

UPPER ST. ANTHONY FALLS LOCK AND DAM

SECTION 216 DISPOSITION STUDY

DRAFT INTEGRATED DISPOSITION REPORT
AND ENVIRONMENTAL ASSESSMENT



December 2020

(Revised January 2021)



**US Army Corps
of Engineers**®

St. Paul District

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Executive Summary (Revised January 2021)

This integrated disposition report and Environmental Assessment presents the results of a U.S. Army Corps of Engineers (Corps) disposition study to evaluate whether Upper St. Anthony Falls Lock and Dam (USAF) should be deauthorized and if the associated real property and government-owned improvements should undergo disposal. The “Upper St. Anthony Falls Disposition Study” is authorized by Section 216 of the Flood Control Act of 1970 (33 U.S.C. § 549a), which allows the Corps of Engineers to evaluate existing projects to determine whether or not they continue to serve their authorized purpose(s).

The primary authorized purpose for the USAF lock is navigation. The Lock was ordered closed by Section 2010 of the Water Resources Reform and Redevelopment Act of 2014 (WRRDA 2014), which effectively ended its navigation function. Additionally, Section 1225 of the America’s Water Infrastructure Act of 2018 (WRDA 2018) amends Section 2010 of the WRRDA 2014 to require, among other things, that the Corps prepare a separate disposition study report for the USAF Lock and Dam.

Section 356 of the Water Resources Development Act of 2020 (WRDA 2020), which was enacted on 27 December 2020, directs the Secretary of the Army to convey all or substantially all of the real property adjacent to the Upper St. Anthony Falls lock to the City of Minneapolis upon request. Section 356 also directs the Secretary of the Army to provide to the City 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. WRDA 2020 does not relieve the Corps of its obligation to complete the disposition study as directed by WRDA 2018. However, the passage of WRDA 2020 may affect the implementation of the recommendations of this study.

The Upper St. Anthony Falls Lock Disposition Study will determine whether or not the Federal project is serving its authorized purpose(s), and if not, whether or not sufficient Federal interests exist for the Federal government to continue to own, operate and maintain the project. The study is based on an evaluation and comparison of the benefits, costs, and impacts (positive or negative) of continued operation, maintenance, repair, replacement, and rehabilitation, or lack thereof. If the analysis determines that the project is not serving its authorized purpose(s), the study will then examine whether or not it is feasible to dispose of some or all of the Federal property and the means by which the property will be disposed.

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 facing downstream.) St. Anthony Falls was a strategic location in the birth of the city of Minneapolis. Combined with the dam that is owned and maintained by others for hydropower operations and licensed by the Federal Energy Regulatory Commission (FERC), the St. Anthony Falls remains an important component in the water resources of the Upper Mississippi River.

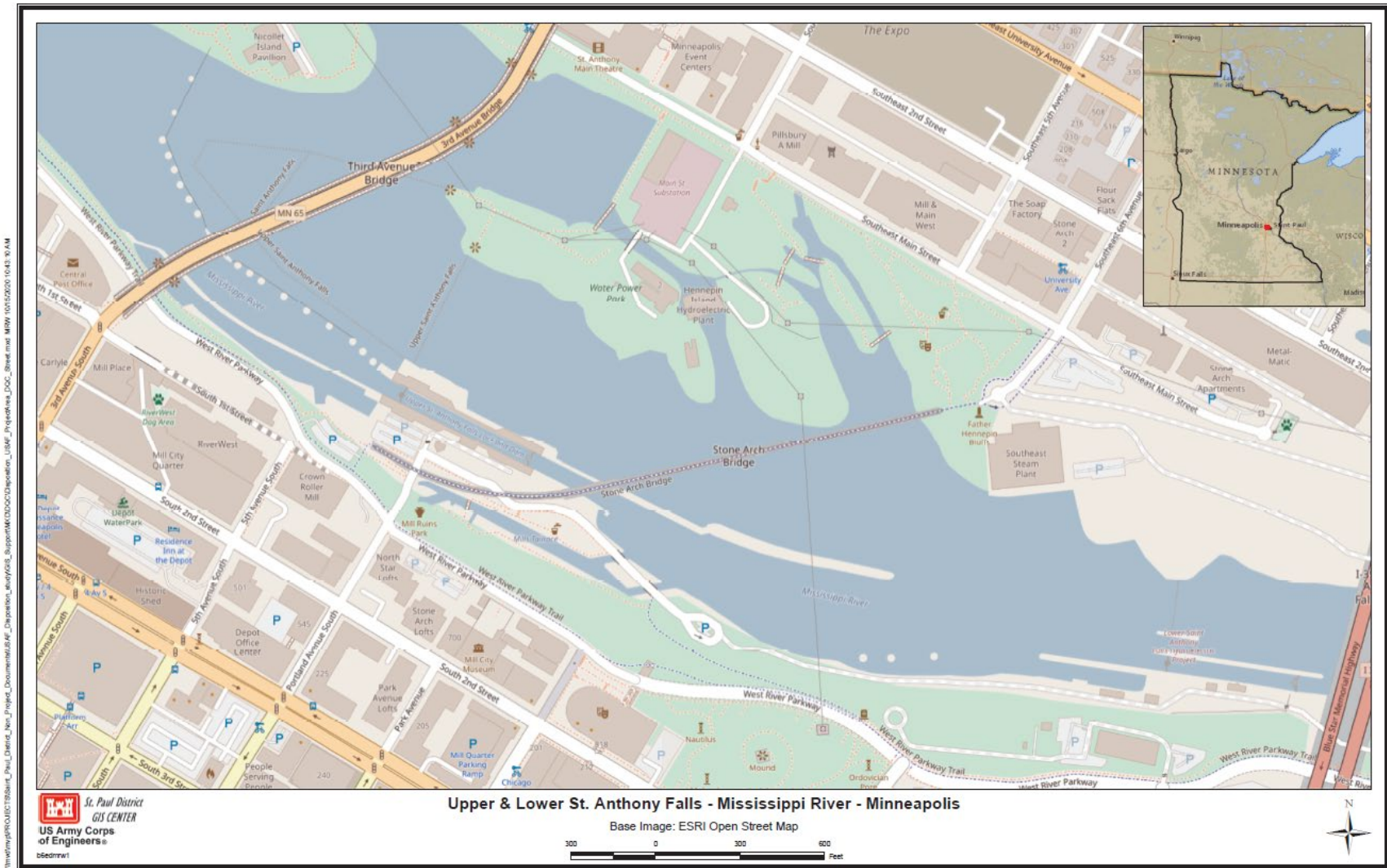


Figure ES-1. USAF Lock and Dam Location

This study analyzes three types of potential alternatives, including No Action, Full Disposal and Partial Disposal.

The No Action Alternative would require the St. Paul District to continue operation of the site as-is. With the passage of WRDA 2020, in the near term, a substantial portion of the lands surrounding the lock may be conveyed, upon request, to the city of Minneapolis or its designee. The Corps obligation will continue for the operations, maintenance, repair, rehabilitation, and replacement of the retained structures. Full Disposal would include deauthorization by Congress of all Corps' federal missions at the site, leading to complete disposal of the federal properties at the site. Partial Disposal would include partial deauthorization of federal missions at the site combined with partial disposal of federal properties, while retaining the floodgate operations and the facilities necessary to support these operations. Two Full Disposal alternatives are considered, including disposing of the Federal property using standard General Services Administration (GSA) excess property disposal procedures (Alternative 1), as well as a Full Disposal alternative combined with a monetary incentive offered for the purpose of expediting the disposal (Alternative 1a). Two Partial Disposal alternatives are considered; partial disposal with the Government's continued operation of the floodgate (Alternative 2); and partial disposal combined with most of the Corps' operational expenses being funded by a new project partner (Alternative 2a).

The results of this study conclude that the project no longer serves its authorized purpose(s) and that continued operation and maintenance of the site is not in the Federal interest.

After evaluation and comparison of the full array of alternatives, the Tentatively Selected Plan (TSP) is Alternative 1a, Complete Deauthorization and Disposal combined with a monetary incentive for expediting the disposal. The TSP recommends that Congress deauthorize the project, ending the Corps' primary navigation mission at the USAF Lock and all other secondary missions, including recreation. The TSP recommends that all Federally owned project features be transferred to another entity. Any existing Real Estate out-grants and agreements would transfer with the property. The TSP preserves the rights-of-way which provide access to Lower St. Anthony Falls Lock and Dam. These rights-of-way would be retained until such time as the Lower St. Anthony Falls project may be deauthorized. The Corps would no longer have a physical or legal presence at the Upper St. Anthony Falls site. The site would cease to be a Federal property. The Federal government would no longer be responsible for future operation and maintenance of the disposed property.

The TSP recommends that Congressional deauthorizing language include granting the Secretary of the Army authority for two years in which to negotiate the terms of the transfer of property, and authorizing payment of the incentive. The incentive will be negotiated within the limits set by Congress.

The TSP is consistent with the requirements of Sections 1168 and 1225 of WRDA 2018. As per Section 1168, dam removal was considered, but was found to be infeasible. As per Sections 1168 and 1225, it was not the objective of the study for the Corps to develop measures to enhance or improve recreation opportunities, the human environment and the natural environment, however, the TSP is conducive to the new owner and outside stakeholders developing the site to accomplish these objectives. The TSP is consistent with Section 356 of WRDA 2020 as it allows conveyance of the lands adjacent to the Upper St.

Anthony Falls lock to the City of Minneapolis, while concurrently seeking deauthorization and disposal of the remaining federally owned real property and structures at the site.

Successful implementation of the TSP depends on the identification of an entity to take ownership of the project. 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:

District Engineer
U.S. Army Corps of Engineers St. Paul District
ATTN: Regional Planning and Environment Division North
180 Fifth Street East, Suite 700
St. Paul, Minnesota 55101-1678

These statements of interest will be considered in the final report recommendations, with priority given to statements of interest that are consistent with the Tentatively Selected Plan, and from federal, state and local governments, and non-profit organizations with a public purpose.

Conclusion: The Upper St. Anthony Falls Lock no longer serves its Federally authorized purpose(s) and continued operation and maintenance of the site is not in the Federal interest. It is recommended that the project be deauthorized and the project, including all structures and lands, be transferred to others. As the transfer of all or substantially all of the real property upon request of the City of Minneapolis has already been directed by WRDA 2020, it is recommended that the Secretary of the Army be authorized to negotiate the terms of transfer of the remainder of the property and be authorized to pay a monetary incentive to the transferee.

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1 Introduction

The U.S. Army Corps of Engineers, St. Paul District (Corps) 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 disposal. This report documents the planning process for evaluating potential deauthorization and disposition of the site to demonstrate consistency with Corps planning policy and to meet the regulations that implement the National Environmental Policy Act (NEPA). The following sections provide background information regarding the basis for this study. The sections required for NEPA compliance are denoted with an asterisk (*).

1.1 Study Purpose and Scope

The study's focus is on whether federal interest exists to retain the project for its primary authorized purpose (navigation). The study will evaluate and compare the benefits, costs, and impacts (positive or negative) of continued operation, maintenance, repair, replacement, and rehabilitation, or lack thereof, of the site, as well as evaluate whether deauthorization and disposal of the associated real property and government-owned improvements are warranted.

The study considered three types of alternatives:

- no action, which would see the St. Paul District continue to operate the site as-is,
- deauthorization by Congress of all Corps' federal missions at the site, leading to complete disposal of the federal properties at the site, and
- partial deauthorization of federal missions and partial disposal of federal properties at the site, retaining the flood mitigation function and facilities necessary to support this function.

The No Action alternative includes the existing and future without-project operations, maintenance, repair, rehabilitation, and replacement of the existing project, including consideration of its current status and any changes in the status over the 50-year period of analysis. Recommending the No Action Alternative would require the United States to continue to own the property at the site and the Corps would continue to operate as-is with no deauthorization or disposal action taken. With the passage of WRDA 2020, in the near term, a substantial portion of the lands surrounding the lock may be conveyed, upon request, to the city of Minneapolis or its designee. The Corps obligation will continue for the operations, maintenance, repair, rehabilitation, and replacement of the retained structures. The fully deauthorize and dispose alternatives includes congressional deauthorization of USAF Lock and Dam. Following deauthorization, all federal property at the site would be disposed to a willing entity. The partial deauthorization and partial disposal alternatives would require congressional deauthorization of the Corps' navigation mission at the site while retaining the Corps' function for flood operations. Following partial deauthorization, portions of the federal property at the site would be disposed to a willing entity.

1.2 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 states:

“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 the Corps 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.”

1.3 Project Authority

The Rivers and Harbors Act of July 3, 1930 (Public Law 71–520) established the Upper Mississippi River nine-foot navigation channel project. The project purpose was expanded to include recreation under the Flood Control Act of 1944 (Public Law 78–534). The Rivers and Harbors Act of 1937 (Public Law 75–392) authorized the Upper and Lower St. Anthony Falls locks and dams and the Minneapolis Upper Harbor Project, which extended the 9-foot navigation channel upstream to river mile 857.6. Upper St. Anthony Falls Lock was completed in 1963 (Figure 1-1). The local sponsor for 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 the Corps to maintain the 9-foot navigation channel.

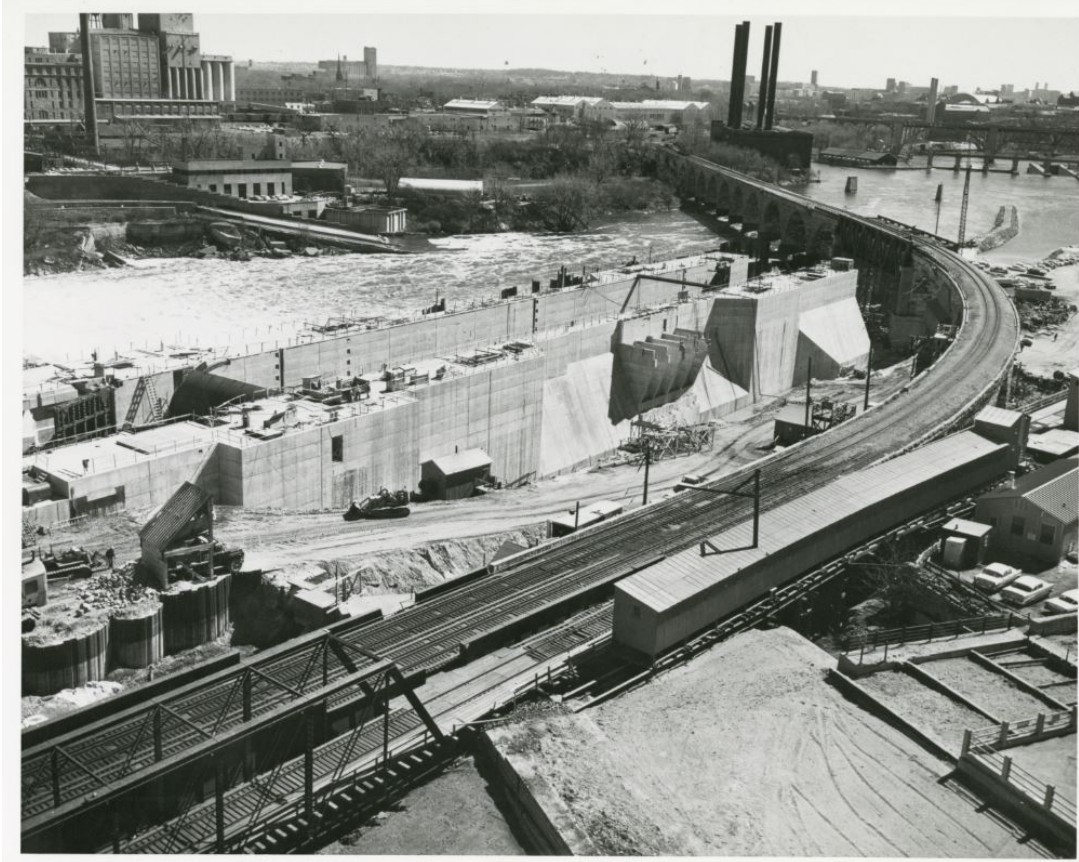


Figure 1-1. Upper St. Anthony Falls under construction, 1963

1.4 Congressional Actions

The closure of Upper St. Anthony Falls lock and the Disposition Study have been conducted at the direction of Congressional actions. Section 2010 of the Water Resources Reform and Development Act of 2014 (WRRDA 2014), dated 10 June 2014, directed the Upper St. Anthony Falls Lock and Dam (USAF) 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 for 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 OPERATIONS. -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 24 October 2018, directed the Corps 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 at USAF Lock and dam be completed separately from a disposition study for Lower St. Anthony Falls (LSAF) Lock and Dam and Lock and Dam 1 (LD1), and that the USAF disposition study be completed first and that the study be expedited. Section 1225 also directed that the USAF Lock and Dam disposition study consider measures that may preserve and enhance recreational opportunities and ecosystem health, and that may maintain the 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 include 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) expediting 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).

The Water Resources Development Act of 2020 (WRDA 2020) was enacted on 27 December 2020. Section 356 of WRDA 2020 directs conveyances of Federal properties. Section 356(f) directed that the lands located at USAF be conveyed to the City of Minneapolis. The legislation did not relieve the Corps of the obligation to complete the disposition study for the Upper Lock, as directed by WRDA 2018.

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.

1.5 Lead Federal Agency*

The Corps is the lead federal agency conducting this disposition study. There are no cooperating agencies having responsibility for the content of this report, and there is not a non-federal sponsor for the study. The study is 100 percent federally funded.

1.6 Location and Description of the Study Area*

Upper St. Anthony Falls Lock and Dam is located on the right bank of the Mississippi River in Minneapolis, Minnesota at Upper Mississippi River mile 854.1 in Minnesota’s 5th Congressional District. (Left and right orientation on rivers is facing downstream.) Figure 1-2 presents pertinent data for the lock and the adjacent non-federal dam structures:

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 through 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 1-2. Pertinent Data - USAF Lock and Dam

Upper St. Anthony Falls Lock and Dam works as part of a system which includes Lower St. Anthony Falls (LSAF) Lock and Dam and Lock and Dam 1 (LD1) which once permitted commercial navigation on the Mississippi River up to the upper harbor located in Minneapolis, Minnesota (Figure 1-3 and Figure 1-4). Lower St. Anthony Falls Lock and Dam is located on the right bank of the Mississippi River in Minneapolis, Minnesota, at Upper Mississippi River mile 853.3. Lock and Dam 1 is located on the right bank of the Mississippi River in Minneapolis, Minnesota at Upper Mississippi River mile 847.9.

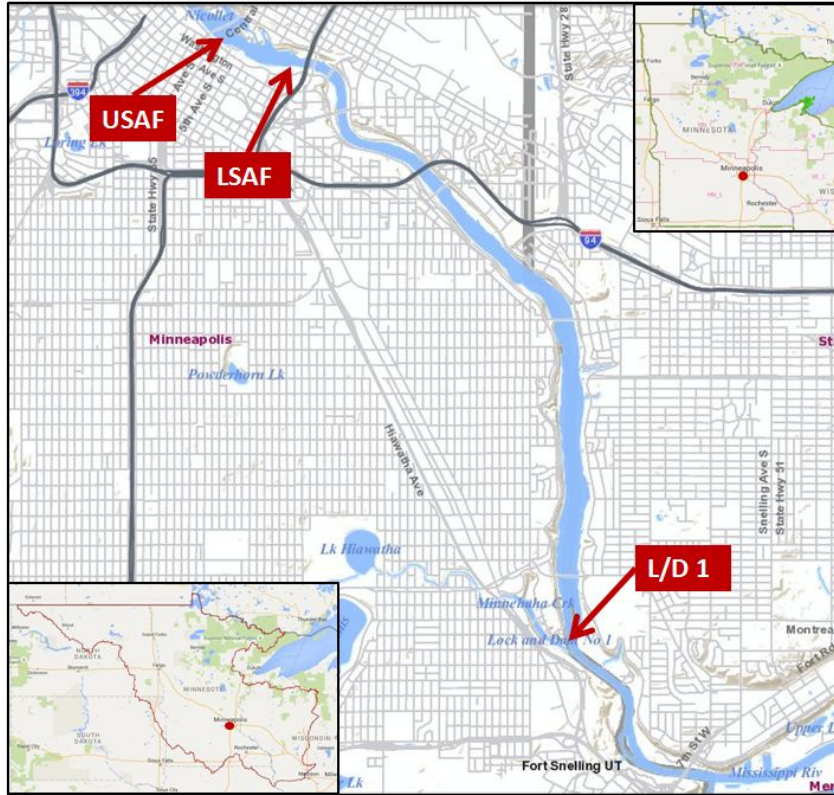


Figure 1-3. Minneapolis and St. Paul, Minnesota Locks and Dams – General Location

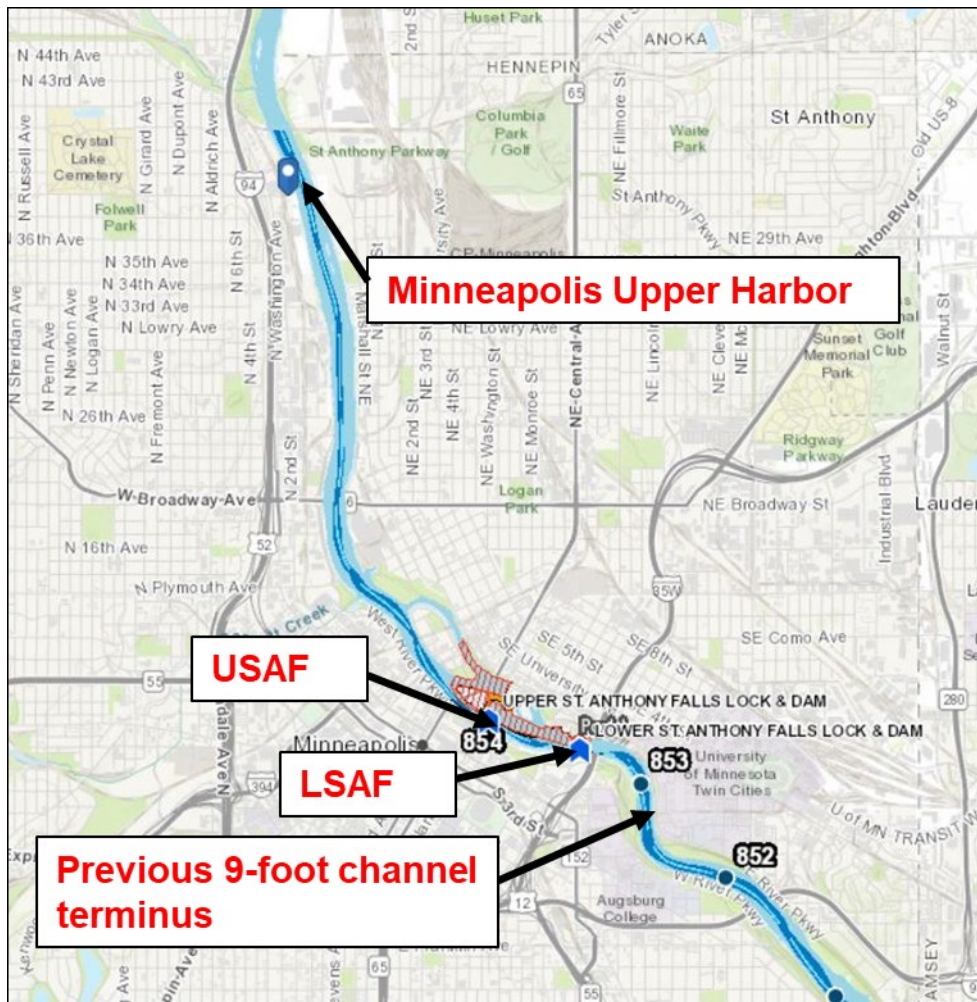


Figure 1-4. USAF and Minneapolis Upper Harbor Location

USAF, LSAF and LD1 make up the top three steps in the Upper Mississippi River’s “stairway of water” (Figure 1-5). LSAF Lock and Dam and LD1 will be the subject of a future disposition study. Aerial views of USAF Lock and Dam are shown in Figure 1-6 and Figure 1-7.

