

## **Chapter 1 Purpose of and Need for Action**

### **1.1 Project Title (EAW Item 1)**

Duluth-Sky Harbor Airport Runway 32 Approach Obstruction Removal

### **1.2 Project Proposer (EAW Item 2)**

The Duluth-Sky Harbor Airport (DYT, herein referred to as “the Airport”) is owned by the City of Duluth, Minnesota and operated by the Duluth Airport Authority (DAA).

### **1.3 Project Summary (EAW Item 6a)**

*EAW Item 6a. Provide the brief project summary to be published in the EQB Monitor (approximately 50 words).*

The DAA proposes to reconstruct the runway at the Duluth-Sky Harbor Airport to provide a runway with an approach clear of trees and obstructions. The project will provide a clear approach surface and put the Airport in sufficient compliance with state and federal rules to allow issuance of a Minnesota Airport License.

## **1.4 Agency Roles and Relationships**

### **1.4.1 Reason for EA/EAW Preparation (EAW Item 4)**

The DAA proposes to reconstruct the runway at the Airport in order to provide a runway with an approach clear of trees and obstructions (see **Section 2.1**). The runway construction would be funded with local funds with potential future, partial Federal and State reimbursement through the Federal Aviation Administration (FAA) Airport Improvement Program (AIP), State bonding, and State airport funds. The use of AIP funding requires preparation of an Environmental Assessment (EA) to evaluate the proposed action in accordance with the National Environmental Policy Act (NEPA) (42 U.S. C. §§ 4321-4347) and NEPA’s implementing regulations (40 C.F.R. parts 1500-1508).

Project scoping was performed at the beginning of the EA process to evaluate a suite of alternatives with the coordination of affected Federal, State, and local agencies and other interested public stakeholders. During that coordination, it was determined that an Environmental Assessment Worksheet (EAW) is mandatory for this project pursuant to Minnesota Rules 4410.4300, Subp. 30 (Natural areas) because some of the alternatives considered could potentially impact the adjacent Minnesota Point Pine Forest Scientific and Natural Area (SNA). Some of the alternatives would also result in fill in Superior Bay and would require an EAW under MR 4410.4300, Subp. 27 (Wetlands and public waters).

This joint Federal EA/State EAW has been prepared to evaluate the proposed action in accordance with NEPA, NEPA’s implementing regulations, and the Minnesota Environmental Policy Act (MEPA) (Minn. Stat. § 116D as provided for in Minnesota Rules 4410.3900). In addition, this document was prepared in accordance with the requirements of FAA Orders 1050.1E, Change 1, “Policies and Procedures for Considering Environmental Impacts” and 5050.4B “National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects”. This document meets the applicable EAW requirements of Minnesota Rules, part 4410.0200 to 4410.7800, though this document is formatted differently from the worksheet format of the EAW. References to the EAW Question numbers are included as a point of reference and to demonstrate where responses to each EAW Question can be found.

### 1.4.2 Responsible Governmental Unit and Roles and Responsibilities (*EAW Item 3*)

This document is intended to meet both state (MEPA) and federal (NEPA) requirements. In this joint state and federal process, the DAA and FAA are acting as co-lead agencies in development of the document.

When a project exceeds the threshold for more than one category in the environmental rule (MR 4410.4300, Subpart 27 and Subpart 30) and a single governmental unit proposes to carry out the project, the Responsible Governmental Unit (RGU) is that local government unit (MR 4410.0500, subpart 5). Therefore, the DAA will act as RGU on behalf of the City of Duluth. Although the Minnesota Department of Natural Resources (MNDNR) will not be the RGU for this EA/EAW, coordination with the MNDNR, as well as with other state agencies and stakeholders through an Executive Committee comprised of the FAA, the City of Duluth, the DAA and the MNDNR will continue throughout this EA process. In addition, a Technical Advisory Committee (TAC) will be maintained.

The DAA will serve as the lead and assume responsibility for the State environmental review process. They will perform the duties defined by environmental review rules and will participate at any public meetings, public hearings, or other public involvement pursuant to MEPA. The DAA will determine whether or not the Proposed Action has the potential for significant environmental effects and if an EIS should be prepared under MR 4410. The DAA will prepare and publish the record of their decision upon completion of the environmental review process.

As the lead federal agency in the preparation of this joint environmental review, the FAA will coordinate with other Federal agencies [e.g., the U.S. Environmental Protection Agency (EPA) and the U.S. Fish and Wildlife Service (USFWS)], and will consult with Native American Tribes, as appropriate.

Agency meetings will be held jointly between the FAA and the DAA to satisfy both Federal and state requirements pursuant to NEPA and MEPA. The FAA will determine whether or not the Proposed Action has the potential for significant environmental impacts and if an Environmental Impact Statement (EIS) should be prepared. If none of the potential impacts, either individually or collectively, is likely to be significant, the FAA will prepare a Finding of No Significant Impact/Record of Decision (FONSI/ROD) signifying that the FAA will not prepare an EIS and has completed the NEPA process for the proposed action.

The FAA and United States Army Corps of Engineers (USACE) have entered into a Memorandum of Understanding (MOU) to merge the NEPA and Clean Water Act Section 404 Permitting processes into one process. The intent of the MOU is to preclude the need for revisiting decisions that have already been agreed upon earlier in the EA process, to encourage early substantive participation by the agencies, and to ensure that the information is adequate to address each agency's regulatory requirements. Through this MOU, the FAA will coordinate with the USACE to gain concurrence at different points in the process (Purpose and Need, Alternatives, Selected Alternative, and Preliminary Design Phase Impact Minimization). A copy of this MOU is included in **Appendix A**.

Prior to publication of this Draft EA, the USACE and FAA have agreed upon concurrence points (1) Purpose and Need, and (2) Alternatives Carried Forward (see **Appendix A**). Prior to publication of the Final EA, the USACE and FAA anticipate completion of concurrence points (3) Preferred Alternative, and (4) Preliminary Design Phase Impact Sequencing.

## 1.5 Project Location (*EAW Item 5*) and Description (*EAW Item 6*)

Duluth-Sky Harbor Airport is located approximately five miles from downtown Duluth on Minnesota Point (also known as Park Point) as shown on **Figure 1-1**. The project is located in Sections 18 and 19, Township 49 North, Range 13 West. Minnesota Point is a geologic feature that is known as one of the largest baymouth sandbars in the world (Ojakangas and Matsch 1982). It has been developed in varying degrees and forms a

natural boundary between Lake Superior and Superior Bay. The presence of this freshwater baymouth bar at the west end of Lake Superior is a key factor in making Duluth-Superior an excellent, safe inland port. The Airport has been in operation on Minnesota Point since 1939 and consists of a single 3,050 foot long paved and lighted runway with a parallel taxiway, two sea lanes and a seaplane ramp and dock for seaplane access as shown on **Figure 1-2**.

