

Chapter One

Purpose and Need

1.1 Introduction

The St. Louis Airport Authority (STLAA), as the Sponsor of the St. Louis Lambert International Airport (STL or the Airport), is proposing to construct improvements in the western portion of the Airport to enhance safety, improve airfield maintenance operations and improve the operational efficiency of the aircraft deicing process. A complete description of the Proposed Action, referred to as the West Airfield Program (WAP), is provided in Section 1.5.

The Proposed Action requires approval from the Federal Aviation Administration (FAA) of the changes to the STL Airport Layout Plan (ALP) depicting the WAP improvements. In addition, to construct eligible portions of the Proposed Action, STLAA plans to apply for Federal financial assistance under the Airport Improvement Program, as authorized by the public law requirements of the FAA Reauthorization Act of 2018. To grant ALP approval and Federal financial assistance, FAA must comply with the requirements of the National Environmental Policy Act (NEPA).¹ To comply with NEPA, FAA is, with the assistance of STLAA, preparing this Environmental Assessment (EA) in conformance with the applicable sections of FAA Order 5050.4B² and FAA Order 1050.1F.³

This EA has been prepared to provide information on the Proposed Action; evaluate reasonable and feasible alternatives; identify, analyze, and disclose potential environmental consequences associated with the proposed development; and, if required, identify mitigation for significant environmental impacts.

1.2 Airport Location

STL is located approximately 13 air miles northwest of downtown St. Louis as depicted on Figure 1-1, Location Map. The proposed WAP project limits within the Airport environs are shown on Figure 1-2, Vicinity Map.

¹ 42 U.S.C. 4321 et seq., National Environmental Policy Act, as amended.

² FAA Order 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions, April 28, 2006.

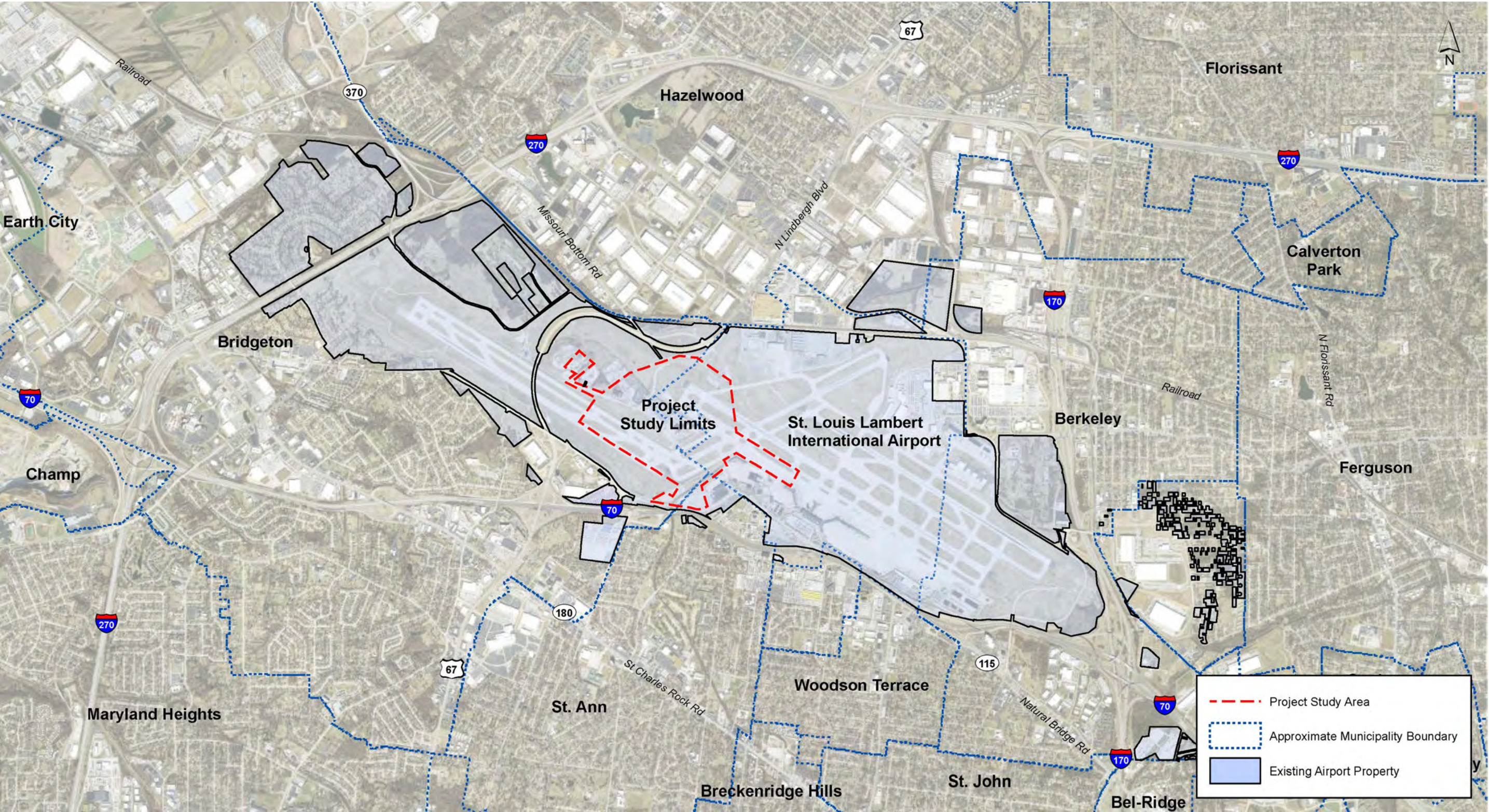
³ FAA Order 1050.1F, Environmental Impacts: Policies and Procedures, July 16, 2015.

