

Land Revitalization **SUCCESS STORIES**

2011

2011

Table of Contents

Land Revitalization Success Stories: An Overview of Recent and Ongoing Regional Land Revitalization Projects.	v
Sustainable Development and Transit-Oriented Development	
Smart Growth Redevelopment District, Indianapolis, Indiana.	1
Affordable Housing and Transit-Oriented Development, National City, California	3
Sustainable Development in Iowa and Kansas.	5
Sustainable Reuse Through Recycling of Construction and Demolition Materials, Valley, Alabama	6
Transforming the Golden West Side: A Sustainable Communities Partnership Pilot, Fresno, California	7
Building Green Infrastructure	
Partnership Effort to Build Green Infrastructure Along Lick Run Corridor, Cincinnati, Ohio	9
Turning Vacant Land into Green Infrastructure, Cleveland, Ohio	10
Building Sustainability into Long-term Recovery from Natural Disasters	
Partnership Promotes Sustainable Redevelopment for Riverfront Crossings District, Iowa City, Iowa	12
Assisting the Spirit Lake Tribe Plan for Sustainable Recovery After Flooding, North Dakota.	13
Community Engagement in Land Reuse Planning	
Community Engagement in Reuse Planning for the Lakes Region Facility, Laconia, New Hampshire	14
Community Engagement in Reuse Planning for Former Firing Range, Holyoke, Massachusetts.	15
Reuse Assessment for the Lower Darby Creek Area Superfund Site, Delaware and Philadelphia Counties, Pennsylvania	16
Revitalization of Former Sugar Beet Factories, Colorado.	18
Reusing Lands for Urban Agriculture	
Proposed Viet Village Urban Farm in New Orleans, Louisiana, New Orleans, Louisiana	20
Groundbreaking for Urban Farm, Montgomery, Alabama	21
Urban Farm Planned for New Fernwood Green District, Toledo, Ohio.	22
Revitalizing Auto Sector Communities	
Former GM Plant Transformed into New Tech Town Aerospace Hub, Dayton, Ohio	23
Texas Community Develops Vision for Revitalization of Abandoned Auto Dealerships, Leon Valley, Texas	24

Revitalizing Petroleum Brownfields Along Historic Highways

Planning for Revitalization of Petroleum Brownfields Along the National Historic Voting Rights Trail, Selma to Montgomery, Alabama 25

Area-wide Planning for Revitalization of Abandoned Gas Station and Nearby Brownfields, Ogden, Iowa 27

Tamiami Trail Petroleum Brownfields and Land Revitalization Initiative, Manatee and Sarasota Counties, Florida 28

Promoting Renewable Energy and Greener Remediation

Innovative Technology Powers “Greener Remediation” at State Road 114 Superfund Site, Levelland, Texas 29

Biofuel Feasibility Study at an Eco-Industrial Park, Fairless Hills, Pennsylvania 30

Land Revitalization Success Stories: An Overview of Recent and Ongoing Regional Land Revitalization Projects

The U.S. Environmental Protection Agency's (EPA) Land Revitalization Program strives to restore land and other natural resources into sustainable community assets that maximize beneficial economic, ecological and social uses and ensure protection of human health and the environment. The Land Revitalization Team's mission contributes significantly to EPA's strategic planning goals by placing protective, sustainable, and energy-efficient solutions at the forefront when considering solutions for restoring contaminated properties to useful life.

Our Approach

- **Engage with communities:** Environmental decisions improve when communities are actively engaged in the process. EPA's Office of Solid Waste and Emergency Response (OSWER) fosters stronger partnerships with stakeholders to promote their meaningful involvement and maximize the efficiency of site cleanup efforts.
- **Expand the conversation on environmentalism and work for environmental justice:** Communities affected by the decisions that EPA makes must have a role in the decisions that affect the cleanup and revitalization of contaminated lands.
- **Promote and manage community-based projects:** We need to be fully informed on the best available "green" technologies and environmental sustainability practices. Demonstration projects offer opportunities to test new ideas and ways to make development sustainable. Pilot projects provide opportunities to identify successful approaches and share lessons learned.
- **Share success stories and lessons learned:** Knowledge of sustainable land revitalization approaches encourages the implementation of our program and projects. We address this need by sharing success stories and lessons learned through targeted outreach and educational efforts.
- **Promote federal partnerships:** We work with communities and our federal partners to develop effective working relationships and promote redevelopment practices, including urban agriculture, mixed-use and transit-oriented development, renewable energy development, and other options that protect human health and the environment.

Our goal is to create a new norm: EPA's Land Revitalization Team wants sustainable approaches to remediation and revitalization to become the norm throughout EPA's cleanup programs. The implementation of sustainable cleanup and development techniques must be incorporated into standard practices, guidance, codes, ordinances, and laws to ensure mainstream adaptation and long-term benefits.

This Land Revitalization Success Stories Report

This report illustrates the EPA Land Revitalization Program's approach by highlighting a sampling of recent and ongoing land revitalization projects and activities in EPA's regions. It is not a comprehensive summary of regional land revitalization activities, but rather snapshot of a few projects that highlight our many land revitalization activities and initiatives.

The chart on the next page provides a key to the highlighted projects by region, but the report itself organizes the information according to broad topic areas:

- Sustainable Development and Transit-Oriented Development;
- Building Green Infrastructure;
- Building Sustainability into Long-term Recovery from Natural Disasters;
- Community Engagement in Land Reuse Planning;
- Reusing Lands for Urban Agriculture;
- Revitalizing Auto Sector Communities;
- Revitalizing Petroleum Brownfields Along Historic Highways; and
- Promoting Renewable Energy and Greener Remediation.

EPA's Land Revitalization Program continues to work with our federal, state, and local partners and with the private sector to test new approaches and technologies that may ensure environmental protection and sustainable development. By supporting, promoting, and communicating the results of our activities and pilot efforts to restore land to beneficial use while ensuring protection of public health and the environment, we are challenging our partners, stakeholders, and ourselves to make sustainable development the norm.

Recent and Ongoing Land Revitalization Projects, By Region

Region 1

- Community Engagement in Reuse Planning for the Lakes Region Facility, Laconia, New Hampshire
- Community Engagement in Reuse Planning for Former Firing Range, Holyoke, Massachusetts

Region 3

- Reuse Assessment for the Lower Darby Creek Area Superfund Site, Delaware and Philadelphia Counties, Pennsylvania
- Biofuel Feasibility Study at an Eco-Industrial Park, Fairless Hills, Pennsylvania

Region 4

- Sustainable Reuse Through Recycling of Construction and Demolition Materials, Valley, Alabama
- Groundbreaking for Urban Farm, Montgomery, Alabama
- Planning for Revitalization of Petroleum Brownfields Along the National Historic Voting Rights Trail, Selma to Montgomery, Alabama
- Tamiami Trail Petroleum Brownfields Revitalization Initiative, Manatee and Sarasota Counties, Florida

Region 5

- Smart Growth Redevelopment District, Indianapolis, Indiana
- Turning Vacant Land into Green Infrastructure, Cleveland, Ohio
- Partnership Effort to Build Green Infrastructure Along Lick Run Corridor, Cincinnati, Ohio
- Urban Farm Planned for New Fernwood Green District, Toledo, Ohio
- Former GM Plant Transformed into New Tech Town Aerospace Hub, Dayton, Ohio

Region 6

- Proposed Viet Village Urban Farm, New Orleans, Louisiana
- Texas Community Develops Vision for Revitalization of Abandoned Auto Dealerships, Leon Valley, Texas
- Innovative Technology Powers “Greener Remediation” at State Road 114 Superfund Site, Levelland, Texas

Region 7

- Sustainable Development in Iowa and Kansas
- Partnership Promotes Sustainable Redevelopment for Riverfront Crossings District, Iowa City, Iowa
- Area-wide Planning for Revitalization of Abandoned Gas Station and Nearby Brownfields Ogden, Iowa

Region 8

- Assisting the Spirit Lake Tribe Plan for Sustainable Recovery After Flooding, North Dakota
- Revitalization of Former Sugar Beet Factories, Colorado

Region 9

- Affordable Housing and Transit-Oriented Development, National City, California
- Transforming the Golden West Side: A Sustainable Communities Partnership Pilot, Fresno, California