The unique location, facilities and services of the Duluth-Sky Harbor Airport has contributed to its ability to support a unique mix of users. The presence of both a paved runway and water based landing facilities supports aircraft with wheel-type landing gear, amphibian (land and water) landing gear, floats (water only), and skis (snow and ice) as well as two businesses that offer aircraft maintenance to wheeled, amphibian and float plane aircraft (Jonathan Aero and Hangar 10 Aero, LLC). The Airport is also an International Port of Entry to the United States and provides U.S. Customs services. Air charter businesses use the Airport as a base for aircraft ferrying passengers in and out of remote areas of Canada, utilizing both the land and sea-based aircraft. In 2011, U.S. Customs cleared over 500 passengers at the Airport.

In addition to the typical service, maintenance and annual inspection services, Jonathan Aero provides services specific to aircraft that use both land and water facilities. Jonathan Aero has been in business at the Airport since 1987 and manages a growing business performing float changes and general aircraft maintenance. Float changes are most often done twice per year on each aircraft, changing from wheeled gear to floats in the spring and back in the fall. These aircraft use the runway for use when using wheeled gear and the sea lanes when using floats.

Hangar 10 Aero, LLC is the Upper Midwest distributor for Poly-Fiber aircraft covering products and has been operating at the Airport since 1982. Their customer base represents hundreds of individuals and aircraft maintenance companies that rebuild and maintain a wide range of recreational aircraft from seaplanes, sport planes and light sport planes. They are the only aviation business in the Duluth area focused primarily on the new and growing Light Sport market developing since the Light Sport aircraft category and pilot license have been approved, which has made flying more affordable.

The area surrounding the Airport is composed primarily of woodlands, sand dunes, and lakeshore that remain relatively undisturbed in a natural condition, but also have significant and substantial value as a natural, ecological, aesthetic, scientific, and educational resource contributing to the natural heritage of Minnesota. The Airport is located adjacent to a mixed red and white pine forest that is uniquely situated on the stabilized sand dunes near the eastern tip of Minnesota Point. Although ranging in age, some of the red and white pine trees in the forested areas are more than 120 years old and portions of the forested area are considered “old-growth.” Old-growth forests are classified as such by criteria set forth by the MNDNR and typically include natural forests that have developed over a long period of time, generally at least 120 years, without experiencing severe, stand-replacing disturbance (e.g., fire, windstorm, or logging). The old-growth forest on the now urban setting of Minnesota Point is uniquely significant in Minnesota “by virtue of its presence on Lake Superior sand dunes” (Wilson and Rusterholz 1996), with the red and white pine woodland, its understory components, and ecological setting being the only example of this in Minnesota.

This adjacent forest includes the Minnesota Point Pine Forest Scientific and Natural Area (SNA) (see **Figure 1-2** and **Figure 1-3**) established in 2002 to preserve and protect a portion of the old-growth red and white pine forest remnant that once occurred along the length of Minnesota Point. The SNA is owned and managed by the MNDNR. The Minnesota Land Trust established a Conservation Easement with the State of Minnesota on June 30, 1999 to serve the policies of the State of Minnesota which encourage the protection of Minnesota’s natural resources as set forth in Minnesota Statutes Section 84C.01-12 (Conservation Easements), as well as Section 86A.05 and Section 84.033 (State Scientific and Natural Areas).

### 1.5.1 Project History

In 2006, the Office of Aeronautics of the Minnesota Department of Transportation (MnDOT) and the FAA directed the DAA to clear the approach to Runway 32 in order to meet established standards required to maintain a Minnesota Airport License (**Appendix B**). Public airports within the State of Minnesota must be licensed by the Commissioner of the Minnesota Department of Transportation (with minor exceptions)<sup>1</sup>. State licensure requires that an airport meet state and federal requirements, including at least one runway with a minimum usable length of 2,000 feet and free from obstructions to the primary or approach surfaces.

At that time, the Airport approached the MNDNR for permission to top (remove the upper portion of) three pine trees and fell (cut at ground level) four large pines and a cluster of younger vegetation within the SNA which were identified as obstructions to the Federal Aviation Regulation (FAR) Part 77 approach surface (20:1 slope). This work would have been in addition to similar topping, trimming and felling of obstructions (trees) within the Airport property. The MNDNR granted permission for impacts to the seven trees within the SNA in a letter dated August 2006. In 2007 and prior to impacting any trees, a tree survey conducted on a portion of the SNA and Airport property identified the specific location and species of individual trees. Analysis of the tree survey data revealed that the actual number of trees penetrating the approach surface exceeded 250 trees, greater than the seven trees within the SNA than had been approved for impact by the MNDNR. It was at this point that the Airport initiated the environmental review process to evaluate alternatives to resolve the obstruction issues.

Part 77 of the FAR establishes airport “imaginary surfaces,” which are intended to maintain unobstructed operation of air navigation facilities and the safe and efficient utilization of the navigable airspace. Part 77 surfaces are geometrically based upon the ultimate physical layout of the runways and category of intended aviation use. An object is defined as an obstruction if it penetrates any of these imaginary surfaces. By definition, the imaginary surfaces become increasingly critical with respect to height limitations as they become closer to the runway surface, finally allowing an object height of zero feet within 200 feet of the runway end. The State of Minnesota airspace criteria for airport facilities comply with the above mentioned Federal criteria. **Figure 1-4** shows a three dimensional view of the FAR Part 77 approach and transitional surfaces surrounding the Airport. It also shows the known obstructions (trees) to those surfaces (shown in black). Obstructions to FAR Part 77 surfaces can include existing and proposed manmade objects as well as objects of natural growth and terrain.

Tree surveys performed in 2008 and 2009 as part of the environmental scoping process (and in addition to 2007 tree survey data) showed that the actual number of obstructions to the existing approach surface potentially approaches 600 trees. A tree growth model created to estimate the current (2010) tree heights based on 2007–2009 tree survey data (see **Appendix C**) shows that there could be between 1,860–1,885 trees that are obstructions to both the existing FAR Part 77 approach and transitional surfaces to Runway 32 at the Airport<sup>2</sup> (see **Figures 1-4 and 1-5**). These obstructions include up to 599 trees that penetrate the approach surface and up to an additional approximately 1,286 trees that penetrate the transitional surface. The most conservative estimate of total penetrations to each of the obstructed FAR Part 77 surfaces predicted by the aggressive growth model are shown by species and ownership in **Table 1-1**.

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<sup>1</sup> Minnesota Rules 8800.1400, Subpart 1.

