require permits for the treatment, transportation, storage, and disposal of hazardous waste within the state.

A limited Phase II Environmental Site Assessment was conducted in October 2023 to evaluate subsurface soil conditions along the two-stage channel project area for the presence of constituents of concern, including volatile and semi-volatile organic compounds, polychlorinated biphenyls, pesticides, metals, PFOS, and PFOA (A3E Consultants 2023). A total of 43 soil borings were drilled to 10 feet below the ground surface within the two-stage channel area. Analytical results identified the presence of heavy metals, including barium, manganese, selenium, and arsenic, at concentrations that exceed their respective soil remediation objectives at multiple soil boring locations; additionally, PFOS and PFOA were detected in soil samples at concentrations exceeding their laboratory method detection limit at multiple soil boring locations.

Three former landfill and waste disposal sites are near the project area. These sites include Land Use Control (LUC) 13/Site 2 and 12/Site 3 and Site 24, as shown in Figure 3.4 and Figure 3.5. Site 24 was formerly used as a waste disposal site and it is currently enrolled in CERCLA. A Phase II Environmental Site Assessment is planned for the site in 2024. LUC 13/Site 2 and 12/Site 3 were formerly landfills; currently, LUCs are implemented on these sites and annual long-term groundwater monitoring is being conducted. Because of monitoring requirements and established LUCs, these sites have been excluded from the project area (Figure 2.1).

A search conducted using EPA's NEPAssist website found that there are two facilities, one hazardous water generator and one air pollution facility (a facility that generates air pollutants), within 300 feet of the project area. Several other hazardous facilities, the majority of which are hazardous waste generators or air pollution facilities, are in the project area vicinity, clustered along US-41 and Buckley Road (EPA 2024c).

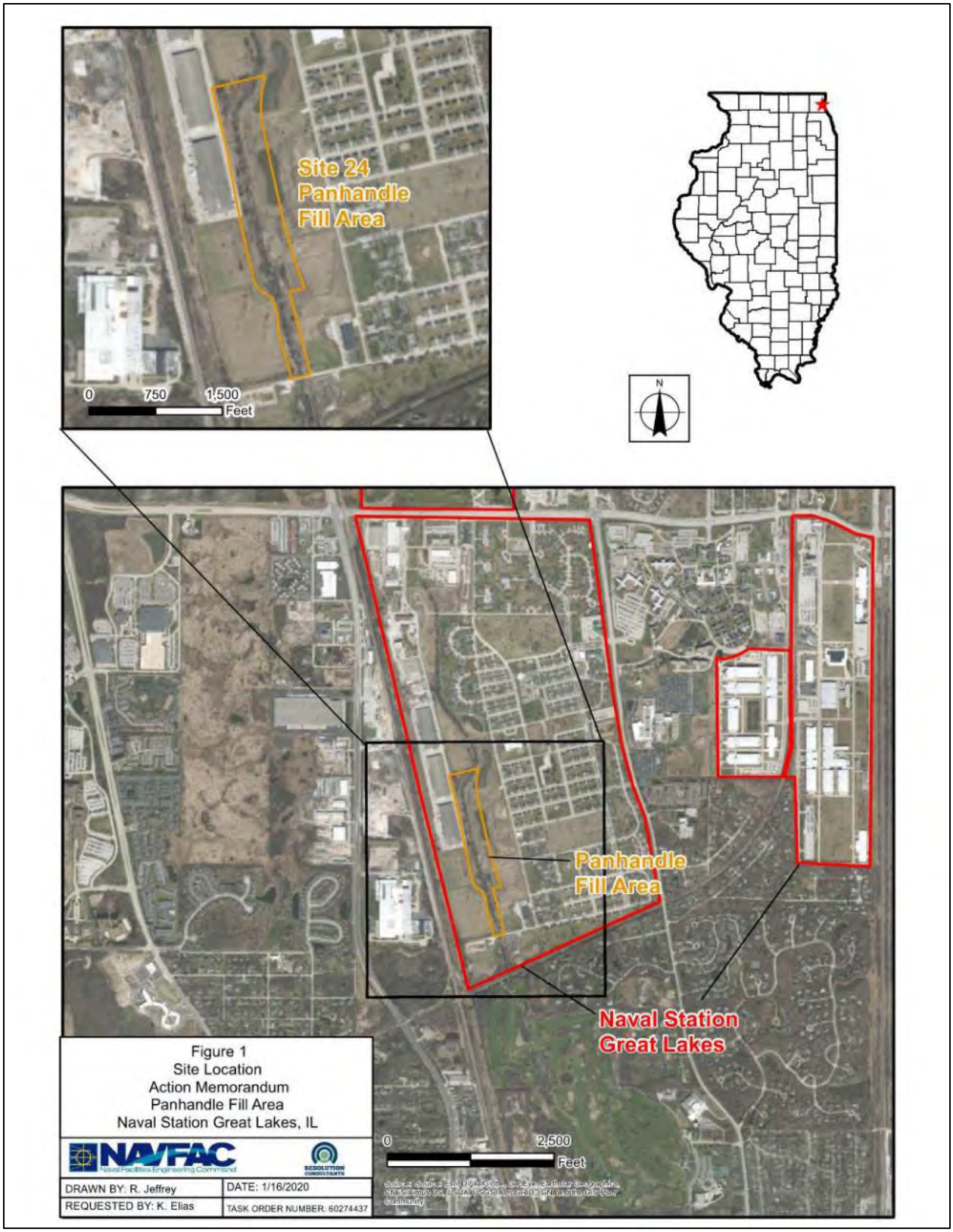

Figure 3.4. Superfund Site (Site 24) Near the Project Area

Figure 3.5. Land Use Control Sites Near the Project Area

Alternative 1 – No Action

No construction would occur under the No Action alternative; therefore, there would be no impacts related to hazardous materials either from the use of construction equipment or from the exposure of contaminated materials through ground-disturbing activities. Thus, the No Action alternative would have no short-term impacts related to hazardous materials. However, this alternative would not reduce the risk of flooding within the project area vicinity. During a flood event, contaminated soils and materials in and near the project area could be disturbed if facilities containing hazardous materials are damaged. Additionally, as mentioned in Section 3.2.2, floodwaters could pick up pollutants such as oil and grease from roadways or contaminants from other sources, such as buildings and sewer systems, and transfer them into nearby surface waters. The No Action alternative would have minor long-term adverse impacts related to hazardous materials.

Alternative 2 – Proposed Action

The Proposed Action would include the temporary use of mechanical equipment such as excavators and trucks, which could release fuels, oils, and lubricants through inadvertent leaks and spills. However, the use of equipment in good condition and compliance with BMPs and conditions specified in the Illinois NPDES General Construction Stormwater Permit would reduce the potential impact of leaks and spills. As mentioned above, soil contamination is present in the two-stage channel project area. Thus, there is a potential for contaminated soils to be exposed during excavation and grading activities. During construction, soils within the two-stage channel project area would be tested for contamination. Contaminated soils would be excavated in their entirety and properly disposed of at a licensed waste facility for handling such material, in accordance with applicable federal, state, and local regulatory requirements. Thus, there is limited potential that these soils would be spread during construction activities and contaminate surface water bodies. Therefore, there would be a minor short-term adverse impact from the use of vehicles and equipment and from the excavation and disposal of contaminated soils.

