

Fairlane Green

Allen Park, Michigan



Case Study

MICHIGAN'S LARGEST LANDFILL REDEVELOPMENT GOES GREEN

Established in 1970 and headquartered in Dearborn, Ford Motor Land Developmental Corporation (Ford Land) is a wholly owned subsidiary of Ford Motor Company. Ford Land is a full-service provider of real estate, construction, facility and energy services. One of its most recent developments is Fairlane Green, a green retail and recreational center that sets the standard for environmentally and socially responsible redevelopment. The redevelopment returns a significant piece of property that would otherwise remain dormant to productive use, providing jobs, services and tax base to the local community.



Fairlane Green is a one million-square-foot retail/recreational center with parks and trails on the 243-acre closed Allen Park Clay Mine Landfill. It is the largest landfill redevelopment project in Michigan and the largest under construction in the country for retail use. The project incorporates environmentally friendly features including a 43-acre park, 3.5 miles of trails, and a three phase

retail development. In all, nearly two-thirds of the site will be natural green space. Opened in 2006, Phase I consists of 408,000 square feet. Phase II opened in 2007, and Phase III construction is underway.

Site Management

The construction site was a clay quarry used to produce bricks for Ford's Rouge Plant and regional construction projects during the 1920s. Purchased by Ford and used to landfill industrial waste from the Ford Rouge manufacturing complex, the site accepted non-organic waste such as steel by-products and building debris until 2003.

The Fairlane Green site is a designated brownfield also known as an environmentally-challenged site. The development was designed to preserve more land than it develops and incorporate environmentally friendly features into the construction. Sedimentation was controlled with

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temporary seeding, mulching, natural vegetation, buffer zones, drainage swales, sediment traps, and storm drain inlet and outlet protection. Fairlane Green is 60% less dense than typical retail developments.

Redeveloping the industrial site required innovative methods to protect the landfill's integrity. Stress on the underlying landfill was reduced through a preloading soil fill program and lightweight geofoam fill. Geofoam was used in place of additional fill under buildings to eliminate additional weight on the landfill. These features allowed developers to reduce settlement levels and create shallow foundations.

Developers maintained side slope stability with a soil buttress. The soil buttress helped stabilize one million cubic yards of fill on a 40-ft high slope. It was monitored to ensure safety during the construction process.

Utilities and foundations were placed in a landfill cap within an engineered fill layer. Nearly 17,000 feet of utilities were installed with utility corridor trenches lined with a combination geosynthetic clay liner and high density polyethylene (HDPE) liner. This liner prevented exfiltration and leakage from site utilities.

The Fairlane Green retail center includes prairie landscape and retention ponds which create natural habitat for wildlife that can flourish in an area that was previously unable to support them. A surprise bonus; the habitat attracted a snowy owl, the first in this area.

Waste Minimization and Raw Resources

Low level volatile organic compounds (VOCs) paints, adhesives and sealants were used in the stores. The ventilation system was protected from dust during construction. No Chlorinated Fluorocarbon refrigerants or Halons were used in the Heating, Ventilation, and Air Conditioning and Refrigeration systems for the buildings.

Eighty percent of the construction materials were manufactured regionally and of that 66% were extracted within a 500 mile radius of the site.

Geofoam was used to reduce the amount of fill by 72 tons and reduce foundation requirements by 57,000 tons of concrete. This in turn reduced the amount of truck deliveries by over 4,000 truckloads reducing carbon monoxide emissions.

Recycling was a key construction consideration. Many of the building materials were recycled or produced locally to reduce environmental impact. Recycled-content materials comprise 23% of all building materials used and 2/3 of the construction waste was recycled. A separation and storage area was established for tenant recycling use.

Water Management

Overall, approximately 2/3 of the 243 acre site will be green — not covered by parking, roads, or rooftops, making it 60% less dense than typical retail developments. The site environment was designed to be ecologically friendly by incorporating bioswales and ponds for retaining, filtering and reusing rainwater for landscape irrigation. Rock purification beds and ponds cleanse and slow the flow of rainwater. This site utilizes bioswale plants such as Joe Pye Weed and Blue Flag Iris, which are adapted to wet conditions and create natural habitat for birds and other wildlife. Salt tolerant species were used in parking lots. The plants also provide supplemental drainage areas to manage the clay soils and are also used in planters throughout the center.