<sup>2</sup> The range of potential tree penetrations represents the difference between the assumed average growth rate and the aggressive growth rate described in the Tree Growth Model report in **Appendix C**.

**Table 1-1  
Summary of Existing (2010) Obstructions to Runway 32**

Species	Approach Surface				Transitional Surface				Grand Total
	Property Ownership			Total	Property Ownership			Total	
	DAA	MNDNR	SWLP		DAA	MNDNR	SWLP		
Red Pine	90	138	55	283	199	346	0	545	828
White Pine	60	114	27	201	144	192	1	337	538
Paper Birch	13	18	17	48	84	61	3	148	196
Quaking Aspen	4	30	3	37	0	0	0	0	37
Poplar	15	2	2	19	214	0	0	214	233
Other <sup>1</sup>	0	5	6	11	41	1	0	42	53
<b>Totals</b>	<b>182</b>	<b>307</b>	<b>110</b>	<b>599</b>	<b>682</b>	<b>600</b>	<b>4</b>	<b>1,286</b>	<b>1,885</b>

<sup>1</sup> Other species include Balm of Gilead, Balsam Fir, Big Tooth Aspen, Black Willow, Elm, Maple, Tamarack and Unknown. No single species included in "other" has more than 7 affected individuals.

Growth of trees in the approach surface has resulted in additional obstructions to Runway 32. The number and extent of the obstructions are such that MnDOT is unable to allow continued licensure of the Airport unless measures are taken to remove the obstructions from the approach surface. The Commissioner of MnDOT may waive certain airport licensing standards if it is determined that the public interest and safety will not be adversely affected. The Airport has been operating under a waiver from MnDOT that has allowed continued operation of the Duluth-Sky Harbor Airport with obstructions in that area identified on **Figure 1-5**. The existing waiver was implemented with the expectation that the obstructions would be removed or some other solution implemented to provide a clear approach to the Airport. The waiver was not created with the intention of allowing it to be a long-term solution. In addition, the waiver does not include the entire approach surface, only that portion on the Lake Superior side of the obstruction lights (**Figure 1-5**). There are existing tree obstructions outside of and not covered by the existing waiver.

### 1.5.2 Interim Conditions

The DAA initiated an interim solution to temporarily mitigate the safety hazards created by the obstructions to the Runway 32 approach and to allow operation of the Airport while alternatives to remove the obstructions are evaluated. In February 2007, at the request of MnDOT, the Airport was closed for night operations and the runway lights, Runway 32 Precision Approach Path Indicators (PAPIs) and Runway End Identifier Lights (REILs) were turned off. PAPIs provide vertical guidance to help pilots navigate to the end of the runway and REILs provide flashing synchronized lights to clearly mark the end of the runway. Because the glide path presented to pilots by the PAPIs would have directed pilots into the obstructing trees, they were turned off. However, operating without PAPIs can be difficult for pilots. In November 2007, the Airport filed a Notice to Airmen (NOTAM) that the Global Positioning System (GPS) approach was unavailable resulting in only a non-directional beacon (NDB) circling approach available at the Airport. In 2010, the FAA cancelled the NDB approach because the NDB used for this approach [located at Richard I. Bong Memorial Airport (SUW) in Superior, Wisconsin] was decommissioned. As part of the FAA's transition from ground based to satellite based technology, NDBs throughout the United States are being decommissioned. Access to the Airport is currently limited to visual conditions (weather with cloud ceilings at least 1,000 feet above the Airport elevation and visibility of at least 3 miles).

In the summer of 2008, the threshold to Runway 32 was displaced 658 feet (the PAPIs and REILs were relocated accordingly and turned back on) reducing the usable runway length for Runway 32 to 2,392 feet, but increasing the safety at the Airport for approaching aircraft (see **Figure 1-2**). While not meeting all the needs

of the Airport, these measures have been taken to temporarily mitigate the obstructions to the Runway 32 approach. Although the GPS approach remains unavailable (due to insufficient runway length) as part of this interim solution, the shorter runway length provided by the displaced threshold allows for a clear threshold location plane to Runway 32 and nighttime operations (reinstated in January 2009).

Maintenance of a Minnesota Airport License at the Airport is necessary and will require a return to full regulatory compliance with MnDOT requirements. This will require provision of a fully clear approach to the runway and relief from all obstructions, including those within the area now affected by the waiver. In the current condition, 599 trees would have to be removed from the approach surface (either by topping or cutting at ground level) to maintain licensure. The trees penetrating the transitional surface may remain, if lighted.

### 1.5.3 Existing Airport Facilities

Apart from the obstructions in the approach to Runway 32, the existing facilities at the Airport generally meet users' needs and required design standards (See **Figure 1-2**). These existing facilities include:

- Single paved and lighted runway (Runway 14/32) 3,050 feet long by 75 feet wide with a full-length parallel taxiway;
- PAPIs, navigational aids used to assist the pilot in determining the aircraft position in relation to the established runway approach glide path;
- GPS non-precision instrument approach (currently unavailable due to the insufficient runway length provided by the interim condition) to aid pilots in landing in inclement weather conditions and reduced visibility;
- Seaplane access; two sea lanes, a seaplane dock which serves as a location for loading, unloading and fueling operations; and a seaplane ramp which provides means for amphibian aircraft to taxi from water to land and for float equipped aircraft to be removed from water and placed on land;
- Terminal area for Fixed Based Operator (FBO) operations and Arrival/Departure (A/D) Building, aircraft parking (currently 34 tiedowns), automobile parking; and
- Private hangars (currently nine).

The design standards applied to airport facilities are a function of the design critical aircraft operating at an airport. The critical aircraft is defined as that aircraft (or group of aircraft) whose dimensional and/or performance characteristics are the basis for selection of facilities design criteria. The FAA airport design criteria and dimensional standards for airport facilities are based on the Approach Category (aircraft approach speed) and Airplane Design Group (wingspan and height) of the most demanding aircraft (critical aircraft) having at least 500 annual itinerant operations (takeoffs or landings) currently using or forecasted to use an airport.

The conditionally approved Airport Layout Plan (ALP), available for review at the FAA Minneapolis Airport District Office (MSP ADO), states that the existing critical aircraft using the Duluth-Sky Harbor Airport is the Cessna 177, an ARC A-I aircraft (this aircraft can be configured with wheeled or float landing gear). The ALP identifies the ultimate critical aircraft to be a Beech B55 Barron (wheeled landing gear), also an Airport Reference Code (ARC) A-I aircraft. Of the amphibious and float plane aircraft that utilize the Airport, the critical aircraft are also in the A-I group. The results of a User Survey conducted in March 2008 confirm that the critical aircraft at the Airport continues to be A-I. Therefore, ARC A-I is the family of aircraft (both wheeled, amphibious and float landing gear) for which the Airport should be designed and maintained. A copy of the results of the User Survey is included as an appendix to the Final Scoping Document in **Appendix D** and includes definitions of the aircraft characteristics used to define critical aircraft. An updated ALP is being prepared concurrently with this EA process and depicts A-I as the ARC. The draft ALP is also available for review at the FAA Minneapolis Airport District Office.

