

Diamonds in the Rough

RECLAIMING BROWNFIELDS FOR
MICHIGAN'S COMMUNITIES



Revitalizing Michigan's Communities

As Michigan transitions away from a manufacturing-oriented economy, many towns and cities are struggling to find new uses for former industrial and commercial properties. Allowing facilities to fall into disrepair can threaten public health, water quality and the economic vitality of communities. Reusing these brownfield sites provides an opportunity to improve neighborhoods and diversify local economies. However, redevelopment can be a complicated and expensive process.

Michigan Sea Grant supported a research team from Eastern Michigan University to evaluate the challenges and benefits of reusing coastal brownfield properties. This publication highlights their findings as well as the work of two interns with Michigan's Brownfield Redevelopment Grant and Loan Program who studied inland brownfields. The case studies on pages 4-9 provide examples of how Michigan's towns and cities are redeveloping their brownfields in ways that enhance downtown and waterfront areas, make neighborhoods safer and stimulate sustainable growth. An analysis of the barriers and incentives for redevelopment is provided on pages 10-11.

DEFINING BROWNFIELDS

The decline of the manufacturing industry has left many properties in Michigan with dilapidated buildings, debris and environmental contamination. Properties where redevelopment is hindered by the presence or potential presence of hazardous substances are considered brownfields. In Michigan, properties that are badly damaged or functionally obsolete, with or without environmental contamination, can receive state incentives for brownfield remediation and redevelopment.

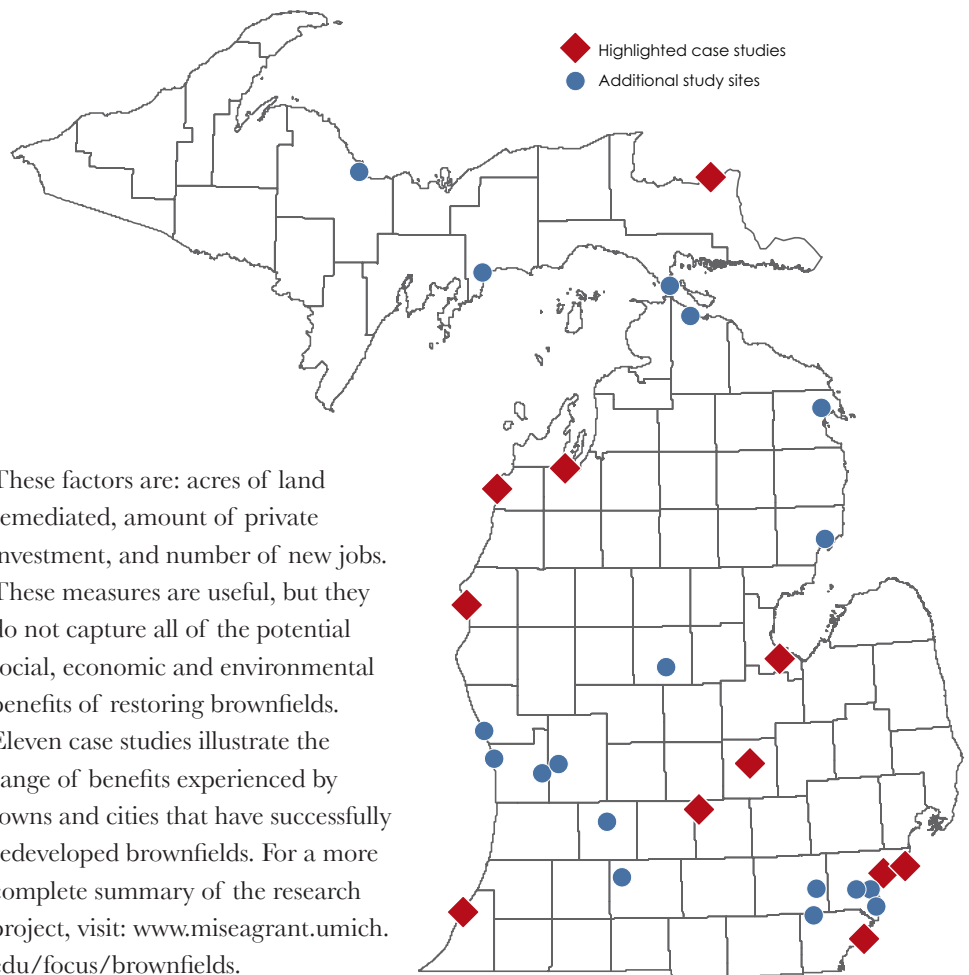
BROWNFIELD CASE STUDIES IN MICHIGAN

The research team examined 50 projects that received awards from Michigan's Brownfield Redevelopment Grant and Loan Program*. Researchers used project records, interviews, site visits and digital mapping (GIS) to explore the history of each project. They evaluated how brownfield redevelopment affected communities from three perspectives:

1. Environmental – including the benefits of clean-up and the impact of new development;
2. Economic – including the impact on taxes, property values and jobs; and
3. Social – including improvements for residents and neighborhoods.

