UPPER ST. ANTHONY FALLS LOCK AND DAM

SECTION 216 DISPOSITION STUDY

REVISED DRAFT INTEGRATED DISPOSITION STUDY AND ENVIRONMENTAL ASSESSMENT

June 2025

US Army Corps of Engineers®
St. Paul District

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Executive Summary

This integrated disposition study report and environmental assessment presents the results of a U.S. Army Corps of Engineers (USACE) disposition study to evaluate whether Upper St. Anthony Falls (USAF) Lock and Dam should be deauthorized and if the associated real property and government-owned improvements should undergo disposal, which is defined as any authorized method of permanently divesting the Department of the Army of control of and responsibility for real estate (USACE Interim Guidance on the Conduct of Disposition Studies, dated August 22, 2016). The Upper St. Anthony Falls Disposition Study was authorized by Section 216 of the Flood Control Act of 1970 (33 U.S. Code § 549a), which authorizes USACE to evaluate existing civil works projects with significantly changed physical or economic conditions to determine whether they continue to serve their authorized purpose(s). The Upper St. Anthony Falls Disposition Study was performed to assess if this federal project is serving its authorized purpose, and if not, whether sufficient federal interest exists for the federal government to continue to own, operate and maintain the project. This study also evaluates and compares the benefits, costs and impacts (positive or negative) of continued operation, maintenance, repair, replacement and rehabilitation, or lack thereof, of the project. USACE previously issued a draft integrated disposition study report and environmental assessment for this study in 2021, but due to subsequent changes in law and additional considerations, USACE has prepared this revised draft integrated disposition study report and environmental assessment that supersedes the prior draft.

Background

USAF Lock and Dam is located on the right descending bank of the Mississippi River in Minneapolis, Minnesota, at Upper Mississippi River mile 853.9 (Figure ES-1; left and right orientation on rivers is determined facing downstream). The dam across the Mississippi River consists of both federal and nonfederal structures that act to maintain the upstream water elevation. The damming surface includes the lock chamber, the horseshoe dam, spillway, the Xcel Energy hydroelectric facility and the University of Minnesota St. Anthony Falls Laboratory. Of the damming surface elements, only the lock chamber and two short segments of the dam are part of USAF Lock and Dam that is federally owned and USACE-operated and maintained. USACE operates and maintains a Tainter gate as part of USAF Lock and Dam to mitigate effects of the structure on upstream water surface elevation during high flows.

The primary and sole authorized purpose of USAF Lock and Dam is navigation. The lock was ordered closed to navigation by Section 2010 of the Water Resources Reform and Redevelopment Act of 2014 (WRRDA 2014) but continues to be an authorized federal project that USACE is required to operate and maintain for its authorized purpose. WRRDA 2014 also specifically allows USACE to operate the Tainter gate. A disposition study for USAF Lock and two other locks on the Upper Mississippi River was initiated shortly after USAF Lock was closed to navigation on June 9, 2015. Subsequently, Section 1225 of the America's Water Infrastructure Act of 2018 amended Section 2010 of WRRDA 2014 to require, among other things, that USACE prioritizes and prepares a separate disposition study report for USAF Lock and Dam.

Relationship of this Study to Conveyance Directed by the Water Resources Development Act of 2020

While the study was underway, Congress separately directed conveyance of real property interests at USAF Lock and Dam. Section 356 of the Water Resources Development Act of 2020 (WRDA 2020) directs

the Secretary of the Army to convey, upon request, all or substantially all the real property adjacent to USAF Lock and Dam to the city of Minneapolis or its designee. Section 356 also directs the Secretary of the Army to provide to the city of Minneapolis access and use rights by license, easement or similar agreement to any real property and structures at the site for recreation, tourism and interpretative purposes. Concurrent with but separate from the disposition study, USACE and the city of Minneapolis have been analyzing how to support the Section 356 conveyance and long-term provision of access and use rights. In the interim, a 25-year interim park and recreation lease with Owámniyomni Okhódayapi (formerly known as Friends of the Falls, a Minnesota nonprofit corporation) was executed March 1, 2024, and may remain in place through February 28, 2049. Prior to conveyance, Owámniyomni Okhódayapi is proposing some site modifications in the leased area, which are subject to a separate evaluation in 2025. WRDA 2020 does not relieve USACE of its obligation to complete the disposition study as directed by the Water Resources Development Act of 2018 (WRDA 2018). That provision of law does not deauthorize the project, allow USACE to discontinue operation and maintenance of the authorized project, or allow USACE to transfer ownership or operation of the lock and dam. Lands and real property interests requested for conveyance pursuant to WRDA 2020 are excluded from the disposition study evaluation and statement of findings presented in this report. That is, this disposition study addresses the lands and improvements that are not conveyed or provided to the city of Minneapolis or its designee pursuant to WRDA 2020.

Other Statutory Requirements Affecting this Study

The Water Resources Development Act of 2022 (WRDA 2022) prohibits the Secretary of the Army from recommending deauthorization and disposal of USAF Lock and Dam until such time as a willing and capable nonfederal public entity is identified to assume ownership of the lock and dam. WRDA 2022 further directs the investigation of other authorized water resource purposes at USAF, such as ecosystem restoration, water supply or recreation. The evaluation of these opportunities is presented in Section 6 of this report.

Alternatives

The St. Anthony Falls Disposition Study analyzed one no action alternative and two action alternatives that address deauthorization or modification of the authorized project along with disposal of real property and improvements:

1. No Action — Under the No Action alternative, USAF Lock and Dam would remain an authorized federal project. USACE St. Paul District would continue operation and maintenance of the authorized federal project. The No Action alternative assumes that USAF Lock and Dam will remain closed to navigation. However, in accordance with WRDA 2020, subject to completion of all required analysis and compliance, USACE will separately convey and outgrant real property interests adjacent to and in the vicinity of the lock and dam to the city of Minneapolis while retaining the real property interests necessary for operation and maintenance of the authorized project. USACE will continue to operate, maintain, repair, rehabilitate and replace the components of the project as necessary, including operating and maintaining the lock and Tainter gate per the current navigation authorization; therefore, this alternative does not reduce operation and maintenance costs for USACE.
2. Full Disposal — The Full Disposal alternative would consist of deauthorization of the USAF Lock and Dam project by Congress, leading to complete disposal of the federal property and

improvements at the site. This is the most efficient plan and would provide the highest cost savings to the federal government. Unfortunately, this plan is not yet acceptable: complete deauthorization and disposal is not implementable unless or until such time as a willing and capable nonfederal public entity is identified to take ownership of the site. However, if a willing and capable nonfederal public entity to accept ownership of the project is identified, Full Disposal should be reconsidered, as this plan results in the highest cost savings to the federal government.

3. Partial Disposal — The Partial Disposal alternative would make some components excess to the project and thus eligible for disposal. Partial Disposal would result in a modification of project authorization to eliminate requirements to pass navigation traffic while continuing to require USACE to retain its flood mitigation function during high-flow events through the operation of the lock chamber Tainter gate and the maintenance of the facilities and lands necessary to support Tainter gate operations. This alternative partially meets the study objectives of reducing to the maximum extent possible the federal investment in the ownership and operation, maintenance, repair, rehabilitation and replacement responsibilities of USAF Lock and Dam over the next 50 years. However, Partial Disposal is not the most efficient plan and does not result in significant cost savings to the federal government, as USACE would retain ownership and responsibility for operation and maintenance of the Tainter gate. Partial disposal would not meaningfully reduce USACE's operation and maintenance footprint. For purposes of this study, because it would include the disposal of structures that are required for navigation and thus require a modification in project authorization, partial disposal is also assumed to require the identification of a willing and capable nonfederal public entity; until such an entity is identified, disposal or conveyance of these elements is not implementable.

The results of this study support the conclusion that the USAF Lock and Dam civil works project no longer serves its authorized purpose and that continued operation and maintenance of the site is not in the federal interest. Typically, a finding of no federal interest would result in proposed deauthorization and the federal asset being disposed of and/or transferred through the General Services Administration process. Due to the limitations set forth in WRDA 2022, a deauthorization and disposal recommendation cannot be implemented until a willing and capable nonfederal public entity is identified to assume ownership. During the review period in 2021 for the draft report released in January 2021, the St. Paul District invited submission of statements of interest in future ownership. No statements of interest were submitted. As mentioned above, if such a willing and capable nonfederal public entity was identified, deauthorization and disposal (Full Disposal alternative) could be recommended, as this plan results in the highest cost savings to the federal government. Under the No Action alternative, although the project is closed to navigation, the project remains authorized for the navigation purpose and USACE maintains ownership of the lock chamber, submersible Tainter gate and other structures that increase flow capacity during high-flow events; thus, it will be necessary to use operation and maintenance funds to operate and maintain these structures.

Conclusion

USAF Lock and Dam no longer serves the federally authorized purpose of navigation, and continued operation and maintenance of the site is not in the federal interest. Until a willing and capable nonfederal public entity is identified, the Secretary of the Army will not recommend deauthorization to Congress. So long as the project remains authorized, USACE will maintain ownership of the project lands and improvements, including the lock chamber, submersible Tainter gate, and other structures that increase

flow capacity during high-flow events. While this study did not find a continued federal interest in navigation at USAF, USACE has identified opportunities for future use at the site. Future use scenarios are summarized in two categories: opportunities for a new water resources development purpose and modifications to minimize operation and maintenance costs at USAF.

Figure ES-1. Upper St. Anthony Falls Lock and Dam Location

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1 Introduction

The U.S. Army Corps of Engineers (USACE) is evaluating whether Upper St. Anthony Falls (USAF) Lock and Dam should be deauthorized and if the associated real property and government-owned improvements should undergo a transfer of ownership if deemed excess to project requirements. The Upper St. Anthony Falls Disposition Study was authorized by Section 216 of the Flood Control Act of 1970 (33 U.S. Code § 549a), which allows USACE to evaluate existing projects to determine whether or not they continue to serve their authorized purpose(s). The primary and sole authorized purpose of USAF Lock and Dam is navigation. USAF Lock was ordered closed by Section 2010 of the Water Resources Reform and Redevelopment Act of 2014 (WRRDA 2014), which effectively ended the navigation function of USAF Lock and Dam but did not deauthorize the project. The lock was closed to navigation on June 9, 2015.

Deauthorization of USAF Lock and Dam would require an act of Congress. Disposal is defined as any authorized method of permanently divesting the Department of the Army of control and responsibility for real estate (USACE Interim Guidance on the Conduct of Disposition Studies, dated August 22, 2016). Prior to deauthorization, USACE may not modify the project contrary to the authorized purpose or dispose of property or improvements that are necessary to meet the authorized purpose.

This report documents the planning process for evaluating potential deauthorization and disposal of USAF Lock and Dam to demonstrate consistency with USACE planning policy and to meet the regulations that implement the National Environmental Policy Act of 1969 (NEPA). The following sections provide background information regarding the basis for this study.

1.1 Study Authority

Section 216 of the Flood Control Act of 1970 (Public Law 91-611) authorizes investigations for the modification of completed projects or their operation when found advisable due to significantly changed physical or economic conditions and for improving the quality of the environment in the overall public interest. Section 216 of Public Law 91-611 states the following:

> *The Secretary of the Army, acting through the Chief of Engineers, is authorized to review the operation of projects the construction of which has been completed and which were constructed by USACE of Engineers in the interest of navigation, flood control, water supply, and related purposes, when found advisable due [to] significantly changed physical or economic conditions, and to report thereon to Congress with recommendations on the advisability of modifying the structures or their operation, and for improving the quality of the environment in the overall public interest.*

The congressional direction issued in 2014 to cease passage of navigational traffic at USAF Lock and Dam represented a significant change to the economic conditions of this federal asset.

1.2 Study Purpose and Scope

The focus of the study was whether federal interest exists to retain the project for its primary authorized purpose. USAF Lock and Dam has a single authorized purpose of navigation. This study evaluated and compared the benefits, costs and impacts (positive or negative) of continued operation, maintenance,

repair, replacement, and rehabilitation, or lack thereof, of USAF Lock and Dam, as well as evaluated whether deauthorization and disposal of the associated real property and government-owned improvements are warranted.

The study considered one No Action alternative and two action alternatives:

- No Action: The USACE St. Paul District would continue to operate USAF Lock and Dam within the existing agreement.
- Full Disposal: Deauthorization by Congress of all USACE's federal missions at the site, leading to complete disposal of the federal property and improvements at the site.
- Partial Disposal: Congressional modification of the project authorization, followed by partial disposal of federal properties at the site, retaining the flood mitigation function and facilities necessary to support this function.

All alternatives formulated and evaluated in this report assume real property of the project adjacent to and in the vicinity of the lock and dam will be separately conveyed to the city of Minneapolis as authorized by the Water Resources and Development Act of 2020 (WRDA 2020) Section 356, as amended. Real property requested for and eligible for conveyance to the city of Minneapolis or its designee pursuant to Section 356 cannot be disposed of by other means and is excluded from consideration in this disposition study. Owámniyomni Okhódayapi, acting in its capacity as agent for the city of Minneapolis, requested portions of tract numbers 400-3, 400-4, and 400-5, in Section 23, Township 29 N, Range 24 West, Hennepin County, Minnesota, totaling approximately 5.2 acres. The boundaries of the requested fee conveyance are subject to adjustment as the conveyance evaluation continues. The tracts are excluded from evaluation in this disposition study except as to easements/encumbrances USACE will retain for operation and maintenance of USAF Lock and Dam pursuant to WRDA 2020. Such easements would be included, to the extent consistent with law, in disposal with USAF Lock and Dam project improvements and other lands under the Full Disposal alternative.

The No Action alternative, or the future without-action condition, assumes continued operation, maintenance, repair, rehabilitation and replacement of the remaining components of USAF Lock and Dam, including consideration of its current status and any reasonably predictable changes in the status over the 50-year period of analysis. The No Action alternative would require USACE to continue to own the real property at the project necessary for the authorized purpose. The project would remain authorized for navigation. USACE's obligation will continue for the operation, maintenance, repair, rehabilitation and replacement of the retained structures.

The Full Disposal alternative — to fully deauthorize and dispose the federal properties — would require congressional action. Following deauthorization, all federal property at the site would be disposed to a willing and capable nonfederal public entity.

The Partial Disposal alternative would also require congressional action. It assumes that USACE retains the flood mitigation function at the site, but any real property and improvements not needed for flood mitigation and not requested by the city of Minneapolis per WRDA 2020 could be disposed of to a willing and capable nonfederal public entity. This alternative would retain the federal navigation mission authorization at the site to maintain USACE's function regarding flood operations. However, it is assumed

that the site would remain permanently closed to commercial navigation. With Partial Disposal, portions of the federal property at the site would be disposed to a willing and capable nonfederal public entity. However, to maintain both the integrity of the damming surface and the ability of the facility to reliably perform during flood operations, the portions of the federal project disposed would still be subject to restrictions to protect the remaining federal project functions.

1.3 Project Authority

The River and Harbor Act of 1937 (Public Law 75-392) authorized the USAF and Lower St. Anthony Falls (LSAF) locks and dams and the Minneapolis Upper Harbor project and extended the 9-foot navigation channel authorized by the River and Harbor Act of July 3, 1930, as amended, upstream to Mississippi River mile 857.6. USAF Lock and Dam was completed in 1963 (Figure 1-1). The nonfederal sponsor of the Upper Harbor project was the city of Minneapolis, which contributed $1.1 million toward the construction cost and raised seven bridges to accommodate commercial traffic on the river. Minneapolis continued their cooperation by providing dredged material disposal areas as necessary for USACE to maintain the 9-foot navigation channel. The primary and sole authorized purpose of USAF Lock and Dam is navigation.

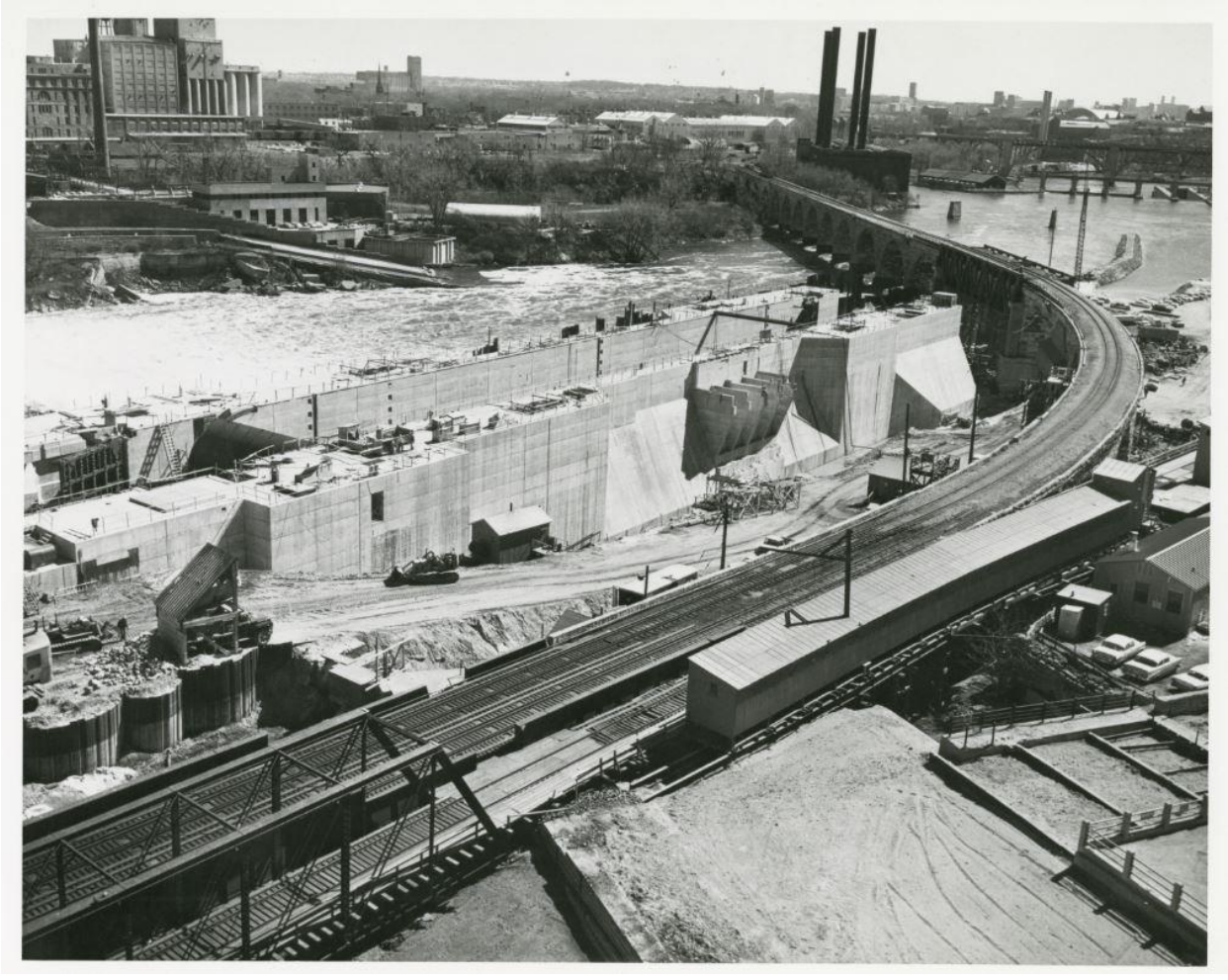

Figure 1-1. Upper St. Anthony Falls Under Construction, 1963

1.4 Congressional Actions

The closure of USAF Lock and the disposition study have been conducted at the direction of multiple congressional actions. Section 2010 of the Water Resources Reform and Development Act of 2014 (WRRDA 2014), dated June 10, 2014, directed USAF Lock be closed within one year of the date of enactment of the act. Section 2010 of WRRDA 2014 allows for emergency lock operations at USAF Lock and Dam as necessary to mitigate flood damage.

> ***WRRDA 2014 Section 2010 – Upper Mississippi River protection***
> *(a) DEFINITION OF UPPER ST. ANTHONY FALLS LOCK AND DAM. -In this section, the term "Upper St. Anthony Falls Lock and Dam" means the lock and dam located on Mississippi River Mile 853.9 in Minneapolis, Minnesota.*
>
> *(b) MANDATORY CLOSURE. -Not later than 1 year after the date of enactment of this Act, the Secretary shall close the Upper St. Anthony Falls Lock and Dam.*
>
> *(c) EMERGENCY 0PERATIONS. -Nothing in this section prevents the Secretary from carrying out emergency lock operations necessary to mitigate flood damage.*

Section 1168 of the Water Resources Development Act of 2018 (WRDA 2018), dated October 24, 2018, directed USACE in carrying out a disposition study to consider removing the project or a separable element of the project.

> ***WRDA 2018 Section 1168 – Disposition of projects***
> *(a) In general*
> *In carrying out a disposition study for a project of the Corps of Engineers, or a separable element of such a project, including a disposition study under section 216 of the Flood Control Act of 1970 (33 U.S.C. 549a), the Secretary shall consider modifications that would improve the overall quality of the environment in the public interest, including removal of the project or separable element of a project.*
> *(b) Disposition study transparency*
> *The Secretary shall carry out disposition studies described in subsection (a) in a transparent manner, including by—*
> *(1) providing opportunities for public input; and*
> *(2) publishing the final disposition studies.*
> *(c) Removal of infrastructure*
> *For disposition studies described in subsection (a) in which the Secretary determines that a Federal interest no longer exists and makes a recommendation of removal of the project or separable element of a project, the Secretary is authorized, using existing authorities, to pursue removal of the project or separable element of a project in partnership with other Federal agencies and non-Federal entities with appropriate capabilities to undertake infrastructure removal.*

Section 1225 of WRDA 2018 directed that the disposition study for USAF Lock and Dam be completed separately from a disposition study for the LSAF Lock and Dam and Lock and Dam 1 (LD1) and that the USAF disposition study be completed first and expedited. Section 1225 also directed that the Upper St. Anthony Falls Disposition Study consider measures that may preserve and enhance recreational opportunities and ecosystem health and that may maintain benefits to the natural ecosystem and the

human environment. The direction to include an alternative for partial disposition while preserving property to maintain the flood mitigation function was also included in Section 1125 of WRDA 2018.

> ***WRDA 2018 Section 1225 – Upper Mississippi River protection***
> *Section 2010 of the Water Resources Reform and Development Act of 2014 (128 Stat. 1270) is amended by adding at the end the following:*
> *(d) Considerations*
> *In carrying out a disposition study with respect to the Upper St. Anthony Falls Lock and Dam, including a disposition study under section 216 of the Flood Control Act of 1970 (33 U.S.C. 549a), the Secretary shall expedite completion of such study and shall produce a report on the Upper St. Anthony Falls Lock and Dam that is separate from any report on any other lock or dam included in such study that includes plans for—*
> *(1) carrying out modifications to the Upper St. Anthony Falls Lock and Dam to—*
> *(A) preserve and enhance recreational opportunities and the health of the ecosystem; and*
> *(B) maintain the benefits to the natural ecosystem and human environment;*
> *(2) a partial disposition of the Upper St. Anthony Falls Lock and Dam facility and surrounding real property that preserves any portion of the Upper St. Anthony Falls Lock and Dam necessary to maintain flood control; and*
> *(3) <u>expediting</u> the disposition described in this subsection.*
> *(e) Contributed funds*
> *The Secretary shall accept and expend funds to carry out the study described in subsection (d) that are contributed by a State or a political subdivision of a State under the Act of October 15, 1940 (33 U.S.C. 701h–1).*

WRDA 2020 was enacted on December 27, 2020. Section 356 of WRDA 2020 directs conveyances of federal properties. Section 356(f) directs the conveyance of lands and other interests located at USAF to the city of Minneapolis or its designee. As noted elsewhere, this directed conveyance is separate from the disposition study.

> ***WRDA 2020 Section 356 – Conveyances***
> *(a) GENERALLY APPLICABLE PROVISIONS.—*
> *(1) SURVEY TO OBTAIN LEGAL DESCRIPTION.—*
> *The exact acreage and the legal description of any real property to be conveyed under this section shall be determined by a survey that is satisfactory to the Secretary.*
> *(2) APPLICABILITY OF PROPERTY SCREENING PROVISIONS.—Section 2696 of title 10, United States Code, shall not apply to any conveyance under this section.*
> *(3) COSTS OF CONVEYANCE.—An entity to which a conveyance is made under this section shall be responsible for all reasonable and necessary costs, including real estate transaction and environmental documentation costs, associated with the conveyance.*
> *(4) LIABILITY.—An entity to which a conveyance is made under this section shall hold the United States harmless from any liability with respect to activities carried out, on or after the date of the conveyance, on the real property conveyed. The United States shall remain responsible for any liability with respect to activities carried out, before such date, on the real property conveyed.*
> *(5) ADDITIONAL TERMS AND CONDITIONS. —*

The Secretary may require that any conveyance under this section be subject to such additional terms and conditions as the Secretary considers necessary and appropriate to protect the interests of the United States.

(f) UPPER ST. ANTHONY FALLS LOCK AND DAM, MINNEAPOLIS, MINNESOTA.—

(1) CONVEYANCE AUTHORIZED.—As soon as practicable after the date of enactment of this Act, the Secretary shall, upon request—

(A) convey, without consideration, to the City of Minneapolis, Minnesota, or its designee, all or substantially all of the real property owned by the United States adjacent to or in the vicinity of the Upper St. Anthony Falls Lock and Dam, subject to the right of the Secretary to retain any easements in such property solely to the extent necessary to continue to operate and maintain the Upper St. Anthony Falls Lock and Dam; and

(B) provide, without consideration, to the City or its designee—

(i) access and use rights by license, easement, or similar agreement, to any real property and structures at the site of the Upper St. Anthony Falls Lock and Dam that is not conveyed under subparagraph (A); and

(ii) for any such property retained by the Secretary, exclusive license or easement over such property to allow the City or its designee to construct, use, and amenities thereon, and to utilize such property as a comprehensive recreational, touristic, and interpretive experience.

(2) OWNERSHIP AND OPERATION OF LOCK AND DAM.—Ownership rights to the Upper St. Anthony Falls Lock and Dam shall not be conveyed under this subsection, and the Secretary shall retain all rights to operate and maintain the Upper St. Anthony Falls Lock and Dam.

(3) REVERSION.—If the Secretary determines that the property conveyed under this subsection is not used for a public purpose, all right, title, and interest in and to the property shall revert, at the discretion of the Secretary, to the United States.

(4) UPPER ST. ANTHONY FALLS LOCK AND DAM DEFINED.—In this subsection, the term "Upper St. Anthony Falls Lock and Dam" means the lock and dam located on Mississippi River Mile 853.9 in Minneapolis, Minnesota.

The Water Resources Development Act of 2022 (WRDA 2022) was enacted on December 15, 2022. Section 8344 prohibits the Secretary of the Army from recommending deauthorization and disposal of USAF unless a willing and capable nonfederal public entity is identified to assume ownership. It also authorizes investigation (study) of other authorized purposes at the site, such as control of invasive species, water supply or recreation, prior to deauthorizing the project.

WRDA 2022 Section 8344 – Upper Mississippi River protection

Section 2010 of the Water Resources Reform and Development Act of 2014 (128 Stat. 1270; 132 Stat. 3812) is amended by adding at the end the following:

(f) Limitation.

The Secretary shall not recommend deauthorization of the Upper St. Anthony Falls Lock and Dam pursuant to the disposition study carried out under subsection (d) unless the Secretary identifies a willing and capable non-Federal public entity to assume ownership of the Upper St. Anthony Falls Lock and Dam.

(g) Modification.

The Secretary is authorized to investigate the feasibility of modifying, prior to deauthorizing, the Upper St. Anthony Falls Lock and Dam to add ecosystem restoration, including

the prevention and control of invasive species, water supply, and recreation as authorized purposes.

The Water Resources Development Act of 2024 (WRDA 2024) was signed into law on January 4, 2025. Section 1320 of WRDA 2024 amends Section 356(f) of WRDA 2020, the legislation that directed the conveyance of property to Minneapolis. As such, the direction in Section 1320 of WRDA 2024 applies the conveyance action to be carried out under Section 356(f) of WRDA 2020, separate from this disposition study.

> ***WRDA 2024 Section 1320 Upper St. Anthony Falls Lock and Dam, Minneapolis, Minnesota***
> *Section 356(f) of the Water Resources Development Act of 2020 (134 Stat. 2724) is amended— by redesignating paragraph (4) as paragraph (5); and (2) by inserting after paragraph (3) the following:*
>
> > *(4) CONSIDERATIONS. — In carrying out paragraph (1), as expeditiously as possible and to the maximum extent practicable, the Secretary shall take all possible measures to reduce the physical footprint required for easements described in subparagraph (A) of that paragraph, including an examination of the use of crane barges on the Mississippi River.*

1.5 Lead Federal Agency

USACE is the lead federal agency conducting this disposition study. There were no cooperating agencies with responsibility for the content of this report, and there was no nonfederal sponsor for the study. The study was 100% federally funded.

1.6 Location and Description of the Study Area

The USAF Lock and Dam are located on the right descending bank of the Mississippi River in Minneapolis, Minnesota, at Upper Mississippi River mile 853.9 in Minnesota's 5th Congressional District (Figure 1-2; left and right orientation on rivers is determined facing downstream). Figure 1-3 presents pertinent data for the lock and the adjacent nonfederal dam structures. The study area is within the Mississippi National River and Recreation Area (MNRRA), which was designated by Congress in 1988 (Weller and Russell 2017). In the act establishing MNRRA, Congress finds that (1) "The Mississippi River Corridor within the Minneapolis-St. Paul metropolitan area represents a nationally significant historical, recreational, scenic, cultural, natural, economic, and scientific resource" and that (2) "There is a national interest in the preservation, protection, and enhancement of these resources for the benefit of the people of the United States" (Public Law 100-696). The National Park Service has management oversight of the MNRRA, with the goal of "preserving unimpaired" its natural and cultural resources and values.

The study area is also within the Mississippi River Critical Area, which was established along the Mississippi River in the seven-county metro area in 1976 by the Twin Cities Metropolitan Council. The Mississippi River Critical Area has special land use regulations that guide development activity.

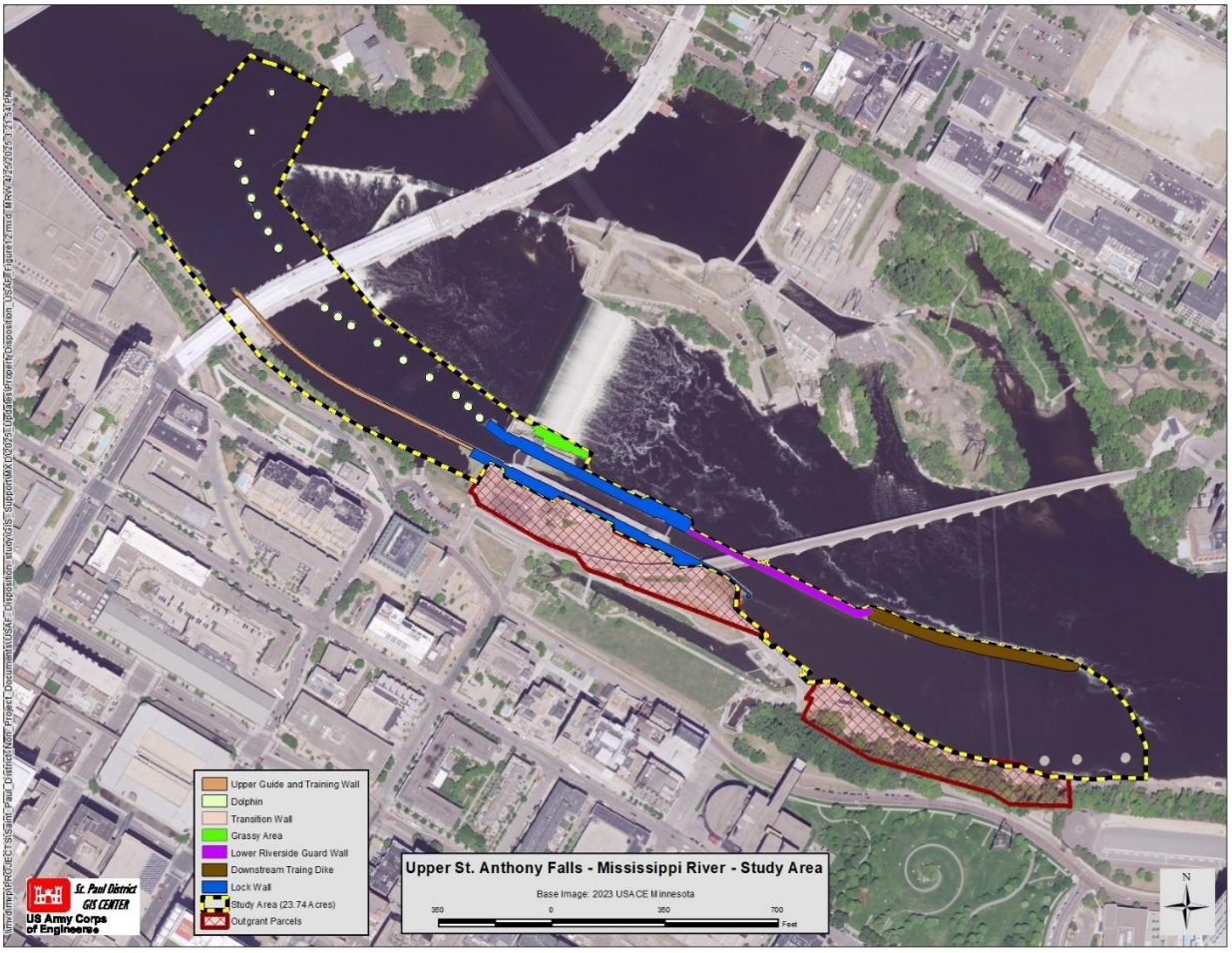

Figure 1-2. Upper St. Anthony Falls Study Area (Easements for Post-Conveyance Operation and Maintenance not Shown)

PERTINENT DATA – UPPER LOCK AND DAM

Location: Upper St. Anthony Falls Lock and Dam is located on the Mississippi River 0.7 river miles above Lower St. Anthony Falls Lock and Dam at 854.1 river miles above the mouth of the Ohio River and 3.4 miles below the upstream limit of the nine-foot channel project at river mile 857.5. The lock is on the right bank of the river in Minneapolis, Minnesota at approximate latitude 44° 58' 51" N and longitude 93° 15' 26" W.

Drainage Area: 19,680 square miles

Datum: MSL - 1912 adjustment

Lock:

Lock Chamber Dimensions	56 feet by 400 feet
Top of Lock Walls	Elevation 806.0 feet
Top of Upper Gate Sill	Elevation 783.5 feet
Top of Lower Gate Sill	Elevation 736.3 feet
Lock Floor	Elevation 735.3 feet
Height of Upper Miter Gates	20.0 feet
Height of Upper Tainter Gate	15.7 feet
Height of Lower Miter Gates	67.2 feet

Pool:

Normal (Project) Upper Pool	Elevation 799.2 feet (flashboards in) Elevation 796.8 feet (flashboards out)
Normal (Project) Intermediate Pool	Elevation 750.0 feet
Pool Area (at Project Pool)	358 acres
Control Point	Upper Pool Gage

Horseshoe Dam:

Owner:	Xcel Energy
Type:	Gravity dam – concrete, timber, and rock
Overall Length:	2,045 feet
Length With Flashboards:	1,495 feet (Sections 3 through 8)
Length of Lock Approach:	550 feet (Section 2)
Crest Elevations:	
Sections 3 though 8:	798.8 feet with flashboards raised 796.8 feet with flashboards lowered
Section 2:	801.0 feet (lock approach)
Roll Dam:	
Type	Rock filled timber cribbing
Length	340 feet
Crest Elevation	791.5 feet
Main Spillway:	
Type	Gravity dam – concrete, timber, and rock
Length	425 feet
Crest Elevation	785.2 feet

Note: The tainter gate in the upper lock chamber is maintained in the submerged position except during large flood events that require discharge through the lock.

Water Control Manual, Upper and Lower St. Anthony Falls Locks and Dams
Updated May 2004

Figure 1-3. Pertinent Data — Upper St. Anthony Falls Lock and Dam

USAF Lock and Dam work as part of a system that includes LSAF Lock and Dam and LD1; together, these dams once operated to support commercial navigation to the Upper Harbor located in Minneapolis, Minnesota (Figure 1-4 and Figure 1-5). LSAF Lock and Dam is located on the right bank of the Mississippi River in Minneapolis, Minnesota, at Upper Mississippi River mile 853.3. LD1 is located on the right bank of the Mississippi River in Minneapolis, Minnesota, at Upper Mississippi River mile 847.9.