FAA Advisory Circular (AC) 150/5300-13A, *Airport Design*, and other FAA ACs describe the standards for airport design. Because many of the project alternatives evaluated during project scoping include construction of new aviation facilities, the following summary demonstrates the facilities that would be necessary to meet the demonstrated needs of the Airport.

### 1.5.3.1 Runway Length

Adequate runway length is determined in accordance with aircraft flight manuals and FAA AC 150/5325-4B *Runway Length Requirements for Airport Design*. In addition, minimum runway length requirements exist for different types of instrument approaches to a runway. A straight-in non-precision approach, similar to the published GPS approach to the Airport, requires at least a 2,400-foot long runway (AC 150/5300-13A, Appendix 16, Table A16-1C). Runway length requirements for aircraft operations were calculated using FAA AC 150/5325-4B and the existing and future critical aircraft (an aircraft not more than 12,500 pounds in the ARC A-I category). The results are listed in **Table 1-2**.

**Table 1-2**  
**Recommended Runway Lengths**

75% of small airplanes (less than 12,500 lbs.) with less than 10 passenger seats	2,600 feet
95% of small airplanes (less than 12,500 lbs.) with less than 10 passenger seats	3,100 feet
100% of small airplanes (less than 12,500 lbs.) with less than 10 passenger seats	3,700 feet
Small airplanes (less than 12,500 lbs.) with 10 or more passenger seats	4,150 feet
75% of large airplanes of 60,000 lbs. or less, at 60% useful load	5,350 feet
75% of large airplanes of 60,000 lbs. Or less, at 90% useful load	6,800 feet
100% of large airplanes of 60,000 lbs. or less, at 60% useful load	5,500 feet
100% of large airplanes of 60,000 lbs. or less, at 90% useful load	7,500 feet

Source: FAA AC 150/5325-4B

The FAA recommends a runway length that serves 95% of all small aircraft with less than ten (10) passenger seats, which in this case is 3,100 feet, for medium and small population areas, recreational areas as well as low-activity airports (AC 150/5325-4B, paragraph 205a). However, because the users of the Airport are small A-I aircraft, a runway length of 2,600 feet would serve known existing and forecasted users and would permit a straight-in GPS approach. Therefore, the runway must be a minimum of 2,600 feet long to adequately serve the users of the Airport.

The user survey that was completed as part of the Scoping Document (**Appendix D**) indicated that based aircraft use the hard surface land runway for approximately 51 percent of their operations, seasonally based aircraft use the runway for approximately 31 percent of their operations while transient (aircraft coming to/from another airport and not based at Duluth-Sky Harbor Airport) use the runway for 77 percent of their operations. The remaining operations by the respondents were conducted on the water in Superior Bay.

### 1.5.3.2 Runway Width

Runway width requirements are a function of the approach category of the critical aircraft and the type of instrument approach. According to AC 150/5300-13A, the runway width for an aircraft in approach category A with a non-precision instrument approach with not lower than  $\frac{3}{4}$  mile approach visibility minimums should be 60 feet. The existing runway width is 75 feet.

Prevailing wind is a major factor influencing the orientation of runways. Wind conditions affect all aircraft to some degree. Generally, the smaller the aircraft, the more it is affected by crosswinds. Crosswinds are defined as winds typically perpendicular to a runway or an aircraft's direction of movement. The minimum

recommended wind coverage is 95%. The 95% of wind coverage is computed on the basis of the crosswind not exceeding 10.5 knots for ARC A-I and B-I, 13 knots for ARC A-II and B-II, 16 knots for ARC A-III, B-III, and C-I through D-III, and 20 knots for ARC A-IV through D-VI. Since Duluth-Sky Harbor Airport is an A-I airport, the crosswind component should not exceed 10.5 knots (AC 150/5325-4B). The 10.5 knot wind coverage for Runway 14/32 is 89.93% (Richard I. Bong Superior Airport, 1999-2008). When wind coverage is not achieved by a runway, a crosswind runway is recommended. However, due to the physical location of the Airport and the narrow width of the land mass, a crosswind runway is not feasible. According to AC 150/5300-13A, when a crosswind runway is impracticable due to terrain constraints, as in the case of Sky Harbor, operational tolerances to crosswinds may be increased through upgrading airport design to the next higher ARC. This may include a wider runway or wider safety areas, both required for a higher ARC. The larger widths (either runway width or safety area) allow pilots more space to safely maneuver the aircraft in crosswind conditions. While a 75-foot wide runway provides safer operating conditions for users by providing increased space for maneuverability and adjustments for crosswinds, the minimum runway width must be at least 60 feet (AC 150/5300-13A).

### 1.5.3.3 Parallel Taxiway

A taxiway is used at an airport to keep taxiing aircraft off of the active runway where aircraft are landing and departing. The term “parallel taxiway” refers to the fact that the taxiway is a linear facility located adjacent to a runway available for aircraft ground movements. Parallel taxiways are a primary airport design principle (AC 150/5300-13A, 204b), are part of the FAA’s commitment to safe airport operations, and are consistent with the FAA’s 2009–2013 Flight Plan objectives to reduce the risk of runway incursions by modifying and improving existing surface movement infrastructure. Field Formulation of the National Plan of Integrated Airport Systems (NPIAS) defines a full-length parallel taxiway as a “fundamental” development for airports.

A runway is intended for the high-speed operations of aircraft takeoffs and landings. A runway with no parallel taxiway results in back-taxiing (an aircraft landing on Runway 16, turning around, and taxiing back to the building area or an aircraft leaving the building area, taxing down the runway to reach the Runway 32 end for takeoff) which causes conflicting aircraft movements on an active runway at the same time that the runway is available for aircraft takeoffs or landings. This means that if an aircraft preparing to take off or having just landed is taxiing on the runway, any other aircraft on the ground must wait before it can enter the runway to prepare for takeoff. This results in aircraft waiting in the apron area with engines running, causing departure delays and increased fuel use. Back taxiing also requires any arriving aircraft to abort the approach and circle around to await taxiing aircraft to clear the runway before landing. When an approaching aircraft is unable to land at an airport due to another aircraft taxiing on the active runway, the approaching aircraft will continue to fly the traffic pattern of the Airport until the runway is clear for landing.

