



Compost Works:

Case Studies

Compost Works

City of Davenport: Storm Water Management

The City of Davenport's Public Works Department used compost in the widening of Locust Street to help manage storm water in the area, as well as to help establish turf. Locust Street was experiencing significant traffic volume as the city began expanding. Along with outdated runoff management structures, the street was beginning to worry nearby residents and city engineers. This major widening project included significant disturbance to roadsides, a common problem in transportation projects. A nearby housing subdivision also made the area very visible and in need of fast, attractive groundcover.

The city chose to use a 1.5-inch screened "Earth Cycle" compost from Davenport Compost Facility. The compost was applied prior to sod overlay to help provide organic matter and water retention. The compost was applied in both fall and spring without irrigation to a one-mile stretch of medians, front yards and curbs located in the expansion.

The city's efforts resulted in decreased runoff burden on storm drains by percolating rainwater. The compost also promoted growth of vegetation and improved the aesthetics of the area. For more information, contact Tom Leabhart at (563) 326-7923.



View of extensive work along Locust Street; note the second application of compost on the left side of the street.

City of Waukee: Turf Maintenance

The City of Waukee used compost to solve turf maintenance and establishment problems in Centennial Park, a multi-use sports area with disc golf holes, baseball diamonds and a trail. Centennial Park needed better lighting and wiring to accommodate late baseball games and other events, like the city fireworks show on the Fourth of July. During the lighting installation and the completion of a trail and sidewalk around the park, some of the ground directly around the bleachers and parking lot was disrupted and needed repair. Soil-Tek, a private contractor, was hired to address the city's problem.

The city used a power rake and skid loader to provide an even surface while applying the compost. Near the ball diamonds, the city chose a 1.5-inch layer of Metro Waste Authority's Premium Turf Gold half-inch screened compost with traditional turf building grasses. Soil-Tek applied the Iowa Department of Transportation's "Rural Roadside" seed mix (a minimum maintenance mix of 70 percent grasses and 30 percent flowers) to non-irrigated areas along a roadside trail and a parking lot.

The applications greatly improved the park's appearance. The compost improved the soil, provided prompt groundcover and decreased erosion and weed growth. When the city applied compost in June 2003, it did not achieve a full turf stand because of dry weather conditions. In 2004, the compost achieved a full stand in two weeks. For more information, contact Brad Freeman at (515) 987-4363.



Trail area at Centennial Park one year after installation.

Table of contents

City of Davenport	1
City of Waukee	1
Iowa Dept. of Transportation	2
Iowa State University	2
Regency Commercial	3
St. Mary of Nazareth Catholic Church	3

Iowa Dept. of Transportation: Erosion Control

Reilly Construction was contracted by the Iowa Department of Transportation (DOT) to begin grading and vegetating an area between Second Avenue and Third Street along the new I-235 corridor. Topsoil was a logical first choice to help supplement nutrients and add structure to the disturbed roadsides. Stacie Johnson, a representative of Organic Matters, suggested using a three-inch layer of compost instead. In contrast to the cumbersome spreading of topsoil, which often includes large clods and rocks, compost has a much more uniform size and can be a lot easier to apply.



Established vegetation along the I-235 corridor helps maintain this slope.

The DOT's "Urban Seed Mix" (fine leaf tall fescue, creeping red fescue and perennial rye) was blended into TerraMateSM compost from Chamness Technology, Inc.'s

Eddyville composting facility. A bulldozer and blade were used to spread a three-inch layer of compost over approximately five acres of roadside. The dry summer of 2003 led to little germination as most of the seed stayed dormant. The compost still provided better erosion control than hydroseeding or open subsoil. Vegetation sprouted in spring of 2004 and provided lush green cover. For more information, contact Wes Musgrove of the Iowa DOT at (800) 251-2707.



Example of rills caused by exposed subsoil not treated with compost along I-235.

Iowa State University: Streambank Stabilization

Iowa State University (ISU) applied compost for streambank stabilization and vegetation establishment on campus. A section of stream had the potential to compromise the structural integrity of a nearby parking garage and further compound an existing erosion issue. Soil-Tek, a Des Moines erosion control contractor, was selected for the project. This type of application has been used on similar projects across the nation and in Iowa, including one by the City of Des Moines on Salisbury Creek.



Application of compost at ISU to stabilize stream near a parking structure in April 2004.

ISU used 18-inch FiltersoxTM (tubular mesh containers) filled with a mix of equal parts of soil, pea gravel and half-inch screened compost. Shade-tolerant fescue grass seed was blown into the FiltersoxTM and dogwood plugs were implanted. This mixture was secured along the streambank with wooden stakes. Geogrid (net-shaped product, often made of synthetic fibers, used to reinforce earth-fill slopes), was applied between

the tubes and staggered to create a stable slope. The matting, tubes and stakes will biodegrade in approximately three years.

The application was cost-effective and quick to install. Fescue grass species began to emerge from the socks at only six weeks from application. Heavy late spring and early summer rains in 2004 diminished the stability of the grasses as some sections of the tubing were ripped open by passing debris. Soil Tek repaired the damage and replaced the grass mix with the DOT floodplain seed mix which is better suited for occasional heavy water flow.

"We are looking forward to evaluating the success of the wall over time based on bank structure, stream dynamics and aesthetic appeal," said a member of the Iowa State Planning Staff. For more information, contact ISU at (515) 294-9885.