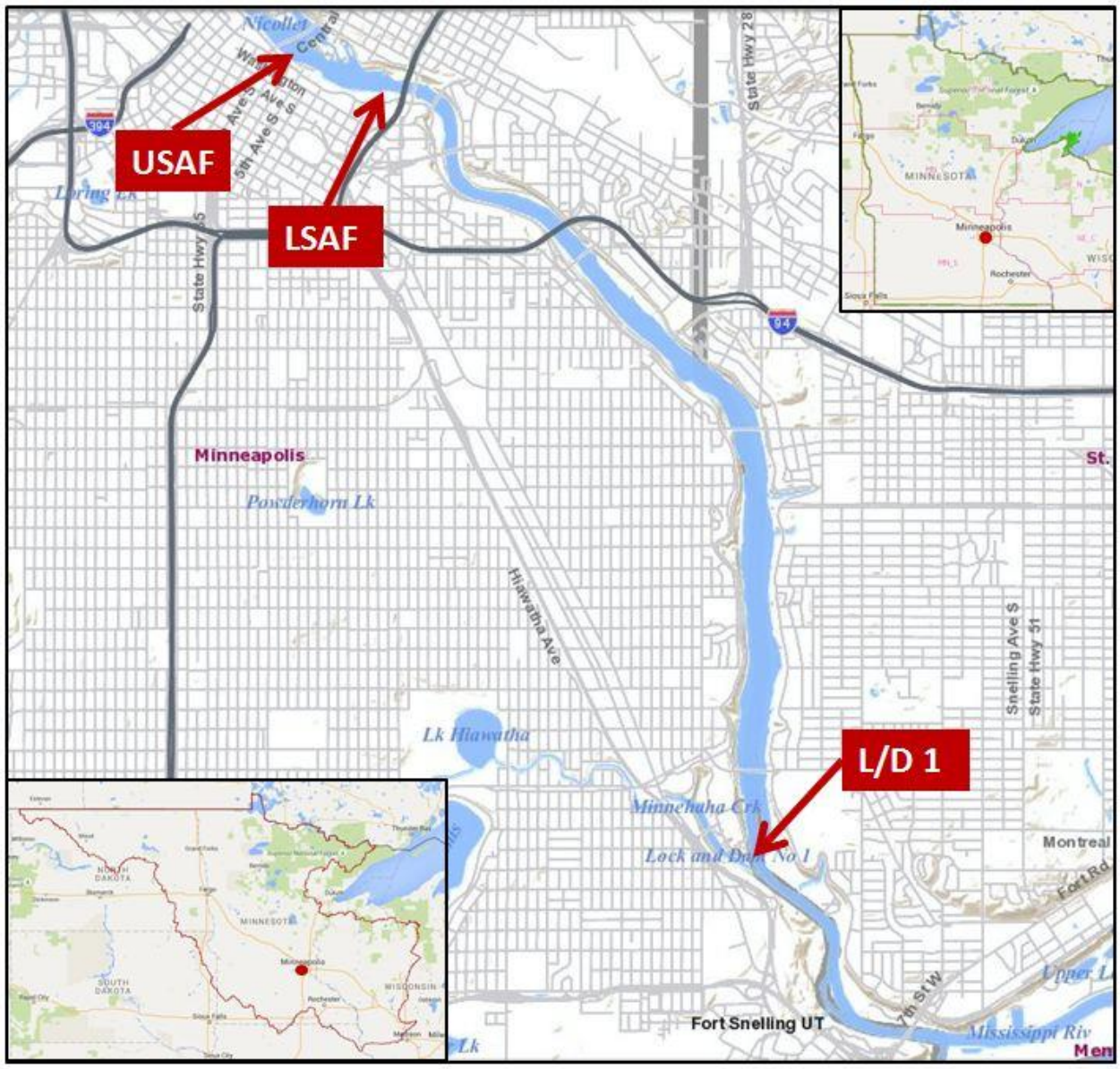

Figure 1-4. General Locations of Locks and Dams in Minneapolis and St. Paul, Minnesota

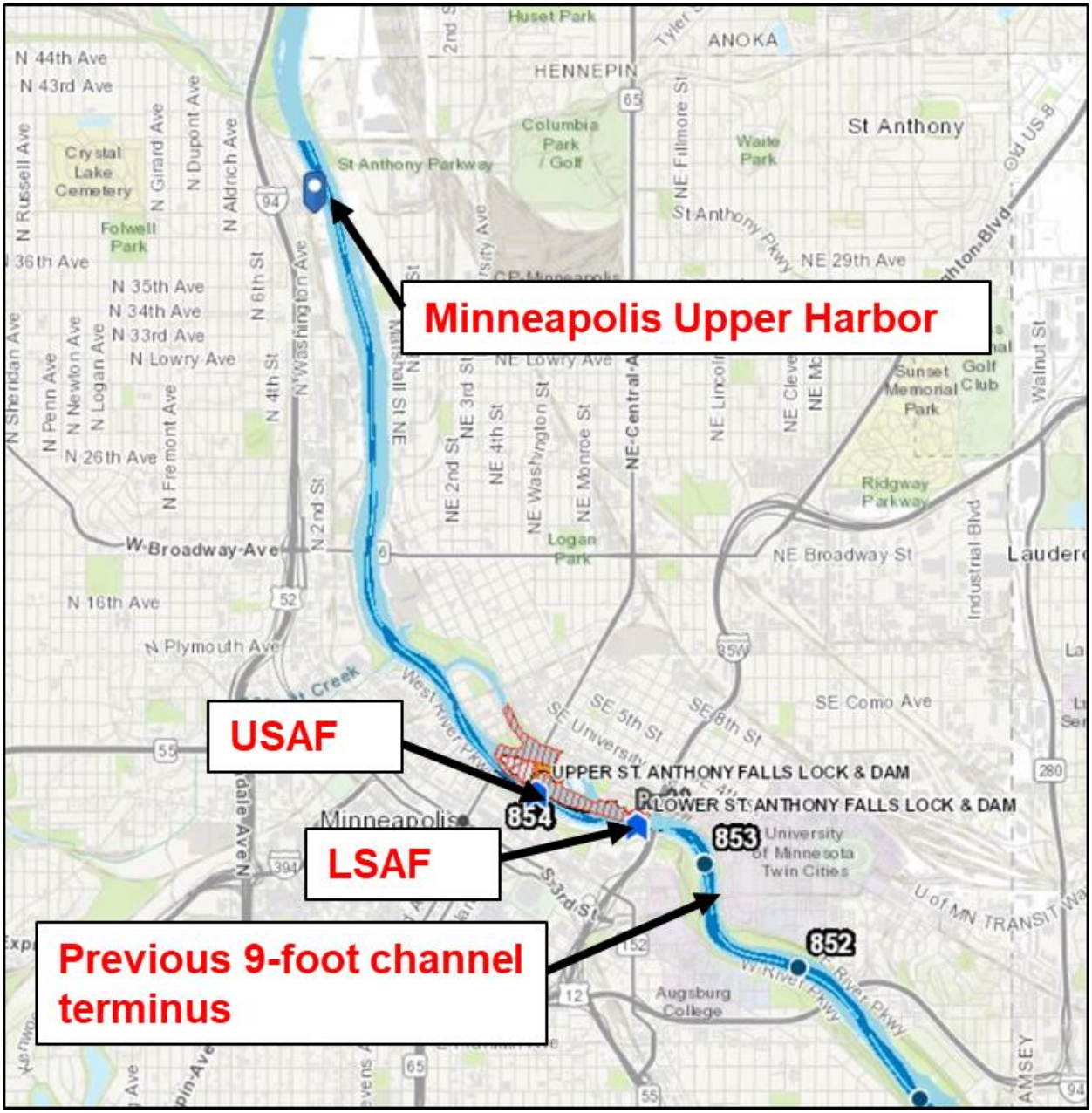

Figure 1-5. Locations of Upper and Lower St. Anthony Falls and Minneapolis Upper Harbor

USAF, LSAF and LD1 make up the top three steps in the Upper Mississippi River's "stairway of water" (Figure 1-6). Aerial views of USAF Lock and Dam are shown in Figure 1-7 and **Error! Reference source not found.**.

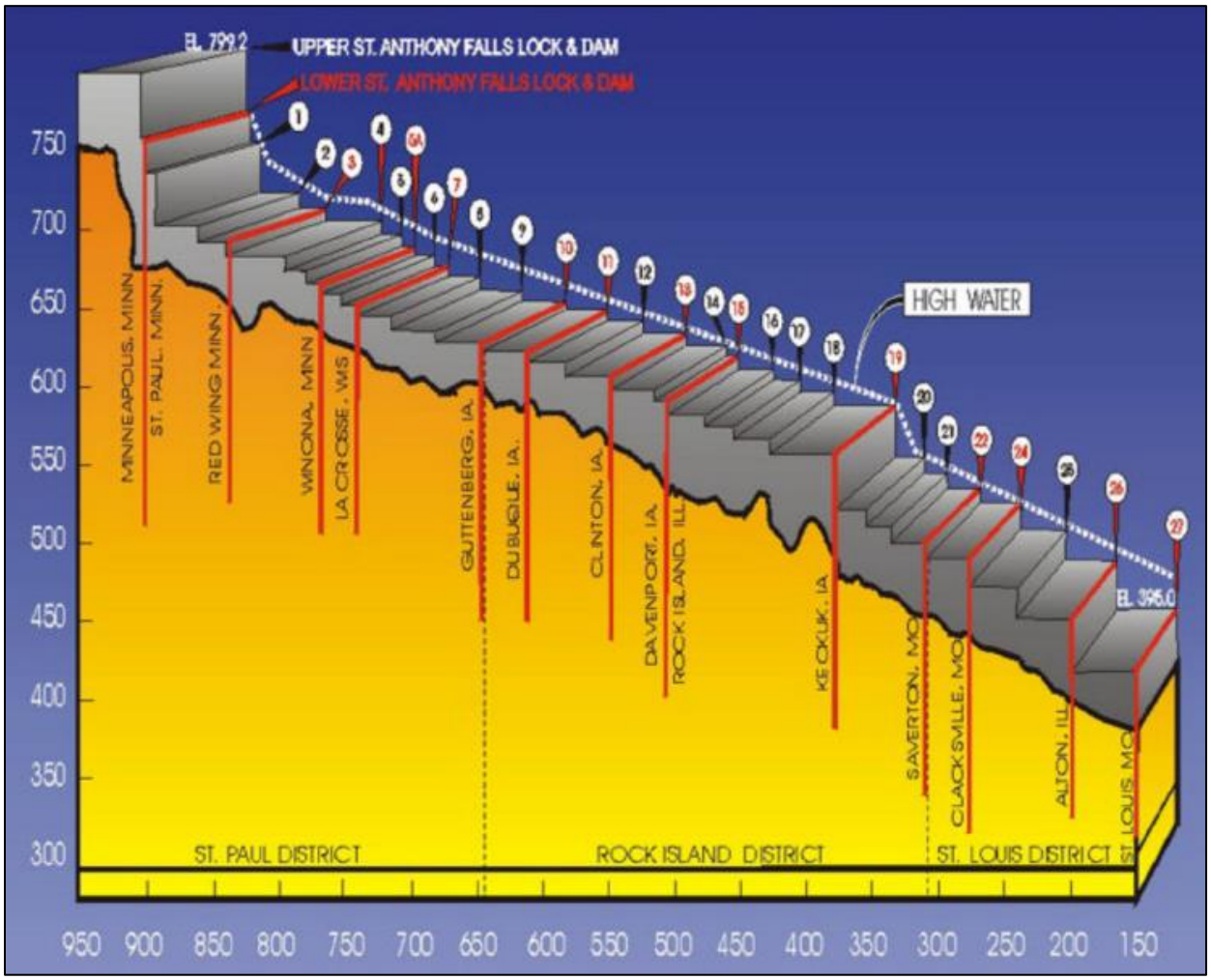

Figure 1-6. Upper Mississippi River Stairway of Water

Figure 1-7. Aerial Photograph of Upper St. Anthony Falls Lock and Dam, Looking Downstream

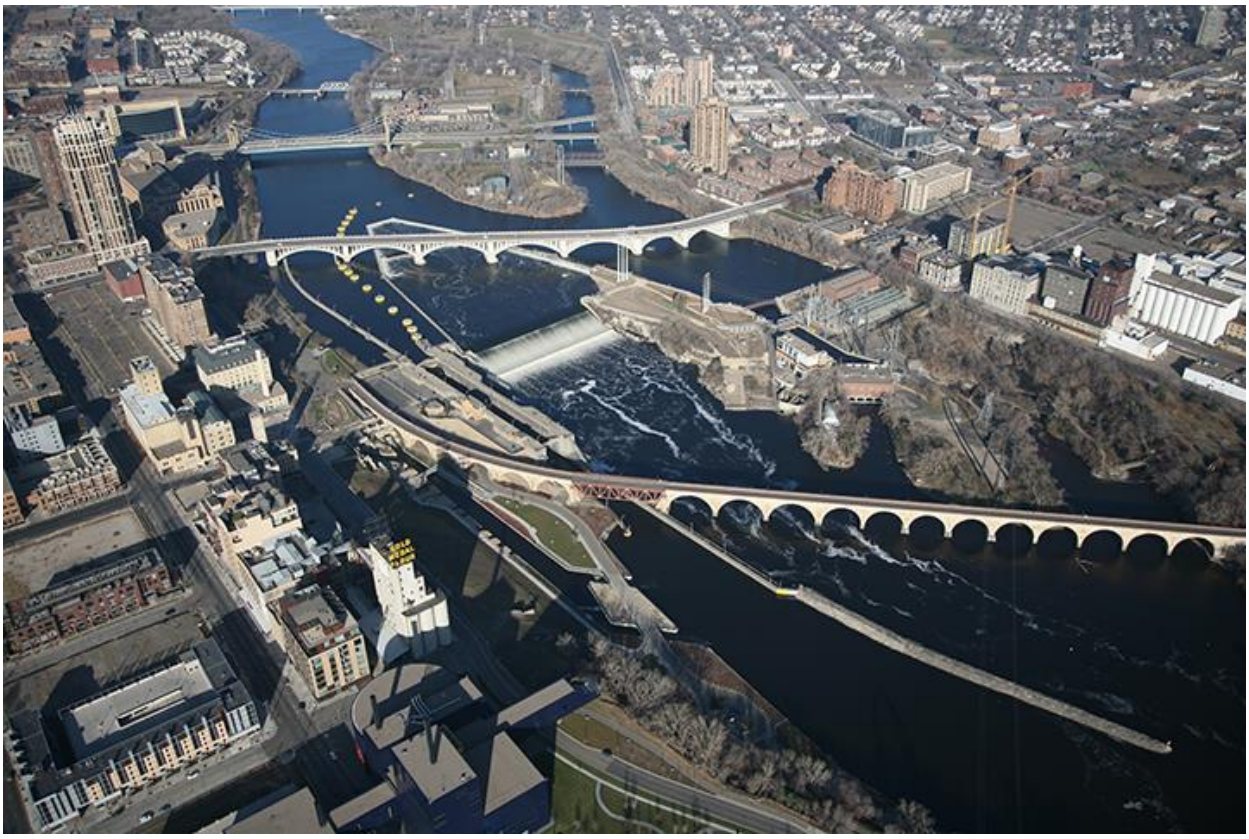

Figure 1-8. Aerial Photograph of Upper St. Anthony Falls Lock and Dam in the City of Minneapolis, Looking Upstream

1.6.1 Project History

In 1856, the first permanent dam was constructed by private power interests on the limestone ledge above St. Anthony Falls. Although some modifications have been made since that time, the general horseshoe configuration of the original upper structure is still evident today. In 1868, the construction of the Eastman Tunnel was initiated near the left descending bank from the lower end of Hennepin Island to the lower end of Nicollet Island. In 1869, as the excavation approached its upper terminus, the thin limestone cap collapsed, and water poured in, rapidly scouring a very large opening in the surrounding sandstone. Emergency efforts to stop the erosion culminated in the construction of a cutoff wall by the federal government between 1874 and 1876. This cutoff wall consisted of a dike extending down into the sandstone approximately 40 feet below the limestone a short distance upstream from the crest of St. Anthony Falls. In addition, two roll dams and a protective timber apron were constructed just downstream of the horseshoe dam.

The Upper Mississippi River is an ecologically and economically important and historic waterway. Prior to development, navigation of the river was unreliable between St. Paul, Minnesota, and St. Louis, Missouri, due to variable river depths, sandbars, rocks and snags. Since the early 19th century, river channel improvements have resulted from private, state and federal efforts, which primarily consisted of dam construction, dredging and snagging. The River and Harbor Act of 1866 allowed for the funding of permanent improvements to the Upper Mississippi River for commercial traffic administered by USACE.

By the late 19th century, the construction of wing dams and other river training structures created a 4.5-foot navigation channel to St. Paul. Minneapolis civic leaders long desired to make their city the head of navigation on the Mississippi River, and through a series of natural and intentional acts, this began to unfold. However, the river gorge upstream of St. Paul was filled with debris from the recession of St. Anthony Falls, with a hundred-foot drop from the cascade to St. Paul.

In 1927, Minneapolis constructed a barge terminal downstream of St. Anthony Falls, although it was not convenient for railroad or vehicular access. Meanwhile, with continued marine technology advances and increased barge capacity, the River and Harbor Act of July 3, 1930, authorized the Upper Mississippi River 9-Foot Navigation Channel Project. This project created a system of 26 locks and dams to form a series of slack-water pools from the base of St. Anthony Falls to St. Louis. Still unsatisfied with its barge terminal location, and with more suitable sites situated upstream of the falls, civic leaders advocated for an extension of the navigation channel upstream of the falls.

In 1937, the Upper Minneapolis Harbor Development Project was authorized by Congress. Appropriations for construction funding were delayed for some time while the project was debated. Following World War II, funding was obtained based primarily on visions for economic development in Minneapolis. The 15 April 1955 Survey Report with Special Reference to the Extension of Navigation above St. Anthony Falls detailed the economic conditions related to the decision to fund construction. Two complexes were required to ascend the 74-foot drop of the waterfall: LSAF Lock and Dam, completed in 1956, and USAF Lock and Dam, completed in 1963.

Northern States Power Company (NSP, which later became Xcel Energy) transferred several tracts of land to the federal government for construction of USAF Lock and Dam, including what was known as Upton Island and Spirit Island (shown in yellow in Figure 1-9). Xcel Energy owns the majority of the dam and retains the right to access the transferred property to maintain their portions of the dam. The federal and nonfederal features at USAF are highlighted on Figure 1-10.

The parcels outgranted to Owámniyomni Okhódayapi as the designee as authorized by WRDA 2020 Section 356 are shown in Figure 1-11.

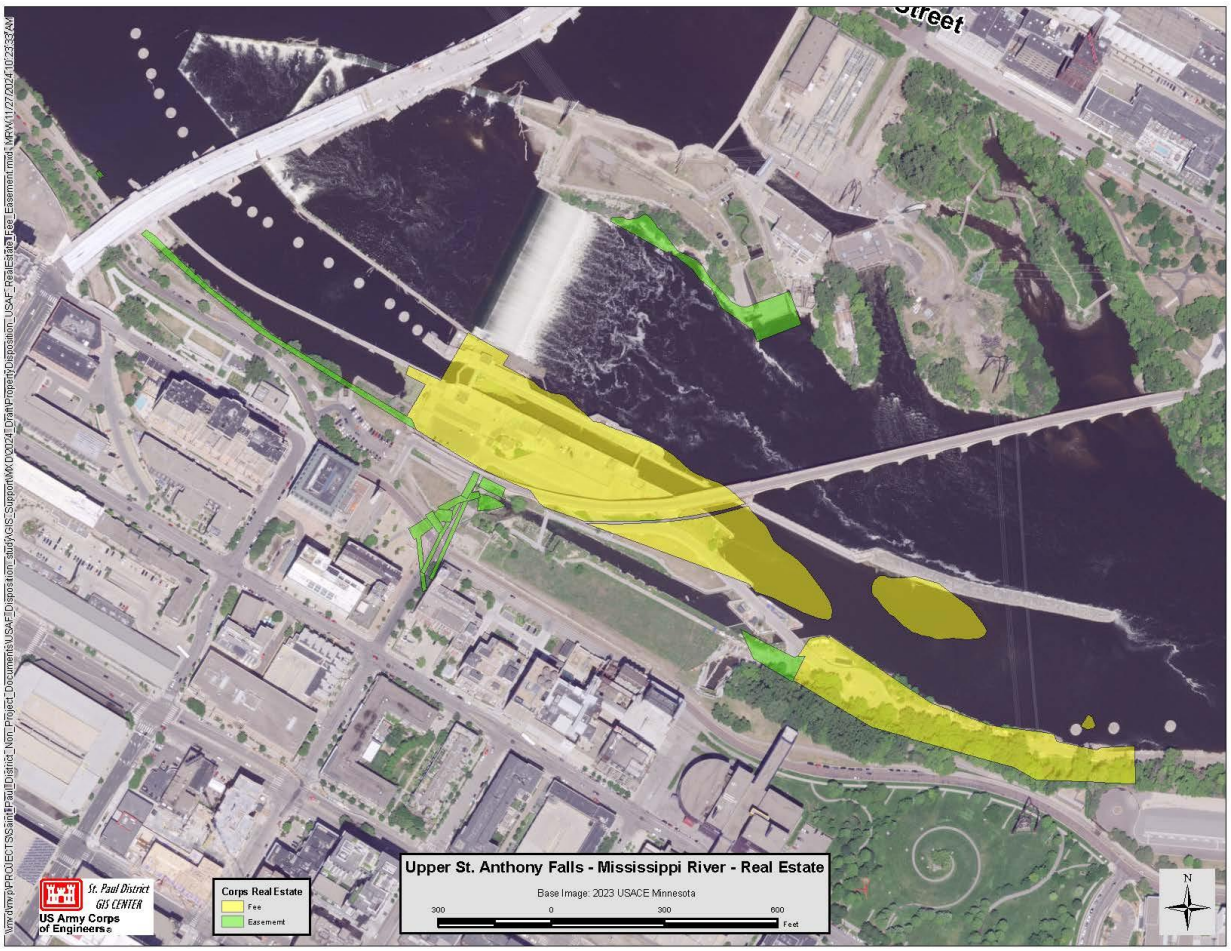

Figure 1-9. Upper St. Anthony Falls Lock and Dam—Federal Government Tracts

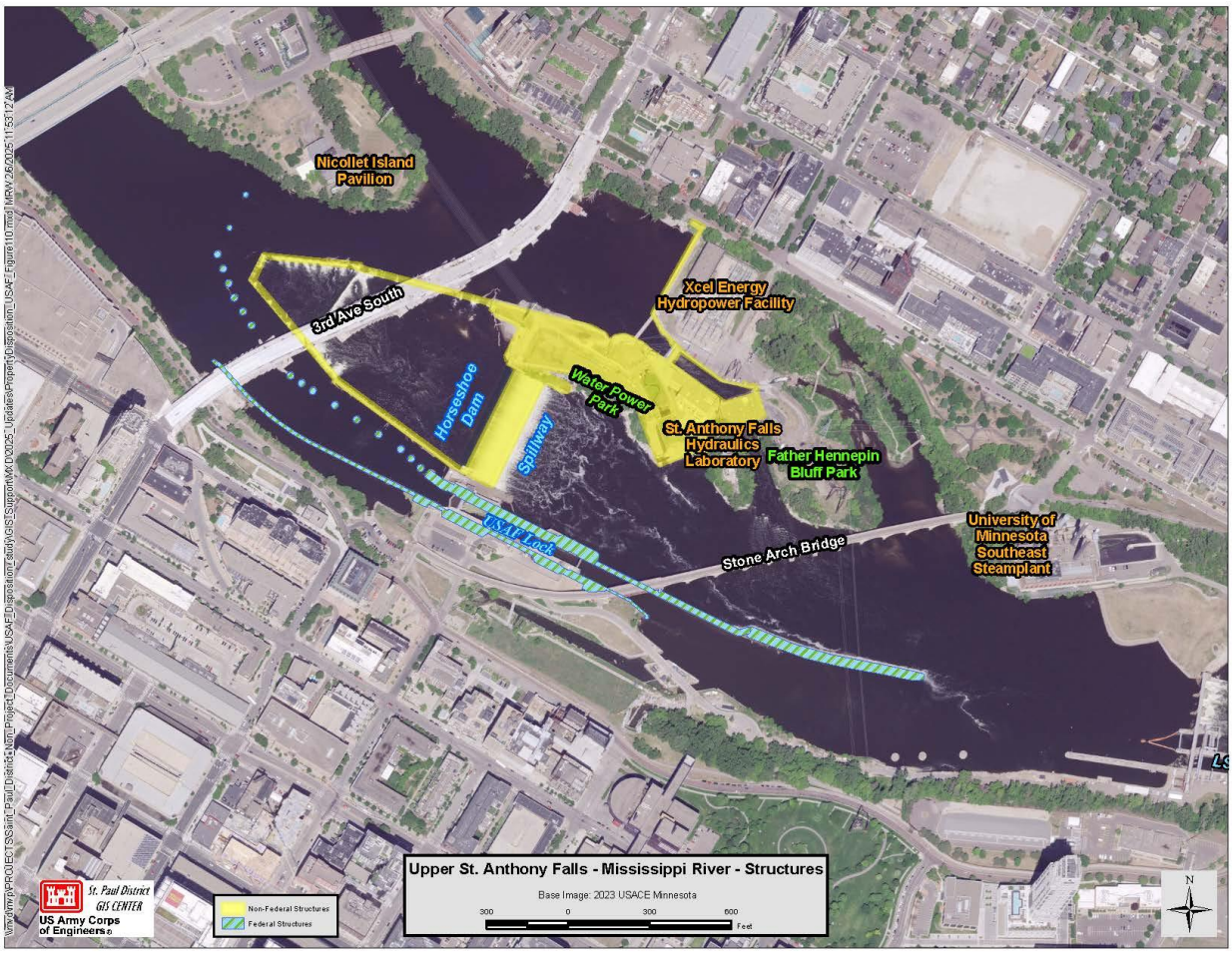

Figure 1-10. Upper St. Anthony Falls Lock and Dam — Federal and Nonfederal Structures

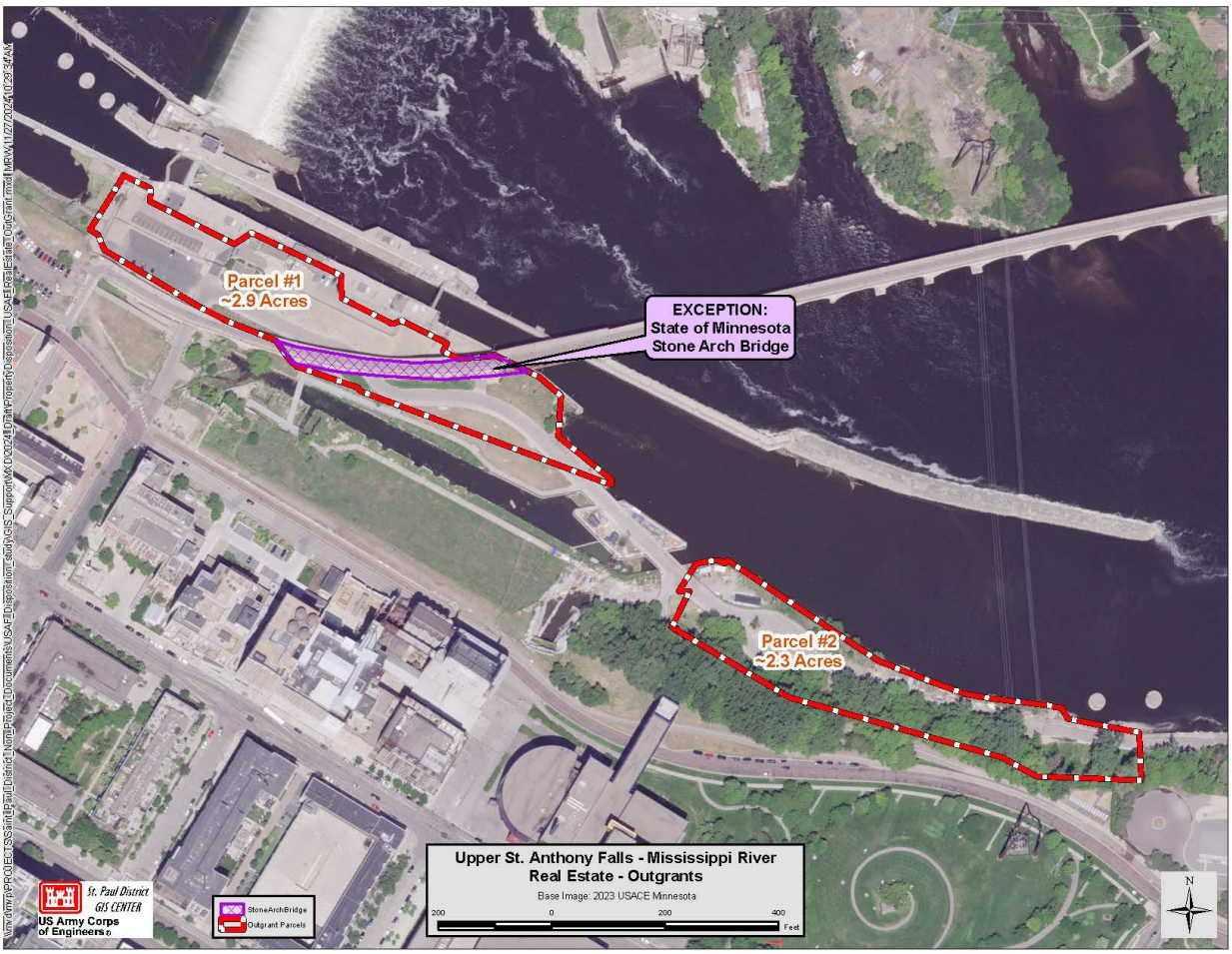

Figure 1-11. Parcels Outgranted to Owámniyomni Okhódayapi under the Interim Lease

1.6.2 Study Area Overview

The study area is USAF Lock and Dam and adjacent portions of the Mississippi River and overbank areas that may be affected by changes in authorization and disposal at the lock and dam. The scope of this study did not include an evaluation of federal interest for the associated 9-foot navigation channel. The project study team made this determination because regular maintenance dredging of the navigation channel upstream of USAF Lock and Dam no longer occurs; as such, the disposition of the authorized 9-foot navigation channel will be addressed in the separate disposition study of LSAF Lock and Dam, LD1, and the associated navigation channel segments.

The U.S. government is the owner of the Upper Lock at USAF. The USACE St. Paul District, Operations Division, is responsible for the operation and maintenance of the federal property at USAF Lock and Dam. No staff are actively assigned to the USAF Lock and Dam site. All operation and maintenance activities are performed by staff assigned to LSAF Lock and Dam or LD1 or, occasionally, the maintenance and repair crew stationed at Fountain City, Wisconsin.

Distinct from the larger study area, the project area is the USAF Civil Works project area situated within the larger study area. The main features of USAF include a 56-foot-wide by 400-foot-long main lock with

a hydraulic lift of 49.2 feet (Figure 1-12). There are short segments of gravity walls connecting the lock to the James J. Hill Stone Arch Bridge (also known as the Stone Arch Bridge) and to a 2,045-foot-long horseshoe dam and a 425-foot-long straight-chord main spillway below the horseshoe dam. The horseshoe dam is capped by a wooden flashboard system.

The Stone Arch Bridge is owned by the Minnesota Department of Transportation (DOT).

Figure 1-12. Upper St. Anthony Falls Lock and Dam

The horseshoe dam, flashboard system and straight-cord spillway are owned by Xcel Energy. The hydroelectric facility located on the left bank of the Mississippi River opposite USAF Lock is owned, operated and maintained by Xcel Energy. Xcel Energy's operation of the hydroelectric facility, including the flows over the main spillway and through the hydropower project, are regulated by Federal Energy Regulatory Commission (FERC) license number 2056. Some pertinent stipulations in that license require Xcel Energy to maintain the pool level within a certain range and to maintain aesthetic flow over the spillway. Xcel Energy manages pool levels during low-flow periods through regulation of water discharges at the powerhouse and use of the flashboard system atop the dam. Using the flashboard system, Xcel Energy maintains the upstream water elevation between 796.8 feet and 798.8 feet above mean sea level (1912 adjusted datum). During non-flood conditions, flows in excess of the powerhouse capacity are spilled over the dam and are essentially unregulated. When rising river flows exceed 40,000 cubic feet per second (cfs) (flood conditions) USACE opens the Tainter gate in USAF Lock. The flow through the gate is used to maintain the upper pool elevation and ensure there is adequate clearance for commercial vessels to pass beneath upstream bridges. Xcel Energy also relies upon the flow capacity through the lock to

prevent overtopping of portions of the dam for their design flow of 157,000 cfs, as required by their FERC license.

Maintaining the pool elevation above an elevation of 796.8 is important for the city of Minneapolis' municipal water supply. The intakes for the municipal water supply are located approximately 4.25 miles upstream of USAF.

Description of the Lock Structure: USAF Lock is a U-framed gravity structure constructed directly on a sandstone foundation. The gravity structure has robust walls and a foundation slab. A limestone shelf contacts the upstream side of the lock and forms the riverbed in the vicinity of the lock and horseshoe dam. The lock chamber is 56 feet wide with a clear length of 400 feet. The USAF Lock and Dam project pool and tailwater elevations are 799.2 feet and 750.0 feet msl, respectively, resulting in a normal lift of 49.2 feet. The top of the lock wall is at 806.0 feet msl, and the floor is at 735.3 feet msl, resulting in a wall height of 70.7 feet. The lock was cut through an existing portion of the horseshoe dam. During construction of the lock, the segment of the dam between the lock wall and the Stone Arch Bridge was replaced. An approximate 50-foot-long segment of the original dam can be seen riverward of the lock. The stoplog sluice at the end of the transition was salvaged from the original dam due to its utility in passing debris from the upper pool. Both Hennepin County water patrol and Minneapolis Fire and Rescue keep rescue boats on the upper riverward lock wall to enable quick response to emergencies on the river. Xcel Energy maintains a small equipment building at the juncture of the transition wall and the horseshoe dam to house bubbler equipment.

Description of the Lock Gates: The lock structure is fitted with a pair of upper miter gates, a pair of lower miter gates and a submersible Tainter gate. Each pair of miter gates is comprised of two leaves, each 32.2 feet wide. The upper gates are 20.0 feet high, while the lower gates are 67.2 feet high. The submersible Tainter gate is located inside the lock chamber immediately downstream of the upper miter gates to assist in passing high flows, ice and debris. The Tainter gate is 56.0 feet wide and 15.7 feet high. The miter gates are operated by hydraulic rams located in the lock wall. The submersible Tainter gate is operated by two synchronized winches, located atop the lock walls and housed in two operations buildings located on the landward and riverward lock walls. The upper miter gates and submersible Tainter gate are operated from the upper control stand, located near the upper miter gate on the landward lock wall. The lower miter gate operating equipment was removed following the closure of the lock in 2015; the lower miter gates are no longer operable and are pinned in the open position. The control panel for the lower miter gates is still located in the lower control stand located at the downstream end of the landward lock wall. The miter gates are surmounted by a walkway and handrailing to enable access across the lock structure when the gates are in the closed position. Access from the land side of the lock to the river side of the lock is also possible via a crossover tunnel beneath the upper sill and a bridge spanning between the lock walls near the downstream miter gates.

Prior to closure of the lock to navigation, the filling and emptying of the lock chamber were controlled by four Tainter valves located within conduits running the length of the lock walls. Two Tainter valves used for filling the lock are located at the upstream (upper) end of the conduit, and two Tainter valves used for emptying the lock are located at the downstream (lower) end of the conduit. During the filling or emptying process, the upper and lower miter gates were both closed, thereby sealing the lock chamber. Flows into

and out of the chamber were controlled by alternately opening and closing the upper and lower Tainter valves. Following closure of the lock to navigation in 2015, the lower miter gates were pinned in the open position, thereby preventing the lock from being used for navigation. Bulkheads were placed in the Tainter upper valve conduits, preventing flow through the upper valves.