The Airport currently has a 25-foot wide, full-length parallel taxiway separated from the runway centerline by 150 feet (AC 150/5300-13A, A-I small aircraft). Although the existing taxiway meets dimensional standards, the existing taxiway is at too high of a grade compared to the runway centerline and the Airport currently has a design variance. The taxiway should be constructed to meet all design standards.

### 1.5.3.4 Approaches

There are currently no usable instrument approaches at the Airport. Formerly, there were two non-precision instrument approaches, both with visibility minimums not lower than one mile. The instrument approach procedures at the Airport provided operational reliability by allowing landings during inclement weather conditions, either obscured cloud ceiling and/or forward-looking visibility. These approach procedures, which provided visual alignment guidance, included a GPS straight-in approach and a NDB circling approach.

The GPS approach is currently unavailable (since 2007) because the interim condition does not provide sufficient runway length (a minimum of 2,400 feet is required) to meet the requirements for a straight-in approach (see the Final Scoping Document in **Appendix D**). The GPS approach provides straight-in directional guidance to an individual runway end and was the most used and preferred approach at the Airport. Seventy-eight percent (78%) of the reported annual approaches accounted for in the user survey (Appendix D of the Final Scoping Document found in **Appendix D**) were GPS approaches while only 22% were NDB approaches.

The NDB approach provided directional guidance to the Airport for a circling approach. The NDB approach functioned using an NDB antenna located at the Richard I. Bong Superior Airport in Superior, Wisconsin. However, this NDB approach was decommissioned in fall 2009 and will no longer be available for future use. NDBs throughout the United States are being decommissioned as part of the FAA transition from ground-based to satellite technology (as discussed in **Section 1.5.2** above).

General Aviation and business aircraft are increasingly capable of “all weather operations.” Instrument approaches are important in continuing the Airport’s ability to safely and reliably serve both recreational and business user needs. The capability for a published instrument approach is preferred to serve the needs of Airport users and operations in reduced visibility and inclement weather.

#### **1.5.3.5 Seaplane Base Facilities**

There are two existing sea lanes at the Airport which provide defined landing space for seaplanes. The north-south sea lane (13W/31W) is 10,000 feet long by 2,000 feet wide and the east-west sea lane (9W/27W) is 5,000 feet long by 1,500 feet wide (**Figure 1-2**). Taxi channel(s) of varying widths provide access to a seaplane dock and ramp north of the Runway 14 end where aircraft can be fueled, docked for loading and unloading, and temporarily stored. The seaplane ramp provides a means for amphibian aircraft to taxi from water to land and for float equipped aircraft to be removed from water and placed on land.

These facilities allow float planes (which can only land on water) and amphibious aircraft (which can land on water and hard surface runways) to operate at the Airport. In addition, although amphibious aircraft can operate on Runway 14/32 at the Airport, the availability of the sea lanes provides additional landing directions to be available to these aircraft. This allows amphibious aircraft to land in more varying wind conditions than aircraft which operate only on a hard surface runway. The existing sea lanes and taxi channels meet the standards defined in FAA AC150/5395-1. The seaplane facilities described in this section need to be maintained in order to adequately serve the users of the Airport.

#### **1.5.3.6 Landside Facilities**

Landside facilities at the Airport include an A/D building, nine private aircraft hangars, an aircraft parking apron with tiedowns, and automobile parking. All existing aircraft hangars are currently being used by airport tenants and users. There is demand for additional hangar space. Space is available on the existing aircraft apron for up to three additional hangars, but the Airport does not have adequate water supply to provide the required fire suppression services at this time. The A/D building houses the FBO that provides fuel services and aircraft storage for Airport users, an office for DAA staff (Airport Manager), and a small pilot lounge and flight planning area.

Although improvements in available hangar space would be beneficial, the existing landside facilities and services must be maintained at least in their current capacities to meet the needs of Airport users.

## **1.6 Purpose and Need for the Proposed Action**

The overall project purpose is to provide a safe airport facility with land and water services that will meet FAA and MnDOT aeronautics design and operation requirements and safely maintain adequate runways with clear approach surfaces for local, regional, and interregional airplane users.

There are obstructions to the FAR Part 77 approach surface to Runway 32 at the Airport, which limits airport use and ability of the Airport to maintain an Airport License. Because obstructions to the runway approach have existed for some time and threaten Airport licensure and the continued use of the Airport in its existing capacity, the FAA and MnDOT expect implementation of an economically-feasible, long-term solution without undue delay that will provide safe and adequate aviation facilities while avoiding immediate as well as repeated environmental impacts.

### **1.6.1 Project Objectives (EAW Item 6.d.)**

*EAW Item 6.d. Explain the project purpose; if the project will be carried out by a governmental unit, explain the need for the project and identify its beneficiaries.*

The proposed action includes the following objectives:

1. Provide General Aviation airport facilities meeting FAA and MnDOT regulatory standards to maintain licensure by MnDOT,
2. Provide facilities sufficient to meet the demonstrated needs of Airport users (both paved and water based landing facilities, runway length of at least 2,600 feet, runway width of at least 60 feet, straight-in non-precision approach, and a parallel taxiway) ,
3. Minimize conflicts with the adjacent forest and provide for long-term continuation of both entities; and
4. To do so in a way that is economically feasible.

