



## PROJECT:

# Buffalo Airport

## Naturally Wallace Consulting

### LOCATION

Buffalo, New York

### PROJECT TYPE

Airport deicing

### COMPLETION DATE

2009

### DESIGN FLOW

Up to 1.2 MGD

### TREATMENT

Gravel Bed with Forced Bed Aeration

### AWARDS

Environmental Achievement – 2010, ACI-NA

Public Works Project of the Year – 2010, APWA

Diamond Award – 2009, ACEC



### NEED

To reduce sewerage costs and meet storm water discharge limits, the Buffalo airport required an on-site treatment option for deicing liquid. To be an effective option, the system would have to achieve the following criteria:

- Fit within the airport
- Treatment of cold and dilute deicing liquid
- Low profile
- Not a bird strike hazard
- Low sludge and odor production
- Capable of handling seasonal variations
- Integrated into the existing storm water management system

### SOLUTION

Aerated Gravel Beds are an essential component to the redesign of the airport's storm water management system. The beds provide treatment of "first flush" storm water, which is heavily laden with glycols during the deicing season. To treat the glycol, the beds include Naturally Wallace's patented technology, "Forced Bed Aeration™" that supplies oxygen uniformly over the system and permits operator control of treatment. The distribution of wetland influent is also optimized so as to reduce "bio-clots" within the beds gravel. Also important to the project was a treatability study that established cold weather reaction rates for the treatment of spent deicing liquid.

### BENEFIT

The use of aerated gravel beds to meet the airport's needs results in a **simple and robust solution** that is low maintenance. As designed, the project is at grade with no above ground structures that could present an airside hazard. Most importantly, the subsurface nature of the beds prevents the need for an open water body that would be a bird strike hazard for the airport. With airport deicing soon to be **regulated by the EPA**, aerated gravel beds are fulfilling a role of providing simple, effective treatment. Advanced engineering practices, like the use of forced bed aeration, allow natural solutions for industrial-sized problems.

*Process design experts  
in treatment wetlands*

Naturally Wallace Consulting  
4276 Greenhaven Ct.  
Vadnais Heights, MN 55127  
612 802 2329

[Naturallywallace.com](http://Naturallywallace.com)