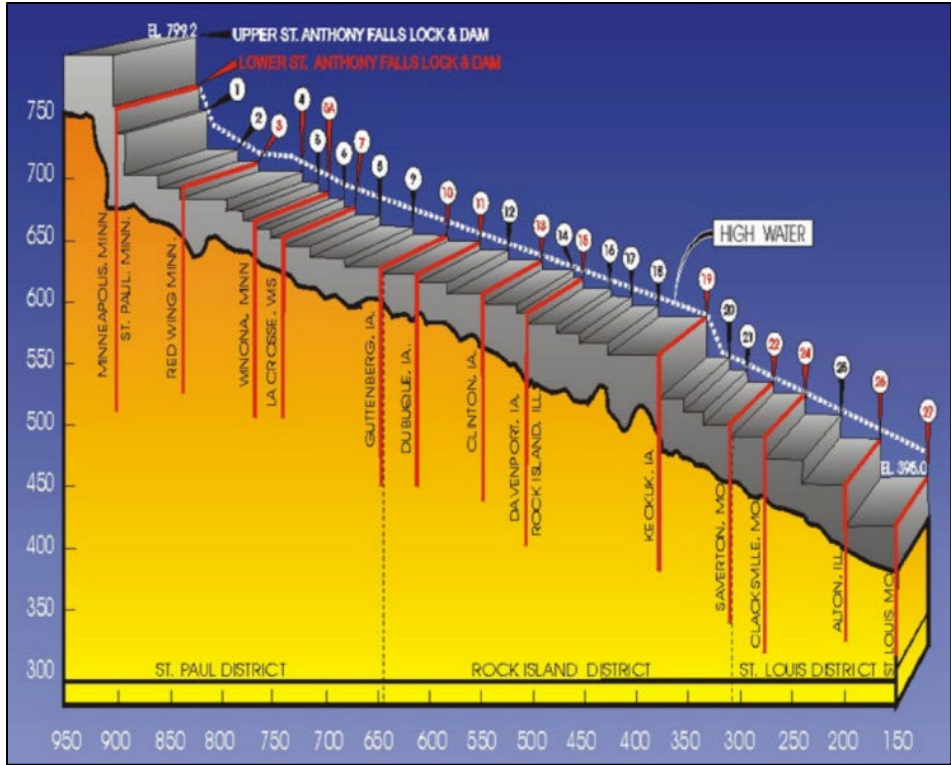


Figure 1-5. Upper Mississippi River Stairway of Water



Figure 1-6. Upper St. Anthony Falls Lock and Dam



Figure 1-7. USAF Lock and Dam located in the City of Minneapolis

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 in evidence 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 St. Peter sandstone. Emergency efforts to plug the breakthrough and tunnel were culminated by the construction by the federal government between 1874 and 1876 of a cutoff wall. This cutoff wall consisted of a dyke extending down into the sandstone about 40 feet below the limestone a short distance upstream from the crest of the Falls. In addition, two roll dams and a protective timber apron were constructed below 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 resulted from private, state, and federal efforts, which primarily consisted of dam construction, dredging, and snagging. The River and Harbors Act of 1866 allowed for the funding of permanent improvements to the Upper Mississippi River for commercial traffic administered by the Corps.

By late 19th century, the construction of wing dams and other river training structures created a 4 ½ 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. The river gorge above 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 1907, the Meeker Island Dam was completed within the gorge. The same year Congress authorized a 6-foot channel. Construction of LD1 was completed in 1917 (and subsequently, the upstream Meeker Island Dam was partially demolished and submerged).

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

In 1937, the Upper Minneapolis Harbor Development Project was authorized by Congress. Appropriations for construction funding lingered for some time while the project was debated. Following World War II, funding was obtained based primarily on visions for economic development in Minneapolis. 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 (NSP, which later became Xcel Energy) transferred several tracts of land to the Federal government for construction of the Upper Lock, including what was known as Upton Island and Spirit Island (shown in yellow on Figure 1-8). The majority of the rest of the dam at Upper St. Anthony Falls is owned and maintained by Xcel Energy. The power company retained the rights to cross the transferred property in order to maintain their portions of the dam. The federal and non-federal features at Upper St. Anthony Falls are highlighted on Figure 1-9.



Figure 1-8. USAF Lock and Dam - Federal Government Tracts

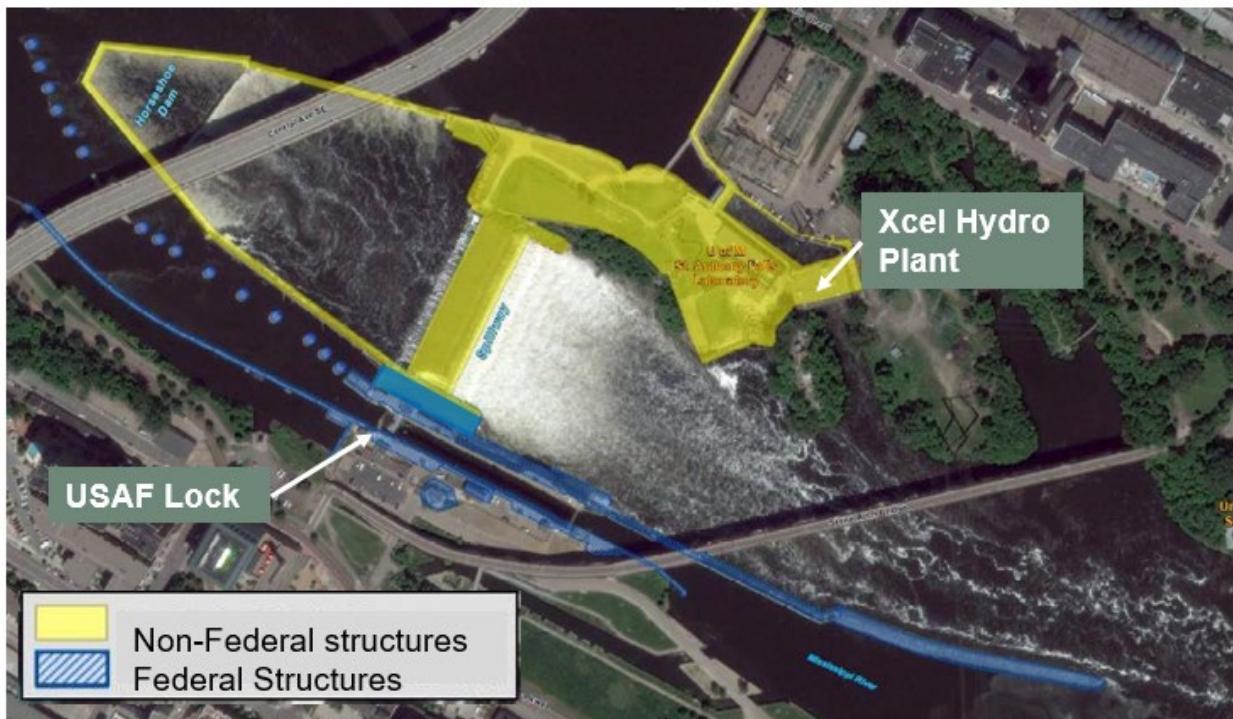


Figure 1-9. USAF Lock and Dam - Federal and Non-Federal Structures

1.6.2 Project Area Overview

The project area is the USAF Lock and Dam and adjacent portions of the Mississippi River and overbank areas that may be affected by disposal or other changes at the lock and dam. During the study scoping, it was determined that this study will not evaluate changes to the 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 follow-on disposition study of LSAF Lock and Dam and LD1.

The U.S. government is the owner of the Upper Lock at USAF. The U.S. Army Corps of Engineers, 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 operations and maintenance are performed by staff assigned at LSAF Lock and Dam or LD1, or occasionally the maintenance and repair crew stationed at Fountain City, Wisconsin.

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 1-10). 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 surmounted by a wooden flashboard system.

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



Figure 1-10. USAF Lock and Dam

The horseshoe dam, flashboard system, and spillway are owned by Xcel Energy (formerly Northern States Power Company). The hydroelectric facility, located on the left bank of the Mississippi River opposite the 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 no. 2056. Some pertinent stipulations in that license require Xcel Energy to maintain the pool level within a certain band width 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 to 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 approach 40,000 cubic feet per second [cfs] (flood conditions)) the Corps opens the floodgate in the USAF Lock to ensure that commercial navigation may continue up to that flow. 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 elevation 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 lock structure: The lock is a U-framed gravity structure constructed directly on a sandstone foundation. The gravity structure has robust walls and 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 above mean sea level (msl), respectively, resulting in a normal lift of 49.2 feet. The top of 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, 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. There is a stop log sluice at the end of the transition that was considered desirable to pass debris from the upper pool and salvaged from the original dam. 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, which houses bubbler equipment.

Description of the lock gates: The lock structure is fitted with a pair of upper miter gates and a pair of lower miter gates, as well as a submersible tainter gate. Each pair of miter gates is comprised of two leaves, each 32 feet 2 inches wide. The upper gates are 20.0 feet high, while the lower gates are 67 feet 2 3/8 inches 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 has a height of 15.7 feet. 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 wall. 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, and 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 via 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 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 valve conduits, preventing flow through the 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 go. Guard walls prevent tows from damaging adjacent structures, or to 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 – composed of 15 concrete-capped steel sheetpile cells, prevents tows from drifting into the horseshoe dam or the mid-channel pier of the Third Avenue Bridge.
- Downstream landside guide wall – 260 feet long.
- Downstream riverside guard wall – 600 feet long.
- Downstream riverside rock training dike – 700-foot 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, 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. Despite its name, very few of the controls for the lock operating equipment are located in the

central control station, but the electric service for the entire lock runs through the central control station. The operating controls for the upper and lower miter gates and valves are located in the upper and lower control stations, located 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.

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 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.

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 cutoff wall, around the restroom, following the edge of the staff parking area adjacent to the central control station and tying into 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 cutoff wall, between the upper guide wall and the landside lock wall, at the upper end of the river lock wall to restrict public access to the rescue boats, at the upper end of the river lock wall to restrict access to the spillway, and at the lower ends of both river and landside lock walls to restrict public access to the stairways leading down the the lower guide wall and lower guard wall and rock dike.

Since the upper lock was closed to navigation on June 9, 2015, the upper lock continues to be used for passing high flows, public tours, 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 project. The observation deck/visitor center and other points on the site contain interpretive displays, which are important for tours. The Corps has granted the National Park Service a 5-year real estate license to conduct public tours during the summer.

1.6.3 Geologic Setting

The Mississippi River in downtown Minneapolis, near the USAF Lock and Dam, is about 1,500 feet wide and 40–70 feet below the downtown streets. The present river valley at St. Anthony Falls has been cut in the last 10,000 years during the high meltwater discharge of the 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 dike are founded on Platteville Limestone. Both rocks offer solid foundations. The Platteville limestone is only about 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' 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 for scouring or excavating the St. Peter sandstone is well known in the tunneling industry. The historic progression of the waterfalls (shown in Figure 1-11) 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 1-11). The present stabilized location of the falls is due to the work conducted by the mill industry and the Corps in the 1870s to stabilize the waterfall, which resulted in the unique horseshoe configuration of the spillway (Figure 1-12).

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/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 1-11. Upper Falls in 1865

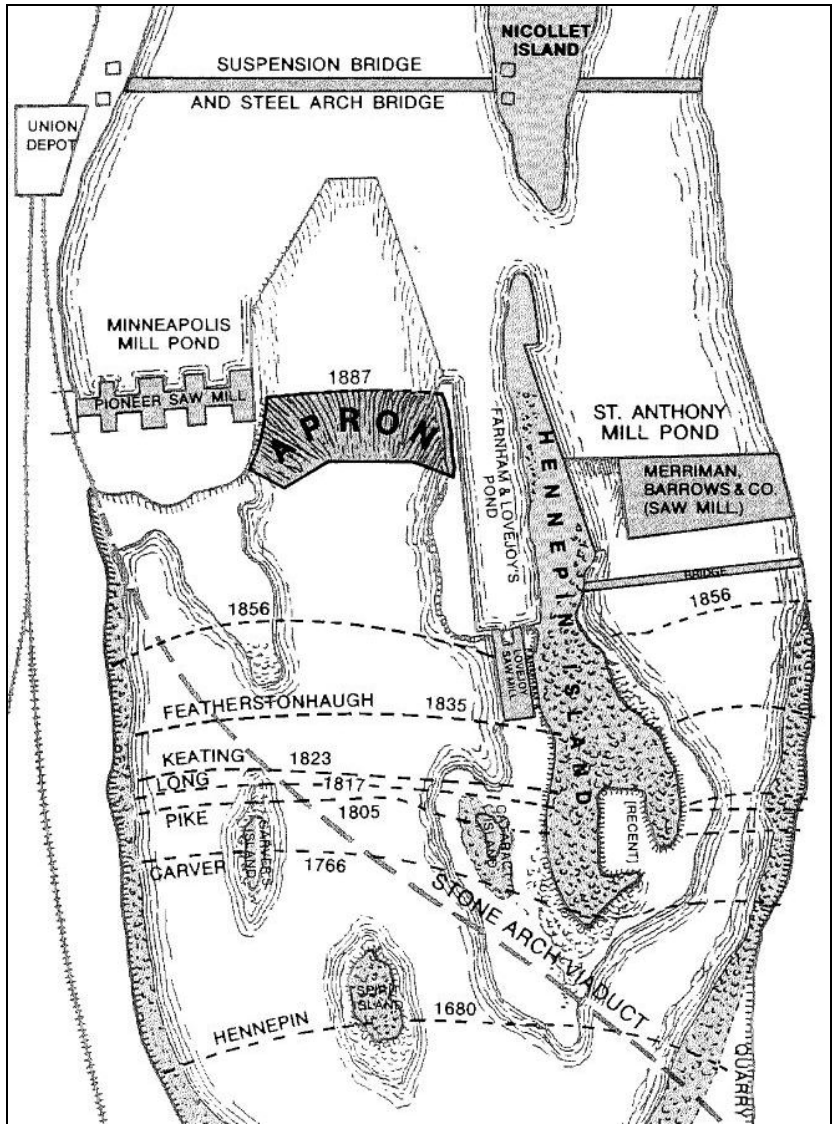


Figure 1-12. Regression of the Falls

1.7 Prior Reports and Existing Water Projects

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 5 October 2015, with 6 November 2015 revisions. 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 9 July 2012. Closure of the lock would impact barge traffic to the Upper Riverfront of Minneapolis. The study analyzes 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 was prepared by the St. Paul District in regard to the effects of closing the lock.

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.

1.8 Proposal for Federal Action*

In the 2015 Initial Appraisal, the Corps determined that potential national economic benefits related to the disposition of USAF Lock exist, and which 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. Based on this determination, in this Disposition Study, the Corps is evaluating deauthorization of the project and disposal of the associated real property and government-owned improvements. The 2016 interim guidance for dispositions studies requires the utilization of risk informed planning to the decision to dispose of the facility. Risks to public safety, the environment, and to 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, continuing to defer major maintenance activities will continue to increase risk to the environment and public safety. This study will identify and evaluate alternatives and the necessary actions to mitigate risks before deauthorizing and disposing of the facility.

The National Environmental Policy Act requires the lead agency to analyze and disclose impacts of its proposed action and the alternatives. For analysis of potential environmental effects of the alternatives, the Corps analyzed a reasonable range of measures for addressing life safety and environmental risks before disposal and transfer to a non-federal entity. The plan formulation process is described in Section 4. The period of analysis is 50 years from 2023 to 2073.

2 Need for and Objectives of Action

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

2.1 Problems and Opportunities

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

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.

The overall problem for the USAF Lock and Dam is that the project is no longer fulfilling its authorized purpose of navigation and the United States government is continuing to provide federal investment through operation and maintenance activities.

An additional problem identified during the public scoping is the future 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.

Opportunities to address problems for this study include the following:

1. Several entities are interested in the future of the site, and a potential future owner may be identified for all or parts of the facility if it is fully or partially deauthorized.
2. There is an opportunity to enable future visions for the site; local stakeholders are generally unified with their future visions for the site including visions to improve or enhance to recreation, the human environment, and the natural environment.
3. Opportunities exist to improve or enhance recreation at/through the site and to improve or enhance the human and natural environment in the area.
4. Opportunities exist to modify the site or an element of the site to serve a new water resources development purpose.
5. Transfer of facilities would 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 dispose of USAF Lock and Dam or a portion of the project site. The rationale for disposition would be due to the

absence of federal interest in continued use of the facility for its primary authorized purpose (i.e., navigation).

2.3 National Objective

The federal objective of water and related land resources project planning is to contribute to national economic development consistent with protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other federal planning requirements.

2.4 Planning Objectives

The planning objectives for the study include the following:

- Reduce the federal investment for ownership and operations, maintenance, repair, rehabilitation, and replacement of USAF Lock and Dam over the next 50 years.
- Support future visions for continued use of USAF Lock and Dam by stakeholders and the public.

2.5 Planning Constraints and Considerations

The following constraints have been identified for the study:

1. Deauthorization and disposal considerations are limited to structures that are federally owned. 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 the Corps to convey lands adjacent to the lock structure to the City of Minneapolis upon request. Recommendations for deauthorization and disposal are limited to the lands and structures remaining in federal ownership after compliance with WRDA 2020.
3. Avoid impacts to municipal water supply. The intakes for the City of Minneapolis water supply in the Mississippi River rely on a predictable water elevation upstream of the dam.
4. Avoid impacts to existing hydropower projects by maintaining the upper pool elevation and flow capacity required by the FERC licenses.
5. 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, but the river would still remain within its banks. 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 cubic feet per second (cfs)).

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

1. Minimize the risk of spreading aquatic invasive species. Invasive carp have been expanding their populations upstream of Lock and Dam 8, and several have been found in the St. Croix River and the Minnesota River, suggesting they have bypassed Locks 2 and 3 on the Mississippi River.
2. Consider current uses, including by non-federal entities, which include access for maintenance of the dam (by Xcel Energy), water rescues (by Minneapolis Fire and Rescue and Hennepin County water patrols), spillway operations, and flood operations.

3. Opportunities determined to require further investigations will trigger a federal nexus; detailed studies and environmental compliance documents (e.g., Environmental Impact Statement) would occur under the appropriate authority in a feasibility study and would not be conducted under this disposition study.

2.6 Public Scoping Comments and Resources of Concern*

Scoping the disposition study used several outreach strategies. The Corps published a Notice of Preparation of an Environmental Assessment in June 2019 to solicit public comments on scoping the analysis. The Corps hosted public meetings on August 13 and 19, 2019 to gather comments on issues of concern and to scope the feasibility study 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 the public meetings, the Corps hosted meetings with federal, state and local agencies and with non-governmental organizations on August 15, 2019. Following the public scoping process, a scoping document was prepared and was posted on the disposition study website along with redacted copies of the public comments (Appendix C).

Issues identified through these stakeholder engagement activities include:

- Upper St. Anthony Falls 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 by connecting visitors and residents to the river.
- Operations and maintenance of portions of the site dealing with flood operations is an important factor and should be retained under the jurisdiction of a federal entity like the Corps. Other parts of the site have tremendous potential for recreational use but under different ownership.
- The project site exhibits features consistent with criteria for inclusion on the National Register of Historic Places. Property transfer to a non-federal entity would likely trigger provisions under Section 106 of the National Historic Preservation Act (54 U.S.C. § 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, canoes/kayaks, and personal watercraft. 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.

In addition, separate meetings were held with the City of Minneapolis, Minneapolis Park and Recreation Board, Friends of the Falls (formerly Friends of the Lock & Dam), and Xcel Energy to determine their interest in the partial disposition measures.

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

3 Relevant Project Information

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

3.1 History of Performance

Closure of USAF Lock and Dam 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 is discussed below as consideration for disposal of the federal project.

3.1.1 Project Functions

The primary authorized purpose of USAF Lock and Dam is navigation, recreation is a secondary authorized purpose. The recreation purpose is not intended to be a stand-alone mission of USACE since the authorization is intended to optimize use of federal projects. Flood mitigation is not an authorized purpose, but WRRDA 2014 allows for emergency lock operations as necessary during flood operations. The floodgate operations are performed entirely via the upstream tainter gate. The floodgate purpose is mainly for assisting navigation, and was not intended to generate flood risk management benefits (i.e. the floodgate does not improve conditions relative to the river preceding construction of the lock). Water Supply is not an authorized purpose, however, the project is 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 a specifically-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 opposite bank from the lock.

3.1.2 Commercial Navigation

Upper St Anthony Falls Lock and Dam works 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, the transportation benefits of hauling this level of freight by barge versus rail or truck are estimated at \$3.0 million/year. This was the primary benefit of the Minneapolis locks and served as an offset to the costs of maintaining their operations.

The City of Minneapolis closed their 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 the 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	2011	2012	2013	2014	2015*	Pre-closure Average	2016 - Present
USAF	-	629	596	549	207	495	0

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

3.1.3 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 the Minneapolis locks 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.

Future projections in the demand for recreational navigation are zero.

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

3.1.4 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 no. 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 Xcel plant has produced an average of 76,200 megawatt-hours (MWh) per year (2008–2012 average). Applying the regional retail price of \$97.29 per MWh, the annual power produced at the Xcel plant is valued at \$7.42 million.