Description of Upper and Lower Guide Walls: Guide walls and training walls provide a landing for tows as they navigate into and out of the lock chamber. Guide walls may come equipped with tow haulage units to assist in double lockages, where the barges and towboats cannot fit into the chamber in one pass. Guard walls prevent tows from damaging adjacent structures or protect tows from adjacent hazards. There are several guide walls, training walls and guard walls at USAF Lock and Dam:

- Upper landside guide wall — 400 feet long
- Upper landside training wall (upstream of guide wall) — 520 feet long
- Upper riverside guard wall (nonfederal structure, owned by the Minnesota DOT) — prevents tows from damaging the mid-channel pier of the Third Avenue Bridge
- Sheetpile cell dolphins — composed of 15 concrete-capped steel sheetpile cells, prevents tows from drifting into the horseshoe dam
- Downstream landside guide wall — 260 feet long
- Downstream riverside guard wall — 600 feet long
- Downstream riverside rock training wall — 700 feet long

Description of Central Control Station: The central control station is located on the land side of the lock chamber approximately midway between the upper and lower miter gates.

The central control station houses the upper pool water level and temperature gauges. The central control station is the location where the former lockstaff would conduct daily business, hold meetings and eat meals. A lower-level workshop, a main-level basic kitchen, locker room, bathroom and office, and an upper-level observation room make up the central control station. In 1995, an elevator was added to the original central control station structure, making the building more accessible. A garage was added on the west side of the central control station. The central control station also functions for navigation operations, given it houses the electrical service for the entire lock. The electrical system runs through the first or ground floor of the central control station. The operation controls for the upper and lower miter gates and valves are now located in the upper and lower control stations at the ends of the lock wall.

Description of Visitors Restroom Building: The visitors restroom is a separate building constructed in 1995 to provide the public a restroom to use while recreating. The facilities include male and female restrooms with sinks, toilets and hand dryers. This building is surrounded by a separate security fence so that when it is open, the public can access this restroom without permission and without entering the secured area of the lock grounds. This area has been outgranted to Minneapolis and will be conveyed per WRDA 2020; thus, it was not assessed as part of this disposition study.

Description of Grounds and Parking Lot: The USAF Lock was built by constructing a sheet-pile cellular cofferdam around an existing masonry dam at what was then known as Upton Island and Spirit Island. Material was excavated to construct the lock, and fill was placed to create the esplanade and the access

road to the lower lock. The grounds around the upper lock are predominantly paved roads, parking lots and sidewalks, with rock-covered sloped areas. There is very little turf area, except under and to the east of the Stone Arch Bridge.

The ground and the parking lot are included in the areas requested for conveyance by the city of Minneapolis per WRDA 2020 and were not assessed as part of this dispostion study, except that easements/encumbrances USACE retains for project operation and maintenance post-conveyance would be included in the Full Disposal alternative.

Description of Security/Access Control/Safety Features: Security fencing is used to restrict public access to the site. The security fencing consists of black annodized steel post and chain-link fencing, topped with either a curved extension or three rows of barbed wire to prevent climbing over the fence. The security fencing extends beyond the sides of the lock walls in some areas to prevent access around the fence. Security fencing bisects the paved area of the parking lot from west to east, extending from the upper crossover wall, bisecting the upper parking area, continuing around the restroom, following the edge of the staff parking area adjacent to the central control station and tying into the lower end of the lock wall at the top of the rock slope. Security fencing at the lower guide wall area restricts public access to this area. Additional security fencing is located at the top of the upper crossover wall, between the upper guide wall and the landside lock wall, at the upper end of the riverside lock wall to restrict public access to the rescue boats, at the upper end of the riverside lock wall to restrict access to the spillway, and at the lower ends of both the riverside and landside lock walls to restrict public access to the stairways leading down to the lower guide wall and lower guard wall and rock wall.

Since the upper lock was closed to navigation on June 9, 2015, the upper lock continues to be used for passing high flows and as a launching point for emergency water rescues by the Minneapolis Fire and Rescue and Hennepin County water patrol. Xcel Energy retained the rights to access their dam and spillway when they ceded the lands for the project to the federal government for construction of the USAF Lock and Dam project.

1.6.3 Geologic Setting

The Mississippi River in downtown Minneapolis, near USAF Lock and Dam, is approximately 1,500 feet wide and 40-70 feet below the downtown streets. The current general shape of the river valley at St. Anthony Falls was cut approximately 10,000 years ago, during the high meltwater discharge of retreating glaciers. The geology above USAF includes glacial drift outside the river channel and a thin mantle of limestone and shale overlying the St. Peter formation, which is predominantly sandstone. The major portion of the lock and downstream guide walls are founded on St. Peter Sandstone. The upstream end of the lock chamber, the no-flow gravity dam, the upstream guard walls and guide walls, and the training walls are founded on Platteville Limestone. The Platteville Limestone is approximately 15 feet thick near the falls and lock and tapers out near the downstream end of Nicollet Island. There is a thin bed of Glenwood Shale (3 to 4 feet thick) underlying the limestone. The St. Peter Sandstone in the area is over 150 feet thick. The deepest portion of the lock structure lies approximately 45 feet below the top of the St. Peter Sandstone.

Although the rock provides solid foundations, the sandstone is highly erodible. The ease of scouring or excavating the St. Peter Sandstone is well known in the tunneling industry. The historic progression of the waterfalls (Figure 1-13) also demonstrates the ease of erosion of the St. Peter Sandstone. The average regression of the natural falls prior to stabilization in the 1870s was approximately 4 feet per year (Figure 1-13). The present stabilized location of the falls is due to the work conducted by the mill industry and USACE in the 1870s to stabilize the waterfall, which resulted in the unique horseshoe configuration of the spillway (Figure 1-14).

The falls would disintegrate into rapids if the dam were abandoned or removed without extensive stabilization. A head-cutting erosion would extend far upstream, affecting roads, bridges, homes and other infrastructure. Additionally, it would have profound impacts on water turbidity and sediment load that would continue for many decades. The sediment influx would end up in dredge shoals in Pool 2 and would likely result in increased dredging. It is conceivable that degradation could extend 30 miles upstream (somewhere between Elk River and Monticello), with resulting sediment influx approaching 1 million cubic yards per year. The 19th century architects of the falls recognized that loss of the falls would be catastrophic. With the upstream and downstream development along the river, the same conclusion applies today.

Figure 1-13. Photograph of the Upper St. Anthony Falls in 1865

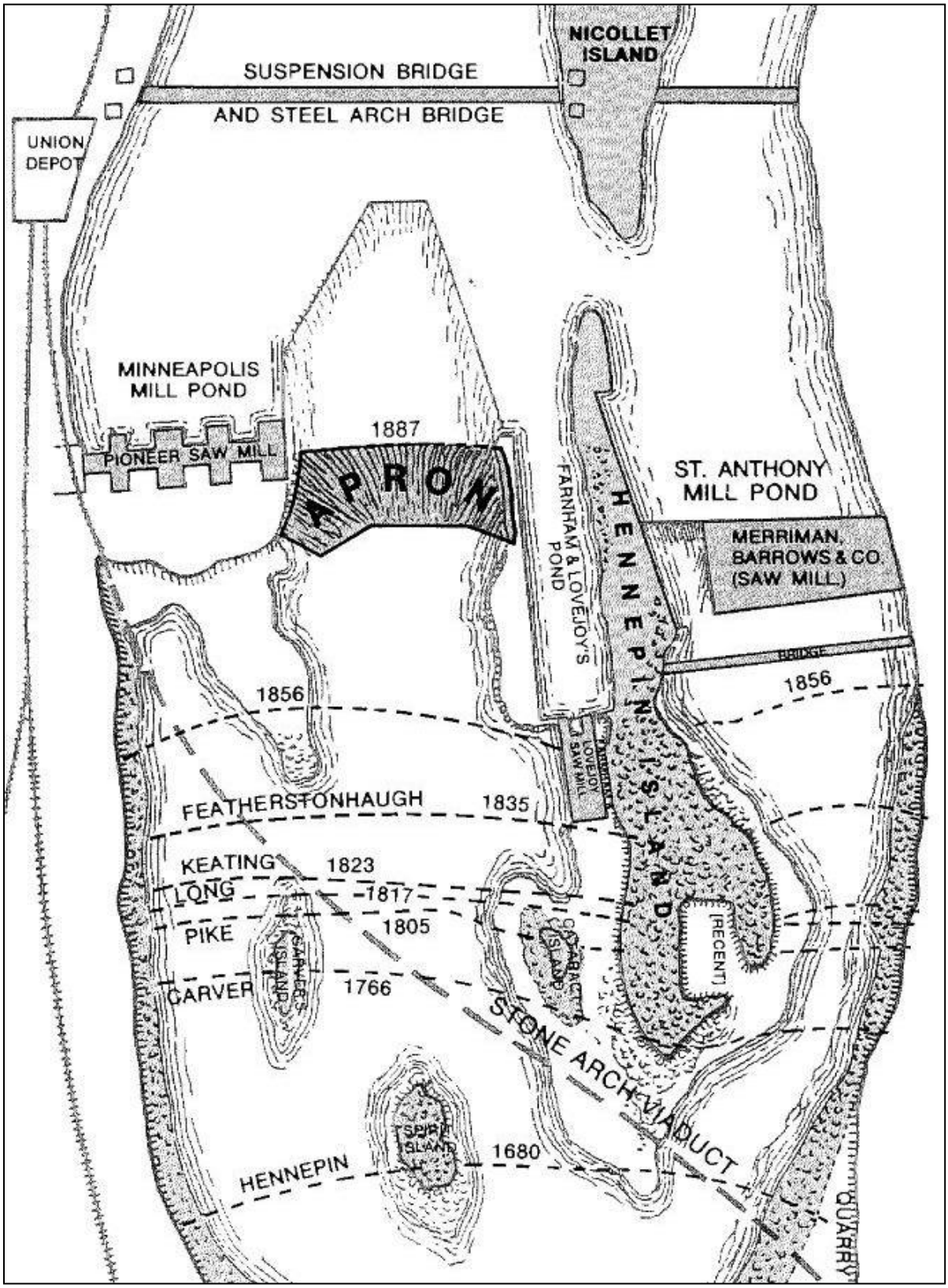

Figure 1-14. Diagram Illustrating the Regression of the Falls (Engineering the Falls: The Corps Role at St. Anthony Falls, dated 1993)

1.7 Resource Significance

Federal Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (Water Resources Council 1983) and USACE Policy for Conducting Civil Works Planning Studies Engineer Regulation (Engineer Regulation 1105-2-103) determine the criteria for the significance of resources. Three categories of resource significance are recognized: institutional, public and technical.

- Institutional — Institutional recognition of a resource or effect means its importance is recognized and acknowledged in the laws, adopted plans and other policy statements of public agencies, tribes or private groups.
- Public — Public recognition means some segment of the general public considers the resource or effect to be important.
- Technical — The technical recognition of a resource or an effect is based upon scientific or other technical criteria that establishes its significance.

The following provides a contemporary description of the significance of resources associated with the project site for these categories. Much of this information is based on comments provided as part of public and agency review. The description is intended to provide a broad summary of resource significance in the study area; it is not an exhaustive or comprehensive account.

1.7.1 Significance Statement for the Upper St. Anthony Falls Lock and Dam

The damming surface located in the Upper Mississippi River in downtown Minneapolis, Minnesota, is significant because it is necessary for stabilizing the river and suspending the formation of a headcut that was eroding the natural waterfall approximately 150 years ago. USACE constructed a cutoff wall in the channel between 1874 and 1876 to stabilize the Upper St. Anthony waterfalls. The channel remains the property of the State of Minnesota; therefore, any maintenance of the cutoff wall is subject to state appropriations.

The USAF project was authorized as part of the Upper Mississippi River navigation system for the transportation of goods between America's heartland and the rest of the world under the River and Harbor Act of 1930 (Public Law 71-520). The site is part of the Upper Mississippi River System, designated by Congress as both a "nationally significant ecosystem and a nationally significant navigation system" in Section 1103 of the Water Resources Development Act of 1986. the Water Resources Development Act of 2014 directed USACE to close the lock to navigation, in part because of concerns over invasive fish. Currently, the site is important as a fish passage barrier for invasive carp, which continue to spread into the Upper Mississippi River from the south.

The project area is part of a damming surface that created and currently maintains a pool from which the city of Minneapolis draws its water supply. The pool elevation created by the dam is stipulated in the FERC license granted to Xcel Energy. The pool is also important for operations of the University of Minnesota's St. Anthony Falls Laboratory, which is an interdisciplinary fluid mechanics research laboratory.

The project area is part of the MNRRA, which is a 72-mile-long, 54,000-acre protected corridor containing natural, historical, recreational, cultural, scenic, economic and scientific resources of national significance.

Management of MNRRA, which includes review of federal actions for compatibility, is the responsibility of the National Park Service. Additional information on MNRRA and its significance is provided in Section 5. The project area is also within the Mississippi River Critical Area, where special land use regulations guide development activity.

This project area is the upstream extent of a reach of the river that provides habitat for native fish and other aquatic biota, including state-listed mussels. This 6-mile reach is often referred to as The Gorge because of its canyon-like quality with a confined valley, steep slope, boulder-cobble riverbed and associated rapids. As noted earlier, the USAF site is important to protecting the Mississippi River Headwaters from threats associated with invasive carp. Potential habitat exists for a number of state-listed fish and mussels.

USAF Lock and Dam is situated within two historic districts and are eligible for listing on the National Register of Historic Places. The site has historic significance largely because of the waterfalls that the dam currently sits on. The falls is in an area of ancestral lands of the Dakota and is important to Native American groups that inhabited the area historically. The falls has significance to the Dakota, Ojibwe and other groups as related to spiritual, cultural and historical facets. It also has historical significance to European colonization.

USAF Lock and Dam constitutes a significant site for tourism, and there have been several concepts proposed for enhancing the area as a world-wide comprehensive recreation, interpretive, and touristic destination. Agencies and other organizations that have been involved in developing this vision include the National Park Service, the city of Minneapolis, Owámniyomni Okhódayapi, and Friends of the Mississippi River.

Resource significance was considered by USACE as part of this study; however, the ability of USACE to perform activities and invest funding in the study area is limited by congressionally authorized purposes. This disposition study examined whether the federal project is serving its primary authorized purpose (navigation), and if not, whether it is in the interest of the federal government to continue to own, operate and maintain the project. If a new purpose were to be authorized at the site, such as ecosystem restoration, water supply or hydropower, USACE in partnership with a nonfederal sponsor could reexamine resource significance and opportunities for USACE to perform activities and invest funding related to the newly authorized purpose. However, these considerations were limited due to congressional directives (i.e., WRDA 2018, WRDA 2020 and WRDA 2022) and the current authorization at the site.

1.8 Prior Reports and Existing Water Projects

The River and Harbor Act of 1937 — This act authorized the construction and maintenance of certain public works on rivers and harbors for navigation including the authorization for the USAF and LSAF locks and dams.

Initial Appraisal – Upper St. Anthony Falls Lock and Dam, Lower St. Anthony Falls Lock and Dam, and Lock and Dam No. 1, Minneapolis, Minnesota, Section 216. U.S. Army Corps of Engineers, St. Paul District, dated October 5, 2015, with November 6, 2015, revisions. This is supporting documentation for requesting a Section 216 Study.

Assessment of Economic Impact of Potentially Discontinuing the Operation of the Upper St. Anthony Falls Lock. Metropolitan Council, Publication 14-12-020, dated July 9, 2012. Closure of the lock would impact barge traffic to the Upper Riverfront of Minneapolis; this study analyzed the changes to transportation and business that would result and the effect of those changes on the economy and users of the locks.

Final Environmental Assessment, Closure of the Upper St. Anthony Falls Lock to Commercial and Recreational Navigation Traffic, Hennepin County, MN. U.S. Army Corps of Engineers, St. Paul District, with Findings of No Significant Impact, dated February 2015. An environmental assessment regarding the effects of closing the lock was prepared by the USACE St. Paul District.

St. Anthony Falls Regional Park Master Plan. Minneapolis Park and Recreation Board, draft December 2014. This plan describes recommendations for land-use policy, park development, phasing, implementation strategies and environmental stewardship.

Water Control Manual Upper and Lower St. Anthony Falls Lock and Dams. U.S. Army Corps of Engineers, St. Paul District, dated December 2021. This document outlines the operational procedures and supporting reference materials developed to meet the project purpose of navigation.

Upper Mississippi River Master Plan for Resource Management, Upper Saint Anthony Falls, Lower Saint Anthony Falls, and Pools 1-10. U.S. Army Corps of Engineers, St. Paul District, dated April 2022. This master plan has been developed for the Recreation and Natural Resource Management programs for the USACE St. Paul District portion of the Upper Mississippi River 9-Foot Channel Navigation Project. It is an update of the 1988 Upper Mississippi River Master Plan and the associated 2011 Land Use Allocation Plan. The primary goals of this plan were to prescribe an overall land use management plan, resource objectives, and associated design and management concepts for implementation of a comprehensive natural resource and recreation management program on USACE-owned lands. It was also intended to classify all federally owned lands within the project area to effectively accomplish ecosystem management and outdoor recreation objectives as a component of the larger navigation project.

Upper St. Anthony Falls Operations & Maintenance Expense Optimization Charette Report. U.S. Army Corps of Engineers, St. Paul District, dated December 2024. This report explores ways to minimize operation and maintenance costs of USAF Lock and Dam with and without navigation mission authorization.

1.9 Proposal for Federal Action

In the 2015 Initial Appraisal, USACE determined that potential national economic benefits related to the disposition of USAF Lock and Dam exist and warrant further study. This determination was based on the decision to close the lock to navigation in 2015. The need for disposition is due to the absence of federal interest in continued use of the facility for its primary authorized purpose of navigation. In this disposition study, USACE evaluated deauthorization of the project and disposal of the associated real property and government-owned improvements. The USACE Real Estate Policy Guidance Letter #33—Interim Guidance on Disposition Studies, dated September 28, 2016, and the USACE Interim Guidance on the Conduct of Disposition Studies, dated August 22, 2016, require the utilization of risk informed planning in the decision to dispose of the facility. Risks to public safety, the environment, and the structural integrity of the facility and adjacent properties will be considered. Although current potential life safety risks associated with the

existing condition of the project have been minimized due to the closure, deferring major maintenance activities will increase risk to the environment and public safety. This study identified and evaluated alternatives and the necessary actions to mitigate risks before deauthorizing and disposing of the facility.

NEPA requires the lead agency to analyze and disclose impacts of its proposed action and alternatives. For analysis of potential environmental effects of the alternatives, USACE analyzed a reasonable range of measures and alternatives that also considered life safety and environmental risks before disposal and transfer to a nonfederal entity. The plan formulation process is described in Section 4. The period of analysis is 50 years, from 2028 to 2078.

2 Need for and Objectives of Action

This section presents the water and related land resources problems and opportunities in the study area. This section also establishes the planning objectives and constraints, which are the basis for the formulation of alternative plans. This is the first step in the USACE planning process.

2.1 Problems and Opportunities

Since the 2015 closure of USAF Lock, commercial navigation has not been able to access the Port of Minneapolis. USAF Lock and Dam are no longer used for navigation in any capacity. Since the closure of USAF Lock, the city of Minneapolis and other stakeholders have begun planning and designing a new vision for the Minneapolis Upper Harbor area and the riverfront near USAF Lock and Dam. As the local vision for the area changes, there is no identified demand to restart commercial navigation in this waterway. Furthermore, due to the limited sizes of USAF Lock, LSAF Lock and LD1, allowing only two barges to lock through at a time, the demand for commercial use and cargo tonnage has historically been low in this area and is not expected to increase.

Minneapolis never evolved as an industrial base, as was the long-standing vision for the city prior to construction of the project. Economic development is now strongly motivated by attracting people and businesses that dominate the urban center. The river is a focal point for recreation and residential areas, and industrial corridors are seen as obstructing progress in new development.

With the enactment of WRDA 2020, lands adjacent to and in the vicinity of the lock and dam are undergoing evaluation for conveyance to the city of Minneapolis. Per WRDA 2020, USACE may not transfer ownership or operation of the lock and dam through conveyance. USACE is also required to retain easements/encumbrances necessary for operation and maintenance of the authorized project. At this time, USACE maintains ownership of all project features integral to the project purpose, including the lock chamber, submersible Tainter gate and other structures that allow flow capacity during high-flow events. It will be necessary to use operation and maintenance funds to operate and maintain these structures; however, since the project no longer serves its authorized purpose, the availability of operation and maintenance funds for operation and maintenance of the site is anticipated to be limited since the USACE budget is funding-constrained and directs resources toward projects that deliver benefits matching the project authorities.

The key issue is that the USAF Lock and Dam project is no longer fulfilling its authorized purpose of navigation, while the U.S. government is continuing to provide federal investment through operation and maintenance activities.

A further issue is that per WRDA 2020, USACE will convey to the city or its designee the fee interest in lands adjacent to the lock and dam, retaining only encumbrances/easements for operation and maintenance of the authorized project. For lands USACE cannot convey in fee, the city or its designee may request outgrants for the development, touristic and recreational rights. At this time, the extent of WRDA 2020 outgrants on USAF property remaining in federal ownership is still being defined. However, the city or its designee will own or hold an interest in nearly all of the real property at the site, leaving little of the site to address under this study.

An additional issue identified during the public scoping is the future potential deterioration of an important and historic site without further action to maintain or preserve it. Federal investment to support major maintenance activities would be required in the future to prevent deterioration consistent with existing law.

There are multiple opportunities to address the problems in the area, including the opportunity to explore other water resources purposes for the site. Three primary mission areas constitute the heart of the USACE Civil Works Program. The flood risk management mission includes both inland and coastal flood risk management and addresses assessment, management, and communication of current and future flood risk in a systematic and comprehensive manner. The navigation mission focuses on safe, reliable, and efficient waterborne transportation systems (channels, harbors and waterways) for movement of commerce, national security needs, navigational access for the Coast Guard and recreation. Inland (riverine) and deep draft navigation, as well as small boat harbors, are all part of the USACE navigation mission. The ecosystem restoration mission restores, protects, and manages aquatic ecosystems. Ecosystem restoration projects assist in the recovery of ecosystems that have been degraded, damaged or destroyed and focuses on establishing the ecological processes necessary to make aquatic ecosystems sustainable, resilient and healthy under current and future conditions. Congress has also directed the USACE Civil Works Program to address recreation, hydropower and water supply. USACE engagement in these areas is generally required to be associated in some relevant manner with one or more of the three primary mission areas, e.g., a flood risk management project that also provides recreation benefits to the community.

Opportunities considered in this study include the following:

1. Reduce or eliminate the federal cost of operating and maintaining the site.
2. Develop a mutually beneficial partnership with the city of Minneapolis, as the city will own or hold interest in much of the site.
3. Maintain the function of the lock, as several entities rely on the lock as part of the damming surface to preserve their access and use of the upstream waters.
4. Facilitate future visions for the site, including visions to improve or enhance recreation, the human environment and the natural environment.
5. Support future visions for continued use of USAF Lock and Dam by stakeholders and the public.
6. Improve or enhance recreation at or through the site and improve or enhance the human and natural environment in the area.
7. Modify the site or an element of the site to serve a new water resources development purpose such as ecosystem restoration, recreation or water supply.
8. Transfer of facilities to reduce the overall real estate management and operation and maintenance requirements on the federal government.

2.2 Purpose and Need for Action

The purpose of this disposition study is to investigate whether it is appropriate to deauthorize and/or dispose of the portions of USAF Lock and Dam that remain under federal ownership. The rationale for

disposition would be absence of federal interest in continued use of the facility for its primary authorized purpose of navigation.

2.3 National Objective

In the case of a USACE disposition study, the federal objective is to identify the least costly, environmentally acceptable alternative for disposing of the federal real properties.

2.4 Planning Objectives

The planning objectives for the study included the following:

- Reduce to the maximum extent possible the federal investment in the ownership and operations, maintenance, repair, rehabilitation and replacement of USAF Lock and Dam over the next 50 years.
- Evaluate and communicate impacts of no federal interest determination for the current authorized purpose of commercial navigation.

2.5 Planning Constraints and Considerations

The following constraints were identified for the study:

1. Deauthorization and disposal considerations are limited to the authorized federal project lands and improvements. The majority of the damming surface is owned by Xcel Energy and is maintained by Xcel Energy as part of their hydropower operations.
2. WRDA 2020 directs USACE to convey lands in fee adjacent to the lock structure to the city of Minneapolis or its designee upon request, with USACE retaining easements/encumbrances as needed for operation and maintenance. Recommendations for deauthorization and disposal are limited to the lands and improvements remaining in federal ownership after compliance with WRDA 2020.
3. WRDA 2020 directs USACE to grant the city of Minneapolis or its designee access and use rights by license, easement, or similar agreement to any real property and structures at the site of the USAF Lock and Dam that is not conveyed in fee. This may result in additional encumbrances on lands otherwise available for disposal.
4. Two existing hydropower projects rely upon maintaining the upper pool elevation to operate.
5. WRDA 2022 prohibits the deauthorization and disposal of the USAF Lock and Dam unless a willing and capable nonfederal public entity is identified to assume ownership.

In addition, the following were identified as planning considerations for the study:

1. The Tainter gate in the lock provides flow capacity during large flow on the Mississippi River. Without this flow capacity, water elevations upstream of the dam would increase. This flow capacity is important to Xcel Energy for their St. Anthony Falls hydropower project (FERC license number 2056); without the flow through the lock, the river would overtop the structures at the license's design flood (157,000 cfs).
2. The intakes for the city of Minneapolis water supply in the Mississippi River rely on a predictable water elevation upstream of the dam.

3. Existing upstream bridge structures have been designed and rehabbed based on existing river levels post construction of the lock and dam. If river elevations were to significantly change due to modifications of USAF Lock and Dam, channel degradation and its influence on those structures would be a significant concern.
4. Invasive carp species have been expanding their range upstream of Lock and Dam 8, and there have been several instances where they have been found in the St. Croix River and the Minnesota River, suggesting they have bypassed Locks 2 and 3 on the Mississippi River.
5. Current uses, including by nonfederal entities, must be considered: access for maintenance of the dam (by Xcel Energy), water rescues (by Minneapolis Fire and Rescue and Hennepin County water patrol), spillway operation and maintenance of the Stone Arch Bridge (by the Minnesota DOT), flood operations, etc.
6. Opportunities determined to require further investigations, such as the study of an alternative federal purpose at the site or study of site development by a new owner, may trigger a federal nexus. Detailed studies, to include compliance with NEPA, would occur under the appropriate authority in a feasibility study and were not included in this disposition study.
7. USAF and LSAF were designed to operate together. Alternatives will need to be evaluated for their potential impact on LSAF.

2.6 Public Scoping Comments and Resources of Concern

Several outreach strategies were used to scope the disposition study. USACE published a Notice of Preparation of an Environmental Assessment in June 2019 to solicit public comments on scoping the analysis. USACE hosted public meetings on August 13 and 19, 2019, to gather comments on issues of concern and to scope the integrated disposition study and environmental assessment to the appropriate area and resources. The public was encouraged to comment on the scope of the disposition study and to provide input to any potential measures that may preserve and enhance recreational opportunities, the natural ecosystem and the human environment, as outlined in Section 1225 of WRDA 2018. The public was directed to the disposition study website (https://www.mvp.usace.army.mil/MplsLocksDisposition/) for additional information. The public was asked to provide input by October 20, 2019, allowing more than 60 days to comment. In addition to public meetings, USACE hosted meetings with federal, state and local agencies and with nongovernment organizations on August 15, 2019. Following the public scoping process, a scoping document was prepared and posted on the disposition study website, along with redacted copies of the public comments (Appendix C).

Issues identified through these stakeholder engagement activities include the following:

- The USAF Dam has tremendous potential for and plays a significant role in improving the human environment and is instrumental in the master planning of the downtown Minneapolis metropolitan area.
- The USAF Lock and Dam site is a major regional asset, as it connects visitors and residents to the river.
- Operation and maintenance of portions of the site used for flood operations is an important factor and should be retained under the jurisdiction of a federal entity like USACE. Other parts of the site have tremendous potential for recreational use but under different ownership.

- The project site exhibit features consistent with criteria for inclusion on the National Register of Historic Places. Property transfer to a nonfederal entity would likely trigger provisions under Section 106 of the National Historic Preservation Act (54 U.S. Code § 306108).
- Additional development of the site for hydropower is counter to the public interest and has encountered significant obstacles. Water draws into the headrace create a danger to swimmers and recreational boaters (most commonly canoes and kayaks) or personal watercraft users. High currents upstream and downstream of a powerhouse create nuisances to these users. Also, powerhouses maintain a persistent industrial atmosphere, and security concerns around the powerhouse conflict with the vision for development of the area as a public use area. The future ability of an entity to properly operate and maintain portions of the site was identified as a prior public concern. The public expressed concern with a private entity taking over operations of a lock and dam.

In addition to the above scoping meetings, separate meetings were held with the city of Minneapolis, Minneapolis Park and Recreation Board, Friends of the Falls (formerly called Friends of the Lock and Dam and currently called Owámniyomni Okhódayapi), and Xcel Energy to determine their interest in the partial disposition measures.

USACE published the draft disposition study and environmental assessment report in mid-December 2020, recommending full disposal with a monetary incentive for the new owner. Following passage of WRDA 2020, the draft report was amended and re-released on January 19, 2021, indicating that the Full Disposal recommendation excludes any lands and features that would be conveyed to the city of Minneapolis pursuant to WRDA 2020. The draft report was posted on the disposition study webpage. Due to COVID-19 social distancing concerns, an in-person public meeting was not possible during the 60-day review period. A virtual public meeting was held on March 3, 2021, and was recorded and posted for later viewing. The comment period on the draft report ended on March 18, 2021. Between 2021 and 2025, USACE revisited some prior assessments and refined alternatives to address the WRDA 2020 directed conveyance, lands requirements for the partial disposition alternative, and congressional limitations on deauthorization recommendations.

Comments received on the draft report are contained in Appendix J, including a summary of the major comment themes.

Please refer to Section 8 for more information regarding public involvement and scoping comments.

3 Relevant Project Information

This section provides additional project and background information relating to performance history, operation and maintenance, safety evaluation, and real estate assets. Section 5 provides the existing conditions (affected environment) for each of the resources that could be affected by implementing any of the alternatives identified in Section 4.

3.1 Project Features and Their Functions

This section summarizes the project features and their functions; all project features are shown in Figure 3-1.

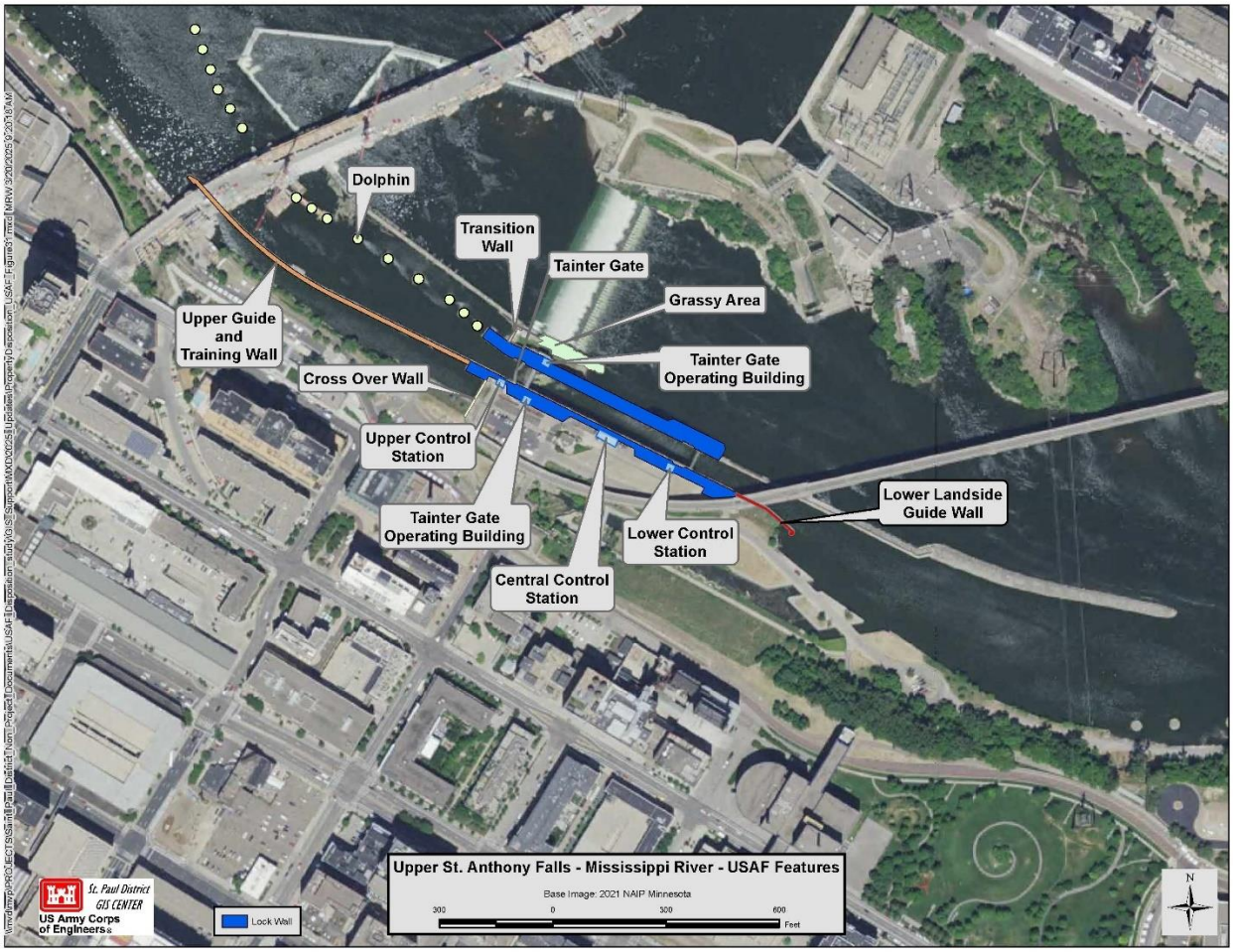

Figure 3-1. Upper St. Anthony Falls Features

3.1.1 The Dam

The dam consists of both federal and nonfederal structures that act to maintain the upstream water elevation. The damming surface includes the lock chamber, horseshoe dam, spillway, Xcel Energy hydroelectric facility and University of Minnesota St. Anthony Falls Laboratory. Of the damming surface, only the lock chamber and two short segments of the dam are federally owned and considered in this disposition study.

3.1.2 The Lock

The lock consists of the concrete structure and operating equipment that enable the upstream and downstream navigation of watercraft.

3.1.3 Spillway on St. Anthony Falls

Immediately at the downstream side of the horseshoe dam and adjacent to the upstream side of the lock chamber, there is a concrete spillway that caps St. Anthony Falls. The main spillway allows for the passage of river flows that are not otherwise used for hydropower operations or navigation. The spillway is owned by Xcel Energy. Removing the spillway is of interest to some stakeholders as a component of historic river restoration. However, the sandstone below the historic St. Anthony Falls is unstable; without the concrete spillway, the falls would erode significantly, potentially damaging the surrounding area. Because the spillway is not federally owned, it was not considered in the disposition study.

3.1.4 Tainter Gate

The Tainter gate is located on the upstream end of the lock chamber. The Tainter gate is not used in day-to-day operations for navigation. Instead, the Tainter gate supplements the spillway capacity and is operated during flood conditions to pass flow through the lock chamber and limit flood effects upstream. The Tainter gate enables the passage of river flows over 40,000 cfs.

3.1.5 Upper Landside Guide Wall and Training Wall

The 400-foot upper landside guide wall and the 520-foot upper training wall extend upstream from the landside lock wall towards the west bank of the Third Avenue Bridge in Minneapolis.

3.1.6 Lower Riverside Guard Wall

The 600-foot lower riverside guard wall is located between the riverside lock wall and the downstream rock training wall. The lower riverside guard wall supports operations at both USAF and LSAF, as USAF and LSAF were designed to operate together. Because this feature supports operations at LSAF, it was not a candidate for disposal under the USAF disposition study.

3.1.7 Downstream Rock Training Wall

The 700-foot rock training wall is on the river side of the lock and located downstream of the lower riverside guard wall. The downstream Rock Training Wall supports operations at both USAF and LSAF as USAF and LSAF were designed to operate together. Because this feature supports operations at LSAF, it was not a candidate for disposal under the USAF disposition study.

3.1.8 Lower Landside Guide Wall

This 260-foot wall is located on the downstream landside of the lock.

3.1.9 Crossover Wall

The crossover wall is the upstream bulkhead located between the landside lock wall and the Stone Arch Bridge. Before construction of the lock, this was formerly Segment 1 of the horseshoe dam. This feature is part of the damming surface.

3.1.10 Transition Wall

The 50-foot transition wall is located between the riverside lock wall and Xcel Energy's horseshoe dam. This wall provides Xcel Energy access to their bubbler system.

3.1.11 Grassy Area

The area referred to as the grassy area is located between Xcel Energy's spillway and the riverside lock wall; it is federal land created by construction of the lock.