Figure 1-1: Location Map



Sources: Background Map, ESRI World Street Map, CMT, 2023.

Figure 1-2: Vicinity Map



Sources: Background Image; ESRI World Imagery, CMT, 2023.

1.3 Purpose of the Proposed Action

The purpose of the Proposed Action is:

- To improve airfield maintenance operations by providing adequate capacity for indoor maintenance, repair, and storage of equipment and vehicles; protecting the facilities and equipment from damage caused by flooding; and improving the functional layout of the Airfield Maintenance (AFM) campus.
- To enhance the capacity, operational safety and efficiency of aircraft deicing.
- To mitigate the risk of runway incursions⁴ caused by non-standard pavement geometry.

1.4 Need for the Proposed Action

STLAA has identified deficiencies in the existing AFM campus, aircraft deicing capabilities, and west airfield taxiways that must be improved to meet the Project's Purpose. These deficiencies are described in the 2023 Final Draft Master Plan,⁵ supported by technical memos and/or analyses (Comparative Safety Assessment⁶ and Airfield Maintenance Campus Relocation⁷) and are summarized in the sections below.

1.4.1 Airfield Maintenance Facilities

The existing AFM campus (Figure 1-3), located west of Runway 6-24, between the ends of Runways 12R and 29, was constructed in the 1960s and 1970s. Consequently,

- most of the facilities in the AFM campus have exceeded their useful life and are in fair to poor condition;
- snow and ice removal equipment and vehicles and other airfield maintenance equipment have increased in size since the campus was constructed, and the campus is poorly configured to accommodate maneuvering the larger equipment; and
- the existing structures and/or their doors are too small to accommodate the modern equipment. As a result, most of the equipment is repaired and stored outside. Exposed to the elements, the fleet is subject to weathering and the vehicles are prone to faster deterioration than if they were stored inside.

⁴ A runway incursion is any occurrence at an aerodrome (airport) involving the incorrect presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing and takeoff of aircraft (FAA Advisory Circular (AC) 150/5300-13B, March 31, 2022).

⁵ The STL Final Draft Master Plan (February 2023) can be viewed at: <https://www.flystl.com/about-us/stl-airport-layout-plan/airport-layout-plan-study-highlights>, Accessed July 18, 2023.

⁶ ALP Comparative Safety Assessment (CSA) - Final, Faith Group, August 8, 2022, included as Appendix 5C of STLAA Master Plan, which can be viewed at: https://www.flystl.com/uploads/documents/airport-layout-plan-study-highlights/STL-MP-List-of-Appendices-FINAL-DRAFT_FEB-2023.pdf.