The Artists A-Mill Lofts is the second licensed and operational hydropower plant currently operating in the area and is dependent upon the upper pool. This is FERC license no. 14628. It is also located on the left bank of the Mississippi River, and is owned by Minneapolis Leased Housing Association IV. The 600 kilowatt facility serves only the Artists A-Mill building.

3.1.5 Hydropower Potential

The current capacity of hydropower at the upper falls is 13 MW, which includes 12.4 MW at the Hennepin Island Plant and 0.6 MW at the Artists A-Mill Lofts. Previously, there was additional capacity at the Main Street Station. The Main Street Station had three rope-operated generators with a total capacity of about 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; however, hydropower production is

expected to remain constant in the future. It is important to note that if USACE were 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 the local stakeholders. The 2004 FERC relicensing document for the Xcel Energy plant stated that only 100 cfs resulting in about 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.

Hydropower capacity at the upper falls has remained nearly constant since the Main Street Station stopped generation in 1959. The addition at the Artists A-Mill Lofts increased total capacity from 12.4 MW to 13 MW. There was a proposal by Crown Hydropower to locate an additional hydropower plant on federal property at the Upper St. Anthony Falls. The Federal Energy Regulatory Commission (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. Recognizing this, there is a potential that hydropower production could increase if additional licenses were ever granted. However, 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.

3.2 Operations and Maintenance

The projected operation and maintenance requirements are based on the assumption that the lock is no longer used to pass traffic (commercial or recreational) on the Mississippi River. The flood operations would remain. During flood operations, lock staff ensure the upper miter gates (the lower miter gates are semi-permanently pinned open) are pinned securely and operate the Tainter gate to pass flow through the main lock chamber.

Annual operating costs include staffing, supplies, utility costs, maintaining buildings and grounds, maintenance contracts (e.g., elevator), and equipment wear and tear.

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 costs depend upon whether the Corps is maintaining the full project, or only a portion of it, as would be the case if partial disposition is recommended. The description of the current required maintenance of each feature at USAF Lock and Dam is included in Appendix A Economics. The current required maintenance costs include the cost of maintaining the real properties adjacent to Upper St Anthony Falls 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, the majority of operation and maintenance costs still remain, and future costs are relatively unchanged.

Since navigation through the Upper Lock is not allowed subsequent to WRRDA 2014, the Corps had ceased to perform dredging in the pool above USAF. The channel is expected to silt in, over time. Future scenarios assume that there will be no dredging in the channel above USAF Lock and Dam.

USAF Lock and Dam receives free electricity from the Xcel Energy hydroelectric facility, as required by their FERC license no. 2056. The pre-closure average usage at USAF was 418,000 kWh. The post-closure usage was estimated to be about one-half of the pre-closure value, or 209,000 kWh. This electrical use is expected to decrease with the restriction in operations at USAF. If the project is deauthorized and disposal occurs, the FERC license does not obligate Xcel Energy to provide free electricity to other entities using the USAF Lock and Dam site. The future owner would still be obligated to allow Xcel Energy access to maintain their dam.

3.3 Summary of Asset Holding (Real Estate)

The following sections describe the current real estate interests in USAF Lock and Dam.

Upper St. Anthony Falls Lock and Dam

A total of 9.01 acres of Lands, Easements, and Right-of-Way were acquired for the USAF Lock and Dam portion of the Upper Mississippi River 9-foot channel navigation system. The City of Minneapolis agreed to provide all necessary land interests for the project. All lands were acquired in Hennepin County, Minnesota. Fee lands consist of 6.83 acres and easement interests are 2.18 acres Table 3-4. Easement interests are a mix of flowage, road access, and utility easements. Some of the utility easements are placed under streets. Northern States Power Company (NSP) deeded fee lands and a small portion of their power facility’s dam directly to the United States. 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. Any disposition will need to recite this retained right in the disposal deed. All fee lands at USAF Lock and Dam were provided by NSP.

Table 3-4. USAF Project Lands Acreages

Estate	Hennepin County
Fee Simple	6.83
Flowage Easement	1.75
Access Road Easement	0.25
Water and Sewer Lines Easement	0.18
Security Fence and Danger Sign	0.00
Power Transmission Line Easement	0.0001

Inventoried Real Property includes the upper lock, visitor center/control building, a multi-use storage building, parking lots, paved road, and security fencing. The Corps owned real estate is shown in Figure 3-2 and the project features are shown in Figure 3-3.



Figure 3-1. USAF Real Estate

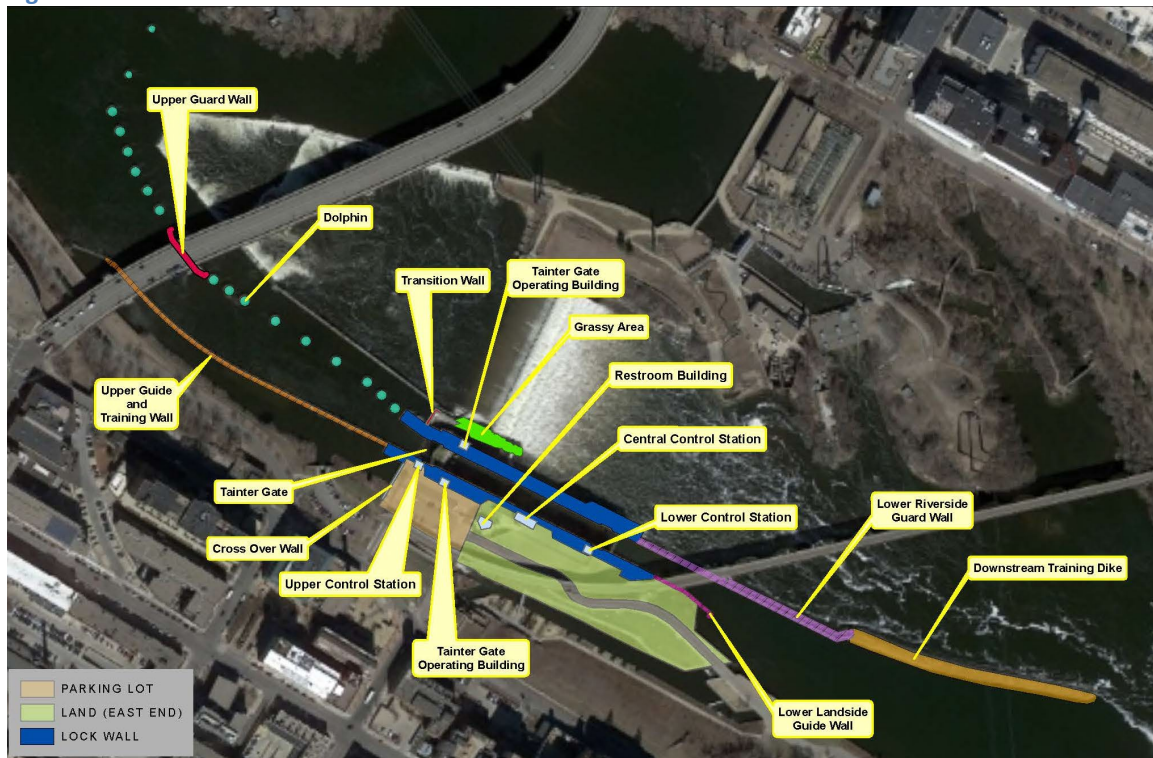


Figure 3-2. USAF All Features

The horseshoe dam and spillway tie into the left bank of the Mississippi River at Water Power Park. Additional features on the left bank of the Mississippi River in the vicinity include the University of Minnesota hydraulics laboratory, the USAF Lock and Dam hydropower power facility (owned by Xcel Energy) and Father Hennepin Park (managed by Minneapolis Parks and Recreation). The National Park Service occupies and manages the visitor center under a License agreement with the U.S. Army Corps of Engineers. This License remains in effect through May 19, 2021 (Table 3-5), at which time the National Park Service may ask that it be renewed. The license allows the National Park Service the use and access to parts of the Corps' central control station, including the second-floor break room, elevator, third floor observation deck, and lock wall. Occasionally, the National Park Service and the Corps will partner to conduct special events at the site, such as open houses, and events tied to festivals in Minneapolis. Additional outgrants are to Minneapolis Parks and Recreation Board (2), the Hennepin County Sheriff (1) for mooring of a boat, and to MnDOT (1) for a storm sewer drain. 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.

Table 3-5. USAF Outgrants

Summary of USAF Outgrants				
	Out-grant No.	Grantee	Description	Exp. Date
1	DACW37-2-97-0020	City of MPLS, Park and Rec	Bike/Pedestrian Path	None
2	DACW37-2-00-0044	City of MPLS, Park and Rec	Bike/ Pedestrian Path Fencing and Landscaping	None
3	210018-C-63-0005	Minnesota DOT	Storm Drain Line (Underground)	None
4	210018-C-63-0015	Minnesota DOT	Interstate 35W Piers	None
5	DACW22-2-78-5027	Minnesota DOT	Storm Sewer Drain Line (Underground)	15 Jan 2028
6	DACW37-2-04-0095	Xcel Energy	Electric Transmission Lines	27 Aug 2054
7	DACW37-4-16-0055	US National Park Service	Tours at Observation Deck	19 May 2021
8	DACW37-3-18-0056	Hennepin County Sheriff	Mooring of Rescue Boat	31 Mar 2023

3.4 Existing Safety Evaluation

The Corps completed a risk assessment of USAF Lock and Dam in 2016, which was preceded by a screening level risk assessment in 2009. Both risk assessments evaluated the entire damming surface of the project, which is mostly non-USACE components. This risk assessment was completed in compliance with USACE criteria: Engineer Regulation (ER) 1110-2-1156, Safety of Dams - Policy and Procedures, chapter 11, which states:

"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. The USAF Lock and Dam was categorized during this initial screening as a Dam Safety Action Classification (DSAC) 3, but later downgraded to DSAC4 after the 2016 risk assessment. (The DSAC is Dam Safety Action Classification, which has 5 levels: 1 being urgent and compelling reasons to take action, and 5 being 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 risk associated with the DSAC 3 rating in 2009 was considered unacceptable. This prompted a more detailed risk assessment in 2016. The concerns identified in the 2009 screening level risk assessment were resolved during the 2016 risk assessment as follows:

1. The likelihood of scour erosion of the sandstone leading to spillway instability is remote due to the upstream apron constructed 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 showing a rich sediment supply and no identified loss of the limestone shelf.
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. Because the lock was closed in 2015, and it is unlikely to be used again for navigation, the issue with the lower miter gates is no longer a concern as the gates are pinned open and cannot be loaded. 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. However, this feature is not part of the USACE property.

The incremental loss-of-life consequences due to breach of the USAF Lock and Dam or LSAF Lock and Dam damming surface 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 flood plain between the dam and confluence with the Minnesota River is essentially non-existent, 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). There is a possibility of consequences from people in transit, but these hazards are very low since these people are generally alert and mobile. Any flood wave would remain within the channel since the banks are generally 60 to 100 feet high 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 about 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.

3.5 Most Recent Inspection

Dam safety Periodic Inspections are conducted on a 5-year frequency. The inspections include asset management type recommendations. The Periodic Inspection walk-through was completed for 2020, however the report has not been completed.

The previous 2015 inspection included the following recommendations concerning the dam safety program. These recommendations will be updated in the 2020 inspection report:

1. Better adapt limits of the soundings and diving to coordinate with those conducted by Xcel Energy.
2. Improve hydrology calculations for the Probable Maximum Flood. (Completed)
3. Update hydraulic models for water surface profiles in the vicinity of St. Anthony Falls. (Completed)
4. Update Emergency Action Plan to include improved real estate descriptions and conformance with latest criteria from Federal Emergency Management Agency.
5. Update information from City of Minneapolis concerning tunnels at the right abutment parking lot.
6. Improve coordination of inspections with Xcel Energy. (Completed)
7. Improve coordination with City of Minneapolis water department. (Completed)
8. Improve geospatial reference to historic tunnels.

Also, there were additional recommendations concerning deferred operations and maintenance (O&M) work that may be applicable to a new owner:

1. Investigate water leakage and improve ladder access in the hydraulic cylinder pits. (Completed)
2. Replace missing latch teeth on the riverside Tainter gate. (Completed)
3. Repair cracks on the Tainter gate stiffeners. (Completed)
4. Replace Tainter gate limit switches. (Completed)
5. Replace central control station heating system.
6. Repair rubber membrane roof on the central control station.
7. Repaint the exterior lock wall stairs.
8. Repair rusted metalwork on the land wall interior stairs.
9. Replace missing pieces of wrought iron fence.

A Periodic Inspection has taken place in October 2020, the final report will not be complete for several months. No significant dam safety recommendations are anticipated.

4 Plan Formulation

This chapter 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 to a No Action alternative.

4.1 Measures

A measure is a feature or activity that can be implemented at a specific location to address one or more planning objectives. Specifically, measures were developed to meet different levels of modification to USAF Lock and Dam. In order to differentiate between costs for the No Action and costs for the partial and full disposal alternatives, the Corps examined each component of the lock and determined which were necessary for flood 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. Table 4-1 includes the complete list of all measures considered in alternative development. The full array of management measures is described in the following paragraphs.

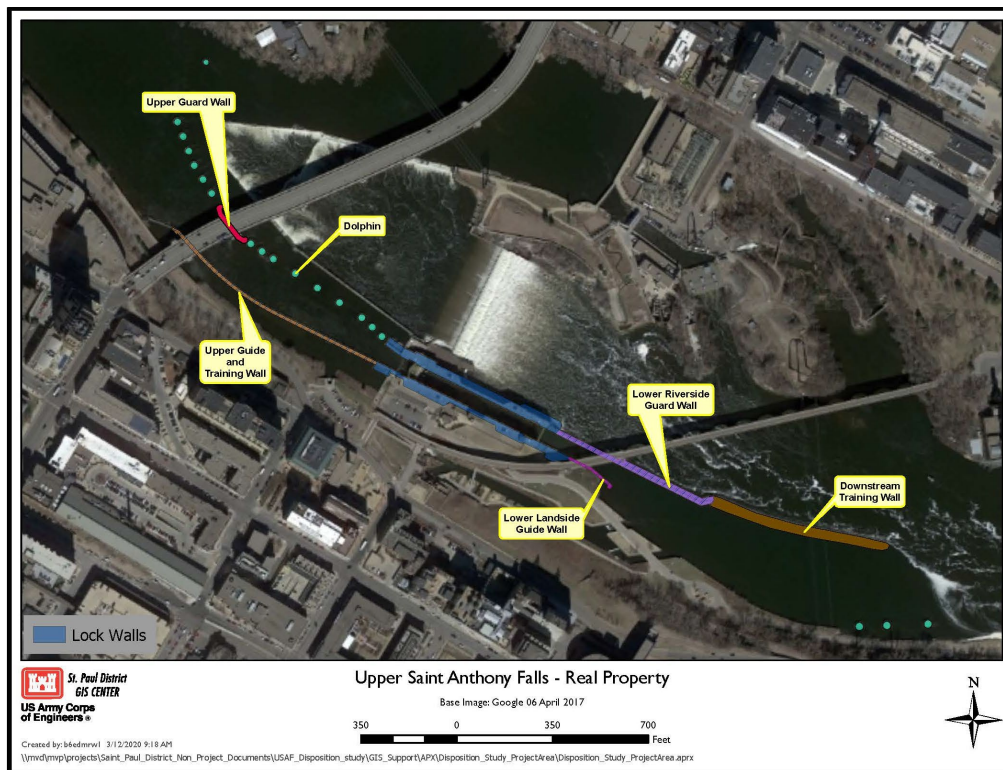


Figure 4-1. USAF Project Area Structures



Figure 4-2. USAF Project Area Buildings

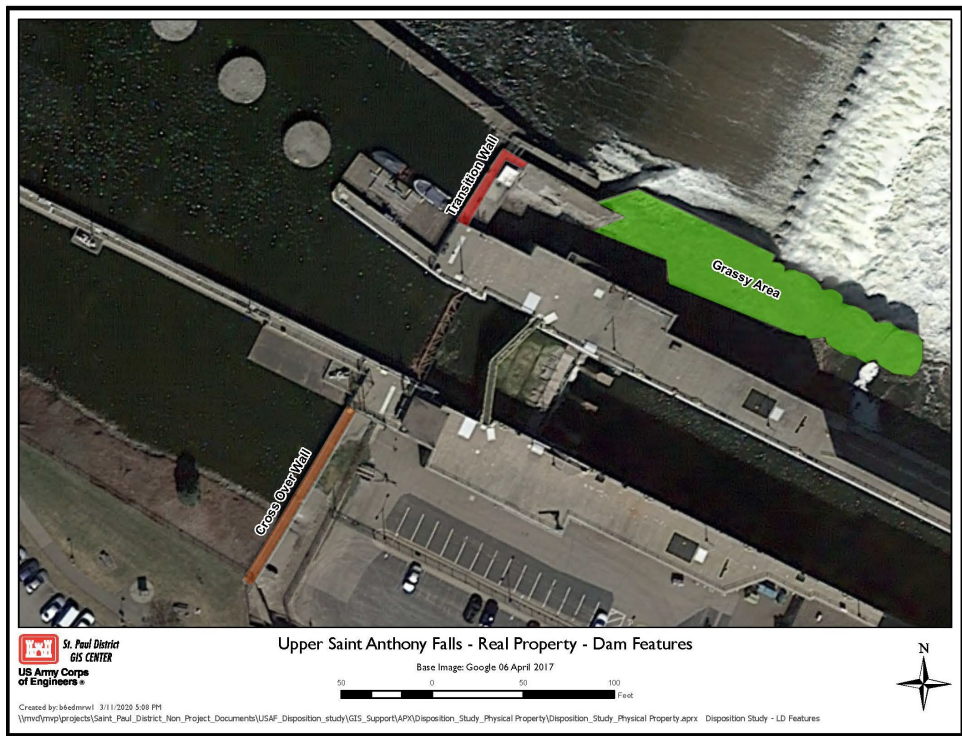


Figure 4-3. USAF Project Area Features

4.1.1 Dam Breach and Removal

This measure specifically considers a breach of part of the dam or removing 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 Geologic Setting, removal by breaching the dam, to include reconstruction of the original character of the falls, is not considered a feasible option for St. Anthony Falls. These are some options for partial implementation:

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 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 property is not under federal ownership and it does not address study problems and objectives.
3. Lastly, a partial down-cutting 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. It 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 dramatically it would remove the upper shelf of the Plattsburg limestone, which is a dramatic change in the natural setting with unknown consequences. This measure is not consistent with the overarching goal of re-establishing historic conditions.

The damming surface of the USAF structure is not completely federally owned. 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 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 only impact federal property. As such, removing the horseshoe dam and the spillway, which is owned by Xcel Energy, would remain operational and could not be recommended as part of the TSP.

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.

4.1.2 Lock Removal

Removing the lock is a potential measure under a full 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 alternative would have minimal ecosystem benefits as the area upstream of the dam would largely remain a pool with some fluctuation in water surface elevation. Because of minimal benefits to the natural environment and the large anticipated costs associated with lock removal and extending the spillway, this measure is not compatible with any foreseeable future scenario. This measure was screened from further consideration.

4.1.3 Removal of Spillway on St. Anthony Falls

As noted above, the spillway is not federally owned. Even if the site was completely deauthorized and disposed, those actions would only impact federal property; as such, removing the concrete spillway on St. Anthony Falls could not be recommended as part of the TSP. 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. 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 and 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 Disposal of Tainter Gate

The Tainter Gate is located on the upstream end of the lock chamber. The miter gates are used for navigation lockages, and the tainter gate is not used in day to day operations for the navigation mission. 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. This measure is compatible with a full disposition scenario, but it is not compatible with a partial disposition scenario. The tainter gate must be

retained under a partial disposition scenario to allow continued operation during flood conditions. This measure was carried forward for further consideration.

4.1.5 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 only be compatible with the complete deauthorization and disposal scenario; it would not be possible under a partial disposal scenario. This measure was carried forward for future consideration.

4.1.6 Disposal of Lock Walls

This measure is compatible only with a full 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 in order to operate the floodgate. Furthermore, when the floodgate is open and water is flowing through the lock, for safety considerations public access to lock walls would not be possible during these events. It is possible that 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.

4.1.7 Disposal of Upper Landside Guide Wall and Training Wall

This measure would be compatible with complete deauthorization and disposal. If the site was fully deauthorized and the federal government disposed of all associated properties, the 400-foot upper landside Guide Wall and the 520-foot upper Training Wall could be turned over to a willing entity. This measure is also compatible with partial deauthorization and disposal scenarios and could entail either disposal of the walls or retaining the walls but entering a lease agreement to allow public access to these areas. This measure was carried forward for future consideration.

4.1.8 Disposal of Upper Riverside Guard Wall

The upper Riverside Guard Wall protects the Minneapolis Third Avenue Bridge pier from commercial navigation. Disposal of the upper Riverside Guard Wall is compatible with complete and partial deauthorization and disposal scenarios. There is little to no maintenance required for the wall, and this area upstream of the lock is no longer accessible to commercial navigation. This measure was carried forward for future consideration.

4.1.9 Disposal of Lower Riverside Guard Wall

The 600-foot lower Riverside Guard Wall is located between the riverside lock wall and the downstream rock training dike. This measure would be compatible with complete deauthorization and disposal. If the site was fully deauthorized and the federal government disposed of all associated properties, the 600-foot lower Riverside Guard Wall could be turned over to a willing entity. This measure is also compatible with partial deauthorization and disposal scenarios and could entail either disposal of the wall or retaining the wall but entering a lease agreement to allow public access to the areas. This measure was carried forward for future consideration.

4.1.10 Disposal of Downstream Rock Training Dike

The 700-foot Rock Training Dike is on the riverside of the lock and located downstream of the lower Riverside Guard Wall. Disposal of the Downstream Rock Training Dike is compatible with complete and partial deauthorization and disposal scenarios. The downstream Rock Training Dike could be turned over to a willing entity, or the Corps could maintain ownership but allow public access through a lease agreement. This measure was carried forward for future consideration.

4.1.11 Disposal of Lower Landside Guide Wall

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

4.1.12 Disposal of Crossover Wall

The Crossover Wall is the upstream bulkhead located between the landside lock wall and the Stone Arch Bridge. 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. While removing the crossover wall is not recommended, disposal of the Cross-Over Wall could be compatible with complete or partial deauthorization and disposal because the feature is not required for routine operations or flood operations. However, any transfer of ownership must be to a responsible entity because the damming surface must stay in place. This measure was carried forward for future consideration.