The research team is using these case studies to develop new approaches to measuring benefits that result from brownfield redevelopment. Historically state legislation has specified that brownfield programs prioritize a few factors when evaluating a grant application or completed project.

These factors are: acres of land remediated, amount of private investment, and number of new jobs. These measures are useful, but they do not capture all of the potential social, economic and environmental benefits of restoring brownfields. Eleven case studies illustrate the range of benefits experienced by towns and cities that have successfully redeveloped brownfields. For a more complete summary of the research project, visit: www.miseagrant.umich.edu/focus/brownfields.



* This program was previously within the Michigan Department of Environmental Quality. As of January 17, 2010, the program became a part of the new Department of Natural Resources and Environment.



Evaluating the Benefits of Reusing Brownfields

RE-ENERGIZING LOCAL ECONOMIES

In Michigan, brownfield sites have been cleaned up and reused for office space, new industry, retail centers, public parks, residential developments and government buildings. Redevelopment provides many economic benefits because it:

- ◆ Catalyzes private and public investment
- ◆ Creates jobs in central locations, re-energizing urban areas
- ◆ Increases property values
- ◆ Restores tax revenue to the community
- ◆ Increases the supply of land available for development

See pages 4-5 for several example projects that provided economic benefits.

IMPROVING NEIGHBORHOODS

Municipalities and developers have a choice of either building on undeveloped land or reusing brownfield sites that are often located within town and city centers. Redeveloping brownfields promotes “smart growth” because it:

- ◆ Sparks the revitalization of existing neighborhoods
- ◆ Reduces pressure for outward growth, thereby preserving green space
- ◆ Reuses existing infrastructure for transportation and utilities
- ◆ Eliminates unsafe, blighted buildings
- ◆ Can meet current community needs through new development
- ◆ Can provide valuable public areas and recreational opportunities

See pages 6-7 for examples illustrating social benefits.

PROTECTING ENVIRONMENTAL HEALTH

Brownfield redevelopment improves the public health and environmental quality of Michigan’s communities, because it:

- ◆ Promotes reuse of already developed areas, thus protecting undeveloped land and habitats
- ◆ Removes or contains dangerous contaminants such as heavy metals, organic and inorganic chemicals and petroleum products
- ◆ Minimizes the potential for leaching of contaminants into the water supply
- ◆ Reduces health risks for workers, residents and neighbors
- ◆ Can provide new parks, trees and green spaces

See pages 8-9 for case studies demonstrating environmental benefits.

Re-Energizing Michigan's Local Economies



ATTRACTING BUSINESSES AND TOURISTS TO DOWNTOWN

Bay City – 3 acres, adjacent to Saginaw River and Wenonah Park

Award:*
\$1,477,750 in 2001
Leveraged Investment:
\$25 million
Jobs Created:
120-150, depending on bookings

Bay City's leaders enhanced and expanded ongoing waterfront revitalization efforts with state support. Adding to the mix of successful residential, retail and recreational development along the Saginaw River, the new Doubletree hotel and conference center was constructed on this former brownfield site. The project included an extension of a waterfront promenade that connected the Doubletree hotel and the downtown waterfront area through Wenonah Park and a network of public pathways. The hotel has enjoyed an average occupancy rate exceeding 80%, brought thousands of visitors to downtown and employed 120-150 people since opening in 2007. Profits from hotel and conference operations are currently being used to repay bonds that supported the construction of the facilities. Because the project is publicly owned, the city will receive direct financial benefit from the project either from continued operation or sale of the property after repayment of the bonds.



Before: Prime waterfront space, filled with sediments containing arsenic, lead and benzopyrene.



After: A popular Doubletree Hotel and Conference Center, including a restaurant and extended network of public pathways along Saginaw River.



Before: Parcel with a vacant building and contamination from semi-volatile compounds and heavy metals.