Fairlane Green's native landscape is designed to enhance the site's appeal to customers, promote responsible resource management and meet requirements mandated by state and local

permitting agencies. The hedgerow and prairie-style landscape environment was developed using native, low water-use plant material in creative designs and in close association with the buildings. The prairie landscape environment consists of plants, native grasses and wildflowers like Gray Coneflower and New England Asters. Planters placed throughout the site's retail areas include native and sustainable plants such as Virginia Creeper and native Clematis. This unique plant selection eliminates the need for turf-grass lawns and daily watering. The storm water management and native plants create a natural habitat for birds and other wildlife.

Water efficient fixtures inside the buildings reduced potable water use overall by 38%. Rain water collected in retention ponds and bioswales is used to irrigate the site, reducing dependence on potable water.

Two green parking areas allow grass to grow and filter rainwater. These areas are built with brick/concrete pavers to increase permeability rather than non-porous asphalt or cement. As a result of innovative stormwater management, runoff was reduced by 26%.

Energy Efficiency

Increasing roof and wall insulation improved energy efficiency and increasing the door and window R-values reduced cold and hot air infiltration. Sealing wall joints inside and out, sealing all wall, floor and roof junctions for utility services and installing weather seals at dock doors also improved energy efficiency. High efficiency heating and cooling equipment resulted in reduced energy consumption. The white reflective roofing provides high reflectivity and reduces the buildings' energy cooling costs and reduces absorption of solar radiant heat. Green screens on the outer walls allow ivy trellises to grow, which further insulate the building.

Energy costs were reduced by strategically placing site lighting and side shields to focus light downward and toward areas requiring lighting.



Economics and Society

Fairlane Green is a welcome economic development to the Allen Park and Dearborn communities, providing an area destination for dining, shopping and recreation. The economic benefits are equally important as the site adds a valuable tax base and approximately 2,000 permanent jobs.

Fairlane Green is pedestrian-friendly and accessible to alternative transportation including regional busing. The site promotes social sustainability to its customers and vendors. Ford Land encouraged tenants to adopt sustainable strategies within their retail space by providing them a Fairlane Green LEED tenant handbook. Interpretive signs will educate the public regarding what to expect around the site, highlight the center's sustainable features, and enable customers to engage in self-guided tours; thereby improving long-term benefits for a sustainable future.

Sustainability

As a part of Ford's commitment to sustainability, Fairlane Green Phase I is the country's first retail development to receive Gold certification through the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) Core and Shell pilot program for developers. Ford will also seek LEED certification for Phases II and III once they are complete.

Going beyond the core and shell development, tenants of Fairlane Green are encouraged to pursue sustainability within their buildings. Green buildings use resources -- energy, water, materials and land -- more efficiently and effectively than buildings that are simply built to code.

Tenants are encouraged to seek LEED certification for their stores and are provided with handbooks on interior and exterior guidelines. Stores located in the core and shell development can receive commercial interior points while stand-alone sites including restaurants and banks can seek LEED certification for new construction. During the tenants construction process, designated space is provided for the collection and storage of recyclable materials.

Fairlane Green's Target store has incorporated sustainable features into its design. The store achieved LEED certification through its use of white reflective roof membranes, high-efficiency heating and cooling systems, a roof cistern for collecting and recycling rainwater, and more than 250 skylights. The Meijer store in Phase II also has many of these features incorporated into its design and has achieved LEED certification.

"Fairlane Green demonstrates Ford Motor Company's commitment to being a leader in sustainable design and development" states Sean McCourt, Chairman of Ford Land. Ford describes sustainable initiatives as those that are responsible environmentally, socially and economically. According to McCourt, sustainability delivers long-term cost benefits, promotes the conservation of resources and supports the development of natural habitats.

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