4.1.13 Disposal of Transition Wall

The 50-foot Transition Wall is located between the Riverside Lock Wall and Xcel Energy's horseshoe dam. This measure could be compatible with complete or partial deauthorization and disposal. This wall provides Xcel Energy access to their bubbler system; as such, any alternative would need to allow continued access for Xcel Energy. This measure was carried forward for future consideration.

4.1.14 Disposal of Grassy Area

The measure describes the grassy area located between Xcel Energy's spillway and the Riverside Lock Wall; it is federal land created by construction of the lock. This measure is compatible with complete or partial deauthorization and disposal, and under either scenario the area could be transferred to a willing entity. This area could potentially provide public viewing access of the main St. Anthony Falls spillway. This measure was carried forward for future consideration.

4.1.15 Disposal of Central Control Station

This measure would be compatible with complete deauthorization and 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 turned over to a willing entity. This measure is also compatible with the partial deauthorization and disposal scenarios. If navigation was deauthorized at the site, but the Corps retained an authorized purpose to operation the tainter gate during flooding, the federal government would require access to the upper control station to operate the gate. However, access to and use of the central control station would not be required for this purpose, and disposal of the central control station could be considered as part of a partial deauthorization and disposal alternative. If another entity assumed

ownership of the central control station under a partial scenario, some degree of real estate access might need to be retained for the Corps, Xcel or emergency personnel. This measure was carried forward for future consideration.

4.1.16 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 would be the minimum control building required to operate the tainter gate during flood operations. 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 only be compatible with a full deauthorization and disposal scenario, as the tainter gate could no longer be operated by the Corps. This measure was carried forward for future consideration.

4.1.17 Disposal of Lower Control Station

The lower control station is an operating building on the downstream landside of the lock. This measure would consist of disposition of the building to an entity willing to take over ownership. Real estate access may be required depending on the other measures included in the alternatives. This measure is compatible with both the full and the partial deauthorization and disposal scenarios. Disposal of the lower control station could be combined with disposal of the central control station for partial disposal or both of the other control stations in a full disposal. This measure was carried forward for future consideration.

4.1.18 Disposal of Restrooms

The restroom building is located adjacent to the parking lot on the upstream landside of the lock. The 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. Disposal of the restrooms is compatible with both full and partial deauthorization and disposal scenarios. This measure was retained for future consideration.

4.1.19 Disposal of the Navigation Channel Upstream of USAF Lock and Dam

The channel upstream of USAF is authorized as part of the Upper Mississippi River 9-Foot Navigation Channel Project. Maintenance typically consists of periodic dredging to maintain the channel depths and widths to allow passage of commercial barges. Maintenance upstream of USAF Lock and Dam has been limited since the lock has been closed to navigation; however, the authorization for channel maintenance remains. This measure will not be addressed or evaluated as part of the USAF Disposition Study. It was decided that the future of the navigation channel will be considered in the future disposition study of LSAF or LD1. This measure was screened from further consideration.

4.1.20 Disposal of the Dolphins

A series of dolphins (sheet pile 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 all river vessels and also the dam itself. These dolphins are federally owned structures in the river. Disposal of the dolphins would be possible under both complete and partial deauthorization and disposal scenarios. Removing the dolphins would be unlikely in a disposal alternative, but another

entity could assume ownership of the structures. Under the partial disposal scenario, it's possible that only a portion of the dolphins could be disposed to other entities. This measure was carried forward to future consideration.

4.1.21 Disposal of Lands (West End)

This measure describes 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. Under a full deauthorization and disposal scenario, this measure could be included and the lands and parking lot would be turned over to another entity. However, under a partial deauthorization and disposal scenario, the Corps would need to retain access to and use of the parking lot for operations and maintenance of the upstream gates that are required for floodgate operations. It is assumed that access by a barge-mounted crane from downriver may no longer be possible in the future, and the crane and other equipment would access the site by road and need to use the parking lot as a staging and work area. At a minimum, the parking lot must support a 350-ton land-based crane to perform operation and maintenance at the site. Disposal of the west end lands and parking lot is compatible with a partial disposition scenario only if a permanent easement or other agreement would allow the Corps unrestricted crane access to the lock and floodgate for operations and maintenance. It is possible to allow alternative uses at the parking lot area during times when crane staging and maintenance work are not required.

This measure is compatible with a full or a partial deauthorization and disposal scenario for all federal property and features remaining after any conveyance pursuant to WRDA 2020. It is assumed that transfer of lands per WRDA 2020 would occur separately from any deauthorization and disposal actions recommended by this Disposition Study.

This measure was retained for further consideration.

4.1.22 Disposal of Lands (East End)

This measure describes the lands east of the above-described area. These lands include all dry lands landward of the lock wall, exclusive of any buildings. Disposition of the federally owned lands in the area would be possible in both complete and partial disposition scenarios. Under a partial disposition scenario, real estate access agreements on some of the land areas would still be required to ensure access to the site for flood operations.

This measure is compatible with a full or a partial deauthorization and disposal scenario for all federal property and features remaining after any conveyance pursuant to WRDA 2020. It is assumed that transfer of lands per WRDA 2020 would occur separately from any deauthorization and disposal actions recommended by this Disposition Study. This measure was retained for further consideration.

4.1.23 Transfer of Easements

The Corps holds an easement on the roadway to access USAF Lock and Dam from the lower lock. In addition, when Northern State Power transferred the property to the federal government for construction of the lock, it retained the right to cross the property. Under a complete deauthorization and disposal scenario, the Corps and federal government would no longer hold any interest in the lands and structures

and all easements would be transferred to the new owners, including the flowage easement as shown in Figure 3-1. However, this measure is not compatible with partial disposition alternatives, in which case the Corps would maintain the existing easements. The measure was carried forward for future consideration.

4.1.24 Maintain Agreement with National Park Service

The Corps has an agreement in place with the NPS to provide access and cooperate with the NPS offering interpretive tours of USAF Lock and Dam. This agreement could be maintained in some form under a partial disposal scenario, but it would have to be terminated under a complete disposal scenario. This measure was retained for further consideration.

4.1.25 Continue Cooperation with FERC

The Corps cooperates with FERC to coordinate licensing and operation of the hydropower plant at USAF Lock and Dam. This cooperation could continue in some form under a partial disposal scenario, but it would have to end under a complete disposal scenario. This measure was retained for further consideration.

4.1.26 Measures to Improve Human Environment

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 and Friends of the Falls conceptual plans expand the recreational opportunities in the vicinity of the lock, which also could be ways to improve the human environment. These conceptual plans would be accomplished under a specifically authorized feasibility study, cost-shared by a local sponsor. These measures are compatible with the no action, full disposal, and partial disposal alternatives. The degree to which the human environment may be improved depends upon the amount of resources available to devote to it.

4.1.27 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 hard-scape such as paved surfaces. The National Parks Conservation Association is working on developing a vision for a more visible presence at USAF Lock and Dam for the National Park Service, which oversees the Mississippi National River and Recreation Area (MNRRA). These visions may include improvements to the natural environment, and would be accomplished under a specifically authorized feasibility study, cost-shared by a local sponsor. These measures are compatible with the no action, full disposal and partial disposal alternatives. The degree to which the natural environment may be improved depends upon the amount of resources available to devote to it.

4.1.28 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, Friends of the Falls, the National Parks Conservation Association, and the National Park Service all have concepts for improving recreational opportunities. These visions would be accomplished under a specifically authorized feasibility study, cost-shared by a local sponsor. These measures are compatible with the no action, full disposal and partial disposal alternatives. The degree to which the recreational opportunities may be improved depends upon the amount of resources available to devote to it.

4.2 Evaluation and Screening of Measures

Per ER 1105-2-100, Planning Guidance Notebook, each measure must be independently evaluated and screened using each of the Corps' four screening criteria: Completeness, Effectiveness, Efficiency, and Acceptability. Qualitative metrics were used for the evaluation and screening of the measures. Each criterion was assessed using professional judgment using the metric of 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. Environmental risks, needed real estate acquisition preparations, O&M 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 measure achieves the planning objectives and avoids planning constraints.
- **Efficiency:** The extent to which the measure is cost effective. Efficient plans would require the least cost to ensure the realization of a successful disposal.
- **Acceptability:** Evaluation of whether the measure is acceptable to stakeholders, including the state and federal resource agencies, local governments, non-profit organizations, and the public, and the extent to which each measure could be implemented concordantly with any of the known future visions for the area.

To allow for easier comparison, a matrix was developed to rank each measure according to how well the measure met the four evaluation criteria while considering the planning objectives. The resulting matrix is shown in Table 4-1. The measures were given a rating of "High," "Medium," or "Low." As discussed in Section 4.1, four of the measures were screened out. The remaining measures were considered in formulating alternative plans.

Table 4-1. Evaluation and Screening of Measures

Measure	Effective (H/M/L)	Efficient (H/M/L)	Acceptable (H/M/L)	Complete (H/M/L)	Screened out?
<i>Dam Breach and Removal</i>	L	L	L	L	√
<i>Lock Removal</i>	L	L	L	L	√
<i>Removal of Spillway on St. Anthony Falls</i>	L	L	L	L	√
Disposal of Tainter Gate	L	L	L	L	
Disposal of Lock	M	M	L	L	
Disposal of Lock Walls	H	M	M	L	
Disposal of Upper Landside Guide Wall and Training Wall	M	M	M	M	
Disposal of Upper Riverside Guard Wall	M	M	M	M	
Disposal of Lower Riverside Guard Wall	M	M	M	M	
Disposal of Downstream Rock Training Dike	M	M	M	M	
Disposal of Lower Landside Guide Wall	M	M	M	M	
Disposal of Crossover Wall	L	L	M	M	
Disposal of Transition Wall	M	M	H	M	
Disposal of Grassy Area	L	L	H	M	
Disposal of Central Control Station	H	H	M	L	
Disposal of Upper Control Station	H	H	L	L	
Disposal of Lower Control Station	H	H	H	M	
Disposal of Restrooms	M	M	H	M	
<i>Disposal of Navigation Channel Upstream of USAF</i>	L	L	L	L	√
Disposal of The Dolphins	M	L	M	M	
Disposal of Lands (West End)	M	L	M	M	
Disposal of Lands (East End)	M	L	M	M	
Transfer of Easements	L	L	L	L	
Maintain Agreement With National Park Service	L	L	M	M	
Continue Cooperation With FERC	L	L	M	M	
Measures to Improve Human Environment	L	L	H	M	
Measures to Improve Natural Environment	L	L	H	M	
Measure to Improve Recreational Opportunities	L	L	H	M	

4.3 Formulation of Alternatives

4.3.1 Key Assumptions for Complete or Partial Deauthorization and Disposal

If deauthorization or partial deauthorization of the site is recommended, the federal government will no longer own, operate, or maintain all or part of the physical property at USAF. Under the deauthorization alternatives, a number of critical assumptions will influence the scope of analysis to evaluate, compare, and select a recommended plan:

- The federal action is limited to immediate deauthorization of the site. This report identifies potential future owner(s) and generally describes potential future uses of the site, but it does not disclose potential impacts of future uses. If deauthorization is recommended, future regulatory actions are required to ensure compliance with applicable laws and statutes, including evaluation of potential impacts of any future modifications to the site(s).
- The site will be disposed of in an “as is” condition, and no significant repairs or rehabilitation will occur prior to sale. Modifications or repairs may be negotiated as a requirement for the sale, 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 selection of the recommended plan.
- Existing hydropower operations will continue; FERC licenses will stay in place until the end of their term regardless of who owns and operates the locks. Minneapolis will continue to get 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 be in place as well.
- The existing recreation agreements with National Park Service will continue to be renewed until property transfer occurs.
- If a partial deauthorization and disposal is recommended, and the primary purpose of navigation is deauthorized, a new authorization must be considered to support the continued Corps presence and federal investment at the site.
- WRDA 2020 directs conveyance upon request to the City of Minneapolis all or substantially all of the federally owned real property adjacent to Upper St. Anthony Falls Lock and Dam. Implementation guidance for WRDA 2020 is forthcoming and will be made publicly available once completed. As noted, WRDA 2020 does not relieve the Corps of its obligation to complete this Disposition Study. Conveyance of the property as directed by WRDA 2020, and any other potential actions directed by forthcoming implementation guidance, will be assessed and executed separately from this Disposition Study. The detailed extent, schedule, and execution of this property conveyance is beyond the scope of this Disposition Study. Recommendations for deauthorization and disposal at the USAF project site are limited to the remaining federally owned structures and any lands the City of Minneapolis does not request to be conveyed.

- Recreational usage at the USAF project site is expected to increase following the conveyance of lands to the city of Minneapolis.

Following deauthorization, the site would be disposed of to a willing entity. Section 6.7 discusses potential future owners who have a vested interest or who have expressed interest in owning the site, as well as conceptual plans for future action if ownership is transferred. This section will be updated following publication of the draft report, should any entities be identified during the review period.

4.3.2 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 types of alternatives in the study: no action, which would see the St. Paul District continue to operate the site as-is; deauthorization by Congress of all Corps' federal missions at the site, leading to complete disposal of the federal properties at the site; and partial deauthorization of federal missions and partial disposal of federal properties at the site, retaining ownership and operation of the upstream floodgate.

Based on the study guidance, input received during the public scoping process, and Corps policy guidance, the study team evaluated multiple scenarios for the complete and partial disposal alternatives. The complete disposal alternative was considered both as a straight-forward disposal through GSA, as well as complete disposal with an incentive offered to a new owner to help expedite the disposal process. The partial disposal alternative was considered both with the Federal government continuing to pay the costs of operating and maintaining the structures needed for operation of the flood gate, and with a local sponsor paying most of the costs for the Federal government to remain to perform this function. Table 4-2 illustrates which measures were combined to form the alternative plans and which components of the project would be maintained by the Corps for the No Action and partial disposal alternative plans. For the full disposal alternatives, all components of the project would be disposed of, therefore there would be no future operation and maintenance costs. The full array of alternatives is described in detail following the table.

Table 4-2. Features retained by government in Alternative Plans

Project components that would be operated and maintained by Federal government	Required for Flood Operations	No Action	Alternatives 1 and 1a, full disposal without and with an incentive	Alternatives 2 and 2a: Partial Deauthorization and Disposal
Tainter Gate	Yes	√		√
Lock	Yes	√		√
Lock Walls	Yes	√		√
Upper Landside Guide Wall, guard wall and Training Wall	No	√		
Lower Riverside Guard Wall and rock training dike	No	√		
Lower Landside Guide Wall	No	√		
Crossover and transition Walls	Yes	√		√
Grassy Area	No	√		
Central Control Station	No	√		
Upper Control Station	Yes	√		√
Lower Control Station	No	√		
Parking Lot	Yes	√		√ (partial)
Restroom building	No	√		
Sheetpile Dolphins	No	√		
Lands (West End)	Yes	√		√
Lands (East End)	No	√		
Easements	No	√		√ (partial)

4.3.3 No Action Alternative

The No Action Alternative assumes that USAF Lock and Dam will remain closed to navigation, and with no further disposition action it will remain in Corps ownership. The Corps 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 will continue to maintain their portion of the dam. With the passage of WRDA 2020, in the near term, a substantial portion of the lands surrounding the lock will likely be conveyed to the city of Minneapolis. The agreements with the National Park Service for conducting tours at the upper lock site may continue and the development of park space surrounding the Federal project will continue and the number of people visiting the St. Anthony Falls area will increase.

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, and approximately every 10 years flood event operations will be required, including operating the tainter gate, sandbagging and supplies. 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 A Economics.

With the recent passage of WRDA 2020, this 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, Friends of the Falls, the National Parks Conservation Association and the NPS. Following the conveyance of the real property adjacent to the USAF Lock and Dam, recreational opportunities and visitors are expected to increase. Measures to enhance or improve recreation opportunities, the human environment and the natural environment can be incorporated into future uses of the area conveyed to the City of Minneapolis. Hydroelectric project proposals could be compatible with continued Corps ownership of the lock, as they would allow for occasional Corps operation of the site during flooding. However, it is anticipated that any applications for additional hydropower development at the site will be opposed by the public.

4.3.4 Alternative 1: Complete Deauthorization and Disposal Alternative

The Complete Deauthorization and Disposal Alternative assumes that Congress will deauthorize the project, ending the Corps' primary navigation mission at the USAF Lock and all other secondary missions, including recreation. Alternative 1 is shown in Figure 4-4. All lands, easements and project features still in federal ownership after any conveyance pursuant to WRDA 2020 could be transferred or sold to another entity; the Corps would not have a continued presence at the site. The lands would be disposed of following the GSA disposal priority procedure. All future maintenance responsibilities and costs to the Corps would be avoided. It is assumed that the facility would be transferred in an "as-is" condition. The Corps would continue to incur holding costs until disposal of the site occurs.

This alternative is 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, Friends of the Falls, 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.

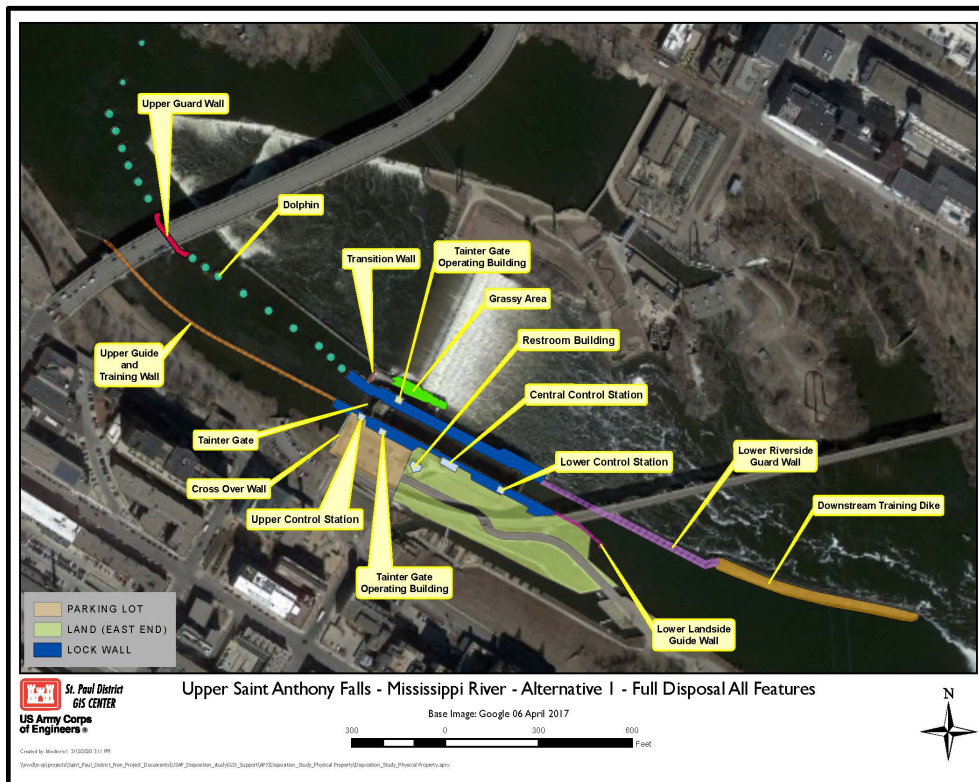


Figure 4-4. Alternative 1 Complete Deauthorization and Disposal

Section 2696 of title 10, United States Code, in which the property transfer must be coordinated with other federal entities, does not apply to conveyances under section 356 of WRDA 2020. These requirements would still apply to the remainder of the project features. The GSA will be responsible for development and execution of historic preservation documents that guide disposal of any features. Recipients of the facility will be responsible for coordination, evaluation and mitigation under said agreement documents.

4.3.5 Alternative 1a: Complete Deauthorization and Disposal with Incentive

Alternative 1a is Complete Deauthorization and Disposal with a direct transfer of property to the new owner (without going through GSA). The length of time required to effect disposal through the GSA process is unpredictable. This alternative would include authorization to pay a monetary incentive to the new owners to affect a rapid transfer of the property. Under Alternative 1a, Congress would deauthorize the project, ending the Corps' primary navigation mission at the USAF Lock and all other secondary

missions, including recreation. All lands and project features would be transferred to another entity; the Corps would not have a continued presence at the site. As the project lands have already been directed to be conveyed upon request of the city of Minneapolis pursuant to WRDA 2020, this alternative would include only the deauthorization of the project and disposal of the remaining features. Alternative 1a recommends that Congress deauthorize the project and allow the Secretary of the Army two years in which to negotiate an arrangement, in which the terms of the transfer of property would be agreed upon. The terms of the deauthorizing language would include the authority to provide a monetary incentive to the transferee. The amount of any incentive will be determined through negotiation and may be limited, as authorized, by Congress.

Following transfer of the project, all future maintenance responsibilities and costs to the Corps would be avoided. This alternative is conducive to improving the human environment, the natural environment and increasing recreational opportunities at the site as envisioned by outside stakeholders. 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.

4.3.6 Alternative 2: Partial Deauthorization and Disposal

Alternative 2 is a plan where the Corps would maintain a presence at USAF and retain ownership or an easement of all features and property necessary for flood operations including the lock structure, tainter gate, upper miter gates, upper control station, central control station, floodgate operating equipment buildings, west end of parking lot, and access from the lower lock and Portland Avenue (Figure 4-5). This version of the partial deauthorization and disposal alternative is a plan that maximizes public access and stakeholder interests through use of agreements, structural modifications, and easements while retaining Corps ownership of lands and structures for project integrity. 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 be deauthorized. With the deauthorization of navigation, a new authorized purpose would be required at the site to allow the Corps to continue to operate and maintain the floodgate. The Corps would continue to perform maintenance on necessary features. However, not all features would be regularly maintained and the Corps would determine what equipment use could be suspended. Unneeded equipment would be abandoned and disabled. The Corps would determine an energy savings plan and assess the needs for continued utilities. There would be restricted public access to the floodgate. Corps access to the floodgate components would be unrestricted.

With the recent passage of WRDA 2020, this 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, Friends of the Falls, the National Parks Conservation Association and the NPS. Following the conveyance of the real property adjacent to the USAF Lock and Dam, recreational opportunities and visitors are expected to increase. Measures to enhance or improve recreation opportunities, the human environment and the natural environment can be incorporated into future uses of area conveyed to the City of Minneapolis. 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 non-federal sponsor.

As all or substantially all of the real property adjacent to the lock has already been directed to be conveyed upon request of the city of Minneapolis as per WRDA 2020, this alternative would include only the deauthorization of the project and disposal of the features remaining in federal ownership after any conveyance pursuant to WRDA 2020. The GSA will be responsible for development and execution of historic preservation documents that guide disposal of any features. Recipients of the facility will be responsible for coordination, evaluation and mitigation under said agreement documents.