After: R&B Electronics produces specialty aerospace parts onsite and employs 48 people.

RETAINING BUSINESSES IN THE UPPER PENINSULA

Sault Ste. Marie – 4.77 acres within Sault Industrial Park

R&B Electronics established its headquarters in Sault St. Marie in 1985 and began producing electrical parts for the aviation industry. In 2006, the company approached Sault Ste. Marie about finding a facility that could accommodate their anticipated expansion. Unless an appropriate facility was identified, the company planned to close its doors and relocate to a sister facility in Texas. The City identified a suitable parcel in their Industrial Park, but the site was contaminated. The City was able to conduct soil and groundwater sampling and eventually removed the contaminated soil with funding from the MDNRE. Grants from the Michigan Economic Development Corporation helped renovate and retrofit the existing building. The incentives provided by state and local authorities were crucial for retaining R&B's business operations in Michigan, ultimately preserving 38 full-time jobs and creating an additional 10 jobs. The taxes and skilled jobs provided by the company are critical for maintaining a stable community in the Upper Peninsula.



Award:
\$155,000 in 2006
Leveraged Investment: \$1.4 million of private and public funds
Jobs Created or Retained: 48
Net Increase in S.E.V.: \$479,600

** All awards were provided by Michigan's Brownfield Redevelopment Grant and Loan Program, currently within the Department of Natural Resources and Environment (MDNRE).*

Economic Benefits of Redevelopment



Before: Former industrial corridor including some of the most polluted brownfields in Michigan.

LEVERAGING PUBLIC AND PRIVATE INVESTMENT TO REALIZE A NEW VISION

Benton Harbor and Saint Joseph – several properties, roughly 600 acres



Beginning in 1998, the cities of Benton Harbor and St. Joseph, Benton Charter Township and Berrien County created a long-term vision for their waterfront areas – including housing, recreation opportunities, offices and modern industrial facilities to help transform the local economy. The plan included the remediation and redevelopment of several brownfield properties bordering the St. Joseph and the Paw Paw Rivers, near Lake Michigan. During the first stage of the project, public and private investment led to the cleanup of 120 acres and the construction of offices and technical facilities for Edgewater Automation, Whirlpool Corporation, Transamerica as well as other companies. As a Renaissance Zone, tax incentives have helped ensure a high occupancy rate for new office space, supporting 400 full-time jobs within the complex.

Awards: More than \$15 million from 1999-2008

Leveraged Investment: More than \$115 million from private investors and state and federal agencies

Jobs Created: 400 to date, with more than 2,500 anticipated

The successful redevelopment of the Edgewater Area provided a catalyst for an adjacent brownfield project. With additional state support for remediation efforts, the non-profit Harbor Shores Community Redevelopment group is creating a new residential and recreation area aimed at making Benton Harbor a premier vacation destination. The group has built a world-class golf course designed by Jack Nicklaus and improved the adjacent public park and beach areas. The project is benefiting the community by providing adult literacy classes, financial counseling, an employment-training program, and youth after-school opportunities. Construction of a boutique hotel and spa, additional homes, and several deep-water marinas is expected to continue over the next 10 years. The remarkable collaboration between local governments, state agencies and private investors has transformed the landscape and is helping to realize a new vision for the Benton Harbor and St. Joseph areas.

After: With the Edgewater and Harbor Shores redevelopment areas, city leaders are creating a vibrant zone of commercial, residential and recreational activity, including an 18-hole golf course and an improved public beach.

Improving Michigan's Neighborhoods



IMPROVING PUBLIC ACCESS TO THE WATERFRONT

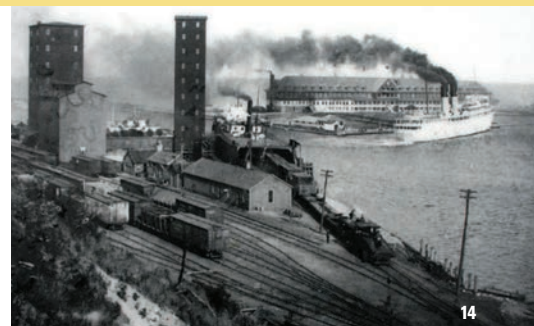
Elberta – 8.4 acres along Betsie Lake

Award:
\$1,433,748 in 1999
Leveraged Investment:
\$600,000
Jobs Created:
120-150, depending on bookings

The Village of Elberta has transformed this former brownfield into an attractive waterfront park that has become a center for village and tourist activity along Betsie Lake. Grants were used to remove 12 above-ground storage tanks and debris from a roundhouse and foundry. Community leaders preserved many historical elements when developing a new lakeshore park. A railroad roundtable was made into a plaza area and a 19th century lifesaving station was renovated as a community center. The park includes a playground, outdoor pavilion for open air concerts, public fishing dock, and a boardwalk along the lake, making the waterfront accessible and appealing. Future plans include a 140-slip marina and extended trail system.

