

Project Purpose and Need

The Airport is constructing a 66,000 square foot addition onto the passenger terminal building. The new passenger terminal area is required to accommodate additional gates because of the current and projected passenger usage as well as allow for the carriers transitioning to larger aircraft. A heating and cooling system will be required for the passenger terminal addition and offers the ability to upgrade the existing passenger terminal's heating and cooling system to a more energy efficient system during the construction. The new passenger terminal area is scheduled to be operational in 2025.

The 2021 Aviation Climate Action Plan¹ describes approaches to put the aviation sector on a path toward achieving net zero emissions by 2050. While the contribution from airports to the aviation sector's emissions is relatively modest compared to jet fuel emissions, the 2021 Aviation Climate Action Plan includes airports as needing to contribute to the reduction goals. In addition to emission reductions, airports are to play a lead role in efforts to strengthen the nation's aviation infrastructure against the impacts of climate change and increase the sector's resilience to those impacts.

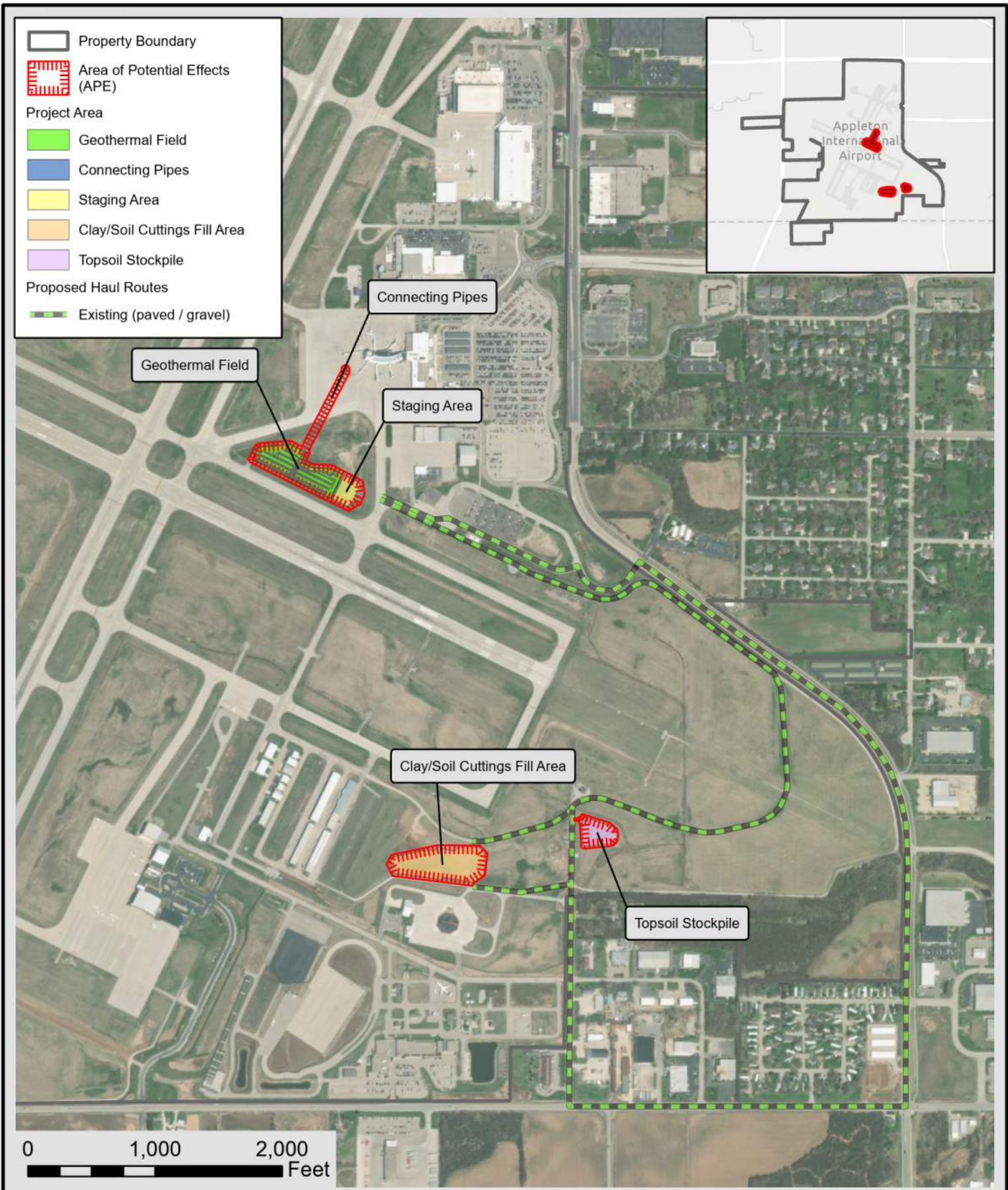
To assist with meeting the goals of the 2021 Aviation Climate Action Plan the Airport is proposing to construct a geothermal system to heat and cool the existing and new addition to the passenger terminal building.









