

PARTING THOUGHTS

A Conservation Industrial Park will contain some or all of the ideas outlined within this brochure. One need not implement each of them in order to experience maintenance cost savings, a healthy environment and happier employees. Any step taken towards reducing mowing, installing natural stormwater management systems, planting native trees and creating inviting outdoor spaces for people will be a big help for the environment and a business' bottom line; that just makes smart business sense.

Other ways to enhance industrial parks:

- Plant a green roof on the buildings, like the one at the Dansko headquarters near Philadelphia (1st photo)
- Use solar, wind or other renewable energy to heat, cool and light building (2nd photo)
- Replace parking lot asphalt with permeable pavement (3rd photo)



RESOURCES

Dauphin County Conservation District Stormwater Best Management Practices
www.dauphincd.org/swm/bmptour.html

National Agroforestry Center www.unl.edu/nac

Pa. Conservation Reserve Enhancement Program (CREP) www.creppa.org

Pa. Stormwater Best Management Practices Manual www.dep.state.pa.us

Sustainable Lands Program www.dcnr.state.pa.us/sust-lands/index.aspx

Stroud Water Research Center www.stroudcenter.org



SUSTAINABLE LANDSCAPES

Sustainable Landscapes is a collaborative effort of numerous state agencies, local governments and nonprofit entities in Pennsylvania, led by the Department of Conservation and Natural Resources Office of Conservation Science. The Sustainable Landscapes project incorporates unique publications, a website (www.dcnr.state.pa.us/sust-lands/index.aspx) and annual conferences that provide ways to design and manage lands in a way that balances human needs with natural resource conservation.

Creating Sustainable Landscapes Fact Sheet #1

Conservation Industrial Parks

Managing for Money Savings, Healthy Employees, and a Clean Environment

Maintaining an industrial park site can be an expensive undertaking. Aside from the monthly heating, cooling and lighting bills for the building, is the landscaping. Mowing, fertilizing and keeping turfgrass free from insect pests and weeds can cost tens of thousands of dollars each year; it doesn't have to be that way. A new way of looking at industrial parks – the **Conservation Industrial Parks** model – can reduce landscaping costs and support a healthier, more productive workforce.

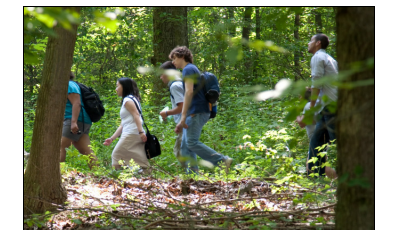
A Conservation Industrial Park is one that balances human uses and needs with environmental protection, whenever possible. This brochure will outline some of the elements that go into a Conservation Industrial Park. There is no need to incorporate all these ideas into the site's management; simply choose what will work best for the site and surrounding environment. A great service will be done for the staff and the local community.

While the Conservation Industrial Parks idea is new, there are already some sites in Pennsylvania that are taking the principles to heart. The Bayer Corporation believes that making their sites, like their U.S. headquarter in Pittsburgh, as sustainable as possible makes good business sense. By mowing less, planting habitat for wildlife and hosting school groups on-site, they show the public that they are a responsible leader in the region. Bayer staff encourage other companies to take conservation seriously. Use the expertise of your employees and the resources and buy-in of the corporation to create a successful conservation industrial park site.



Photos: Bayer Corporation

The Bayer Corporation's U.S. headquarters in Pittsburgh covers 300 acres, 200 of which are managed as wildlife habitat and as an outdoor classroom.



This new vision for industrial parks includes:

- Site planning and landscaping that incorporates native plants and natural stormwater management systems
- Maintenance practices that minimize the use of pollutants and fossil fuels
- Money and energy savings, healthier employees, natural resource protection and better community relations

TURFGRASS MAINTENANCE

Odds are, the most common plant around an industrial park is turfgrass. How much is spent every year to maintain it?

Mowing costs range from \$50 to \$75 an acre, depending on the price of gasoline, frequency of mowing and unique site conditions. If you use chemical herbicides on the grass to control for dandelions and other “weeds” you are averaging between \$125 and \$140 an acre per application. Let’s not forget fertilizer; if you apply 3 to 4 pounds of nitrogen fertilizer per 1000 square feet, you are spending upwards of \$75 to \$100 per acre.