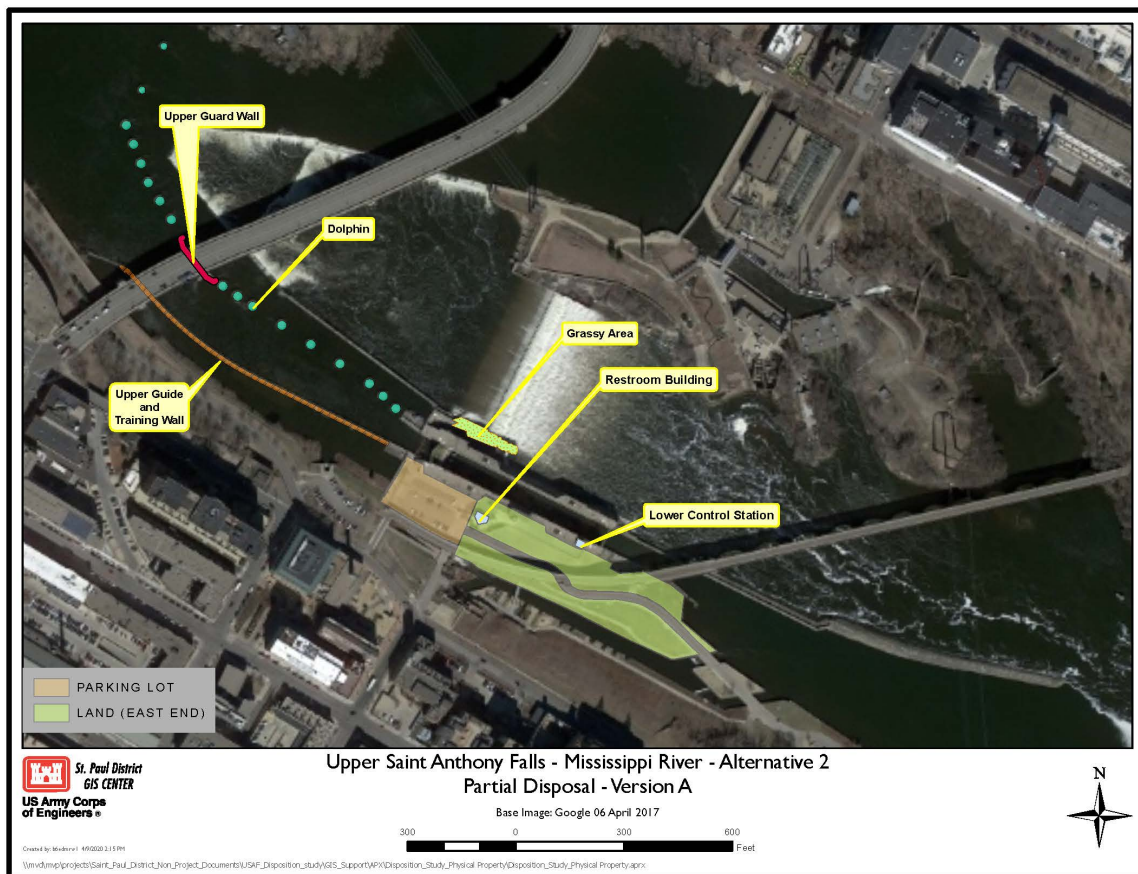


Figure 4-5. Alternative 2 Partial Disposal Version A

4.3.7 Alternative 2a: Partial Deauthorization and Disposal with a Project Partnership Agreement for Funding Future Costs

Alternative 2a calls for another version of a partial deauthorization and disposal scenario with a Non-Federal Sponsor assuming fiscal responsibility for the Corps' future operation and maintenance costs through a Project Partnership Agreement. As in Alternative 2, in this scenario the Corps would maintain a presence at USAF and retain ownership or an easement of all features and property necessary for flood operations including the lock structure, tainter gate, upper miter gates, upper control station, central control station, floodgate operating equipment buildings, west end of parking lot, and access from the lower lock and Portland Avenue (Figure 4-5). The Corps would continue to perform maintenance on

necessary features, but most operations and maintenance and major maintenance costs would be borne by the non-federal sponsor.

With the deauthorization of navigation, a new authorized purpose would be required at the site to allow the Corps to continue to operate and maintain the floodgate at USAF Lock and Dam using non-Federal funds. This would require a feasibility study cost-shared between the Corps and a non-federal sponsor, resulting in a new or supplementary authorization at the site and a Project Partnership Agreement for long term operation and maintenance at the site. Hydropower or water supply would be suitable potential supplementary authorizations.

With the recent passage of WRDA 2020, this 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, Friends of the Falls, the National Parks Conservation Association and the NPS. Following the conveyance of the real property adjacent to the USAF Lock and Dam, recreational opportunities and visitors are expected to increase. Measures to enhance or improve recreation opportunities, the human environment and the natural environment can be incorporated into future uses of area conveyed to the City of Minneapolis. 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 non-federal sponsor.

As all or substantially all of the real property adjacent to the lock has already been directed to be conveyed to the city of Minneapolis as per WRDA 2020, this alternative would include only the deauthorization of the project and disposal of the features remaining in federal ownership after any conveyance pursuant to WRDA 2020. The GSA will be responsible for development and execution of historic preservation documents that guide disposal of any features. Recipients of the facility will be responsible for coordination, evaluation and mitigation under said agreement documents.

4.4 Final Array of Alternatives

All four alternatives and the No Action Alternative were carried forward into the final array of alternatives:

- No Action
- Alternative 1: Complete Deauthorization and Disposal
- Alternative 1a: Complete Deauthorization and Disposal with a payment incentive for the new owner after transfer of the site.
- Alternative 2: Partial Deauthorization and Disposal which disposes of some facilities, and maximizes public access for stakeholder interests, but Federal government continues to provide funds to maintain the retained facilities.
- Alternative 2a: Partial Deauthorization and Disposal with a partnership agreement, which disposes of some facilities and maximizes public access and stakeholder interests. The Federal government remains to operate the retained facilities, but a local sponsor provides funds to cover most Federal costs to operate and maintain the site.

4.5 Evaluation and Comparison of Final Array of Alternatives*

4.5.1 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 national economic development benefits, consistent with the federal objective. This plan is to be identified as the NED plan. In the case of a Corps disposal study, the federal objective is to identify the least cost, environmentally acceptable alternative for disposing of the federal real properties. All alternatives are environmentally acceptable.

The NED assessment for the 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 it 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-project condition. It serves as the base for which with-project impacts can be 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 rehab of equipment, machinery, or infrastructure (5–10 year timeframe); and major rehab/replacement of infrastructure (20–50 year timeframe). Table 4-3 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). The costs for the No Action/Without-Project condition serve as a base from which costs for the alternative scenarios can be compared in order to estimate incremental cost savings benefits. Traditional NED benefit analysis identifies the “NED Plan” as the alternative that produces the greatest net benefit.” The disposition alternative that produces the greatest cost savings relative to the No Action/Without-Project condition was identified as the NED Plan. An alternative’s cost savings benefit is just one criterion upon which selection of a plan will be based. Table 4-4 summarizes the comparison of cost savings benefits by disposition alternative. See Appendix A - Economics and Costs for details on future costs by alternative.

Table 4-3. Cost Factors Considered in Future Operation and Maintenance

Cost Factor	No Action	Alternative 1 and 1a	Alternative 2 and 2a
Disposal costs		√	√
Routine Operation and Maintenance of retained structures	√	NA	√

Utility Costs	√	NA	√
Flood Operations	√	NA	√
Major Maintenance of retained structures	√	NA	√
Inspections	√	NA	√

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

	No Action	Alternative 1: Complete Disposition	Alternative 1a: Complete Disposition with incentive*	Alternative 2: Partial Disposition (Corps funds O&M and MM costs)	Alternative 2a: Partial Disposition (local sponsor funds most of O&M and MM costs.
Present Value of Costs	\$6,906,500	\$665,500	\$665,500* (plus incentive)	\$6,356,200	\$1,140,300
Average Annual Costs (50-year project life, 2.5% interest rate)	\$243,500	\$23,500	\$23,500* (plus incentive)	\$224,100	\$40,200
Average annual Cost Savings/ Benefits (Compared to No Action)	\$0	\$220,000	\$220,000* (incentive <i>not</i> included)	\$19,400	\$203,300
<p><i>*Alternative 1a includes the same disposal costs as Alternative 1. Alternative 1a would also include the additional cost of the incentive payment to the new owner; however, that amount is not yet known and is not included in this cost analysis. The amount of any incentive will be determined through negotiation and may be limited, as authorized, by Congress.</i></p> <p><i>Note: These costs would be slightly lower, due to the exclusion of the costs of maintaining the lands to be conveyed upon request to the city of Minneapolis. These costs are minor and do not substantially change the costs in this table or in the following paragraphs.</i></p>					

Equivalent Annual Costs and Benefits. Based on the above table, the alternative that yields the most savings for the Federal government, at \$220,000 per year, is Alternative 1, Full Disposal. Alternative 1 has a present-value cost of \$665,500, which is the anticipated cost of disposal following the GSA disposal process, resulting in a sale to an unknown owner. For comparison, Alternative 1a, in which a new owner is identified up-front, and an incentive is offered to the new owner for taking over immediate possession, the present value cost would be somewhat higher, depending upon the value of the incentive. For Alternative 2, in which the Corps disposes of portions of the project but retains those features necessary to operate the facility for floods, the present value is \$6,356,200. For Alternative 2a, in which the Corps retains those features necessary to operate the facility for floods, but a project partner provides most of the funding required for operation and maintenance by the Corps, the present value cost is \$1,140,300. The cost analysis indicates that the NED plan should be the plan that yields the most monetary benefit to the Federal government (Alternative 1). However, other criteria were considered in evaluation and recommendation of the TSP.

4.5.2 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 rehab 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 Corps staff employed at LSAF Lock and Dam and LD1; or for services provided by contractors/consultants involved in the operation, maintenance, and rehab of the project; or 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.

4.5.3 Environmental Quality

The environmental quality account considers non-monetary effects on ecological, cultural, and aesthetic resources. Under this account, the preferred plan 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. Detailed descriptions of the analysis and impacts appear in Chapter 5.

4.5.4 Other Social Effects

The other social effects (OSE) account is 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. 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 to children are expected. Overall, based on the absence of adverse impacts to human health, environmental health risks, and safety risk, this project would not have disproportionately high and adverse impacts to any communities, including environmental justice communities or children.

4.5.5 Compatibility with WRRDA 2014, and WRDA 2018

A final consideration is how each of the plans would be compatible with the mandates identified in Section 2010 of WRRDA 2014 and Sections 1168 and 1225 of WRDA 2018; this is illustrated in Table 4-5. The text of Section 2010 of WRRDA 2014 and Section 1168 and 1125 of WRDA 2018 is contained in Section 1.4 of this Disposition Study Report. Following passage of WRRDA 2014 and WRDA 2018, Corps headquarters issued implementation guidance for the above statutes. This implementation guidance is available on the Corps Headquarters public website. Implementation guidance for WRDA 2020 will be made publicly available once completed. As noted, WRDA 2020 does not relieve the Corps of its obligation to complete this Disposition Study. Conveyance of the property as directed by WRDA 2020, and any other potential

actions directed by forthcoming implementation guidance, will be assessed and executed separately from this Disposition Study. The compatibility of the final array of alternatives with each of the mandates identified in WRRDA 2014 and WRDA 2018 was assessed and is summarized in Table 4-5. The table indicates compatibility with a “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 4-5. Compatibility with WRRDA 2014 and WRDA 2018

	No Action	Alternative 1 full disposal without an incentive	Alternative 1a, full disposal with an incentive	Alternative 2 Partial Deauthorization and Disposal without PPA	Alternative 2a, Partial Deauthorization and Disposal with PPA
WRRDA 2014, Sec 2010 (c) - Carry out emergency lock operations to mitigate for flood damage	Yes	Operations transferred to others	Operations transferred to others	Yes	Yes
WRDA 2018, Sec 1168 (a) Consider modifications to improve the environment in the public interest	N/A – no modifications	Compatible, but others implement	Compatible, but others implement	Compatible, but others implement	Compatible, but others implement
WRDA 2018, Sec 1168 (b) Provide opportunities for public input	Yes	Yes	Yes	Yes	Yes
WRDA 2018, Sec 1168 (b) Publish the final disposition study	Yes	Yes	Yes	Yes	Yes
WRDA 2018, Sec 1168 (c) If removal recommended, use existing authorities to pursue removal in partnership with other Federal and non-Federal entities	N/A – removal not recommended	N/A – removal not recommended	N/A – removal not recommended	N/A – removal not recommended	N/A – removal not recommended
WRDA 2018, Sec 1225 (d) Expedite completion of a separate study for USAF	Yes	Yes	Yes	Yes	Yes
WRDA 2018, Sec 1225 (d) consider modifications to preserve and enhance recreational opportunities and the health of the ecosystem	N/A – no modifications	Compatible, but others implement	Compatible, but others implement	Compatible, but others implement	Compatible, but others implement
WRDA 2018, Sec 1225 (d) includes plans for maintain the benefits to the natural ecosystem and human environment	Yes	Yes	Yes	Yes	Yes
WRDA 2018, Sec 1225 (d) consider 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	N/A – no modifications	New owner may operate for flood control.	New owner may operate for flood control.	Yes, study considers partial disposition in accordance with this requirement	Yes, study considers partial disposition in accordance with this requirement

Dam necessary to maintain flood control					
WRDA 2018, Sec 1225 (d) includes plans for expediting the disposition described in this subsection	Not applicable	Yes	Yes	Yes. A real estate agreement will be required.	Study complied with this requirement
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	Not applicable – no contributed funds offered for this study	Not applicable – no contributed funds offered for this study

4.5.6 Completeness, Effectiveness, Efficiency, and Acceptability

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

- 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, O&M 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:** Evaluation of whether the alternative plan is acceptable to stakeholders, including the state and federal resource agencies, local governments, non-profit organizations, and the public and the extent to which each measure could be implemented concordantly with any of the known future visions for the area.

Table 4-6 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,” with a narrative rationale for the rating included in the matrix.

Table 4-6. Evaluation of Alternatives using Principles and Guidelines Criteria

Evaluation Criteria	No Action	Alternative 1: Complete Deauthorization and Disposal	Alternative 1a: Complete Deauthorization and Disposal with incentive	Alternative 2: Partial Deauthorization and Disposal with Corps paying Corps expenses	Alternative 2a: Partial Deauthorization and Disposal with local sponsor paying Corps expenses
Completeness	N/A – As directed in WRDA 2020, property adjacent to USAF Lock and Dam would be conveyed upon request to the City of Minneapolis. All remaining property would remain under Federal ownership. Continued annual Federal O&M costs would remain in perpetuity.	LOW – As directed in WRDA 2020, property adjacent to USAF Lock and Dam would be conveyed upon request to the City of Minneapolis. This plan would require conveyance of all remaining elements of the site to another entity; it assumes that a new owner will be readily identified during the GSA disposal process, which is not assured. The National Park Service, which oversees the Mississippi National River Recreation Area in which the lock resides, has stated that they are not interested in taking over the site. Additionally, it is unknown if the new owner would have the capability to maintain and operate the tainter gate and the damming surface required for water supply and hydropower operations. This rating could increase to high if a transferee is identified.	HIGH – As directed in WRDA 2020, property adjacent to USAF Lock and Dam would be conveyed upon request to the City of Minneapolis. This plan would require conveyance of all remaining elements of the site to another entity. With the ability to negotiate a direct conveyance and offer a monetary incentive to the recipient, it is anticipated that a willing entity will come forward to negotiate the terms of future ownership and use of the site.	HIGH – There are entities interest in accepting or acquiring the portions of the project that would be disposed in this plan, especially combined with the assurances that the Corps would remain to operate the tainter gate and maintain the structure.	LOW – Although there are entities interested in accepting excess portions of the project, there is no entity identified that would willing to enter a partnership agreement to pay for the Corps’ costs for the long-term operations and maintenance of the project.
Effectiveness	LOW – The No Action Alternative does not meet study objectives. It does not address problems and opportunities. It is not effective.	MODERATE – Federal O&M costs would cease. This alternative is moderately compatible with future visions for the site; however, a new entity would need to operate the floodgate or introduce a new engineering solution to pass the flow. Such an entity has not been identified to date.	HIGH – This alternative would meet both study objectives. Federal O&M costs would cease and this alternative is compatible with future visions for the site.	MODERATE – Some federal O&M costs would decrease, but significant O&M costs would remain. This alternative is compatible with future visions for the site.	HIGH – This alternative meets both study objectives.

Efficiency	LOW – There are no longer any benefits from commercial navigation. Average annual cost: \$383,500	HIGH – Following disposal, there would be no future O&M costs at the site. Note: GSA conveyance costs are not included, as per study direction. Average annual cost \$24,100	MODERATE – After the incentive payments, the Corps would be fully divested from the project. Average annual cost \$24,100 plus amount of incentive payment	LOW – O&M of some components would cease under following partial disposal; O&M costs would remain for features retained by the Corps. Average annual costs: \$347,500	MODERATE – Although much of the site would remain in Corps ownership, the O&M costs would be funded by a non-federal sponsor. Average annual cost: \$55,300
Acceptability	Moderate – This plan is acceptable to the public and stakeholders in regard to avoiding all constraints and working with future visions for use and development of the site while maintaining a Corps presence, and maximum public access. This plan is not acceptable in terms of meeting study objectives or supporting Corps divestment at the site.	MODERATE – This alternative violates a constraint, as it does not account for the structure or real estate required for continued operation and maintenance of the tainter gate in the lock chamber. The low acceptability rating for this alternative could be increased to a high rating if an entity or solution for continued operation and maintenance of the tainter gate is identified.	HIGH – This alternative better accounts for future use at the site by authorizing the Secretary of the Army to make incentive payments over time to a transferee.	MODERATE – This plan is the most acceptable to the public and stakeholders in regard to avoiding all constraints and working with future visions for use and development of the site while maintaining a Corps presence, and maximum public access. This plan is not acceptable in terms of meeting study objectives or supporting Corps divestment at the site.	MODERATE – The partial disposal scenario is the most acceptable to the public and stakeholders; however, the commitment required of a nonfederal sponsor is not likely to be accepted by any willing local entity.

<p>Summary Discussion</p>	<p>No Action does not meet the standards of any of the evaluation criteria.</p>	<p>Alternative 1: Complete Deauthorization and Disposal is one of the most effective plans and it is the most efficient plan. However, this plan is not acceptable, and it is not complete due to the lack of an identified transferee to accept the conveyance of the site and the lack of an entity to operate the tainter gate or engineer a solution to pass flows. If the negotiated transfer recommended by Alternative 1a is not successful, this alternative would rank as the next preferable solution.</p>	<p>Alternative 1a: Complete Deauthorization and Disposal with incentive is the highest-ranking plan; it is complete, effective, efficient, and acceptable. Alternative 1a is the plan that meets the overall standards of the evaluation criteria and it is identified as the Tentatively Selected Plan (TSP).</p>	<p>Alternative 2: Partial Deauthorization and Disposal with Corps paying Corps expenses is partially effective, moderately acceptable and one of the most complete plans. However, this plan is not efficient and results in very little cost savings to the federal government. This alternative is not recommended.</p>	<p>Alternative 2a: Partial Deauthorization and Disposal with local sponsor paying Corps expenses is an effective and moderately acceptable plan. This plan is not complete as no sponsor has been identified. This plan is moderately efficient, and generally is cost effective. This alternative is not recommended.</p>
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4.5.7 Implementability

Implementability was an additional factor taken into consideration when comparing and selecting an alternative. Implementability means that the alternative is feasible from technical, environmental, economic, financial, political, legal, institutional, and social perspectives. If it is not feasible due to any of these factors, then it cannot be implemented, and should not be carried forward for further consideration.

The City of Minneapolis was the local sponsor for the original Upper Harbor project, and provided \$1.1M in cash, and several bridge modifications as part of the local sponsor requirements. While navigation was on-going, the City of Minneapolis also had to provide dredged material disposal areas. With the cessation of navigation, dredging is no longer being performed and the city of Minneapolis has not had to provide this aspect of local cooperation. However, the city of Minneapolis can still be considered the project sponsor for the No Action alternative until the project is deauthorized.

Alternative 1a, disposal with an incentive, is implementable, provided that a new owner can be found. The city of Minneapolis has not endorsed a full disposal or city ownership of the site. The city of Minneapolis has a real interest in the site, as the project makes up part of the damming surface that maintains the elevation of the upper pool, which supports the city water supply. This is evidenced in a 2019 letter from the Minneapolis Director of Public Works.

As of the publication of this draft report, the city of Minneapolis has not made a commitment to future ownership of the site, and instead favors partial disposal. As the opportunity to receive a monetary incentive under Alternative 1a has not been publicized prior to the publication of this draft report, it is anticipated that the city or other entities may express interest in ownership during the public review period.

It is possible, under Alternative 1 or 1a, that a stakeholder which relies on operation of the flood gate (such as the flood flow capacity which Xcel Energy relies upon as part of their FERC hydropower license), would either seek ownership, or seek a cooperative agreement for operation of the flood gate with the new owner, as the new owner would not be required to comply with the Corps established water control procedures for operation of the flood gate.

Under Alternative 1, with the exception of the real property directed to be conveyed upon on request of the city of Minneapolis in accordance with WRDA 2020, the remaining properties would be disposed of following the GSA disposal process. The property would first be offered to other Federal entities. The USAF project lies entirely within the Mississippi National River Recreation Area, a component of the National Park Service. In 2017, the National Park Service provided a letter to the Corps indicating that it was not interested in taking over the site.

Under the GSA disposal process, if no other Federal entity is interested in taking over the site, the GSA would consult with the Department of Housing and Urban Development to determine if the site is suitable for homeless support.

Following that, the site would be offered up through a negotiated transfer to a State or Local governing unit or non-profit entity to be used for a public purpose.

If none of these steps is successful, the property would be made available for public sale.

With the exception of the real property ordered to be conveyed to the city of Minneapolis in accordance with WRDA 2020, Alternative 1a recommends a direct conveyance of the project, bypassing the GSA process, and offering an incentive to the transferee. With the ability to negotiate a direct conveyance and offer a monetary incentive to the recipient, it is anticipated that a willing entity will come forward to negotiate the terms of future ownership and use of the site. This alternative reduces risk of incurring future holding costs by quickly removing the property from Federal inventory. Alternative 1a gives the government the most flexibility in quickly negotiating a transfer of ownership and disposing of the site.