"We have been surprised by the amount of gatherings that the Life Saving Station has been used for, from family reunions to lots of weddings, to graduation open houses, it is rented most weekends all summer."

- Sharon Bower, Elberta Village Clerk



Before: Originally a foundry, the property later became a terminus and transfer point for the Ann Arbor Railroad.



After: A lakeshore park that provides public access to the waterfront and preserves a sense of history.



Before: Abandoned property contaminated with asbestos, petroleum and heavy metals.

REVITALIZING URBAN NEIGHBORHOODS

Detroit – 12 acres close to the Detroit River

The St. Anne's Gate project helped revitalize a once-declining neighborhood in central Detroit. With funding from MDNRE and the State Housing Development Association, city leaders were able to clean up 8.46 acres of contaminated land. In addition, \$6.4 million in private investment was leveraged for a new 12-acre residential development. Formerly a blighted property in the neighborhood, this project increased the value of the surrounding homes and created 20 full-time jobs. A collaborative team of public and private organizations successfully promoted the environmental remediation, urban redevelopment, and neighborhood revitalization effort.



Award:
\$808,000 in 1998
Leveraged Investment:
\$6.4 million in private funds, and additional grants from MSHDA



After: St. Anne's Gate development created 164 homes, including 60 senior apartments near the Ambassador Bridge.

Social Benefits of Redevelopment



CREATING OPPORTUNITIES FOR GOOD, FAMILY FUN

Lansing – 9 acres close to the Grand River

Award:
\$922,813 in 1995
Leveraged Investment:
\$16.5 million
Jobs Created:
25 full-time and 283 seasonal jobs

Lansing-area leaders reclaimed a series of obsolete facilities and improved a formerly forgotten part of downtown by removing contaminated soil and storage tanks and redeveloping the land. After one year of clean-up and construction, the city opened the doors of the new Oldsmobile Park baseball stadium, with more than 6,000 seats surrounding the infield and 26 upper deck suites. The project helped to revitalize the entrance to downtown Lansing and catalyzed nearby projects, such as the new Stadium District development. The neighborhood now contains a range of restaurants, clubs, condominiums and commercial office space. Redevelopment of the stadium and the surrounding area has brought a steady flow of visitors to the neighborhood and contributes significantly to the city's revenue.



Before: A series of parcels with obsolete automotive and commercial services.



After: Property was redeveloped into Oldsmobile Park, home of the minor league baseball team the Lansing Lugnuts.



After: A vibrant multi-use development, the Village at Grand Traverse Commons includes condominiums, offices and specialty shops in the historic buildings.

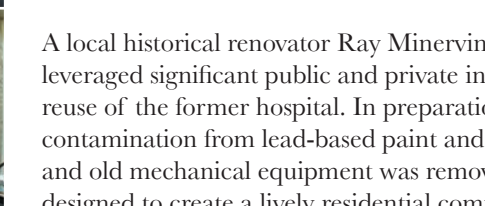
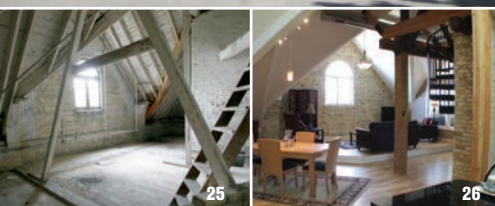
BUILDING A NEW COMMUNITY WHILE PRESERVING THE CHARM OF OLD BUILDINGS

Traverse City – 64 acres

A local historical renovator Ray Minervini created a vision and leveraged significant public and private investment for an innovative reuse of the former hospital. In preparation for the renovations, contamination from lead-based paint and asbestos was cleaned up and old mechanical equipment was removed. The redevelopment was designed to create a lively residential community and minimize driving by providing a range of services onsite. The old brick buildings contain affordable and luxury condominiums, professional offices, restaurants and a school. To date, 75 commercial and 54 residential units have been developed, with more to come. Despite the housing market slump, the Minervini Group continues to renovate the space into condominiums that attract people to the unique community.