3.1.12 Central Control Station

The central control station functions for navigation operations. It houses the electrical service for the entire lock. The electrical system, as well as the upper pool water level and temperature gauges, are housed on the first or ground floor of the central control station. Additionally, when operations staff are on-site, the central control station is the main location for them to conduct daily business, hold meetings, and eat meals. The building includes a lower-level workshop, basic kitchen, locker room and bathroom, available for use by the lock staff.

3.1.13 Upper Control Station

The upper control station is a smaller control building located on the upstream land side of the lock. This control station would be the minimum control building required to operate the Tainter gate during flood operations. The upper control station can control the upper miter gates in addition to the Tainter gate.

3.1.14 Lower Control Station

The lower control station is an operating building on the downstream landside of the lock. The lower control station can control the lower miter gates.

3.1.15 Dolphins

A series of dolphins (sheetpile mooring cells) extends from the upstream river side of the lock to upstream of the horseshoe dam. The dolphins guide river traffic along the navigation channel away from the dam and toward the lock chamber. They serve as a barrier between the channel and the horseshoe dam and spillway, protecting both river vessels and the dam itself.

3.1.16 Restrooms

The restroom building is located adjacent to the parking lot on the upstream landside of the lock. This building contains multiple stalls and hand washing sinks for men and women's restrooms. Use of and access to the restrooms are not required for any operations at the lock, and the building is not currently

open for public use. The restrooms were included in the area requested for conveyance by the city of Minneapolis per WRDA 2020; as such, it was not considered in the disposition study.

3.1.17 West End Lands

The west end land area includes the lands extending from the west end of the paved area (by the crossover wall), and up to and including the east edge of the roadway extending from Portland Avenue, exclusive of any buildings. This area includes the parking lot adjacent to the lock on the upstream landside. This area was included in the parcels requested by the city of Minneapolis for conveyance per WRDA 2020. As such, these lands were not included for consideration in this Section 216 disposition study. Encumbrances retained by USACE for the continued operation, maintenance, repair, replacement and rehabilitation of USAF Lock and Dam on conveyed land could be eligible for disposal if USAF Lock and Dam were deauthorized under the Full Disposal alternative.

3.1.18 East End Lands

This measure describes the lands east of the paved area. These lands include all dry lands landward of the lock wall, exclusive of any buildings. This area was included in the parcels requested by the city of Minneapolis for conveyance per WRDA 2020. As such, these lands were not included in this Section 216 disposition study. Encumbrances retained by USACE for the continued operation, maintenance, repair, replacement and rehabilitation of USAF Lock and Dam on conveyed land could be eligible for disposal if USAF Lock and Dam were deauthorized under the Full Disposal alternative.

3.1.19 Upper Miter Gates

The upper miter gates are located on the upstream end of the lock chamber, upstream of the Tainter gate. The upper miter gates are used for both navigation lockages and are necessary to protect the Tainter gate from ice and debris during the winter months. In those situations, the water is completely drained between the upper miter gates and the Tainter gate. The upper miter gates also serve as an additional damming surface in times of emergency if the bulkheads are not readily available.

3.1.20 Lower Miter Gates

The lower miter gates are located on the downstream end of the lock chamber. The lower miter gates are solely utilized for navigation lockages and are currently not operational.

3.2 History of Performance

Closure of USAF Lock in 2015 prevents any barge traffic from reaching the freight terminals in the Minneapolis harbor. The magnitude of the economic impact of the lock closure and its relation to the disposal of the federal project is discussed below.

3.2.1 Project Functions

The primary and sole authorized purpose of USAF Lock and Dam is navigation, discussed in detail below. Although recreation is not an authorized purpose, the site has also provided recreation to optimize use of this federal project. Flood mitigation is not an authorized purpose but supports the navigation purpose. WRRDA 2014 ordered the lock closed to traffic, but it allows for emergency lock operations as necessary

during flood operations. The Tainter gate operations are performed entirely via the upstream Tainter gate. The purpose of the Tainter gate is to maintain conditions on the river relative to the conditions preceding the construction of the lock; the Tainter gate mitigates the impacts of the damming surface during high flow conditions. The Tainter gate was not intended to generate flood risk management benefits (i.e., the Tainter gate does not improve conditions relative to those preceding construction of the lock). Water supply is not an authorized purpose; however, the project includes part of the damming surface that ensures the river elevation upstream of the dam is consistent, which supports the city of Minneapolis municipal water supply. Hydropower generation is not an authorized purpose, but maintaining the damming surface and providing flow capacity through the lock supports the federally licensed USAF hydropower project, owned by Xcel Energy, located on the bank opposite the lock.

3.2.2 Commercial Navigation

USAF Lock and Dam work as part of a system (along with LSAF Lock and Dam and LD1) to provide navigational services to the Minneapolis Upper Harbor area (Table 3-1). For the five years prior to the closure of the upper lock (2010-2014), traffic through the Minneapolis locks averaged 755,834 tons per year. At a per ton cost savings of approximately $4.00, in 2015 dollars, the transportation benefits of hauling this level of freight by barge versus rail or truck was estimated at $3.0 million/year. This was the primary commercial benefit of the Minneapolis locks and served as an offset to the costs of maintaining operations.

The city of Minneapolis closed the Upper Harbor to commercial navigation in December 2014, leaving only two commercial operators upstream of USAF. One operator, Northern Metals Recycling, has moved their primary operations to Becker, Minnesota. The other operator, Aggregate Industries, is still operating, but has switched to over-the-road transport of its materials. Prior to the closure, Aggregate Industries used USAF Lock nearly every day during the navigation season (April to October). In 2015, leading up to the closure, they ran loads twice a day, seven days a week.

Future projections in the demand for commercial navigation are zero.

Table 3-1. Commercial (Tow) Vessels Through USAF Lock

Lock	2012	2013	2014	2015*	Pre-Closure Average	2016-Present
USAF	629	596	549	207	495	0

* The 2015 navigation season at USAF ended on June 9, 2015.

3.2.3 Recreational Navigation

Other users of the Minneapolis locks are recreational boaters (small power craft, fishing boats, canoes, kayaks, etc.), commercial cruise vessels, and other commercial vessels besides tow and barge units. Table 3-2 and Table 3-3 present the number of recreational and other commercial vessels transiting USAF Lock in recent years (source: USACE Lock Performance Monitoring System database). A large majority of the non-tow commercial vessels are cruise boats operating out of Minneapolis and St. Paul.

Table 3-2. Recreational Craft Through USAF Lock

Lock	2011	2012	2013	2014	2015	Pre-Closure Average	2016-Present
USAF	2,079	1,088	785	1,475	684	1,222	0

Table 3-3. Non-Tow Commercial Vessels Through USAF Lock

Lock	2011	2012	2013	2014	2015	Pre-Closure Average	2016-Present
USAF	961	0	4	0	0	193	0

3.2.4 Hydropower

Two licensed and operational hydropower plants are located in the vicinity of USAF and rely upon the pool above the dam. Xcel Energy currently operates one plant under FERC license number 2056. Xcel Energy's Hennepin Island plant was constructed in 1908 under this license and is still operating. Xcel Energy had another plant under this same license (the Main Street Station) that has not generated since 1959 and was closed off with sheetpile cells in the 1990s. The turbines were replaced and generators rewound in 2013, raising the capacity from 12.4 megawatts (MW) to 13.9 MW and the maximum flow from 4,025 cfs to 4,366 cfs. The Hennepin Island plant has produced approximately 75 gigawatt-hours per year. Applying a regional retail price of $0.13 per kilowatt-hour, the annual power produced at the Xcel plant is valued at approximately $9.75 million. The production varies each year depending primarily on river flows and secondarily on maintenance shutdowns.

The Artists A-Mill Lofts is the second licensed and operational hydropower plant currently operating at the upper falls (FERC license number 14628). It is also located on the left bank of the Mississippi River and is owned by Minneapolis Leased Housing Association IV. The 0.6-MW facility serves only the Artists A-Mill building. There is an additional plant at the lower falls.

3.2.5 Hydropower Potential

The combined capacity of hydropower at the Hennepin Island Plant the Artists A-Mill Lofts is 14.5 MW. Previously, there was additional capacity at the Main Street Station. The Main Street Station had three rope-operated generators with a total capacity of approximately 1 MW. No estimate of river flows is assumed since the equipment was antiquated and the efficiencies were likely vastly different than modern hydropower. The full hydro-electrical generation potential has never been developed at the upper falls. While there is limited time availability of river flows diverted to additional hydropower, prior studies have shown economical interest in pursuing additional generating capacity — perhaps approaching but not exceeding the current installed capacity depending on the plant cost. It is important to note that if USACE were to be involved in hydropower development, it would require congressional authorization.

The amount of water flowing over the horseshoe dam for aesthetics of the falls is a contentious issue with local stakeholders. The 2004 FERC relicensing document for the Xcel Energy plant stated that only 100 cfs, resulting in approximately 2 inches of flow depth, over the horseshoe weir was justified. Xcel Energy is conducting these aesthetic flow studies, and this issue will be resolved outside of the disposition study.

There was a proposal by Crown Hydropower to locate an additional hydropower plant on federal property at USAF. FERC dismissed this license amendment application in April 2020. The FERC upheld this action in August 2020, denying a request for a rehearing. Crown Hydropower appealed the FERC decision in October 2020. Many stakeholders opposed construction of additional hydropower at this location. For the purposes of this report, hydropower production is anticipated to continue into the future at the present level.

3.3 Operation and Maintenance

The projected operation and maintenance needs are based on the assumption that the lock is no longer used to pass traffic (commercial or recreational) on the Mississippi River. Due to the closure of the lock to navigation traffic, although all maintenance for the authorized project remains required subject to availability of funding, current operation and maintenance is focused on flood mitigation operations and structural maintenance. During flood operations, lock staff ensure the upper miter gates (the lower miter gates are semipermanently pinned open) are pinned securely and operate the Tainter gate to pass flow through the main lock chamber.

Annual operating costs to maintain the buildings and grounds include costs for staffing, office supplies (e.g., light bulbs), utilities, maintenance contracts (e.g., elevator servicing), inspection and maintenance of equipment, and replacement of so-called wear-and-tear items.

In addition, occasional major maintenance is required to restore the concrete surfaces and replace any worn out equipment or operating systems. It is assumed that any features not needed for flood operations will receive minimal maintenance. Future operation and maintenance costs were developed for each alternative and are presented in Appendix I and summarized in Section 4.5.1 of this report. The description of the current required maintenance of each feature at USAF Lock and Dam is included in Appendix A. The current required maintenance costs include the cost of maintaining the real properties adjacent to USAF Lock and Dam. Maintaining these real properties is a minor component of the overall costs. When these lands are transferred to a new owner, pursuant to WRDA 2020, USACE would retain encumbrances necessary for the USAF project. The majority of operation and maintenance costs still remain, and future costs are relatively unchanged.

Since navigation through USAF Lock is not allowed subsequent to WRRDA 2014, USACE has ceased to perform dredging upstream of USAF. The channel is expected to silt in, over time. Although dredging remains authorized, future scenarios assume that there will be no dredging in the channel upstream of USAF Lock and Dam.

USAF Lock and Dam currently receives free electricity from the Xcel Energy hydroelectric facility, as required by their FERC license (number 2056). The pre-closure average usage at USAF was 418,000 kilowatt-hours. The post-closure usage was estimated to be approximately one-half of the pre-closure value, or 209,000 kilowatt-hours. This electrical use is expected to decrease with the restriction in operations at USAF.

3.4 Summary of Asset Holding (Real Estate)

A total of 10.43 acres of lands, easements, and rights-of-way were acquired for the USAF Lock and Dam portion of the Upper Mississippi River 9-foot channel navigation system. All lands were acquired in Hennepin County, Minnesota. Fee lands consist of 8.25 acres, and easement interests total 2.18 acres. A summary of each of these interests is shown below in Table 3-4.

Table 3-4. USAF Project Land Acreages

Real Estate	Number of Tracts	Total Acres
Fee Simple	5	8.25
Easement - Road Access	3	0.25
Easement - Flowage	1	1.75
Easement - Power Lines	1	0.00
Easement - Security Fencing/Signage	1	0.00
Easement Water and Sewer Lines	7	0.18
Total	18	10.43

Some of the utility easements are located underground. Northern States Power Company (NSP, which later become Xcel Energy) deeded fee lands and a small portion of their power facility's dam directly to the U.S. NSP was required to permit its lands and facility to be utilized as a "compatible use" to the federal navigation facility. The deed contains a reservation to NSP for its continued use for its facility that runs with the land.

Inventoried Real Property includes the upper lock, visitor center/control building, a multiuse storage building, parking lots, paved road and security fencing. The USACE-owned real estate, including easement interests is shown in Figure 1-9. A complete list of all tracts, including the type of interest, acreage, date acquired and location is included in Appendix D.

The Minneapolis Parks and Recreation Board has two rather extensive outgrants as part of their urban park plan for Minneapolis for bike and pedestrian paths, fencing and landscaping. Additionally, approximately 5.2 acres has been leased to Owámniyomni Okhódayapi for park and recreation purposes through February 28, 2049. The consideration for the lease is for the operation and maintenance of the premises.

Table 3-5. Summary of USAF Outgrants

Outgrant No.	Type	Grantee	Description	Expiration Date
DACW37-3-24-0019	License	Kraemer LLC	Staging for Equipment and Building Supplies	18-Feb-2027
DACW22-2-78-5027	Easement	Minnesota DOT	Storm Sewer Drain Line (Underground)	15-Jan-2028
DACW37-3-23-0039	License	Hennepin County Sheriff	Mooring of Rescue Boat	31-Mar-2028
DACW-1-37-24-0016	Lease	Owámniyomni Okhódayapi	25-Year Park and Recreation Lease	28-Feb-2049
DACW37-2-04-0095	Easement	Xcel Energy	Electric Transmission Lines	27-Aug-2054
DACW37-2-97-0020	Easement	City of Minneapolis, Park and Recreation	Bike/Pedestrian Path	None
DACW37-2-00-0044	Easement	City of Minneapolis, Park and Recreation	Bike/Pedestrian Path, Fencing and Landscaping	None
210018-C-63-0005	Easement	Minnesota DOT	Storm Drain Line (Underground)	None
210018-C-63-0015	Easement	Minnesota DOT	Interstate 35W Piers	None

3.5 Existing Safety Evaluation

USACE completed a semiquantitative risk assessment of USAF Lock and Dam in 2016 using the Periodic Assessment process, which was preceded by a screening-level risk assessment in 2009. Both risk assessments evaluated the entire damming surface of the project, which consists of mostly non-USACE components. The risk assessments were completed in compliance with USACE criteria outlined in Engineer Regulation 1110-2-1156, Safety of Dams - Policy and Procedures, Chapter 11, which states the following:

> *In cases where ownership, operation, maintenance, or other activities at a project or its major elements are divided between USACE and other organizations, private sector (e.g., power plants), government or municipal, USACE should inspect and/or assess at the appropriate frequency, those features of non-USACE elements that could adversely affect the stability, safety, or operational adequacy of any USACE-owned, -operated, -maintained, or otherwise -related portion of the project, including features not constructed by the USACE.*

A screening-level risk assessment was performed in 2009 to populate the national USACE inventory of dams. During this initial screening, USAF Lock and Dam was assigned a Dam Safety Action Classification (DSAC) rating of 3, which was later revised to a DSAC 4 rating after the more detailed 2016 risk assessment. The DSAC system has five levels for urgency of action: 1 is very high urgency with compelling reasons to take immediate or near-team action, 2 is high urgency, 3 is moderate urgency, 4 is low urgency and 5 is normal. The DSAC 3 rating for USAF was primarily due to unconfirmed issues. The primary weaknesses contributing to the DSAC 3 rating were (1) loss of the limestone shelf in the vicinity of the main spillway of the horseshoe dam could lead to scour erosion of the St. Peter Sandstone, (2) seepage through a 19th century mill tunnel located in the rock within the right abutment could lead to a piping failure and (3) failure of a wooden sluice gate located in the masonry wall of the concrete abutment tie-in dam could cause uncontrolled flow through the sluiceway.

The concerns identified in the 2009 screening-level risk assessment were resolved during the 2016 risk assessment:

1. The likelihood of scour erosion of the sandstone leading to spillway instability is remote due to the construction of the upstream apron by Xcel Energy in 2003 to minimize water infiltration. The upstream apron and spillway are anchored into the Platteville Limestone, and the downstream apron and cellular wall protect the alluvial material from scour. Soundings were extended upstream beyond the limestone shelf, which did not reveal any concerning bathymetry. The limestone shelf is inclined downstream, so the upper end tapers out. Presumably historic flows have already undermined very thin portions of the limestone shelf, leaving a reasonable thickness, which historical records have reported to be approximately 4-7 feet at the upstream leading edge in the river channel. The river thalweg covers the limestone to prevent undermining during normal flow conditions, and there have been no prior indications of change occurring.
2. The city of Minneapolis Public Works Department constructed a new head gate structure and flow control through the 1800's mill tunnel with a steel pipe in the right abutment.
3. The masonry wall and sluice gate were removed during construction of the upper lock and replaced with a concrete abutment wall.

The 2016 risk assessment identified fatigue cracking in the downstream miter gates. This cracking would be of concern if the lock were still operated for navigation, as a failure of the gate would result in an emergency lock closure. As the lock was closed in 2015 and there is no foreseeable need that it would be used again for navigation, the gates are pinned open and cannot be loaded; therefore, the issue with the lower miter gates is no longer a concern.

An additional concern raised in the 2016 risk assessment was the integrity of the cutoff wall below the Hennepin Island earth dam constructed by the federal government between 1874 and 1876. There is water pressure across the cutoff wall where it crosses the east branch tunnel, but instrumentation has shown there is minimal pressure across the cutoff wall near the center of the main spillway. The constructors left access to the cutoff wall near the east branch tunnel crossing for inspection and future remediation; USACE acquired an access easement to the east branch tunnel portal during construction of the lock. However, there has not been any maintenance required for the cutoff wall since its 19th century construction. With exception of the easement to access the tunnel portal, no real estate was acquired for the remainder of the cutoff wall, and it is not inventoried by USACE as government property. The presence of the cutoff wall is unrelated to the lock, so its integrity should not pose a liability to future owners of the lock. Regardless of the influence of the cutoff wall, there is a remote possibility that seepage erosion could redevelop somewhere in the upper fall's structures or riverbanks and the upper limestone shelf that terminates near Nicollet Island. Analysis of such seepage erosion would recognize the cutoff wall's presence, but remedial repairs may or may not involve the cutoff wall itself.

The incremental loss-of-life consequences, those due to only breaching of the USAF Lock and Dam or LSAF Lock and Dam damming surfaces beyond what would occur prior to a breach, have been calculated with the result of no statistical loss of life. This is due to the deep river gorge downstream of the falls with little developable land at the river's edge. Since the floodplain between the dam and confluence with the Minnesota River is essentially nonexistent, and the river conveyance increases beyond that point, there are very few commercial or residential structures in the projected inundation zone. There are two rowing clubs and a coal storage facility located between USAF Lock and Dam and LD1 (5.8 river miles downstream). Any flood wave would remain within the channel since the Mississippi River banks are generally 60 to 100 feet high below the dam to the confluence with the Minnesota River near the Minneapolis-St. Paul Airport and Fort Snelling.

There are federal levee projects at St. Paul and South St. Paul, located approximately 12 and 17 miles, respectively, downstream. Discharges through a breach at USAF Lock and Dam would be quickly attenuated to run of river discharge due to the limited upstream storage. Higher stages downstream would also be attenuated, especially at the confluence with the Minnesota River. Therefore, there is a very small risk that an attenuated flood wave would impact river stages at the impending overtopping level of the downstream levees and incur economic damages.

Other economic consequences included lost benefits of the USACE navigation mission (considering that navigation remained authorized) and immediate impacts to the Minneapolis water supply and hydropower. Long-term degradation of the river considering a breach of USAF was not included, since there is much uncertainty in the rate and extent, and there was no precedent for channel downcutting in the USACE risk assessment process. However, channel degradation influencing upstream structures

(similar to the CSAH 9 bridge at Rapidan in 2024) should be considered a significant concern for dam modifications related to site repurposing in addition to dam safety hazards.

3.6 Most Recent Inspection

Dam safety periodic inspections have historically been conducted on a 5-year frequency. These inspections include asset management-type recommendations. Following the periodic inspection associated with the 2015 risk assessment, there was an inspection in 2020. The next programmed inspection is in 2026, which was delayed one year on the basis of risk management informed by improved understandings gained from the 2015 risk assessment.

The 2020 inspection report included the following major findings concerning the dam safety program:

1. The concrete in the main lock chamber was generally in satisfactory condition but had some water leakage at horizontal joints that was visually apparent from efflorescence as well as a large continuous crack on monolith R17 that may contribute to long-term degradation.
2. The downstream miter gates and the associated mechanical and electrical operating systems have been removed from service due to poor condition and the closure of the lock to navigation. Full replacement of these components would be required before navigation could be restored to the lock.
3. The upper miter gates, Tainter gate, and associated mechanical and electrical systems were in satisfactory condition. These components were recently rehabilitated with punch list items repaired by the contractor after the inspection, including a damaged electrical conduit, faulty tilt sensor, and leaking gearbox due excessive heating from the lack of a thermostat.
4. The Tainter valves were submerged, not accessible for inspection, and not currently considered operable due to silting in the lock culverts. There is currently no need to operate the culvert valves due to the lock closure. It was believed that the Tainter valves and operating systems could be rehabilitated to restore functionality in the future.
5. The bulkheads for the lock chamber were in good condition but should continue to be inspected prior to each use, per USACE policy.
6. The central control station and operating control stand buildings on the lock wall were in good condition. There is minor leaking in the roof that should be repaired.
7. The steel Exterior Staircase No. 1 was in poor condition, with corrosion, cracks and a large dent. Exterior Staircase No. 5 was in poor condition, with loose and missing treads.
8. The landside and riverward sides of the no-flow gravity dam were in fair and satisfactory condition, respectively. However, the downstream vertical surface of the no-flow gravity dam was in poor condition, with leakage, cracking, efflorescence, delamination and spalling.
9. The guide walls and guard walls were in satisfactory condition.
10. The sheetpile cells were in satisfactory condition.
11. The training dike had loss of rock below the waterline, presumably due to previous barge-related impacts and currents. Since barge traffic has ceased, further undermining of the training dike is unlikely.

12. The riprap adjacent to the non-navigation sheetpile cells was in satisfactory condition but had signs of freeze-thaw damage in a band below the waterline.
13. The tow haulage system was not functional, with components having been removed and abandoned in place.
14. An updated arc-flash evaluation of the electrical components on the project was in progress. The arc-flash inspections and reporting were separable and independent of this periodic inspection report.

The 2020 inspection report presented four recommendations related to retaining the pool (dam safety):

2020-USAF-001	New Tainter Gate Exercising. The main lock Tainter gate is used during flood conditions, and the upstream bulkheads have been removed. The Tainter gate is also used to flush debris. Regular exercising in fall and spring is required to ensure the gate remains operable when needed. Coordinate gate exercises with Water Control to include consideration of maximum discharge to avoid downstream scour (such as in the spring to avoid bulkhead installation). (DSPMT 2, Routine Cost)
2020-USAF-002	Disposition Impacts on Dam Safety. If USACE is unsuccessful in its attempt to dispose of the upper lock site as recommended in the draft disposition study report, it could result in long-term retention of the USAF Lock without a primary purpose to justify operation and maintenance funding. Lack of justification for operation and maintenance will lead to project deterioration and increased risks. Resolve the USACE mission if the USACE continues to own and operate the project. (DSPMT 3, Routine Cost)
2020-USAF-003	Xcel Energy Inspections. USACE St. Paul District should participate in the inspections of all damming feature per Engineer Regulation 1110-2-1156, Section 11.3.4. Continue to coordinate inspections with Xcel Energy and FERC. (DSPMT 3, Routine Cost)
2020-USAF-004	Soundings and Diving During Low Flows. The area riverward of the USAF Lock and downstream of the main spillway has derrick stone, cribs, and cutoff walls for scour protection. This area would be catastrophic if scour occurred along the guard wall and makes it difficult to gather data. Obtain soundings during minimum flows and coordinate low-flow opportunities with Xcel Energy to include diverting flow through the Hennepin Island powerhouse during diving and sounding. (DSPMT 3, Routine Cost)

4 Plan Formulation

This section presents the results of the plan formulation process. Plan formulation is the process of identifying specific ways to achieve planning objectives while avoiding constraints to solve the problems and realize opportunities identified earlier in this report. This process of formulating alternative plans produces solutions that achieve all or part of one or more of the planning objectives while avoiding the planning constraints that cannot be violated. These plans are then compared against the evaluation criteria and No Action alternative.

4.1 Measures and Evaluation and Screening of Measures

An alternative plan consists of measures, strategies, or programs formulated to meet, fully or partially, the identified study planning objectives subject to the planning constraints. A measure is a feature or activity that can be implemented at a specific location to address one or more planning objectives. All features, activities, strategies and programs considered are collectively referred to as measures. Measures were developed to meet different levels of modification to USAF Lock and Dam. To differentiate between costs for No Action and costs for the Partial and Full Disposal alternatives, USACE examined each component of the lock and determined which were necessary for Tainter gate operations and which were extraneous to this purpose. As Partial Disposal is to be considered, Figure 4-1, Figure 4-2 and Figure 4-3 illustrate the various components discussed below.

The management measures are grouped into three categories and described in the following paragraphs. Group one consists of all the components that are required for Tainter gate operation: the measures in this group are only candidates for complete deauthorization and disposal. Group two consists of components that are not required for operation and/or maintenance of the Tainter gate: these elements are candidates for consideration in a Partial Disposal scenario. The third group consists of management actions at the site, including measures to improve the human environment, natural environment, and recreation opportunities.

Each measure was evaluated to determine if it could meet the study objectives while avoiding constraints. Any measure that violated a planning constraint was screened out. The description of measures and evaluation and screening summarized in the following sections.

Figure 4-1. Upper St. Anthony Falls Project Area Vertical Structures

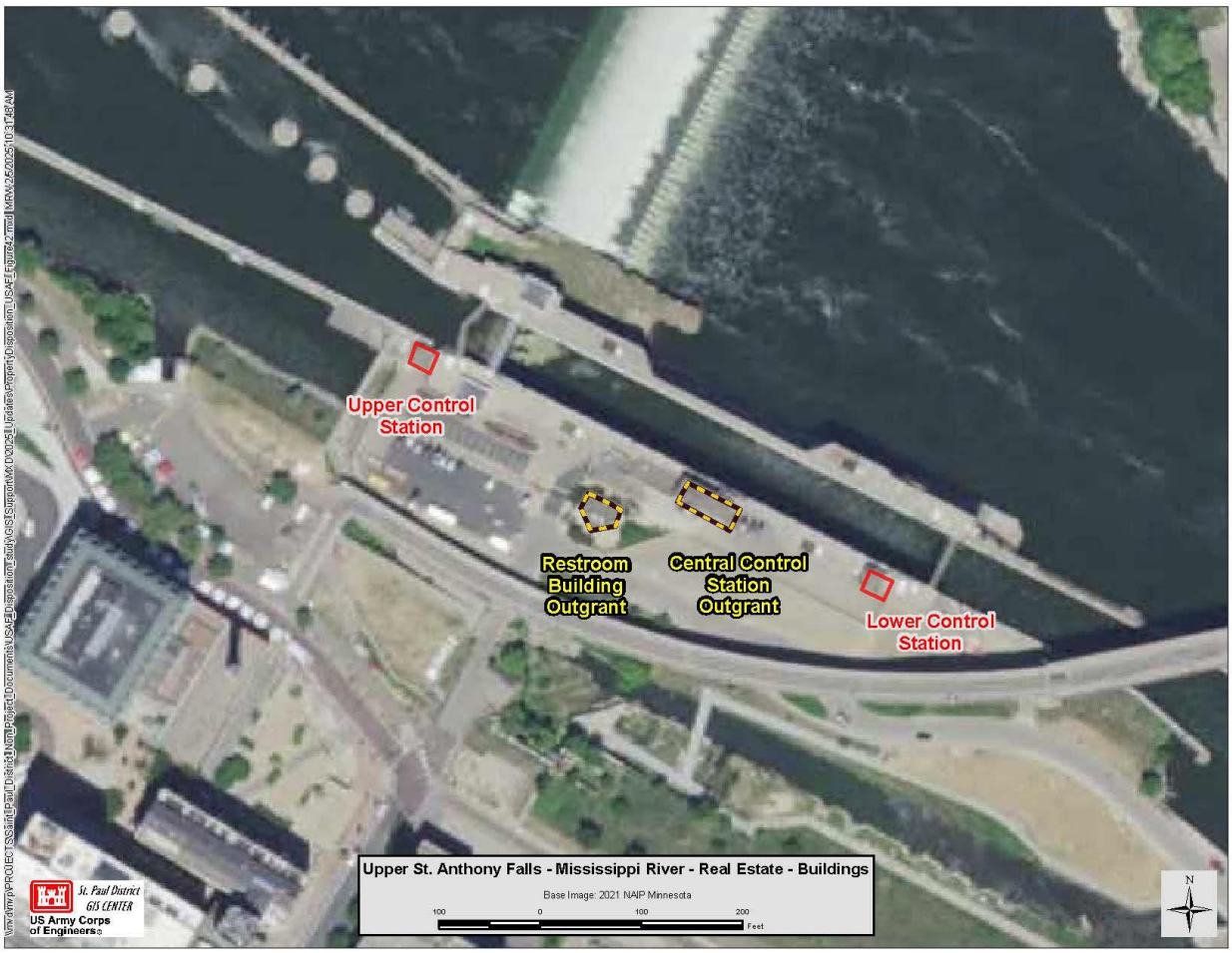

Figure 4-2. Upper St. Anthony Falls Project Area Buildings

Figure 4-3. Upper St. Anthony Falls Project Area Features

4.1.1 Group 1 — Components Required for Tainter Gate Operation (Candidates for Deauthorization and Full Disposal)

The elements that are required for continued operation and maintenance of the Tainter gate were considered part of Group 1. As such, these components could be considered part of a complete deauthorization and disposal scenario but would be retained by USACE under a Partial Disposal scenario.

4.1.1.1 Disposal of Lock

Disposal of the lock would consist of deauthorization and disposal of the entire lock area; the lock could be transferred to another entity. This measure would be compatible with only the complete deauthorization and disposal scenario; it would not be possible under a Partial Disposal scenario. This measure was carried forward for future consideration.

4.1.1.2 Disposal of Lock Walls

This measure is compatible with only a complete deauthorization and disposal scenario. Under this scenario, the lock walls could be transferred to another willing entity. During flood conditions, access to and use of the lock walls are required to operate the Tainter gate. Furthermore, when the Tainter gate is

open and water is flowing through the lock, public access to the lock walls would not be possible during these events due to safety considerations. The lock walls could be used alternatively during non-flood conditions. This measure is not compatible with a Partial Disposal scenario. In a Partial Disposal scenario, the federal government must retain ownership of the lock walls. This measure was carried forward for future consideration.

4.1.1.3 Disposal of Tainter Gate

This measure is compatible with a Full Disposal scenario, but it is not compatible with a Partial Disposal scenario. The Tainter gate must be retained under a Partial Disposal scenario to allow continued operation during flood conditions. This measure was carried forward for further consideration.

4.1.1.4 Disposal of Crossover Wall

This feature is part of the damming surface, and as such, it would be required to stay in place. Without the complete damming surface, the city of Minneapolis municipal water supply may be impacted, and this would violate a planning constraint. Disposal of the crossover wall is compatible with the full disposal scenario. However, any transfer of ownership must be to a willing and capable entity because the damming surface must stay in place. This measure was carried forward for future consideration.

4.1.1.5 Disposal of Transition Wall

This feature is part of the damming surface, and as such it would be required to stay in place. Without the complete damming surface, the city of Minneapolis municipal water supply may be impacted, and this would violate a planning constraint. Disposal of the transition wall is compatible with the full disposal scenario. However, any transfer of ownership must be to a willing and capable entity because the damming surface must stay in place. This wall provides Xcel Energy access to their bubbler system; as such, any scenario would need to allow continued access for Xcel Energy. This measure was carried forward for future consideration.

4.1.1.6 Disposal of Central Control Station

This measure would be compatible with complete deauthorization and disposal; it would not be compatible with partial disposal. If the site was fully deauthorized and the federal government disposed of all associated properties, the central control station with its attached garage could be disposed of to a willing entity. The central control station is linked to navigation operations, given it houses the electrical services for the entire lock. The electrical system runs through the first or ground floor of the central control station. Under a complete deauthorization and disposal scenario, the central control station would be disposed as part of the package. This measure was carried forward for future consideration.

4.1.1.7 Disposal of Upper Control Station

The upper control station is a smaller control building located on the upstream and land side of the lock. This control station is required to operate the Tainter gate during flood operations. In addition, the upper control station can operate the upper miter gates. As such, this measure is not feasible under the partial deauthorization and disposal scenario; in this scenario, the upper control station must be retained for the

function of passing high flows. Disposition of the upper control station would be compatible with only a complete deauthorization and disposal scenario, as the Tainter gate could no longer be operated by USACE. This measure was carried forward for future consideration.

4.1.1.8 Disposal of Upper Miter Gates

The upper miter gates function for navigation lockages and to protect the Tainter gate from ice and debris during the winter months. The upper miter gates also serve as an additional damming surface in times of emergency if the bulkheads are not readily available. This measure is compatible with a Full Disposal scenario, but it is not compatible with a Partial Disposal scenario. The upper miter gates must be retained under a Partial Disposal scenario to allow continued operation and maintenance of the Tainter gate. This measure was carried forward for further consideration.

4.1.1.9 Disposal of Grassy Area

The grassy area located between Xcel Energy's spillway and the riverside lock wall is federal land created by construction of the lock. This measure is compatible with a Full Disposal scenario, but it is not compatible with a Partial Disposal scenario. This measure was carried forward for future consideration.

4.1.1.10 Encumbrances/Easements Retained on Property to be Conveyed in Fee under WRDA 2020

Encumbrances such as easements retained by USACE on property to be conveyed in fee to the city or its designee under WRDA 2020 would be eligible for disposal under a Full Disposal scenario. The need for encumbrances associated with the Partial Disposal alternatives are anticipated to be the same or very similar to those under the No Action alternative.

4.1.2 Group 2 — Components Not Required for Tainter Gate Operation (Candidates for Partial Disposal)

Components of the project that are no longer supporting the navigation mission since the 2015 lock closure and are not required for Tainter gate operations are considered part of Group 2. For a complete deauthorization and disposal scenario, these components could be combined with the components in Group 1 for a full disposal. Under a Partial Disposal scenario, with a change in congressional authorization to eliminate the requirement to pass navigation traffic, these elements would be excess to the federal operation of the Tainter gate and could be disposed of. However, to maintain both the integrity of the damming surface and the ability of the facility to reliably perform during flood operations, portions of the federal project disposed of may still be subject to restrictions to protect the remaining federal project functions. Any proposed modifications to these elements by a willing and capable nonfederal public entity would be subject to federal government review to ensure no adverse impacts to the project's ability to maintain a damming surface and to be operated for flood mitigation.

4.1.2.1 Disposal of Lower Control Station

The lower control station is an operating building on the downstream and land side of the lock. This measure would consist of disposition of the building to an entity willing to take over ownership (under full disposal alternative) or acquire and remove the structure (under partial disposal alternative). This

measure is compatible with both the complete and the partial deauthorization and disposal scenarios. This measure was carried forward for future consideration.

4.1.2.2 Disposal of Upper Landside Guide Wall and Training Wall

The guide wall and training wall supported commercial navigation and are not directly linked to Tainter gate operations. These elements are excess to flood mitigation operations. Therefore, this measure is compatible with partial and complete deauthorization and disposal scenarios. This measure was carried forward for future consideration.

4.1.2.3 Disposal of Lower Landside Guide Wall

This 260-foot wall is located on the downstream and land side of the lock. Disposal of the lower landside guide wall is compatible with complete and partial deauthorization and disposal scenarios. This measure was carried forward for future consideration.

4.1.2.4 Disposal of Dolphins

Disposal of the dolphins would be possible under both complete and partial deauthorization and disposal scenarios. Another entity could assume ownership of the structures and leave them in place or remove them. This measure was carried forward to future consideration.

4.1.2.5 Disposal of Lower Miter Gates

The lower miter gates are semipermanently pinned open and currently inoperable. This measure could be compatible with complete or partial deauthorization and disposal. Under a Partial Disposal scenario, an acquiring owner could remove the gates. This measure was carried forward for future consideration.