There has been great support for the Partial Disposition alternatives from the City of Minneapolis, from Friends of the Falls, and from Federal elected representatives, provided that the Corps continue to operate the flood mitigation functions of the project, and it is possible that the City of Minneapolis would be the local sponsor in any partial disposition alternative. However, Alternative 2 (partial disposal with Corps funding continued operations) yields very little in savings to the Federal government and is not the Government's recommended plan.

Similarly, Alternative 2a encumbers a project partner with the cost of the Corps remaining at the site for operations. Alternative 2a also is not the Government's recommended plan, as it does not achieve the objective of disposal.

No Action, and Alternatives 2 and 2a, continue the Federal ownership in the project. As a federal project, the property will continue to be of interest to hydropower developers seeking licensure through the FERC. The Corps of Engineers and the FERC signed a Memorandum of Understanding 20 July 2016, in which the two federal agencies laid out a plan for cooperation with regard to hydropower development applications. Several stakeholders and public comments have stated opposition to additional hydropower development at the Upper St. Anthony Falls site.

4.6 Summary of the Tentatively Selected Plan

The Tentatively Selected Plan (TSP) is Alternative 1a Complete Deauthorization and Disposal with a payment incentive to the new owner. The property to be disposed would not include the real property conveyed to the city of Minneapolis in accordance with WRDA 2020. The incentive would be offered only as a means to expedite the disposal process, and would expire if disposal cannot be effected within 2 years, or reverts to the GSA disposal process. The primary navigation mission at USAF Lock and Dam would be deauthorized. Recreation would also be effectively deauthorized since it is a secondary purpose. All remaining lands not disposed under WRDA 2020 and project features would be transferred to another entity; the Corps would not have a continued presence at the site.

The TSP recommends that Congress deauthorize the project and allow the Secretary of the Army two years in which to negotiate an arrangement, in which the terms of the transfer of remaining property would be agreed upon. Deauthorization of the project would be immediate; once deauthorized, the Secretary would continue to manage and maintain the project for the entire time period while disposal agreements are negotiated and until the project is fully transferred. The terms of the negotiations would include the authority to make payments to the transferee.

All future maintenance responsibilities and costs to the Corps would be avoided. This alternative is conducive to improving the human environment, the natural environment and increasing recreational opportunities at the site as envisioned by outside stakeholders. 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.

Alternative 1a is an effective plan that meets both the study objectives. It is the most acceptable and the most complete plan from the final array, and it is an efficient plan resulting in significant cost savings to the federal government, compared to the No Action alternative. The average annual costs for the TSP is \$24,687 for disposal costs, plus the to be determined amount of an incentive payment.

Note that Alternative 1, Complete Deauthorization and Disposal, is the most efficient plan and provides the highest cost savings to the federal government. However, as noted, while the plan is acceptable to the Federal government, a new owner has not been firmly identified, therefore the plan is considered to be less implementable than a plan in which a new owner has been identified. Therefore, this plan is not complete. This plan should remain a backup plan, if negotiations with a new owner as described in Alternative 1a, are not successful. In that case, Alternative 1 would be the default recommendation, with Complete Disposal following the standard GSA process.

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 that could be affected by implementing any of the alternatives as identified in Chapter 4. Existing conditions are the physical, chemical, biological, cultural, and sociological characteristics of the project study area or area of potential effects at this time.

The assessment of environmental effects is based on a comparison of conditions with and without implementation of the proposed plan and a reasonable range of alternatives and are compared to the No Action Alternative over a 50-year period. However, each alternative would involve some degree of property transfer and associated operations and maintenance responsibilities, but assumes no physical or operational changes from current conditions. While it can be argued that each action alternative is a step towards realizing a different future vision for USAF, identifying the environmental effects of this would be largely speculative. Therefore, this EA concludes no effects to any of the resources described below and the conditions described for each resource would not change under any of the alternatives. Prior to the formal transfer of property or the implementation of any action alternative would require additional state and/or federal review that likely require additional NEPA compliance. This may include the need for another EA or possibly, an Environmental Impact Statement (EIS).

Study Area

For purposes of analyzing environmental effects, the study area (Figure 5-1) is identified as the geographic scope of analysis for the direct and indirect effects of the proposed action and alternatives for the identified environmental parameters. The project study area encompasses a 30-acre area that includes all portions of the site under Corps jurisdiction and that are being considered as part of disposal.

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: “(1) The Mississippi River Corridor within the Saint Paul-Minneapolis Metropolitan Area represents a nationally significant historical, recreational, scenic, cultural, natural, economic, and scientific resource” and, (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 NPS has management oversight of 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 in 1976 by the Twin Cities Metropolitan Council. This is a land corridor along the Mississippi River in the 7-county metro area where there are special land use regulations that guide development activity.

Area of Potential Effect

For effects on historic and cultural resources, a different geographic scope is identified that considers line of sight. This is identified as the area of potential effects (APE) and was coordinated with the Minnesota State Historic Preservation Office. The APE has not been finalized for this disposition study, however, a

preliminary APE has been drafted. The preliminary APE 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 the both banks of the river, roughly between the Third Avenue Bridge and Interstate 35 Bridge where the USAF Lock and Dam complex would reasonably be visible. The preliminary APE for indirect effects includes: the Falls of St. Anthony Dike (beneath the river, 2nd Avenue SE to 5th Avenue S); the 9-foot channel above the falls and 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 is eligible for the listing on the National Register of Historic Places).

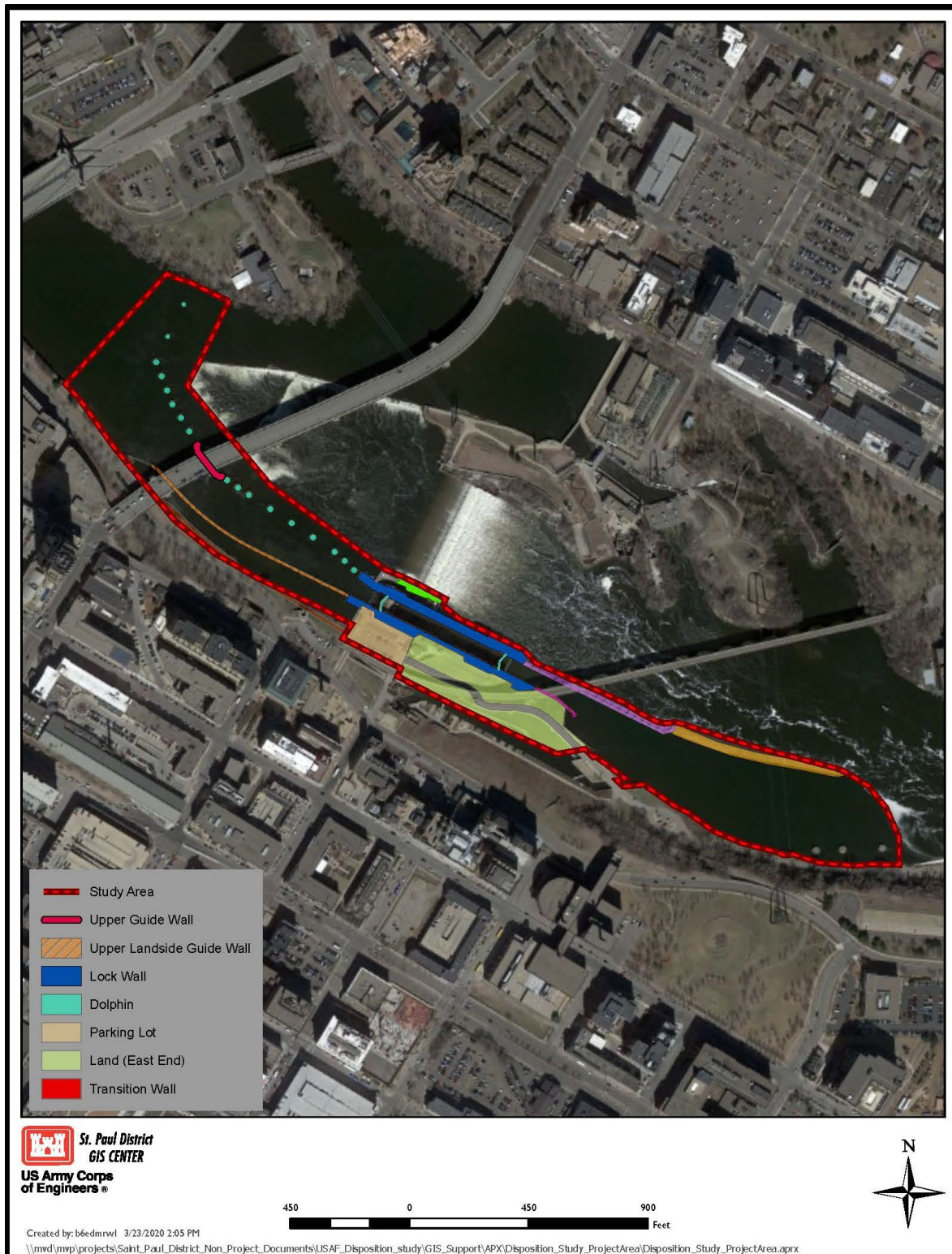


Figure 5-1. Environmental Assessment Study Area for the USAF Disposition Study

5.1 Hydrology and Hydraulics

USAF Lock and Dam is a project 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 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 and was recorded in April 17, 1965. The average annual precipitation is 28.3 inches for this area.

Regulation of the USAF Pool is operated by the Xcel Energy under FERC license no. 2056. However, USAF has a single tainter gate that is regulated by the U.S. Army Corps of Engineers, St. Paul District during flood conditions of 40,000 cfs or higher. This floodgate is located within the lock itself and has the capacity to pass an additional 10,000 cfs before inundation occurs upstream and the gate is pulled clear of the water.

A more resistive layer of limestone formed St. Anthony Falls. The limestone locally is 8 to 15 feet thick and overlies a bed of erodible shale and sandstone. Many sandstone caves and erosional features surround the structures. The upper lock is a gravity type structure supported on a rock foundation. This layer of limestone is susceptible to erosional deterioration of uncontrolled flow over the falls. The deterioration is kept in check by the presence of the damming surface of the St. Anthony Falls structures including the lock chamber, the spillway, the Xcel Energy facility and the University of Minnesota facility.

5.2 Channel Geomorphology and Floodplain Character

Historically (before alternation by locks and dams), the Mississippi River in proximity to the project area was known for its high-gradient, boulder-cobble bed that was 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 locks and dams, dredging, flow training structures, urban development, and flood risk management measures. The construction (Figure 5-2) of locks and dams resulted in the permanent inundation of a floodplain that provides conditions of 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 that contributes to channel instability and streambank erosion (Barr 2004).



Figure 5-2. Upper Saint Anthony Falls Lock Construction

Since the Upper Mississippi River 9-foot channel navigation system was established, dredging has been occurring periodically throughout the project area. The average annual volume of dredged material for the reach above St. Anthony Falls is less than 40,000 cubic yards (Corps 2018).

5.3 Geological 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 in the last 10,000 years during high meltwater discharge of the retreating glaciers. Today, the Mississippi River near the USAF Lock and Dam is approximately 1,500 feet wide and is 40 to 70 feet below the downtown Minneapolis streets.

Surficial soil resources within the subject property 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 host 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 about 8 to 15 feet thick locally and was historically mined in the vicinity of the St. Anthony Falls. Below this limestone is a three to five-foot layer of shale, the Glenwood Member. The shale member is thinly laminated and moderately fissile (cleavable). Beneath is the St. Peter Formation. 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. 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 the Corps engineered stabilization projects, the St. Anthony Falls retreated approximately four feet per year. Upper St. Anthony Falls is the only waterfall on the Mississippi River.

5.4 Terrestrial Habitat

The majority of the existing native vegetation in the project area has been disturbed by development. Vegetation is largely composed of mowed turf and landscaped trees and shrubs. The value of such habitat is limited for most wildlife.

5.5 Wetlands

A review of the National Wetland Inventory (NWI) indicate the study area is dominated by one cover type: "R2UBH". In summary, the "R2UBH" type stands for 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 about 120 native fish species below St. Anthony Falls and about 60 species above the falls, which served as a natural migration barrier. Today, there are 129 species in the river downstream of Upper St. Anthony Falls Dam, and 86 species above the falls. Within the Minneapolis St. Paul metropolitan area, fish surveys show a total of 61 species from 17 different families have been collected (FERC 2005).

Of the 129 species found downstream of Upper St. Anthony Falls Dam, nine are considered non-native (Hatch, 2015). The spread of invasive Asian carp continues to be a concern, despite the closure of the USAF Lock. Asian carps consist of four species: bighead, black, grass, and silver carp. Other reaches of the river that have been colonized by Asian carps have experienced severe disruptions of the food web for these aquatic ecosystems. These species have spread from downstream sources, the closest being two silver carps that were caught between LD1 and LD2 in 2014 (Weller and Russell 2017). No reproducing populations of Asian 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 nine miles to Coon Rapids Dam. In 2013, the Minnesota Department of Natural Resources (MNDNR) 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). To date, the study results indicate that fish passage occurs at LSAF Lock and Dam and LD1 for these species, and that the rate of passage varied from one species to another.

Fish studies conducted specifically in the study area have shown mixed results for number of species. Fish surveys completed in 1995 indicate 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 (*Carpionodes 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 percent 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 that 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 age classes show that the majority of the mussels are ages 6 or older.

Table 5-1. Results of recent mussel surveys conducted in the project area

Species	Common Name	SAF		Pool 1		Upper Pool 2	
		No.	%	No.	%	No.	%
<i>Actinonaias ligamentina</i>	Mucket					4	0.3
<i>Amblema plicata</i>	Threeridge	54	5.6	158	36.3	507	40.3
<i>Arcidens confrugosus</i>	Rock pocketbook	1	0.1				
<i>Elliptio dilatata</i>	Spike					1	0.1
<i>Flusconaiia flava</i>	Wabash pigtoe	54	5.6	88	20.2	117	9.3
<i>Lampsilis cardium</i>	Plain pocketbook	123	12.7	1	0.2	51	4.1

Species	Common Name	SAF		Pool 1		Upper Pool 2	
		No.	%	No.	%	No.	%
<i>Lampsilis higginsii</i> ^d	Higgins' eye pearlymussel					2	0.2
<i>Lampsilis siliquoidea</i>	Fatmucket	12	1.2				
<i>Lasmigona complanata</i>	White heelsplitter	1	0.1			6	0.5
<i>Leptodea fragilis</i>	Fragile papershell	100	10.4				
<i>Ligumia recta</i> ^c	Black sandshell	23	3.2			27	2.1
<i>Megaloniaias nervosa</i>	Washboard					1	0.1
<i>Obliquaria reflexa</i>	Threehorn wartyback	94	9.7	47	10.8	371	29.5
<i>Potamilus alatus</i>	Pink heelsplitter	246	25.5	4	0.9	6	0.5
<i>Potamilus ohioensis</i>	Pink papershell	2	0.2			3	0.2
<i>Pyganodon grandis</i>	Giant floater	13	1.3	1	0.2		
<i>Quadrula nodulata</i> ^a	Wartyback	9	0.9	26	6.0	6	0.5
<i>Quadrula pustulosa</i>	Pimpleback	6	0.6	7	1.1	75	6.0
<i>Quadrula quadrula</i>	Mapleleaf	109		11.3	86	19.8	67
<i>Strophitus undulates</i>	Strange floater	44		4.6	5	1.1	1
<i>Toxolasma parvum</i>	Lilliput	3		0.3			3
<i>Tritogonia verrucosa</i>	Buckhorn						1
<i>Truncilla donaciformis</i> ^b	Fawnsfoot	1		0.1	1	0.2	
<i>Truncilla truncate</i>	Deertoe	61		6.3	12	2.8	9
<i>Utterbackia imbecillis</i>	Paper pondshell				1	0.2	
TOTAL							
No. of live species		19			12		19
No. of dead species		1			5		6
All		20			17		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

The project area contains 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 USFWS's IPAC review

(included in Appendix B) and included: American bittern (*Botaurus lentiginosus*), black tern (*Chlidonias niger*), black-billed cuckoo (*Coccyzus erythrophthalmus*), bobolink (*Dolichonyx oryzivorus*), cerulean warbler (*Dendroica cerulea*), Eastern whip-poor-will (*Antrastomus 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 about 55 active bald eagle (*Haliaeetus leucocephalus*) nesting sites, suggesting a strong and stable population compared to the past 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.

5.9 Threatened and Endangered Species

A review of the USFWS’ IPAC website on March 24, 2020 indicated five threatened, endangered, or candidate species may be in the project area (Table 5-2; Appendix B).

Table 5-2. Federally-listed species in the Project area

Common Name	Scientific Name	Status	Critical Habitat in Project Area?
Northern long-eared bat	<i>Myotis septentrionalis</i>	Threatened	No
Higgins eye pearlymussel	<i>Lampsilis higginsii</i>	Endangered	No
Snuffbox mussel	<i>Epioblasma triquetra</i>	Endangered	No
Winged mapleleaf mussel	<i>Quadrula fragosa</i>	Endangered	No
Rusty patched bumble bee	<i>Bombus affinis</i>	Endangered	No

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

The northern long-eared bat is wide-ranging throughout the United States east of the continental divide. This bat overwinters in hibernacula areas (e.g., cracks and crevices of caves, mines, or large trees). During summer, the bat roosts in colonies under the bark, or in cavities or crevices of live or dead trees. They also roost in cooler places, like mines or caves. Threats to the species include loss of habitat and disease (i.e., white nose syndrome).

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 and smallmouth bass, and freshwater drum are considered suitable hosts for Higgins eye glochidia. Threats to the species include habitat destruction, fragmentation, zebra mussels, and degraded water quality.

The snuffbox is a freshwater mussel found primarily in rivers and streams of 14 states east of the Mississippi River. The 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.

The winged mapleleaf is a freshwater mussel found in the Upper Mississippi and St. Croix (Minnesota and Wisconsin), Saline and Ouachita River (Arkansas), Little River (Oklahoma), and Bourbeuse River (Missouri). The 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 the species include small population size, fragmentation, degraded water quality, and zebra mussels.

The rusty patched bumble bee lives in colonies that include a single queen bee and female workers. The bee occupies grasslands and tallgrass prairies of the Upper Midwest and Northeast. The bee needs areas that provide nectar and pollen from flowers, nesting sites, and overwintering sites. Threats to the species include habitat destruction, intense farming, disease, and pesticides.

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
	Paddlefish	Threatened
Mussels	Black sandshell	Species of Special Concern
	Wartyback	Endangered
	Fawnsfoot	Threatened

5.10 Invasive Species

Invasive species can be defined as nonindigenous species whose introduction causes or is likely to cause economic or environmental harm or harm to 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 Lower St. Anthony Falls Dam.

Asian 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, there has been none found in the study area nor is there any evidence of reproduction in Minnesota (Weller and Russell 2017). The closure of the

Upper St. Anthony Falls lock to navigation in 2015 is seen as a deterrent to upstream migration for these species.

5.11 Air Quality

Air quality in the Minneapolis St. Paul Metropolitan Area is considered good most of the time. For the years 2015 through 2017, 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 71 percent and 81 percent (Table 5-4). The MPCA believes 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 AQI category.

Year	Good	Moderate	Unhealthy for Sensitive Groups	Unhealthy
2017	267	36		
2016	295	68	2	1
2015	258	103	4	

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

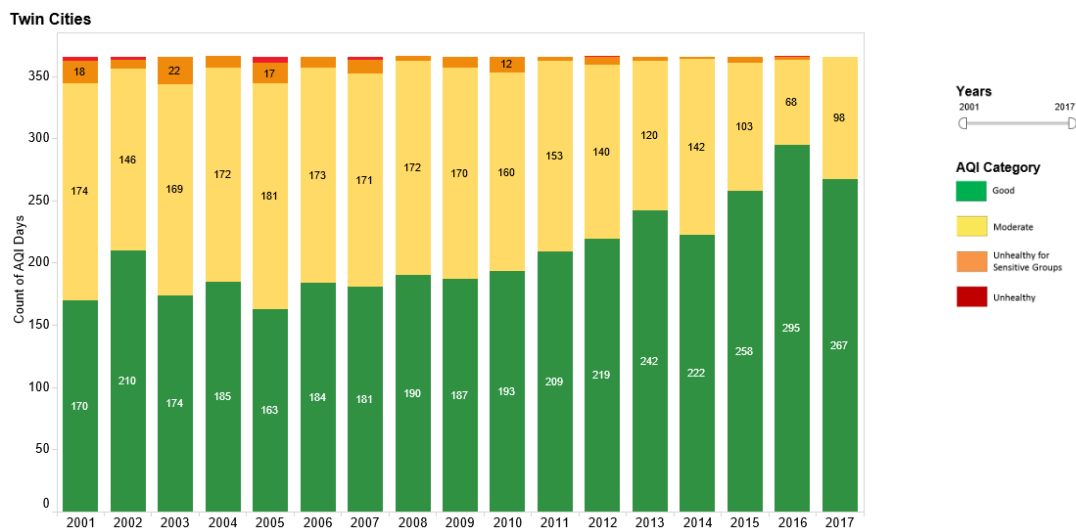


Figure 5-3. Measurement of AQI

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

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:

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.

5.12 Water Quality

Over the past century, the Mississippi River's water quality in the metropolitan area cycled between poor and good conditions. 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 and resulted in construction of the first Twin Cities wastewater treatment plant that 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 (MCES), have led to improved water quality (MCES 2010).

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 the water is suitable for domestic consumption, for use in food processing and other domestic purposes, and is suitable 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 of < 126 organisms/100 milliliters (ml), and fecal coliform levels < 100 organisms/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 Units (NTU) standard applies for total suspended solids (TSS). A site-specific standard of < 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 for fecal bacterial, 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 percent 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 the USAF Lock and Dam. Upon completion of design and construction the USAF Lock and Dam influenced developments around the falls and changed the character of the riverfront. The USAF Lock and Dam is situated within two historic districts and is 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. Since the end of the Wisconsin glaciation, the river cut through glacial sediments resting on the resistant Platteville limestone and 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 is in the area of the ancestral land of the Dakota and is 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, and since then, the falls have been an important destination for tourists and others with a variety of visitor's reflections on the falls' natural state through paintings, engravings, photographs, and narratives.

The 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 Ft. Snelling and was 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 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 the Corps 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 its retreat continued. As a solution to stabilize the falls, the Corps constructed an underground dike to protect the sandstone from seepage, placed two low dams (horseshoe and chord) above the falls to provide steady flows over the limestone to prevent them 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 nineteenth 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 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 hydroelectric power central station was constructed at the falls and came on line in 1882.