Awards: \$3 million since 2003
Leveraged Investment:
\$35.8 million
Jobs Created: 331



Before: Part of the Traverse City State Hospital campus between 1885 and 1989, then vacant for 14 years.

Protecting the Environmental Health of Michigan



Award:
\$1,558,000 in 1996
**Leveraged
Investment:**
\$5 million

INVESTIGATING AND REMEDIATING SITES WITH SUSPECTED ENVIRONMENTAL CONCERNS

Owosso – 2.5 acres downtown

Owosso city leaders completed a thorough environmental assessment to identify the type of contamination and to locate previously unknown underground storage tanks on the brownfield site. Based on the assessment, project funding was augmented to support removal of underground tanks, excavation of contaminated soils, and construction of a slurry wall to protect water quality. Remediation efforts made the site desirable to Tanglewood Development, which purchased the property from the city and invested \$5 million in the project.

Tourism has become increasingly important to Owosso, with Curwood Castle and the Steam Railroad Institute attracting visitors. Recognizing that a shortage of hotel space was hampering growth, the city selected a proposal to develop a new hotel on the brownfield site. After two years of clean up and redevelopment, the 64-room hotel now employs 45 people. The Comstock Inn is Owosso's primary full-service hotel and banquet center.



Before: Site contaminated with petroleum and chlorinated solvents; given to the city of Owosso in 1996.



After: Remediation and redevelopment resulted in the development of the Comstock Inn and Mulligan's Irish Pub.



After: Mason Run is a single-family residential development about 50% complete (at the start of 2010). When finished, it will include approximately 300 new homes and 5 acres of park space.



Before: Manufacturing activities contributed to polychlorinated biphenyl (PCB) and other contamination at brownfield site.

PROMOTING SMART, SUSTAINABLE DEVELOPMENT

Monroe – 45 acres along River Raisin

Monroe received \$2.8 million in grants and loans, which funded removal of basement material, excavation and disposal of coal pile residuals, removal of contaminated paper sludge, and clean up of soils contaminated with gasoline and PCBs, a persistent organic pollutant. With the exception of some soil safely contained under roadways, the entire site was cleaned to residential cleanup criteria. City leaders identified the need to develop single-family housing at this location, less than a mile from downtown. Working with citizens, city planners identified a developer for a new housing project that would maintain the traditional character of Monroe's best historic neighborhoods, including quiet streets, front porches and quality architecture. Proximity to Monroe's downtown and employment centers minimizes commuting time and allows homes to use existing infrastructure for water, sewer, gas and electricity. More than 10% of the development consists of green spaces, including a new city park that is part of the River Raisin hike and bike trail, near the Lake Erie shoreline. Redevelopment of this urban brownfield has allowed Monroe to remove a health hazard and promote smart, sustainable growth.



Awards:
\$2.8 million from 1999-2004
Leveraged Investment:
Approximately \$90 million when completed
Jobs Created:
120-150, depending on bookings

Environmental Benefits of Redevelopment



Before: Located next to a former manufacturing plant, this section of the Rouge River flowed between concrete banks and was surrounded by contaminated soils.



After: Contamination has been removed and a wetland area has been restored and reconnected to the Rouge River.



Awards: \$2 million from 1999-2004
Leveraged Investment: \$4.85 million

RESTORING URBAN RIVERS FOR WILDLIFE AND RECREATION

Dearborn – 20 acres along the Rouge River

Because of high levels of contamination, the Rouge River was among several polluted rivers to burn in the 1960s. A unique public-private partnership involving Wayne County, the Army Corp of Engineers, The Henry Ford, and the Michigan DEQ leveraged support to remove 550 tons of contaminated soil and restore 20-acres of wetland and forest habitat adjacent to the river. In this area, the Rouge River runs between concrete banks, limiting the available habitat for wildlife. This restoration effort recreated a historical oxbow, or river bend, which allows some river water to flow through a natural stream and wetland area. The restored oxbow has been reconnected to the main river channel, helping sustain fish and wildlife populations throughout the Rouge River. The wetland area, oxbow and forest complex is now a nature preserve that is managed by The Henry Ford. The area provides educational opportunities for visiting student groups, outdoor enthusiasts and the hundreds-of-thousands of people who visit The Henry Ford each year.



