

Office of the Auditor General
Performance Audit Report

**Clean Michigan Initiative
Environmental Protection Programs**
Department of Environmental Quality

March 2017

State of Michigan Auditor General
Doug A. Ringler, CPA, CIA

The auditor general shall conduct post audits of financial transactions and accounts of the state and of all branches, departments, offices, boards, commissions, agencies, authorities and institutions of the state established by this constitution or by law, and performance post audits thereof.

Article IV, Section 53 of the Michigan Constitution



OAG

Office of the Auditor General

Report Summary

Performance Audit

Clean Michigan Initiative (CMI)

Environmental Protection Programs

Department of Environmental Quality (DEQ)

Report Number:

761-0217-16

Released:

March 2017

DEQ administers environmental protection programs funded with CMI bond proceeds. These programs include response activities at contaminated sites, redevelopment of waterfronts, remediation of contaminated lakes and rivers, nonpoint source pollution prevention and control, water quality monitoring, and pollution prevention efforts. DEQ's environmental protection programs account for \$570 million (84%) of the total \$675 million of CMI bonds. This performance audit was required by Section 324.19615 of the *Michigan Compiled Laws*.

Audit Objective			Conclusion
Objective #1: To assess the effectiveness of DEQ's efforts to ensure that the use of CMI funds complies with laws, regulations, and contract requirements.			Effective
Findings Related to This Audit Objective	Material Condition	Reportable Condition	Agency Preliminary Response
None reported.	Not applicable.		

Audit Objective			Conclusion
Objective #2: To compile and report data for programs eligible for CMI funding.			Compiled and reported
Findings Related to This Audit Objective	Material Condition	Reportable Condition	Agency Preliminary Response
None reported.	Not applicable.		
Observations Related to This Audit Objective	Material Condition	Reportable Condition	Agency Preliminary Response
DEQ should work with the Legislature to obtain the necessary funding to continue or begin cleanup of the remaining CMI-eligible contaminated sites. After fiscal year 2017, adequate CMI funds will not exist to remediate the 7,300 remaining contaminated sites (<u>Observation #1</u>).	Not applicable for observations.		

A copy of the full report can be
obtained by calling 517.334.8050
or by visiting our Web site at:
www.audgen.michigan.gov

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Doug A. Ringler, CPA, CIA
Auditor General

March 16, 2017

Ms. C. Heidi Grether, Director
Department of Environmental Quality
Constitution Hall
Lansing, Michigan

Dear Ms. Grether:

I am pleased to provide this performance audit report on the Clean Michigan Initiative Environmental Protection Programs, Department of Environmental Quality.

This report is issued pursuant to Section 324.19615 of the *Michigan Compiled Laws*, which states that the Office of the Auditor General shall conduct a performance audit every two years of programs funded with Clean Michigan Initiative bond proceeds. Upon completion of the performance audit, the Office of the Auditor General shall submit a report on the audit to the audited department and the Legislature.

We appreciate the courtesy and cooperation extended to us during this audit.

Sincerely,

Doug Ringler
Auditor General

TABLE OF CONTENTS

CLEAN MICHIGAN INITIATIVE ENVIRONMENTAL PROTECTION PROGRAMS

	<u>Page</u>
Report Summary	1
Report Letter	3
Audit Objectives, Conclusions, Findings, and Observations	
Compliance With Laws, Regulations, and Contract Requirements	8
Data for Programs Eligible for CMI Funding	9
Observations:	
1. Additional funding needed to clean up remaining contaminated sites.	10
Supplemental Information	
Exhibit #1 - Summary of Authorizations and Expenditures by Program	14
Exhibit #2 - Number of Completed CMI-Funded Projects by Program	16
Exhibit #3 - Examples of Cleanup Projects Completed by DEQ	18
Exhibit #4 - Examples of Sites in Need of Funding	23
Exhibit #5 - Superfund Sites by County	27
Exhibit #6 - Number of Identified Unfunded CMI-Eligible Project Sites	28
Exhibit #7 - Funding Status of Assessed Priority ECRP Projects by County	29
Program Description	30
Audit Scope, Methodology, and Other Information	33
Glossary of Abbreviations and Terms	36

AUDIT OBJECTIVES, CONCLUSIONS, FINDINGS, AND OBSERVATIONS

COMPLIANCE WITH LAWS, REGULATIONS, AND CONTRACT REQUIREMENTS

BACKGROUND

In November 1998, Michigan voters approved \$675 million of Clean Michigan Initiative (CMI) bonds for environmental, natural resources, and health protection programs that would clean up and redevelop contaminated sites; protect and improve water quality; prevent pollution; abate lead contamination; reclaim and revitalize community waterfronts; enhance recreational opportunities; and clean up contaminated sediments in lakes, rivers, and streams. The six environmental protection programs administered by the Department of Environmental Quality (DEQ) are response activities* at facilities*, the Waterfront Redevelopment Program, the Remediation of Contaminated Lake and River Sediments Program, the Nonpoint Source Pollution Prevention and Control Program, the Clean Water Fund, and the Pollution Prevention Program.

DEQ's environmental protection programs account for \$570 million (84%) of the total \$675 million of CMI bonds. As of September 30, 2015, the State of Michigan had issued nearly \$490 million (86%) of CMI bonds for the environmental protection programs administered by DEQ and DEQ had expended \$514.6 million in CMI funds since fiscal year 1999. DEQ works closely with the Department of Treasury to determine the timing and amounts of each bond sale to ensure that DEQ is being cost efficient. DEQ meets with Treasury annually, and as needed, to review CMI-projected expenditures and cash flow.