In the long term, the Proposed Action would reduce the risk of flooding in the project area, which would reduce the risk of pollutants being transported via receding floodwaters and the risk of flood-associated damage to facilities that generate hazardous waste near the project area. Further, the excavation and proper disposal of contaminated soils at a licensed waste facility in accordance with applicable federal, state, and local regulatory requirements would reduce contamination within the project area. Thus, the Proposed Action would result in a minor long-term benefit related to hazardous materials.

3.5. Socioeconomics

3.5.1. NOISE

The Noise Control Act of 1972 defines “noise” as an undesirable sound. Noise is regulated at the federal level by the Noise Control Act of 1972, 42 U.S.C. §§ 4901, *et seq.* Noise standards developed by EPA (1974) provide a basis for state and local governments’ judgments in setting local noise standards. Chapter 94, Section 94.07 (Public Nuisances – Noise) of the Lake County Code of

Ordinances prohibits construction or other repair work where noise can be heard from 100 feet or more from the property line of the source of noise between the hours of 9:00 p.m. and 6:00 a.m. Monday through Friday, or between 9:00 p.m. and 8:00 a.m. on weekends and legal holidays (Lake County 2023).

Assessment of noise impacts includes the proximity of the Proposed Action to sensitive receptors. A sensitive receptor is an area of frequent human use that would benefit from a lowered noise level. Typical sensitive receptors include residences, schools, churches, hospitals, nursing homes, and libraries. The ambient noise level near the project site is typical for a suburban area, with some noise contributed from US-41 that intersects and runs parallel to the project area. Sensitive receptors near the project area include Strawberry Condominiums, Navy housing, Forrestal Elementary School, and Chapel Forrestal Village to the east and the Early Discoveries preschool, Safe Haven School, and the Sheridan at Green Oaks assisted living facility to the southwest. Although not sensitive receptors, there are recreational facilities east of the two-stage channel project area, including a paved walkway that runs along the eastern side of the Skokie River from W Wyoming Avenue to Alabama Avenue and baseball diamonds just north of Alabama Avenue.

Alternative 1 – No Action

No construction would occur under the No Action alternative. Therefore, this alternative would have no short-term noise impacts. The No Action alternative would not alter existing conditions; there would continue to be periodic flooding from extreme storm events that could damage infrastructure. Noise from flood-related repairs would be temporary and localized and consistent with existing conditions of an urban areas. Thus, negligible long-term adverse noise impacts would occur.

Alternative 2 – Proposed Action

Under the Proposed Action, construction activities would temporarily increase noise levels in the project vicinity. The sensitive receptors and recreational facilities adjacent to the project area would likely experience a temporary increase in noise levels from construction. Heavy machinery and equipment that would be used for the Proposed Action would be well maintained, have sound-control devices no less effective than those provided on the original equipment, and have muffled exhaust. With the implementation of these BMPs and compliance with Lake County's noise ordinance restricting the hours of work, the Proposed Action would have minor short-term adverse noise impacts in the project area.

The Proposed Action would not result in long-term noise impacts because it would not include a permanent source of noise.

3.5.2. PUBLIC SERVICES AND UTILITIES

The project area is within the City of North Chicago in Lake County. The City of North Chicago Public Works Department provides water and sewer services to its residents and businesses (City of North Chicago 2023b). The Solid Waste Agency of Lake County provides recycling and reuse programs to residents in the project area vicinity, and LRS is responsible for waste hauling within North Chicago

(Solid Waste Agency of Lake County 2023). North Shore Gas provides electricity and natural gas to North Chicago (North Shore Gas n.d.).

As mentioned in Section 3.5.1, paved walkways along the eastern side of the Skokie River offer residents a scenic open space for recreation. Two baseball diamonds are in the south end of the project area just north of Alabama Avenue. To the east of the project area is the Forest City Community Center/Great Lakes Youth Center (2007 Virginia Avenue). The facility is equipped with an outdoor playground, a fitness center, basketball courts, and a media center (Great Lakes Family Housing 2023). The Great Lakes Youth Center offers before and after school-age care day camps, open recreation for youth and teens, sports and fitness programs, and instructional and recreational classes and programs (U.S. Navy Morale Welfare and Recreation 2023). Forrestal Elementary School at 2833 East Washington Avenue is approximately 0.25 miles east of Skokie River and the proposed stream channel improvements. The school serves approximately 420 students from kindergarten through third grade (National Center for Education Statistics 2023).

An 18-inch to 24-inch storm sewer runs from the pond at the Strawberry Condominiums to the Shore Crest Estates Pond. A 36-inch storm sewer runs from the Shore Crest Estates Pond to US-41. Storm flows are then conveyed from US-41 to the Skokie River. Flood flows exceeding the storm sewer capacity impact US-41 and surrounding low-lying areas and streets.

Alternative 1 – No Action

No construction would occur under the No Action alternative; therefore, no short-term impacts on public services and utilities would occur. In the long term, the storm sewer system would continue to be overwhelmed during major storm events. The No Action alternative would not reduce the flooding experienced within the project area or vicinity; thus, public utilities and services, such as the Great Lakes Community Center and the recreational areas along the Skokie River, would continue to experience disruptions during flood events. Therefore, the No Action alternative would have minor to moderate long-term adverse impacts on utilities and services depending on the severity of flood events.

Alternative 2 – Proposed Action

Under the Proposed Action, excavation and grading activities have the potential to damage utilities, such as stormwater pipes, in the project area. The contractor would be responsible for the protection of all utilities and no service disruptions are anticipated. Any utility relocation and installation within easements on NSGL property would be coordinated with NSGL. Recreational access along the Skokie River may be closed during construction for safety, but there would be no closure of the ball fields. There are several areas where the existing walkways along the eastern side of the Skokie River would be removed for construction of the two-stage channel. After construction of the channel, any impacted areas of the walkways would be replaced and potentially reconfigured based on the new grading along channel banks. Therefore, the Proposed Action would have minor short-term adverse impacts on public services and utilities in the project area.

In the long term, the Proposed Action would reduce the risk of flooding in the project area and vicinity, thus reducing the likelihood that utility infrastructure would be impacted and service disrupted by floodwaters and associated damage. The Proposed Action would include storm sewer improvements, detailed in Section 2.2, that would improve the ability of the infrastructure in the project area to convey flood waters. The hydraulic report for the project shows that the Proposed Action would reduce flood elevations at the Strawberry Condominiums, along US-41, and at Navy housing by approximately 0.59 feet, 0.36 feet, and 0.25 feet for the 100-year storm event, respectively. Thus, the Proposed Action would have moderate long-term benefits on public services and utilities.

3.5.3. TRAFFIC AND CIRCULATION

The project is accessed regionally by US-41, which runs north-south, and Buckeye Road, which runs east-west on the north side of the project area. Residential roads within the project area include Frontenac Street, which runs north-south and provides access to Strawberry Condominiums; Berwyn Avenue and Bittersweet Avenue, which run east-west and connect to US-41; and Virginia Avenue and Alabama Avenue, which run east-west and connect to two-stage channel project area. Within the project area, there are five east-west crossings over the Skokie River at West Connecticut Avenue, West Colorado Avenue, West Wyoming Avenue, Virginia Avenue, and Alabama Avenue. The Union Pacific Railroad runs northwest-southeast, parallel to the project area, and the Elgin, Joliet, and Eastern Railway travels southwest-northeast at the southern end of the project area.

Transportation infrastructure in the project area and vicinity are subject to flooding. As mentioned in Section 1.3, floodwaters cover US-41 during extreme storm events, making it temporarily impassable.