Before: Abandoned facility contaminated with heavy metals, petroleum and other organic chemicals from nearly 100 years of manufacturing use.



PROTECTING WATER QUALITY AND PUBLIC HEALTH

Ludington – 3.5 acres along Pere Marquette Lake

Grant money and other funds paid for a thorough site investigation and removal of structural remains and contaminated soils. A critical part of the project included the installation of purge wells to redirect contaminated groundwater into a nearby treatment facility, protecting the quality of air and water for the adjacent lake and neighborhoods. Careful remediation has allowed private developers to construct a 160-slip marina and 75 new condominiums. This project has catalyzed the redevelopment of several other municipal and private properties, expanding the city's tax base, reconnecting the downtown and lakeshore areas and fostering civic pride in Ludington's waterfront.



Award: \$855,700 in 1993
Leveraged Investment: \$8 million in private funds and additional award from Michigan Natural Resources Trust Fund

After: A revitalized waterfront area with townhouses, park space and marina facilities.

Studying the Policy Context

By studying Michigan's brownfield policies and the history of individual projects, researchers are identifying common elements of successful projects that can be used by communities to promote effective redevelopment. A complete summary of this research project is available on the Michigan Sea Grant website. See: www.miseagrant.umich.edu/focus/brownfields.

BARRIERS TO BROWNFIELD REDEVELOPMENT

Redeveloping brownfield properties can be technically, legally and financially challenging for a new property owner. Developers are hesitant to commit to a project when the level of contamination is unknown.

Some upfront costs associated with reusing brownfields include:

- ◆ Environmental sampling to confirm and characterize contamination;
- ◆ Removal of contamination, including disposal of material or capping of contaminated areas;
- ◆ Environmental consultants to prepare Brownfield Plans and oversee work;
- ◆ Legal fees for deed restrictions, if required;
- ◆ Demolition of unsafe buildings, including asbestos and lead paint removal; and
- ◆ Updating or enhancing utilities and infrastructure.

Because of the significant societal benefits to restoring brownfields, state and federal incentives are offered to prepare sites for reuse and to encourage new construction on brownfields rather than undeveloped land.

A HISTORY OF RESTORING BROWNFIELDS IN MICHIGAN

Concern for brownfield redevelopment led Michigan to become a leader in crafting innovative brownfield policies and financial assistance programs (Card and Kummler 1999, Hula 2001). Since the late 1970s, Michigan has had a program to address sites where liable parties are unwilling or unable to respond to contamination. The Michigan Department of Natural Resources and Environment (MDNRE) has:

- ◆ Provided oversight and assistance on more than 10,000 cleanup projects performed by liable parties.
- ◆ Committed more than \$1 billion to address public health concerns at nearly 1,800 "orphan" sites where there was no liable party.

In the past, property owners were liable for cleaning up a site, irrespective of who may have actually caused the contamination. This fear of liability often discourages new

developers from buying and re-using developed properties. Michigan's brownfield policies were modified in 1995 to actively encourage redevelopment as well as cleanup of brownfields. Now, new owners of potentially contaminated property can limit liability by conducting a site evaluation within 45 days (of property purchase) and submitting a Baseline Environmental Assessment to MDNRE within six months of property purchase. Assessments for more than 12,000 properties have been submitted since 1995. Additional policy changes have allowed state programs to prioritize support for projects with viable redevelopment plans and use cleanup standards based on the proposed land use, for example commercial development versus residential.

Environmental bond initiatives in 1988 and 1998 allowed Michigan to fund brownfield remediation through a variety of programs. The case studies presented here all received funding from Michigan's Brownfield Redevelopment Grant and Loan Program. Over the past two decades, this program has:

- ◆ Awarded \$142 million in grants and \$33.7 million in low-interest loans for more than 300 brownfield redevelopment projects.
- ◆ Generated an estimated \$4.2 billion in private investment and created more than 23,000 jobs (as of 2009).
- ◆ Enhanced public access to the waterfront at more than 65 sites.

Unfortunately, there are many contaminated sites that have yet to be remediated in Michigan, and as more commercial and industrial facilities close, these properties may become brownfields. Data from MDNRE indicates that there are tens of thousands of brownfield sites and 4,500 leaking underground storage tanks that have not yet been fully remediated in Michigan, with an average of 300 new leaks identified each year.