4.1.3 Group 3 — Management Actions

The management actions that are considered in Group 3 are actions that could be undertaken by USACE or other entity and combined with the measures in Group 1 and/or Group 2.

4.1.3.1 Measures to Improve Human Environment, Natural Environment, and Recreational Opportunities

Measures to improve the human environment might include anything that fulfills a basic human need, such as providing food, shelter, respite or safety; or reduces discomfort, such as reducing noise levels or light pollution; or improving air quality or accessibility. The Minneapolis Parks and Recreation Board Comprehensive Plan: Parks for All and Owámniyomni Okhódayapi conceptual plans would expand the recreational opportunities in the vicinity of the lock, which may result in improvement to the human environment. These conceptual plans could potentially be evaluated under a specifically authorized feasibility study requiring a nonfederal sponsor, study authority, and cost-sharing agreement.

These measures are expected to be compatible with the No Action, Full Disposal and Partial Disposal scenarios. The degree to which the human environment may be improved depends upon the amount of resources available to devote to it.

4.1.3.2 Measures to Improve Natural Environment

Measures to improve the natural environment might include anything that restores or enhances the natural environment, such as restoring the form or function of a natural stream, restoring or providing habitat for a variety of species, or reducing hardscape such as paved surfaces. These visions may include improvements to the natural environment and may be evaluated under a specifically authorized feasibility study requiring a local sponsor cost-sharing agreement. These measures are expected to be compatible with the No Action, Full Disposal and Partial Disposal scenarios. The degree to which the natural environment may be improved depends upon the amount of resources available to devote to it.

4.1.3.3 Measures to Improve Recreational Opportunities

Measures to improve recreational opportunities might include anything that opens up spaces that were once restricted to broader use or creating recreational features, such as providing fishing docks, canoe launching and takeout areas, walking paths, biking paths, and interpretive displays. The proposals by the Minneapolis Parks and Recreation Board, Owámniyomni Okhódayapi, the National Parks Conservation Association, and the National Park Service all have concepts for improving recreational opportunities. These may be evaluated under a specifically authorized feasibility study requiring a nonfederal sponsor cost-sharing agreement. These measures are expected to be compatible with the No Action, Full Disposal and Partial Disposal scenarios. The degree to which the recreational opportunities may be improved depends upon the amount of resources available to devote to it.

4.1.4 Screened Measures

The screened measures are removed from consideration under this study. They may be feasible actions and could be further evaluated as part of a specifically authorized feasibility study cost shared with a nonfederal sponsor. However, these measures were not pursued further as part of this disposition study.

4.1.4.1 Dam Breach or Removal

This measure specifically considers a breach of part of the dam or removal of the entire dam at the site. Dam removal was considered as directed by Section 1168 of WRDA 2018. As described in Section 1.5.3, removal of the dam to include reconstruction of the original character of the falls is not considered a feasible option for St. Anthony Falls. Below are some options for partial dam breach:

1. A full-height waterfall exerts an enormous scour load during high river flows. The sandstone deposit described in Section 1.5.3 is not amenable to dissipating this energy and would require a large stilling basin. A stilling basin capable of dissipating waterfall-like energy would require a deep foundation. The cost of such a structure would be extremely high, and this measure was therefore dismissed from further consideration.
2. Alternatively, a portion of the falls could be designed to mimic the character of the original waterfall, particularly at normal flows where the overflow discharge is limited. The cost would be highly dependent on the relative size and scope of the overflow section. The most attractive location would be in the waste ways at the upper end of Hennepin Island, located on Xcel Energy property. Although this option is scalable and therefore considered viable, it was not further developed as part of the disposition study because the relevant property is not under federal ownership and this measure does not address study problems and objectives.

3. Lastly, a partial downcutting of the upper pool could be implemented. For consideration, a 14-mile reach of the river between the site and Coon Rapids Dam (the next upstream dam) could be returned to a more riverine condition with increased meanders, gravel bars, riffle-run and wetland complexes. Riparian and aquatic vegetation would also be enhanced, although there would be a loss of water surface area. This alternative was eliminated since it severely impacts the existing FERC license for hydropower and the Minneapolis water intake. This measure would require upstream channel stabilization commensurate with the amount of drawdown, and it would change groundwater levels in the area, with possible secondary impacts on wells. However, most importantly, it would remove the upper shelf of the Platteville Limestone, which is a dramatic change in the natural setting with unknown consequences. This measure is not consistent with the overarching goal of reestablishing historic conditions.

The damming surface is not completely federally owned. The damming surface includes the lock chamber, horseshoe dam, spillway, Xcel Energy hydroelectric facility and University of Minnesota St. Anthony Falls Laboratory. Of the damming surface, only the lock chamber and two short segments of the dam are federally owned. Even if the site was completely deauthorized and disposed, those actions would impact only federal property. The horseshoe dam and the spillway are owned by Xcel Energy.

The loss of the navigation pool and loss of a consistent upstream water surface elevation would have additional impacts. The first of these impacts would be the loss of hydroelectric generation for the Xcel Energy facility as well as the loss of operational capability for the University of Minnesota St. Anthony Falls Laboratory. The second is the loss of a consistent water level, which could negatively influence the structural stability of key infrastructure upstream of the dam. This includes key infrastructure such as bridges, culverts, and roadways along the riverbank that are upstream of the dam. A third impact involves the intakes for the Minneapolis water supply, which are located on the Mississippi River upstream of St. Anthony Falls. The intakes depend upon the water level in the Mississippi River maintained by the damming surface at USAF. Dam breach and dam removal would violate a key planning constraint because it would negatively impact the municipal water supply to the city of Minneapolis. Due to the impacts described above, dam breach and removal are not compatible with any foreseeable future scenario. All options associated with this measure were screened from further consideration.

4.1.4.2 Lock Removal

Removing the lock is a potential measure under a complete deauthorization and disposal scenario. If the lock was removed, its function as part of the damming surface would be lost. Additional investment would be required to prevent this loss of damming capability. The investment would include blocking the opening caused by removing the lock and extending the existing spillway to compensate for the loss of flood flow capacity. Without this investment, the dam would effectively be breached, and many local structures and operations could be negatively impacted.

Replacing the lock with an extension of the spillway would mean the capacity to maintain the pool elevation would be largely retained, but the pool could fluctuate more without the control that the existing gate provides. This measure would have minimal ecosystem benefits as the area upstream of the dam would largely remain a pool with some fluctuation in water surface elevation. It would remain a barrier to carp. Because of minimal benefits to the natural environment and the large anticipated costs associated with lock removal and extending the spillway, this was screened from further consideration in

this study. Under a complete deauthorization and disposal scenario, a new owner could pursue removal of the lock and restoration of the damming surface to pre-project conditions or an alternate scenario, subject to compliance with all applicable federal, state and local laws.

4.1.4.3 Removal of Spillway on St. Anthony Falls

As noted above, the spillway is not a component of the USAF authorized project and thus not a candidate for evaluation in this disposition study. Even if the site was completely deauthorized and disposed, those actions would impact only federal property; as such, removing the concrete spillway on St. Anthony Falls could not be recommended. The concrete spillway that caps St. Anthony Falls is located at the downstream side of the horseshoe dam and adjacent to the upstream side of the lock chamber. This measure considers removing the spillway at St. Anthony Falls. Removing the spillway is of interest to some stakeholders as a component of historic river restoration. However, the sandstone below the historic St. Anthony Falls is unstable; without the concrete spillway, the falls would erode significantly, potentially damaging the surrounding area, as described in Section 1.6.3. This measure was screened from further consideration.

4.1.4.4 Lower Riverside Guard Wall

The 600-foot lower riverside guard wall is required for operations at LSAF and therefore was not a candidate for disposal under the USAF disposition study. This measure was screened from further consideration. Disposition of this feature can be revisited if navigation was to be deauthorized at both LSAF and USAF.

4.1.4.5 Downstream Rock Training Wall

The downstream rock training wall is required for operations at LSAF and therefore was not a candidate for disposal under the USAF disposition study. This measure was screened from further consideration. Disposition of this feature can be revisited if navigation was to be deauthorized at both LSAF and USAF.

4.2 Formulation of Alternatives

4.2.1 Key Assumptions

A number of critical assumptions were identified and influence the scope of analysis to evaluate and compare the alternatives:

- The federal action under the Full Disposal alternative is limited to deauthorization of the USAF project and disposal of lands and improvements. The federal action under the Partial Disposal alternative is limited to modification of the project authorization and disposal of the identified project lands and improvements, including portions of the damming surface, not necessary for continuing flood mitigation operations.
- This report identifies potential future owner(s) and generally describes potential future uses of the site by others, but it does not evaluate potential impacts of future modifications, removals, and/or redevelopment that could be implemented after federal operation and maintenance of the USAF project ceases. If deauthorization is recommended, future regulatory actions under federal, state and local law are likely to be required to evaluate the effects of any proposed

modifications, removals and redevelopment. The specifics of any such alterations are speculative at this time and outside the scope of the disposition study.

- Under a Full Disposal scenario, the new owner would not be required to operate and maintain the Tainter gate, but USACE would dispose of the rights in land necessary for current operation and maintenance together with the improvements to the willing and capable entity required by Congress. USACE assumes the willing and capable entity would operate the Tainter gate until or unless the entity makes modifications that eliminate the gate's purpose.
- The site, or portions thereof, will be disposed of in an as-is condition, and no significant repairs or rehabilitation will occur prior to disposal. If a willing and capable entity approaches USACE to negotiate modifications or repairs as a requirement for the assumption of ownership, USACE may consider such proposals and would undertake supplemental analysis where appropriate, however, costs of such repairs or modifications are not known at this time and therefore are not included in the economic evaluation used to inform recommendations.
- Existing hydropower operations will continue; FERC licenses will stay in place until the end of their term regardless of who owns and operates the lock. The city of Minneapolis will continue to source their municipal water supply from the Mississippi River upstream of St. Anthony Falls. As long as hydropower operations and municipal water supply withdrawals continue, the related dam must remain in place as well.
- If the navigation purpose were to be deauthorized, USACE would proceed with disposal of the lands and improvements. USACE would no longer budget for operation and maintenance of USAF Lock and Dam under the navigation program. If the asset remained in federal ownership after deauthorization, federal funding for maintenance activities or operation of the Tainter gate under the USACE navigation program would cease.
- If the USAF Lock and Dam project remains an authorized federal project, the need and ability to access the asset and perform operation and maintenance will remain. Congressional action would be needed for USACE to cease to maintain or operate the congressionally authorized project or facilities. Existing operation and maintenance requirements are described in Section 3.3.
- WRDA 2020 directs conveyance upon request to the city of Minneapolis all or substantially all of the federally owned real property adjacent to USAF Lock and Dam. As noted, WRDA 2020 does not relieve USACE of its obligation to complete this disposition study. Conveyance of the property as directed by WRDA 2020 will be assessed and executed separately from this disposition study. Recommendations for deauthorization and disposal at the USAF project site are limited to the remaining federal project lands and improvements.
- WRDA 2022 prohibits the deauthorization and disposal of USAF unless a willing and capable nonfederal public entity is identified to assume ownership.
- Decommission costs are not included in any of the cost estimates included in this report. If Congress were to recommend deauthorization and disposal, as part of a disposal report, decommission costs would be developed.
- The direction in Section 1320 of WRDA 2024 applies the conveyance action carried out under Section 356(f) of WRDA 2020. As such, the direction in WRDA 2024 to examine the use of crane barges on the Mississippi River is not considered part of this disposition study.

4.2.2 Formulation Strategy

An array of alternatives was developed from the list of measures remaining after evaluation and screening. Existing guidance for the Upper St. Anthony Falls Disposition Study requires analysis of at least three alternatives in the study: no action, which would see the USACE St. Paul District continue to operate the site as-is; deauthorization by Congress of all USACE's federal missions at the site, leading to complete disposal of the federal properties at the site; and partial disposal of federal properties at the site, retaining ownership, operation and maintenance of the upstream Tainter gate and associated features.

Table 4-1 illustrates which measures were combined to form the alternative plans and which components of the project would be maintained by USACE for the No Action and Partial Disposal alternatives. For the Full Disposal alternative, all components of the project would be disposed of; therefore, there would be no future operation and maintenance costs associated with those alternatives. The full array of alternatives is described in detail following the table.

Table 4-1. Features Retained by the Government in Alternative Plans

Project Components	Required for Flood Operations	No Action (All Features Retained by the Government)	Full Disposal (Full Deauthorization and Disposal; No Features Retained by the Government)	Partial Disposal
Lock	Yes	Retain	Dispose	Retain
Lock Walls	Yes	Retain	Dispose	Retain
Tainter Gate	Yes	Retain	Dispose	Retain
Crossover Wall	Yes	Retain	Dispose	Retain
Central Control Station	Yes	Retain	Dispose	Retain
Upper Control Station	Yes	Retain	Dispose	Retain
Lower Control Station	No	Retain	Dispose	Dispose
Dolphins	No	Retain	Dispose	Dispose
Grassy Area	Yes	Retain	Dispose	Retain
Upper Landside Guide Wall and Training Wall	No	Retain	Dispose	Dispose
Lower Landside Guide Wall	No	Retain	Dispose	Dispose
Transition Wall	Yes	Retain	Dispose	Retain
Upper Miter Gates	Yes	Retain	Dispose	Retain
Lower Miter Gates	No	Retain	Dispose	Dispose
Lands with Easements Post-Conveyance	Yes	Retain	Dispose	Retain

Note: For more information on the project components screened out of consideration in alternative plans, please see Section 4.1.2.

4.2.3 No Action Alternative

The No Action alternative assumes that USAF Lock and Dam will remain closed to navigation and that without deauthorization, USAF Lock and Dam will remain in USACE ownership. USACE would be responsible for continued maintenance of a security system, facility services and utilities. Periodic visits from USACE staff would be required to assess project condition for compliance with dam safety regulations. Regular routine maintenance and periodic major maintenance would be conducted on site equipment and facilities. The hydropower project owned by Xcel Energy will continue to operate and generate electricity, and Xcel Energy will continue to maintain their portion of the dam.

Under the No Action alternative, routine operation and maintenance will be performed every year. Annual utility costs will be incurred, including city water and sewer, phone and internet, and trash pickup. Electricity will continue to be provided by Xcel Energy as part of their FERC license. Every five years, inspections will be performed; flood event operations will be required as needed, including operating the Tainter gate, sandbagging and supplies; and the Tainter gate will be operated annually for debris removal. Major maintenance will be performed at various intervals over the next 50 years. The estimated costs of routine operation and maintenance, periodic inspections, flood operations and major maintenance activities are detailed in Appendix I. Operation and maintenance would continue to be subject to the availability of funding.

The No Action alternative is conducive to improving the human environment, the natural environment or increasing recreational opportunities at the site as envisioned by the Minneapolis Parks and Recreation Board, Owámniyomni Okhódayapi, the National Parks Conservation Association and the National Park Service. As a result of the 2024 outgrant of the property at USAF Lock to Owámniyomni Okhódayapi, recreational opportunities and visitors may increase. WRDA 2020 conveyance to the city of Minneapolis or its designee would occur as a separate federal action, which allows the city or its designee to provide recreation opportunities compatible with the authorized project.

4.2.4 Full Disposal Alternative

The Full Disposal alternative — complete deauthorization and disposal — assumes that Congress will deauthorize the project, ending USACE's primary navigation mission at USAF Lock and all other secondary missions, including recreation. The Full Disposal alternative is illustrated in Figure 4-4. All project features in federal ownership could be transferred to a willing and capable nonfederal public entity; in that case, USACE would not have a continued presence at the site or responsibility for the damming surface. All future maintenance responsibilities and costs to USACE would be avoided. It is assumed that the facility would be transferred in an as-is condition. USACE would continue to incur holding costs until disposal of the site occurs. Federal operation and maintenance of the project for the purpose of navigation would cease. Because navigation is the sole authorized purpose, the project structures and lands would all be excess to the needs of the USACE except where necessary for a remaining authorized project such as LSAF Lock and Dam. Once deauthorized, USACE would pursue disposal to an entity willing to assume ownership. After deauthorization, USACE could not budget for the operation of the Tainter gate to pass high flows nor maintenance to keep the Tainter gate in working condition.

This alternative is also conducive to improving the human environment, the natural environment and increasing recreational opportunities at the site as envisioned by the Minneapolis Parks and Recreation Board, Owámniyomni Okhódayapi, the National Parks Conservation Association, and the National Park Service. Measures to enhance or improve recreation opportunities, the human environment and the natural environment can be incorporated into future uses of the site by the new owners/stakeholders.

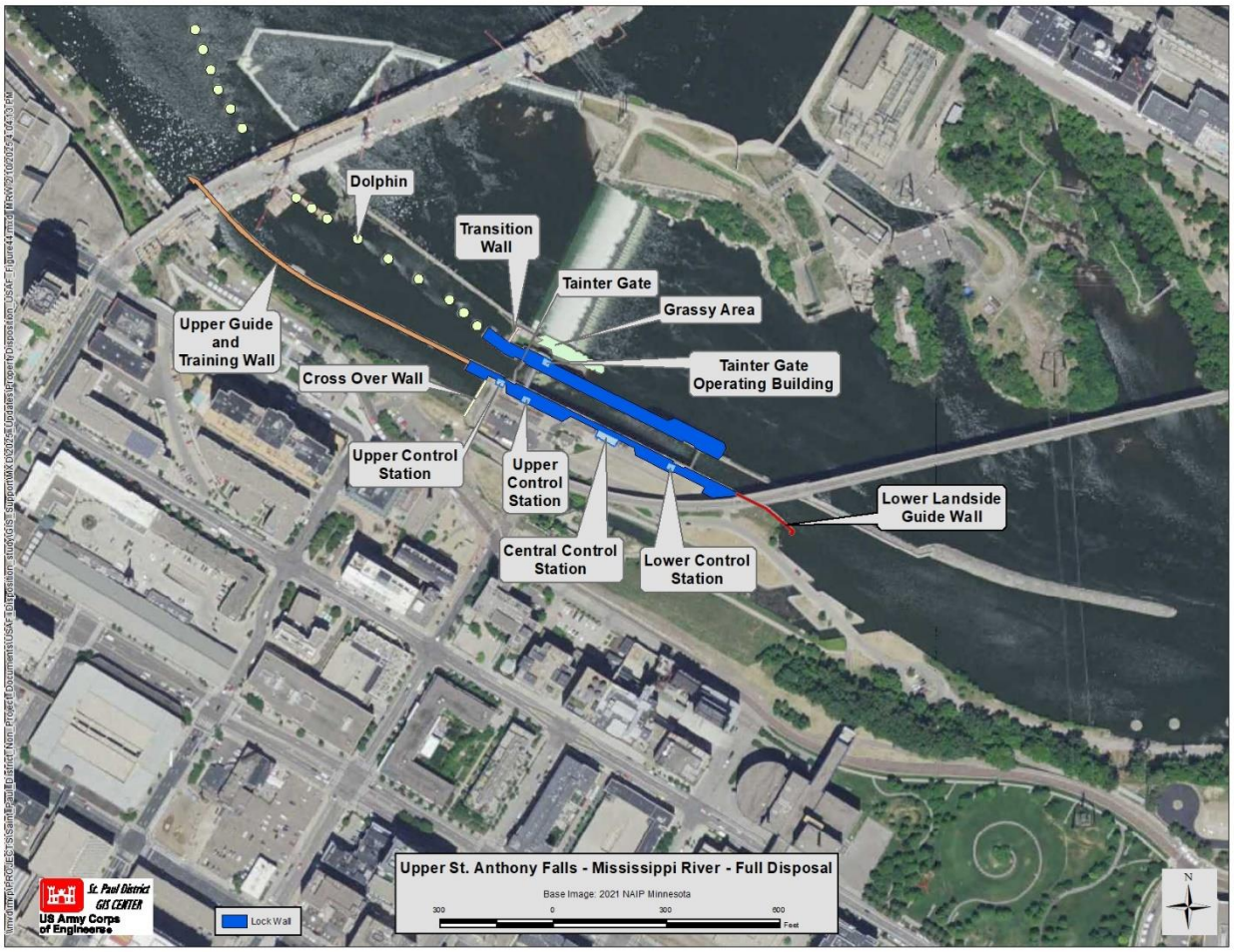

Figure 4-4. Full Disposal Alternative: Complete Deauthorization and Disposal

Section 2696 of Title 10, U.S. Code, denoting that the property transfer must be coordinated with other federal entities, would apply to disposal of property under this alternative. This alternative would include only the disposal of the project lands and features in federal ownership after implementation of WRDA 2020 conveyance. Any deauthorization or disposal action would preserve the rights-of-way that provide access to LSAF Lock and Dam. Disposal of land would be subject to all existing permanent easements granted to others, including the easements identified in Table 3-4. The disposal would be a congressionally directed conveyance through special legislation. The congressionally directed disposal action would require development and execution of historic preservation documents that guide disposal of any features and environmental compliance with NEPA. Recipients of the facility will be responsible for coordination, evaluation and mitigation under said agreement documents.

4.2.5 Partial Disposal (Tainter Gate Only) Alternative

The Partial Disposal alternative is a plan under which Congress would modify the project authorization and USACE would dispose of project improvements necessary only for passing navigation traffic. Under this alternative, USACE would retain the lands and improvements necessary to continue flood mitigation operations, including the lock structure, Tainter gate, upper miter gates, upper control station, central control station, Tainter gate operating equipment buildings, and access from the lower lock and Portland Avenue (Figure 4-5). This plan would reduce government obligations by fragmenting project features, following with sale, transfer, or decommissioning of unnecessary components. The complete damming surface would be maintained, and there would be no impacts to the city of Minneapolis water supply. All features necessary to maintain the damming surface would stay in place. The navigation mission at USAF Lock and Dam would need to remain in place to support and authorize the continued presence of USACE at USAF and operation of the Tainter gate. However, to maintain both the integrity of the damming surface and the ability of the facility to reliably perform during flood operations, portions of the federal project disposed of may still be subject to restrictions to protect the remaining federal project functions. Under this alternative, navigation would remain the authorized purpose as part of the Upper Mississippi River navigation project, but the USAF project would no longer be required to maintain the ability to pass navigation traffic through the lock. The lock would be permanently closed to navigation traffic.

Under a Partial Disposal scenario, Xcel Energy would retain their rights to access across the property for dam maintenance, as reflected in the original transfer deed. The operation of the Tainter gate by USACE would also continue as governed by USACE's regulating plan and FERC license number 2056.

This scenario maximizes USACE divestment of the project while retaining the responsibility for flood operations at the site. USACE would continue to perform maintenance on necessary features. However, not all features would be regularly maintained, and USACE would determine what equipment use could be suspended. Unneeded equipment would be abandoned and disabled. USACE would determine an energy savings plan and assess the needs for continued utilities. Restricted public access to the Tainter gate would be retained, whereas USACE access to the Tainter gate components would be unrestricted. The required footprint for access to perform operation and maintenance would not be reduced from that of the No Action alternative.

The Partial Disposal alternative is conducive to improving the human environment, the natural environment or increasing recreational opportunities at the site as envisioned by the Minneapolis Parks and Recreation Board, Owámniyomni Okhódayapi, the National Parks Conservation Association and the National Park Service. As a result of the 2024 outgrant to Minneapolis of the real property adjacent to USAF Lock and Dam, recreational opportunities and visitors may increase. As with all alternatives of the disposition study, any future development of the site or implementation of a future vision for the area would require a separate study with complete environmental analysis and a nonfederal sponsor.

Summary of project components retained for Tainter gate operations:

- Lock: The lock would be retained, and inspections and maintenance would be performed as needed to operate during flood operations.

- Tainter Gate: The Tainter gate would be retained, and inspections and maintenance would be performed as needed to operate during flood operations.
- Crossover Wall: Although it would not be needed for routine operations, the crossover wall would be retained, as it is a damming surface and may require periodic maintenance.
- Transition Wall: Although it would not be needed for routine operations, the transition wall would be retained, as it is a damming surface and may require periodic maintenance.
- Central Control Station: The central control station would be retained, and inspections and maintenance would be performed as needed to operate during flood operations. The ground floor of the central control station serves as an electrical vault, with the electrical system running through the first or ground floor.
- Upper Control Station: The upper control station would be retained, and inspections and maintenance would be performed as needed to operate during flood operations.
- Upper Miter Gate: The upper miter gate would be retained, and inspections and maintenance would be performed as needed to perform deicing and maintenance of the Tainter gate.
- Grassy Area: The grassy area would be retained.

Summary of project components excess to the federal government:

- Upper Landside Guide Wall and Training Wall: These components are excess to the federal government; the walls could be decommissioned or transferred out of federal ownership.
- Lower Landside Guide Wall: The lower landside guide wall is excess property to the federal government; it could be decommissioned or transferred out of federal ownership.
- Lower Control Station: The lower control station is excess property to the federal government; it could be decommissioned or removed.
- Dolphins: This component is excess property to the federal government; it could be decommissioned or transferred out of federal ownership.
- Lower Miter Gate: The lower miter gate is excess property to the federal government; it could be decommissioned or removed.

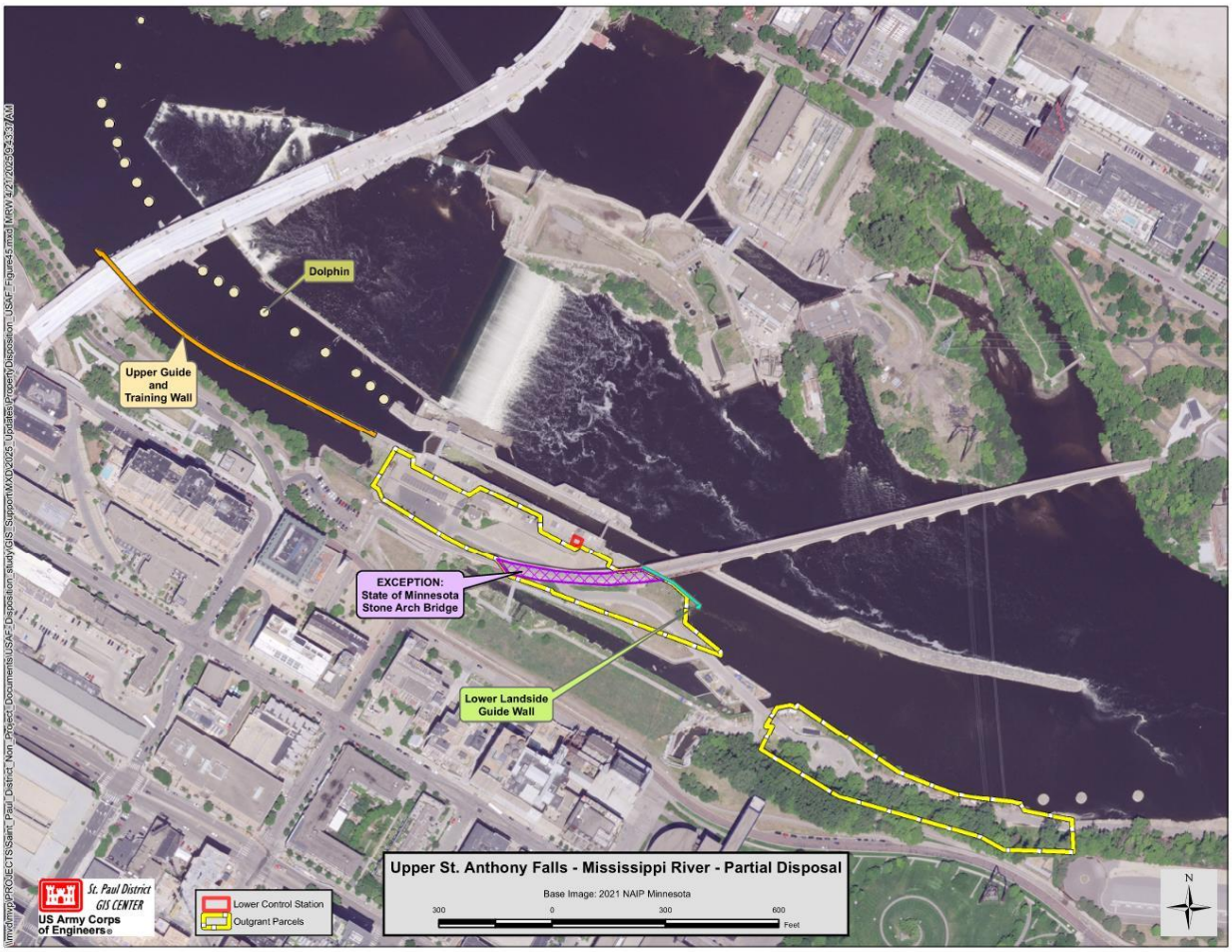

Figure 4-5. Partial Disposal

4.3 Evaluation and Comparison of Alternatives

4.3.1 National Economic Development

The National Economic Development (NED) account displays changes in the economic value of the national output of goods and services. The NED account identifies the plan that reasonably maximizes net NED benefits, consistent with the federal objective: this plan is identified as the NED plan. In the case of the USACE disposition study, the federal objective was to identify the least-costly environmentally acceptable alternative for disposing of the federal real properties. All alternatives are environmentally acceptable.

The NED assessment for this disposition study considers the cost side of the account only. The USAF Lock and Dam project was authorized for the purpose of commercial navigation. However, it has not generated any navigation benefits (commercial barge traffic or recreational boating) since the lock was closed June 2015. Because the project produces no overall net positive NED benefits, alternatives were formulated to decrease the government operational cost side of the NED account. NED considerations will be limited to savings of costs to the federal government. The NED plan will be the one that produces the largest cost savings to the federal government.

Benefits produced by disposal of the USAF Lock and Dam project consist of the saving of costs anticipated to occur under the No Action alternative. In this case, the No Action alternative can be viewed as the without-action condition; it serves as the basis for which the with-action impacts are assessed and is the condition or scenario expected to prevail if no potential alternatives are found worthy of implementation.

NED costs projected over the life of the planning period (50 years) take a variety of forms. They include annual operation and maintenance expenditures; periodic upgrading or rehabilitation of equipment, machinery or infrastructure (5- to 10-year timeframe); and major rehabilitation/replacement of infrastructure (20- to 50-year timeframe). Table 4-2 illustrates the cost factor categories that were considered for each of the alternatives. Future costs are discounted to present worth and then amortized over the life of the planning period (50 years). Again, the costs for the without-action condition serve as a basis from which costs for the alternative with-action scenarios were compared to estimate incremental cost savings benefits. The disposal alternative that produces the greatest cost savings relative to the No Action alternative was identified as the NED Plan. However, an alternative's cost savings benefit was just one criterion upon which a recommendation was based. Table 4-3 summarizes the comparison of cost savings benefits by alternative. See Appendix A and Appendix I for details on future costs by alternative.

Table 4-2. Cost Factors Considered for Future Operation and Maintenance

Cost Factor	No Action	Full Disposal	Partial Disposal
Disposal Costs	N/A	Considered	Considered
Routine Operation and Maintenance of Retained Structures	Considered	N/A	Considered
Utility Costs	Considered	N/A	Considered
Flood Operations	Considered	N/A	Considered
Major Maintenance of Retained Structures	Considered	N/A	Considered
Inspections	Considered	N/A	Considered

Table 4-3. Average Annual Life Cycle Costs and Benefits by Alternative

Life Cycle Costs	No Action	Full Disposal	Partial Disposition
Present Value of Costs	$33,352,000	$837,000	$14,039,000
Average Annual Costs	$1,296,000	$33,000	$546,000
Annual Cost Savings*	-	$1,263,000	$750,000

Equivalent Annual Costs and Benefits. Based on the above table, the alternative that yields the most savings for the federal government, at $33,000 per year, is Full Disposal. The Full Disposal alternative has a present-value cost of $837,000, which is the anticipated cost of disposal following the congressionally directed disposal process, resulting in a sale to an unknown owner. For the Partial Disposal alternative, in which USACE disposes of portions of the project but retains those features necessary to operate the facility for floods, the present value is $14.039 million. The cost analysis indicates that the Full Disposal alternative is the plan that yields the most monetary benefit to the federal government. However, other criteria were considered in this evaluation.

4.3.2 Environmental Quality

The environmental quality account considers nonmonetary effects on ecological, cultural and aesthetic resources. Under this account, any of the alternatives considered should avoid or minimize environmental impacts in the project area to the extent practicable considering other criteria and planning objectives. None of the alternatives would significantly impact environmental resources. Transfer of property out of federal ownership would result in adverse effects to historic properties. Detailed descriptions of the analysis and impacts appear in Section 5.

4.3.3 Regional Economic Development

The Regional Economic Development (RED) account measures changes in the distribution of regional economic activity that would result from each alternative plan. Evaluations of regional effects are measured using nationally consistent projections of income, employment, output and population.

Expenditures for operation, maintenance and rehabilitation of the USAF Lock and Dam project over the course of the 50-year planning period will impact regional income and employment in a positive manner. Dollars imported from an outside source such as the federal government can stimulate local business activity and boost employment. Federal expenditures may take the form of direct wages to USACE staff employed at the USAF Lock and Dam; payments for services provided by contractors/consultants involved in the operation, maintenance and rehabilitation of the project; or payments for the purchase of supplies, materials, and equipment necessary to keep the project functioning as intended. These dollars circulate through the local economy, creating a multiplier effect. Revenues are spent throughout the local network of suppliers and wholesalers for their own operations.

All alternatives considered would have similar RED impacts.

4.3.4 Other Social Effects

Including the other social effects (OSEs) account was a way of displaying and integrating into water resource planning information on alternative plan effects from perspectives that are not reflected in the other three accounts. Regarding OSEs, no construction or operational impacts to the human environment are expected. Populations of minority, juvenile, elderly and low-income families would not experience disproportionately high and adverse effects from any of the proposed alternatives. Schools, childcare facilities and hospitals are dispersed throughout the area and are not disproportionately located near the project area. Thus, no disproportionately high and adverse impacts are expected. Overall, based on the absence of adverse impacts to human health, environmental health risk, and safety risk, any alternative would not have disproportionately high and adverse impacts to any communities, including at-risk communities.

4.3.5 Compatibility with WRRDA 2014, WRDA 2018, WRDA 2020 and WRDA 2022

A final consideration was how each of the alternatives would be compatible with the requirements identified in Section 2010 of WRRDA 2014, Sections 1168 and 1225 of WRDA 2018, Section 356(f) of WRDA 2020, Section 8344 of WRDA 2022, and Section 1320 of WRDA 2024. This is illustrated in

Table 4-4. The text of each referenced section is contained in Section 1.4 of this disposition study report. Following passage of WRRDA 2014 and WRDA 2018, USACE headquarters issued implementation guidance for the above statutes. This implementation guidance is available on the USACE headquarters public website (https://www.usace.army.mil/). Implementation guidance was not issued following the passage of WRDA 2020 and WRDA 2022. Conveyance of the property as directed by WRDA 2020, as amended, will be assessed and executed separately from this disposition study. WRDA 2024 Section 1320 amends Section 356 of WRDA 2020, which is associated with the direction from congress to convey property to the city of Minneapolis or its designee.

Table 4-4 indicates compatibility with yes, no or not applicable. The table provides an explanation to note specific actions that would be implemented by other entities or transferred to new project owners.