AUDIT OBJECTIVE

To assess the effectiveness* of DEQ's efforts to ensure that the use of CMI funds complies with laws, regulations, and contract requirements.

CONCLUSION

Effective.

FACTORS IMPACTING CONCLUSION

- DEQ appropriately selected projects for funding that met CMI requirements.
- For 100% of the 18 projects tested, DEQ ensured that recipients used CMI funds in accordance with laws, regulations, and contract requirements.

* See glossary at end of report for definition.

DATA FOR PROGRAMS ELIGIBLE FOR CMI FUNDING

AUDIT OBJECTIVE

To compile and report data for programs eligible for CMI funding.

CONCLUSION

Compiled and reported.

FACTORS IMPACTING CONCLUSION

- Observation* regarding additional funding needed to clean up remaining contaminated sites (Observation #1).
- Exhibit #1 presents a summary of authorizations and expenditures by program.
- Exhibit #2 presents the number of completed CMI-funded projects by program.
- Exhibit #3 presents examples of cleanup projects completed by DEQ.
- Exhibit #4 presents examples of sites in need of funding.
- Exhibit #5 presents Superfund sites by county.
- Exhibit #6 presents the number of identified unfunded CMI-eligible project sites.
- Exhibit #7 presents the funding status of assessed priority Environmental Cleanup and Redevelopment Program (ECRP) projects by county.

* See glossary at end of report for definition.

OBSERVATION #1

Additional funding needed to clean up remaining contaminated sites.

DEQ should work with the Legislature to obtain the necessary funding to continue or begin cleanup of the remaining CMI-eligible contaminated sites. After fiscal year 2017, adequate CMI funds will not exist to remediate the 7,300 remaining contaminated sites (see Exhibit #6).

Since fiscal year 1999, DEQ has used CMI bond proceeds to fund cleanup and monitoring projects for 20 environmental protection programs. At the time of our audit, 8 of these programs had CMI funding still available. Sections 324.19601 - 324.19616 of the *Michigan Compiled Laws* authorized \$570 million to be spent by DEQ on environmental protection programs. As of September 30, 2015, DEQ had been appropriated \$528.7 million of the \$570 million of CMI funds and had expended \$514.6 million, leaving an unexpended balance of \$55.4 million. Exhibit #1 presents a list of active and inactive CMI-funded programs and cumulative appropriations and expenditures by program. The remaining \$55.4 million of CMI funds is restricted by legislation for the following activities:

	Remaining CMI Funds (in millions)
Ongoing projects and activities	\$19.6
Response activities at facilities, including grants, new remediation projects, and maintenance and monitoring of previously completed projects	10.9
Nonpoint source pollution cleanup	12.7
Continued Statewide water quality monitoring	7.2
Completion of contaminated lake and river sediment projects and investigative proceedings for new projects	4.3
Various pollution prevention programs	0.7
Total (as of September 30, 2015)	\$55.4

Exhibit #2 presents information regarding the 1,500 completed projects funded with CMI bond proceeds since fiscal year 1999.

Although DEQ has completed cleanup efforts on many projects, numerous projects remain, which indicates that the demand for funding greatly exceeds the amount of CMI resources available. Following is the status of DEQ programs:

a. Environmental Cleanup and Redevelopment Program (ECRP)

ECRP is the most significant of DEQ's environmental cleanup programs, accounting for 44% of all CMI expenditures. As of September 30, 2015, DEQ expended or designated \$226 million of the \$241 million in CMI funds authorized for ECRP. DEQ plans to use the remaining \$15 million of available ECRP CMI funds to maintain and monitor completed sites and remediate a small number of projects.

DEQ has assessed the priority of 291 ECRP project sites. However, these sites are either unfunded, have been placed on funding hold, or are insufficiently funded. DEQ also identified an additional 6,186 project sites where it has yet to perform an initial assessment. Exhibit #6 presents the number of identified unfunded CMI-eligible project sites. Exhibit #7 presents the funding status of the 291 assessed priority ECRP projects by county. No additional CMI funding has been allotted for these or other ECRP cleanup projects. As a result, DEQ has suspended or has not begun cleanup efforts on 245 of the 291 priority sites. Without additional funding, contaminated soil and water sites known to DEQ as posing a health risk to humans and the environment will go untreated. See Exhibit #4 for examples of sites in need of funding.

DEQ continues to use CMI funding to complete, maintain, and monitor currently funded project sites. Maintenance and monitoring can include hiring contractors to remove wastewater, maintaining pressurized air flow systems, checking and replacing air and water filters, and conducting other scheduled maintenance. Ensuring that project sites are completed and maintained is essential to the protection of human health and the environment. Although DEQ does not have CMI funds available to begin cleanup at the remaining project sites, DEQ informed us that it has set aside CMI funding to continue the necessary maintenance and monitoring of project sites through fiscal year 2017. However, at the current CMI funding level, DEQ will not have the needed funds to continue maintenance and monitoring after fiscal year 2017.