The streambank one month after the application was installed; May 2004.

Regency Commercial Services: Erosion Control

Regency Commercial Services chose compost for a project at a shopping center at 1431 22nd Street in West Des Moines. The odd-shaped round medians made it difficult to apply sod without time-intensive custom cutting. The new shopping center parking lot project included basin islands for water retention and added an attractive, natural look to the parking lot. With the goal of quickly and inexpensively establishing cover on parking lot medians, Regency contacted Des Moines erosion control contractor Soil-Tek.



Full establishment of cover, without installing irrigation, was achieved in parking lot medians at a 22nd St. shopping center.

Regency used a half-inch screened Premium Turf Gold compost from Metro Waste Authority, applied in a two-inch layer. The area was prepared by smoothing and leveling the surface as in traditional sod installation preparation. The seeded compost was blown onto the unirrigated areas.

“The compost was definitely more cost effective and provided a really good cover,” said Jason Ceretti of Regency Commercial.

“I’m looking forward to using it on other projects.”

Regency’s efforts resulted in improved soil retention, prompt groundcover, and decreased weed growth. The parking lot’s overall appearance was greatly improved. Despite an initial delay in germination, proper watering provided green turf within two to three days. For more information, contact Jason Ceretti at (515) 270-1497.



The turf and shrubs provide a natural setting along the east side of the shopping center.

St. Mary of Nazareth Catholic Church: Vegetation Establishment

St. Mary of Nazareth Catholic Church at 4605 NW 47th Court in Des Moines used compost as a solution to patchy turf establishment in its front lawn. The issues were stemming from large shade trees on the church grounds that were killing the turf grasses. Chemical fertilizers had not seemed to improve the condition of the area. Pete Kingsley, from St. Mary’s maintenance staff, contacted Des Moines erosion control contractor Soil-Tek for assistance.



Entrance area at St. Mary’s where shade trees created a vegetation problem.

Soil-Tek applied a two-inch blanket of Metro Waste Authority’s Premium Turf Gold half-inch screened compost. The compost was seeded with a shade-tolerant fescue seed mix that also tolerates unirrigated areas.

The church’s efforts greatly improved the soil by adding organic matter and provided prompt, thick groundcover. Decreased erosion and weed growth also improved the

appearance at the entrance of the church and the soil’s water retention. A late spring snow slowed the area’s progress, but full cover was achieved with improved spring weather.

“The compost is working great,” said Kingsley. “It’s really done a wonder for the area, and it’s a lot better than using chemicals.”

For more information, contact Pete Kingsley at (515) 276-4042.



Full stand after application of fescue grass mix by entry to church.

Compost Works For:

Soil Incorporant

- Turf establishment
- Garden bed preparation
- Reclamation/remediation
- Nursery production
- Roadside vegetation
- Golf course (e.g. tee, green, divot mixes)

Physical Improvement

- Improves soil structure
- Moisture management

Surface Applied

- Garden bed mulch
- Erosion control media

Chemical Balance

- Modifies and stabilizes pH
- Increases cation exchange capacity

Turf Topdressing

Manufactured Topsoil

Biological Impact

- Supplies nutrients and soil biota
- Suppresses plant diseases

Growing Media Component

- Container/potting substrates
- Landscape (e.g. rooftop, raised planters)
- Backfill mixes (tree and shrub plantings)

Other Benefits

- Binds/degrades contaminants
- Binds nutrients

Compost Producers in Iowa

Bluestem Solid Waste Agency, Cedar Rapids - (319) 398-1278

Chamness Technology, Eddyville - (641) 969-5702

City of Davenport - (319) 328-7225

City of DeWitt - (563) 659-3811

Metro Waste Authority, Des Moines - (515) 323-6525

EnviroOne, Dubuque - (888) 332-8986

Marshalltown Composting and Tree Processing, Marshalltown - (641) 754-5745

Iowa City Landfill, Iowa City - (319) 356-5185

Great River Regional Waste Authority, Fort Madison - (319) 372-6140

Van Buskirk Construction, Sioux City - (712) 255-8345

Compost Applicators

Soil-Tek, Des Moines - (515) 244-7474

Iowa Mulch, Marion - (866) 447-1613

River Valley Nursery, Dubuque - (563) 582-1296

Landscape Butler, Omaha - (402) 330-2100

Additional Resources

The American Association of State and Highway Transportation Officials (AASHTO) has developed specifications for compost berms and compost blankets for erosion and sediment control. To view the specifications, please visit our Web site at www.iowadnr.com/waste/recycling/organics/.

The United States Composting Council provides a wide array of technical resources to assist in the use of compost from testing standards to the "Field Guide for Compost Use." For more information, visit the council's Web site at www.compostingcouncil.org.

A publication of the
Iowa Department of
Natural Resources
2004



Director:
Jeff Vonk

**Environmental Services
Division Administrator:**
Wayne Gieselman

**Energy & Waste
Management Bureau Chief:**
Brian Torney

DNR Information Specialists:
Jill Cornell,
Jessie Rolph

Contributors:
Jeff Geerts, DNR
Nikki Guillot, DNR

Photographers:
Stacie Johnson,
Scott Plett,
Clay Smith, DNR
Tom Truelson

For more information:
Ken Bouma
Iowa DNR
(515) 281-7982
Ken.Bouma@dnr.state.ia.us