Table 4-4. Compatibility with WRRDA 2014, WRDA 2018, WRDA 2020 and WRDA 2022

Act	No Action	Full Disposal	Partial Disposal
WRRDA 2014, Sec 2010 (c): USACE may carry out emergency lock operations to mitigate flood damage though lock closed to navigation traffic	Yes	USACE operations end with deauthorization; ownership and operations transferred to others	Yes
WRDA 2018, Sec 1168 (a): consider modifications to improve the environment in the public interest	Not applicable — no modifications	Compatible, but others implement	Compatible, but others implement
WRDA 2018, Sec 1168 (b): provide opportunities for public input	Yes	Yes	Yes
WRDA 2018, Sec 1168 (b): publish the final disposition study	Yes	Yes	Yes
WRDA 2018, Sec 1168 (c): if removal is recommended, use existing authorities to pursue removal in partnership with other federal and nonfederal entities	Not applicable — removal not recommended	Not applicable — removal not recommended, could be implemented by others after disposal	Not applicable — removal not recommended, could be implemented by others after disposal
WRDA 2018, Sec 1225 (d): expedite completion of a separate study for USAF	Yes	Yes	Yes
WRDA 2018, Sec 1225 (d): consider modifications to preserve and enhance recreational opportunities and the health of the ecosystem	Not applicable — no modifications	Compatible, but others implement	Compatible, but others implement
WRDA 2018, Sec 1225 (d): plan to maintain benefits to the natural ecosystem and human environment	Yes, but others implement	Yes	Yes
WRDA 2018, Sec 1225 (d): consider partial disposition of the USAF Lock and Dam facility and surrounding real property that preserves any portion of the USAF Lock and Dam necessary to maintain flood control	Not applicable — no modifications	Not applicable	Yes, study considers partial disposition in accordance with this requirement

Act	No Action	Full Disposal	Partial Disposal
WRDA 2018, Sec 1225 (d): plan for expediting the disposition described in this subsection	Not applicable	Yes	Yes, a real estate agreement will be required
WRDA 2018, Sec 1225 (e): accept and expend funds to carry out the study described in (d) that are contributed by a state or a political subdivision of a state	Not applicable — no contributed funds offered for this study	Not applicable — no contributed funds offered for this study	Not applicable — no contributed funds offered for this study
WRDA 2020, Sec 356 (f) (1) (A): convey to the city of Minneapolis or its designee the real property adjacent to USAF	Yes	Yes	Yes
WRDA 2020, Sec 356 (f) (1) (A): the Secretary of the Army has the right to retain property easements necessary to operate and maintain USAF	Yes	Easements would be disposed	Yes
WRDA 2020, Sec 356 (f) (1) (B): provide to the city of Minneapolis or its designee access and use rights to any real property and structures at USACE that is not conveyed under paragraph (A)	Yes	Yes	Yes
WRDA 2020, Sec 356 (f) (1) (B): for any property retained by the Secretary of the Army as described in (A), provide license or easement to allow the city of Minneapolis or its designee to utilize the property	Yes	Yes	Yes
WRDA 2020, Sec 356 (f) (2): the Secretary of the Army retains all rights to operate and maintain the USAF Lock and Dam	Yes	Not applicable — rights to operate and maintain lock and dam would be disposed	Yes, for flood mitigation only
WRDA 2020, Sec 356 (f) (3): if the conveyed property is not used for a public purpose, the property shall revert to federal ownership	Yes	Yes	Yes
WRDA 2022, Sec 8344 (f): the disposition study shall not recommend deauthorization of the USAF Lock and Dam until such time as a willing and capable nonfederal public entity is identified	Yes	Yes, recommendation would not be made until such time as this entity is identified	Yes, recommendation would not be made until such time as this entity is identified
WRDA 2024, Sec 1320, amending Section 356 (f) of WRDA 2020: to the extent possible, measures shall be taken to reduce the footprint required by USACE and examine the use of crane barges	Not appliable — applies separately to the conveyance action carried out under WRDA 2020	Not applicable — applies separately to the conveyance action carried out under WRDA 2020	Not applicable — applies separately to the conveyance action carried out under WRDA 2020

4.3.6 Completeness, Effectiveness, Efficiency and Acceptability

Completeness, effectiveness, efficiency and acceptability are the four evaluation criteria specified for the evaluation and screening of the alternatives. Alternatives considered in any planning study should meet minimum subjective standards of these criteria to qualify for further consideration and comparison with

other plans. Qualitative metrics were used for the evaluation and screening of the alternatives. Each criterion was assessed using professional judgment and a high/medium/low scale. The evaluation and screening criteria are described in more detail below:

- Completeness: The plan must provide and account for all necessary investments needed to ensure the realization of a successful disposition, including ease of conveyance. Environmental risks, needed real estate acquisition preparations, operation and maintenance costs, and potential transferees should be considered. Completeness is also assessed based on the willingness of an entity to take over the facilities and the ease of conveyance for the government to take the necessary steps to transfer the facilities.
- Effectiveness: The extent to which the alternative achieves the planning objectives and avoids planning constraints.
- Efficiency: The extent to which the plan is cost effective. Efficient plans would require the least cost to ensure the realization of a successful disposal.
- Acceptability: Acceptability is the workability and viability of the alternative plan with respect to acceptance by state and local entities and the public and compatibility with existing laws, regulations and public policies. Acceptability has two dimensions: implementability and satisfaction. Implementability means the extent to which the alternative is feasible from a technical, financial and legal perspective. Satisfaction is the extent to which the plan is welcome from a political or preferential perspective.

Table 4-5 compares the final array of alternatives against these criteria. For comparison purposes, a matrix was developed to rank each alternative according to how well the alternative met the evaluation criteria described above. The alternatives were given a rating of High, Medium or Low, and a rationale for the rating is included in the matrix.

Table 4-5. Evaluation of Alternatives using Principle and Guideline Criteria

Federal Objectives	Maximize Economic Development		Avoid Unwise Use of Floodplains		Protect Natural Systems
Guiding Principles	Sustainable Economic Development		Public Safety	Floodplains	Healthy and Resilient Ecosystems
Principles and Guidelines Accounts	NED	RED	OSE		EQ
Planning Objectives	Reduce the federal investment in the ownership and operation, maintenance, repair, rehabilitation and replacement of USAF Lock and Dam over the next 50 years. Evaluate and communicate impacts of no federal interest determination for the current authorized purpose of commercial navigation.				

Evaluation Criteria	**Efficiency**	**Effectiveness**	**Acceptability**	**Acceptability**	**Completeness**
Metrics	**Costs**	**Meets Study Objectives**	**Implementable**	**Satisfaction**	**Complete?**
No Action Alternative	LOW — There are no longer any benefits from commercial navigation. Average annual cost: $1,296,000	LOW — The No Action alternative does not meet study objectives. It does not address problems and opportunities. It is not effective.	NOT APPLICABLE - No implementation required.	MODERATE — Acceptable to the public and stakeholders by keeping USACE on site to operate the Tainter gate. However, the requirements for USACE to operate and maintain the site conflict with some nonfederal future visions for use and development of the site.	NOT APPLICABLE — Project remains under federal ownership. Continued annual federal operation and maintenance costs would remain in perpetuity.

Evaluation Criteria	Efficiency	Effectiveness	Acceptability	Acceptability	Completeness
Metrics	**Costs**	**Meets Study Objectives**	**Implementable**	**Satisfaction**	**Complete?**
Full Disposal Alternative	HIGH — Following disposal, there would be no future operation and maintenance costs at the site. Average annual cost: $33,000	HIGH — Federal operation and maintenance costs would cease. However, a new entity would need to operate the Tainter gate so long as it remains in place. Such an entity has not been identified to date.	LOW — This alternative violates a constraint, as a willing and capable nonfederal public entity has not been identified to assume ownership of the site.	LOW - This alternative has low satisfaction to the public and stakeholders.	LOW — This plan would require deauthorization and disposal to another entity, which has not been identified to date. This rating could increase to High if a willing and capable not-federal public entity is identified as a transferee.
Partial Disposal Alternative	LOW — Operation and maintenance of some components would cease following partial disposal; operation and maintenance costs would remain for features retained by USACE. Average annual cost: $546,000	LOW — Some federal operation and maintenance costs would decrease, but significant operation and maintenance costs would remain. It does not address problems and opportunities. It is not effective.	LOW — Not implementable until a as a willing and capable nonfederal public entity has been identified.	MODERATE — Somewhat acceptable to the public and stakeholders in regard to avoiding constraints and working with future visions for use and development of the site while maintaining a USACE presence and maximizing public access.	MODERATE — This plan offers assurances that USACE would remain to operate the Tainter gate and maintain the structure. This plan would require a change in the project authorization and conveyance of components not required for Tainter gate operations to another entity, which to date has not been identified. This rating could increase to high if a willing and capable not-federal public entity is identified as a transferee.

4.4 Summary

The Full Disposal alternative — complete deauthorization and disposal — is the most efficient plan and provides the highest cost savings to the federal government. The Full Disposal alternative best addresses the identified problems and meets the study objectives. The Full Disposal alternative is only implementable if a willing and capable nonfederal public entity is identified to assume ownership. Until this entity is identified, complete deauthorization and disposal is not implementable and cannot be recommended to Congress. As such, this plan is not acceptable; it is not complete, and unless or until a willing and capable nonfederal public entity is identified to take ownership of the site, this plan is not implementable. If a willing and capable nonfederal public entity were to be identified, Full Disposal should be reconsidered, as this plan results in the highest cost savings to the federal government.

The Partial Disposal alternative partially meets the study objectives. However, Partial Disposal is not the most efficient plan and does not result in significant cost savings to the federal government. Under the Partial Disposal alternative, USACE retains ownership and responsibility for operation and maintenance of the Tainter gate and related structures. Partial disposal of the elements not required for Tainter gate operations would require modification of the project authorization and the identification of a willing and capable nonfederal public entity; until such an entity is identified, disposal or conveyance of these elements is not implementable.

The No Action alternative would see USACE continue to own all property not conveyed to the city of Minneapolis under the separate action directed by WRDA 2020. USACE would continue to operate and maintain the lock and Tainter gate per the current navigation authorization. This alternative does not address the specified problems, and it does not meet study objectives. This alternative complies with the WRDA 2022 restriction. This alternative does not reduce operation and maintenance costs for USACE, and although the USACE would remain responsible for operation and maintenance, the priority of the site for operation and maintenance funding is low.

5 Affected Environment and Environmental Consequences of the Alternatives

This section provides a description of the existing conditions and regulatory setting for each of the resources in the study area (Figure 5-1). Existing conditions are the physical, chemical, biological, cultural, historic and sociological characteristics of the project study area or area of potential effects at this time. They are described by resource area below.

This section also assesses the environmental effects of the No Action and two action alternatives. The assessment of environmental effects is based on a comparison of conditions with and without implementation of the alternatives presented (i.e., each action alternative is compared to the without-action scenario) over the next 50 years, which is the period of analysis. As part of this, effects of no action also consider a comparison to baseline conditions. Cultural resources effects are discussed in Section 5.13 below, and recreation effects are discussed in Section 5.16 below. Environmental effects for all other resources are considered together in summary form prior to Section 5.1, along with consideration of other past, present and reasonably foreseeable actions in the vicinity that may contribute to effects on evaluated resources.

For purposes of analyzing environmental effects, the study area in Figure 5-1 is identified as the geographic scope of analysis for the direct and indirect effects of the alternatives considered. The project study area encompasses a 29-acre area.

Effects of the Alternatives

No Action Alternative

Under the No Action alternative, USACE would continue to operate and maintain USAF Lock and Dam as authorized by Congress. Without congressional action, USACE would not cease operation and maintenance obligations. Operation and maintenance would be subject to availability of funds and budget prioritization. The lock would remain closed to navigation traffic. Dredging upstream of the lock would remain authorized, but not anticipated to occur due to the closure to navigation traffic. For all resources, no change from existing conditions (including existing levels of operation and maintenance) is anticipated. No change from existing conditions on air quality, water quality or other resources is anticipated. Site modifications under outgrants would continue to be reviewed following existing requirements, as separate federal actions. Site modifications proposed by others on lands where USACE retains only easement would be reviewed pursuant to Section 408 where applicable. Recreational activity onsite would continue to occur pursuant to the existing interim lease granted to Owámniyomni Okhódayapi prior to any permanent conveyance under Section 356. Lease modifications, Section 356 conveyance and permanent outgrants, and any Section 408 requests would be evaluated as separate federal actions subject to separate NEPA analysis. See Section 5.16 for further discussion of recreation.

Action Alternatives

Action alternatives include full deauthorization and disposal and partial disposal. Neither of these alternatives as formulated includes physical changes to lands or improvements at USAF in advance of disposal at this time. However, subsequent to disposal, a new property owner would not be bound by all

of the same requirements as USACE for operation, maintenance and management of federal property and protection of project function. Deauthorization of the federal project could also affect other users of existing USAF property by eliminating some federal review requirements.

Partial Disposal

The Partial Disposal alternative would be anticipated to have no effects compared to the No-Action Alternative on all resources except cultural resources. USACE would continue operating and maintaining the remaining project components subject to budget prioritization and funding availability. USACE operation and maintenance requirements would be slightly reduced. The Partial Disposal alternative would result in disposal of the dolphins, lower miter gate, lower control station, upper landside guide wall and training wall, and lower landside guide wall. While this would eliminate federal obligation to operate and maintain the structures previously used for navigation, there would be no effect on navigation compared to the No Action alternative because the lock is already closed to navigation. There would be no effect on operation of the remaining project features because the property would be disposed of with restrictions to prevent effects on the remainder of USAF still in federal ownership and operation; all improvements eligible for disposal under this alternative are either on submerged lands or on the lock structure, and the lands would remain part of the federal project area subject to review to ensure the federal project is not impaired. Under the partial disposal alternative, project improvements determined to be excess would be disposed of and would no longer be subject to federal property management protections. The landside guide wall and training wall, the lower landside guide wall, and the dolphins could be decommissioned or transferred out of federal ownership. The lower control station and the lower miter gates could be decommissioned or removed. Transfer of such improvements from federal ownership would be an adverse effect to historic properties. See Section 5.13 for additional discussion on this topic. While the new owner of the disposed improvements could seek removal or modification of some of the structures that could have effects on the human environment, such actions are speculative at this time and would be subject to federal, state and local laws and associated environmental compliance when proposed. Uses of the excess property would be limited by any recreational, touristic, development rights conveyed to the city or its designee pursuant to WRDA 2020; however, at this time, the city or its designee under WRDA 2020 are not anticipated to request development rights for these improvements.

Full Disposal

The Full Disposal alternative would be anticipated to have no effects compared to the No Action alternative for all resources except cultural resources and recreation. Under the Full Disposal alternative, federal involvement and oversight at USAF Lock and Dam would cease. USACE operation and maintenance obligations would cease, including operation of the Tainter gate. There would be no effect on navigation because the lock is already closed to navigation. Federal property management requirements and Section 106 obligations would no longer apply for historic properties, recreational development and other occupation and use. Although an entity acquiring the lock and dam through the disposal process would not be directly required by USACE to operate and maintain it, USACE would dispose of the lock and dam structures together with the rights in land necessary to operate and maintain the physical structures and the damming surface including the Tainter gate. Consistent with congressional direction that the Secretary

of the Army not recommend deauthorization unless a willing and capable entity will assume ownership, USACE anticipates a willing and capable entity would operate and maintain the Tainter gate unless they pursued modifications that eliminated the purpose of the gate. The lock, with the Tainter gate, forms part of the damming surface, and state or local regulations related to dam safety and flood mitigation may apply to the acquiring entity. Under the Full Disposal alternative, federal review authority to avoid impairment of lock and dam functions, such as Section 408, would not apply to use, occupation or development of any of the former USAF property and improvements. The use, occupation and development of property acquired by the city or its designee through the conveyance process would continue to be subject to easements for operation and maintenance of the lock and dam held by the new owner but would not be subject to Section 408 requirements. For disposed property where USACE retains no rights for the project, USACE review and oversight requirements related to property permanently outgranted to the city or its designee pursuant to WRDA 2020 would cease. While the new owner of the disposed improvements could seek removal or modification of the structures or construction on excess lands that could have effects on the human environment, such actions are speculative at this time and would be subject to federal, state, and local laws and associated environmental compliance when proposed. Any outgrants USACE has issued that do not run with the land would be terminated.

Other Past, Present, or Reasonably Foreseeable Future Actions

Prior to any of the alternatives contemplated under this disposition study, other federal and nonfederal actions may occur in the study area and surrounding vicinity. The Stone Arch Bridge is currently undergoing rehabilitation. These rehabilitation activities are anticipated to be complete before any action alternative considered in this study would be implemented. Owámniyomni Okhódayapi is proposing, for USACE approval in advance of WRDA 2020 conveyance of fee land to the city or its designee, site modifications on parts of the USAF Lock and Dam site currently under lease. These modifications are subject to evaluation in a separate environmental assessment (pending). If approved, modifications would likely occur prior to implementation of any of the action alternatives evaluated in this study. Owámniyomni Okhódayapi has indicated a vision of restoring connections of the Native American culture and heritage of the surrounding area while ensuring that USACE requirements for project operation and maintenance of the authorized federal project are met along with ensuring compatibility with the access and use rights held by others.

Owámniyomni Okhódayapi is also preparing its request for conveyance of lands pursuant to WRDA 2020, which will also be evaluated in an environmental assessment. Effects of the Owámniyomni Okhódayapi proposed site modifications in the leased area and the requested conveyance of lands pursuant to WRDA 2020 combined with the effects identified by this study of action alternatives on cultural resources would be anticipated to be less than significant with mitigation.

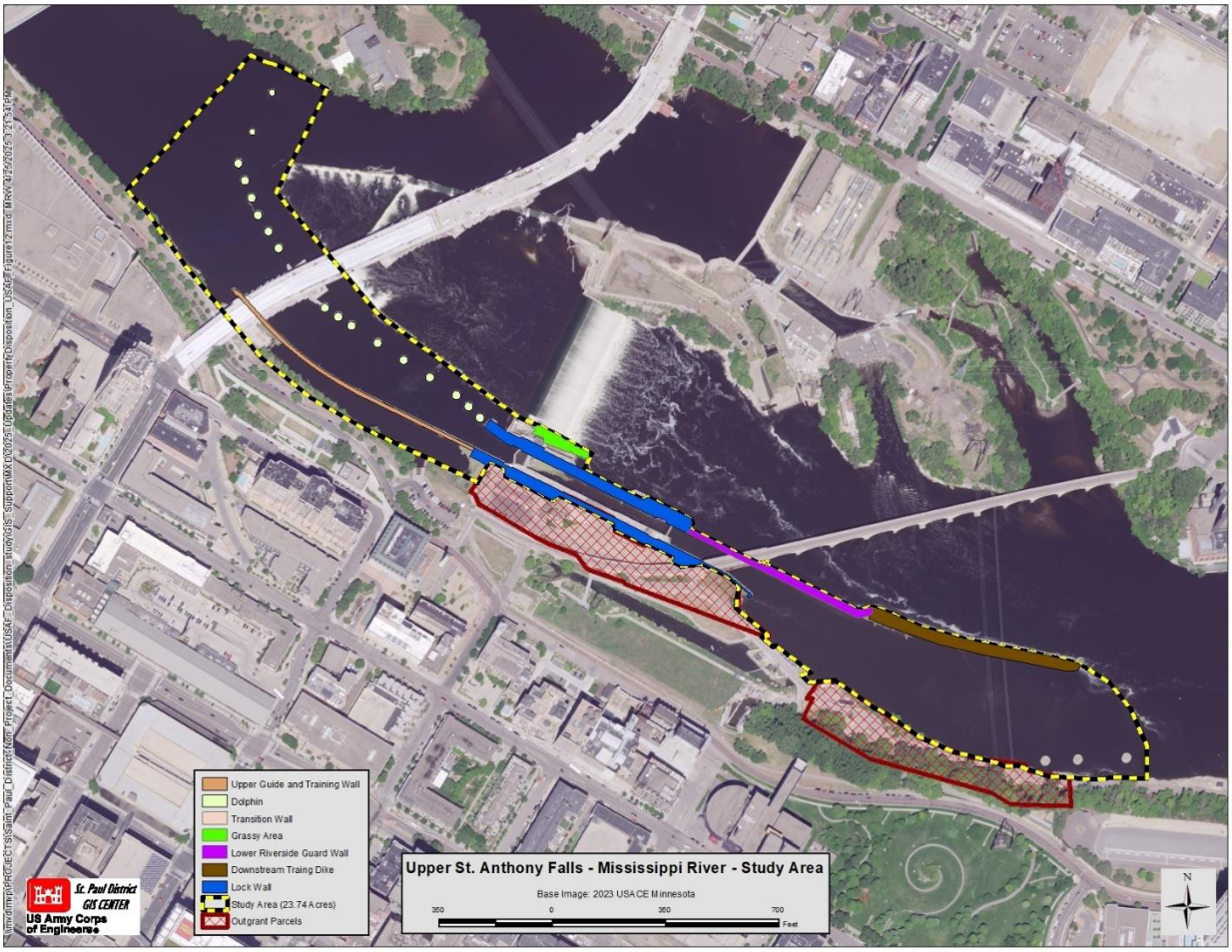

Figure 5-1. Study Area for the Upper St. Anthony Falls Disposition Study and Environmental Assessment

5.1 Hydrology and Hydraulics

The USAF Lock and Dam project is located within the Inland Waterway Navigation System of the Upper Mississippi River Basin. The system includes 29 locks and dams, which provide a stairway of water from Minneapolis, Minnesota, to St. Louis, Missouri.

The USAF Pool has a total surface area of 358 acres at project pool elevation of 799.2 feet (1912 adjustment). The mean annual discharge at the gage at St. Anthony Falls (both Upper and Lower) is 8,300 cfs, based on a period of record from 1959 to 2019. For this section of the Mississippi River, the historical peak discharge is 91,000 cfs, which was recorded on April 17, 1965. The average annual precipitation for this area is 28.3 inches.

Regulation of the USAF Pool is operated by the Xcel Energy under FERC license number 2056. However, USAF has a single Tainter gate that may be operated by the USACE St. Paul District during flow conditions of 40,000 cfs or higher. This Tainter gate is located within the lock itself and has an approximate capacity of 10,000 cfs before inundation occurs upstream and the gate is pulled clear of the water.

The elevation of the bottom of the Tainter gate (also known as the sill) is 783.5 feet. In combination with a normal water surface elevation of 750.0 feet in the lock chamber, a vertical drop of 33.5 feet is created that would preclude any upstream fish passage.

The upper lock is a gravity-type structure supported on a rock foundation. This layer is susceptible to erosional deterioration and is protected by the presence of the damming surfaces of the St. Anthony Falls structures, including the lock chamber, the spillway, the Xcel Energy facility and the University of Minnesota facility.

The potential for changing conditions to impact the hydrology of the Mississippi Headwaters (HUC 0701) was considered. Warmer and wetter conditions are expected in the future; however, the analysis of projected annual maximum monthly streamflow data produces results consistent with the literature review findings (i.e., no statistically significant trends). Observed annual peak streamflow data from 1931 to 2019 were evaluated to support qualitative statements characterizing the potential impacts of changing conditions on the USAF Lock and Dam. Neither the trend nor nonstationarity analysis indicate that the peak flow regime is changing; however, a nonstationarity was identified in water year 1937. See Appendix F for additional information.

The USACE Vulnerability Assessment Tool indicates that Flood Risk Reduction in the Mississippi Headwaters (HUC 0701) is more vulnerable to the impacts of changing conditions relative to other watersheds in the U.S. However, this vulnerability is based on increasing flood flows (i.e., the monthly flow exceeded 10% of the time) and not the peak flows that require emergency operation. The residual risk of increased Tainter gate operation is considered to be low since the observed and projected hydrology do not show evidence of increasing flows. However, observed and future precipitation are expected to increase, and the analysis of peak flows should be reevaluated as additional data are collected to ensure this analysis reflects current conditions.

5.2 Channel Geomorphology and Floodplain Character

Historically (before alteration by locks and dams), the Mississippi River reach around the project area was known for its high-gradient, boulder-cobble bed with limestone slabs, which were valuable for fish and mussel habitat (Lenhart 2015). This 6-mile reach is often referred to as The Gorge because of its canyon-like quality with a confined valley, steep slope, boulder-cobble riverbed and associated rapids. The area provided critical spawning habitat for many fish species, including lake sturgeon (*Acipenser fulvescens*), because of the abundant coarse bed materials and location downstream of the fish barrier at St. Anthony Falls. This area consisted of numerous islands and narrower side channels, creating a variety of water depths, substrate types and aquatic plant communities.

Today, this river reach is characterized as being heavily influenced by anthropogenic sources that include lock and dam installations, dredging, flow training structures, and urban development. The construction (Figure 5-2) of locks and dams resulted in the permanent inundation of a floodplain and increase in water depth for submersed aquatic vegetation. Furthermore, locks and dams significantly altered the meanders and backwater wetlands of the Mississippi River. Municipal runoff carries sediments to the river and contributes to channel instability and streambank erosion (Barr Engineering Company 2004).

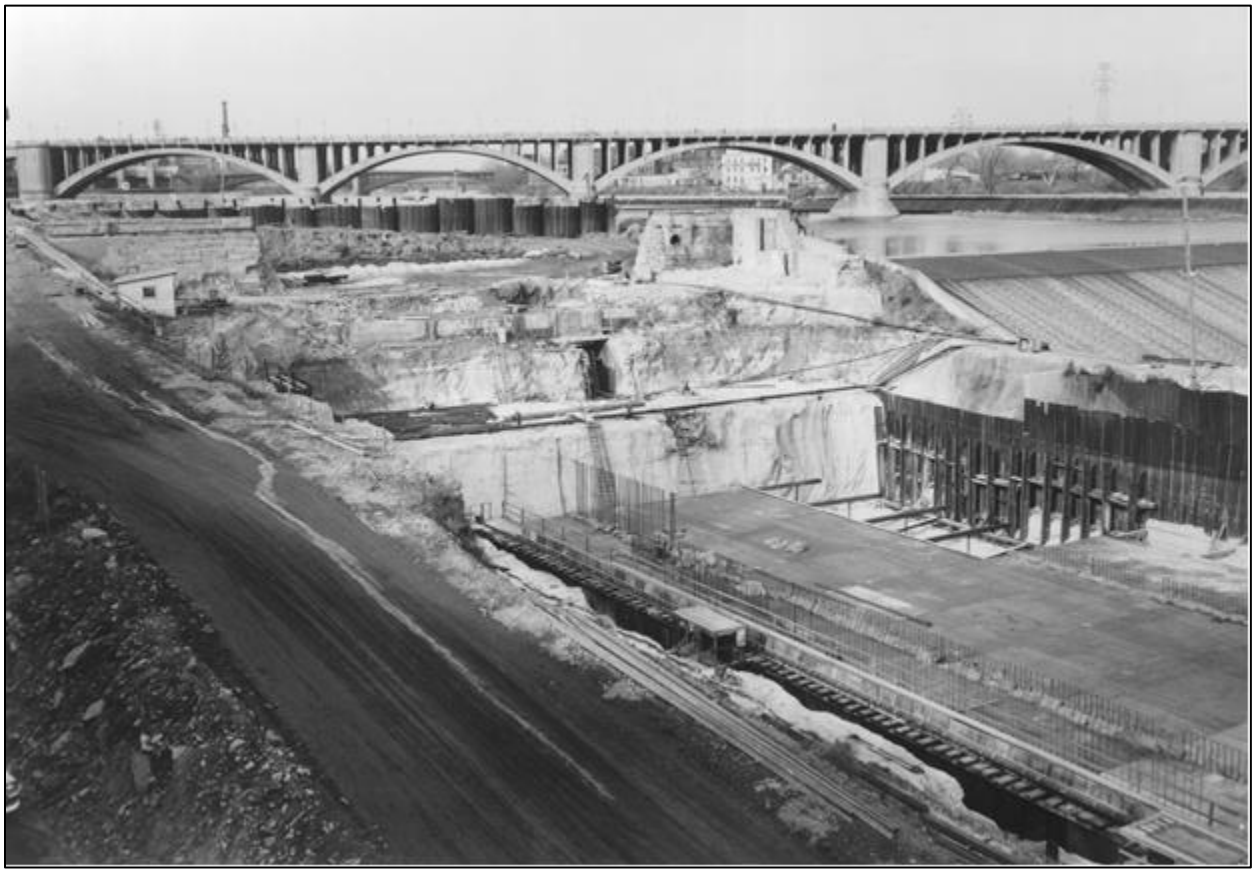

Figure 5-2. Upper St. Anthony Falls Lock Construction

When the Upper Mississippi River 9-foot channel navigation system was established in this reach, dredging occurred periodically throughout the project area. From 1970 until 2014 (before lock closure), the average annual volume of dredged material for the reach upstream of St. Anthony Falls was approximately 45,000 cubic yards (USACE 2018). However, no dredging has occurred since then.

5.3 Geologic and Soil Resources

The downtown Minneapolis area topography has moderate relief, most of which can be credited to the last glaciations that altered the landscape from 25,000 to 10,000 years ago. These most recent glaciations completely erased the geologic evidence of preceding glacial events. The present Mississippi River Valley at USAF was cut approximately 10,000 years ago during the high meltwater discharge of retreating glaciers. Today, the Mississippi River near USAF Lock and Dam is approximately 1,500 feet wide and 40 to 70 feet below the downtown Minneapolis streets.

Surficial soil resources within the study area are limited. The Mississippi River Valley at USAF was cut into bedrock, eliminating surficial glacial soils. The subject property is the location of the Upton Island, a manmade island of cinders, rock, concrete and other heterogeneous material fill over bedrock. This island was developed for the historic milling industry. During lock excavation into bedrock, the majority of the fill was removed. Some fill locations remain beneath the parking lot and unnamed road leading down to LSAF. Borings at these locations from 2012 and 2015 revealed a fill consisting of a silty sand with gravel

and occasional cobbles. The lower portion of this fill can include cinders, concrete and wood. A second type of soil at USAF is a fluvial mixture of sand, silt, clay, gravel, boulders and limestone blocks. The dam, lock chamber and abutment walls are built on a bedrock foundation.

The bedrock geology at St. Anthony Falls includes a thin mantle of limestone and shale overlying sandstone. These sedimentary rocks are Ordovician in age. The thin limestone layer of the Platteville Formation is approximately 8 to 15 feet thick locally and was historically mined near St. Anthony Falls. Below this limestone is a 3- to 5-foot layer of shale, the Glenwood Member. The shale member is thinly laminated and moderately fissile (cleavable). Beneath is the St. Peter Sandstone. This formation is predominantly composed of poorly cemented sandstone and is approximately 160 feet thick. This sandstone is extremely friable, easily erodible upon exposure to running water and may be scraped by the use of hand tools. These characteristics were utilized for carving tunnels in the sandstone to channelize the Mississippi River flow to support the milling industry and hydropower. Near the falls, these characteristics also readily allow undercutting of the more resistant limestone cap, leading to waterfall collapse and upstream migration of the falls. Prior to USACE-engineered stabilization projects, the St. Anthony Falls retreated approximately 4 feet per year. Upper St. Anthony Falls is the only waterfall on the Mississippi River.

5.4 Terrestrial Habitat

Terrestrial habitat in the study area is limited as native vegetation in the project area has been disturbed by development. The only significant vegetation is on the grassy area between Xcel Energy's spillway and the riverside lock wall and is largely composed of grasses and shrubs. The value of such habitat is limited for most wildlife.

5.5 Wetlands

A review of the National Wetland Inventory indicates the study area is dominated by one cover type: R2UBH (Appendix B). In summary, R2UBH corresponds to a permanently flooded, low-gradient riverine channel with an unconsolidated bottom within a well-developed floodplain. No other wetland types were identified.

5.6 Fish

The Mississippi River is considered a bountiful recreational fishing resource (Schramm 2003). Historically, there were approximately 120 native fish species below St. Anthony Falls and approximately 60 species above the falls, which served as a natural migration barrier. Today, there are 129 species in the river downstream of the falls and 86 species above the falls. Within the Minneapolis-St. Paul metropolitan area, fish surveys show that a total of 61 species from 17 different families have been collected (FERC 2005).

Of the 129 species found downstream of the USAF Dam, nine are considered non-native (Hatch, 2015). The spread of invasive carp continues to be a concern, despite the closure of USAF Lock. The four species of invasive carp include bighead (*Hypophthalmichthys nobilis*), black (*Mylopharyngodon piceus*), grass (*Ctenopharyngodon idella*) and silver (*Hypophthalmichthys molitrix*) carp. Other reaches of the river that have been colonized by invasive carp have experienced severe disruptions of the food webs in these aquatic ecosystems. These species have spread from downstream sources, the closest being detections

between LD1 and LD2 in 2014 (Weller and Russell 2017). No reproducing populations of invasive carp in Minnesota are known to exist.

Historically, St. Anthony Falls represented a barrier to fish passage for upstream migrating fish, creating different community structures above and below the falls (Eddy et al. 1962). Construction of navigation locks and dams at the lower and upper falls permitted fish to pass through the project area and expand their range upstream by 9 miles to Coon Rapids Dam. In 2013, the Minnesota Department of Natural Resources initiated a telemetry study within the project area focused on twelve species that could be impacted by invasive carp expansion and surrogates for invasive carp (Stiras 2017). The study results indicated that fish passage occurs at LSAF Lock and Dam and LD1 for these species and that the rate of passage varies among the species.

Fish studies conducted specifically in the Intermediate Pool have shown mixed results for a number of species. Fish surveys completed in 1995 indicated the presence of 11 species from six families including smallmouth bass (*Micropterus dolomieu*), walleye (*Sander vitreus*), channel catfish (*Ictalurus punctatus*), emerald shiner (*Notropis atherinoides*), smallmouth buffalo (*Ictiobus bubalus*), bigmouth buffalo (*Ictiobus cyprinellus*), quillback carpsucker (*Carpiodes cyprinus*), common carp (*Cyprinus carpio*), silver redhorse (*Moxostoma anisurum*), shorthead redhorse (*Moxostoma macrolepidotum*) and freshwater drum (*Aplodinotus grunniens*) (SAF Hydroelectric LLC 2004). Quillback was the dominant species (34% of the catch), with smallmouth bass the second-most abundant species (20% of the catch).

In a separate entrainment study for the USAF Hydroelectric Project, a total of 47 different species from 13 families were identified (Table E-7 in the LSAF Lock and Dam FERC license application dated January 20, 2004). The most common species collected included emerald shiner, channel catfish, gizzard shad (*Corosoma cepedianum*), spotfin shiner (*Cyprinella spiloptera*), common carp, black crappie (*Pomoxis nigromaculatus*), bluegill (*Lepomis macrochirus*), green sunfish (*Lepomis cyanellus*), walleye and trout perch (*Percopsis*).

5.7 Macroinvertebrates

The mussel population in the Mississippi River in the Minneapolis-St. Paul metropolitan area has improved considerably since the late 1970s, due in part to implementation of water quality standards and improvements to infrastructure. Mussel surveys conducted in the MNRRA corridor in 2000-2001 (Kelner and Davis 2002) and again in 2015-2017 (Sietman et al. 2018) indicate a diverse and abundant mussel assemblage exists (

Table 5-1). Note the MNRRA corridor comprises areas beyond the disposition study area, such as Pool 2. These include up to 25 species, several of which are state listed and one of which is federally listed. Mussel abundance in this reach as measured by catch-per-unit-effort (CPUE) were shown to be comparable to other reaches in the MNRRA corridor (Sietman et al. 2018). The most abundant mussel species were pink heelsplitter (*Potamilus alatus*), plain pocketbook (*Lampsilis cardium*), fragile papershell (*Leptodea fragilis*) and threehorn wartyback (*Obliquaria reflexa*). Analysis of the mussel age classes show that the majority of the mussels are ages 6 or older.

Table 5-1. Results of Recent Mussel Surveys in Proximity to the Project Area

Mussel Information		St. Anthony Falls Pool (SAFP)		Pool 1 (P1)		Upper Pool 2 (UP2)	
		SAFP	SAFP	P1	P1	UP2	UP2
Species	**Common Name**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Actinonaias ligamentina	Mucket	-	-	-	-	4	0.3
Amblema plicata	Threeridge	54	5.6	158	36.3	507	40.3
Arcidens confrugosus	Rock pocketbook	1	0.1	-	-	-	-
Elliptio dilatata	Spike	-	-	-	-	1	0.1
Flusconaia flava	Wabash pigtoe	54	5.6	88	20.2	117	9.3
Lampsilis cardium	Plain pocketbook	123	12.7	1	0.2	51	4.1
Lampsilis higginsiid	Higgins eye pearlymussel	-	-	-	-	2	0.2
Lampsilis siliquoidea	Fatmucket	12	1.2	-	-	-	-
Lasmigona complanata	White heelsplitter	1	0.1	-	-	6	0.5
Leptodea fragilis	Fragile papershell	100	10.4	-	-	-	-
Ligumia rectac	Black sandshell	23	3.2	-	-	27	2.1
Megalonaias nervosa	Washboard	-	-	-	-	1	0.1
Obliquaria reflexa	Threehorn wartyback	94	9.7	47	10.8	371	29.5
Potamilus alatus	Pink heelsplitter	246	25.5	4	0.9	6	0.5
Potamilus ohiensis	Pink papershell	2	0.2	-	-	3	0.2
Pyganodon grandis	Giant floater	13	1.3	1	0.2	-	-
Quadrula nodulataa	Wartyback	9	0.9	26	6.0	6	0.5
Quadrula pustulosa	Pimpleback	6	0.6	7	1.1	75	6.0
Quadrula quadrula	Mapleleaf	109	-	11.3	86	19.8	67
Strophitus undulates	Strange floater	44	-	4.6	5	1.1	1
Toxolasma parvum	Lilliput	3	-	0.3	-	-	3
Tritogonia verrucosa	Buckhorn	-	-	-	-	-	1
Truncilla donaciformisb	Fawnsfoot	1	-	0.1	1	0.2	-
Truncilla truncate	Deertoe	61	-	6.3	12	2.8	9
Utterbackia imbecillis	Paper pondshell	-	-	-	1	0.2	-
TOTALS No. of live species No. of dead species All	-	 19 1 20	-	-	 12 5 17	-	 19 6 25
CPUE (No. live per hour)	-	40.5	-	-	40.2	-	89.9

Source: Table 3 in Sietman et al. 2018.