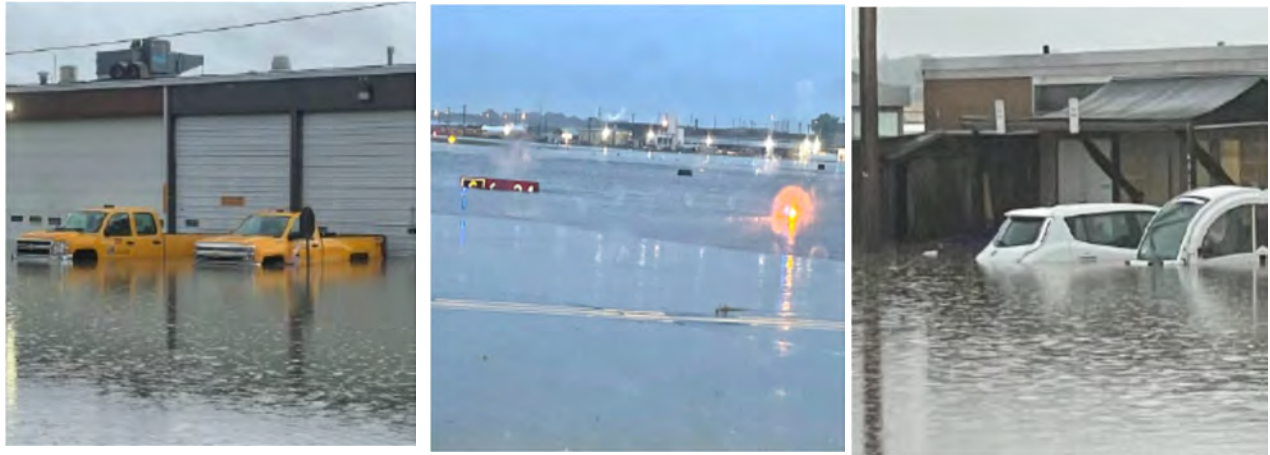
⁷ Airfield Maintenance Campus Relocation, Final Draft, WSP USA, February 2023, included as Appendix 5E, which can be viewed at: https://www.flystl.com/uploads/documents/airport-layout-plan-study-highlights/STL-MP-List-of-Appendices-FINAL-DRAFT_FEB-2023.pdf.

Figure 1-3: Existing Airfield Maintenance Campus

Source: Google Earth, 2021

The AFM campus is also in a low-lying area near a tributary of Coldwater Creek, which exposes the facilities and equipment to periodic severe flooding as shown in Figure 1-4. Flooding that occurred in July 2022 caused \$5.2 million in damage to equipment and vehicles stored at the AFM campus and resulted in temporary delay in airfield maintenance tasks.

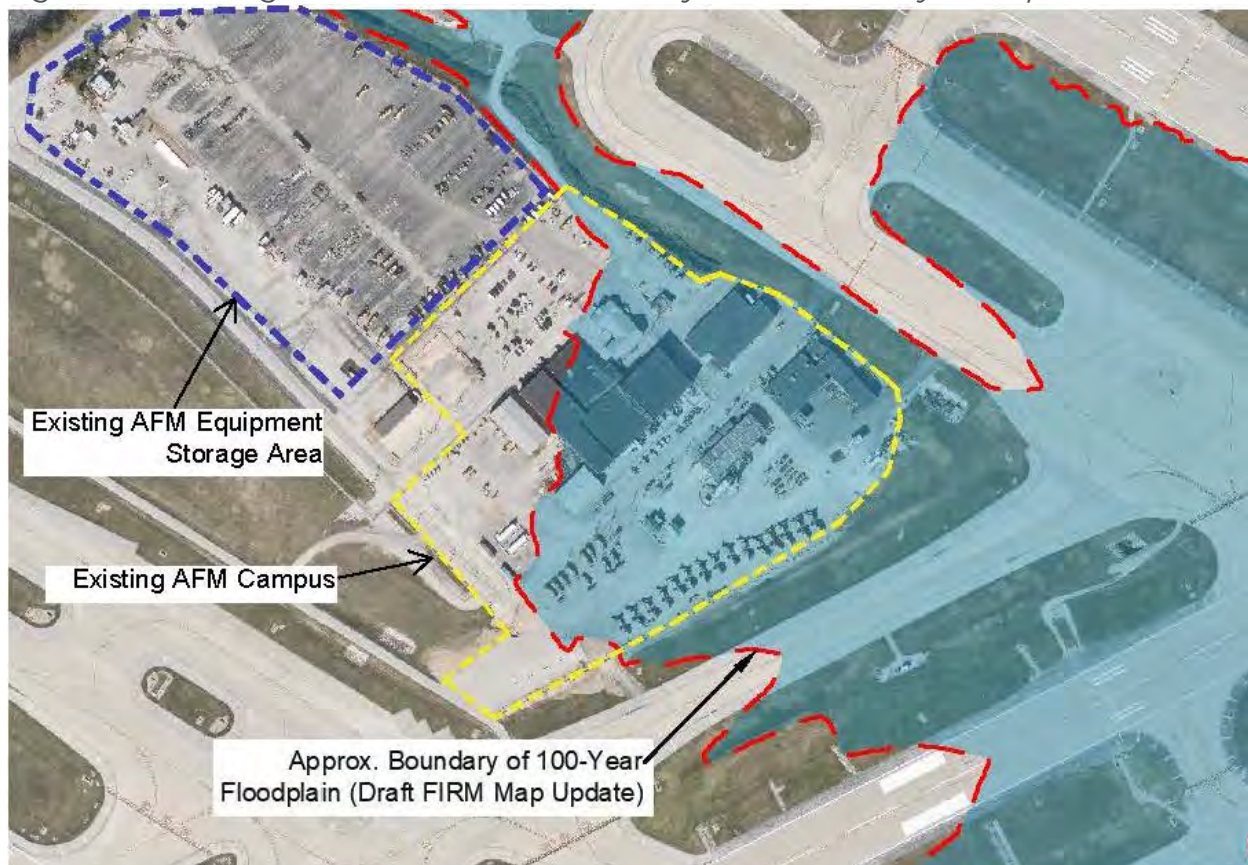
Figure 1-4: July 2022 Flooding at the Airfield Maintenance Campus



Source: St. Louis Airport Authority, July 2022.