Alternative 1 – No Action

The No Action alternative would not include construction and would therefore have no short-term impacts on traffic and circulation. Under the No Action alternative, the risk of flooding would not be reduced in the project area vicinity. Flooding from extreme storm events would periodically inundate US-41 and other roads in the project area, resulting in roadway closures. As discussed in Section 1.3 and Section 3.2.5, climate change is expected to increase the frequency and intensity of precipitation events in the Midwest, which would exacerbate flooding and associated impacts. These disruptions would result in residents and emergency responders being unable to access homes and facilities. Therefore, the No Action alternative would result in recurring moderate intermittent adverse impacts on transportation over the long term.

Alternative 2 – Proposed Action

The project area at Strawberry Condominiums would be accessed via Frontenac Street, which runs north-south, south of Buckeye Road, and Berwyn Avenue, which runs east-west, west of US-41. The Shore Crest Estates Pond/Bittersweet Avenue Improvements and portions of the US-41 and NSGL Improvements would be accessed from Bittersweet Avenue, which runs east-west from US-41. The remaining NSGL Improvements would be accessed from Mississippi Street, which runs north-south, south of Buckley Road. Stream channel improvements in the southernmost project area would be

accessed from Alabama Avenue, which runs east-west. Alabama Avenue is accessed off Buckley Road via Great Lakes Drive, which runs north-south. Staging areas would be at existing parking areas, as shown in Figure 2.1.

Lake County coordinated with IDOT to ensure the two-stage channel design minimizes impacts to the five Skokie River crossings in the project area. Channel widening would not occur at the West Connecticut Avenue, West Colorado Avenue, or West Wyoming Avenue crossings. Thus, access at these crossings would be maintained. The crossing at Alabama Avenue would be temporarily disrupted during construction; however, once the new culvert is constructed, access at this crossing would be restored. The culvert at Virginia Avenue would be removed, and thus, the crossing would also be removed. However, an access gate would be installed at the existing fencing along Superior Street and Mississippi Street to provide access to the western portion of the Skokie River at this location. Thus, the Proposed Action would have minor short-term adverse impacts on crossings in the two-stage channel project area.

Construction activities would be temporary, and the contractor would use traffic control devices, such as flag people and signs, to mitigate and guide traffic as needed during construction. Placement and maintenance of traffic control devices would be in accordance with the State of Illinois specifications and standards. Construction would occur along an easement through the Union Pacific Railroad property and would not impact the Elgin, Joliet, and Eastern Railway to the south of the project area. Therefore, the Proposed Action is expected to have minor short-term adverse impacts on transportation.

Implementation of the Proposed Action would reduce the risk of flooding in the project area, which would reduce the likelihood of road and rail closures caused by flooding and associated damage, such as the flood that occurred along US-41 in 2017. The Proposed Action would have minor long-term benefits on transportation.

3.5.4. ENVIRONMENTAL JUSTICE (EXECUTIVE ORDER 12898)

EO 14096, *Revitalizing Our Nation's Commitment to Environmental Justice for All*, defines "environmental justice," in part, as the "just treatment and meaningful involvement of all people, regardless of income, race, color, national origin, Tribal affiliation, or disability, in agency decision-making and other Federal activities that affect human health and the environment." 88 Fed. Reg. 25251, 25253 (Apr. 26, 2023). EO 14096 builds upon EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, which requires agencies to identify and address any disproportionate and adverse human health or environmental effects its activities may have on minority or low-income populations. CEQ defines the term "minority" as persons from any of the following groups: Black, Asian or Pacific Islander, American Indian or Alaskan Native, and Hispanic (CEQ 1997). EPA's Environmental Justice Screening Tool (EJScreen), which was used to complete this analysis, identifies low-income persons as those whose household income is less than or equal to twice the national poverty threshold (EPA 2024d).

The affected environment included in this analysis is where project-related impacts would occur, including noise, transportation, and water and air quality impacts, potentially causing a disproportionate and adverse impact on neighboring minority and low-income populations. The affected environment also includes the areas that would experience reduced flood risk following implementation of the Proposed Action. Therefore, the study area for this analysis is the project area and the areas where flood risk would be reduced, which include Strawberry Condominiums, portions of US-41, and the Navy housing east of the project area. For the purposes of this analysis, EJ populations are identified using demographic indicators and EJ Indexes. Demographic indicators are the percent of minority or low-income populations that are compared to the next larger geographic unit. The EJ Indexes analyze factors related to air quality, traffic, hazardous waste and pollutants, proximity to environmental risks, underground storage tanks, and wastewater in combination with the demographics data to identify areas where there may be a disproportionate exposure to environmental pollution.

Using demographic indicators, EJ populations are defined under the following criteria:

- The minority and/or low-income population of the affected environment equals or exceeds the 50th percentile in the state in which the affected environment is located.

- One or more of the Environmental Justice Indexes in the affected environment equals or exceeds the 80th percentile in the state in which the affected environment is located.

Table 3.7 presents the EJ demographic indicators and EJ Index values within the affected environment. Appendix D provides the complete EJScreen report.

Table 3.7. EJScreen Data

EJ Demographic Indicator	Percentile in State
Minority	**72**
Low Income	**81**
EJ Index	**Percentile in State**
PM (Particulate Matter)	51
Ozone	**92**
Diesel PM	79
Air Toxics Cancer Risk	**88**
Air Toxics Respiratory Risk	71
Toxic Releases to Air	**84**
Traffic Proximity	65
Lead Paint	58
Superfund Proximity	**89**
Risk Management Plan Facility Proximity	39

EJ Index	Percentile in State
Hazardous Waste Proximity	**85**
Underground Storage Tanks	**84**
Wastewater Discharge	74

Note: Values in bold meet or exceed the criteria for identifying EJ populations.
Source: EPA 2024b

As shown in Table 3.7, the low-income and minority populations in the affected environment both exceed the 50th percentile compared to the state. Therefore, the project area is considered to contain both minority and low-income EJ populations. A review of the IEPA EJ Start mapping tool further confirmed the presence of both minority and low-income populations within the affected environment (IEPA 2022b).

As presented in Table 3.7, multiple EJ Indexes within the affected environment meet or exceed the 80th percentile compared to the statewide average. This indicates that the population of the affected environment contains an EJ population that has a greater exposure to air pollutants including ozone, diesel PM, and other pollutants that pose cancer risks than most other non-EJ populations within Illinois. Additionally, the EJ population within the affected environment is in closer proximity to Superfund sites, hazardous waste facilities, and underground storage tanks than most other non-EJ populations within Illinois.

Alternative 1 – No Action

No construction would occur under the No Action alternative; therefore, no short-term impacts on EJ communities would occur. However, the No Action alternative would not reduce the risk of flooding. Residents of the Strawberry Condominiums and Navy housing east of the project area, including any EJ populations, are expected to continue to be subject to frequent flooding. Because flooding could increase the potential for nearby residents to become exposed to contaminants present in the soils, residents of these areas may experience safety risk and damage or loss of property and assets from periodic flooding. Low-income residents could be disproportionately and adversely affected by future flood events because of their limited resources to recover from losses. Therefore, minor long-term disproportionate and adverse impacts on EJ populations in the project vicinity may occur.

Alternative 2 – Proposed Action

Temporary and localized impacts from implementation of the Proposed Action, such as construction noise and air quality impacts, would impact those close to the work location, including low-income and minority residents in the Strawberry Condominiums and Navy housing. However, implementation of BMPs discussed in Section 3.2.4 and Section 3.5.1 would minimize air quality and noise impacts during construction. Additionally, hauling routes would be established and designed to minimize the effect of short-term emissions on homes, schools, daycare centers, and playgrounds. Therefore, the Proposed Action would have minor short-term adverse impacts on EJ populations but would not have disproportionate and adverse impacts.