### **1.6.2 Permits and Approvals Required (EAW Item 8)**

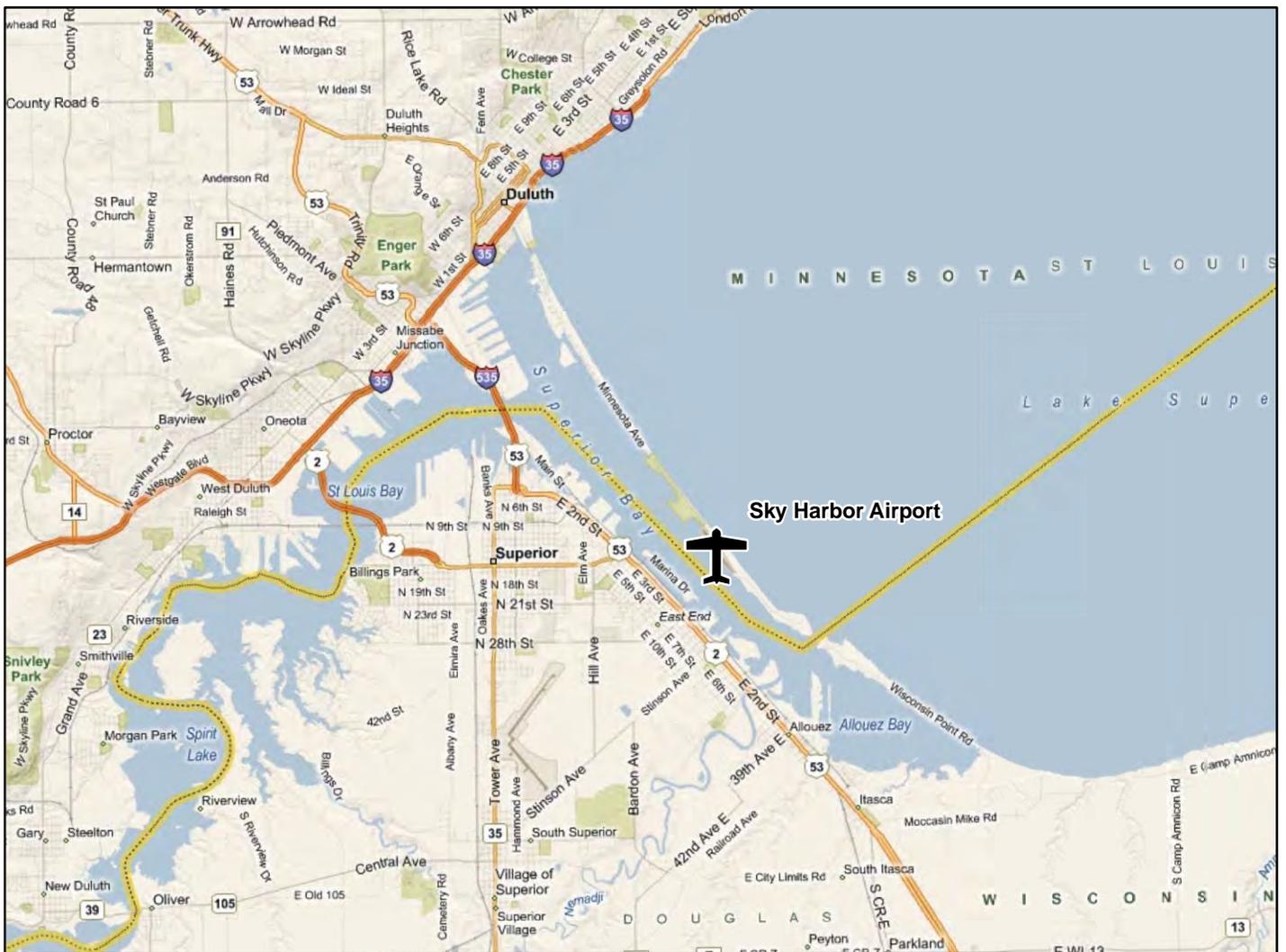
*EAW Item 8. List all known local, state and federal permits, approvals and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing and infrastructure. All of these final decisions are prohibited until all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.*

**Table 1-3  
Permits and Approvals Required**

Unit of Government	Application/Approval	Status
<b>Federal Approvals</b>		
<b>Federal Aviation Administration (FAA)</b>		
	Finding of No Significant Impact (FONSI) / Record of Decision (ROD)	Pending results of EA
<b>U.S. Army Corps of Engineers (USACE)</b>		
	Clean Water Act Section 404 Permit Rivers and Harbors Act Section 10 Permit	To be applied for
<b>U.S. Fish and Wildlife Services (USFWS)</b>		
	Consistency Consultation under the Coastal Barrier Resource System Act of 1982; Endangered Species Act,	The USFWS concurred with FAA's determination that the project is exempt in letter dated July 12, 2013; The FAA determined that the project will have no effect on species protected by the Endangered Species Act.
<b>State Approvals</b>		
<b>Minnesota Pollution Control Agency (MPCA)</b>		
	Section 401 Water Quality Certification	To be applied for
	Compliance with M.R. Chapter 7050 Water Quality Standards	To be applied for
	NPDES/SDS Construction Permit	To be applied for
	NPDES/SDS Modification	To be applied for
<b>Minnesota Department of Natural Resources (MNDNR)</b>		
	Public Waters Work Permit for fill and dredging	To be applied for
	Natural Heritage Database Search	Complete
	Coastal Zone Management Plan Consistency Determination	To be applied for
	Prohibited/Regulated Invasive Species Permit	To be applied for
<b>State Historic Preservation Office (SHPO)</b>		
	Section 106 Consultation	FAA finding has been submitted to SHPO for review and concurrence.

**Table 1-3 (Continued)  
Permits and Approvals Required**

Unit of Government	Application/Approval	Status
<b>Minnesota Department of Transportation (MnDOT), Office of Aeronautics</b>		
	State Airport License	To be maintained
<b>County and Local Approvals</b>		
<b>City of Duluth</b>		
	Special Use Permit for floodplain fill	To be applied for
	Shoreland Permit	To be applied for
<b>Other Approvals</b>		
<b>Minnesota Land Trust</b>		
	Approval Action	To be applied for



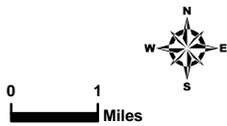
Map Document: (S:\AED\Duluth\080100\GIS\Maps\EA\EA\_Fig1-1\_ProjectLocationMap\_8x11P.mxd) 1/28/2010 12:32:49 PM



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**Duluth Sky Harbor Airport**  
*Environmental Assessment*  
Duluth, Minnesota  
Project: DULAI 080100  
Print Date: 01/28/2010

**Figure 1-1**  
**Project Location Map**



Map by: naa  
Projection: NAD 83, St Louis County Transvers Mercator 1996  
Source: USDA NAIP 2008, Mn/DOT, MnDNR, SEH