- b. Brownfield* Redevelopment Grant and Loan Programs
DEQ offers grants and loans for the evaluation, cleanup, removal, or containment of hazardous substances at eligible brownfield properties. The goals of the programs are to ensure safe reuse of abandoned, vacant, or underutilized properties with known contamination and to promote redevelopment of brownfield sites. DEQ has used \$67.1 million of CMI funds issued as grants or loans, to clean up 98 project sites. DEQ informed us that 20 CMI-eligible project sites remain unfunded (see Exhibit #6).

** See glossary at end of report for definition.*

c. Remediation of Contaminated Lake and River Sediments (CLRS) Program

Through the CLRS Program, DEQ partners with the U.S. Environmental Protection Agency (EPA) by providing a match of 35% to clean up contaminated lake and river sediments that qualify for federal funding under the Great Lakes Legacy Act. DEQ has used \$19.9 million in CMI funds and \$6.3 million in money pledged from industrial partners* to obtain \$27 million of federal funding for the cleanup of lake and river sediment contamination in Michigan.

DEQ informed us that, since 2002, it has completed five projects for the removal of 427,000 cubic yards of contaminated sediment in four Great Lakes areas of concern* (AOCs). DEQ also used the CLRS Program to remediate 85,000 cubic yards of contaminated sediment within the White Lake AOC, 115,000 cubic yards within the Detroit River AOC, 142,000 cubic yards within the Muskegon Lake AOC, and 85,000 cubic yards within the River Raisin AOC.

DEQ informed us that, as of December 2016, it had identified 1 potential project within the Rouge River AOC and 5 additional projects within the Detroit River AOC. DEQ anticipates that it will have CMI funds available to complete the Rouge River remedial investigation and possibly the investigation of one of the Detroit River projects.

d. Nonpoint Source Pollution Prevention and Control Program

Eliminating nonpoint source pollution is a critical task of DEQ given that most of the remaining water quality impacts in Michigan are partially caused by these sources. DEQ informed us that, since 2009, it has awarded 99 nonpoint source grants totaling \$39.5 million. These CMI funds were leveraged to secure an additional \$23.9 million in local matching funds. These funds were used to promote practices that resulted in 190,000 tons of sediment load reductions, 198,000 pounds of phosphorus load reductions, and 506,000 pounds of nitrogen load reductions to Michigan lakes and rivers.

DEQ informed us that, since 1999, stakeholders have submitted applications for 1,146 projects totaling \$294 million. DEQ has awarded \$104.4 million in nonpoint source grants for 401 of those projects. As a result, DEQ has identified at least \$189.6 million in unmet funding needs for 745 projects.

* See glossary at end of report for definition.

e. Superfund Program

The Superfund Program involves a State and federal partnership to clean up some of the most significant and expensive contaminated sites in Michigan. DEQ is required to finance 10% of the costs of remedial action and the remaining 90% is federally funded. In addition, DEQ is responsible for 100% of the operations and maintenance costs following project cleanup. If DEQ does not maintain the sites, as contractually required, the State must repay the 90% portion that was federally funded. Historically, DEQ has used CMI funds to provide the required 10% State match and pay for operation and maintenance costs following project cleanup. However, at the current CMI funding level, DEQ indicated that it will not have the necessary State matching funds to secure additional federal funding for the remaining 65 Superfund Program sites. DEQ estimates that it needs \$6 million annually for the 10% State match and operation and maintenance costs. This amount does not include one mega-site (Velsicol Chemical Corporation, Gratiot County) where construction costs are expected to exceed \$145 million, remedial action is estimated at \$50 million, and operation and maintenance costs are estimated at \$4.6 million per year. Since 1980, the EPA has provided over \$375 million in federal funds with State matching funds of \$38.6 million to help clean up Superfund Program sites in Michigan. See Exhibit #4 for examples of sites in need of funding.

SUPPLEMENTAL INFORMATION

UNAUDITED
Exhibit #1

CLEAN MICHIGAN INITIATIVE
Department of Environmental Quality
Summary of Authorizations and Expenditures by Program
As of September 30, 2015