[a] State listed as endangered.

[b] State listed as threatened.

[c] State listed as special concern.

[d] Federally listed as endangered.

5.8 Wildlife

Near the project area, there are many urban wildlife species common to the Minneapolis-St. Paul metropolitan area. Mammals include eastern cottontail (*Sylvilagus floridanus*), eastern gray squirrel (*Sciurus carolinensis*), woodchuck (*Marmota monax*), red squirrel (*Sciurus vulgaris*) and eastern chipmunk (*Tamias striatus*). Other inhabitants include muskrat (*Ondatra zibethicus*), Norway rat (*Rattus norvegicus*), and common species of mice, voles and shrews.

Bird species include American crow (*Corvus brachyrhynchos*), mallard (*Anas platyrhynchos*), wood duck (*Aix sponsa*), great blue heron (*Ardea herodias*), English sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), blue jay (*Cyanocitta cristata*), black-capped chickadee (*Poecile atricapillus*), and various gulls, raptors and shore birds. Migratory birds were identified as part of the U.S. Fish and Wildlife Service's Information for Planning and Consultation review (included in Appendix B) and included American bittern (*Botaurus lentiginosus*), black tern (*Chlidonias niger*), black-billed cuckoo (*Coccyzus erythropthalmus*), bobolink (*Dolichonyx oryzivorus*), cerulean warbler (*Dendroica cerulea*), eastern whip-poor-will (*Antrostomus vociferous*), golden-winged warbler (*Vermivora chrysoptera*), least bittern (*Ixobrychus exilis*), lesser yellowlegs (*Tringa flavipes*), long-eared owl (*Asio otus*), red-headed woodpecker (*Melanerpes erythrocephalus*), rusty blackbird (*Euphagus carolinus*), semipalmated sandpiper (*Calidris pusilla*), short-billed dowitcher (*Limnodromus griseus*), willow flycatcher (*Empidonax traillii*) and wood thrush (*Hylocichla mustelina)*. The breeding season for most of these species is between April and August.

The metropolitan area is also home to more than 50 active bald eagle (*Haliaeetus leucocephalus*) nesting sites, suggesting a strong and stable population compared to when conditions required the species to be federally listed under the Endangered Species Act (Weller and Russell 2017). Part of the success of bald eagles is attributed to the decline of contaminants that affect bald eagle nesting success.

Despite the wide variety of wildlife species described above, those found within the study area are limited due to the low quality and quantity of terrestrial habitat.

5.9 Threatened and Endangered Species

A review of the U.S. Fish and Wildlife Service's Information for Planning and Consultation website on April 29, 2025, indicated that seven federally listed species may be in the project area (Table 5-2; Appendix B).

Table 5-2. Federally Listed Species in the Project Area

MAMMALS

Common Name	Scientific Name	Status	Critical Habitat in Project Area?
Tricolored bat	*Perimyotis subflavus*	Proposed endangered	No

BIRDS

Common Name	Scientific Name	Status	Critical Habitat in Project Area?
Whooping crane	Grus americana	Non-essential experimental population	No

CLAMS

Common Name	Scientific Name	Status	Critical Habitat in Project Area?
Higgins eye pearlymussel	*Lampsilis higginsii*	Endangered	No
Salamander mussel	*Simpsonaias ambigua*	Proposed endangered	No
Snuffbox mussel	*Epioblasma triquetra*	Endangered	No
Winged mapleleaf mussel	*Quadrula fragosa*	Endangered	No

INSECTS

Common Name	Scientific Name	Status	Critical Habitat in Project Area?
Monarch butterfly	*Danaus plexippus*	Proposed threatened	No

A description of these species and the habitats they occupy follow.

The tricolored bat is a wide-ranging species throughout the eastern and central U.S. and portions of southern Canada. This bat overwinters in hibernacula areas (e.g., cracks and crevices of caves and mines). During spring through fall, tricolored bats primarily inhabit forested areas, where they roost in the bark or cavities or crevices of live or dead trees. The major threat to this species is disease (i.e., white-nose syndrome) (U.S. Fish and Wildlife Service ECOS 2025).

The whooping crane population resides only in North America, where the current total population of wild and captive cranes number in the hundreds. There is only one self-sustaining wild population, the Aransas-Wood Buffalo National Park population, which nests in Wood Buffalo National Park and adjacent areas in Canada and winters in coastal marshes in Texas at Aransas. In Minnesota, whooping cranes may be encountered that are part of a nonessential experimental population, a reintroduced population that is deemed not crucial to the continued survival of the species in the wild (U.S. Fish and Wildlife Service ECOS 2025).

The Higgins eye pearlymussel (Higgins eye) is a freshwater mussel found in the upper Mississippi River and associated tributaries. The mussel occupies deep water with moderate current and substrates of sand and gravel. This species was not detected in recent surveys in the study area, nor was it encountered during a 2020 mussel salvage effort in the pool just downstream of the study area. The sauger, walleye, yellow perch, largemouth bass, smallmouth bass and freshwater drum are considered suitable hosts for Higgins eye glochidia. Threats to this species include habitat destruction, fragmentation, zebra mussels and degraded water quality (U.S. Fish and Wildlife Service ECOS 2025).

The salamander mussel is a small thin-shelled species of freshwater mussel found across 14 U.S. states. This species inhabits river and streams with fairly swift velocities but prefers shelter habitat within dark interstitial spaces. This species is the only freshwater mussel in North America that uses a non-fish host, in this case, the mudpuppy (*Necturus maculosus*). Threats to this species include contaminants, hydrological regime, landscape alteration, lack of connectivity, invasive species and host vulnerability (U.S. Fish and Wildlife Service ECOS 2025).

The snuffbox is a freshwater mussel found primarily in rivers and streams of 14 states east of the Mississippi River. The snuffbox mussel occupies swift current areas with substrates of sand, gravel or cobble. This species was not detected in recent surveys in the study area, nor was it encountered during a 2020 mussel salvage effort in the pool just downstream of the study area. The logperch is considered a suitable host fish species for snuffbox glochidia. Threats to the species include fragmentation, degraded water quality, zebra mussels and sedimentation (U.S. Fish and Wildlife Service ECOS 2025).

The winged mapleleaf is a freshwater mussel found in the Upper Mississippi and St. Croix rivers (Minnesota and Wisconsin), Saline and Ouachita rivers (Arkansas), Little River (Oklahoma) and Bourbeuse River (Missouri). This mussel occupies areas with mud, gravel or sand, usually in clear waters with good water quality. This species was not detected in recent surveys in the study area, nor was it encountered during a 2020 mussel salvage effort in the pool just downstream. Threats to this species include small population size, fragmentation, degraded water quality and zebra mussels (U.S. Fish and Wildlife Service ECOS 2025).

Monarch butterflies are large, conspicuous insects that use milkweed as an obligate host plant. In the fall, populations in eastern and western North America migrate south to their respective overwintering sites, some over 3,000 km away. Primary threats to this species include loss of habitat from conversion of grasslands to agriculture, herbicides, logging, and drought (U.S. Fish and Wildlife Service ECOS 2025).

A number of state-listed species are also found in the project area (Table 5-3).

Table 5-3. State-Listed Species in the Project Area

Taxa	Species	Status
Fish	Lake sturgeon	Species of Special Concern
Fish	Paddlefish	Threatened
Mussels	Black sandshell	Species of Special Concern
Mussels	Wartyback	Endangered
Mussels	Fawnsfoot	Threatened

Given the limited terrestrial habitat, listed mammal, bird or insect species would be expected to occupy the project area. However, mobile aquatic species like fishes and mussels might be present, even though surveys have not specifically resulted in detections.

5.10 Invasive Species

Invasive species can be defined as nonindigenous species whose introduction causes or is likely to cause harm to economic or environmental conditions or human health. Within the study area, invasive species are limited to the river.

Mussel surveys completed in 2012 and 2017 did not find zebra mussels (*Dreissena polymorpha*) in the project area. However, this species has been detected in other years, and the potential exists for the area to become colonized. Zebra mussels were detected during a 2020 mussel salvage associated with a pool drawdown of the LSAF Dam.

Invasive carp (grass, black, silver and bighead carp) have been found in the Upper Mississippi River system as far upstream as Pool 4 and the St. Croix River. However, none have been found in the study area, and

there is not yet any evidence of reproduction in Minnesota (Weller and Russell 2017). The closure of USAF Lock to navigation in 2015 is seen as a deterrent to upstream migration for these species.

5.11 Air Quality

The U.S. Environmental Protection Agency (EPA) is required by the Clean Air Act of 1972 to establish air quality standards that primarily protect human health. These National Ambient Air Quality Standards regulate six major air contaminants across the U.S. When an area meets criteria for each of the six contaminants, it is called an attainment area for the contaminant; those areas that do not meet the criteria are called nonattainment areas. Hennepin County is classified as an attainment area for each of the six contaminants and is therefore not a region of impaired ambient air quality (U.S. Environmental Protection Agency 2018). This designation means that the study area has relatively few air pollution sources of concern. The last year the study area was not in attainment was in 1998 (https://www3.epa.gov/airquality/greenbook/anayo_mn.html).

Air quality in the Minneapolis-St. Paul metropolitan area is considered good most of the time. From 2013 through 2023, data from the Minnesota Pollution Control Agency (MPCA) show that the percent of days that the air quality index (AQI)[1] was categorized as good for a given year was between 43% (2014) and 68% (2016) (Table 5-4). The MPCA found that air quality over the past two decades has been improving in the Twin Cities area, as measured by the number of good AQI days across years (Figure 5-3).

Table 5-4. Annual Count of Days in Each Air Quality Index Category

Year	Good	Moderate	Unhealthy for Sensitive Groups	Unhealthy
2023	163	182	16	4
2022	235	130	0	0
2021	211	151	0	3
2020	210	154	1	1
2019	214	151	0	0
2018	194	170	1	0
2017	227	138	0	0
2016	249	116	1	0
2015	195	169	1	0

[1] AQI is calculated by converting measured pollutant concentrations to a uniform index, which is based upon peer-reviewed scientific evidence of the health effects associated with a pollutant. Categories are as follows:

Good (0-50): Current air quality is considered satisfactory and poses little or no health risk.

Moderate (51-100): Air quality is acceptable; however individuals who are very sensitive to air pollution may experience adverse health effects.

Unhealthy for Sensitive Groups (101-150): People with lung or heart disease, older adults, children, and people participating in activities that require heavy or extended exertion may experience adverse health effects.

Unhealthy (151-200): Everyone may begin to experience adverse health effects, and members of sensitive groups may experience more serious health effects.

Year	Good	Moderate	Unhealthy for Sensitive Groups	Unhealthy
2014	157	207	1	0
2013	205	160	0	0

Source: https://www.pca.state.mn.us/air/annual-aqi-summary-reports.

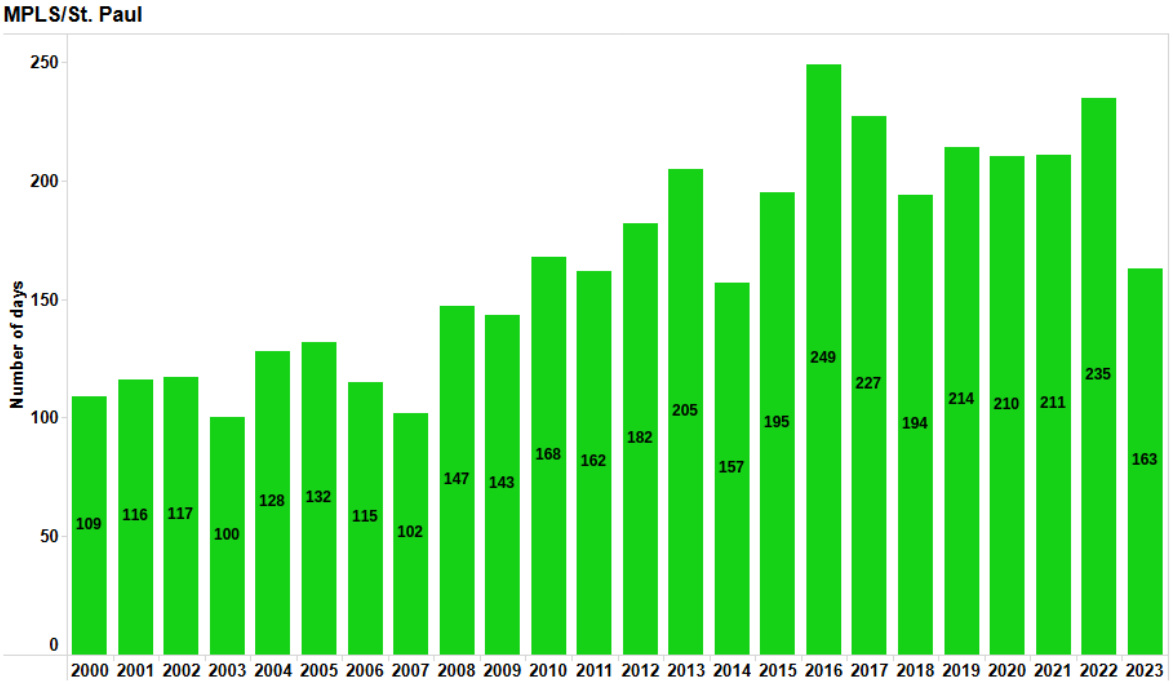

Figure 5-3. Number of Good Air Quality Index Days from 2000 to 2023 in the Minneapolis-St. Paul Area

Source: https://www.pca.state.mn.us/air/annual-aqi-summary-reports

5.12 Water Quality

Over the past century, the Mississippi River's water quality in the metropolitan area cycled between poor and good. In the 1900s, untreated sewage flowed directly into the river, exacerbated by construction of the first lock and dam in the area built in 1917 at St. Anthony Falls. It was not until 1926 when guidelines were first established for improving water quality, resulting in construction of the first Twin Cities wastewater treatment plant, which was followed by many more. Enactment of the Clean Water Act in 1972 made federal monies available to upgrade infrastructure and meet higher effluent standards. Since then, additional enhancements to wastewater plants, many initiated by the Metropolitan Council Environmental Services, have led to improved water quality (MCES 2010). The separation of the combined sewers in the Twin Cities during the 1980s and 1990s stopped the flow of raw sewage into the Mississippi River and thus had a large positive impact on the water quality of the Mississippi River.

The MPCA categorizes the Upper Mississippi River in the project area into several water use classifications: Class 1C and Class 2Bd for waters upstream and Class 2B for waters downstream. Class 1C and Class 2Bd indicate that water is suitable for domestic consumption, for use in food processing and other domestic purposes and for aquatic life and recreation. The Class 2B designation represents water quality suitable

for the propagation and maintenance of cool- or warm-water sport or commercial fishes. This designation also supports aquatic recreation of all kinds, including bathing.

State standards for all waters in the project area require maintenance of an instantaneous minimum concentration of dissolved oxygen (DO) of 5.0 milligrams per liter (mg/l), temperatures that do not exceed 5°F above natural stream temperatures, bacteria levels less than 126 organisms per 100 milliliters (ml), and fecal coliform levels less than 100 organisms per 100 ml.

In general, water quality in the project area complies with standards. Dissolved oxygen levels almost always exceed 5 mg/l and typically range from 10.0 to 11.0 mg/l. A statewide 25 Nephelometric Turbidity Unit (NTU) standard applies for total suspended solids (TSS). A site-specific standard of less than 32 mg/L TSS summer mean (June 1 through September 30) applies for the 64-mile reach of the South Metro Mississippi (MPCA 2015).

Parts of the river are impaired due to fecal bacteria, meaning that the standard is exceeded during certain times of the year (Weller and Russell 2017).

Phosphorus concentrations have been found to be decreasing since 1976. With wastewater treatment equipped with phosphorus reduction technology, phosphorus levels have been reduced 88% over the past 20 years (Weller and Russell 2017). However, portions of the river are still considered impaired.

The amount of impervious surface area in the Minneapolis-St. Paul metropolitan area contributes to water quality conditions in the river. Municipal, construction, and industrial runoff from storm events contributes pollutants that can include pesticides, fertilizer, oil, grease, metals, pathogens, salt, sediment, litter and other debris (MPCA 2015).

5.13 Cultural Resources

The St. Anthony Falls area holds geological, economic, technological and historic significance on a regional, national and international scale. The energy of the falls provided an economic base for the region that eventually became a national and international leader in the production of goods. The importance of navigation along the Mississippi River compelled the installation of USAF Lock and Dam. Upon completion of their design and construction, USAF Lock and Dam influenced developments around the falls and changed the character of the riverfront. USAF Lock and Dam are situated within two historic districts and are eligible for listing on the National Register of Historic Places.

St. Anthony Falls, the only natural waterfall on the Mississippi River, formed over the last 12,000 years. With the end of the Wisconsin glaciation, the river cut through glacial sediments resting on the resistant Platteville Limestone, eroding the underlying soft Glenwood Shale and St. Peter Sandstone. As the water eroded the shale and sandstone, the unsupported limestone broke off, the falls receded upstream, and the cycle continued. The falls have retreated approximately 16 river miles from their beginning near St. Paul to their present position at Minneapolis.

The falls are in the area of the ancestral land of the Dakota and are important to the Native American groups that inhabited the area. The Dakota, Ojibwe and other groups have several names for the falls, and many oral traditions relate the spiritual, cultural and historical importance of the falls. Various

archaeological deposits and historic depictions and accounts demonstrate use of the falls and vicinity over twelve millennia.

European explorers, traders and missionaries entered the region in the middle to late seventeenth century. French friar Louis Hennepin described the falls in 1680; since then, the falls have been an important destination for tourists and others, with a variety of visitors' reflections on the falls' natural state captured through paintings, engravings, photographs and narratives.

American Lieutenant Zebulon Pike negotiated a treaty in 1805 with the Dakota to secure land from the falls south along both sides of the Mississippi River to its confluence with the St. Peter's River (Minnesota River). In 1822 and 1823, a saw and grist mill were constructed at the falls to supply lumber and flour to Fort Snelling and were completed in 1824 at the confluence of the two rivers. Construction of numerous mills soon followed along the falls, and by mid-century, the mills formed the economic base for the cities of Minneapolis and St. Anthony. The city of St. Anthony was eventually absorbed by Minneapolis in 1872.

The ensuing increased development and attendant disputes over waterpower rights threatened the falls. With more mills excavating shafts and tunnels, flows over the falls decreased, and the limestone was exposed to floods and the freeze-thaw cycle. This led to accelerated retreat of the falls. In 1869, excavation of the Eastman Tunnel under the falls was taking place as a tailrace from Nicollet Island collapsed and formed a large whirlpool that jeopardized the existence of the falls. Efforts to permanently plug this and several other leaks were futile. Citizens asked USACE to examine the problem. Surveys determined that the limestone caprock ended approximately 1,000 feet upstream of the falls, where a buried interglacial valley would intersect the river and extinguish the falls if retreat continued. As a solution to stabilize the falls, USACE constructed an underground dike to protect the sandstone from seepage, placed two low dams (horseshoe and chord) just upstream of the falls to provide steady flows over the limestone to prevent it from drying out, completed a wood (now concrete) apron to protect the edge of the falls, installed a sluiceway for logs, and filled cavities under the caprock with gravel. These works were completed by 1880.

By the late 19th century, the falls were powering nearly 50 mills for various industries, and in 1880, Minneapolis ranked first in the nation for flour production and third for lumber. As mills increased the use of steam for power, milling decreased around the falls by the end of the 19th century. However, the falls power was also used to generate electricity, and the nation's first central station for hydroelectric power was constructed at the falls in 1882.

Meanwhile, steamboat navigation on the Upper Mississippi River steadily grew, and the River and Harbor Act of 1866 authorized USACE to remove hazards and make improvements to facilitate navigation. Among the first improvements was a 4-foot navigation channel, followed by a 4.5-foot channel (authorized 1878) from the mouth of the Illinois River to St. Paul, Minnesota, using thousands of wing dams and river training structures among other methods.

With civic leaders in Minneapolis pressing for their city to be the head of navigation, construction of the Meeker Island Lock and Dam (13-foot lift) was completed in 1907 approximately 11 river miles upstream of St. Paul to facilitate navigation through the river gorge filled with debris from the retreating falls. With the opening of the Panama Canal in 1903, greater pressure was placed to link the Upper Midwest with

the Upper Mississippi River, and a 6-foot channel (1907) was authorized from Cairo, Illinois, to Minneapolis to accommodate larger boats. The 6-foot channel altered plans for another 13-foot lift facility downstream of Meeker Island to a high dam and lock with a 30-foot lift. The federal government's LD1, approximately eight miles upstream of St. Paul, was completed in 1917, and the Meeker Island facility was submerged and partially removed.

Minneapolis established itself as the head of navigation in 1927 with the installation of a barge facility near the Washington Avenue Bridge, downstream of the falls. This terminal, along the bottom of the gorge, turned out to be unsuitable for both rail and vehicular traffic. With the one terminal downstream of the falls deemed inadequate, the Upper Minneapolis Harbor Development Project was authorized in 1937, extending the Upper Mississippi River 9-Foot Navigation Channel Project's head of navigation 4.6 miles upstream of St. Anthony Falls.

Construction of USAF Lock and Dam began in 1949 and concluded in 1963. Several modifications to peripheral bridges, utilities and structures, among other engineering achievements, were necessary to construct the upper and lower locks. USAF Lock and Dam were constructed on Upton Island — an anthropogenic formation consisting of sawdust, cinder, rock and other materials — and excavated into the limestone-shale-sandstone bedrock. An existing masonry dam was modified and adapted into the upstream portion of the facility, now part of the crossover wall. Figure 5-4 provides an overview of the construction in 1961 with the masonry dam, St. Anthony Falls apron, and Stone Arch Bridge. In addition, a section of the Stone Arch Bridge (1883) was removed and replaced with a metal truss to accommodate the lower approach to the lock (Figure 5-5).

Figure 5-4. Upstream View of Upper St. Anthony Falls Under Construction, 1961

In 1966, the observation deck on the central control building was enclosed. In 1995, the visitor center was updated for the opening of the Stone Arch Bridge to pedestrian traffic. The visitor center provides one of the premier areas to view the falls and surrounding area with a 360-degree view. The center was seasonally staffed with a USACE ranger, providing guided tours by appointment.

Figure 5-5. Modern View of the Stone Arch Bridge Metal Truss Over the Lower Approach to Upper St. Anthony Falls

Identification of Historic Properties

Numerous historic properties exist around the falls area, including historic standing structures and archaeological sites that are eligible for or listed on the National Register of Historic Places. Many of these cultural resources are within the St. Anthony Falls Historic District. The St. Anthony Falls Historic District period of significance is 1854-1941 and includes 267 structures, 85 of which are contributing elements to the district. Proximal contributing structures include the Stone Arch Bridge (1883), the underground dike (1876), the St. Anthony Falls apron (ca. 1880 for wood, 1950 for concrete), the horseshoe and chord dams upstream of the falls (ca. 1880), the Third Avenue Bridge (1914), and the University of Minnesota St. Anthony Falls Hydrological Laboratory (1938). Also, within the St. Anthony Falls Historic District, the Pillsbury A Mill (1881) along the east bank of the falls and the Washburn A Flour Mill (1880) on the west bank are listed as historic properties. While the USAF Lock and Dam are within the boundaries of the St. Anthony Falls Historic District, the general structure was considered a noncontributing element of the district, as USAF Lock and Dam was less than 50 years old when the district was nominated as a historic district.

USAF Lock and Dam are eligible for listing on the National Register of Historic Places under the following criteria: Criterion A in the areas of Commerce, Industry, Maritime History and Transportation and Criterion

C in the area of Engineering. USAF Lock and Dam are significant for their association with the St. Anthony Falls Historic District and the Upper Mississippi River 9-Foot Channel Navigation Project. Table 5-5 presents the historic resources included in USAF Lock and Dam.

Table 5-5. Minnesota State Historic Preservation Office Historic Inventory for the Upper St. Anthony Falls

Inventory Number(s)	Name	Type	Year Built
HE-MPC-0177	Lock	Structure	1963
HE-MPC-0286	Upper and Lower Control Stands	Buildings	1963
HE-MPC-0296	V-Shaped Dam Wall Ruins	Structure	ca. 1854
HE-MPC-0287/9284	Central Control Building	Building	1963
HE-MPC-9285	Public Restroom Building	Building	1995
HE-HPC-9286	Jetty	Object	1963
HE-MPC-9287	Dolphins	Objects	1963
HE-MPC-9288	Shear Gate	Structure	1963

There are additional historic archaeological sites adjacent to USAF Lock and Dam, notably the extensive complex of Mill Ruins Park west of the facility. One historic archaeological site — the ca. 1858 west channel dam/V-shaped dam wall ruins (HE-MPC-0296) — and four potential historic sites — the platform sawmill foundations (ca. 1858-1887), a log sluice and bark sluice (ca. 1880), and a tailrace tunnel — (ca. 1883) are on USACE fee lands within the USAF Lock and Dam complex. Construction of the dam removed a good portion of Upton Island, where a number of historic structures were located, including hydroelectric stations, a cotton/pulp mill, and a variety of other shops and sheds.

The St. Anthony Falls are an important and significant area for various Native American communities. Although no precontact archaeological sites have been identified within the project area, historic accounts mention a variety of cultural resources encountered in the area, including burials, a dugout canoe, and copper and stone projectile points. In addition, the Dakota maintained villages in the area, and lodges may be seen in historic paintings and photographs of the area. Other accounts describe or depict various activities by Native American communities in the area, such as a George Catlin painting of Ojibwe portaging around the falls in 1836. Other potentially significant areas include the previously extant Spirit Island that was located just downstream of the falls. Spirit Island was quarried for building stone beginning in the 19th century, and its remnants were removed by 1957 during construction of USAF Lock and Dam. Its former location is depicted in Figure 5-6, just south of the downstream jetty in the 9-foot channel within the Intermediate Pool, visible in the lower right corner immediately below the downstream jetty in the pool.

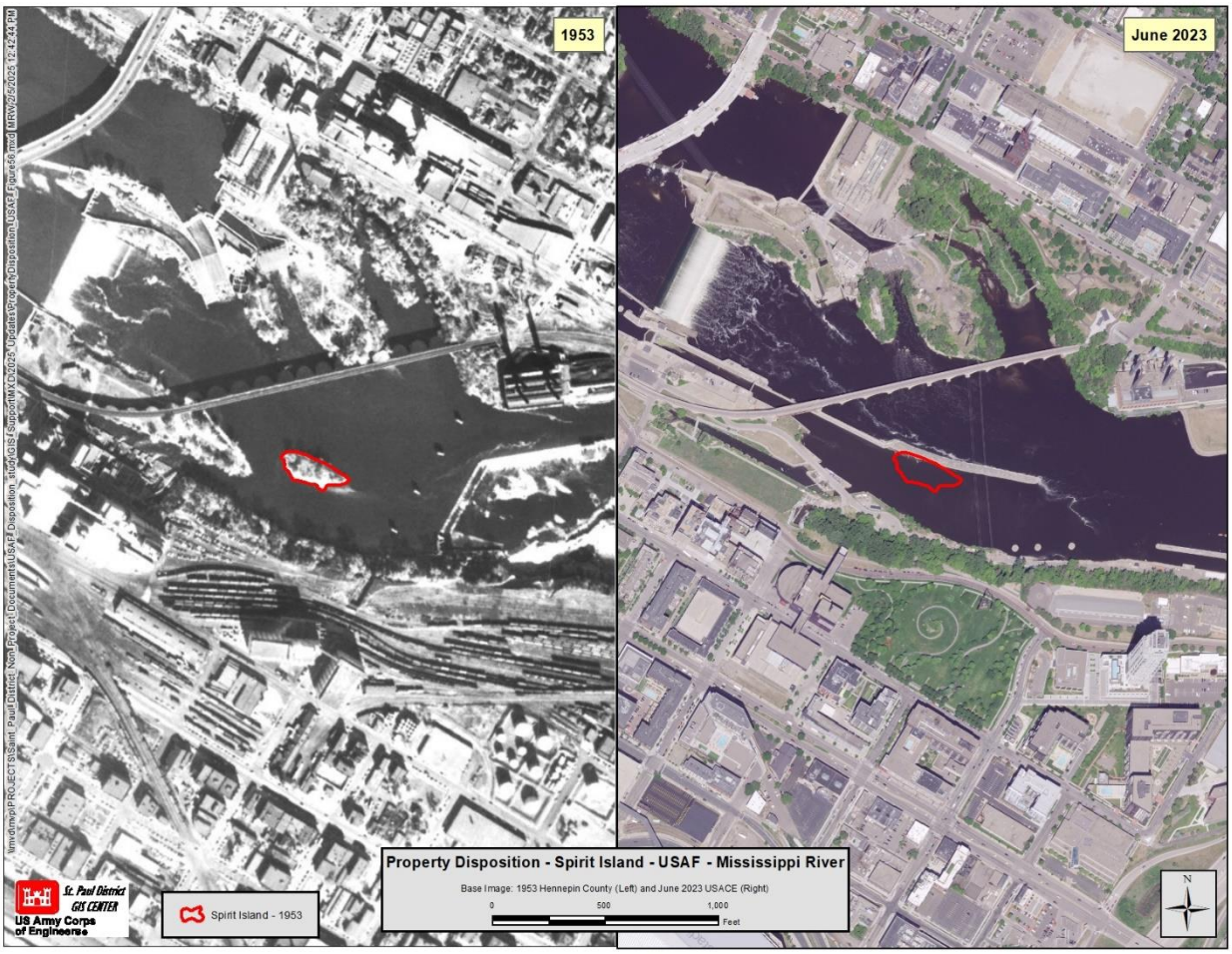

Figure 5-6. Spirit Island: 1953 and 2023

Area of Potential Effects

To evaluate the effects on historic and cultural resources, a different geographic scope was identified that considers line of sight. This was identified as the area of potential effects. The area of potential effects was not finalized for this disposition study; however, a preliminary area of potential effects has been drafted. The preliminary area of potential effects for direct effects includes the USAF Lock and Dam structures and government land; the St. Anthony Falls horseshoe and chord dams; the falls apron; and an area along both banks of the Mississippi River, roughly between the Third Avenue Bridge and Interstate 35 Bridge where the USAF Lock and Dam complex would reasonably be visible. The preliminary area of potential effects for indirect effects includes the Falls of St. Anthony Dike (beneath the river, from 2nd Avenue SE to 5th Avenue S); the 9-foot channel from the falls upstream to the head of navigation at river mile 857.5 (near the Soo Line Railroad Bridge); the Intermediate Pool; the LSAF Lock and Dam facility; the St. Anthony Falls Historic District (established in 1971) below the Third Avenue Bridge; and the St. Anthony Falls Locks and Dams Historic District (proposed in 2007 and eligible for listing on the National Register of Historic Places).

5.13.1 No Action Alternative

Under the No Action alternative, USACE would continue to operate the facility and conduct historic preservation and compliance reviews as needed. The No Action alternative may increase the risk to the historic structures as they would continue to age and may require more frequent maintenance. As structures in USACE ownership continue to age, they would be maintained in compliance with applicable laws. No change from existing conditions, including existing levels of operation and maintenance, is anticipated.

5.13.2 Full and Partial Disposal Alternatives

Both of the disposal alternatives would result in adverse effects to historic properties. Under either of the disposal alternatives, disposal of character-defining features would require historic preservation measures to ensure compliance with the National Historic Preservation Act. The disposal of character-defining features, in relation to the USAF Lock and Dam features or elements that give the structure its visual character and that relate to the structure's function, would cause adverse effects to the site. USAF's character-defining features include the lock, Tainter gate, center control station, and upper and lower miter gates.

USACE would be responsible for mitigating the adverse effects caused by either disposal alternative. To address any action alternative, USACE would develop a Programmatic Agreement (see Section 7). With mitigation, effects would be less than significant.

5.14 Hazardous, Toxic and Radiological Waste

After document review, site reconnaissance and interviews, the project study team found that the USAF Lock and Dam has no recognized hazardous, toxic and radioactive waste environmental concerns. The subject property is a Hazardous Waste Minimal Quantity Generator for used oil, with the following related events reported: only small-quantity petroleum spills and one petroleum product spill from a leaking underground storage tank, which required remedial action. Two underground storage tanks were removed in 1995, one 300-gallon diesel tank, and one 285-gallon fuel oil tank. During removal, the fuel oil tank was discovered to be leaking, and the site was remediated and closed. There is one active aboveground diesel storage tank on the property, installed over a cement containment cell. The lock's main workshop and bulk chemical storage is off-site at the nearby LSAF Lock and Dam property. An asbestos report identified asbestos materials in pipe wrapping on the property. Borings in 2012 and 2015 on USACE's USAF property identified construction fill beneath a parking lot and an unnamed road. The lower portion of this fill hosts soils, cinders, concrete and wood. This fill is not a recognized environmental concern, and the EPA does not regulate cinders as a hazardous material. There are no monitoring wells or water supply wells on the subject property.

West of USAF Lock and Dam is a series of brownfield and petroleum brownfield remediation sites. These sites originated as historic buildings related to the milling industry and have since been remodeled, demolished, or repurposed. Between these sites and the USACE subject property is the Central Mississippi Riverfront Regional Park, West River Parkway, and a remnant milling water canal. It is not anticipated that these sites will impact the subject property. Properties identified with potential contaminants on the

eastern side of the Mississippi River would be captured by the river, become diluted, and flow downstream in the river before reaching the subject property.

5.15 Socioeconomics

The socioeconomic study area consists of three counties: Ramsey, Hennepin and Dakota. Minneapolis and St. Paul are the two largest cities within the study area. Much of the geographic area comprising the three counties surrounds USAF Lock and Dam, LSAF Lock and Dam, and LD1, while all share the 6-mile stretch of the Mississippi River in the study area and benefit from its recreational and socioeconomic value. Undoubtedly, residents residing in other counties comprising the Twin Cities metropolitan area frequent the study area, but for purposes of this study, socioeconomic data are presented for the three-county area. Finally, for some of the socioeconomic resources, such as population, housing and income, data are provided for the Downtown East neighborhood, which is the neighborhood closest to the USAF and LSAF sites.

According to the 2023 American Community Survey through the U.S. Census Bureau, the population of the three-county study area was approximately 2,255,545, with an increase of approximately 3% over the last five years. A majority of the study area population resides in Hennepin County (56%), in which the city of Minneapolis is located. The economic development and increasing density of the population surrounding the USAF Lock and Dam site present unique challenges and opportunities for the future development of the area. The Downtown East neighborhood of the Riverfront District that encompasses the historic Mill District (the USAF Lock and Dam site) is home to downtown business professionals and young families who enjoy living in close proximity to the Mississippi riverfront, the USAF, the Mill City Farmers Market, numerous local restaurants and the many nearby thriving neighborhoods.

The American Community Service's five-year estimates from 2019-2023 indicate that in 2023, there were just over 972,494 housing units in the study area. The city of Minneapolis created a new mixed-use community in the Riverfront District, with over 5,300 new housing units completed or under construction within easy walking distance from USAF Lock and Dam. Additionally, there were over 500 new apartment homes built out in the Mill District in 2024.

Over the past decade, the city of Minneapolis has consistently exceeded $1 billion in construction projects. In 2023, $1.2 billion was spent on the construction of stores, residential buildings and working spaces. One of the biggest projects in 2023 was the conversion of office space at NorthStar Center, located approximately a mile away from USAF Lock and Dam, into 216 residential units. While ethnic diversity in the study area resembles the composition of the U.S., the study area is slightly more diverse than the state. In 2022, over half of the study area population identified as being of one race, White. Approximately 30% of the population were people of color, with the largest minority being Black or African American. Approximately 6% of the population identified as Asian or Pacific Islander.

The 2023 American Community Service data show that the largest employment sector is educational services, healthcare and social services, employing approximately one in every four civilians 16 years and over in the study area. Approximately 57% of jobs in the study area are performed in Hennepin County. Minneapolis, the largest city in Minnesota, is located in Hennepin County and thus hosts most of the jobs in Hennepin County.

Approximately 26 % of study area residents are minorities. The largest minority is Black/African American, comprising 11% of the population, while Asians account for 8%. The Hispanic population totals 152,000, or approximately 7% of the study area population.

In 2023, Ramsey, Hennepin and Dakota Counties reported that approximately 11%, 10% and 6% of people have annual incomes below the poverty level, respectively. Approximately 14% of the population in the Downtown East neighborhood have annual incomes below the poverty level.