A second flood occurred in August 2022, causing additional damage with similar operational limitations. The Missouri State Emergency Management Agency (SEMA) is currently evaluating and updating the flood zones in the vicinity of the Airport and has preliminarily designated most of the AFM campus within the 100-year floodplain, as shown in Figure 1-5.

Figure 1-5: Existing Airfield Maintenance Facility and Preliminary Floodplain



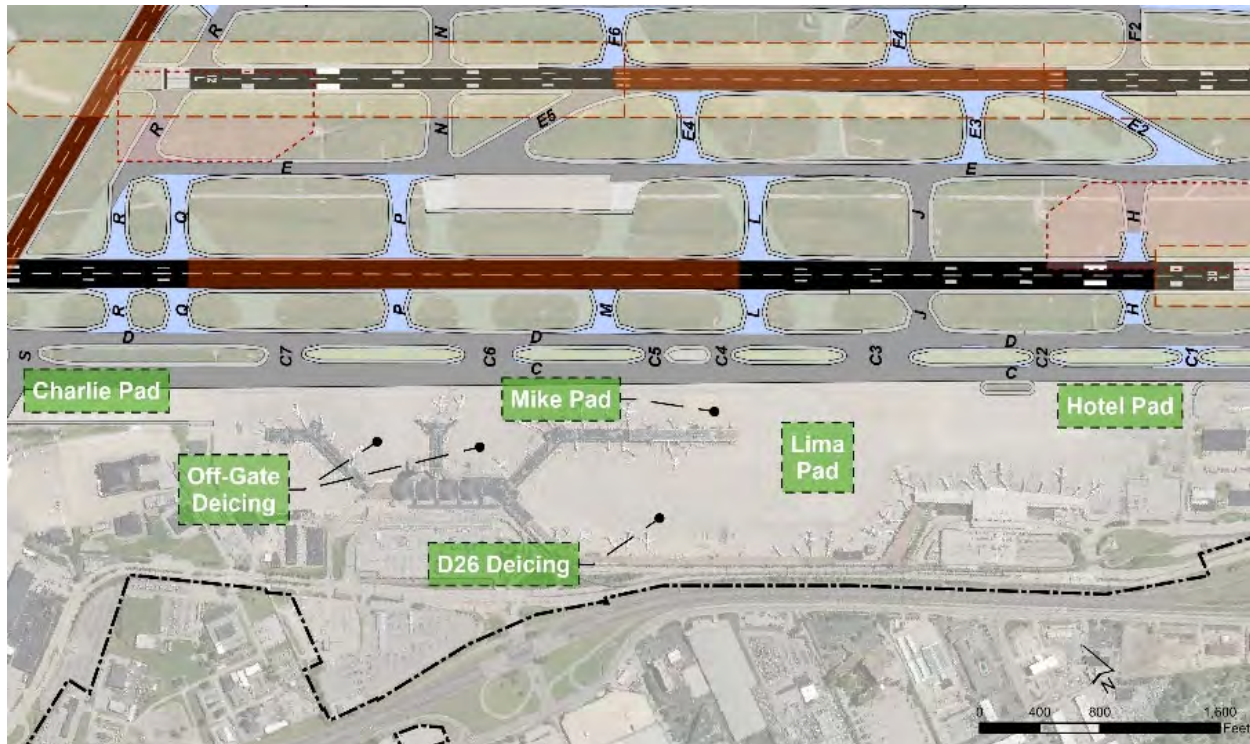
Sources: WSP, 2022 and Missouri SEMA.

1.4.2 Aircraft Deicing

As shown in Figure 1-6, aircraft *deicing* occurs at various locations within the terminal area at STL, including multiple deicing pads, apron gates, and designated areas adjacent to gates. These deicing facilities:

- are inefficient for serving existing and anticipated air traffic due to the multiple, dispersed locations;
- are located on existing pavements that are at or near the end of their useful life (poor condition), based on the Airport's most recent Airport Pavement Management System;⁸
- induce operational inefficiencies (cross-utilization of pads, multiple deicing operators, specific pad use protocols, locations away from runway departure ends)
- create multiple slip hazards where near-gate deicing occurs; and
- cause deicing waste tank capacity issues, as the collection system also captures clean stormwater.⁹

Figure 1-6: Existing Aircraft Deicing Locations in the Terminal Area



Source: CMT, 2023.

