

METROPOLITAN AIRPORTS COMMISSION



STEWARDS OF TOMORROW'S AIRPORT RESOURCES



STAR: STEWARDS of TOMORROW'S AIRPORT RESOURCES

The Metropolitan Airports Commission is committed to keeping MSP as the airport of choice for travelers, the airlines, and the aviation industry. We strive to make sure on a daily basis that MSP and our six reliever fields operate as safe, secure, customer oriented, economically sound and environmentally responsible airports.

MAC's Vision Statement includes the ongoing commitment to sustainability and stewardship: "MAC sets the standard in environmental stewardship in the development and operation of our airport system." Being good stewards means operating and developing our airports in ways that meet the needs of the present without compromising the ability of future generations to meet their own needs. Sustainable solutions are those that address long-term environmental, operational, financial and social needs.

MAC: A CULTURE of SUSTAINABILITY

MAC has been a longtime leader in proactively responding to environmental concerns across a wide spectrum ranging from a standard-setting noise mitigation program to the preservation of Minnesota wetlands. In an era when air travel is forecast only to increase, MAC views environmental sustainability as integral to the MAC mission. MAC is committed to improving air and water quality, to reducing noise impacts, to continuing and improving recycling, and to preserving natural resources.

ENVIRONMENTAL GOALS:

- Minimize impacts to air quality
- Minimize impacts to water resources
- Reduce waste generation and hazardous materials use
- Minimize impacts and seek opportunities to enhance natural resources
- Reduce energy consumption
- Purchase electric energy from sustainable sources

MAC's Sustainable activities are grouped in the following 8 major categories:

- 1) Energy Conservation/Renewable Energy
- 2) Green Buildings, Facilities and Infrastructure
- 3) Water Quality and Conservation
- 4) Air Quality
- 5) Waste Management and Recycling
- 6) Noise Abatement
- 7) Natural Resources Management
- 8) Financial



Energy Conservation/Renewable Energy

Energy conservation and the use of renewable energy yield multiple environmental benefits including reducing greenhouse gas generation and improving air quality.

- **MAC ACTION:**
- Installed ground power and pre-conditioned air at gates
 - Installed hydrant fueling system
 - Implemented annual energy conservation projects
 - Installed energy-efficient lighting
 - Implemented day-lighting window design
 - Implemented automatic lighting controls
 - Utilized automatic HVAC settings and controls
 - Upgraded both hot and chilled water central plants





Green Buildings, Facilities & Infrastructure

MAC is committed to developing green buildings and to operating its facilities in ways that conserve energy, water resources, and other natural resources. From the new Humphrey Terminal at MSP, to an extensive recycling and alternative fuels program, MAC continues to focus on best practices to improve and operate its airport system in a resource-efficient and sustainable manner.

➤ MAC ACTION:

- Designed Humphrey Terminal to optimize HVAC efficiency and maximize day-lighting
- Used low-flow & automatic fixtures in all restrooms
- Re-lamped all parking structures
- Used locally and regionally produced raw materials
- Maximized site development on constrained footprint
- Recycled & reused demolition construction materials

Water Quality & Conservation

The Clean Water Act uses the National Pollutant Discharge Elimination System (NPDES) permit program to control water quality by regulating point source discharges to navigable waters of the state of Minnesota. Water conservation efforts reduce demand on freshwater supply wells and distribution systems. Water conservation also contributes to habitat protection, relieves pressure on local wastewater treatment facilities, reduces energy consumption for water heating and cooling, and protects the natural state of watersheds.

➤ MAC ACTION:

- Implemented construction Best Management Practices
- Established MSP Airfield & Aircraft Deicing Program
- Developed Stormwater Pollution Prevention Plans
- Obtained and maintains construction stormwater discharge permits
- Constructed stormwater retention ponds
- Installed oil/water separators at fueling load racks
- Developed a comprehensive well monitoring network
- Implemented an airport-wide integrated spill plan
- Constructed greenways & grass areas between runways and taxiways
- Installed low-flow and automatic restroom facilities throughout MSP
- Installed hydropower self-generating faucets (use no electricity)
- Implemented gray water recycling (truck/equipment wash bay)
- Removed cooling water wells

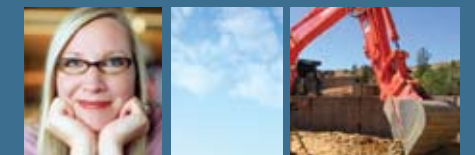


Air Quality

MAC has implemented comprehensive air quality enhancements that address air quality impacts ranging from idling taxi fleets to ground service equipment. Since air emissions are closely linked to ozone and greenhouse gas generation, MAC's air quality enhancement initiatives benefit not only the local community but also the global community at large.