Smart Growth Redevelopment District, Indianapolis, Indiana

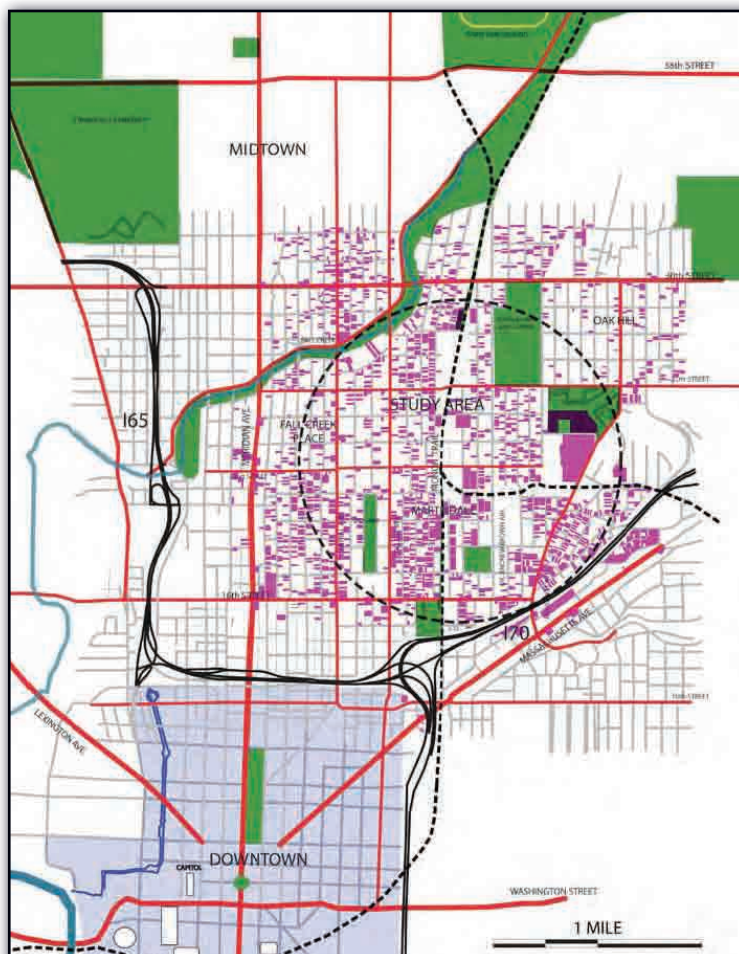
In 2008, the City of Indianapolis and local stakeholders delineated a Smart Growth Redevelopment District, centered at East 22nd Street and the Monon Greenway Trail. The city's plan for the district will help guide the sustainable revitalization of this area. Population within the district has declined since the 1960s, and the district contains approximately 195 brownfields that represent five percent of neighborhood properties. Though historically underserved, the area has the potential to add residents and attract economic growth by leveraging multiple, independent economic development initiatives already underway.

The project is a pilot under the interagency Partnership for Sustainable Communities. Through the Partnership, EPA is working with the Department of Housing and Urban Development (HUD) and the Department of Transportation (DOT) to ensure that federal investments, policies, and actions support development in more efficient and sustainable locations. Pilot communities receive technical assistance and support from all three agencies, and identify opportunities to link housing, transit, and brownfields.

An EPA Community Action for Revitalized Environment (CARE) grant to the Martindale-Brightwood Environmental Justice Collaborative is assisting residents with understanding and prioritizing the many environmental issues and health concerns in the district. EPA also provides assistance through a Technical Assistance Team that developed a geographic information system and computer-aided drafting and design mapping.

Building on the multiple planning efforts for the district in recent years, the pilot initially focused on developing a revitalization strategy to prioritize actions for building walkable neighborhoods to support a transit-oriented future, connect the district with other ongoing redevelopment and planning efforts, identify how existing and future resources can be directed toward the district, and identify opportunities for investments in underutilized properties and underserved corridors to help catalyze revitalization. The Technical Assistance Team developed a revitalization strategy that was approved by the community in late 2010. The strategy identifies three primary guiding principles for revitalization of the Smart Growth District: preserve and restore the historic single-family home fabric of the neighborhood, create sufficient density to attract continued bus service enhancements and a stop along the Northeast Corridor, and improve the prospect for neighborhood commercial development and job growth.

The revitalization strategy details prioritized actions to achieve walkable neighborhoods that have the proposed density approaching 123 residents per block and to strategically locate



Map of Vacant Land in Indianapolis's Smart Growth Redevelopment District

this density for maximum impact. Prioritized actions are to identify locations for walkable neighborhood development sites adjacent to transit routes, develop design criteria for higher-density development within walkable neighborhoods, promote infill development on selected blocks to create walkable neighborhoods, increase usage of the Monon Trail in the district, and develop a communications and outreach strategy.

EPA and its partners expect the pilot to demonstrate how effective partnerships can yield results while remaining grounded in the needs of the neighborhood, and identify synergies between the economic and community development opportunities within and around the District and the existing federal investments in environment, transportation, housing, and urban development. Project organizers are now working on a site-specific redevelopment plan and funding strategy.

Affordable Housing and Transit-Oriented Development, National City, California

The Westside Affordable Housing transit-oriented development in National City, California, is the direct result of five years of community involvement by residents of the Westside neighborhood. The project, partially funded by EPA's Land Revitalization program, is intended to be the catalyst for overall neighborhood change through the city's Westside Specific Plan. In a series of community workshops in 2004, residents and business owners identified priorities for reinventing the neighborhood. Of top importance was the elimination of toxic hazards believed to be the cause of high asthma rates. The community also wants to reclaim the neighborhood for residential uses, especially affordable housing for families.

The project is one of five brownfields pilots under the interagency Partnership for Sustainable Communities. Through the Partnership, EPA is working with HUD and DOT to ensure that federal investments, policies, and actions support development in more efficient and sustainable locations. Pilot communities receive technical assistance and support from all three agencies, and identify opportunities to link housing, transit, and brownfields.

National City's pilot focuses on a 14-acre, city-owned public works property that is the proposed site of the \$69 million transit-oriented development project. The project will consist of 201 affordable housing units located immediately adjacent to the existing 24th Street Trolley Station for the light rail that serves metropolitan San Diego. The site is contaminated with hazardous materials, including metals, benzene, and hydraulic fluid, identified during an ongoing EPA Brownfields assessment grant and two targeted site investigations performed by the California Department of Toxic Substances Control (DTSC). DTSC will oversee required remediation of the site for redevelopment.

The pilot project will help National City redevelop the site in a sustainable manner by incorporating green remediation components into a site design that promotes energy efficiency, stormwater and flood control management, walking and park trails, and reduced dependence on fossil fuels. The pilot's recommendations will feed into an analysis to identify green infrastructure, green building, and open-space usage options based on the existing project conceptual plan. The city also is addressing the toxic hazards believed to be the cause of high asthma rates in the neighborhood by preparing an amortization plan to relocate or close highly polluting industrial uses that are not compatible with the Westside Specific Plan.

The development team hosts community meetings and attends the Westside Neighborhood Council to facilitate open communication about the project. By combining results from stormwater modeling with community input, the technical assistance team will develop a site plan and rendering that incorporates open space, green infrastructure, and habitat restoration recommendations. The technical assistance team also will provide recommendations for developing a formula to rank sites to be addressed, beginning with the most polluting and underutilized uses.

Sustainable Development in Iowa and Kansas

EPA Region 7 and EPA's Office of Sustainable Communities, with funding from the Land Revitalization Program, are helping several communities in Iowa and Kansas to incorporate sustainability and green infrastructure into their community redevelopment plans.

In Kansas City and Ellis, Kansas, Region 7 and EPA contractors conducted audits of local development codes and policies that govern the ways in which properties in each community can be developed or reused. The audits focused on the downtown area of Ellis (population 2,000) around a former auto dealership, and the area around a closed landfill in Kansas City. Site visits were held in each community in June 2010, with the audit reports completed shortly thereafter. The audits resulted in recommendations on the potential use of vacant lots, improved streetscaping, anticipated transit-oriented development, and other infrastructure design possibilities in each of the communities.



Former auto dealership in Ellis, KS



Closed landfill in Kansas City, KS

In Sioux City, Iowa, Region 7, the Iowa Department of Agriculture and Land Survey, and EPA contractors conducted the day-long green infrastructure workshop for local government staff and local environmental consultants. Approximately 25 people attended the workshop, which focused on applying green infrastructure techniques to the former stockyard properties in Sioux City.

Green infrastructure involves the use of landscape features to store, infiltrate, and evaporate stormwater. This reduces the amount of water draining into sewers and helps reduce the discharge of pollutants into area water bodies. Examples of green infrastructure include rain gardens, swales, constructed wetlands, and permeable pavements. Building green infrastructure on underused and vacant properties, including brownfields, can be an innovative environmental solution that goes beyond conventional regulatory fixes for controlling stormwater runoff. Green infrastructure also can provide important environmental and socio-economic benefits to communities.

Region 7 also is working with six other Iowa communities—Iowa City, Coralville, Cedar Falls, Cedar Rapids, New Hartford and Waverly—to incorporate sustainability and green infrastructure projects into their redevelopment plans for long-term recovery after widespread flooding in 2008. Assistance includes supporting community design charrettes, developing plans for new green infrastructure to improve stormwater management, and helping the communities review and propose improvements to existing policies and codes that will promote better land use and smart growth.