⁸ Project Report: Airport Pavement Management System, CMT, August 9, 2019.

⁹ STLAA Deicing Upgrade and Improvement Report, Gresham Smith, December 2020.

Additionally, airlines are increasingly requesting positions on the deicing pads, rather than at the gates, because they believe it is safer for their aircraft and personnel and more operationally efficient. As a result, demand at the existing deicing pad locations exceeds capacity. Proximity to the runway departure ends is desired to minimize time between deicing and departure, for safety reasons related to deicing fluid effectiveness. During peak deicing demand, aircraft wait for positions on the deicing pads; this wait time will be exacerbated by the increased preference for deicing on the pads, as well as the forecast¹⁰ increase in operations.

1.4.3 West Airfield Taxiway System

As shown in Figure 1-7, there are several sections of taxiway pavement in the west airfield with non-standard geometry, based on the latest FAA Airport Design guidance. These include:

- a former FAA-designated Hotspot,¹¹
- non-standard intersection angles, and
- large expanses of pavements.

The former Hotspot location, identified in Figure 1-7, was mitigated to an acceptable level of risk in the short term through operational improvements (additional airfield signage and pavement markings). However, it is still an area of concern and receives elevated observation by Air Traffic Control Tower personnel, given the history of runway incursions at this location. This location requires a long-term permanent fix.

Except where needed (e.g., for high-speed exit taxiways), FAA requires right-angle (perpendicular) runway-taxiway and taxiway-taxiway intersections, wherever possible, as right angles provide the best visual perspective to pilots and drivers of vehicles.¹² Taxiways U and T are not perpendicular to Runway 11-29 or to Taxiways A and B, and Taxiway B is not perpendicular to Runway 6-24.

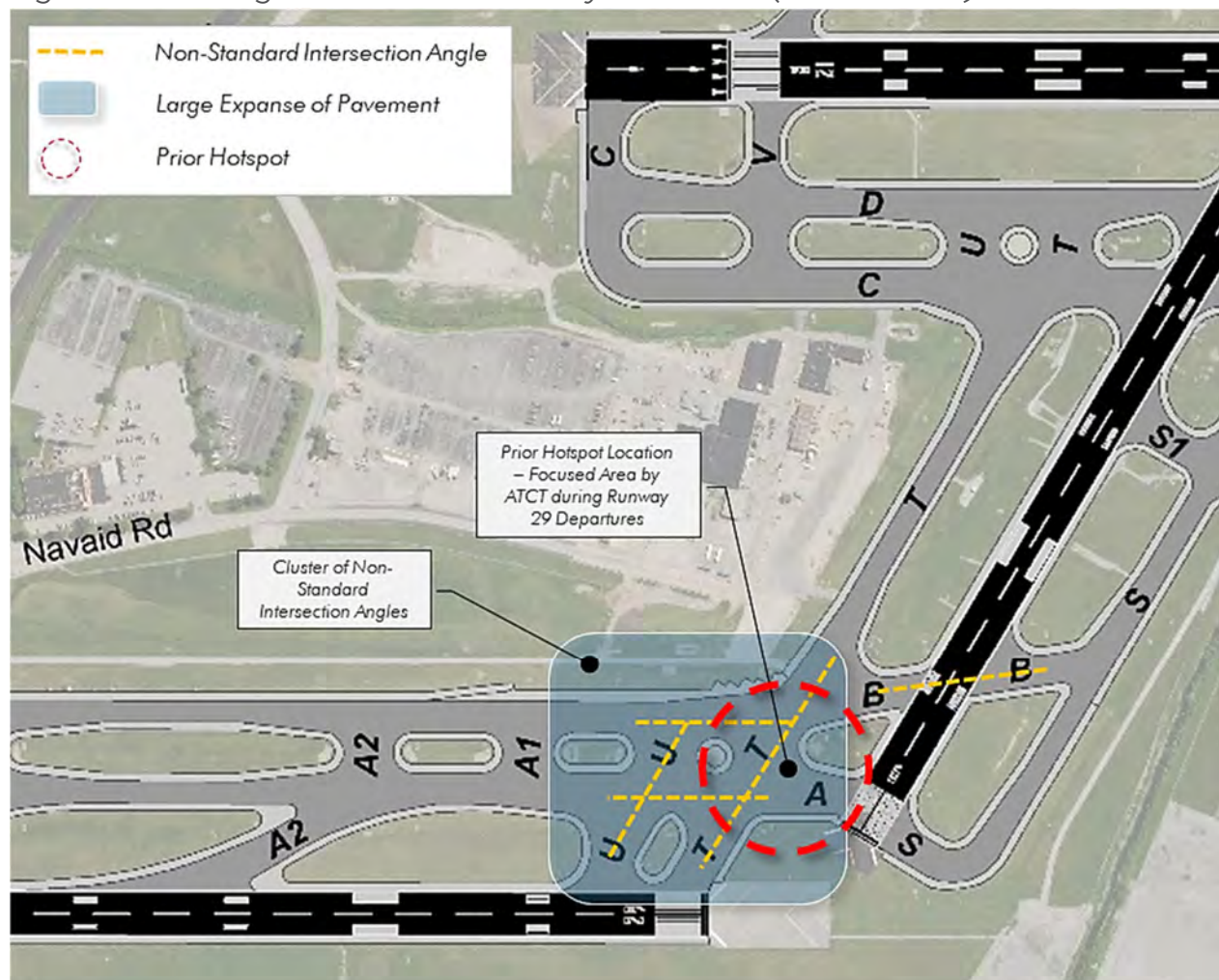
There is also excess pavement in the vicinity of these intersections (see Figure 1-7), which can cause pilot confusion and contribute to runway incursions.

