

Nashville Airport Overview



Front door to the region

First and last place visitors may see
13 million passengers per year

33rd busiest airport in USA

5th fastest growing among top 50
airports in North America
390 daily flights; 50 non-stops

\$3.5 billion economic impact

10th largest workplace in the region
37,000 plus jobs

MNAA Sustainability Values

Key Events

- Nashville area growth
- New business model
- Asset management
 - AA bankruptcy - 2012
- Sustainability management plan - October 2012
- Master plan update - October 2012



MNAA Aerial



Largest Lake Plate Cooling System in America

System Highlights

- Driven from Airport's Sustainability Program
- Started up in March 2016
- Utility savings in excess of \$430,000 per year
- 40% improvement in cooling efficiency
- 8000 feet of closed loop piping
- Over 0.5 MW of demand reduction
- 30M gallons potable water reduction



Opportunity for a Sustainable Project



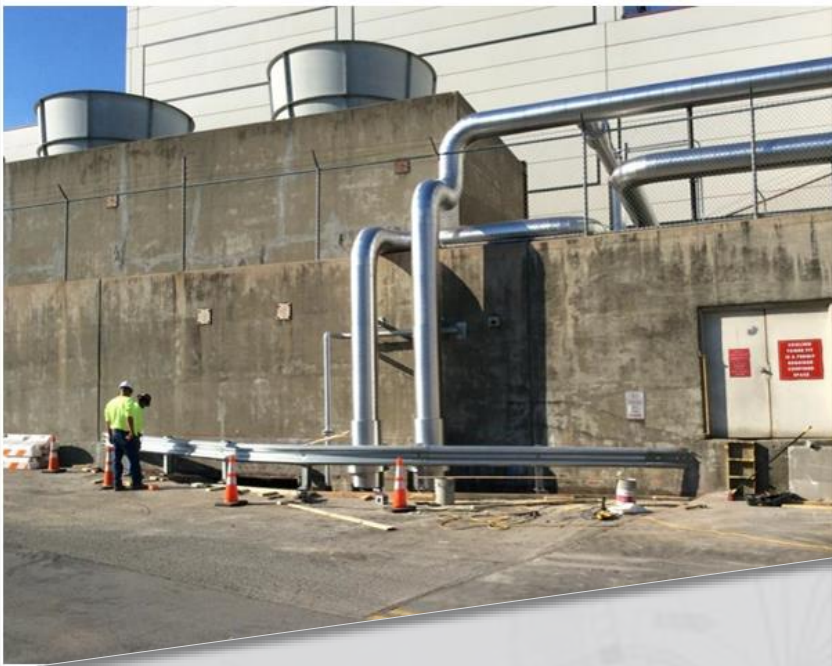
Former rock quarry

Year round supply of cold water

Surface area of over 40 acres

Average water depth of 150 feet

Central Plant Connection



Supplant condensing water system



Improve central plant efficiency



Optimize system pumping

Lake Plate Heat Exchangers



Designed specifically for this project



11 skids; 300 tons



Installed at depths of 50-70 feet

Manifold Design Highlights

Accessibility



Reverse Return



Below Ground





Nashville International Airport

Open Trench and Bore

Runway Crossing



Open Trench



Bore Pit



Geothermal Lake Plate Cooling at BNA

TVA incentive of \$360,000

Contract Cost:

\$10,423,300

(Not-To-Exceed)

Schedule:

Contract Start:

May 2015

Contract End:

May 2016

Funding Sources:

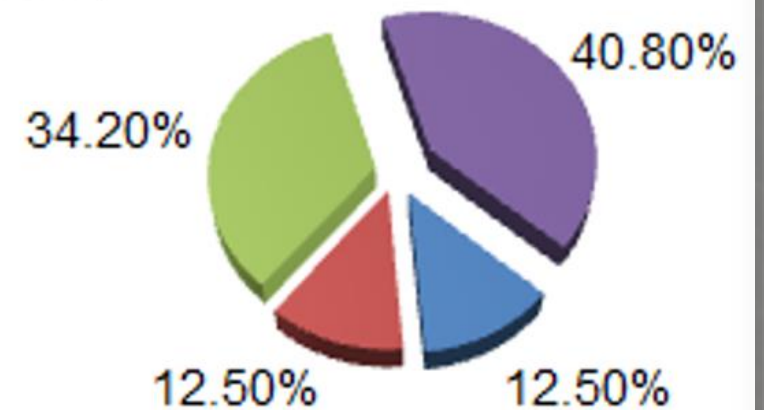
■ State

■ MNAA

■ Federal

■ E.P.G.

(Energy Performance Guarantee)



Awards and Recognitions



2016 Airports Going Green
Outstanding Leadership and
Geothermal Lake Plate Cooling System
Amsterdam, Netherlands
November 2016



2016 Airports Council International –
North America
Special/Innovative Projects
Austin, TX
April 2016



2015 Governor's Environmental
Stewardship Award for
Excellence in Sustainable Performance
Nashville, TN
June 2015

Largest Lake Plate Cooling System in America

Recap Results

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- 30M gallons potable water reduction



Thank you



Nashville International AirportSM

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