Sustainable Reuse Through Recycling of Construction and Demolition Materials, Valley, Alabama

Valley, Alabama, (population 9,000) dates to the 1860s, when twin textile mills were built along the banks of the Chattahoochee River. In 1980, four mill villages incorporated and became the City of Valley. Since the city was almost totally dependent upon the textile industry, Valley's economy was hit hard by the closing of the mills. With an eye to revitalization, the city purchased the Langdale Mill in 2004 for \$300,000 at a bankruptcy auction. One year later, the Riverdale Mill was purchased for \$150,000. Together, the two mills cover 38 acres of riverfront property along the Chattahoochee River.

In 2007, the Alabama Department of Environmental Management (ADEM) performed an environmental assessment on the sites for the city. EPA then awarded the city a brownfields assessment grant, and the assessment became the basis for developing a cleanup plan. In 2008, EPA awarded the city a brownfields cleanup grant to address the contamination found during the assessment. Redevelopment will require the removal of equipment and demolition of some buildings. The city asked EPA for technical assistance to conduct these activities in a greener sustainable fashion.

In response, EPA selected the Langdale and Riverdale Mills as one of 16 Sustainability Pilots. These pilots demonstrate and promote best practices that can be used by other communities across the country and promote the mission of EPA's Brownfields and Land Revitalization Program to reuse brownfields sustainably. The Valley pilot promotes sustainable redevelopment through reuse and recycling of construction and demolition materials. Under this pilot EPA provided technical assistance to the city to create an inventory of materials that can be reused or recycled from the Langdale Mill site through deconstruction of buildings and other structures. The pilot study also provided the city with suggestions on how to make the redevelopment of the mill property greener and more sustainable. The reuse of deconstructed materials on-site is helping to achieve several of Valley's goals for the project, such as implementing and promoting sustainable redevelopment opportunities, interpreting the site's rich architectural and industrial heritage, and creating local jobs or volunteer opportunities.

Valley converted a small portion of the site into office space and a sewing center. The city partnered with InterfaceFLOR, a carpet tile manufacturer in the redevelopment effort. The sewing center produces purses and tote bags from first run carpet fabric that otherwise would become waste. These bags are purchased back by InterfaceFLOR for sales meetings and marketing. InterfaceFLOR has a "zero waste" policy, and the Valley bag project helps it meet corporate goals. All profits from the bags are reinvested in the business to create new jobs. In addition, the city developed a Farmers Market in the Langdale Mill parking lot that provides marketing and sales opportunities for local farmers and fresh vegetables for the community.

The City of Valley, EPA Region 4, and ADEM are partners in continuing the momentum to secure additional interest and leveraging support from other agencies, organizations, and academic institutions to complete the redevelopment of the Langdale Mill. Final plans include a conference center with retail and restaurants along the Chattahoochee River. The U.S. Department of Agriculture and the Appalachian Regional Commission also have contributed federal funds to this economic development project.



Farmers market in the Langdale Mill parking lot

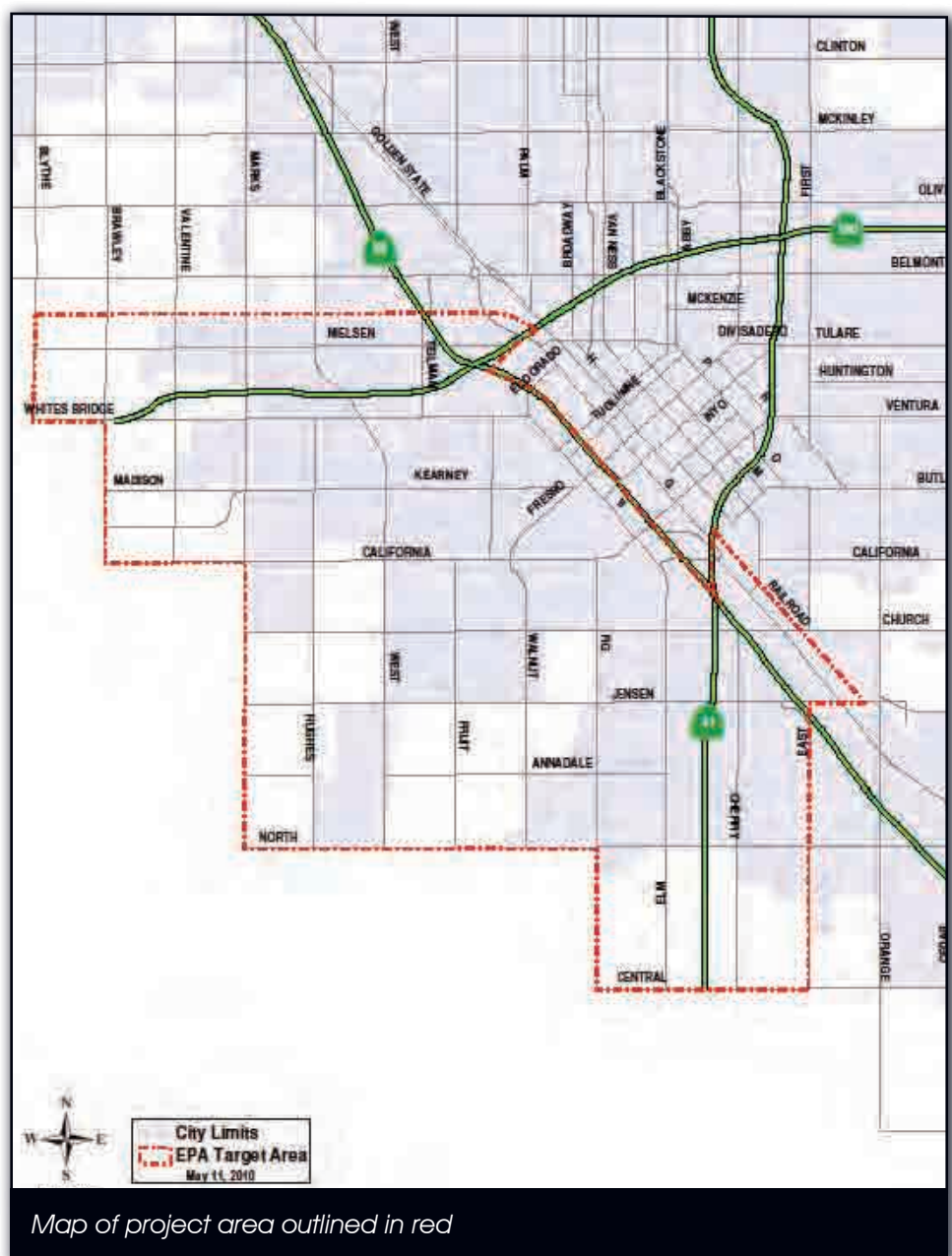
Transforming the Golden West Side: A Sustainable Communities Partnership Pilot, Fresno, California

West Fresno is located in California's San Joaquin Valley and is bounded by State Road 99, Highway 180, and Highway 41. A mix of industrial and commercial sites interspersed with residential sections, the community suffers from some of the worst air quality in the nation, lacks many public services and amenities, and has some of the highest concentrations of poverty in the nation. Residential housing is located close to industries not commonly located near residential areas, such as rendering plants and meat packers. The area has identifiable brownfield sites with suspected contamination from auto and food processing businesses.

The Redevelopment Agency of Fresno attracted various projects to West Fresno that provided affordable housing, a grocery complex, a library within a one-stop government center, and millions of dollars in improved infrastructure. However, despite these accomplishments, blighted or contaminated properties continue to stymie development.

To support the city's redevelopment efforts, EPA's Land Revitalization Program is supporting a pilot project in West Fresno in conjunction with the HUD/DOT/EPA Partnership for Sustainable Communities and Region 9's Federal Regional Council. The Agency for Toxic Substances and Disease Registry is providing additional support. Two local stakeholder groups, the Golden West Side Planning Committee and Concerned Citizens of West Fresno, are cosponsoring and assisting with pre-planning for this initiative. The aim is to create a resident-led platform for advocacy, provide scenarios for reuse of the cleaned-up parcels, and empower residents with detailed knowledge of the health and economic benefits that accrue through contaminated site cleanup.

The Partnership for Sustainable Communities is an agreement between the EPA and the Departments of Transportation and Housing and Urban Development to help communities identify opportunities to link housing, transit, and brownfields revitalization. The three agencies will work together, and with the community,



Map of project area outlined in red

to improve coordination and funding to support local priorities, such as increased transit for better access to jobs and services and beneficial linkages between future high-speed rail stations in downtown Fresno and West Fresno. Participants will evaluate the suitability of redeveloping local brownfield sites into green space, commercial development, and transit-oriented development.

EPA Region 9 staff will convene community meetings to learn how area residents view future development and whether specific brownfields redevelopment projects will improve the livability of the West Fresno community. The goals are to raise awareness about brownfields, create a map of existing and potential brownfield sites in West Fresno, and help community residents identify goals for brownfields reuse. A project report will capture community ideas for redevelopment and summarize next steps and short- and long-term goals.