	DEQ Spending Plan (Note 1)	Cumulative Appropriations	Cumulative Program Expenditures	CMI Funds Remaining
Active Programs:				
Environmental Cleanup and Redevelopment Program	\$ 241,025,634	\$ 226,138,090	\$ 224,530,525	\$ 16,495,109
Brownfield Redevelopment Grant Program	50,000,000	48,536,716	42,124,745	7,875,255
Brownfield Redevelopment Loan Program (Note 2)	25,000,000	25,000,000	25,000,000	(Note 2)
Remediation of Contaminated Lake and River Sediments Program	25,000,000	20,690,331	19,941,618	5,058,382
Nonpoint Source Pollution Prevention and Control Program	48,443,334	35,707,328	32,702,709	15,740,625
Pollution prevention activities and initiatives	4,290,214	3,558,431	3,558,431	731,783
Water Use and Withdrawal Program	1,473,490	1,467,746	1,082,047	391,443
Water Quality Monitoring Program	42,691,691	36,671,885	35,067,322	7,624,369
Clean Water Initiative (Note 3)	1,159,282			1,159,282
Total active programs	<u>\$ 439,083,645</u>	<u>\$ 397,770,527</u>	<u>\$ 384,007,397</u>	<u>\$ 55,076,248</u>
Inactive Programs:				
NPL - Municipal Landfill Match Grants (Note 4)	\$ 8,000,000	\$ 8,000,000	\$ 8,000,000	\$
Waterfront Redevelopment Program	50,000,000	49,999,668	49,702,507	297,493
Retired Engineers Technical Assistance Program Fund (Note 5)	10,000,000	10,000,000	10,000,000	
Small Business Pollution Prevention Assistance - Revolving Loan Fund - Capitalization	5,000,000	5,000,000	5,000,000	
Illicit Storm Sewer Connections Grants (Note 5)	7,638,931	7,611,158	7,611,158	27,773
Remedial Action Plan and Lakewide Management Plan (Note 4)	7,692,968	7,692,968	7,692,968	
Conservation Reserve Enhancement Program (Note 4)	5,000,000	5,000,000	5,000,000	
Abandoned Well Management Grants (Note 4)	2,277,286	2,277,286	2,277,286	
Voluntary Storm Water Permits	3,395,246	3,395,246	3,395,246	
Failing On-Site Septic Systems (Note 4)	6,771,056	6,771,056	6,771,056	
Protecting High Quality Waters (Note 6)	5,681,111	5,681,111	5,681,111	
Statewide Groundwater Inventory and Mapping	973,000	973,000	973,000	
Village of Chesaning - Water Pollution Control Grant (Notes 6 and 7)	899,957	899,957	899,957	
Water Use and Withdrawal Program (DNR) (Note 8)	498,800	497,280	498,800	
Administrative support (Note 9)	17,088,000	17,087,999	17,087,998	2
Total inactive programs	<u>\$ 130,916,355</u>	<u>\$ 130,886,729</u>	<u>\$ 130,591,087</u>	<u>\$ 325,268</u>
Total active and inactive programs	<u>\$ 570,000,000</u>	<u>\$ 528,657,256</u>	<u>\$ 514,598,484</u>	<u>\$ 55,401,516</u>

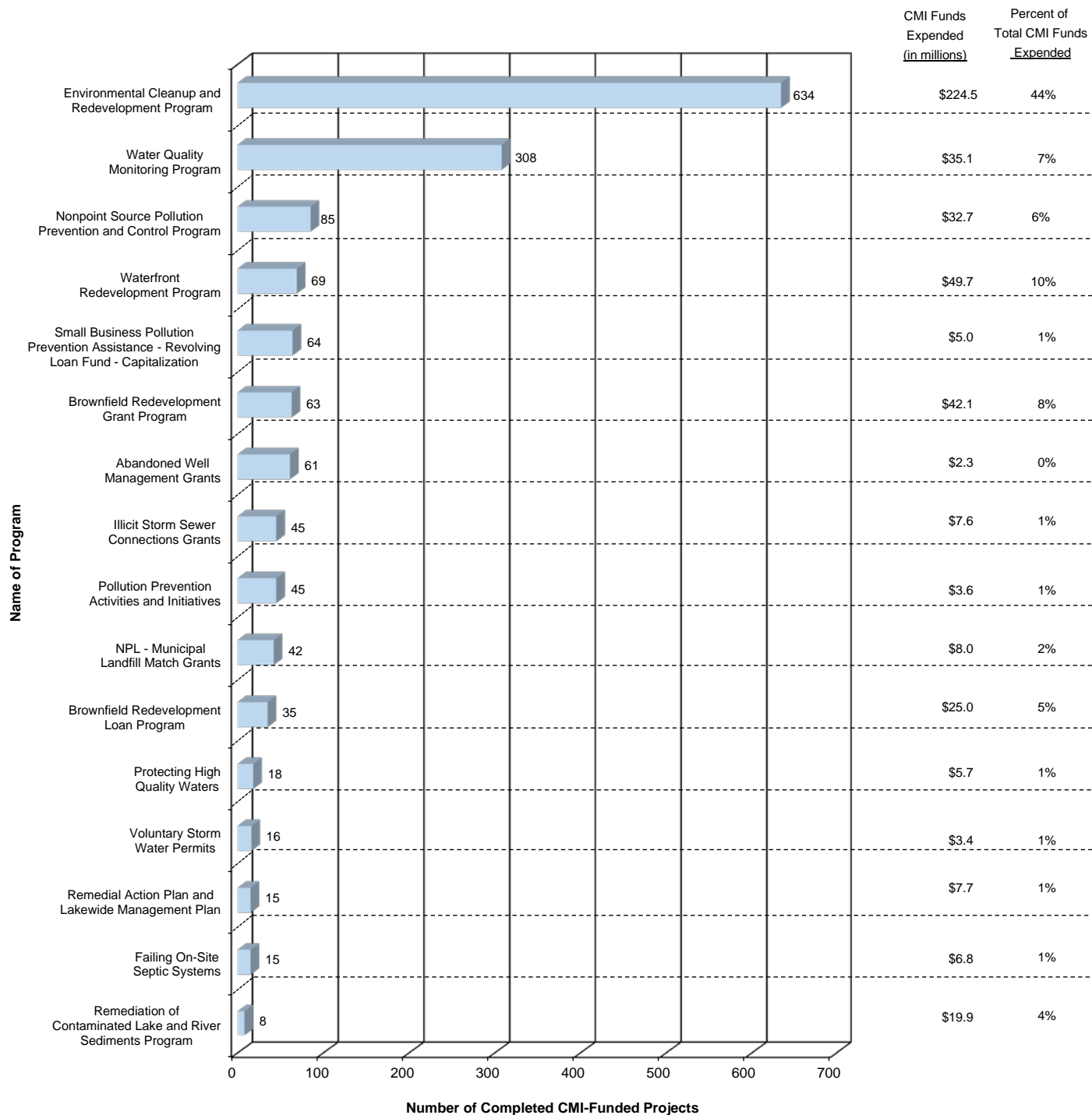
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Notes:

- (1) DEQ established subcategories within the CMI allocations set in law that further refine the respective allocations. Within each allocation made in Section 324.19607 of the *Michigan Compiled Laws*, DEQ, through the Department of Treasury, established separate funds for tracking purposes. Under each fund, DEQ requests appropriations from the State Budget Office and the Legislature in order to spend resources related to the respective allocations.
- (2) The Brownfield Redevelopment Loan Program provides an ongoing source of CMI funds to reloan to borrowers.
- (3) The Clean Water Initiative is the remaining balance of the \$45 million allotment to the Clean Water Fund. DEQ has not determined which program will expend these funds.
- (4) Completed in fiscal year 2010.
- (5) Completed in fiscal year 2009.
- (6) Completed in fiscal year 2011.
- (7) The Village of Chesaning grant was a one-time appropriation in the boilerplate and was not part of a program appropriation.
- (8) The Water Use and Withdrawal Program (DNR) was appropriated to the Department of Natural Resources (DNR); however, DEQ fulfilled the required reporting of CMI funds for this program.
- (9) Section 324.19608(5) of the *Michigan Compiled Laws* restricts administrative costs to 3%; DEQ tracked this cost through a separate appropriation.

Source: DEQ's CMI Bond Expenditure Tracking Report and Fiscal Year 2015 State Environmental Cleanup and Bond Programs Legislative Report.

CLEAN MICHIGAN INITIATIVE
Department of Environmental Quality
Number of Completed CMI-Funded Projects by Program
Fiscal Years 1999 Through 2015



The accompanying notes facilitate the understanding of this exhibit.

This exhibit continued on the next page.

Notes:

- (1) CMI programs not included in Exhibit #2 account for approximately \$18.5 million (4%) of total CMI expenditures. These programs are:
- (a) Water Use and Withdrawal Program, which was a Statewide project.
 - (b) Retired Engineers Technical Assistance Program Fund (completed), which provided individual test results for private businesses and local municipalities.
 - (c) Conservation Reserve Enhancement Program (completed), which provided State matching funds for a federal program that was managed by the Michigan Department of Agriculture and Rural Development.
 - (d) Statewide Groundwater Inventory and Mapping, which was a Statewide project.
 - (e) Village of Chesaning - Water Pollution Control Grant (completed in fiscal year 2011).
 - (f) Water Use and Withdrawal Program (DNR).
- (2) CMI administrative support costs not included in Exhibit #2 account for \$17.1 million (3%) of total CMI expenditures.
- (3) The number of projects reported for each program may not be all-inclusive because the exhibit does not include projects such as those still in progress or on funding hold.

Source: The Office of the Auditor General (OAG) prepared this exhibit based on data obtained from DEQ.

CLEAN MICHIGAN INITIATIVE
Department of Environmental Quality
Examples of Cleanup Projects Completed by DEQ
As of September 30, 2015

Brownfield Redevelopment Grant Program (80% CMI Funded), Cardinal Health, Detroit, Michigan: DEQ used \$2.5 million (\$2.0 million in CMI funds) to facilitate the redevelopment of a 25-acre block of parcels into a 274,000-square-foot medical supply warehouse in Detroit. Brownfield funding was used to remove 14,600 gallons of contaminated liquids and 7,300 tons of contaminated soil, design and install a vapor mitigation system under the building, and install direct contact soil exposure barriers. The Cardinal Health Medical Distribution Center services the Henry Ford Health System and is part of a significantly larger neighborhood revitalization effort.



Example of one of the many vacant and dilapidated structures in the project area prior to redevelopment.



New Cardinal Health facility located on Rosa Parks Boulevard in Detroit.

This exhibit continued on the next page.

Brownfield Redevelopment Grant Program (100% CMI Funded), Uptown at River's Edge, Bay City, Michigan: DEQ used \$2 million in CMI funds to address environmental issues at an abandoned industrial 43-acre site along the eastern shoreline of the Saginaw River in Bay City. CMI-funded activities included transportation and disposal, on-site capping of contaminated soils, dewatering of contaminated groundwater, and demolition of a dangerous and contaminated building. The redevelopment includes 22,000 square feet of new residential space including condominiums and townhouses, several restaurants, a McLaren Health facility, a Dow Corning office building, a Chemical Bank branch office, and new waterfront access.



Former Industrial Brownhoist foundry, one of several abandoned buildings at the Brownhoist facility that was demolished on the Saginaw River (Bay City Hall in the background).



Uptown development on the former Industrial Brownhoist development project showing the Dow Corning building, Chemical Bank building (including retail and residential uses), and the public marina/docking. Construction of other buildings (Real Seafood, Courtyard by Marriott, McLaren Health, Uptown Brownstones residential condos, and Uptown Place with retail and office space) was underway at the time of this photograph.

This exhibit continued on the next page.