In addition to working towards the 2021 Aviation Climate Action Plan goals, the proposed geothermal system would fit the FAA guidance in terminal design. The FAA published an Advisory Circular (AC) document for Airport Terminal Planning, AC No. 150/5360-13A². Chapter 9 of the AC Airport Terminal Planning document discusses sustainability in terminal planning. Section 9.4.2.1 states "A key sustainability consideration in building design is efficient energy use and energy waste." The proposed geothermal system would support efficient energy use in the passenger terminal.

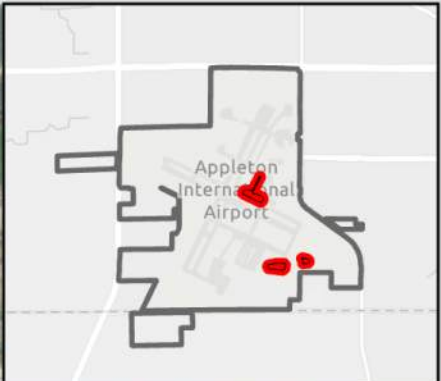
There are several reasons why geothermal systems can be more energy efficient than traditional heating, ventilation, and air conditioning (HVAC) systems. The primary reason for the increased efficiency is a higher coefficient of performance (COP). The COP is a measure of the efficiency of a heating or cooling system and represents the ratio of the heat output to the energy input. Since geothermal systems move heat rather than generate it through combustion, they can achieve higher COP values. Reduced energy input to achieve the desired heating and cooling output means fewer greenhouse gas emissions.

¹ https://www.faa.gov/sites/faa.gov/files/2021-11/Aviation_Climate_Action_Plan.pdf

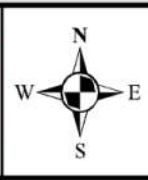
² U.S. Department of Transportation – Federal Aviation Administration:
https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC-150-5360-13A-Airport-Terminal-Planning.pdf



-  Property Boundary
-  Area of Potential Effects (APE)
- Project Area**
-  Geothermal Field
-  Connecting Pipes
-  Staging Area
-  Clay/Soil Cuttings Fill Area
-  Topsoil Stockpile
- Proposed Haul Routes**
-  Existing (paved / gravel)



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**GEOHERMAL ENVIRONMENTAL ASSESSMENT
 PROPOSED ACTION SITE DETAIL
 MAP**
 APPLETON INTERNATIONAL AIRPORT
 VILLAGE OF GREENVILLE, OUTAGAMIE COUNTY, WISCONSIN

Project Manager:
 Project Engineer:
 Drawn By: JCW
 Checked By: BDW
 Date: 1/31/2024

SCALE:
 1 in = 1,000 ft
 PROJECT NO.
R3001381.00
 FIGURE NO.
1