PROMOTING SUCCESSFUL REDEVELOPMENT

The case studies reveal that brownfield projects that are part of a comprehensive, forward-looking vision for the area usually enjoy broad public support and receive substantial private investment. Redevelopment typically involves a collaborative effort among a property owner, municipal officials, a private developer, environmental consultants and several state agencies. Successful projects often have local champions, entrepreneurial leaders who push a site through the many stages of planning and redevelopment (Hamlin et al. 2008). Success requires perseverance, knowledge of the many sources of grants, loans and tax credits, and sufficient time to accommodate the required review and approval processes.

Brownfields will continue to be a redevelopment opportunity in Michigan and programs are needed to reduce the risks and

ensure sufficient rewards for developers reusing brownfields (Michigan Land Use Leadership Council 2003). The State of Michigan offers several types of assistance for brownfield projects, including grants and loans (supported largely by bond initiatives) and other incentives that require little public funding. These incentives can be designed to attract maximum private investment, support a range of redevelopment goals, and minimize the burden on tax payers. Policy researchers have outlined ways to further enhance existing programs, such as offering loan insurance or Capital Access Programs to promote private

investment in risky but beneficial projects, and ensuring that all business incentives and subsidies favor the reuse of brownfields (Hamlin et al. 2008; LeRoy et al. 2006).

By using a variety of mechanisms to actively encourage investment in brownfields Michigan can revitalize local economies and community centers, minimize urban sprawl, and ensure a sustainable environment for future generations.

STATE INCENTIVES FOR BROWNFIELD REDEVELOPMENT

Communities often work closely with state and federal agencies to maximize available resources for redevelopment. Michigan offers several types of incentives:

Grants: Communities can receive grants for environmental assessment, cleanup and risk reduction activities for a brownfield property.

Low Interest Loans: Loans are offered at a low 1.5% interest rate. No payments or interest are due for the first five years. Loans must be repaid within 15 years.

Tax Increment Financing (TIF): This allows communities to capture the increased tax revenue generated as a restored brownfield property increases in value. Depending on which agency approves the TIF, it can be used to pay

for environmental remediation activities, site preparation, and construction expenses. In addition, communities can continue to capture the incremental tax revenue for a local revolving loan fund that supports the redevelopment of other properties.

Business Tax Credits: Developers can take advantage of tax credits for eligible construction related expenses on qualified brownfield sites.

Development Incentives: Many businesses take advantage of tax incentives associated with brownfields in designated areas, such as Renaissance Zones, Smart Zones or Heritage Zones.

REFERENCES

Card, D.S. and R.H. Kummeler. 1999. Proceedings of the 1999 Conference on Hazardous Waste Research. Michigan Brownfield Regulatory Review, pages 51-62. Available at: www.engg.ksu.edu/HSRC/99Proceed/kummeler.pdf

Hamlin, R., R. Hula, B. Cobarzan, C. Jackson-Elmoore, and C. Leuca. 2008. Brownfields: Making Programs Work for Michigan Communities. Urban Policy Research Brief # 5. Michigan State University. Available at: www.ced.msu.edu/reports/Briefs%20-%2005P%20-%205%20-%20PQ.pdf

Hula R.C. 2001. Changing priorities and programs in toxic waste policy: The emergence of economic development as a policy goal. *Economic Development Quarterly* 15: pages 181-199. Available at: edq.sagepub.com/cgi/reprint/15/2/181.pdf

LeRoy G., A. Lack, K. Walter, and P. Mattera. 2006. The Geography of Incentives: Economic Development and Land Use in Michigan. Washington, DC: Good Jobs First. Available at: www.goodjobsfirst.org/pdf/michiganlanduse.pdf

Michigan Land Use Leadership Council. 2003. Michigan's Land, Michigan's Future: The Final Report of the Michigan Land Use Leadership Council. Available at: www.michiganlanduse.org/finalreport.htm

FOR ADDITIONAL INFORMATION

Michigan Department of Natural Resources and Environment (MDNRE)
Redevelopment Grants and Loans: (517) 373-9540
www.michigan.gov/deqbrownfields

Michigan Economic Development Corporation (MEDC)
General Assistance: (517) 373-9808
Brownfield Tax Incentives:
Eric Helzer, (517) 241-5230, Sara Rainero (517) 241-4801
www.michiganadvantage.org

U.S. Environmental Protection Agency (US EPA)
Office of Brownfields and Land Revitalization
General Inquiries: (202) 566-2777
www.epa.gov/brownfields

Diamonds in the Rough

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MICHIGAN'S COMMUNITIES



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