



## Case Study 15

<b>FORD Rouge Center Case Study</b>	
<b>Name and Location</b>	<p><b>Site Name:</b> Ford Rouge Center  <b>Site Location:</b> Dearborn, Michigan</p>
<b>Ecological Enhancement</b>	<p>Ecological enhancements are focused on minimizing impact to Rouge River water quality via improved storm water management and restoring wildlife habitat including: vegetated roof, pervious pavement, phytoremediation, vegetated drainage swales, hedgerow wildlife corridors, wetland restoration, sunflower plantings and grassland restoration. Honey bee hives have been added to enhance pollination for the new plantings.</p>
<b>Site Description</b>	<p>The Ford Rouge Center is an automobile-manufacturing complex with adjacent primary steel making operations along the Rouge River (constructed circa 1917) consisting of approximately 1100 acres. Formerly farmland and marsh, the area is now a highly urbanized area zoned Heavy Industrial. A residential area is about ½ mile from the Center.</p>
<b>Site Reuse Description</b>	<p>Sustainable ecological enhancements were utilized to reduce maintenance and to demonstrate Ford commitment to environmental protection and restoration. Students participated in various components of the restoration including research, growing of native plants and planting on site</p>
<b>Stakeholder Involvement</b>	<p>Partners included: McDonough/Braungart, Walbridge Aldinger, WH Canon, Harley Ellis, Cahill &amp; Associates, Don Tilton and Associates, Arcadis Giffels, Michigan DOT, Michigan DEQ, Dearborn Public Schools, Hortect Inc., Conestoga Rovers and Associates, Golder Associates, DecisionQuest, Friends of the Rouge River, ACCESS (Arab community group), Southwest Detroit Environmental Vision, University of Michigan Dearborn, Michigan State University.</p> <p>Local stakeholders (residents near the property) seem to be taking a wait and see attitude about the land management initiatives as their concerns are more operations related. Watershed stakeholders such as the Rouge RAP Advisory Council and Friends of the Rouge are very pleased with the direction for land management. Communications with the local community are maintained via company newsletters, a Dearborn Public Information Repository, and community meetings.</p> <p>State of Michigan provided an enhancement grant for the reconstruction of Miller Road including the stormwater swale and the USEPA (5 star program) provided grant funding.</p>
<b>Site Assessment Approach and Cleanup</b>	<p>In April 2000, Ford Motor Company and Rouge Steel Company entered into a Consent Order with the Michigan Department of Environmental Quality for the purpose of performing RCRA Corrective Action at the 1100-acre site. Site assessment efforts to date have identified pervasive impacts to surficial soils due to historic steel making operations (SVOCs and metals) and localized areas of impact associated with historic manufacturing operations (PCBs, metals, and organics). The Site has a 2005 deadline, in accordance with the Government Performance Results</p>



	<p>Act, to demonstrate mitigation of any off-site migration issues or human exposure pathways.</p> <p>Remediation objectives are taking into account the proposed end use (industrial) while incorporating aspects of habitat improvement such as natural bio-attenuation storm water management techniques and phytoremediation to reduce the soil concentrations of SVOCs remaining in the soil and additionally improving bio-diversity.</p> <p>Corrective action to date has taken the form of phytoremediation in a controlled environment for evaluation purposes as well as removal and disposal of heavily impacted or source material. Future engineering controls may include various containment strategies and water management techniques to address relevant exposure pathways for remaining constituents.</p>
<p><b>Reuse</b></p>	<p>The site continues to manufacture automobiles and light trucks as well as engines, frames, and metal stampings. The grounds are also now being used for environmental benefits that include improved storm water management/runoff control to the river, increased wildlife habitat for use in environmental education for the community as well as employees. If the phytoremediation project is successful, it may be expanded throughout the site to provide improvements to soils beyond that required by applicable federal, state, or local regulations.</p> <p>The value added includes more wildlife habitat, improved employee morale, significantly improved aesthetics and a variety of demonstration projects that can be emulated. Additional demonstrations at the Site include the use of photovoltaics, fuel cells, and geo-thermal applications.</p>
<p><b>Obstacles</b></p>	<p>This is a highly complex site with a long history. Information on historic operations is limited which increases level of effort needed to identify and define the presence of impacts caused by those operations. Existing information on underground structures, utilities, etc. has also been shown to be incomplete. Safety issues demand significant planning, and sometimes-inefficient procedures, during invasive investigation activities. Another complicating factor was the need to coordinate the investigation and remediation efforts with the ongoing plant expansion and modernization activities. Frequent discoveries of unknown Waste Management Units (as defined in the Consent Order) threatened the construction schedule associated with new plant construction and existing plant upgrades. Recognizing this issue in the early negotiations with the Michigan Department of Environmental Quality, the parties were able to agree on a process that, when necessary, would allow remedial activities to proceed unburdened by a lengthy review and approval process.</p>
<p><b>Costs and Funding</b></p>	<p>Except as described above, all costs have been funded by Ford Motor Company.</p>
<p><b>Economic and Other Incentives</b></p>	<p>The primary tangible economic incentives, long term, are reduction of maintenance through sustainable landscaping, longer life for the vegetated roof, and potentially reduced regulatory burden costs associated with remediation. Intangible benefits are also anticipated.</p>



<b>Time</b>	The project started in 1999 and is ongoing, expanding pilot projects to other areas of the site. The restoration process is expected to last at least 10 years due to funding and other constraints.
<b>Other</b>	<p>Perceptions that sustainable land management also needs to be aesthetically pleasing has led to less than sustainable practices, such as formal landscaping and the use of non-native plants that may require more maintenance over time. However, several areas will include the strictly native plant components, which provide for side-by-side comparisons of sustainability throughout the development of this project.</p> <p>Union issues have also shaped some of the projects, considering both the cost and capabilities of the work force in dealing with innovative approaches to landscaping.</p>
<b>Contact Information</b>	<p>Dan Ballnik          Ford Motor Company          313.248.8606          dballni1@ford.com</p>