Let’s add that all up. If your industrial park has 10 acres of turfgrass and you mow it once a week for 7 months you would spend at least \$7,000 on mowing, \$2,500 on herbicides (2 applications per year) and \$100 on fertilizer, for a total of \$9,600 per year just to maintain green grass.

With that grass comes a strong likelihood that your property has some Canada geese leaving their messy droppings all over the place. Geese love open grassy areas, especially if there is a pond nearby. Their droppings are not only messy but add fecal coliform bacteria to the water. Geese can also be very aggressive, attacking employees and visitors. What is the best way to get rid of these nuisance birds? Let your grass grow tall and plant some trees and shrubs. If geese can’t see predators, they won’t want to stay.

Want to save money on maintenance while keeping a neat appearance to your landscaping? Utilize the principles of a Vista Lawn – mow turfgrass near the facility, but as you get further away from the buildings, let grasses grow taller and plant shrubs and trees.



Native warm season grass meadow at the Dansko headquarters near Philadelphia

ALTERNATIVES TO TURF

There are two types of grasses: cool season and warm season. Non-native turfgrasses like Kentucky bluegrass and tall fescue are cool season grasses and should be replaced with native cool season grass varieties like Virginia wildrye, or native warm season grasses like big and little bluestem, Indian grass, and switchgrass.

To maintain turfgrass the average industrial park spends around \$1,000 per acre per year.

Warm season grasses are more beneficial for a variety of reasons: they are typically mown just once a year; they should not need synthetic fertilizers once they have established (which takes 2-3 years time); their roots are deeper, helping to reduce erosion and absorb stormwater; and they provide food and shelter for various beneficial insects and wildlife. Native perennial wildflowers, sedges and other groundcovers can also offer many of the same benefits, which result in maintenance cost savings.



Perennial flower pollinator garden at the Bayer Corporation U.S. Headquarters in Pittsburgh

TREES AS EXPERT MULTITASKERS

Plant some trees, especially along streams and ponds. This is what’s called a “riparian buffer.” Trees along a stream help reduce the chances of flooding and erosion. Properly placed native trees will block wind and noise, provide shade that can reduce cooling bills and absorb pollutants and CO₂, making it a healthier environment for employees.

Properly sited trees around buildings may lower heating and cooling costs by as much as 25 percent, according to the American Evergreen Foundation. Trees on the north and western sides of a building will block cold winter winds while trees on the eastern side will provide shade from the hot summer sun.

Funding may be available from the federal government through the Conservation Reserve Enhancement Program (CREP) for riparian buffer tree plantings. People enrolled in CREP can actually make money by planting trees on some of their land. See the last page of this brochure for the program’s website.

- Become a Conservation Industrial Park in just 3 easy steps:**
- 1. Plant a riparian buffer around any streams, wetlands, and ponds on-site.**
 - 2. Reduce the area that you mow. Convert some areas to native warm season grass meadows and wild-flower gardens.**
 - 3. Use rain gardens, swales, and vegetated detention basins to manage stormwater naturally.**

HEALTH AND HAPPINESS

People enjoy spending time outdoors. Are picnic tables and walking trails provided for the employees? If not, consider putting some in. The Bayer Corporation’s U.S. Headquarters in Pittsburgh offers their employees a 1.5-mile fitness trail that many people use over their lunch breaks.



According to research done at the University of Illinois, spending time outdoors relieves mental fatigue, aggression, and stress. Well-rested and relaxed employees are more productive ones, so the initial cost of the tables and trails will be offset by increased productivity.

MANAGE STORMWATER THE NATURAL WAY

There are many ways to manage run-off from parking lots, streets and roofs without relying on drains and underground pipes. You can manage stormwater in a natural way on-site through the use of rain gardens, swales and vegetated detention basins – like the infiltration garden at the Dansko Headquarters near Philadelphia (see photo below).

You can even recapture stormwater to use for irrigation purposes, saving money and protecting your investment in landscape plants. Whatever plants you choose, pick native varieties whenever possible. These plants have adapted to our climate so they will grow better without the need for lots of fertilizer and irrigation.