Meanwhile, steamboat navigation on the Upper Mississippi River steadily grew and the River and Harbor Act of 1866 authorized the Corps to remove hazards and make improvements to facilitate navigation. Among the first improvements was a 4-foot navigation channel, followed by a 4 ½ 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 above 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 below Meeker Island to high dam and lock with a 30-foot lift. The federal government Lock and Dam 1, approximately eight miles above 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, yet below the falls. This terminal, along the bottom of the gorge, turned out not to be suitable for rail or vehicular traffic. With the one terminal below the falls 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 and extending above the St. Anthony Falls.

Construction of the USAF Lock and Dam began in 1949 and concluded in 1963. A number of modifications to peripheral bridges, utilities, and structures, among other engineering achievements were necessary to construct the upper and lower locks. The USAF Lock and Dam was 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 is an overview of the construction in 1961 with the masonry dam, St. Anthony Falls apron, and the Stone Arch Bridge visible. In addition, a section of the Stone Arch Bridge (blt. 1883) was removed and replaced with a metal truss to accommodate the lower approach to the lock (Figure 5-5).

In 1966 the observation deck on the central control building was enclosed. In 1995 the visitor center updating coinciding with the opening of the Stone Arch Bridge to pedestrian traffic. In 2015 the tainter gate houses were constructed. 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 Corps ranger

providing guided tours by appointment. Since 2005, over 34,000 people took tours with 2,519 visitors in 2014. Meanwhile, the NPS hosts visitors, conducts public tours, and provides interpretive services of the facility under a Memorandum of Understanding with the Corps. Since 2016, an average of 20,000 visitors a year tour the facility.



Figure 5-4. Upstream View of USAF During Construction.



Figure 5-5. Stone Arch Bridge Metal Truss Over Lower Approach to USAF

Identification of Historic Properties

Hundreds of historic properties exist around the falls area, and numerous historic standing structures and archaeological sites are eligible 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 (blt. 1883, adjacent to and running over a portion of the downstream channel and guide walls), the underground dike (1876), the St. Anthony Falls apron (ca. 1880–wood, 1950–concrete), the horseshoe and chord dams above the falls (ca. 1880), the Third Avenue Bridge (blt. 1914), and, the University of Minnesota St. Anthony Falls Hydrological Laboratory (1938). Also within the St. Anthony Falls Historic District and individually listed are the Pillsbury A Mill (1881) along the east bank of the falls and the Washburn A Flour Mill (1880) on the west bank. While the USAF Lock and Dam is within the boundaries of the St. Anthony Falls Historic District, the structure was considered a non-contributing element of the district because the USAF Lock and Dam was less than 50 years old when the district was nominated.

A 1983 study examining the Upper Mississippi River 9-Foot Channel Navigation Project concluded that the USAF Lock and Dam was not eligible for listing in the National Register of Historic Places, largely due to its then relatively young age (Upper Mississippi River lock and dam numbers 3 through 10 were determined eligible). In 1992, the Upper Mississippi River 9-Foot Channel Navigation Project (1931–1948) was determined eligible for listing on the National Register of Historic Places.

A 2003 study to evaluate the LSAF Lock and Dam for a hydroelectric project concluded that the USAF Lock and Dam (and the lower lock and dam) met two National Register criteria: Criterion A in the areas of Commerce, Industry, Maritime History and Transportation; and Criterion C in the area of Engineering. The study also identified USAF Lock and Dam as significant for its association with the St. Anthony Falls Historic District and the Upper Mississippi River 9-Foot Channel Navigation Project. In 2005, the Corps rehabilitated electrical and mechanical components at the upper and lower locks and determined that both the LSAF and USAF locks and dams are eligible for listing on the National Register of Historic Places. In 2006 the Minnesota State Historic Preservation Office concurred with the Corps' determination (Minnesota State Historic Preservation Office Numbers 2006–2190 and 2006–2189). The St. Anthony Falls Locks and Dams Historic District, to include USAF and LSAF locks and dams, was proposed in 2007 and is eligible for the listing on the National Register of Historic Places.

The USAF Lock and Dam is eligible for listing on the National Register of Historic Places. In addition, the USAF Lock and Dam meets the criteria for designation as a Minneapolis landmark. Table 5-5 presents the historic resources included for the USAF Lock and Dam.

Table 5-5. Minnesota State Historic Preservation Office Historic Inventory for the USAF

Inventory No(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 numerous historic archaeological sites adjacent to the 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: platform sawmill foundations (ca. 1858–1887), a log sluice and bark sluice (ca. 1880), and a tailrace tunnel (ca. 1883) are on Corps 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. Additional investigations are needed to fully assess the archaeology at the USAF Lock and Dam.

The St. Anthony Falls are likely an important and significant area for various Native American groups. Although no precontact archaeological sites have been identified within the project area, historic accounts mention a variety of cultural resources being 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 groups 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 stood just downstream of the falls. Spirit Island was quarried for building stone beginning in the 19th

century and its remnants 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 and visible in the lower right corner immediately below the downstream jetty in the pool. The importance of the falls and surrounding area to the Native American community requires additional study.

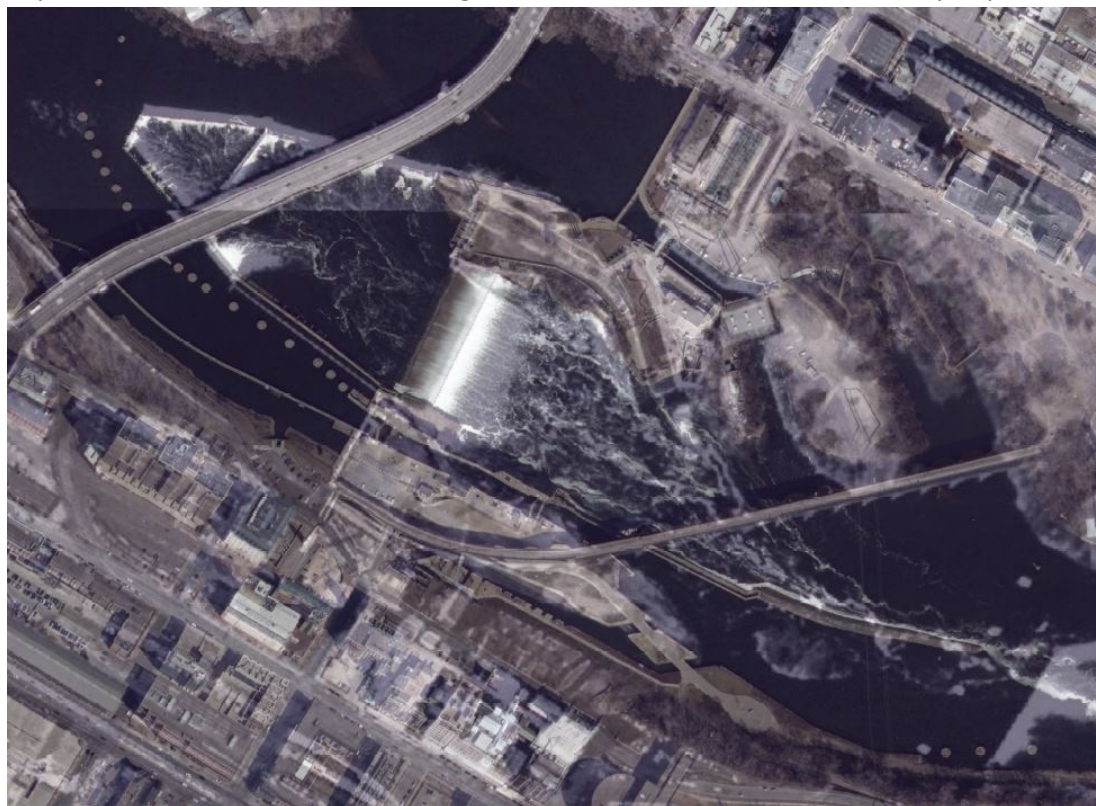


Figure 5-6. Former location of Spirit Island

5.13.1 No Action Alternative

Under a No Action Alternative, the Corps would continue to operate the facility and conduct historic preservation reviews as needed.

5.13.2 Dispose of USAF/Partially Dispose of USAF

Under any of the disposal alternatives, a variety of historic preservation measures would be required to ensure that long-term preservation of the USAF Lock and Dam and overall historic integrity of the area are retained or adverse effects mitigated for. This may entail the development of adequate legally enforceable restrictions or conditions for transfer, lease or sale of the properties (36 C.F.R. § 800.5; 36 C.F.R. § 800.6). Such agreements and mitigation measures would be developed in consultation with the Minnesota State Historic Preservation Office, the Advisory Council on Historic Preservation, various Native American groups, and other germane agencies (e.g., the Federal Energy Regulatory Commission, local historic preservation boards, etc.), interest groups, and the public.

Other historic preservation activities would potentially include Phase I surveys to identify archaeological sites in undisturbed areas on the properties and Phase II evaluations for properties identified and documentation of existing historic structures. Additional documentation may include surveys from the

Historic American Buildings Survey and the Historic American Landscapes Survey, development of Historic American Engineering Records, Traditional Cultural Property surveys, and the formulation of various public education documents and programs.

5.14 Hazardous, Toxic, and Radiological Waste

Upon document review, site reconnaissance, and interviews, the USAF Lock and Dam has no recognized hazardous, toxic, radiological waste (HTRW) environmental concerns. The subject property is a Hazardous Waste Minimal Quantity Generator for used oil, has reported previous small quantity petroleum spills, and has one reported petroleum product spill with remedial action from a leaking Underground Storage Tank (UST). Two UST's were removed in 1995, one 300-gallon diesel tank, and one 285-gallon tank holding fuel oil. During removal, the fuel oil tank was discovered leaking, and the site was remediated and closed. There is one active diesel aboveground 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 wrapping pipe on the property. Borings in 2012 and 2015 on the Corps' USAF property identified a 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 U.S. Environmental Protection Agency (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 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 the USAF Lock and Dam, LSAF Lock and Dam, and the LD1 while all share the 6-mile stretch of the Mississippi River 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 Upper and Lower St. Anthony Falls sites.

According to the U.S. Census American Community Survey (ACS) for 2013–2017, population of the three-county study area in 2017 was approximately 2,177,300, or an increase of 5.7 percent from year 2010. A majority of the study area population resides in Hennepin County (56 percent), in which the city of

Minneapolis is located. The economic development and increasing density of the population surrounding the USAF Lock and Dam site presents 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 site of the USAF Lock and Dam) 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. Current population data places the immediate neighborhood's population at 1,712 people.² The Downtown East neighborhood has been infused with over \$338 million dollars in strategic public investment and about \$1.9 billion in private and nonprofit investment.³

The ACS five-year estimates from 2013–2017 indicate that in 2017, there were just over 907,000 housing units in the study area, up 2.4 percent from 2010. The city of Minneapolis created a new mixed-use community in the Riverfront District with over 5,300 new housing units completed or are under construction within easy walking distance from the USAF Lock and Dam. The district is an economic underpinning generating jobs, taxes, and economic activity, with over 7,000 jobs preserved or created in the riverfront area, and over 4.5 million square feet of new office, commercial, and industrial space opened near the USAF Lock and Dam.⁴

In 2017 alone, construction, conversions, remodels, and additions of residential and non-residential buildings in Minneapolis increased at a consistent rate, with investments ranging from \$144 million during the first quarter of 2017 to \$242 million in the second quarter.⁵ Review of permitted construction projects in each quarter of 2017 shows an average per quarter investment of \$190.7 million in conversion projects in the city of Minneapolis.⁶ Finally, 2,252 new residential permits were issued in Minneapolis during 2017.

While ethnic diversity in the study area resembles the composition of the United States, the study area is slightly more diverse than the state. In 2016, a vast majority of the study area population identified as being of one race, White. The largest minority is Black or African American.

The 2017 ACS data show that the largest employment sector is educational services, healthcare and social services employing just about one in every four civilian people 16 years and over in the study area. By far,

² Minnesota Compass, Downtown East Neighborhood Data, <http://www.mncompass.org/profiles/neighborhoods/minneapolis/downtowneast>.

³ Friends of the Lock & Dam letter dated August 20, 2018 citing Ann Calvert, city of Minneapolis, CPED Department, and Rachel Ramadhyani, ASLA Minneapolis Park and Recreation Board Minneapolis Riverfront Revitalization: Four Decades of Progress, at 14 (2012) http://www.ci.minneapolis.mn.us/www/groups/public/@cped/documents/webcontent/convert_279837.pdf.

⁴ *Id.* At 10, 11.

⁵ City of Minneapolis, Community Planning and Economic Development, Minneapolis Trends Reports, Q-1 2015 – Q4 2015 Reports, at 15, 18-20 (2015), http://www.minneapolismn.gov/cped/resources/reports/cped_trends_reports_home.

⁶ *Id.* at 1

Hennepin County is home to the about 57 percent of jobs in the study area. Minneapolis, the largest city in Minnesota, is located in Hennepin County and is responsible for most of the county jobs.

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

In Ramsey, Hennepin and Dakota Counties, approximately 15 percent, 12 percent and 7 percent of people have incomes in the past 12 months below the poverty level, respectively. Approximately 18.5 percent of the population in the Downtown East neighborhood is below the poverty level.

Environmental Justice

Environmental Justice (EJ) was assessed for the project study area and a three-mile radius using the EPA's Environmental Justice Screening and Mapping Tool (EJ Mapper; Appendix F; <https://www.epa.gov/ejscreen>). Data for the environmental indicators show that all are in high percentiles (90% +) compared to the rest of the state, suggesting areas of concern with air and water quality as well as other environmental factors. Also, queries of the EJ Mapper shows the project area and surroundings show a mix of income levels and minority populations.

Because the proposed action does not result in any physical changes to the site, the proposed action would not have disproportionate effects on low-income or minority populations. The proposed action is not anticipated to affect environmental justice. Additional details on this determination are provided in Section 7.10.

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 Mississippi National River and Recreation Area, the only area under National Parks 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; non-profits, businesses, educational institutions, and individuals) who own land along the river or who have an interest in the Mississippi River to achieve the NPS's mission to protect and preserve for the area 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), the Historic Fort Snelling and the adjacent Fort Snelling State Park, and Minnehaha Falls. There are many additional attractions, trails, and programs all within the Minneapolis–St. Paul Metropolitan Area. The MNRRA offers two visitor centers, one located inside the Science Museum of Minnesota in St. Paul, Minnesota and the other at USAF Lock and Dam in Minneapolis, both of which are staffed by National Park Service rangers. The Minneapolis visitor center offers three, free daily tours of the USAF Lock and surrounding area. The visitor center at the USAF Lock and Dam is operated by the NPS, which began offering tours of the USAF Lock and Dam and visitor center in 2016 when 15,441 people visited the site,

increasing to 21,154 in 2017. Seasonal visitation for 2018 is not yet available. The site is closely linked to Mill Ruins Park, Mill City Museum, and the James J. Hill Stone Arch Bridge.

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. This is also part of the national Great River Road that stretches the length of the Mississippi River from its headwaters to the Gulf of Mexico.

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 Corps 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 upper and lower 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 non-profit youth development program that builds boats), water taxis, dragon boats, houseboats, wakeboarders, and water skiers.

Finally, recreational use of the river can also be assessed by reviewing the lockage data of vessels transiting LD1 and the LSAF Lock and Dam, which include recreational boaters (small power craft, fishing boats, canoes, kayaks, etc.), commercial cruise vessels, and other commercial vessels besides tow and barge units. During 2017, approximately 2,600 recreational vessels passed through the Minneapolis and St. Paul locks.

Under all alternatives, recreational use is anticipated to increase in association with the City of Minneapolis' plan to create a "...comprehensive recreational, touristic, and interpretive experience" at the site. However, there is no basis to conclude the effects would be different across alternatives.

6 Tentatively Selected Plan - Agency Preferred Alternative

This chapter discusses the details of the Tentatively Selected Plan (TSP).

6.1 Description of the Tentatively Selected Plan

The Tentatively Selected Plan (TSP) is Alternative 1a Complete Deauthorization and Disposal with a payment incentive to the new owners. The navigation mission and recreation would be deauthorized at USAF Lock and Dam and all lands (exclusive of what may be conveyed to the city of Minneapolis under WRDA 2020) and structures would be transferred to a new owner. The Federal government would be

completely divested from the site, save for what is needed to provide access to Lower St. Anthony Falls lock and dam.

Alternative 1a recommends immediate deauthorization of the project and recommends that Congress grant the authority, for a period of two years, to the Secretary of the Army to negotiate an arrangement in which the terms of the transfer of property would be agreed upon. The deauthorizing language would include giving the Secretary of the Army the authority to provide a monetary incentive to the transferee.

All future maintenance responsibilities and costs to the Corps would be avoided. This alternative is conducive to improving the human environment, the natural environment and increasing recreational opportunities at the site as envisioned by outside stakeholders. 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.

Alternative 1a is an effective plan that meets both the study objectives. This plan will eliminate the Federal investment for ownership and operations, maintenance, repair, rehabilitation, and replacement of USAF in the future and this plan supports future visions for continued use of USAF by stakeholders and the public. It is an acceptable and complete plan and reduces risk of incurring future holding costs by quickly removing the property from Federal inventory. This alternative gives the government the most flexibility in quickly negotiating a transfer of ownership and disposing of the site.

Alternative 1a is an efficient plan resulting in significant cost savings to the federal government, compared to the No Action alternative. The savings will vary, depending upon the amount of the incentive.

Complete deauthorization and disposal with an incentive is considered the most implementable alternative, provided that an entity fitting the qualifications and public uses intended by Congress, provide a statement during or shortly after the public review period. The Statement should indicate their interest in becoming a future owner of the site. For those entities that do not meet the qualifications and public uses intended by Congress, they may also provide a statement indicating their interest in partnering with the new owner(s).

Note that Alternative 1, Complete Deauthorization and Disposal, is the most efficient plan and provides the highest cost savings to the federal government. However, a new owner has not been firmly identified. This plan will remain a backup plan, in the event that negotiations with a new owner as described in Alternative 1a, are not successful. In that case, Alternative 1 would be the default recommendation and Complete Disposal following the standard GSA process would be implemented.

6.2 Cost Estimate and Economic Summary

The average annual cost for the TSP is \$24,687 for disposal costs; this estimate does not include the value of the incentive payment, which is yet to be negotiated.

6.3 Fish and Wildlife Coordination Act Considerations*

The Fish and Wildlife Coordination Act (FWCA) provides that fish and wildlife conservation shall receive equal consideration and be coordinated with other project features in any federal proposal for water

resources development. The Corps has initiated its coordination of the TSP with the U.S. Fish and Wildlife Service and will give full consideration to any of its recommendations in compliance with FWCA.

6.4 Mitigation for Adverse Environmental Effects*

No adverse environmental effects are anticipated for the TSP. Therefore, no mitigation is identified.

6.5 Risk and Uncertainty

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

No Action:

- Risk of continued liability with ownership of the site
- Incurring future cost to keep the facility in a safe condition.
- Risk to life safety if a major failure occurs.
- Risk that maintenance will be deferred in a fix-as-fail mode, and funding for major maintenance will not be available when needed.
- Risk of underestimating the long-term costs of continued O&M.

Full Disposal:

- Risk that no entity will take the site.
- Risk that new owner will require major modifications before taking on the site, resulting in higher cost of full disposal.
- Uncertainty in future costs and cost savings.

Partial Disposal:

- Potential liability to the Federal Government for accidents or failures.
- Risk that costs of continued O&M over next 50 years is underestimated.
- Risk that Corps cannot find a viable path to continue presence at the site without an authorized purpose.
- Risk of liability with continued ownership of aging infrastructure.

6.5.1 Risk and Uncertainty of the TSP

Alternative 1a is a plan that meets both the Disposition Study objectives, to reduce future Federal expenditures on the project and to support stakeholder and public visions for future use at the site. Alternative 1a is an innovative approach to deauthorization and disposal; as such, there are risks associated with implementation of this novel recommendation. There is a risk that no entity will firmly commit to future ownership of the site. There is a risk the congressionally allowed or negotiated incentive payment amount will not be satisfactory to the transferee to take the site. There is also a risk that multiple entities will become interested in future ownership with a payment incentive and the Corps may have to negotiate with several entities. Under this scenario, it is unknown if the final determination of the future owner will be made by the Corps or by Congressional direction.

If a negotiated transfer does not occur after the proposed 2-year negotiation period, it is recommended that Alternative 1 full disposal become the default recommendation and the disposal would once again be subject to the standard GSA process.

6.6 Real Estate Considerations

The recommended deauthorization and disposal method is through special legislation by Congress. Upon deauthorization of the project by Congress, the preferred method of transferring ownership of the real property (exclusive of what may be conveyed to the city of Minneapolis under WRDA 2020) and all associated Government-owned improvements would be direct conveyance through the 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.

It is recommended for the passage of the title to the identified transferee by quitclaim deed. By this method, the United States will not profess that such title is valid, nor contain any warranty or covenants for the title. As such, the United States will not be liable for any title defects beyond what might be required to address the release of hazardous substance under the Comprehensive, Environmental Response, Compensation, and Liability Act (CERCLA, or Superfund). Any pre-existing, valid reservations in the deed may remain in effect after passage of title. The quitclaim provision of the special legislation is important due to the various encumbrances and reservations of adjacent owners that the title report identified on the property. The quitclaim transfer will 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 discussion in Appendix D Real Estate.

6.7 Interested Future Owners

6.7.1 Identification of Interested Future Owners

Successful implementation of the TSP depends on the identification of an entity to take ownership of the project. 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:

District Engineer
U.S. Army Corps of Engineers St. Paul District
ATTN: Regional Planning and Environment Division North
180 Fifth Street East, Suite 700
St. Paul, Minnesota 55101-1678

These statements of interest will be considered in the final report recommendations, with priority given to statements of interest that are consistent with the Tentatively Selected Plan, and from federal, state and local governments, and non-profit organizations with a public purpose.

6.7.2 Description of Interested Potential Future Owners

As of the date of the release of this draft report, no entity has firmly expressed interest in assuming ownership of the federal property at USAF, exclusive of what may be conveyed to the city of Minneapolis at the direction of WRDA 2020. Ownership of the property necessarily includes the responsibility for maintaining a massive concrete structure, which is key to maintaining the damming surface 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 1 or the full disposal with incentive Alternative 1a. However, the city of Minneapolis currently does not support assuming full ownership of the project.