¹⁰ STL Airport Master Plan, Chapter 3, Aviation Activity Analysis and Forecast, February 2023 – Final Draft, available at <https://www.flystl.com/about-us/stl-airport-layout-plan/airport-layout-plan-study-highlights>.

¹¹ A Hotspot is a location on an airport movement area with a history or potential risk of collision or runway incursion, and where heightened attention by pilots and drivers is necessary.
(https://www.faa.gov/airports/runway_safety/hotspots)

¹² Federal Aviation Administration, Advisory Circular (AC) 150/5200-13B, Section 4.8, March 31, 2022.

Figure 1-7: Existing Non-Standard Taxiway Conditions (West Airfield)



Source: CMT, 2022.

1.4.4 Summary of Need for the Proposed Action

The existing AFM facilities, deicing capabilities, and west airfield taxiway system need improvement. The existing AFM campus facilities are aged, in poor condition and are functionally obsolete, as most of the structures and the campus configuration cannot accommodate larger, modern airfield maintenance equipment. Most of the equipment is outdoors, exposed to the elements, and prone to rapid deterioration. In addition, the campus is prone to extensive flooding, which further deteriorates buildings and equipment, requiring costly repairs and replacements.

Deicing operations are dispersed over many locations across the Airport and not in proximity to departure runway ends. Airlines are increasingly requesting positions on the deicing pads rather than deicing at and near the gates, causing aircraft to wait for deicing, which will be exacerbated by the forecast increase in operations. In addition, the existing pavement and underground infrastructure at the dedicated deicing pads are near the end of their useful life.

The existing non-standard taxiway system in the west airfield needs to be improved to reduce the potential for runway incursions and meet current FAA safety and design standards.

1.5 Description of the Proposed Action and Implementation Timeframe

The Proposed Action, as shown on Figures 1-8 and 1-9, includes the following major components and connected actions¹³ as summarized in Table 1-1 with the anticipated implementation timeframes.