Partnership Effort to Build Green Infrastructure Along Lick Run Corridor, Cincinnati, Ohio

Cincinnati is one of about 772 cities in the U.S. that have combined sewer systems with only one set of sewer pipes that handle both wastewater and stormwater. These combined sewer systems can convey wastewater and stormwater to area treatment plants in dry weather, but during rain events there is too much volume for the sewers to handle. The sewers overflow, releasing a mixture of stormwater and untreated wastewater into receiving waters. These discharges, called combined sewer overflows (CSOs), are a major water pollution concern for these cities. Even in cities with separate sewer pipes for wastewater and stormwater, the large volumes of stormwater and pollutants that are discharged during wet weather events can have substantial adverse effects on lakes, rivers, streams, and wetlands.

Cincinnati's Metropolitan Sewer District (MSD) reached an agreement on a substantial list of projects to reduce CSO discharges. The agreement allows the sewer district to substitute green infrastructure solutions for conventional "grey infrastructure" control measures, provided the same level of CSO control can be ensured. MSD is working on plans for several projects that involve using green infrastructure to meet CSO control commitments. EPA is providing significant assistance to MSD during its planning work.

Region 5 provided \$65,000 in Targeted Brownfields Assessment funding to conduct area-wide Phase I environmental site assessments on more than 60 parcels in the targeted corridor. In addition, EPA's Land Revitalization Program provided \$40,000 through the Partnership for Sustainable Communities initiative to strengthen MSD's overall planning efforts.

One project MSD is evaluating is in the South Fairmont area of Cincinnati, in a corridor known as Lick Run. MSD is exploring strategies to keep stormwater out of the combined sewer system. Instead, stormwater will be conveyed to Mill Creek via a new above-ground channel. This will free up capacity in the sewer system and reduce CSO discharges. The new green corridor would be a significant amenity for the neighborhood and could spark commercial and economic revitalization in the area. EPA Brownfields and Land Revitalization funds are being used to support MSD's planning work, including site assessments of properties in the corridor and planning of action steps to bring the concept to fruition.

EPA invited the Department of Housing and Urban Development and the Department of Transportation to help focus transportation and community development resources on the affected neighborhood. This interagency partnership is an outgrowth of the national Partnership for Sustainable Communities among the three agencies. The agencies hope to develop a strategy to increase habitat, clean up brownfields, and reduce the supply of vacant land in the area.



Turning Vacant Land into Green Infrastructure, Cleveland, Ohio

EPA Region 5 is working with the City of Cleveland to approach brownfields cleanup and reuse in ways that recognize the important role that land revitalization can play in addressing a host of environmental challenges. By building green infrastructure on underutilized parcels in the city, Cleveland can reduce stormwater runoff and combined sewer overflow discharges while reducing the amount of vacant property and creating greenspace and public amenities that contribute to neighborhood revitalization.

Cleveland is one of about 772 cities in the U.S. that have combined sewer systems with only one set of sewer pipes that handle both wastewater and stormwater. These combined sewer systems can convey wastewater and stormwater to area treatment plants in dry weather, but during rain events there is too much volume for the sewers to handle. The sewers overflow, releasing a mixture of stormwater and untreated wastewater into receiving waters. These discharges, called combined sewer overflows (CSOs), are a major water pollution concern for these cities. Even in cities with separate sewer pipes for wastewater and stormwater, the large volumes of stormwater and pollutants being discharged during wet weather events can have substantial adverse effects on lakes, rivers, streams, and wetlands.



Cleveland's Project Clean Lake

In late 2010, EPA, the U.S. Department of Justice, and the Northeast Ohio Regional Sewer District (NEORS) agreed on a plan to address the flow of untreated sewage into Cleveland area waterways and Lake Erie by capturing and treating more than 98 percent of wet weather flows entering the combined sewer system servicing Cleveland and 59 adjoining communities.

Project Clean Lake is a \$3 billion, 25-year plan. As part of this plan, the sewer district will invest at least \$42 million in green infrastructure projects. Under Project Clean Lake, NEORS will reuse brownfields and vacant properties for green infrastructure, which is expected to assist in the revitalization of targeted urban neighborhoods. The sewer district will work with the Cleveland and Cuyahoga County land banks to transform the area's numerous vacant or abandoned properties to runoff-control landscape uses. The sewer district will collaborate with governments and local community groups to select the locations and types of green infrastructure projects.

Preparing Urban Soils for Green Redevelopment

The Bellaire Puritas Development Corporation undertook a project in 2010 to implement green infrastructure at a vacant parcel located at West 131st Street in Cleveland. Water levels in the adjacent Chevy Branch stream increase dramatically during and after rain events due to runoff from impervious surfaces in the area.

Green infrastructure was seen as a beneficial reuse at this location because retaining and infiltrating stormwater helps to reduce the volume of water in the stream and the associated adverse water quality impacts. The home and driveway previously on this site had been demolished. Testing of soil conditions

by EPA's Office of Research and Development found soils compacted and poorly suited for infiltrating stormwater or growing plants. Low levels of lead also were found in the soils.

Restoration activities included physically loosening the soil, removing debris, grading to create a swale, excavation to create a rain garden, and amending the soil with a mix of compost, sand, and topsoil. The rain garden and swale will retain runoff from the drainage area and reduce localized flooding in the area. The soil amendments will allow planting of the rain garden and swale with native plants and broadcast seeding of the remaining portions of the site using native grasses and flowering plants.

The restoration work was done by a private contractor and cost approximately \$13,500. Signage was installed with information on the Chevy Branch, native plants, and green infrastructure. This formerly vacant parcel will soon be a productive and educational green space that helps to protect the surrounding residential area from flooding.

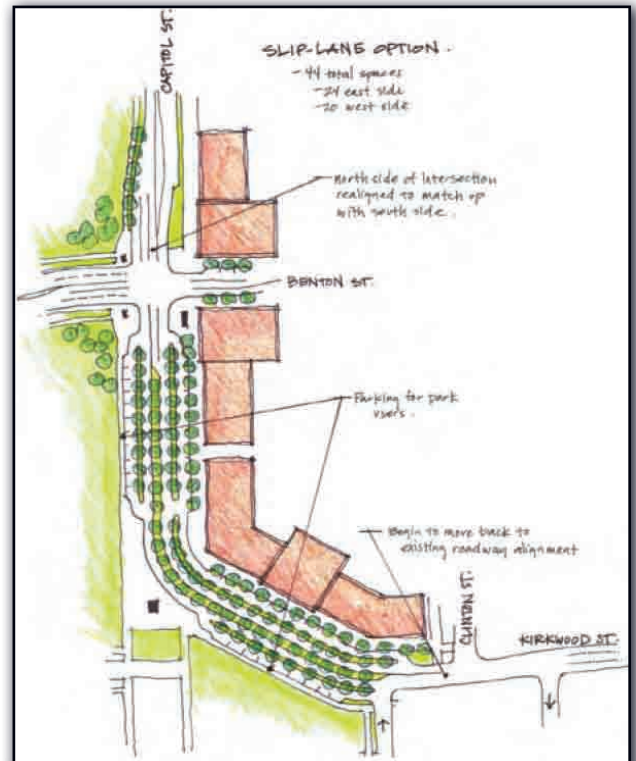
Partners in this project are community members, Neighborhood Progress Inc., ParkWorks, Inc., Cuyahoga County Soil and Water Conservation District, Ohio State University, the Northeast Ohio Regional Sewer District, and EPA. Funding for this project was provided by NEORSD and NPI.

Partnership Promotes Sustainable Redevelopment for Riverfront Crossings District, Iowa City, Iowa

EPA Region 7's Land Revitalization Team is assisting Iowa City in designing a conceptual redevelopment plan for a 10-square block portion of its Riverfront Crossings District. The district includes several brownfield properties and a wastewater treatment plant that will be decommissioned over the next several years. As part of this effort, contractors working with Region 7 and EPA headquarters staff are helping the city develop a plan for inventorying, assessing, and remediating brownfields in the target area. The plan is expected to become final in mid-2011.

While a portion of the River Crossings District lies in the 100-year floodplain, the area outside of the floodplain is being considered for a combination of retail and affordable housing opportunities linked to a proposed Amtrak station and a possible light rail line. The conceptual redevelopment plan also envisions a new urban park on the site where the wastewater treatment plant now stands. The redevelopment plan will transform the area into a high-density, mixed-use, pedestrian friendly, transit-oriented neighborhood. Cleaning up the property, reusing the land, and providing new housing choices will create jobs and new economic opportunities in Iowa City.

The project in Iowa City is one of five pilots under the interagency Partnership for Sustainable Communities, an agreement between EPA and the Departments of Housing and Urban Development and Transportation to help communities identify opportunities to link housing, transit, and brownfields revitalization. The pilot grew out of EPA's partnership with the Federal Emergency Management Agency (FEMA) to address long-term recovery after major floods hit the area in 2008. As a result, EPA, HUD, DOT, and FEMA are working together to coordinate resources and provide expert assistance to help Iowa City build a sustainable future.