Another potential future owner or co-owner would be Xcel Energy, which is the most dependent upon the flood gate operation. Xcel utilizes the flow capacity through the floodgate to divert flows during maintenance of their dam. Xcel also relies on the flow capacity of the floodgate to comply with the terms of their FERC hydropower license. A logical arrangement would be for Xcel Energy to partner with another entity in the ownership, operation and for maintenance of the site, thereby allowing continued operation of the floodgate to support hydroelectric power production, and maintaining the damming surface to support both hydropower efficiency. This arrangement could still allow a co-owner, their partners and stakeholders to develop the rest of the site to achieve the goals outlined in Sections 1168 and 1225 of WRDA 2018. Regardless of who the new owner is, Xcel Energy would retain their rights to access across the property for dam maintenance as contained in the original transfer deed.

If no potential future owner is identified, the federal government will dispose of the project as outlined in Alternative 1 (Full disposal with no incentive). The property (exclusive of what may be conveyed to the city of Minneapolis under WRDA 2020) would be identified as “excess,” and it would be turned over to the General Services Administration to carry out the disposal. However, as it may take an extended period of time to dispose of the property using the GSA process, and the property would remain in federal ownership but receive a minimal standard of maintenance. Under a full disposal scenario, Xcel Energy would retain their rights to access across the property for dam maintenance. If the future owner is a private party, it would not be bound by outside interests, but would still have to comply with State and Federal environmental laws and regulations.

If partial disposal Alternative 2 or 2a were the recommended plan, it is likely that the city of Minneapolis or the Minneapolis Parks and Recreation Board would be interested in acquiring pieces of the federal property consistent with ongoing plans for riverfront parks and improvements. Under a partial disposal scenario, Xcel Energy would retain their rights to access across the property for dam maintenance as contained in the original transfer deed. The operation of the flood gate by the Corps would also continue as governed by the Corps’ regulating plan and FERC license 2056.

6.7.3 Capability of Entity to Assume Ownership

Xcel Energy, the city of Minneapolis and the Minneapolis Parks and Recreation Board all 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 floodgates 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. Should the navigation mission at the site be deauthorized, a new owner would not be required to operate the flood gate at 40,000 cfs as is done now to support navigation.

6.8 Implementation Requirements

1. The draft report will undergo concurrent public, agency technical and policy review.
2. Additional discussions will be held with interested entities who express interest and commitment to future ownership of the site and may include but not limited to the City of Minneapolis and Xcel Energy.
3. The report will be finalized, following consideration of public, agency and policy comments and the results of discussions with potential future owners. The Final report will contain a recommendation that Congress enact legislation to implement the recommended plan.
4. Upon agreement with the new owner, the property transfer would be completed and the incentive payment would be made.
5. If unable to come to terms with a new owner within two years, the project would be disposed of using the standard GSA process, with the federal holding costs continuing until a new owner is identified and the property is transferred. The incentive offered for a direct disposal by the Secretary of the Army to the new owner would no longer be authorized.

7 Compliance with Environmental Statutes*

This chapter provides documentation of how the Tentatively Selected Plan (agency preferred alternative) complies with all applicable federal environmental laws, statutes, and executive orders. The Tentatively Selected plan is Alternative 1a, which is full deauthorization and disposal of the federal property as described within this report (exclusive of what may be conveyed to the city of Minneapolis under WRDA 2020), combined with an incentive payment to the new owner. Should a new owner not be identified within two years of deauthorization, the recommended plan will be Alternative 1, which is full disposal without an incentive payment. Alternative 1 and 1a have identical environment effects, as they both involve deauthorization and disposal of the federal property. Major environmental compliance regulations and status of compliance are described below followed by a table (Table 7-1) showing the status of a compliance review with all applicable environmental regulations and guidelines.

7.1 National Environmental Policy Act of 1969

The National Environmental Policy Act of 1969 as amended (NEPA) (42 U.S.C. § 4321 *et seq.*) commits federal agencies to considering, documenting, and publicly disclosing the environmental effects of their actions. This integrated disposition study report/environmental assessment has been prepared in compliance with NEPA, the Council on Environmental Quality (CEQ) regulations, and the Corps' planning regulations. All agency and public comments will be considered and evaluated. If appropriate, a Finding of No Significant Impact (FONSI) will be signed with a conclusion of no significant impacts from this proposed action. A draft FONSI is provided in Appendix H. The proposed action is in partial compliance with NEPA.

7.2 Endangered Species Act of 1973

The Endangered Species Act as amended (ESA) of 1973 (16 U.S.C. §§ 1531–1544), Section 7(a) requires that federal agencies consult with National Marine Fisheries Service and U.S. Fish and Wildlife Service (USFWS), as appropriate, to ensure proposed actions are not likely to jeopardize the continued existence of endangered or threatened species or to adversely modify or destroy their critical habitats.

The Corps has determined that the proposed action would have no effect on federally listed species and therefore, is in full compliance with the ESA.

7.3 Clean Water Act of 1972

The Clean Water Act of 1972 (CWA; 33 U.S.C. § 1251 *et seq.*) requires federal agencies to protect waters of the United States (WOUS). The regulation implementing the act disallows the placement of dredged or fill material into water unless it can be demonstrated there are no practical alternatives that are less environmentally damaging. The sections of the Clean Water Act that relate to the proposal are 401 regarding discharges to waterways and 404 regarding fill material in waters and wetlands.

The Corps has determined that the proposed action would have no effect on WOUS, and is therefore in full compliance with this law.

Section 401

Any project that involves placing dredged or fill material in WOUS or wetlands, or mechanized clearing of wetlands requires a water quality certification from the state agency as delegated by EPA. The Corps has

determined that the proposed action would involve no fill activities and therefore is in full compliance with this law.

Section 404

To comply with Section 404, it is necessary to avoid negative effects to WOUS wherever practicable, minimize effects where they are unavoidable, and compensate for effects in some cases. However, the Corps has determined that the proposed action would have no effect on WOUS and therefore is in full compliance with this law.

7.4 Clean Air Act of 1972

The Clean Air Act of 1972 (CAA), as amended (42 U.S.C. § 7401, *et seq.*) prohibits federal agencies from approving any action that does not conform to an approved state, tribal, or federal implementation plan. Under the CAA General Conformity Rule (Section 176(c)(4)), federal agencies are prohibited from approving any action that causes or contributes to a violation of the National Ambient Air Quality Standards (NAAQS) in a nonattainment area.

The Corps has determined that the proposed action would have no effect on air and therefore is in full compliance with this law

7.5 National Historic Preservation Act of 1966

Section 106 of the National Historic Preservation Act of 1966 as amended (54 U.S.C. § 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 at 36 CFR 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 State Historic Preservation Office, Indian tribes, Native Hawaiians, and the Advisory Council for Historic Preservation, as appropriate.

The USAF is eligible for listing on the NRHP 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. USAF is eligible as an individual listing and as a contributing resource to the St. Anthony Falls Historic District, the Nine-Foot Navigation Project, and the proposed St. Anthony Falls Locks and Dams Historic District. In addition, the USAF meets the criteria for designation as a Minneapolis landmark. Preliminary, informal, discussions with the MNSHPO, Native American groups, various agencies, NGOs, and other stakeholders have been ongoing for several years. Formal coordination and consultation with the aforesaid parties will occur following selection of an alternative and initiation of a federal undertaking.

The proposed action is in partial compliance with this law.

7.6 Fish and Wildlife Coordination Act of 1934

The Fish and Wildlife Coordination Act of 1934 as amended (16 U.S.C. §§ 661–667e) (FWCA) ensures fish and wildlife conservation receives equal consideration and be coordinated with other features of water-resource development programs. This law provides that whenever any water body is proposed to be

impounded, diverted, deepened or otherwise controlled or modified, the Corps shall consult with the USFWS and NMFS as appropriate, and the agency administering the wildlife resources of the state. Any reports and recommendations of the wildlife agencies shall be included in authorization documents for construction or modification of projects. Recommendations provided by the USFWS in Coordination Act Reports must be specifically addressed in Corps feasibility reports.

The Corps has initiated its coordination with the USFWS on the proposed action and awaits a response (Appendix G). In addition, USFWS will have the opportunity to review the integrated report through the NEPA process. At this time, the proposed action is in partial compliance with the FWCA.

7.7 Bald and Golden Eagle Protection Act of 1940

The Bald and Golden Eagle Protection Act of 1940, as amended (BGEPA) (16 U.S.C. §§ 668–668c) applies to Corps Civil Works projects through the protection of bald and golden eagles from disturbance.

The Corps has determined that the proposed action would have no effect on bald or golden eagles and therefore, is in full compliance with the BGEPA.

7.8 Migratory Bird Treaty Act of 1918 and Executive Order 13186 Migratory Bird Habitat Protection

The Migratory Bird Treaty Act of 1918 (16 U.S.C. § 703–712), as amended (MBTA) protects over 800 bird species and their habitat, and commits that the U.S. will take measures to protect identified ecosystems of special importance to migratory birds against pollution, detrimental alterations, and other environmental degradations. Executive Order 13186: Responsibilities of Federal Agencies to Protect Migratory Birds (January 10, 2001) directs federal agencies to evaluate the effects of their actions on migratory birds, with emphasis on species of concern, and inform the USFWS of potential negative effects to migratory birds.

The Corps has determined that the proposed action would have no effect on migratory birds and therefore, is in full compliance with the MBTA.

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

Executive Order 13175 (November 6, 2000) reaffirmed the federal government’s commitment to a government-to-government relationship with Indian tribes and directed federal agencies to establish procedures to consult and collaborate with tribal governments when new agency regulations would have tribal implications.

Preliminary, informal, discussions with Native American groups have been ongoing for several years. Formal coordination and consultation with Native American groups will occur following selection of an alternative and initiation of a federal undertaking. The proposed action is in partial compliance with this EO.

7.10 Executive Order 12898: Environmental Justice

Environmental justice is defined as the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation,

and enforcement of environmental laws, regulations, and policies. The EPA further defines fair treatment to mean that no group of people should bear a disproportionate share of the negative environmental consequences of industrial, governmental, or commercial operations or policies.

Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (February 16, 1994) provides that each federal agency shall make achieving environmental justice part of its mission by identifying and addressing disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. Environmental justice concerns may arise from impacts on the natural and physical environment, such as human health or ecological impacts on minority populations, low-income populations, and Indian tribes or from related social or economic impacts.

NEPA does not specify significance thresholds that may be used to evaluate the effects of a proposed action related to environmental justice. However, Council on Environmental Quality (CEQ) guidance requires an evaluation of a proposed action's effect on the human environment, and the Corps must comply with Executive Order 12898. The Corps has determined that the proposed action or its alternatives would result in significant effects related to environmental justice if they would disproportionately adversely affect an environmental justice (EJ) community through its effects on:

- Environmental conditions such as quality of air, water, and other environmental media; degradation of aesthetics, loss of open space, and nuisance concerns such as odor, noise, and dust;
- Human health such as exposure of EJ populations to pathogens;
- Public welfare in terms of social conditions such as reduced access to certain amenities like hospitals, safe drinking water, public transportation, etc.; and,
- Public welfare in terms of economic conditions such as changes in employment, income, and the cost of housing, etc.

The Corps conducted an evaluation of EJ impacts using a two-step process. As a first step, the study area was evaluated to determine whether it contains a concentration of minority and/or low-income populations. Following that evaluation in a second step, the Corps determined whether the proposed action and its alternatives would result in the types of effects listed above. The study area was determined to be in a mixed area that does not constitute an EJ population for either minority or low-income populations (Appendix F). Moreover, the proposed action would not result in any physical changes to the environment. Therefore, the Corps has determined the proposed action is not anticipated to disproportionately affect environmental justice. The proposed action will be in full compliance with Executive Order 12898 following completion of the NEPA process.

7.11 Executive Order 11988: Floodplain Management

Executive Order 11988 (May 24, 1977) directs all federal agencies to avoid development and other activities in the floodplain.

The Corps has determined that the proposed action would have no effect on development in the floodplain and therefore, is in full compliance with EO 11988.

7.12 Executive Order 11990: Protection of Wetlands

Executive Order 11990 (May 24, 1977) requires federal agencies to take action to avoid adversely impacting wetlands wherever possible, to minimize wetlands destruction and to preserve the values of wetlands, and to prescribe procedures to implement the policies and procedures of this EO.

The Corps has determined that the proposed action would have no effect on wetlands and therefore, is in full compliance with EO 11990.

7.13 Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks

Executive Order 13045 (April 23, 1997) points out that children may suffer disproportionately from environmental health and safety risks due to their bodily systems still developing at the same time of eating, drinking, and breathing greater quantities in proportion to their size compared to adults. Federal agencies are required to identify and assess environmental health risks that may disproportionately affect children and ensure activities address disproportionate risks to children that result from environmental health or safety risks.

The proposed action would not result in environmental health risks and safety risks that may disproportionately affect children and therefore, is in full compliance with EO 13045.

7.14 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 recommended alternative will not adversely affect cultural resources as compared to the current condition. The recommended alternative will be in full compliance with EO 11593 following completion of the NEPA process.

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

Environmental Requirement	Compliance¹
<i>Federal Statutes</i>	
National Historic Preservation Act of 1966, as amended	Partial
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
Coastal Zone Management Act, as amended	N/A

Endangered Species Act of 1973, as amended	Full
Farmland Protection Policy Act of 1981	N/A
Federal Water Project Recreation Act, as amended	N/A
Fish and Wildlife Coordination Act of 1934, as amended	Partial
Land and Water Conservation Fund Act of 1965, as amended	N/A
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
National Wildlife Refuge Administration Act of 1966	N/A
Noise Pollution and Abatement Act of 1972	N/A
Watershed Protection and Flood Prevention Act of 1954	Full
Wild and Scenic Rivers Act of 1968, as amended	N/A
<i>Executive Orders, Memoranda</i>	
Floodplain Management (EO 11988)	Full
Safeguarding the Nation from the Impacts of Invasive Species (EO 13112)	Full
Protection and Enhancement of Environmental Quality (EO 11514)	Full
Consultation and Coordination with Indian Tribal Governments (EO 13175)	Partial
Protection and Enhancement of the Cultural Environment (EO 11593)	Partial
Protection of Wetlands (EO 11990)	Full
Analysis of Impacts on Prime and Unique Farmland (CEQ Memorandum, 30 Aug 1976)	N/A
Environmental Justice (EO 12898)	Partial
Protection of Children from Environmental Health Risks (EO 13045)	Full

1 The compliance categories used in this table were assigned according to the following definitions:

- a. Full – All requirements of the statute, EO.
- b. Partial – Additional processes are needed to gain full compliance.
- c. N/A – Not applicable.

8 Public Involvement, Review, and Consultation

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

8.1 Public Involvement Process

Corps 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 (40 C.F.R. § 1506.6) and Corps planning policy (ER 1105-2-100, Planning Guidance Notebook), 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 an Environmental Assessment (EA) 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 this draft report has been published in the Federal Register, and the public will have the opportunity to review the integrated report through the NEPA process.

The public will have the opportunity to review and comment on this draft report. The public review comments will be considered in the final recommendation and will be summarized in the final report. During the public review period, any entities interested in future ownership of the project should submit a written statement of interest.

8.2 Coordination

On January 8, 2019, U.S. Senators Amy Klobuchar and Tina Smith submitted 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, "to clarify Congressional intent with respect to Section 1225 of the America's Water Infrastructure Act of 2018," which directed the Corps to undertake a disposition study solely for the Upper Lock, separately from the disposition study for Lower St. Anthony Falls and Lock and Dam 1. The letter further clarified the Corps should "cooperate with the City [of Minneapolis] to develop a plan in which the Corps 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 Coordination. This input was considered in the final implementation guidance for Section 1225, summarized below.

On April 25, 2019, James C. Dalton, the Director of Civil Works, issued implementation guidance for Section 1168 of WRDA 2018. The guidance underscored the language of the Act, point-by-point.

On May 6, 2019, James C. Dalton, the Director of Civil Works, issued implementation guidance for Section 1225 of WRDA 2018. The guidance underscored the language of the Act, point-by-point. The guidance indicated that the Corps would not formulate alternatives for ecosystem restoration or recreation, but would evaluate transferring ownership to other federal agencies and non-Federal entities that may pursue such measures. The guidance underscored consideration of partial disposition. The guidance also underscored the provision in the Act for the Corps to accept funds 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 non-governmental organizations. 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. Some provided letters to the Corps 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 for the drinking water supply for the city of Minneapolis.

The Superintendent of the Mississippi Nation River and Recreation Area (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 they would lose the special provisions and oversight granted to it in its authorizing legislation. It is the Corps' understanding that the National Park Service has taken a position that they will not accept the transfer of ownership of Upper St. Anthony Falls 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 Friends of the Falls) provided a letter with an acquisition proposal in which the Corps 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 non-support of additional hydropower development, and features which the Corps was 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. And that the lock flood gate was making up for the loss of other spillway gates that were removed in order to construct the lock.

On June 29, 2020, the City of Minneapolis provided a letter to the Corps expressing their desire to continue their relationship with the Corps; 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. The Corps has provided an outline of maintenance activities that the Corps would perform over the next 50-years, if the Corps were to retain the site.

On December 8, 2020, the City of Minneapolis provided another letter to the Corps restating its support of the Friends of the Falls in its desire to use ancillary land at the Upper St. Anthony Falls site for a visitor center via a partial disposal from the Corps. The city of Minneapolis stated that it is not interested in taking full ownership of the lock to facilitate the Falls project. The city requested the Corps allow a partial disposal and remain to manage the infrastructure of the lock.

Details of the Corps' coordination on this project are provided in Appendix G.

8.3 Scoping Comments

The Corps received a total of 23 letters, emails, or 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.

The Corps received a total of [REDACTED] letters, emails, or comment cards during the draft report review process. A summary and analysis of the comments and meetings with regards to this review will be provided in Appendix G, following the completion of public review of the draft report.

8.4 Agencies and Persons Consulted*

Resource agencies, tribes, the general public, and other stakeholders representing municipal, governmental, commercial, and natural resources 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, the Minnesota State Historical Preservation Office, the US Fish and Wildlife Service, the National Park Service, the Federal Energy Regulatory Agency, the General Services Administration and the Environmental Protection Agency was conducted via a meeting/webinar on the morning of August 15, 2019. Outreach was also conducted to local and non-government 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, Metropolitan Council Environmental Services, National Park Conservation Association, Friends of the Mississippi River, Saint Paul Yacht Club, Friends of Pool No. 2, University of Minnesota, Crown Hydro, 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, definition of a disposition study, why the USAF project was a candidate for disposition, process overview, and milestones (Appendix C).

In accordance with the Fish and Wildlife Coordination Act (FWCA), the Corps coordinated this project with the U.S. Fish and Wildlife Service and Minnesota DNR (Appendix G). Comments will be compiled and addressed, accordingly, to ensure compliance with FWCA.

The Corps also consulted with tribes during the plan formulation and environmental compliance of this feasibility study and preparation of the Integrated Disposition Study Report and Environmental Assessment.

This document will be made available for public and agency review pursuant to the National Environmental Policy Act of 1969, 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 recommendations by the St. Paul District Commander will be included in this section.

10 References

- Barr Engineering Company. 2004. Detailed Assessment of Phosphorus Sources to Minnesota Watersheds – Evaluation of Hydrologic Trends, Sources of Runoff, and Implications for Streambank Erosion – Draft Technical Memorandum. Prepared for the Minnesota Pollution Control Agency.
- Carroll, Jane (1993). Engineering the Falls: the Corps of Engineers' Role at St. Anthony Falls. U.S. Army Corps of Engineers, St. Paul District, 1993.
- Corps of Engineers, St. Paul District. 2018. Modeling Mississippi River dredging strategies after the lock closure at Upper St. Anthony Falls. St. Paul, Minnesota.
- Corps of Engineers, St. Paul District. 2004. Water Control Manual Upper and Lower St. Anthony Falls Lock and Dam. <http://water.usace.army.mil/a2w/f?p=100:1:0:>
- Davis, M. 2012. Population Estimates of Native Freshwater Mussels in Upper Pool 2 of the Upper Mississippi River, 2012. Minnesota Department of Natural Resources. Report for the U.S. Army Corps of Engineers, St. Paul District.
- Hatch, J.T. 2015. Minnesota fishes: Just how many species are there anyway? American Currents 40(2):10–21.
- Kelner, D. and M. Davis. 2002. Final Report: Mussel (Bivalvia: Unionidae) survey of the Mississippi National River and Recreation Area Corridor, 2000–01. Minnesota Department of Natural Resources, Ecological Services Division.
- Lenhart, C. 2012. Restoration of the Mississippi River Gorge: issues and research needs. Ecological Restoration. September.
- Metropolitan Council. 2010. 100+ Years of Water Quality Improvements in the Twin Cities.
- Minnesota Department of Natural Resources. 2008. Lock and Dam Pool #2, Standard Lake Survey Report.
- Minnesota Pollution Control Agency. 2015. South Metro Mississippi River Total Suspended Solids Total Maximum Daily Load. <https://www.pca.state.mn.us/sites/default/files/wq-iw9-12e.pdf>
- SAF. (SAF Hydroelectric LLC). 2004. Application for new license for major water power project. Lower St. Anthony Falls Hydroelectric Project (FERC Project No. 12451). SAF Hydroelectric LLC, Minneapolis, Minnesota. January 2004.
- SAF Hydroelectric Company. 2005. Environmental Assessment for Hydropower License, Lower St. Anthony Falls Hydroelectric Project. FERC Project No. 12451-001.
- Schramm, H.L., Jr. 2003. Status and management of Mississippi River fisheries. Presented at: Large Rivers Symposium. The Second International Symposium on the Management of Large Rivers for

Fisheries: Sustaining Livelihoods and Biodiversity in the New Millennium. Phnom Penh. Kingdom of Cambodia. February 11 – 14. 2003. 69 pp.

Sietman, B., Z. Secrist, M. Pletta, D. O'Shea, T. Wagner, M. Davis, and D. Kelner. 2018. Freshwater Mussels of the Mississippi National River and Recreation Area Corridor, Revisited, 2017. Minnesota Department of Natural Resources Center for Aquatic Mollusk Programs.

Stiras, J.K. 2017. East Metro Area Rivers Telemetry Report. Minnesota Department of Natural Resources, Division of Fish and Wildlife, Section of Fisheries. Major Rivers Survey Report.

Stiras, J.K. 2008. Major River Survey Report. Minnesota Department of Natural Resources, Division of Fish and Wildlife, Section of Fisheries. Special Assessment River Survey.

U.S. Army Corps of Engineers (2017). St. Anthony Falls Periodic Inspection No. 10 Periodic Assessment No.1. Mississippi Valley Division, St. Paul District, 2017, (For Official Use Only).

Weller, L. and T.A. Russell. 2017. State of the River Report 2016. National Park Service and Friends of the Mississippi River. www.swateoftheriver.com.