Implementation of the project would not result in any residential or business displacements, acquisitions, or long-term impacts from noise, air quality, or traffic. As described in Section 2.2, the Proposed Action would mitigate flooding of residential and industrial structures and roadways within and adjacent to the project area by improving stormwater conveyance capacity, thus reducing the risk of property damage and local transportation impacts. Additionally, the excavation and proper disposal of contaminated soils at a licensed waste facility in accordance with applicable federal, state, and local regulatory requirements would improve the soil quality and incrementally reduce the potential for exposure to contaminants. Because the populations residing near the project area are both low income and minorities, the Proposed Action would have minor long-term benefits on EJ communities.

3.5.5. SAFETY AND SECURITY

The North Chicago Fire Department provides fire, emergency medical services, and technical rescue services to the residents of North Chicago. The closest fire station, Station 2 at 3501 Buckley Road, is approximately 1 mile from the project area. The North Chicago Police Department at 1850 Lewis Avenue, provides police services to the City of North Chicago (City of North Chicago 2023c). The NSGL Security Department provides 24-hour services on naval base property with a team of military and civilian officers (Commander, Navy Region Mid-Atlantic 2023a). NSGL has a mass communications plan. In the event of an emergency, they provide real-time alerts through a voice announcing system that uses exterior speakers; Computer Desktop Network System, an administrative broadcast over Navy computer networks; AtHoc, dissemination via text message and email; Great Lakes Hotline; Facebook; and Twitter (Commander, Navy Region Mid-Atlanic 2023b). The closest hospital with an emergency room is the Captain James A. Lovell Federal Health Care Center on NSGL in Building 133, 3001 Green Bay Road (U.S. Department of Veteran Affairs 2023).

As discussed in Section 1.3, the project area and vicinity are prone to flooding because of limited conveyance capacity of stormwaters. Past flooding of US-41 and local residential streets resulted in emergency response time delays and limited access to residential structures and community facilities.

Alternative 1 – No Action

The No Action alternative would not include construction and would therefore have no short-term impacts on safety and security. However, the long-term risk of flooding along US-41 and residential streets would not be reduced. As mentioned in Section 3.5.3, roadway flooding impacts emergency response times and limits access to community facilities, potentially leading to loss of life and property. As such, the No Action alternative would have a moderate long-term adverse impact on the community's public health and safety.

Alternative 2 – Proposed Action

Under the Proposed Action, construction activities have the potential to impact public health and safety from equipment use. All construction activities would be completed by qualified personnel trained in the proper use of equipment, including all safety precautions. The contractor would install appropriate signage and barriers prior to construction activities to secure the construction site.

Therefore, there would be negligible short-term adverse impacts on public health and safety as a result of the Proposed Action.

Implementation of the Proposed Action would reduce the risk of flooding and associated public health and safety concerns over the long term. Emergency response services, such as fire and police, would experience improved accessibility and emergency response times during storm events because fewer roadways would be flooded, or they would be flooded to a lesser depth and/or duration. Therefore, the Proposed Action would have minor long-term benefits on public health and safety in and near the project area.

3.6. Historic and Cultural Resources

Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended, 54 U.S.C. §§ 300101–307108, requires that federal agencies consider the potential effects on cultural resources of actions it proposes. Cultural resources are prehistoric or historic archaeology sites, historic standing structures, historic districts, objects, artifacts, cultural properties of historic or traditional significance—called Traditional Cultural Properties—that may have religious or cultural significance to federally recognized Indian tribes (tribes), or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or other reasons.

Cultural resources listed, eligible for listing, or potentially eligible for listing in the National Register of Historic Places (NRHP) are subject to protection from adverse impacts resulting from a federally funded undertaking.

In addition to the NHPA, FEMA must also comply with other federal laws that relate to historic and cultural resources:

- The Archaeological and Historic Preservation Act of 1974, 54 U.S.C. ch. 3125, provides for the survey, recovery, and preservation of significant scientific, prehistoric, archaeological, or paleontological data when such data may be destroyed or irreparably lost because of a federal, federally licensed, or federally funded (in part or whole) project.

- American Indian Religious Freedom Act of 1978, 42 U.S.C. Section 1996, provides for the protection and preservation of American Indian sites, possessions, and ceremonial and traditional rites.

Pursuant to 36 C.F.R. Section 800.4(a)(1), the Area of Potential Effects (APE) is the geographic area(s) within which the undertaking may directly or indirectly affect cultural resources. Within the APE, impacts on cultural resources are evaluated for both historic structures (aboveground cultural resources) and archaeology (belowground cultural resources). The northwestern portion of the APE is within a mixed-use residential and commercial area, including the Strawberry Condominiums, a mulch and cobbles business, and single-family homes along Bittersweet Avenue. The APE in this portion is largely paved, with small areas of manicured lawn interspersed. Moving east, the APE

crosses the Union Pacific Railroad and a utility corridor, before crossing into NSGL property. Within the NSGL property, the land use and ground cover vary. The northern portion of the APE is mixed grass, gravel, or pavement on either side of the Skokie River. The central portion of the APE largely follows a paved walking path on the east side of the river, and mixed grass and gravel on the west side. The southern portion of the APE is mostly grass; however, it has been disturbed by the installation of a solar farm, a landfill, and a water treatment facility. Based on the Proposed Action, the APE was defined to include the proposed project footprint and all areas of potential ground disturbance along the Skokie River channel and the conveyance improvements along the roadways and associated property parcels (Appendix C provides the State Historic Preservation Office [SHPO] correspondence).

To comply with NHPA, a Phase I archaeological survey for historic and archaeological properties was completed in September 2023 (Richard Grubb & Associates, Inc. 2023). Prior to the field investigations, archaeological background research was conducted, which included a check of the Illinois Inventory of Archaeological Sites, the Illinois Archaeology Cultural Resources Management Database, and the SHPO Historic and Architectural Resources Geographic Information System. It also included a review of the Illinois National Register Master List and the National Register Determination of Eligibility List, historical aerial photographs, and topographic maps.

3.6.1. HISTORIC STRUCTURES

Secretary of the Interior (SOI) qualified FEMA staff conducted a review of the Illinois SHPO Historic and Architectural Resources Geographic Information System and cross-referenced the properties in the APE with both the Illinois National Register Master List and the NRHP Determination of Eligibility List. No NRHP-listed or -eligible historic buildings, structures, or districts were identified within or adjacent to the APE.

Three properties over 45 years of age are in the APE and include the Strawberry One Condominiums, the residential house at 12585 Bittersweet Avenue, and the residential house at 12615 Bittersweet Avenue. The buildings that make up the Strawberry One condominium complex were constructed from 1973 to 1974 and houses at 12585 and 12615 Bittersweet Avenue were completed in 1958. None of the aforementioned buildings have been previously determined as eligible for, or listed in, the NRHP.

The structures at Strawberry One and the dwellings at 12585 and 12615 Bittersweet Avenue were determined not eligible for listing in the NRHP. Therefore, in compliance with Section 106 of the NHPA, FEMA determined that the Proposed Action would result in No Historic Properties Affected. FEMA initiated consultation with the Illinois SHPO on March 28, 2024. The SHPO concurred with the finding of No Historic Properties Affected on April 26, 2024 (Appendix C).