Conceptual Redevelopment Plan for part of the Riverfront Crossings District

Assisting the Spirit Lake Tribe Plan for Sustainable Recovery After Flooding, North Dakota

Sustainable redevelopment and green building practices are core goals of EPA's Land Revitalization Program. In support of this goal, EPA staff in Region 8 and at headquarters worked with the Spirit Lake Tribe in North Dakota during the Fall of 2010 to help the tribe develop a plan to guide the tribal community's long-term recovery following several years of flooding in Devil's Lake. The flooding was due to a prolonged period of wet weather. EPA is one of 16 federal agencies involved in the FEMA's Emergency Support Function (ESF) #14 (Long-Term Community Recovery) under the National Response Framework. This was the first time that FEMA, EPA, and other federal partners provided comprehensive post-disaster ESF #14 recovery assistance to a tribe.



Created in response to Hurricanes Katrina and Rita, ESF #14 is a community-based process that facilitates multiple stakeholder involvement in post-disaster recovery decisions and enables communities to prepare for long-term recovery needs. The result of the long-term community recovery process often is a plan, strategy, or framework that allows the community to articulate a vision and rally around goals, objectives, and initiatives that move the community toward a shared vision for recovery.

Under ESF #14, EPA headquarters and regional offices are providing technical assistance, supporting community visioning charrettes, and helping communities plan and implement policies, strategies, and practices for sustainable recovery after natural disasters.

EPA's Office of Sustainable Communities is providing training and capacity-building assistance to the tribe on planning for sustainable living. The Partnership for Sustainable Communities, an interagency effort amongst EPA, the Department of Transportation and the Department of Housing and Urban Development, is developing a strategy to assist the tribe with recovery once implementation work begins.

The Spirit Lake Nation Recovery Plan is a tribe-based initiative that was set in motion and directed by Spirit Lake Tribe's leadership and supported by a long-term community recovery team led by FEMA. The team helped the tribe analyze the various impacts of the flooding on the community and provided planning expertise to address specific long-term disaster impacts. Staff from Region 8 and the Office of Sustainable Communities provided expertise on incorporating sustainability as a core concept of the plan. Region 8 staff also prepared a comprehensive matrix showing where EPA programs could provide assistance to the tribe to address various issues identified by FEMA and the tribe.

The goal of EPA's activities in support of ESF #14 is to assist the Spirit Lake Tribe in adopting smart growth, green infrastructure, and green building practices as well as developing land-use policies to rebuild and plan for growth that is good for the environment, community, and the economy. EPA and FEMA also are collaborating more formally on disaster recovery and hazard mitigation issues, including possible effects related to climate change.

Community Engagement in Reuse Planning for the Lakes Region Facility, Laconia, New Hampshire

The 300-acre, state-owned Lakes Region Facility property in Laconia, New Hampshire, was built in the early 1900s as a “Home for the Feeble Minded” and was later converted into a minimum security prison. After the closing of the prison in 2009, the New Hampshire State Legislature established a commission (the “Commission”) to make recommendations regarding the disposition and redevelopment of the property.

EPA’s Office of Brownfields and Land Revitalization provided funding and technical support for community engagement and site reuse planning activities for the property. This process, which is still ongoing, integrates risk management principles modeled on an approach described in EPA Region 1’s *Process for Risk Evaluation, Property Analysis and Reuse Decisions (PREPARED) Workbook*. The *PREPARED Workbook* is designed to help local governments make informed decisions regarding their involvement in the cleanup and reuse of contaminated properties.

Community engagement and reuse planning activities commenced in March 2010. The project initially focused on conducting various studies and other site research that included an opportunities-and-constraints analysis, market assessment, Phase I environmental site assessment, and stakeholder interviews. This information was necessary to identify potential reuse opportunities, redevelopment barriers, and project risks. The preliminary findings were presented for public comment at an open meeting in August, 2010. A draft summary report was prepared and discussed at a second public meeting in October, 2010. Importantly, the report identified a number of additional studies that may be needed to resolve significant information gaps relevant to the reuse of the property. These include a Phase 2 environmental site assessment, building condition assessment, and infrastructure capacity analysis.



Lakes Region Facility Property

The Commission is evaluating the final report findings to determine appropriate next steps, which may include performing all or some of the studies noted above. This is consistent with the iterative nature of the project risk assessment and management approach outlined in the *PREPARED Workbook*. The Commission intends to continue using the PREPARED approach to refine its final recommendations to the State Legislature.

Community Engagement in Reuse Planning for Former Firing Range, Holyoke, Massachusetts

Located in a residential area and abutting watershed conservation lands, the 19-acre Holyoke Mountain Road Firing Range is a brownfield site that contains both endangered species and sensitive wetlands. The firing range was used by the Massachusetts National Guard for small arms practice for more than 50 years. These activities left behind concentrated areas, or “hot spots,” of contaminated soil. Environmental site assessment activities funded through an EPA Brownfields assessment grant clarified environmental concerns at the site. Contamination from lead, arsenic, and antimony was delineated, primarily in the eastern portion of the site on elevated ground surrounding three former target pits, in the surficial soils, or within the top 10 inches of soil. The City of Holyoke recently won an EPA Brownfields cleanup grant, which will be used to conduct removal of these hot spots of contaminated soils.

EPA Region 1, with support from EPA’s Office of Brownfields and Land Revitalization, provided technical assistance to Holyoke to support a community-based reuse planning process for the site. Region 1 staff and EPA contractors helped the city outline several reuse scenarios and undertake a community engagement process to actively involve stakeholders in planning for the site’s reuse. This included a public workshop process facilitated by an urban planner and architect that resulted in a report describing the limitations and possibilities for the site, as well as the strengths and weaknesses of the various reuse scenarios. The technical assistance provided and the resulting report will inform the city’s deliberations and decision-making for the restoration and reuse of this property.

The City of Holyoke is committed to smart growth and was recognized in 2006 by the Commonwealth of Massachusetts for its efforts and accomplishments in balancing economic and environmental considerations. Restoring the city’s brownfields to sustainable reuse is part of this commitment.



Reuse Assessment for the Lower Darby Creek Area Superfund Site, Delaware and Philadelphia Counties, Pennsylvania

Located in Delaware County and Philadelphia County, Pennsylvania, the Lower Darby Creek Area Superfund Site (LDCA site) contains two landfills listed as two separate operating units (OU) of a single Superfund site. These units were found to be significantly affecting the Lower Darby Creek watershed. The Clearview Landfill (OU1), bordered by Darby Creek and Cobbs Creek, lies adjacent to the Eastwick neighborhood and the Eastwick City Park. The City of Philadelphia owns the community park, but ownership of the operating landfill is still uncertain. The Folcroft Landfill (OU2) is located within the John Heinz National Wildlife Refuge at Tinicum and is owned by the U.S. Fish and Wildlife Service. The LDCA site currently is in the remedial investigation/feasibility study phase of the Superfund cleanup process.

With funding from the EPA Superfund Redevelopment Initiative, EPA Region 3 coordinated a reuse assessment for the LDCA site. A core group of stakeholders was convened to clarify reuse goals and identify reasonably anticipated future uses of the site. The reuse assessment consisted of a site and community tour, stakeholder interviews, a land use analysis, development of a draft reuse assessment, and a community working session to review the draft assessment prior to development of a final summary document.

The LDCA Reuse Assessment confirms the following reuse goals for the site:

- Ensure safe and appropriate access to the remediated site.
- Promote watershed health and restoration.
- Increase open space and recreational access.
- Improve drainage and stormwater management.
- Promote local economic development.
- Ensure compatibility with surrounding neighborhoods.
- Provide opportunities for environmental education.
- Transform the site into both a local amenity and a regional asset.



Community meeting



A creek photo

Community members look forward to a mix of potential future site uses:

- Recreation and habitat, including trails and greenways, wildlife viewing, boating access to creeks, habitat restoration, and environmental and cultural heritage education; and
- Commercial/industrial development, including jobs for local residents and an increased tax base in targeted areas.