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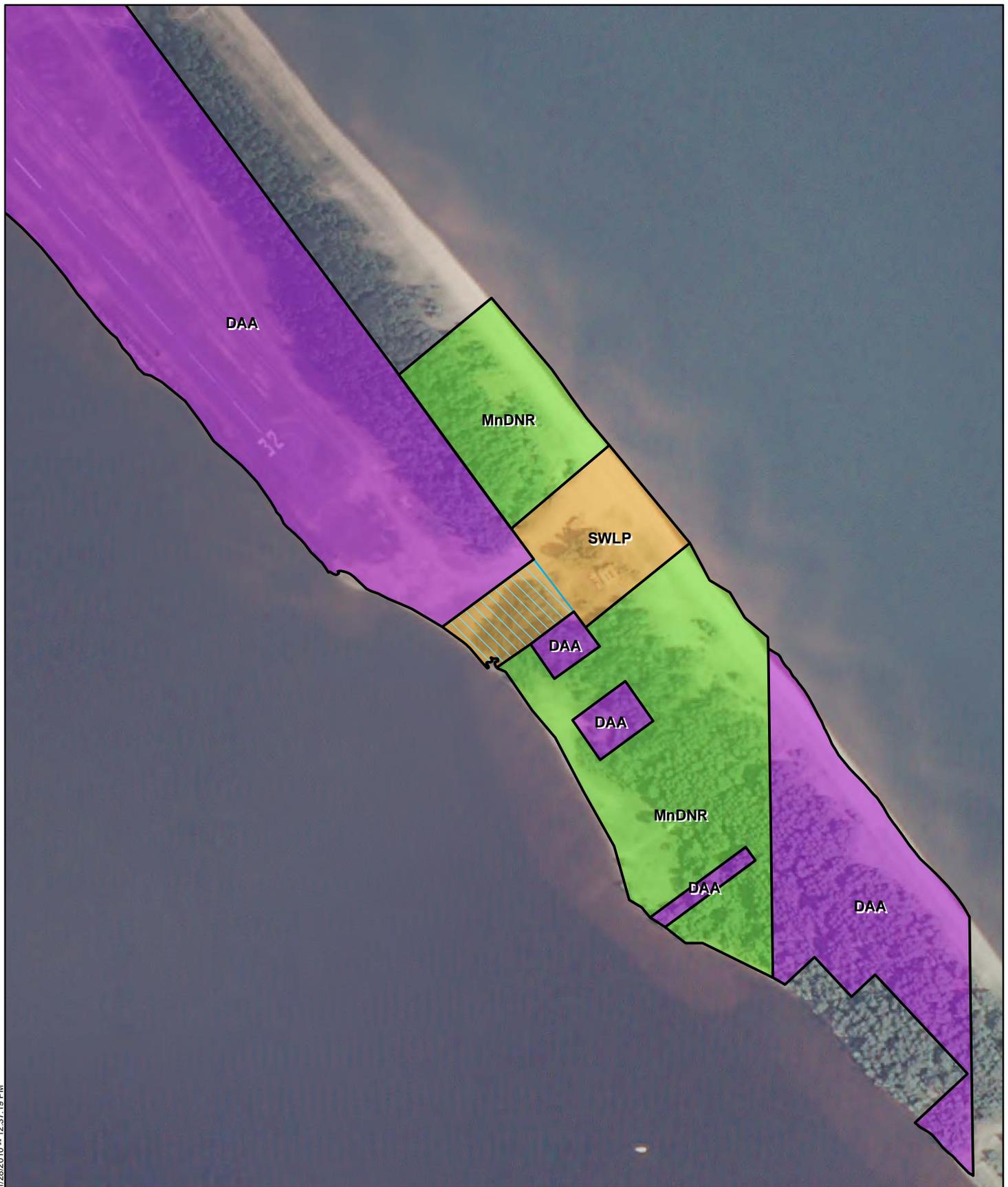
Aerial Source:  
MnDOT Office of Aeronautics,  
November, 2006

- Obstruction Lights
- MnDOT Clear Zone
- - - Existing Airport Property
- . - . SNA Boundary
- - - Anchorage Area
- - - Navigation Channel

	ADULAI0801.00	<b>Duluth Sky Harbor Airport</b> Environmental Assessment Duluth, MN	Figure 1-2  Airport Location Map	
	November 2012			



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**Duluth Sky Harbor Airport**  
*Environmental Assessment*  
 Duluth, Minnesota

Project: DULAI 080100  
 Print Date: 01/28/2010

**Legend**

- Ownership Boundaries
- ▭ DYT Aviation Easement
- Ownership
  - ▭ DAA - Duluth Airport Authority
  - ▭ MnDNR - MN Point Pine Forest SNA
  - ▭ Superior Water Light and Power