Alternative 1 – No Action

Under the No Action alternative, there would be no impact on historic structures listed or eligible for listing in the NRHP as none were identified in the APE.

Alternative 2 – Proposed Action

The Proposed Action would have no impact on historic structures listed or eligible for listing in the NRHP because none were identified in the APE. The SHPO concurred with the finding of No Historic Properties Affected on April 26, 2024 (Appendix C).

3.6.2. ARCHAEOLOGICAL RESOURCES

The archaeological background research identified no previously recorded archaeological sites within or immediately adjacent to the APE. The archaeological field investigations that occurred in November 2022 by SOI-qualified archaeologists included both a pedestrian survey and shovel testing. Areas that exhibited clear subterranean disturbances and/or were not accessible were not archaeologically tested. Because access to Site 24 was restricted and the proposed construction avoids this area, Site 24 was not surveyed (Appendix C).

Based on historical topographic maps, aerial imagery, and the Skokie River historical sources (Shabica 2012), the APE has been heavily altered since at least the 1930s. The area within the APE began as a wetland and was partially channelized to allow for farming from the late 19th to early 20th century. In the 1930s and 1940s, when the APE was heavily channelized to create the Skokie River, industrialization quickly moved in with the APE being subjected to multiple demolition and construction events since that time. As a result of the land use changes from wetlands to dense commercial use, the APE has lost its ability to absorb stormwater runoff and has flooded many times over the past few decades.

Results of the archaeological testing indicated the heavily disturbed nature of the area. The only artifacts recovered included plastic, modern gravel, or other human-made inclusions. No artifacts were recovered in undisturbed soil context.

An archaeologist worked alongside A3E Consultants during the Phase II Environmental Site Assessment to compare the soil borings conducted for hazardous material identification to the archaeological shovel tests.

Overall, the results of the historical research, accompanied by the archaeological testing and soil boring revealed that the APE has been heavily disturbed by previous channelization and industrial, commercial, and residential construction. The shovel testing did not identify any archaeological material. No additional archaeological testing was recommended.

Based on the background research and Phase I archaeological survey, FEMA determined that the Proposed Action would result in No Historic Properties Affected. FEMA initiated consultation with the Illinois SHPO on March 28, 2024. The SHPO concurred with the finding of No Historic Properties Affected on April 26, 2024 (Appendix C).

Alternative 1 – No Action

The No Action alternative would have no impact on known archaeological resources because no construction or ground-disturbing activities would occur, and no archaeological sites were identified in the APE.

Alternative 2 – Proposed Action

The Proposed Action would have no impact on any archaeological sites or resources because no significant cultural materials or archaeological sites were identified during the survey. The following project conditions, also included in Section 6.2, would provide protection in case of inadvertent discovery of archaeological sites:

- Lake County will monitor ground disturbance during the construction phase. Should human skeletal remains or historic or archaeological materials be discovered during construction, all ground-disturbing activities on the project site shall cease and Lake County will notify the coroner's office (in the case of human remains), the recipient (IEMA), and FEMA. FEMA will notify the SHPO and the Office of the State Archaeologist. FEMA will then notify the Forest County Potawatomi Community of Wisconsin, Miami Tribe of Oklahoma, and Pokagon Band of Potawatomi Indians Tribal Historic Preservation Offices.

- All borrow or fill material must come from pre-existing stockpiles, material reclaimed from maintained roadside ditches (provided the designed width or depth of the ditch is not increased), or commercially procured material from a source existing prior to the event. For any FEMA-funded project requiring the use of a noncommercial source or a commercial source that was not permitted to operate prior to the event (e.g., a new pit, agricultural fields, road rights-of-way) in whole or in part, regardless of cost, Lake County must notify FEMA and the IEMA prior to extracting material. FEMA must review the source for compliance with all applicable federal environmental planning and historic preservation laws and executive orders prior to Lake County or their contractor commencing borrow extraction. Consultation and regulatory permitting may be required. Noncompliance with this requirement may jeopardize receipt of federal funding. Documentation of borrow sources used is required at closeout.

3.6.3. TRIBAL COORDINATION AND RELIGIOUS SITES

EO 13175, *Consultation and Coordination with Indian Tribal Governments*, directs federal agencies "to establish regular and meaningful consultation and collaboration with tribal officials in the development of federal policies that have tribal implications, to strengthen the United States government-to-government relationships with Indian tribes, and to reduce the imposition of unfunded mandates upon Indian tribes." 65 Fed. Reg. 67249 (Nov. 9, 2000).

Requests for information on the presence or absence of known archaeological and Native American religious sites within the proposed project area were submitted to federally recognized tribal nations with potential interests in the project. On October 5, 2022, FEMA initiated consultation with the following tribal nations:

- Citizen Potawatomi Nation
- Forest County Potawatomi Community of Wisconsin
- Hannahville Indian Community
- Ho-Chunk Nation
- Miami Tribe of Oklahoma
- Prairie Band Potawatomi Nation
- Pokagon Band of Potawatomi Indians
- Shawnee Tribe

FEMA sent a letter to each tribe with details about the project APE and proposed activity and requested comments from each tribal government within 30 days of the date of the letter. FEMA received responses from three tribal nations. The Forest County Potawatomi Community responded on October 5, 2022, that they are "pleased to offer a finding of No Historic Properties affected of significance to the Forest County Potawatomi Community, however, we do wish to remain as a consulting party for this project." In addition, they stated, "in the event an Inadvertent Discovery occurs at any phase of a project or undertaking as defined, and human remains or archaeological materials are exposed as a result of project activities, work should cease immediately, and the Tribe(s) must be included with the SHPO in any consultation regarding treatment and disposition of the find."

The Miami Tribe of Oklahoma Tribal Historic Preservation Officer responded on October 14, 2022, that they had "no objection to the above-referenced project at this time, as we are not currently aware of existing documentation directly linking a specific Miami cultural or historic site to the project site. However, given the Miami Tribe's deep and enduring relationship to its historic lands and cultural property within present-day Illinois, if any human remains or Native American cultural items falling under the Native American Graves Protection and Repatriation Act, 25 U.S.C. §§ 3001 – 3013, or archaeological evidence is discovered during any phase of this project, the Miami Tribe requests immediate consultation with the entity of jurisdiction for the location of discovery."

The Pokagon Band of Potawatomi Indians responded on November 4, 2022, that that "the Pokagon Band of Potawatomi Indians has an interest in the area potentially affected by the captioned undertaking." Correspondence with the tribal nations is provided in Appendix C.

Alternative 1 – No Action

The No Action alternative would have no impact on known archaeological or Native American religious sites because no construction or ground-disturbing activities would occur.

Alternative 2 – Proposed Action

The Proposed Action would have no impact on known archaeological or Native American religious sites. If any human or archaeological remains are encountered during project construction, work would stop immediately and FEMA and SHPO would be notified. FEMA would then notify the Forest County Potawatomi Community, Miami Tribe of Oklahoma, and Pokagon Band of Potawatomi Indians Tribal Historic Preservation Offices.

3.7. Comparison of Alternatives

Table 3.8 summarizes the potential environmental effects from implementing the No Action alternative, Proposed Action, and any applicable proposed mitigation.