➤ MAC ACTION:

- Redesigned inbound & outbound roadway
- Expanded Lindbergh Terminal & Humphrey Terminal parking ramps
- Operates flex-fueled vehicles and fueling facilities
- Installed 400Hz ground power systems at gates
- Implemented Light Rail Transit (LRT)
- Established Cell Phone Lot
- Implemented EPark and SurePark
- Terminal rental car facilities
- Replaced boilers and chillers





Waste Management & Recycling

Over 35 million passengers and employees use MSP annually, generating a significant amount of solid waste. Traditional disposal of construction material and solid waste in landfills uses natural resources for transport and does not optimize the limited space available in landfills. Efficient waste management conserves natural resources and provides environmental and financial benefits.

➤ MAC ACTION:

- Established significant recycling program for MAC airport terminals and offices
- Created organic materials composts
- Increased electronic file storage and records retention
- Qualified as a Very Small Quantity Generator of hazardous wastes
- Changed from oil-based paints to water-based paints and reusable totes
- Installed recycling and aqueous parts washer
- Reused construction debris materials
- Achieved energy recovery through incineration of municipal solid waste
- In 2007 recycled nearly 1,100 tons

Noise Abatement

For over 30 years, MAC has operated an industry leading noise abatement program, including the most extensive residential sound insulation program in the nation. MAC strives to provide the highest level of service to the public by providing information about aircraft noise and operations, development of effective noise abatement programs, and analysis of noise abatement procedures. To this end, MAC has acquired and utilizes a number of advanced noise monitoring technologies including remote monitoring towers, geographic information systems, and global positioning systems.

➤ MAC ACTION:

- Mitigated non-compatible land use within the 65 DNL at MSP
- Established Noise Oversight Committee
- Installed 39 remote monitoring towers
- Established noise complaint phone & internet system
- Publishes quarterly MSP Noise News newsletter
- Provides staff for Reliever Airport Advisory Commissions
- Implemented over 13 noise abatement procedures
- Conducted low frequency noise study
- Developed engine run-up facility and field rule
- Installed earthen berms and vegetation plan
- Conducted ground noise monitoring study
- Opened new runway, reducing number of noise-impacted homes by 50%



Natural Resources Management

MAC airport properties include appreciable acreage of wetlands. These resources provide habitat for a variety of plant and animal life. Both in daily operations and long-term planning, MAC strives to preserve local natural resources, and balance wildlife management with efforts to ensure safe operations of aircraft.

➤ MAC ACTION:

- Mitigated nearly 300 total acres of wetland
- Relocated brown trout stream with accompanying vegetative buffer strips at Airlake Airport
- Protected 45 acre site at Anoka for rare orchid, violet and grass/rush species of vegetation
- Restored 123 acres of wetlands as part of development at Anoka airport
- Protected US Fish & Wildlife lands in the Minnesota River Valley
- Provided vegetation between runways and airport facilities
- Worked with the USDA Wildlife Services for wildlife management
- Developed a comprehensive Soil Management Plan



Financial

Long-term financial stability is required to ensure that MAC has the financial resources necessary to operate our system of airports, meet debt service obligations, maintain our bond rating, and generate revenue while maintaining a competitive cost per enplaned passenger.

➤ MAC ACTION:

- Implemented financial reserve policies
- Adopted financial performance criteria
- Refinanced bonds
- Developed an aggressive concessions program
- Implemented market based parking revenue structure
- Implemented cost-savings measures
- Developed financial contingency plans
- Aggressively looking to increase non-airline revenue streams



Future Opportunities

The next steps for MAC's STAR initiatives will be to further document and quantify sustainable actions, explore existing and future sustainability opportunities, and to identify and develop new goals.

Some potential new goals for future MAC STAR actions could be:

- Solar panel electricity production / Explore alternative energy sources
- Electric-powered vehicles / Implement a no-idling ordinance
- Explore green energy production / Green roof designs
- Year-round cooling system / Geothermal heating and cooling
- Solar (photovoltaic, day-lighting, hot water heating, mass or trombe-wall technologies)
- Moving walkways and escalators retrofit with variable frequency drives
- Continue to replace vehicles with flex fuel alternatives
- Promote electric ground service equipment
- Increase glycol collection / Reclaim stormwater / Increase gray water recycling
- Install variable frequency drive lift station pumps
- Investigate strategies for reducing waste generation
- Maximize efficiency of constrained airport areas
- Develop area navigation approach and departure procedures