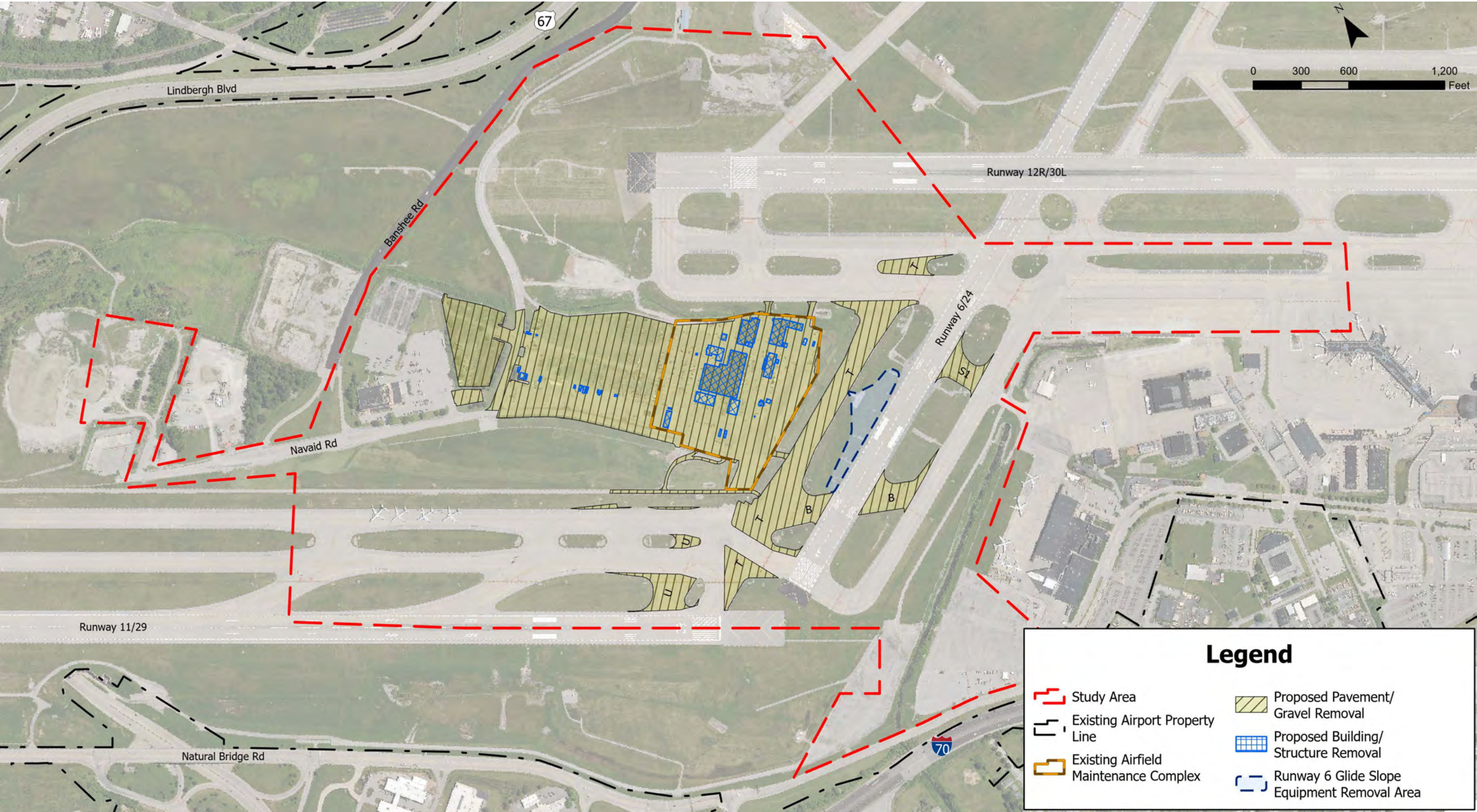
Table 1-1: Proposed Action – Major Project Components and Connected Actions

Major Project Components and Connected Actions	Anticipated Implementation Years
<p>Relocation/Construction of New Airfield Maintenance (AFM) Complex:</p> <ul style="list-style-type: none"> Construction of new AFM facilities northwest of existing campus including site preparation, utility relocation and stormwater infrastructure, pavement and parking lot infrastructure, new AFM facility, new equipment storage facility, and new fuel farm facilities Realignment of landside access roads to the new AFM facilities Demolition of existing AFM Campus, including buildings/structures, bridges, culverts, fueling facilities, and pavement removal 	2024-2025
<p>Development of West Deicing Pad (WDP) and Support Facilities:</p> <ul style="list-style-type: none"> Construction of west deicing pad (12 aircraft positions) including site preparation, glycol collection infrastructure, paving, marking, lighting and signage Construction of deice support facilities including new glycol storage, crew rest/shelter and deice control facilities Construction of stormwater detention as needed (compensatory storage) Connection of new west deicing pad glycol collection infrastructure to the existing glycol collection facility 	2026-2027
<p>Construction and/or Realignment of Taxiway System:</p> <ul style="list-style-type: none"> Existing taxiway pavement removal Decommission Runway 6 Glide Slope, removal of associated equipment, and update of the Runway 6 instrument approach procedure Construction of new/realigned taxiways, including site preparation, paving, marking, lighting, and signage 	2026-2027

Source: CMT, 2023

¹³ Connected actions are closely related actions that: (a) automatically trigger other actions; (b) cannot or will not proceed unless other actions are taken previously or simultaneously; or (c) are interdependent parts of a larger action and depend on the larger action for their justification (see 40 CFR § 1508.25 (a) (1), CEQ Regulations).