Brownfield Redevelopment Loan Program (20% CMI Funded), Meijer Stores, Stevensville, Michigan: DEQ approved \$1.5 million in Revitalization Revolving Loan funds and an additional \$5.6 million in tax increment financing* (TIF) to complete the cleanup of a 27-acre abandoned industrial property located at Red Arrow Highway and St. Joseph Avenue, in the Village of Stevensville (Village). The property is the former Paramount Die Cast facility. DEQ worked with the EPA to approve a self-implementing Toxic Substances Control Act (TSCA) Cleanup Work Plan; with the Village to approve TIF plans, project work plans, and schedules; and with the new owner on documentation of Due Care Compliance submittals and response activities. The remediation efforts included the removal and disposal of over 16,000 tons of TSCA-regulated polychlorinated biphenyl (PCB) impacted soils and 26,000 tons of non-TSCA PCB-impacted soils. Soils were also impacted with volatile organic compounds, semi-volatile organic compounds, and metals. Remediation of the property resulted in over \$20 million in private investment for a new Meijer store and a gasoline service station, creating approximately 100 full-time and 200 part-time jobs.



Meijer store and parking area located at Red Arrow Highway and St. Joseph Avenue near I-94 ramp.



Meijer gasoline service station

** See glossary at end of report for definition.*

This exhibit continued on the next page.

Escanaba Ore Dock, Escanaba, Michigan

Union Pacific Railroad (UPRR) has conducted investigative, cleanup, and mitigation activities in response to non-aqueous phase liquids (creosote) and groundwater, soil, and sediment contamination at this former railroad tie treating facility, adjacent to Little Bay de Noc. DEQ staff facilitated this privately funded work with hundreds of hours spent on compliance assistance. Low lake levels in the previous decade revealed the problem in the form of creosote seeps and sheens on the lake. The nature and location of the contaminants posed many challenges, which UPRR and its consultant (CH2M HILL) diligently addressed. UPRR and CH2M HILL removed tons of contaminated soil and sediment, installed cut-off walls to control groundwater, and capped areas to prevent infiltration of precipitation. These efforts removed much of the contamination on the property and slowed migration of the remainder to prevent unacceptable discharges to the surface water and facilitate reuse of the facility.



Restoration of the Lake Michigan shoreline (approximately 3 acres)
after removal of contaminated materials at the Escanaba Ore Dock.

This exhibit continued on the next page.

Cyanokem (Former Waste Treatment Facility), Detroit, Michigan

The former Cyanokem facility was an inorganic waste treatment facility permitted to treat a wide variety of waste streams containing metals, cyanide, and acid constituents. The cleanup project began in 2004 and efforts included soil and groundwater investigations, removal and disposal of grossly contaminated soils, demolition of dilapidated site structures and former subsurface process piping and treatment basins, and removal of above ground storage tanks. The cleanup project removed more than 16,000 gallons of hazardous wastewater and 340,000 gallons of nonhazardous wastewater. The result of this work significantly reduced the risk to human health.



Former Cyanide Treatment Unit, October 29, 2003



Former Secondary Treatment Basin, October 29, 2003

Source: The OAG prepared this exhibit based on information and photographs obtained from DEQ.

CLEAN MICHIGAN INITIATIVE
Department of Environmental Quality
Examples of Sites in Need of Funding
As of September 30, 2015

World Trade Center, Detroit, Michigan

This 15.8-acre property is an abandoned property containing three partially standing buildings, three large silos, and numerous piles of dumped waste throughout the property. In addition, two oily pits (i.e., underground containers filled with some type of oil) are open to the elements. Asbestos has also been detected in many of the waste piles, creating a potential for exposure to anyone walking through the property. Illegal dumping on the site has occurred as access to the property can be gained on both the north and south sides of the property by vehicles and on the east and west sides by pedestrians.

The current property owner once operated a flea market and other businesses on the property now known as the World Trade Center. The owner has responded to DEQ Due Care Compliance letters, claiming he has no assets to clean up the property and has requested DEQ assistance with emptying tanks and cleaning up illegally dumped waste.



Partial building and debris on 15.8 acres of abandoned property in Detroit, Michigan.

This exhibit continued on the next page.

Dana Corporation (Formsprag Division), Mt. Pleasant, Michigan

Dana Corporation owned and operated an automotive parts manufacturing facility in Mt. Pleasant from 1970 to 1993. Operations at the plant resulted in the release of chlorinated solvents into the soil and groundwater from improper disposal of industrial wastes. Dana operated a groundwater treatment system for the contamination until 2005, when it was permanently shut down after its bankruptcy in 2006. The levels of contamination measured in 2005, and as part of a Baseline Environmental Assessment in 2013, found chlorinated solvents above the soil and groundwater vapor intrusion screening levels. Further investigation and remediation of the facility are needed.



Former Dana Corporation property.

This exhibit continued on the next page.

Ott/Story/Cordova Chemical Company, Muskegon, Michigan

Soil and groundwater contamination produced by chemicals from the Cordova Chemical Company in Muskegon has created a known health risk. DEQ has partnered with the EPA to provide nearly \$70 million for cleanup of this site, including \$7 million in State matching funds. The site is currently in the operation and maintenance phase of a cleanup, which is the financial responsibility of the State. The estimated cost to operate and maintain the site is \$2 million per year for 60 to 80 years. The State has a contract to cover operations for the next 3 years but has no funding in place beyond that time frame.