5.16 Recreation

Recreational resources are abundant along the stretch of the Mississippi River between USAF Lock and Dam and LD1. The largest of these is the MNRRA, the only area under National Park Service jurisdiction dedicated exclusively to the Mississippi River. Unlike traditional national parks, the MNRRA is not a major landowner and therefore does not have control over land use. The MNRRA works with dozens of partners (local, state and federal governments as well as nonprofits, businesses, educational institutions and individuals) who own land along the river or who have an interest in the Mississippi River to achieve the National Park Service's mission to protect and preserve the area for future generations.

Some of the most prominent attractions within the recreation study area include the St. Anthony Falls Historic District (including Mill City Museum, the Guthrie Theater, the Stone Arch Bridge, and Mill Ruins Park), Historic Fort Snelling and the adjacent Fort Snelling State Park, and Minnehaha Falls. There are many additional attractions, trails and programs within the Minneapolis-St. Paul metropolitan area. The MNRRA offers a visitor center located inside the Science Museum of Minnesota in St. Paul, Minnesota, staffed by National Park Service rangers.

The West River Parkway is a recreational driving corridor winding along the west bank of the Mississippi River from Plymouth Avenue North to Minnehaha Park. The parkway is a scenic drive that has natural habitat elements in an urban setting and includes walkways, overlooks and bicycle paths adjacent to the river. The West River Parkway is also part of the national Great River Road that stretches the length of the Mississippi River.

The Stone Arch Bridge crosses the Mississippi River from the University of Minnesota’s steam plant on the north bank to an area just below the USAF Lock structure. The bridge accommodates pedestrians, bicyclists and the Twin Cities Trolley. The bridge is the only stone arch bridge across the Mississippi River and is a component of the St. Anthony Falls Heritage Trail.

In addition to parks and facilities along the Mississippi River in the study area, recreational use of the river is varied and high and considered by many to be integral to the health and well-being of the community. The USACE Upper Mississippi River 9-Foot Channel Navigation Project created water surfaces ideally suited for water-associated recreational activities. The particular stretch of the river between the St. Anthony Falls locks and dams and LD1 offers excellent urban slack-water pools that are used by amateur canoers and kayakers, fishermen, large and small excursion/sightseeing boats, pontoons, stand-up paddle boarders, cruisers, rowing sculls (including the University of Minnesota, St. Thomas and Macalester college teams, Minneapolis Rowing Club, and high schools teams), Voyageur canoes (e.g., Wilderness Inquiry), Urban Boatbuilders (a nonprofit youth development program that builds boats), water taxis, dragon boats, and houseboats.

Finally, recreational use of the river can also be assessed by reviewing the lockage data of vessels transiting LD1 and LSAF Lock and Dam, which include recreational boats (small power craft, fishing boats, canoes, kayaks, etc.), commercial cruise vessels, and other commercial vessels besides tow and barge units. During 2023, approximately 1,200 recreational and commercial vessels passed through the Minneapolis and St. Paul locks. During 2024, approximately 1,600 recreational and commercial vessels passed through the Minneapolis and St. Paul locks.

Past recreation services at USAF Lock are described in Section 3.2.3 above. Between 2005 and 2016, approximately 20,000 to 34,000 people visited the site annually. The National Park Service subsequently provided visitor services at the site until 2024, when it terminated its use agreement. In 2024, USACE granted a park and recreation lease to Owámniyomni Okhódayapi. Under the terms of the existing lease, Owámniyomni Okhódayapi provides some opportunities for public recreation such as guided tours. Owámniyomni Okhódayapi is currently proposing a modification of its lease with a proposed development and management plan.

Under the No-Action Alternative, Owámniyomni Okhódayapi's existing lease would remain in place, with some recreation opportunities offered. Other recreational uses in the vicinity would be unchanged. Authorization of Owámniyomni Okhódayapi's proposed lease modification would require a federal action (see above).

Under the Partial Disposal alternative, effects would be the same as those under the No Action alternative. Disposal of improvements under the Partial Disposal alternative may provide opportunities for new uses, modifications or removal of these improvements. New development or modifications would be subject to applicable federal, state and/or local reviews and approvals prior to implementation, including where USACE maintains restrictions to protect the remaining federal project features. Recreational rights that may be conveyed to the city of Minneapolis or its designee under a separate action pursuant to WRDA 2020 would be unaltered by this alternative.

Under the Full Disposal alternative, federal management and oversight of the property would end and a nonfederal entity would assume ownership of the property and improvements. Direct effects on recreation would be similar to the Partial Disposal alternative, except use and occupation of the improvements in the Partial Disposal alternative would not require federal review for impairment of the navigation project because the federal project would be deauthorized. Recreational rights that may be conveyed to the city of Minneapolis or its designee under a separate action pursuant to WRDA 2020 would be unaltered by this alternative, but USACE would not have the oversight or approval authority for recreational development on project lands and improvements it has under the No Action alternative. Other regulatory requirements would be unchanged. See above for a general discussion of effects on property eligible for conveyance under WRDA 2020.

6 Disposition Study Findings

This section discusses the findings of this disposition study.

6.1 Federal Interest Determination

The study team has determined that based on the agency definition of federal interest, there is not a federal interest in maintaining the navigation purpose at USAF. The determination of federal interest is based on the project benefits and the total federal investment in the project. It is not in the interest of the federal government to retain USAF Lock and Dam as an authorized project in federal ownership. The site has been closed to navigation traffic, and the cost of continued operation and maintenance is high compared to its utility or value to the public under its authorized purpose. While USACE continues to operate the Tainter gate during high flows as mitigation for the effects of the lock structure, there is no authorized flood risk management purpose and no measurable flood risk management benefits of such operations identified at this time. No other water resources development purpose was identified for which there was a nonfederal interest to partner in a feasibility study in advance of these findings. When a disposition study reports a finding of no federal interest, the recommendation would typically be to dispose of or transfer the asset. Due to the limitations set forth in WRDA 2022, such a recommendation cannot be made unless or until a willing and capable nonfederal public entity is identified to assume ownership. At such time an entity is identified, deauthorization and disposal under the Full Disposal alternative would be in the federal interest and could be recommended. Until such time as a willing and capable nonfederal public entity is identified to assume ownership, the average annual costs will remain at the No Action alternative level.

6.2 Cost Estimate and Economic Summary

The average annual costs for each alternative are below:

No Action: $1,296,000

Full Disposal: $33,000

Partial Disposal: $546,000

Additional considerations are discussion in Appendix I.

6.3 Real Estate Considerations

Any deauthorization or disposal actions must be directed through special legislation by Congress. The preferred method of transferring ownership of the real property and all associated federally owned improvements would be direct disposal through a negotiated agreement between the Secretary of the Army and the transferee. Disposing of assets to a new owner under the direct authority of congressional legislation alleviates the requirement to screen the properties against the needs of state, local and private interests.

The passage of the title to the identified transferee by quitclaim deed is recommended. By this method, the U.S. will not profess that such title is valid, nor contain any warranty or covenants for the title. As such, the U.S. will not be liable for any title defects beyond what might be required to address the release of

hazardous substances under the Comprehensive, Environmental Response, Compensation, and Liability Act (also known as the Superfund). Any preexisting, valid reservations in the deed may remain in effect after passage of the title. A quitclaim transfer would release the government from encumbrances and reservations, as they will transfer with the property to a new owner. The new owner would assume and accept all risk of the property.

Additional considerations are discussed in Appendix D.

6.4 Interested Future Owners

Successful implementation of either action alternative depends on the identification of a willing and capable nonfederal public entity to take ownership of the project lands and improvements or elements thereof. One purpose of the public review and comment period for the draft disposition study report is to solicit feedback from potentially interested future owners. During the public review period of this draft report, all interested future owners are encouraged to submit a written statement of interest. These written statements of interest may be addressed to USACE:

District Engineer
U.S. Army Corps of Engineers St. Paul District
ATTN: Regional Planning and Environment Division North
332 Minnesota Street, Suite E1500
St. Paul, Minnesota 55101

These statements of interest will be considered in the final report recommendations, with priority given to statements of interest from willing and capable nonfederal public entities as required by WRDA 2022.

Ownership of the property would include the responsibility for maintaining the concrete structure as part of the damming surface that that supports the municipal water supply for the city of Minneapolis. Because of the water supply consideration and support for developing the site for additional recreational purposes, the city of Minneapolis would be a logical future owner under either the Full Disposal alternative or Partial Disposal alternative. However, the city of Minneapolis currently does not support assuming ownership under the Full or Partial Disposal alternatives.

The city of Minneapolis and the Minneapolis Parks and Recreation Board have varying capabilities and resources that could be applied to ownership of the site. Xcel Energy would have the most experience with the operation of Tainter gates and maintenance of mechanical equipment, followed by the city of Minneapolis in the operation and maintenance of their water supply system, convention center, football or baseball stadium, etc. Maintenance of the grounds and buildings is within the capability of the Minneapolis Parks and Recreation Board or city of Minneapolis. Maintenance of the miter gates, Tainter gate, and concrete lock structure would be unfamiliar to these entities, but that does not preclude contracting with another entity for this expertise.

6.4.1 Identification of Nonfederal Entity

During the review period in 2021 for the draft report released in January 2021, the St. Paul District invited submission of statements of interest in future ownership. No statements of interest were submitted. At that time, a payment incentive was proposed in an effort to attract entities interested in future ownership,

but none have been identified. Furthermore, multiple entities have stated they are not interested in acquiring ownership and/or stated they desire the USACE to retain ownership and operation of the site. Section 8.2 summarizes the statements submitted.

6.5 Future Use Scenarios

While the study did not find a continued federal interest in navigation at USAF, USACE has identified opportunities for future use at the site. Unless or until a willing and capable nonfederal public entity is identified, the Secretary of the Army may not recommend deauthorization of USAF. So long as the project remains authorized by Congress, USACE will maintain ownership and responsibility for operation and maintenance of all authorized project components including the lock chamber, submersible Tainter gate, and other structures that allow flow capacity during high-flow events. It will be necessary to use operation and maintenance funds to operate and maintain these structures, even though the project is closed to navigation traffic. Future use scenarios are summarized in two categories: opportunities for a new water resources development purpose and modifications to minimize operation and maintenance costs at USAF.

6.5.1 New Water Resources Development Purpose

Opportunities exist to modify the site or an element of the site to serve a new water resources development purpose. The three primary water resources development mission areas for the USACE Civil Works Program are navigation, flood risk management and ecosystem restoration. Congress has also directed the USACE Civil Works Program to maximize benefits of existing projects by considering recreation, hydropower and water supply. USACE engagement in recreation is generally required to be associated in some relevant manner with one or more of the three primary mission areas, e.g., a flood risk management project that also provides recreation benefits to the community. The navigation mission focuses on safe, reliable and efficient waterborne transportation systems (channels, harbors and waterways) for movement of commerce, national security needs, and navigational access for the Coast Guard. Inland (riverine) and deep draft navigation, as well as accessibility to small boat harbors, are all part of the USACE navigation mission. This report has determined that the project is not serving its authorized purpose of navigation. Furthermore, USAF will remain closed to all boat traffic, both recreational and commercial. Additional explanation of some common USACE project purposes is described below.

Flood Risk Management — The flood risk management mission includes both inland and coastal flood risk management and addresses assessment, management, and communication of current and future flood risk in a systematic and comprehensive manner.

The Tainter gate at USAF is used to maintain conditions on the river relative to the conditions preceding the construction of the lock. The Tainter gate mitigates the impacts of the lock structure on upstream water surface elevation during high flow conditions as part of the authorized navigation purpose. The Tainter gate is not intended to generate flood risk management benefits, and the gate does not improve conditions relative to the river preceding construction of the lock. As such, there is not an apparent opportunity for a flood risk management water resources development purpose at USAF.

Ecosystem Restoration — The ecosystem restoration mission restores, protects and manages aquatic ecosystems. Ecosystem restoration projects assist in the recovery of ecosystems that have been degraded, damaged or destroyed and focus on establishing the ecological processes necessary to make aquatic ecosystems sustainable, resilient and healthy under current and future conditions.

This scenario would incorporate one or more ecosystem restoration purposes into future operations of USAF or modification of USAF. The primary ecosystem restoration opportunity identified is the existing damming surface and surroundings being used to maintain a barrier to upstream movement of invasive fish species such as bighead carp, silver carp, grass carp, and black carp. This ecosystem service has been recognized as a driving factor for closing USAF Lock in 2015 and has received support from many state, federal and local agencies. Modification of USAF for ecosystem restoration purposes would require a cost-shared feasibility study with an interested nonfederal partner. No prospective partner has expressed interest in such a study to date.

Recreation — USACE is the second-largest federal provider of outdoor recreation. Recreational features can be, and often are, considered an element to enhance the overall benefit of a USACE project to the public. However, when partnering with USACE in cost-shared civil works studies and projects, recreational features cannot be the primary objective of the project.

Further recreational development adjacent to USAF, along the Mississippi River Corridor, and the lock itself and associated properties, could enhance the recreational benefit of the USAF project to the public. Better accommodations to the site for recreational travelers on the Mississippi could be made. The USAF site could be modified to allow more convenient overland portage around or through the lock and dam structure. Currently, near the site, the only upstream portage access for paddlers on the Mississippi River is at Flagpole Plaza; from there, users must travel all the way downstream of LSAF at Bohemian flats, a total portage of 1.51 miles. The Mississippi River Corridor through the existing lock and dam site is considered a crucial path for numerous migratory birds. Observation points on the existing lock could be utilized to enhance recreational birdwatching opportunities. An additional opportunity could be increased access for land-based angling in the area.

Section 356 of WRDA 2020 provides that the city of Minneapolis may request all recreational development rights on the portions of the USAF project that cannot be conveyed to it or its designee in fee under that provision. If the city or its designee requests such rights, recreation may not be an available water resources development purpose for study and implementation by USACE with a different partner. At this time, the city or its designee has indicated it plans to request rights on a portion of the property that cannot be conveyed in fee under that provision.

Hydropower — USACE operates 75 hydropower plants with a total installed capacity of almost 22,000 MW. Much of the USACE hydropower was authorized considering that high capital investment costs or uncertain investment assumptions deterred private equity investments. Most hydropower projects are developed by private equity and regulated by FERC. Hydropower along developing rivers is produced for multiple purposes. Over the years, Congress has directed USACE to build water resource projects to serve public needs. Where feasible, hydropower has also been included. USACE-operated hydropower plants offer reliable hydroelectric power services at the lowest possible cost as a benefit to the nation, consistent

with sound business principles and in partnership with other federal and nonfederal hydropower generators, power marketing administrations such as the Tennessee Valley Authority, and hydropower customers. USACE collaborates on its hydropower efforts with the Department of Energy, FERC, and a variety of other federal, regional and state agencies and private USACE-permitted hydropower facilities.

There remains undeveloped potential for hydropower at St. Antony Falls. Three hydropower concepts are described below:

Hydropower could be generated in the USAF Lock chamber, similar to the Crown Hydropower proposal in FERC license number 11175. This license was granted in 1999, detailed plans were developed beginning in 2013, and momentum slowly eroded. There are extensive comments documented in litigation, FERC licensing reports, and other correspondence. The primary objections were dangerous currents at the intake, the plant proximity to a public development area, and an industrial appearance that is contrary to site development. These concerns lead to interrelated problems with acquiring funding and real estate. If this hydropower opportunity were to be revisited, these concerns and issues must be addressed and resolved.

Another hydropower scenario could be a combined falls powerplant constructed at LSAF. This powerplant would utilize the combined generating heads of both falls by placing the intake in the upper pool at USAF and using a penstock to connect the intake and powerhouse. This scenario could allow maximum implementation of future site plan design concepts and maintenance the city of Minneapolis water intake requirements. At the same time, the hydropower generation could offset the long-term federal costs of continued operation and maintenance at the site.

An additional potential hydropower scenario would be the installation of small turbines into the culverts in one or both of the lock walls. Since the culverts are no longer used for filling and emptying the lock, the culverts could be used to generate hydropower. The hydropower production could generate revenue to offset the costs of required operation and maintenance at the site.

Water Supply — USACE may participate and cooperate with states and local communities in developing water supplies in connection with water resource improvements when certain conditions of nonfederal participation are met. These water supply features may be included in federal navigation, flood risk management or multipurpose projects when they are being considered for construction, operation, maintenance and/or modification. This USACE involvement policy is based on a recognition that states and local governments, not the federal government, have the primary responsibility for the development and management of their water supplies. This scenario would require a new congressional authorization for water supply.

The city of Minneapolis and adjoining communities obtain their supply of water for municipal use from the Mississippi River, benefitting a population of over 500,000. Section 301 (a) of the Water Supply Act of 1958 allows maintenance of infrastructure necessary to maintain the existing pool elevation. Section 301 (a) would require the benefiting nonfederal interest to be the nonfederal sponsor for a water supply project and fund all costs of water supply operation and maintenance. This would mean the nonfederal sponsor would bear the costs to maintain the damming surface provided by USAF.

6.5.2 Modifications to Minimize Operation and Maintenance Costs

As long as USACE retains ownership of the site and continues to operate the Tainter gate to pass high flows, operation and maintenance will be required and will be an ongoing cost to the federal government. This section explores potential actions or site modifications to minimize operation and maintenance costs of USAF Lock and Dam and/or reduce USACE's operational footprint at the site. The potential actions were evaluated against two primary criteria:

- Ability to Maintain the Existing Navigation Authorization: If the action being exercised would impede the traffic of either recreational and or commercial traffic, it could not be implemented under the existing authorization.
- Ability to Control and Adjust the Upper Pool: Maintaining the pool upstream of the lock and dam indicates the elevation of the pool is able to be controlled and adjusted by the operations of the lock. This function of the damming surface affects a number of outside interests, including the city of Minneapolis water supply Intake that is upstream, the operations of the hydropower plants, and downstream flood control along the Mississippi River.

These potential actions would all entail increased initial costs, with the goal of minimizing future maintenance costs at the site.

Remove Tainter Gate and Replace with Fixed-Crest Weir — This potential action would entail removing the existing upper and lower miter gates, as well the Tainter gate, and installing a fixed-crest weir either between the lock walls or upstream of the lock walls. Given the limited space available, the fixed-crest weir would likely need to include a curved or zigzag shape. These types of weirs are typically referred to as labyrinth weirs. This shape would help maximize the weir's length, therefore also maximizing the amount of flow over the weir itself within the site's limited width. Ultimately, a labyrinth weir is more efficient than a traditional horizontal barrier weir for handling large flows where space or width is a major constraint.

A fixed-crest weir would significantly reduce long-term maintenance requirements at the site, given the removal of the Tainter gate, miter gates and any associated equipment. The primary elements that would still need to be maintained would be the concrete weir itself and the existing lock walls the weir is structurally tied into. The cost to design and construct the weir would be significant, due to the weir needing to be structurally tied into the lock foundation and adjacent walls and the complex geological setting at the site.

Existing Authorization — This action would not be compatible with the existing authorization because it would create a barrier to navigation traffic. This action would be dependent on congressional modification of the existing authorization.

Ability to Control/Adjust Upper Pool — This action would remove USACE's ability to maintain the upper pool. The weir would replace the Tainter gate's ability to pass high flows but would not be able to control the pool elevation upstream, due to the concrete weir having to be set at a fixed elevation. Additionally, depending on the final geometry, the weir may not be capable of passing the minimum flow, possibly requiring upstream flowage easements to be purchased by USACE. This action would not prevent others from implementing pool controls at other locations along the damming surface outside the USAF project.

Rail-Mounted Gantry Crane — This potential action would include the installation of a gantry crane spanning the lock chamber for the purpose of placing the lock chamber bulkheads. This action would reduce the crane staging area footprint necessary for placing bulkheads and maintaining the current operation and maintenance requirements. The gantry crane would travel either part or the full length of the lock chamber via a rail system installed on both sides of the lock chamber. Similar concepts include the installation of a hydraulic boom crane mounted on top of a gantry and capable of trolleying from side to side across the gantry, as well as a rail-mounted wide platform gantry capable of supporting a land mobile crane and accessible from the landwall either by ramp or raising the grade behind the upper landwall. This action would not reduce existing operation and maintenance costs and would incur additional operation and maintenance costs to maintain the crane in working order.

Ability to Maintain Existing Navigation Authorization — Depending on the final design of the gantry crane, the navigation purpose could be maintained at the site. Significant consideration would be necessary to ensure the gantry crane would not obstruct vessels from passing underneath the crane within the lock.

Ability to Control/Adjust Upper Pool — This action would have no impact on the lock and dam's existing ability to maintain the upper pool elevation.

Reduce Bulkhead Size with Center Post — This potential action would consist of installing new bulkheads on the upstream side of the lock in front of the miter gates and Tainter gate. Bulkheads serve a vital role within the lock and dam structure and its maintenance requirements. As the lock and dam remain in place, the bulkhead system provides the ability to dewater the lock, which is key to properly inspect, identify, and forecast rehabilitation efforts. The purpose of this potential action would be to reduce the size of the bulkheads by installing a center post in the middle of the lock into which the bulkheads could be installed. The bulkheads could also be shortened in height, ultimately making the pieces much lighter and easier to handle in comparison to the existing bulkheads that span the entire lock and are typically 4 feet in height. Smaller bulkheads would potentially reduce the operation and maintenance footprint, as they would not require as large of cranes that are currently used for the existing bulkheads.

Ability to Maintain Existing Navigation Authorization — This action would require the navigation purpose to be deauthorized by Congress, as the center post would obstruct vessels from locking through the chamber.

Ability to Control/Adjust Upper Pool — This action would have no impact on the lock and dam's existing ability to maintain the upper pool elevation.

6.6 Risk and Uncertainty

During the course of plan formulation, the project delivery team identified and considered risk and uncertainties associated with the final array of alternatives. These are listed below.

No Action and Partial Disposal:

- Without quantifiable benefits derived from the authorized purpose (navigation), operation and maintenance will continue to occur subject to availability of funding, with funding anticipated to continue at current levels.
- Risk that unanticipated conditions develop requiring major rehabilitation or dam safety modification sooner that forecast (i.e., costs of continued operation and maintenance over the next 50 years is underestimated).

Full Disposal:

- No nonfederal entity has identified willingness and capability to acquire, operate and maintain the lock and dam if the project is deauthorized.
- Full Disposal alternative as formulated does not include structural modifications that could be desirable to prepare the site for disposal.
- The WRDA 2020 Section 356 conveyance is not completed at this time, and the request for non-fee interests or rights may be refined.

7 Compliance with Environmental Statutes

This section provides documentation of how the report and array of alternatives comply with applicable federal environmental laws, statutes and executive orders. Full compliance has been determined, either due to inapplicability or no effect, unless otherwise described below. Table 7-1 summarizes the status of compliance.

7.1 Mitigation for Adverse Environmental Effects

The action alternatives identified in this study would include the proposed disposal of property and improvements from federal ownership. Mitigation for effects on historic properties from an action alternative, if appropriate, would be addressed through Section 106 consultation in a Programmatic Agreement. No mitigation for other effects of the action alternatives has been identified at this time.

7.2 National Environmental Policy Act of 1969

NEPA, as amended (42 U.S. Code § 4321, *et seq*.), commits federal agencies to considering, documenting, and publicly disclosing the environmental effects of their actions. This integrated disposition study report and environmental assessment has been prepared in compliance with NEPA and USACE's planning regulations. All agency and public comments provided in a timely fashion will be considered and evaluated. A draft Finding of No Significant Impact is provided in Appendix H.

7.3 National Historic Preservation Act of 1966

Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S. Code § 306108), requires federal agencies to account for the indirect, direct, and cumulative effects of their undertakings on historic properties (i.e., archaeological sites, traditional cultural properties, buildings, structures, objects, districts, and landscapes listed in or eligible for listing in the National Register of Historic Places). Section 106 and its implementing regulations in 36 Code of Federal Regulations Part 800 establish procedures for federal agencies to follow in identifying historic properties and assessing and resolving effects of their undertaking on them in consultation with the State Historic Preservation Office, Native American Tribes, and the Advisory Council for Historic Preservation, as appropriate.

The USAF site is eligible for listing on the National Register of Historic Places and is significant under National Register Criterion A in the areas of Commerce, Industry, Maritime History and Transportation and Criterion C in the area of Engineering. The USAF site is eligible as an individual listing and as a contributing resource to the St. Anthony Falls Historic District, 9-Foot Navigation Project and proposed St. Anthony Falls Locks and Dams Historic District. In addition, USAF meets the criteria for designation as a Minneapolis landmark. Preliminary informal discussions with the Minnesota State Historic Preservation Office, federally recognized tribal nations, various agencies, nongovernmental organizations and other stakeholders have been ongoing for several years. Formal coordination and consultation will continue following selection of an alternative.

To comply with Section 106 of the National Historic Preservation Act pursuant to 36 Code of Federal Regulations 800.14, the USACE anticipates that it would execute a Programmatic Agreement for any action alternative recommended. The Programmatic Agreement would allow for phased surveys, reviews,

and further consultation with consulting parties. The development of a Programmatic Agreement would be in consultation with the Minnesota State Historic Preservation Office, the Advisory Council on Historic Preservation, federally recognized tribal nations, and other interested agencies (FERC, local historic preservation boards, etc.) and local groups, and the Programmatic Agreement would be executed prior to approval of any action alternative. Coordination documents will be included in Appendix G once available. No Programmatic Agreement would be required for the No Action alternative.

7.4 Mississippi National River and Recreation Act (PL 100-696)

The Minnesota National River and Recreation Act created a 72-mile and 54,000 acre protected corridor along the Mississippi River, running through the project area. MNRRA identifies natural, historic, recreational, cultural, scenic, scientific and other resources of economic significance. In 1995, the Mississippi National River and Recreation Act Comprehensive Management Plan, which incorporated policy and guidelines of the Mississippi National River and Recreation Act, was adopted.

USACE engaged the National Park Service throughout the disposition study and will coordinate the proposed action accordingly. For any action alternative the National Park Service will make a recommendation if the alternative is in accordance with the Mississippi National River and Recreation Act authorization.

7.5 Executive Order 13175: Consultation and Coordination with Indian Tribal Governments

It is the policy of the federal government to consult with federally recognized tribal governments on a government-to-government basis as required in Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments; U.S. President 2000) and reaffirmed in USACE Tribal Consultation Policy, December 2023. The requirement to conduct coordination and consultation with federally recognized Tribes on and off of tribal lands for "any activity that has the potential to significantly affect protected tribal resources, tribal rights (including treaty rights), and Indian lands" finds its basis in the constitution, treaties, executive orders, Supreme Court rulings and case law and is clarified in subsequent planning laws and regulations.

Consultation with federally recognized tribes has been ongoing for several years. Consultation would continue under Section 106 through the development of the Programmatic Agreement for any action alternative and initiation of a federal undertaking. The study is in partial compliance with this executive order.

7.6 Executive Order 11593: Protection and Enhancement of the Cultural Environment

Executive Order 11593 (May 13, 1971) states the federal government shall provide leadership in preserving, restoring and maintaining the historic and cultural environment of the nation. Federal agencies shall administer the cultural properties under their control in a spirit of stewardship and trusteeship for future generations, initiate measures necessary to direct their policies, plans and programs in such a way that federally owned sites, structures, and objects of historical, architectural or archaeological significance are preserved, restored and maintained for the inspiration and benefit of the

people, and, in consultation with the Advisory Council on Historic Preservation, institute procedures to assure that federal plans and programs contribute to the preservation and enhancement of non-federally owned sites, structures and objects of historical, architectural or archaeological significance.

The alternatives considered would comply with Executive Order 11593.

Table 7-1. Compliance Review with all Applicable Environmental Regulations and Guidelines

Federal Statutes

Environmental Requirement	Compliance[1]
Bald and Golden Eagle Protection Act of 1940, as amended	Full
Clean Air Act of 1972, as amended	Full
Clean Water Act of 1972, as amended	Full
Endangered Species Act of 1973, as amended	Full
Migratory Bird Treaty Act of 1918, as amended	Full
National Environmental Policy Act of 1969, as amended	Partial
National Historic Preservation Act of 1966, as amended	Partial*
Noise Pollution and Abatement Act of 1972	Full
Watershed Protection and Flood Prevention Act of 1954	Full
Mississippi National River and Recreation Act (PL 100-696)	Partial

Executive Orders, Memoranda

Environmental Requirement	Compliance[1]
Floodplain Management (Executive Order 11988)	Full
Safeguarding the Nation from the Impacts of Invasive Species (Executive Order 13112)	Full
Protection and Enhancement of Environmental Quality (Executive Order 11514)	Partial
Consultation and Coordination with Indian Tribal Governments (Executive Order	Partial
Protection and Enhancement of the Cultural Environment (Executive Order 11593)	Partial
Protection of Wetlands (Executive Order 11990)	Full

[1] The compliance categories used in this table were assigned according to the following definitions:
Full: All requirements of the statute, executive order are met.
Partial: Additional processes are needed to gain full compliance.
* Full compliance once Programmatic Agreement is executed, if any action alternative is recommended.

8 Public Involvement, Review and Consultation

Public involvement activities and agency coordination are summarized in this section.

8.1 Public Involvement Process

USACE planning policy and NEPA emphasize public involvement in government actions affecting the environment by requiring the benefits and risks associated with the proposed actions be assessed and publicly disclosed. In accordance with NEPA public involvement requirements and USACE planning policy (Engineer Regulation 1105-2-103), opportunities were presented for the public to provide oral or written comments on potentially affected resources, environmental issues to be considered, and the agency's approach to the analysis. Efforts to involve the public included a notice of preparation of the disposition study report and environmental assessment in the Federal Register with public comment period issued July 18, 2019, public scoping meetings held in August 2019, soliciting relevant information from the public, and explaining procedures of how interested parties can get information on the planning process. In addition, a notice of the availability of the prior draft report was published in the Federal Register with opportunity to review and comment on the prior draft report in 2021. The public will again have the opportunity to review and comment on this revised draft report in 2025. The public review comments will be considered in the final recommendation and will be summarized in the final report.

8.2 Coordination

On January 8, 2019, U.S. Senators Amy Klobuchar and Tina Smith sent a letter to Mr. R.D. James, the Assistant Secretary of the Army for Civil Works, and Lieutenant General Todd T. Semonite, Chief of Engineers/Commanding General, with respect to Section 1225 of the America's Water Infrastructure Act of 2018, which directed USACE to undertake a disposition study solely for USAF Lock and Dam, separately from the disposition study for the USAF Lock and Dam and LD1. The letter encouraged USACE to "cooperate with the City [of Minneapolis] to develop a plan in which USACE would continue to own, operate and maintain the facility for flood control and water supply management and divest to the City a portion of the real property surrounding the Upper Lock in a manner that would facilitate public financing of the divested property." A copy of the letter can be found in Appendix G.

On April 25, 2019, implementation guidance was issued for Section 1168 of WRDA 2018.

On May 6, 2019, implementation guidance was issued for Section 1225 of WRDA 2018. The guidance indicated that USACE would not formulate alternatives for ecosystem restoration or recreation but would evaluate transferring ownership to other federal agencies and nonfederal entities that may pursue such measures. The guidance addressed consideration of partial disposition in the study. The guidance also addressed the provision in the act for USACE to accept funds contributed by nonfederal entities to carry out the disposition study. Such funding has not been required to date.

Two public scoping meetings were held in August 2019. In addition, separate meetings were held in August 2019 with state and federal agencies and with nongovernmental organizations. In all, these meetings drew close to 200 participants. Details of the scoping meetings are provided in Appendix C.

During the course of the study, additional meetings and briefings were held with the city of Minneapolis, Minneapolis Parks and Recreation, Xcel Energy and Friends of the Falls (now called Owámniyomni Okhódayapi). Some provided letters to USACE outlining their positions on the disposition of the facility, as described below.

On September 6, 2019, the Minneapolis Director of Public Works provided a letter advocating for the maintenance of river elevations necessary to sustain the drinking water supply for the city of Minneapolis.

The Superintendent of the MNRRA, National Park Service, U.S. Department of the Interior, provided letters on August 20, 2018, and October 18, 2019, indicating adverse impacts on the MNRRA mission should the St. Anthony Falls locks and dams cease to be in federal control, as the National Park Service would lose the special provisions and oversight granted in its authorizing legislation. It is USACE's understanding that the National Park Service is not interested in transfer of ownership of USAF to the National Park Service. No other federal entity has expressed interest in the site.

On November 21, 2019, the Friends of the Lock and Dam (now Owámniyomni Okhódayapi) provided a letter with an acquisition proposal in which USACE would retain ownership of the Upper Lock and the city of Minneapolis would acquire rights in real property and easements for development of the Falls Initiative. The letter further outlined nonsupport of additional hydropower development and features which the Friends wanted USACE to retain, operate and maintain.

In a June 16, 2020, email, the operations manager from Xcel Energy reiterated the need for the flow capacity through the lock to be able to pass the Standard Project Flood of 157,000 cfs for dam safety reasons. The operations manager also mentioned that the lock Tainter gate was making up for the loss of other spillway gates that were removed to construct the lock.

On June 29, 2020, the city of Minneapolis provided a letter to USACE expressing their desire to continue their relationship with USACE and to start a period of negotiation and discussion regarding the future of the lock. The discussions were center around ownership models, maintenance, uses, and long-term capital upkeep. The city indicated their desire to keep all options open, including partial disposition. USACE has provided an outline of maintenance activities that USACE would perform over the next 50 years, if USACE were to retain the site.

On December 8, 2020, the city of Minneapolis provided another letter to USACE restating its support of Friends of the Falls (now Owámniyomni Okhódayapi) in its desire to use ancillary land at the USAF site for a visitor center via a partial disposal from USACE. The city of Minneapolis stated that it is not interested in taking full ownership of the lock. The city requested that USACE allow a partial disposal and remain to manage the infrastructure of the lock.

With the separate authorization in WRDA 2020 of a directed conveyance to the city of Minneapolis or its designee, subsequent city and Owámniyomni Okhódayapi coordination with USACE has been focused on implementation of the conveyance while the USAF Lock and Dam remains an authorized federal project. WRDA 2020 conveyance is independent of the disposition alternatives considered in the study and independent of any disposition findings or recommendations. Public and agency coordination on the WRDA 2020 conveyance is separate from this disposition study coordination.

Details of USACE's coordination on this project are provided in Appendix G.

8.3 Public Comments

USACE received a total of 23 letters, emails and comment cards during the initial scoping process. A summary and analysis of the scoping comments and meetings is provided in Appendix C. Major issues identified include future use, recreation, cultural and historic resources, flooding, hydropower, access, natural and human environment, infrastructure, ownership, and economics. Additional details are provided in Appendix C.

USACE received 119 written comments from approximately 730 total signers, predominantly provided via email, during the prior draft report review in 2021. A summary and analysis of the comments and meetings with regards to this review is provided in Appendix G.

8.4 Agencies and Persons Consulted

Resource agencies, tribes, the general public, and other stakeholders representing municipal, governmental, commercial and natural resource interests have been informed of this study and have been receptive to coordination and outreach efforts. There are many entities with a keen interest in this study in terms of water supply, hydropower, recreation and other matters with importance to the public.

As a part of scoping, outreach to select state and federal agencies, including the Minnesota Department of Natural Resources, Minnesota State Historical Preservation Office, U.S. Fish and Wildlife Service, National Park Service, Federal Energy Regulatory Agency, General Services Administration and EPA, was conducted via a meeting/webinar on the morning of August 15, 2019. Outreach was also conducted to local and nongovernment agencies in the form of a meeting/webinar on the afternoon of August 15, 2019. In attendance were representatives from several agencies including Minneapolis Fire Rescue, Xcel Energy, Friends of the Falls (now called Owámniyomni Okhódayapi), Metropolitan Council Environmental Services, National Park Conservation Association, Friends of the Mississippi River, St. Paul Yacht Club, Friends of Pool No. 2, University of Minnesota, Crown Hydropower, Minneapolis Rowing Club, Brookfield Power, Minnesota Historical Society, Upper River Services and Nelson Energy. These information meetings were designed to convey information about the study process. Specifically discussed was the USAF Lock authorization and purpose, the definition of a disposition study, why the USAF project was a candidate for disposition, the disposition study process overview, and disposition study milestones (Appendix C).

USACE also consulted with federally recognized tribes during the plan formulation and preparation of the integrated disposition study and environmental assessment report

This document will be made available for public and agency review pursuant to NEPA, as amended. Comments will be compiled and addressed, accordingly, to ensure compliance with applicable environmental laws, regulations, policies and executive orders.

9 Recommendations

Following public review of this draft report, and incorporation of comments and final revisions, a statement of final findings and, if appropriate, recommendations by the USACE St. Paul District Commander will be included in this section.

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