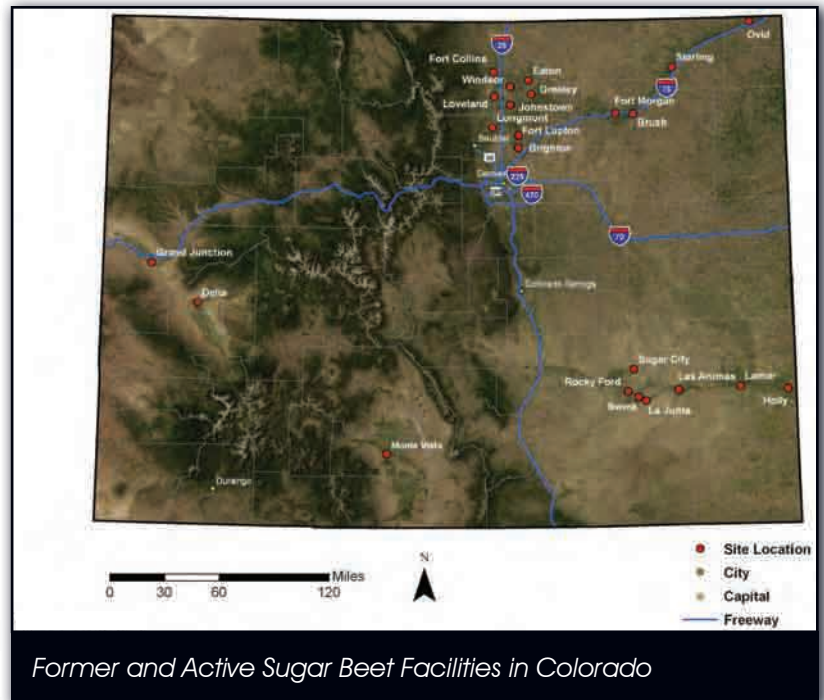
Participants began the process by identifying core stakeholder contacts and securing support from these stakeholders to form an LDCA advisory group. The reuse framework process will build on the outreach conducted to-date by convening the newly formed LDCA Advisory Group and gathering input from the broader community. An advisory group of adjacent jurisdictions, interested organizations, and community representatives will provide diverse input and a forum for updates, discussion, and coordination at key milestones regarding the potential reuse and the remedial process at the LDCA site.

Revitalization of Former Sugar Beet Factories, Colorado

One of the early drivers of agro-industrial growth in the West was sugar beet planting and processing. The first sugar beet factory in Colorado was built in 1899. By the mid-1930s, Colorado had the largest number of beet sugar factories in the United States. Today, only one of the state's 22 sugar beet factories, the one in Fort Morgan, remains open. The rest are closed or have ceased operations. The sites are located in rural to semi-rural areas and tend to be large. The decline of the sugar beet processing industry left a legacy of environmental and redevelopment challenges at these sites in high plains communities.

In 2009, EPA's Land Revitalization Program provided funding to the Colorado Brownfields Foundation to implement a project addressing the legacy of sugar beet processing in Colorado. This included conducting stakeholder outreach to

research redevelopment opportunities and potential options to address health, aesthetic, and environmental challenges. The project includes developing an inventory of sugar beet processing facilities in Colorado and collecting data associated with these facilities and their communities. Although contamination issues include asbestos and various waste streams, the primary emphasis of the project is on lime waste that is stored in large piles, often several stories high and covering tens of acres.



Stakeholder meetings were held with four communities—Greeley, Longmont, Eaton, and Fort Morgan. The meetings sought to identify common redevelopment goals and obstacles among stakeholder communities, technical issues associated with redevelopment, and a final meeting to identify needs for further study.

To assist the Foundation, EPA tasked a Technical Assistance Team to collect information and inventory active and former sugar beet processing facilities in the state. The team conducted topic-specific research on three towns with sugar beet processing facilities—Fort Morgan, Ovid, and Sterling. The team also collected information to support the development of a business model that evaluated parameters relevant to redevelopment of abandoned sugar beet factories, including location, population, utility and transportation access, water reuse options,

and economic setting. The focus of the model is on reuse opportunities that may have advantages to prospective new business employers, as well as alternatives for the reuse of existing lime waste.

The stakeholder meetings and team activities identified significant opportunities for the redevelopment of sugar beet factory properties. To promote cleanup and removal of lime waste, the project assembled a list of reuse opportunities in cooperation with private industry stakeholders interested in recycling lime waste. The site inventory identified factory locations with redevelopment advantages, such as proximity to riparian corridors and downtown locations, existing transportation, and utility infrastructure. The proximity to downtowns and the significant size of these industrial sites may allow redevelopment opportunities that promote walkable communities and provide workforce housing for industrial concerns that may locate on nearby redeveloped sites.

In partnership with state and federal partners, the Colorado Brownfields Foundation project formulated a strategy to inform the market of reuse possibilities and sugar beet factory sites for redevelopment. The Colorado Department of Local Affairs is partnering with a coalition of communities impacted by sugar beet factory closure or operations to secure additional funding to continue the effort that was initiated by the Foundation and EPA's Land Revitalization Program, built upon lessons learned in this initial effort and test strategies suggested by the effort.

Proposed Viet Village Urban Farm in New Orleans, Louisiana, New Orleans, Louisiana

EPA Region 6 is working with the Mary Queen of Vietnam Community Development Corporation (MQVN CDC) to transform a 20-acre brownfield into an urban farm. The proposed Viet Village Urban Farm will include community gardens, commercial agriculture, a livestock area, and a produce market, as well as community facilities everyone can use. The project will use organic and sustainable farming practices to minimize water and energy use.

Region 6 is helping the MQVN CDC plan for the cleanup of site contamination and obtain a wetlands permit from the U.S. Army Corps of Engineers for 18 acres of the site. The City of New Orleans conducted Phase I and Phase II environmental site assessments at the property. Site cleanup will be conducted under Louisiana's Voluntary Cleanup Program. MQVN CDC is working with a local bank to acquire funding to cover wetland mitigation costs. Assessment and cleanup of site soils are essential to ensure that any produce grown there is safe to eat.



MQVN CDC developed a business plan to ensure the sustainability of the project, which includes selling produce to schools and a local restaurant. Their plan is to start small and expand after meeting wetlands permit requirements and addressing environmental contamination. When completed, the Viet Village Urban Farm will be a model for other communities interested in developing urban gardens and farms on brownfields or other contaminated sites.

In the event that MQVN CDC is unable to address both the wetlands permit *and* cleanup of brownfield property with limited funds, alternative brownfields will be considered for a future urban farm in New Orleans East. Region 6 will work with MQVN CDC to provide resources for assessment and cleanup (if necessary) through the City of New Orleans Brownfields Program and Louisiana's Brownfields Revolving Loan Fund for alternative brownfields.

Groundbreaking for Urban Farm, Montgomery, Alabama

In November 2010, ground was broken on the construction of an urban farm on a 2.7-acre former rail yard in downtown Montgomery, along the Alabama Riverfront. The urban farm will be a community gathering place that features an old train caboose that will be restored and used as an office, plots for local commercial growing, community planting beds, a wildflower area, and “pick your own” orchards. A windmill will provide irrigation water for the farm and a children’s garden will show the different stages of the growing process.

Under EPA’s Petroleum Brownfields Action Plan and with funding from EPA’s Land Revitalization Program, the Agency supports targeted projects to redevelop petroleum brownfields in defined corridors and highways and provides technical assistance to help with site identification, assessment, cleanup, redevelopment planning, community outreach, and other needs identified by communities. Since 2009, EPA and Alabama’s Department of Environmental Management have engaged local communities in planning for revitalization of former gas stations and petroleum-contaminated brownfields along the historic Selma to Montgomery National Voting Rights Trail. The urban farm is part of this larger corridor project and is one of Region 4’s efforts to help communities inventory and redevelop former gas stations, underground storage tanks, and other brownfields in historic corridors and highways. In many communities, these properties represent untapped resources for economic and community revitalization.

The Hampstead Institute, a nonprofit organization located in the Hampstead community on Montgomery’s east side, is organizing and developing the project. It intends the farm to be a vibrant gathering place that fosters education and workshops, sustainability, and economic development for Montgomery. Goals for the urban farm project include providing educational opportunities for children and the public, encouraging healthier living, and serving as a tourist attraction. The Institute currently operates Hampstead Farms in East Montgomery.

Urban Farm Planned for New Fernwood Green District, Toledo, Ohio

The City of Toledo and its partners are using urban agriculture as one of the major redevelopment strategies for a newly designated future green district containing multiple brownfield properties. The city plans to reuse a two-acre, former spark plug manufacturing site as the location of the Fernwood Growing Center. The site is within a Brownfields Impact Area along the Detroit-Smead Corridor, which contains 19 brownfields and nearly 200 vacant lots. This corridor runs through one of Toledo's housing priority districts, where there is a high rate of poverty. Residents report that the closest source of fresh produce is over two miles away.

With the help of EPA funding and technical assistance from EPA Region 5, the green district pilot project will be completed in two phases. Phase one focused on the development of a business planning tool that can be used as a framework by all communities interested in urban agriculture projects. This tool will help assess the infrastructure, tasks, relationships, and costs required to create a sustainable urban agriculture project. Phase two will evaluate opportunities for urban agriculture and other sustainable development projects that will form the foundation of a "green district." Reuse of the sites within the Detroit-Smead Corridor will spur an overall revitalization of the area, improve environmental quality, provide career opportunities for local residents, improve access to nutritious food, and provide the neighborhood with a new optimism.