**Figure 1-3**

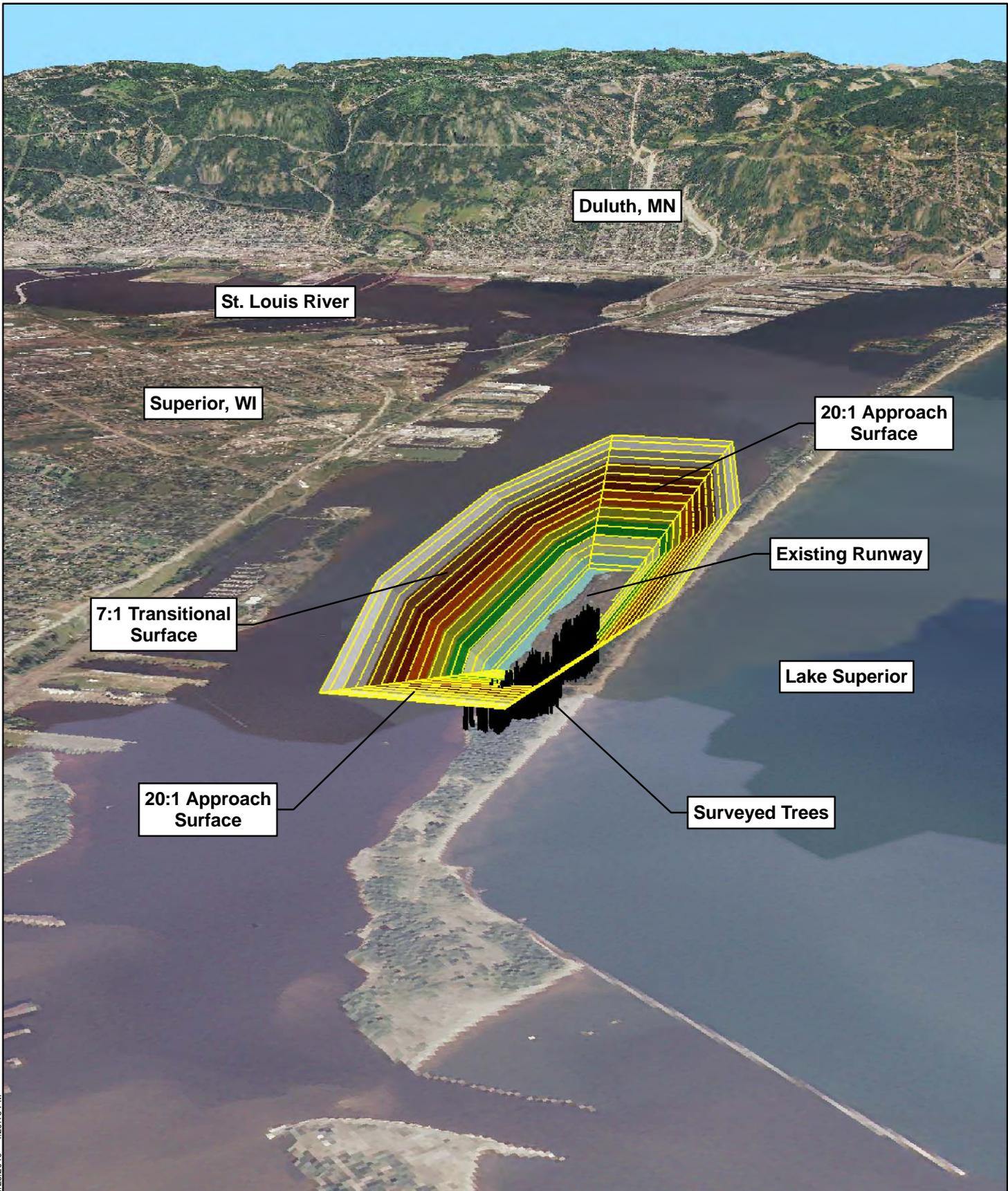
**Property Interests**



Map by: naa  
 Projection: NAD 83, St. Louis County  
 Transvers Mercator 1996  
 Source: USDA NAIP 2008, RS&H,  
 MnDNR, SEH

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Map Document: (S:\A\ED\Duluth\080100\GIS\Maps\EA\EA\_Fig1-4\_A103\_TreeImpacts3D\_8x11P.mxd) 1/28/2010 -- 4:20:16 PM



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*Environmental Assessment*  
Duluth, Minnesota

Project: DULAI 080100  
Print Date: 01/28/2010

**Figure 1-4**

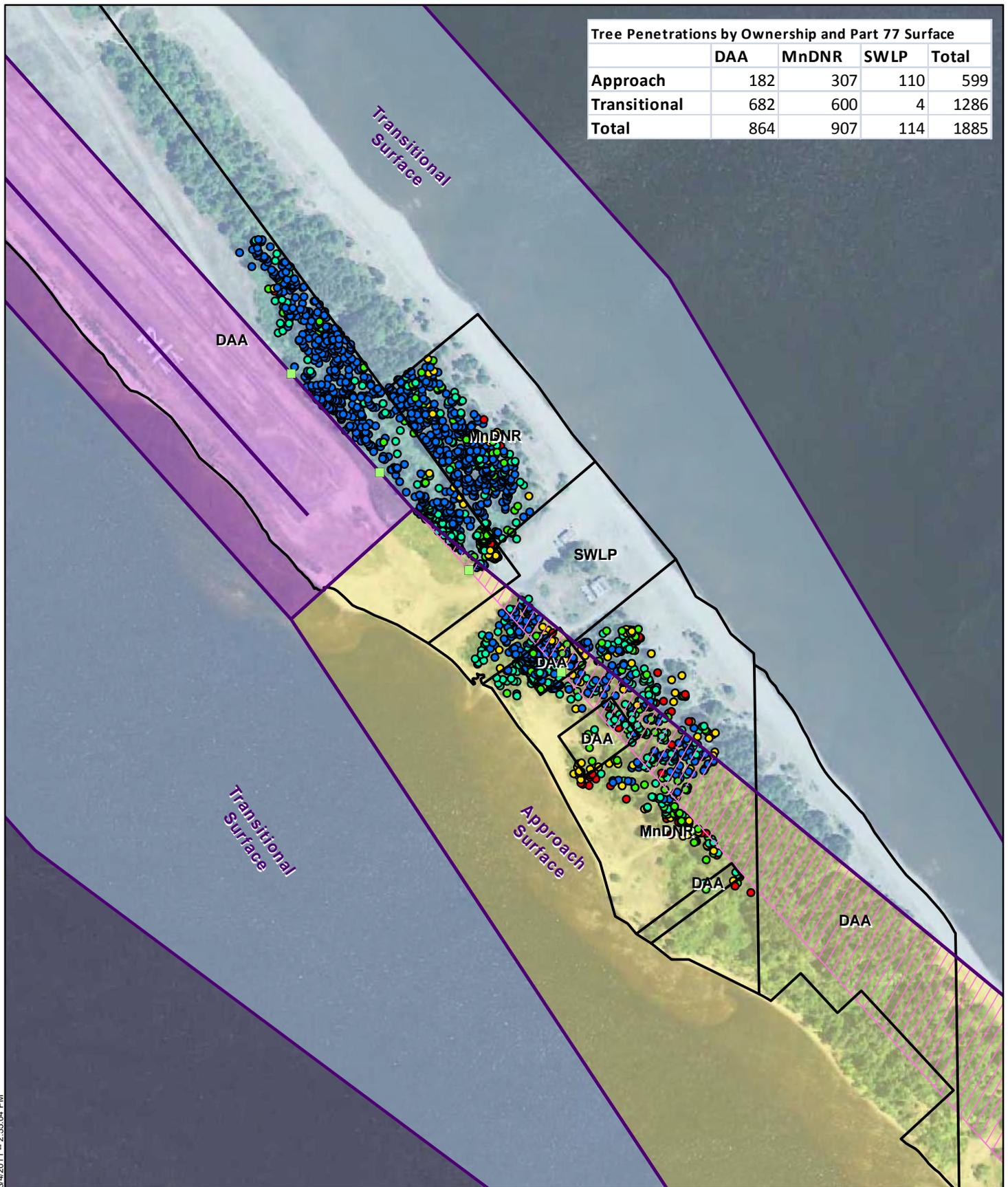
**FAR Part 77 Surfaces: Existing Conditions**

Map by: naa  
Projection: NAD 83, St. Louis County Transvers Mercator 1996  
Source: USDA NAIP 2008, RS&H, MnDNR, SEH

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Tree Penetrations by Ownership and Part 77 Surface				
	DAA	MnDNR	SWLP	Total
Approach	182	307	110	599
Transitional	682	600	4	1286
<b>Total</b>	<b>864</b>	<b>907</b>	<b>114</b>	<b>1885</b>



Map Document: (S:\AEID\080100\GIS\Maps\EA\EA\_Fig1-5\_A103\_TreeImpacts\_8x11P.mxd) 3/4/2011 2:55:04 PM



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**Duluth Sky Harbor Airport**  
*Environmental Assessment*  
Duluth, Minnesota

Project: DULAI 080100  
Print Date: 03/04/2011

**Legend**

- 0 - 2
- 2 - 5
- 5 - 10
- 10 - 20
- 20 +
- Obstruction Lights
- Ownership Boundaries
- MnDOT Waiver Area
- Part 77 Surfaces
- Approach
- Primary
- Transitional

**Figure 1-5**  
**2010 Aggressive Growth Tree Penetrations**



Map by: naa  
Projection: NAD 83, St. Louis County Transvers Mercator 1996  
Source: USDA NAIP 2008, RS&H, MnDNR, SEH

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