

Case Study: Native Meadow at Northeast Philadelphia Airport (PNE)

New Methods of Landside Vegetative Cover Management for Airports

Native Return[®], LLC

Study Site:

Northeast Philadelphia Airport –
City of Philadelphia, Division of Aviation

Study Goals:

To evaluate a Native Return[®] specified native grass meadow as an alternative to the existing conventional landside turfgrass at PNE and PHL. To find safer, lower maintenance, and less costly solutions to the problems associated with mowed turfgrass typically used outside operations areas.

Additionally, to demonstrate that landside meadows are a more beautiful alternative to traditionally mowed lawns and offer important environmental benefits.

Study Summary:

Native Return[®] designed and installed a two acre native meadow alongside the entrance road to Northeast Philadelphia Airport in 2009. Native Return[®] monitored the meadow's attraction to wildlife, comparing it to two acres of mowed lawn on the opposite side of the entrance road. Dusk and dawn point counts were performed every two weeks to confirm that it was not more of a wildlife attractant than the mowed grass it replaced. The meadow's plant health as well as the wildlife attraction was studied over a term of three years.

Study Conclusions:

Native meadows promote sustainable design principles. By the end of the third year, the meadow matured into an attractive thick stand of the Native Return[®] specified mix, consisting of native warm and cool season grasses unattractive to flocking species of wildlife and maturing at a height of three feet. Weedy intrusion was minimal and mowing was eliminated.

Meadows require little, if any, mowing and chemicals, and no fertilizers or watering. This low maintenance vegetative cover protects nearby streams from pollutants and helps to control flooding, thereby safeguarding the Delaware and Schuylkill Rivers, the source of drinking water in Philadelphia.

Savings due to the elimination of mowing equate to approximately \$800 per acre per year.

As the taller meadow grasses are less of an attractant to large birds such as geese, the native meadow attracted less wildlife than the conventional turf. Data revealed that the meadow attracted fifty percent less birds than the mowed grass, thereby increasing aircraft safety.



Native meadow, healthy and low maintenance,
at PNE Airport, August 30, 2012



Weeds and maintenance at site prior to meadow installation



Native Return[®]

Independent Study Review for the Philadelphia Division of Aviation:

- **TRC Engineers, Inc.**

TRC Engineers, Inc. was hired by the Philadelphia Division of Aviation to review the final meadow study results. In a letter dated March 4, 2013, to Philadelphia Deputy Director of Aviation Calvin Davenger, TRC Director of Operations Robert Goldman writes,

“For the 2012 season (the final year of the Native Meadow Study), the meadow reportedly required no mowing. Although the Native Meadow Study has concluded, TRC recommends that the health of the meadow be sustained through implementation of the regimen set for in the Maintenance Memorandum.”

“TRC concurs with Native Return® that PNE consider conversion of other landside areas to native meadows to implement sustainable design principles. These include providing flood control, increasing on-site storm water infiltration, reducing pollution of area streams, preservation of native species and biodiversity, and saving on mowing costs, which ultimately reduces emissions.”

- **Urban Engineers, Inc.**

Urban Engineers, Inc. was hired by the Philadelphia Division of Aviation to (1) review the landside Native Meadow study and (2) to compare costs of mowing existing landside conventional turfgrass at its two airports - Philadelphia International Airport (PHL) and Northeast Philadelphia Airport (PNE) - to the costs of establishing and maintaining landside meadows at both airports. According to Urban’s final in-depth analysis based on actual operations data entitled **Update of Benefit-Cost Analysis** and dated February, 2012:

- Savings due to the elimination of mowing equate to approximately \$800 per acre per year.
- Urban writes, *“The upfront costs can be relatively minor if invasive plants are manageable, in which case the cost to establish the meadow could quickly be realized within the first year in the savings generated by reduced mowing effort of the area.”*




Photo by: Christina L. Kobland

MANAGED NATIVE MEADOW




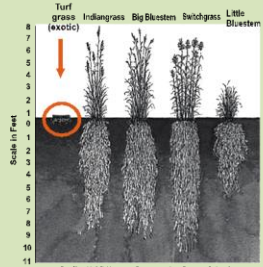
Photo by: Cindy Goukder

This managed meadow is an Environmental Stewardship initiative of the City of Philadelphia, Division of Aviation, to promote sustainable design principles.

Meadows present excellent opportunities for stormwater management, promoting groundwater infiltration, lowering erosion, and providing flood control. Native plants in a meadow not only provide an aesthetically pleasing landscape, but preserve native species and biodiversity by creating habitat for wildlife.

Meadows require less mowing and chemicals, and no fertilizers or watering. This low maintenance cover protects nearby local streams from pollutants and helps to control flooding, thereby safeguarding the Delaware and Schuylkill Rivers, the source of drinking water in Philadelphia.

Around outlying areas of airports, tall meadow grasses are less of an attractant to large birds such as geese, which can be hazardous to aircraft operations.



Credit: Heidi Natura, Conservation Research Institute

The healthier root structures of meadow grasses help filter stormwater, absorb runoff, and prevent erosion better than traditional mowed turf grasses.

Project Manager: Urban Engineers, Inc.
Meadow Created By: Native Return, LLC
Additional Support: The Friends of Poquessing Watershed