Table 3.8. Summary of Environmental Impacts and Mitigation

Resource	No Action Impacts	Proposed Action Impacts	Mitigation
Geology, Topography, Soils	• No short-term impacts on soils, geology, or topography. • No long-term impacts on geology or topography. • Minor long-term adverse impacts on soils in the project area and vicinity, depending on the extent, frequency, and duration of flood events.	• Minor short-term adverse impacts on soils and topography from earthwork and grading. • Negligible adverse impacts on geology. • Minor long-term benefits on soils from the reduced risk of flooding and erosion and removal of contaminated soils from the project area. • Negligible long-term benefits on topography from reshaping the channel.	Implement Conditions 1, 3, and 4 in Section 6.2.
Water Resources and Water Quality	• No short-term impact on surface or groundwater quality. • Minor to moderate long-term adverse impact on surface water from sedimentation and pollutants transferred by floodwaters into water bodies; negligible long-term adverse impact on quality of shallow groundwater from percolation of contaminated floodwaters.	• Minor short-term adverse impact on water quality during construction from equipment use and in-water work. • Minor long-term benefits on surface water quality and negligible benefits on the quality of shallow groundwater from reduced risk of flooding and erosion and removal of contaminated soils from the project area. • No impacts to water quality of deeper aquifers and drinking water wells.	Implement Conditions 1, 3, 4, and 5 in Section 6.2.

Resource	No Action Impacts	Proposed Action Impacts	Mitigation
Floodplain Management	• No short-term impact on the floodplain. • Moderate long-term adverse impacts from periodic flooding and impacts on people, property, and water quality.	• Minor short-term adverse impacts from construction in the floodplain. • Minor long-term impacts from excavation in the floodplain that would alter the path of water. • Moderate long-term benefits on floodplains by increasing flood storage and removing contaminated soils from the project area.	Implement Conditions 1, 3, 4, 5, and 6 in Section 6.2.
Air Quality	• No short-term impact on air quality. • Negligible long-term adverse impacts from periodic equipment emissions for flood-related road repairs and detours.	• Minor short-term adverse impacts from construction equipment emissions and exposed soils. • No long-term impact.	Implement Condition 7 in Section 6.2.
Climate	• No short-term impact on climate. • Moderate long-term adverse impacts as climate change would increase flood risk and associated repairs, and community resilience to climate change would not be strengthened.	• Minor short-term adverse impacts from construction equipment GHG emissions. • Minor long-term benefits from increasing community resilience to climate change.	Implement Condition 7 in Section 6.2.
Terrestrial and Aquatic Environment	• No short-term impacts. • Negligible long-term adverse impacts from periodic flooding and associated sediment and pollutant deposition in project area.	• Minor short-term adverse impacts from vegetation clearing and other construction activities. • Minor long-term benefits from reduced flooding and erosion risk and removal of contaminated soils.	Implement Conditions 1, 3, 4, and 5 in Section 6.2.
Wetlands	• No short-term impacts. • Negligible long-term adverse impacts from periodic flooding and associated sediment and pollutant deposition in project area.	• Minor short-term adverse impacts on wetlands from construction. • Minor long-term benefits from reduced flooding and erosion risk, restoration with native wetland species, improved wetland function and quality, and removal of contaminated soils.	Implement Conditions 1, 3, 4, and 5 in Section 6.2.

Resource	No Action Impacts	Proposed Action Impacts	Mitigation
Threatened and Endangered Species	• No effect on listed species. • No short- or long-term impacts.	• May affect, but is not likely to adversely affect, the northern long-eared bat and rusty patched bumble bee. No effect on other federally listed species. • Negligible to minor short-term adverse impacts on northern long-eared bat and rusty patched bumble bee from construction activities. • No long-term impact on northern long-eared bat; minor long-term benefit on rusty patched bumble bee from improving foraging habitat.	Implement Conditions 9 and 10 in Section 6.2.
Migratory Birds and Bald and Golden Eagles	• No short- or long-term impacts.	• Minor short-term adverse impacts on migratory birds from vegetation removal and construction. • Minor long-term benefits on migratory birds from improved vegetative quality • No short- or long-term impacts on bald eagles.	Implement Condition 11 in Section 6.2.
Hazardous Materials	• No short-term impacts. • Minor long-term adverse impacts from flooding that could lead to the dispersal of hazardous materials.	• Minor short-term adverse impact from construction equipment use and the potential for spreading contaminated soils within the project area. • Minor long-term benefit from reduced risk of flooding and dispersal of hazardous materials and removal of contaminated soils from the project area.	Implement Condition 12 in Section 6.2.
Noise	• No short-term impacts. • Negligible long-term adverse impacts from flood-related repairs and construction.	• Minor short-term adverse impacts associated with construction. • No long-term impact.	Implement Conditions 13 and 14 in Section 6.2.
Public Services and Utilities	• No short-term impacts. • Minor to moderate long-term impacts from flood-related damage and service disruptions.	• Minor short-term adverse impacts from construction. • Moderate long-term benefits from reducing the risk of flooding.	Implement Condition 15 in Section 6.2.

Resource	No Action Impacts	Proposed Action Impacts	Mitigation
Traffic and Circulation	• No short-term impacts. • Moderate recurring intermittent adverse impacts from flood-related road closures.	• Minor short-term adverse impact from construction traffic. • Minor short-term adverse impacts on crossings in the two-stage channel project area. • Minor long-term benefit from the reduction in road closures caused by flooding.	Implement Condition 16 in Section 6.2.
EJ	• No short-term impacts. • Minor disproportionate and adverse impacts on EJ populations from periodic flooding.	• Minor short-term adverse impacts from construction (not disproportionate and adverse). • Minor long-term benefits from reduced flooding and removal of contaminated soils.	Implement Conditions 7, 8, 12, 13, and 14 in Section 6.2.
Safety and Security	• No short-term impacts. • Moderate long-term adverse impacts from future flood events.	• Negligible short-term adverse impacts from construction. • Minor long-term benefits from reducing the risk of flooding that would threaten life and property.	Implement Conditions 17 and 18 in Section 6.2.
Historic Structures	• No Impact	• No Impact	None required
Archaeological Resources	• No Impact	• No Impact	Implement Conditions 19 and 20 in Section 6.2.
Tribal and Religious Sites	• No Impact	• No Impact	Implement Condition 19 in Section 6.2.

SECTION 4. Cumulative Effects

This section addresses the potential cumulative effects associated with the implementation of the Proposed Action. Cumulative effects are effects on the environment that result from the incremental effects of a proposed action when added to the effects of other past, present, and reasonably foreseeable actions regardless of what agency (federal or nonfederal) or person undertakes those other actions (40 C.F.R. § 1508.1(i)(3) (2022)). CEQ's regulations for implementing NEPA require an assessment of cumulative effects during the decision-making process for federal projects. The code also states that cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Other statutes require federal agencies to consider cumulative effects. These include the CWA Section 404(b)(1) guidelines, the regulations implementing the conformity provisions of the Clean Air Act, the regulations implementing Section 106 of the NHPA, and the regulations implementing Section 7 of the ESA.

The Proposed Action is an effort to mitigate flood risk and damage that occurs at the Strawberry Condominiums, NSGL residences, and along US-41 because of a lack of stormwater conveyance and flood storage capacity. In addition to the Proposed Action, a number of other flood risk reduction projects have been recently constructed or are currently being constructed/proposed in Lake County. These cumulative projects are summarized below.

Lake County has recently implemented similar two-stage channel improvements along the Skokie River, approximately 1 mile north of the project area. The project also included a wetland detention basin designed to have a permanent pool of water and detain and treat in-stream flows. This project was constructed to address frequent flooding in the area.