Aerial view of the groundwater treatment facility constructed to treat contaminated groundwater at the Ott/Story/Cordova Superfund Site located in North Muskegon. *The groundwater collection system and associated treatment facility prevent the release of contaminated groundwater from the former chemical manufacturing operation to the Little Bear Creek and its unnamed tributary.*

This exhibit continued on the next page.

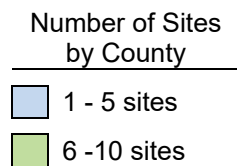
Paw Paw Laundry, Paw Paw, Michigan

The Paw Paw Laundry site was a commercial scale dry cleaning and laundry operation from the early 1950s to 2006. The site is in a residential neighborhood with an apartment complex immediately adjacent. In 2015 and more recently, work conducted at the site has detected highly impacted soils and groundwater on the north side of the property. Tetrachloroethylene (aka PERC, a commonly used dry cleaning chemical) concentrations for soil samples collected near the surface (1 to 3 feet) ranged from non-detected to 16,000 parts per billion (ppb) and near the water table ranged from non-detected to 1.1 million ppb. PERC concentrations for groundwater samples ranged from non-detected to 47,000 ppb. The PERC concentrations in soils and groundwater exceed several of the generic cleanup criteria, including soil and groundwater volatilization numbers. PERC concentrations are also indicative of the presence of dense non-aqueous phase liquid, indicating that the generic cleanup criteria for vapor intrusion do not apply. In addition, the soil concentrations are so high that they will require pre-treatment before a landfill specifically licensed to accept hazardous waste will accept them for disposal. Groundwater is approximately 12 feet below ground and is documented to be flowing in a northwest direction into the residential neighborhood. Many residences in this area have basements. As this is an older neighborhood, basement construction varies from "Michigan" type construction to concrete block walls. At least one basement immediately to the northwest of the Paw Paw Laundry site is known to be "Michigan" type construction, with a partial dirt floor. The Paw Paw Laundry site represents a risk to all down-gradient and nearby residences and businesses as well as Maple Lake.



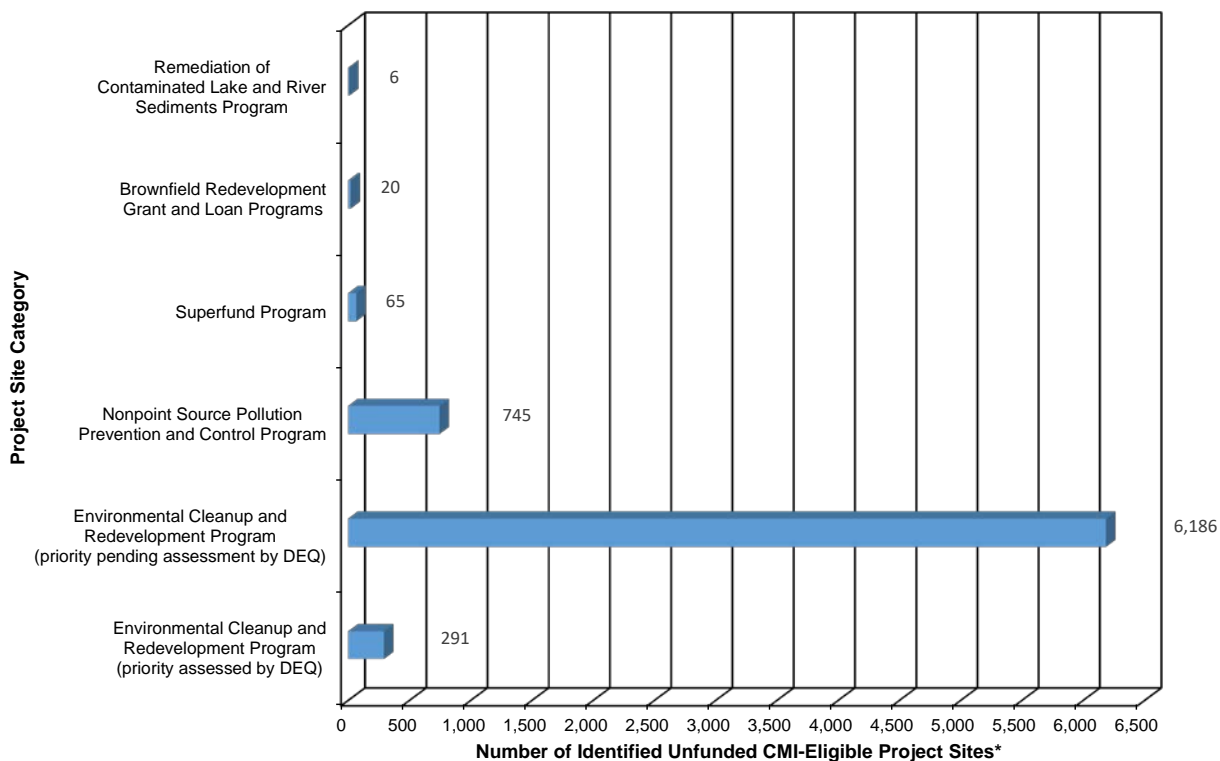
Existing building, including drum with unknown contents, at Paw Paw Laundry site.

Source: The OAG prepared this exhibit based on information and photographs obtained from DEQ.



Source: The OAG prepared this map based on data obtained from DEQ.