Potential layout of the Fernwood Growing Center

Former GM Plant Transformed into New Tech Town Aerospace Hub, Dayton, Ohio

EPA Region 5 is working with the City of Dayton and the State of Ohio to address environmental challenges and regulatory barriers to the cleanup and reuse of the former General Motors (GM) Harrison Plant. The property is located just east of downtown Dayton. With EPA's assistance, and funding and assistance from the State of Ohio, the City of Dayton is well on its way to realizing its vision for the site—turning the 30-acre former auto radiator plant into Tech Town, an urban technology campus.

Tech Town is the centerpiece of Dayton's new Aerospace Hub of Innovation & Opportunity—a state designation that targets aerospace and advanced materials technologies companies within the hub for state regulatory, funding, and technical assistance. The Tech Town business park is expected to comprise more than a dozen buildings with up to 400,000 square feet of office and manufacturing space and to support 2,500 jobs.

The cleanup and redevelopment of this property presents environmental challenges, in part because of complicated regulatory issues related to the cleanup of contamination at the site. Old GM, the primary party responsible for contamination at the property, ceased all remedial activity at the property when it filed for bankruptcy. GM was conducting corrective action and closure activities under the federal Resource Conservation and Recovery Act (RCRA) at the time of its bankruptcy.



To ensure the availability of state funding for the property and facilitate state oversight of the cleanup of the property, Region 5 deferred its regulatory oversight of the Tech Town property to Ohio's Voluntary Action Program. One important result of this action is that the City of Dayton now is eligible to receive and use Clean Ohio Fund monies to address contamination at the property. This action also facilitated the growing partnership between the state regulatory program and the City of Dayton as they work in tandem to revitalize this important property.

In addition to the regulatory flexibility provided to the City of Dayton, EPA's Office of Brownfields and Land Revitalization provided Dayton with \$200,000 of Targeted Brownfields Assessment (TBA) assistance to conduct environmental assessment activities at the property. The City of Dayton used this assistance to conduct site characterization and assessment activities, as well as remedial planning activities at the property.

Dayton's Tech Town redevelopment got a significant boost in December 2010, when the federal government and the State of Ohio reached a settlement agreement with the former General Motors Corporation, now named the Motors Liquidation Corporation (MLC). Under the terms of the settlement agreement, MLC will provide more than \$5.3 million for cleanup efforts at the Tech Town site, which includes the land once occupied by the GM Harrison Radiator plant. These cleanup dollars will go to the State of Ohio to assist the City of Dayton in conducting cleanup activities at the site.

This money is in addition to \$39 million in cleanup funds that MLC and the federal government announced for Ohio in October 2010 under the bankruptcy reorganization and settlement agreements with MLC. The settlement agreements are part of a liquidation plan filed by MLC. That plan and the settlement agreements must be approved by the U.S. Bankruptcy Court for the Southern District of New York. Court approval of the liquidation plan is expected in the first half of 2011.

Texas Community Develops Vision for Revitalization of Abandoned Auto Dealerships, Leon Valley, Texas

Once a sign of a thriving economy, local automobile dealerships in many communities closed following the General Motors and Chrysler bankruptcies. As a result, many highly visible and centrally located properties are left vacant. Many of these properties may pose environmental, as well as economic, challenges for the communities where they are located.

With funding from EPA's Office of Brownfields and Land Revitalization, EPA Region 6 is implementing a pilot program to help the City of Leon Valley, Texas, plan for the sustainable redevelopment of several abandoned automobile dealerships. Most of the former dealerships have underground storage tanks on-site and may be contaminated. Likely contaminants include solvents, heavy metals, petroleum, or asbestos-containing materials. These properties will require assessment and may need remediation before they can be reused for other purposes.



Abandoned auto dealership in Leon Valley, TX

Working together with the local governments, regional councils of governments, and the Texas Commission on Environmental Quality, Region 6 is helping the residents of Leon Valley identify and develop sustainable redevelopment models for these abandoned auto dealership properties. EPA is providing logistics support, outreach materials, and moderators for a series of community planning charrettes. A community planning charrette is a collaborative design workshop that actively involves stakeholders groups—including residents, government officials, developers, and businesses—in developing a vision for future use of a property or area. Region 6 is continuing its search for two additional motivated and engaged Texas communities interested in sustainable redevelopment of abandoned auto dealerships within their communities.

This pilot program enables the community to be an active partner and work with economic developers, former dealership owners, real estate professionals, planners, environmental groups, and others to develop sustainable redevelopment models for each former dealership.

EPA also will help the community leverage resources to assist with assessment and cleanup of the abandoned auto dealership sites. Once the auto dealership properties are assessed and cleaned up, these communities can move forward with the implementation of a community revitalization vision and economic recovery.

Planning for Revitalization of Petroleum Brownfields Along the National Historic Voting Rights Trail, Selma to Montgomery, Alabama

Since 2009, EPA and Alabama's Department of Environmental Management (ADEM) have engaged local communities in planning for revitalization of numerous former gas stations and petroleum-contaminated brownfields along the Selma to Montgomery National Historic Voting Rights Trail in Alabama. The 54-mile trail commemorates events, people, and the route of the 1965 Voting Rights March. It begins in Selma and continues along U.S. Highway 80 to the State Capitol in Montgomery.

Many active and former gasoline stations along the trail have the potential to cause contamination from petroleum releases. The goal of the Historic Voting Rights Trail project is to assess, clean up, and implement community revitalization plans for these sites that are consistent with community needs and national historic site goals. EPA Region 4 provided 18 Targeted Brownfields Assessments for sites along the trail. In 2010, EPA awarded a Brownfields petroleum assessment grant to ADEM to continue assessment of former industrial and commercial sites along the trail. Developing green jobs also is an important part of the project.

Community engagement is at the heart of this effort. Combining community desires with leveraged federal and state resources, ADEM and EPA are facilitating community-based revitalization, environmental benefits, and economic development activities along the trail. Since spring 2010, EPA, ADEM, and other federal partners (including the U.S. Army Corps of Engineers, National Park Service, Department of Housing and Urban Development, Department of Agriculture, Federal Highway Administration, the U.S. Geological Survey, and Maxwell Air Force Base) have been meeting with local communities to offer technical assistance and share information. With funding from EPA's Land Revitalization program, Region 4 and ADEM conducted outreach meetings to gather input from community groups on their visions for redevelopment and revitalization in Hayneville, West Montgomery, Selma, and Selmont.

In fall 2010, EPA sponsored a sustainability conference in Selma that brought together representatives from ten federal agencies and stakeholders from many of the communities along the trail. These sessions were a positive experience that allowed citizens to work together with local, state, and federal agencies to identify recycling programs, reuse options, and plans for the affected communities. Stakeholders are continuing to work together on other development projects in many communities, including improvements to water resources, transportation, and education.



Rendering of a daylighted stream along the Civil Rights Trail in Montgomery created for the EPA/U.S. Army Corps of Engineers community visioning process

One important project involves "daylighting," or returning to a more open, natural state, a stream along the Civil Rights Trail near the intersection of I-65 and the Fairview Avenue exit, one of the important gateways to the Civil Rights Trail in Montgomery (see rendering). ADEM recently was awarded Clean

Water Act funds from EPA for the daylighting project. ADEM will work with the City of Montgomery to help realize the community's vision for the area. This involves making the area along the stream attractive and accessible to residents and tourists. The City of Montgomery purchased the properties involved, including brownfields and petroleum brownfields. The project will involve a host of other federal, state and local partners.

Area-wide Planning for Revitalization of Abandoned Gas Station and Nearby Brownfields, Ogden, Iowa

EPA, in partnership with the Iowa Department of Natural Resources (IDNR), is providing redevelopment planning support to the City of Ogden for revitalization of its downtown, including three centrally located properties and the abandoned gas station that sits at the gateway to downtown.

With funding from the Office of Brownfields and Land Revitalization, EPA's assistance supports the preparation of a market analysis and needs study, development of a project web portal, and conducting a design charrette to engage the community in planning for reuse of the sites. EPA also provided training on the brownfields assessment and cleanup process and on how to promote expanded partnerships with other state and federal agencies.

The project began a few years ago with EPA Region 7's Historic Highways Initiative, which includes the identification of abandoned gas stations. The initiative focuses on identifying barriers to redevelopment of abandoned gas stations along the former Route 66 in Missouri and Kansas, and along the former Lincoln Highway in Iowa and Nebraska. Region 7 currently is working with a number of communities, including Ogden, under its Historic Highways Initiative.

In Ogden, the city purchased vacant properties from current owners. This gave the city greater control over planning for downtown redevelopment. Ownership also enabled the city to receive additional support from IDNR for assessment and cleanup work on each of the brownfield properties. Once the properties were assessed and cleaned, the city demolished the three vacant buildings and graded the sites for redevelopment.

Using support from EPA's Land Revitalization Program, the city sought community input on property reuse and an overall vision for the revitalization of downtown Ogden. As a result, city leaders will move forward to ensure downtown Ogden meets the needs of the community and becomes a destination for those in the area.