In April 2021, Lake County constructed a rock-lined drainage swale and new storm sewer along the west property line of Strawberry Condominiums to improve drainage and prevent overflow from the wetland mitigation area into the condominium property.

In 2021, Lake County obtained funding for the Dady Slough Flood Control and Wetland Enhancement Project. This project will mitigate riverine flooding of residential and commercial structures and roadways upstream of Dady Slough by creating an additional 60 acre-feet of flood storage in the wetland system and restoring approximately 28 acres of wetlands. The project is estimated to be complete by September 2025.

In May 2022, federal and state funding for 14 flood control projects in Lake County was announced (Patabook News 2022). The 14 projects include engineering, design, and construction of storm sewers, drainage improvements, culverts, stream stabilization, and stormwater basins throughout Lake County. These projects are expected to be completed and fully implemented by September 2024.

Four of these projects are in the North Branch Chicago River Watershed. The Park City Flood Mitigation Storm Sewer Project includes engineering design and construction of large box culverts and storm sewer laterals within the City of Park City and extends from Illinois Route 120 south to Greenbelt Forest Preserve. A portion of the project is also located in the City of Waukegan. This project will provide flood damage reduction benefits to more than 800 properties.

The Highlands Neighborhood Drainage Improvements Project includes design engineering and construction of storm sewer enhancements and installation of backflow preventers for the Highlands subdivision in the City Highland Park to reduce flood damages resulting from flooding along the Skokie River. The project will benefit approximately 250 properties.

The Skokie River Channel Improvements Phase 2 Project includes engineering design and construction of channel improvements along approximately 2,800 linear feet of the Skokie River south of Westleigh Road in Lake Forest, including riverbank stabilization practices along both sides of the river.

The Talbot Avenue Drainage Improvements Project includes design engineering and construction of a stormwater swale to replace an undersized storm sewer and overland flow path between Talbot Avenue and Atkinson Road, west of Illinois Route 43 and north of Illinois Route 176 in unincorporated Shields Township. This project will provide flood mitigation benefits for two roadways and 14 properties along Talbot Avenue and Atkinson Road.

A funding source has been identified for two proposed projects that are also located in the North Branch Chicago River Watershed. The projects are proposed for construction from 2024 to 2026 and are expected to be implemented by 2026. The Highland Park Skokie River Channel Improvements Project would stabilize approximately 1,450 feet of the Skokie River corridor (totaling 2,900 linear feet for both sides of the stream) that has moderate to very severely eroded streambanks. The project reaches are in the Danny Cunniff Park in Highland Park (critical areas in the 2022 North Branch Chicago River Watershed-Based Plan). The Windsor Drive Drainage Improvement Project is a flood control project in the Windsor Drive neighborhood. The drainage area (approximately 177 acres) is tributary to the West Fork North Branch Chicago River. The project would include installation of new storm sewers within the project area to improve conveyance and reduce flooding and would benefit approximately 70 properties for up to a 10-year storm event and approximately 101 properties for up to a 100-year storm event. Roadway flooding would also be significantly reduced.

Other construction projects, including road improvement projects, were assessed in the project area. According to the Lake County Department of Transportation, there are no other current or upcoming road projects near the Proposed Action (Lake County Department of Transportation n.d.).

This EA concludes that the Proposed Action would result in short-term, construction-related, negligible to minor impacts on geology, soils, topography, water resources and quality, floodplains, air quality, climate, terrestrial and aquatic environments, wetlands, threatened and endangered species, migratory birds, hazardous materials, noise, public services and utilities, traffic and

circulation, EJ, and safety and security. The flood control projects discussed above may result in cumulative short-term impacts if the timing of their construction overlaps. Any potential overlap in construction would only occur for a short duration. Additionally, construction of these project would occur in different areas, thus reducing the chance for cumulative short-term impacts related to construction.

The Proposed Action would result in negligible to moderate long-term benefits on soils, water resources and quality, floodplains, climate, terrestrial and aquatic environments, wetlands, threatened and endangered species, migratory birds, hazardous materials, public services and utilities, traffic and circulation, EJ, and safety and security. Flood control projects throughout Lake County would be expected to result in cumulative benefits on soils, water quality, floodplains, terrestrial and aquatic environments, wetlands, migratory birds, hazardous materials, public services and utilities, EJ, and safety and security when combined with the Proposed Action.

SECTION 5. Agency Coordination and Public Involvement

5.1. Lake County Outreach

The Proposed Action was discussed at several public meetings as well as with government agencies, and other stakeholders. A monthly coordination meeting for all project stakeholders has been ongoing for several years. Development of the Proposed Action involved many project partners and stakeholders, including the City of North Chicago, NSGL, IDOT, Union Pacific Railroad, Lake Bluff Park District, Skokie Consolidated Drainage District, Strawberry Condominium Association residence, and local businesses to obtain experience, expertise, values, and perspectives.

An initial public notice for the Proposed Action was posted on March 25, 2024, on FEMA's website at https://www.fema.gov/emergency-managers/practitioners/environmental-historic/nepa/environmental-assessment-north-chicago. The notice provided information on the Proposed Action and impacts on floodplains and wetlands. The public was invited to provide comments for a period of 15 days. No comments were received.

5.2. Scoping

A public scoping notice was published on FEMA's website at https://www.fema.gov/emergency-managers/practitioners/environmental-historic/nepa/environmental-assessment-north-chicago on March 27, 2024, to notify and provide the public with an opportunity to comment on the Proposed Action, potential alternatives, and preliminary identification of environmental issues. The scoping notice was sent to the following agencies/entities:

- U.S. government agencies: USACE – Chicago District, EPA Region 5, USFWS, U.S Housing and Urban Development, and NSGL
- State agencies: Illinois Commerce Commission, IDNR, IDOT, IEMA, IEPA, and Illinois SHPO
- Local agencies and entities: Lake County Stormwater Management Commission, Lake County Division of Transportation, Lake County Emergency Management Agency, City of North Chicago, Skokie Consolidated Drainage District, Union Pacific Railroad Company, ComEd, and Exelon Corporation
- Tribal Nations: Citizen Potawatomi Nation, Forest County Potawatomi Community of Wisconsin, Hannahville Indian Community, Ho-Chunk Nation, Miami Tribe of Oklahoma. Pokagon Band of Potawatomi Indians, Prairie Band Potawatomi Nation, and Shawnee Tribe

The 30-day scoping comment period closed on April 27, 2024, and two comment letters were received from NSGL (provided in Appendix E). NSGL requested clarification and additional information pertaining to the project scope, including operation of the restrictor plate, design of the two-stage channel, impacts and mitigation for Skokie River crossings and trails within the project

area, methods of handling soil contamination in the project area, and site restoration and maintenance. NSGL also requested to be included in project updates related to utility relocation and implementation within easements on their property and requested copies of the NHPA and ESA consultations. Input from NSGL was incorporated into this EA and the NHPA and ESA consultations were provided to NSGL.

5.3. Draft Environmental Assessment Public Comment

This EA was made available for agency and public review and comment for a period of 30 days. The public engagement process included a public notice with information about the Proposed Action in the Chicago Tribune. This EA was made available on FEMA's website at www.fema.gov/emergency-managers/practitioners/environmental-historic/region/5. The EA was also available on the Lake County Stormwater Management Commission website at www.lakecountyil.gov//553/Stormwater-Management-Commission. A hard copy of this EA was made available for review at Lake County Stormwater Management Commission's office at 500 West Winchester Road, Suite 201, Libertyville, Illinois 60048.