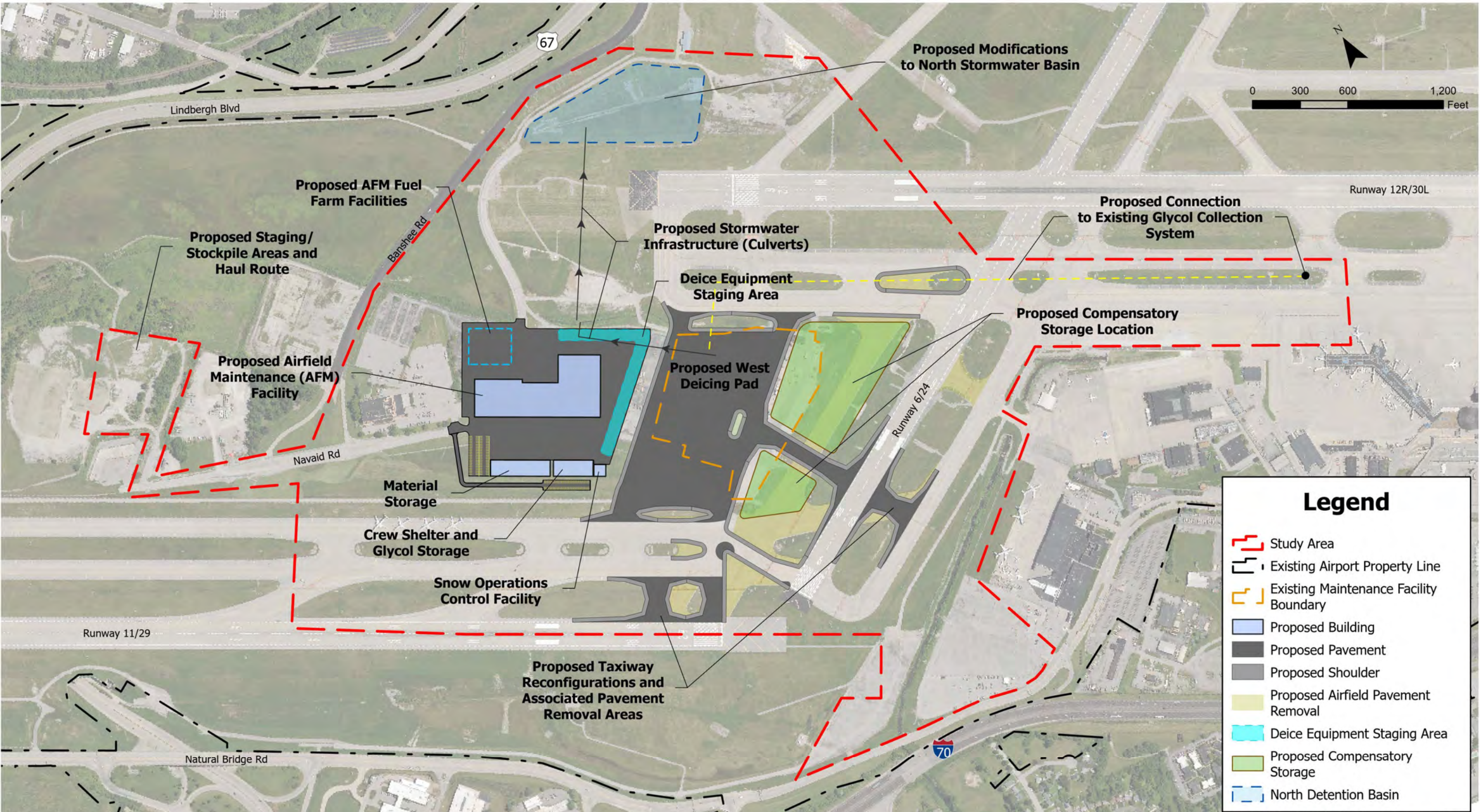
Figure 1-8: Proposed Action (Pavement and Structure Removals) - West Airfield Program



Source: [22004919] Aerial Image - ESRI World Imagery

Source: CMT, 2023.

Figure 1-9: Proposed Action - West Airfield Program



Source: CMT, 2023.

1.6 Requested Federal Actions

FAA is the lead Federal agency and is responsible for ensuring compliance under NEPA for the Proposed Action. Listed below are additional actions by FAA necessary to develop the Proposed Action.

- Unconditional approval of the Airport Layout Plan (ALP) to depict the proposed improvements pursuant to 49 USC §§ 40103(b) and 47107(a)(16).
- Determination under 49 USC § 44502(b) that the airport development is reasonably necessary for use in air commerce or in the interests of national defense.
- Approval of changes to the airport certification manual pursuant to 14 CFR Part 139 (49 USC §44706).
- Determinations under 49 USC 47106 and 47107 relating to the eligibility of the Proposed Action for federal funding under the Airport Improvement Program (AIP), Bipartisan Infrastructure Law (BIL), Airport Infrastructure Grant Program (AIG), and other FAA administered federal funding programs, and/or determinations under 49 USC 40117, as implemented by 14 CFR 158.25, to impose and use passenger facility charges (PFCs) collected at the airport to assist with construction of potentially eligible development items shown on the ALP including the construction of the Proposed Action and associated actions that may directly or indirectly impact FAA facilities including but not limited to utility relocations.
- Decommissioning the Runway 6 Glide Slope and update of the Runway 6 instrument approach procedure.