EPA delivered its recommendations to the city in December 2010. EPA's report to the city includes redevelopment concepts based on market data, community needs, and site conditions. City officials will be able to use these products to move forward with marketing new business opportunities and promoting the revitalization of downtown Ogden.



Artist's rendering of new "gateway" to downtown Ogden

Tamiami Trail Petroleum Brownfields and Land Revitalization Initiative, Manatee and Sarasota Counties, Florida

The Tamiami Trail (U.S. Highway 41) Petroleum Brownfields Revitalization Initiative is intended to advance local economic development projects and greenspace projects and support historic preservation efforts along the 70 miles of this scenic highway. The corridor includes the Cities of Bradenton, North Port, Palmetto, Sarasota, and Venice. EPA Region 4 and the Florida Department of Environmental Protection are working with other federal, state and local partners to provide technical assistance to communities in Florida's Manatee and Sarasota Counties, with the goal of revitalizing abandoned or underused properties, primarily former gas stations that may be contaminated with petroleum and related contaminants.

Under EPA's Petroleum Brownfields Action Plan and with funding from the Land Revitalization Program, the Agency supports targeted projects to redevelop petroleum brownfields in defined corridors, and provides technical assistance to help with site identification, assessment, cleanup, redevelopment planning, community outreach, and other needs identified by communities.

The Tamiami Trail initiative began with a kick-off meeting in March 2009, a workshop in June 2009, and subsequent outreach meetings to convey the initiative's objectives. The Sarasota/Manatee Metropolitan Planning Organization (MPO) is the leadership vehicle for community engagement, working with representatives from local municipalities, the Florida Department of Transportation, nonprofit organizations, education institutions, chambers of commerce, and a host of other interested stakeholders.

EPA funded the development of an integrated, user-friendly inventory tool and provided it to the MPO and local governments to assist with this effort. Inventories of existing and former gas station sites and other brownfields will assist in prioritizing properties that may need environmental site assessment. Property inventories will create a portfolio for identifying land revitalization opportunities. EPA also is providing contractor assistance in the form of Targeted Brownfields Assessments. Eight Phase I and two Phase II environmental site assessments that include environmental sampling have been conducted to characterize the extent of contamination, if any, and to identify cleanup needs.

Among the priorities of the local efforts are preserving the quality, character, and integrity of historic structures on contaminated sites and helping local governments develop design standards that are compatible with the vision and corridor management plan. Existing strategic and community plans provide a road map for short-term and long-term activities along the corridor.

The initiative's plans include expanding the partnership to include other state and federal agencies, nonprofit groups, business, environmental consultants, underground storage tank owners and operators, cleanup contractors, site managers, and additional communities along the corridor. Additional leveraging of resources also is planned.



Abandoned gas station along the Tamiami Trail

Innovative Technology Powers “Greener Remediation” at State Road 114 Superfund Site, Levelland, Texas

The promotion of greener remediation, including the use of renewable energy to power cleanups at Superfund sites and other cleanup sites, is a prominent goal of EPA’s Land Revitalization and Superfund Programs. EPA Region 6 is testing a new and innovative technology to power greener remediation at the State Road 114 Superfund site in Levelland, Texas, where cryogenic technology was installed to treat contaminated groundwater.

The State Road 114 Superfund Site consists of 1 ½ by 1 mile contaminant plumes that extend from the 64-acre former Motor Fuels Corporation Refinery to the Levelland municipal park. The benzene and 1, 2-dichloroethane (DCA) plumes penetrated the Ogallala aquifer—the only source of high-quality drinking water in the area—and contaminated 28 private residential wells. In addition to drinking water, the aquifer supplies water to municipalities and is tapped for irrigation across West Texas. At 19,000 and 380 parts per billion (ppb), respectively, benzene and DCA levels far exceed the 5 ppb drinking water maximum contaminant level set by EPA.

A partnership between Region 6 and the Texas Commission on Environmental Quality led to the completion of remedial design and remedial action construction in 2009 that included the installation of an innovative cryogenic technology to treat contaminated groundwater. The technology uses cryogenic compression and condensation equipment to recover contaminant vapor as a liquid for potential recycling or resale through soil vapor extraction (SVE) and air stripping systems. A fuel tanker then transports the recovered hydrocarbon to a fuel facility where it is mixed with oil blend stock to produce a low-grade fuel and is ultimately traded as a commodity on the open market.

The innovative technology recovered more than 99 percent of the volatile organic compounds in the vapor stream. The treatment system recovered over 110,000 gallons of refined condensate from beneath the refinery that was contributing to the groundwater contamination. The groundwater treatment system also recovered and treated over 27 million gallons of water that was injected back into the Ogallala aquifer. Over time, the SVE system is expected to recover 285,000-570,000 gallons of hydrocarbon material.

Recoverable vapors at the site are being produced from the 124 SVE wells and the groundwater air stripper treatment unit. Integration of the cryogenic process is anticipated to decrease the time needed to reduce the source zone by five years. Region 6 estimates an annual electricity cost of \$129,600 for operation and maintenance of the cryogenic process, based on an annual demand of 185,000 kWh each year.

This innovative green technology eliminates air emissions, allows for accelerated recovery and cleanup, and reduces the carbon footprint for entire site cleanup. The site is currently in the first year of the 10-year, long-term remedial action that started in September 2010.



State Road 114 Superfund Site

Biofuel Feasibility Study at an Eco-Industrial Park, Fairless Hills, PA

The 2,600-acre Keystone Industrial Port Complex (KIPC), formerly known as U.S. Steel Fairless Works, operated as an integrated steel mill from 1952 to 2001. While still undergoing remedial measures, the site was transformed into an eco-industrial park. The community's goal for the KIPC site is to put the land back into productive industrial use and attract "green" technology jobs from around the world. More than 20 companies located in this industrial park, including several companies from the renewable energy and recycling sectors. A recent addition is a biofuel manufacturer that plans to construct a pilot facility to produce an algae-based biomass for use in biodiesel and other commercial products.

With an algae-based biofuel manufacturer coming to the complex, EPA Region 3 and KIPC conducted a feasibility study to assess the potential environmental benefits and economic feasibility of using the biofuel as a replacement fuel for diesel vehicles that regularly enter the site. KIPC, along with two adjacent landfills and a waste-to-energy plant operated by Waste Management Corporation (WM), attracts heavy diesel vehicle traffic, creating significant potential demand for the biodiesel produced at KIPC. Region 3 aims to provide a qualitative estimate of the potential environmental impacts, and the costs associated with replacing biodiesel in vehicles currently using diesel fuel at the site. The methodology is expected to be useful in analyzing the use of biofuels at similar sites with a heavy volume of diesel truck traffic.



Entry to KIPC eco-industrial park



Aerial view of KIPC

The study identifies B2 (i.e., 2 percent biodiesel blend) as the baseline fuel because it is the minimum biodiesel content required in Pennsylvania (B2 represents a blend of 98 percent ultra low sulfur diesel and 2 percent biodiesel). The target fuel is B20 blend, the maximum percent blend that can be used universally in diesel engines without retrofitting fuel systems and other engine components.

The study identifies B2 (i.e., 2 percent biodiesel blend) as the baseline fuel because it is the minimum biodiesel content required in Pennsylvania (B2 represents a blend of 98 percent ultra low sulfur diesel and 2 percent biodiesel). The target fuel is B20 blend, the maximum percent blend that can be used universally in diesel engines without retrofitting fuel systems and other engine components.

Summary of Analysis and Results:

- Approximately 4,400 vehicles servicing three sites were included in the analysis. An estimated 39,194,000 gallons of fuel are replaced with biofuel in these vehicles.
- Evaluated switching from B2 (baseline fuel) to B20.
- Biofuel decreases fuel efficiency by 1.5 percent (i.e., more biofuel is required to power a vehicle the same distance as when using diesel fuel).

- The greatest environmental benefits are reductions in discharges of air pollutants: VOC, CO, PM (2.5), CH₄ (see Figure).
- Biofuel increases NOx emissions by 2 percent.
- There is no significant increase in CO₂ emissions at the combustion stage, but due to decreased fuel efficiency with the used of soybean-based biodiesel fuels, emissions increase 1.35 percent.
- All GHG emissions (CO, CO₂, CH₄) as mTCO₂e result in a 1.24 percent increase in emissions.

Pollutant	From B2 to B20	
	Emissions (mT)	% Change
VOCs	-36	-18%
CO	-49	-8%
PM _{2.5}	-4	-7%
NO _x	+72	+2%
CH ₄	-2	-18%
CO ₂	+5,811	+1%

Estimated Change in Annual Emissions from Vehicles Switching from B2 to B20

United States
Environmental Protection
Agency

Office of Solid Waste and
Emergency Response
(5105T)

EPA 560-K-11-001
April 2011
www.epa.gov/brownfields/