The comment period on the draft EA extended from October 16, 2024, to November 15, 2024. One comment letter was received from EPA Region 5 with recommendations related to the EJ, climate, and cumulative analyses. These recommendations were incorporated into the Final EA as appropriate. EPA's comment letter is included in Appendix E.

SECTION 6. Project Conditions and Permits

6.1. Permits

Table 6.1 summarizes the necessary permits to implement the Proposed Action and their status.

Table 6.1. Permit Summary

Issuing Agency	Resource	Permit Title	Applicable Regulation/Law	Status
IEPA	Soils, Water Resources and Quality	Permit for Stormwater Discharges from Construction Site Activities (General NPDES Permit No. ILR10) or General Construction Stormwater Permit	CWA Section 402	Not complete. To be obtained by construction contractor following project award and prior to starting construction.
USACE	Water Resources and Quality	USACE Section 404 permit	CWA Section 404	Not complete. To be obtained by Lake County following project award and prior to starting construction.
IDNR	Floodplains	Permit for Floodway Construction	Part 3700	Not complete. To be obtained by Lake County following project award and prior to starting construction.
IEPA	Hazardous Waste	Permits for Transporting and Managing Hazardous Waste	Title 35 Ill. Admin. Code, Parts 700-739	Not complete. To be obtained by Lake County following project award and prior to starting construction.

6.2. Project Conditions

Lake County is responsible for compliance with federal, state, and local laws and regulations, including obtaining any necessary permits prior to beginning construction activities, and adhering to any conditions laid out in those permits. Any substantive change to the scope of work will require re-evaluation by FEMA for compliance with NEPA and any other laws or EOs. Failure to comply with FEMA grant conditions may jeopardize federal funding.

GENERAL PROJECT CONDITIONS

1. Lake County is responsible for obtaining and complying with all required local, state, and federal permits and approvals.
2. If deviations from the proposed scope of work result in substantial design changes, the need for additional ground disturbance, additional removal of vegetation, or any other unanticipated changes to the physical environment, Lake County must contact FEMA so that the revised project scope can be evaluated for compliance with NEPA and other applicable environmental laws.

SOILS, WATER RESOURCES AND QUALITY, FLOODPLAIN MANAGEMENT, TERRESTRIAL AND AQUATIC ENVIRONMENT, AND WETLANDS

3. During construction, soils within the two-stage channel project area would be tested for contamination. Contaminated soils would be excavated in their entirety and properly disposed of at a licensed waste facility for handling such material in accordance with applicable federal, state, and local regulatory requirements.
4. All construction activities under the Proposed Action would follow the requirements in the SWPPP and TESC plan.
5. Excavated materials, excess fill, and debris generated by the Proposed Action would not be disposed of in surface waters, wetlands, or in the floodplain or floodway.
6. Activities that would occur within the floodplain will be conducted in accordance with Lake County's Floodplain Management Regulations. Lake County will coordinate with the local floodplain administrator and IDNR about any necessary permits to conduct activities within the floodplain.

AIR QUALITY, CLIMATE, AND ENVIRONMENTAL JUSTICE

7. Implement applicable BMPs from EPA's Construction Emission Control Checklist (included in Appendix B).
8. Establish and design hauling routes to minimize the effect of short-term emissions on homes, schools, daycare centers, and playgrounds.

THREATENED AND ENDANGERED SPECIES

9. Minimize removal and trimming of native trees preferred by the northern long-eared bat to the maximum extent practicable.
10. The timing of tree removal and thinning would be scheduled to comply with the seasonal restrictions outlined in the Available Conservation Measures section in the November 30, 2022, ruling (87 FR 73503) for northern long-eared bat (i.e., tree removal and thinning would be performed during the northern long-eared bat hibernation period, from November 1 through March 30) to the maximum extent practicable.

MIGRATORY BIRDS AND BALD AND GOLDEN EAGLES

11. Obtain necessary permits to comply with federal (Migratory Bird Treaty Act) and state laws for the protection of birds prior to initiating work.

HAZARDOUS MATERIALS AND ENVIRONMENTAL JUSTICE

12. During construction, soils within the two-stage channel project area would be tested for contamination. Contaminated soils would be excavated in their entirety and properly disposed of at a licensed waste facility for handling such material in accordance with applicable federal, state, and local regulatory requirements. Handle and dispose of any hazardous materials in accordance with applicable local, state, and federal regulations.

NOISE AND ENVIRONMENTAL JUSTICE

13. Keep heavy machinery and equipment well maintained. Use sound-control devices and mufflers.
14. Comply with Lake County's noise ordinance.

PUBLIC SERVICES AND UTILITIES

15. Coordinate with NSGL on utility relocation and installation within easements on NSGL property.

TRAFFIC AND CIRCULATION

16. Use traffic control devices, such as flag people and signs, to mitigate and guide traffic as needed during construction. Placement and maintenance of traffic control devices would be in accordance with the State of Illinois specifications and standards.

SAFETY AND SECURITY

17. Complete all construction activities with qualified personnel trained in the proper use of equipment, including all safety precautions.
18. Install appropriate signage and barriers prior to construction activities to alert pedestrians and motorists of project activities.

ARCHAEOLOGICAL RESOURCES AND TRIBAL AND RELIGIOUS SITES

19. Lake County will monitor ground disturbance during the construction phase. Should human skeletal remains or historic or archaeological materials be discovered during construction, all ground-disturbing activities on the project site shall cease and Lake County will notify the coroner's office (in the case of human remains), the recipient (IEMA), and FEMA. FEMA will notify the SHPO and the Office of the State Archaeologist. FEMA will then notify the Forest County Potawatomi Community of Wisconsin, Miami Tribe of Oklahoma, and Pokagon Band of Potawatomi Indians Tribal Historic Preservation Offices.
20. All borrow or fill material must come from pre-existing stockpiles or commercially procured material from a pre-existing source. If this is not the case, the subrecipient shall inform FEMA of the fill source so required agency consultations can be completed and FEMA approval will be required prior to beginning ground disturbing activities.

SECTION 7. List of Preparers

The following is a list of preparers who contributed to the development of the North Chicago Storm Sewer Project EA for FEMA. The individuals listed herein had principal roles in the preparation of this document. Many others contributed, including senior managers, administrative support personnel, and technical staff, and their efforts in developing this EA are appreciated.

Federal Emergency Management Agency

Reviewers	Role in Preparation
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Grafton, Jack	Project Lead, Environmental Protection Specialist
Richards, Emily	Environmental Protection Specialist
Nagle, Donna	Cultural Resources, Environmental Protection Specialist

CDM Smith

Preparers	Experience and Expertise	Role in Preparation
Argiroff, Emma	Environmental Planner	NEPA Documentation
Galatzer, Melissa	Management Specialist	508 Formatting
Gilbride, Jeremy	Chemical Engineer	NEPA Documentation, Air Quality
Giordano, Brock	Senior Cultural Resources Specialist	NEPA Documentation, Technical Review, Cultural Resources
Gledhill, Greta	Environmental Planner	NEPA Documentation
Jadhav, Ajay	Geographic Information System (GIS) Specialist	NEPA Documentation, GIS
Pham, Nicholas	Environmental Engineer	NEPA Documentation, Air Quality
Quan, Jenna	Environmental Planner and Biologist	NEPA Documentation
Stenberg, Kate	PhD, Senior Biologist, Senior Planner	Quality Control/Technical Review

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