CLEAN MICHIGAN INITIATIVE
Department of Environmental Quality
Number of Identified Unfunded CMI-Eligible Project Sites
As of December 2016



* The number of identified unfunded project sites is not all-inclusive.

Source: The OAG prepared this exhibit based on data obtained from DEQ.

PROGRAM DESCRIPTION

Sections 324.19601 - 324.19616 of the *Michigan Compiled Laws* provide for the specific use of CMI bond proceeds as follows:

	Authorized Amount (in millions) Up to
<u>Environmental Protection Programs</u>	
Response activities at facilities	\$335.0
Waterfront improvements	50.0
Remediation of contaminated lake and river sediments	25.0
Nonpoint source pollution prevention and control projects or wellhead protection projects	50.0
Water quality monitoring, water resources protection, and pollution control activities	90.0
Pollution prevention programs	20.0
<u>Natural Resources Protection Programs:</u>	
State park infrastructure improvements	50.0
Local recreation projects	50.0
<u>Health Protection Programs</u>	
Abatement of lead hazards	5.0
Total	<u>\$675.0</u>

DEQ, through its various divisions, administers the following CMI environmental protection programs:

1. Response Activities at Facilities (up to \$335 million)
These activities are provided through four programs:
 - Environmental Cleanup and Redevelopment Program (\$241 million).
This Program provides State-funded cleanup of contaminated facilities that pose an imminent or substantial endangerment to the public health, safety, or welfare or to the environment. It also provides cleanup and/or demolition at sites to promote commercial redevelopment, create jobs, and revitalize neighborhoods.
 - Brownfield Redevelopment Grant and Loan Programs (\$75 million).
These two programs provide grants (\$50 million) and loans (\$25 million) to local units of government for response activities at known or suspected contaminated properties with redevelopment potential.

- Municipal Landfill Cost-Share Grants (\$12 million).
This Program provides grants to local units of government that undertake cleanup actions at municipal solid waste landfills on, or nominated for, the federal Superfund National Priorities List of contaminated sites.
2. Waterfront Redevelopment Program (up to \$50 million)
This Program provides grants to local communities for innovative waterfront improvements that contribute significantly to the local community's economy; to the redevelopment or revitalization of neighborhoods; and to increase public access to the Great Lakes, their connecting waterways, a river, or a lake. Eligible activities include environmental response activities, acquisition of waterfront property, relocation and/or demolition of buildings and facilities, and infrastructure and public facility improvements.
 3. Remediation of Contaminated Lake and River Sediments Program (up to \$25 million)
This Program expands efforts already underway to remove sediments from lakes and rivers contaminated by toxins such as PCBs, mercury, and dichlorodiphenyltrichloroethane (DDT).
 4. Nonpoint Source Pollution Prevention and Control Program (up to \$50 million)
This Program provides grants to nonprofit entities or local units of government to implement physical improvements as identified in an approved DEQ watershed management plan to control the runoff of pollutants such as sediment, nutrients, and pesticides into rivers, lakes, and streams. Physical improvements are defined as vegetative and structural practices and include vegetative buffers, conservation easements, storm water basins, fencing to prevent livestock access to streams, and other practices that control nonpoint source pollution.
 5. Clean Water Fund (up to \$90 million)
This Fund, which includes the Water Quality Monitoring Program, provides funds to implement a comprehensive water quality monitoring plan to determine water quality trends, evaluate water protection programs, and detect emerging problems. Funding also supports implementation of a variety of other water quality programs, including implementing recommendations in watershed management plans in high quality waters and Great Lakes AOCs; implementing voluntary municipal storm water permits;

identifying and eliminating illicit connections to storm sewer systems; locating and plugging abandoned wells; identifying and fixing failing septic systems that threaten or impair State waters; and establishing technical and decision support tools for the Water Use and Withdrawal Program. In addition, CMI funding provides State matching funds required to obtain federal funding for the Conservation Reserve Enhancement Program.

6. Pollution Prevention Program (up to \$20 million)

This Program consists of three subprograms:

- Retired Engineers Technical Assistance Program Fund (\$10 million).
This subprogram creates an endowment to provide funding for pollution prevention assessments by retired engineers and scientists for small businesses, municipalities, and public institutions.
- Small Business Pollution Prevention Assistance - Revolving Loan Fund (\$5 million).
This subprogram provides funds to establish a revolving loan fund for small businesses to implement pollution prevention improvements.
- Pollution Prevention Activities (\$5 million).
This subprogram will further pollution prevention activities throughout the State, including start-up funding for local governments to operate household hazardous waste collections; grants to public and private organizations to implement regional pollution prevention projects; the establishment of the Green Chemistry Support Program to advance research, development, and implementation of green chemistry technologies and practices; and the development of an environmental education curriculum for middle schools.

The Department of Natural Resources administered the CMI natural resources protection programs. The Department of Community Health administered the health protection programs.

As of September 30, 2015, DEQ had expended \$514.6 million in CMI funds on environmental protection projects since fiscal year 1999.

AUDIT SCOPE, METHODOLOGY, AND OTHER INFORMATION

AUDIT SCOPE

To examine the program and other records of the CMI Environmental Protection Programs. We conducted this performance audit* in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our conclusions based on our audit objectives.

We did not include the following programs and subprograms within the scope of this audit: Voluntary Storm Water Permits Grant Program, Illicit Storm Sewer Connection Grants Program, Remediation of Contaminated Lake and River Sediments Program, Pollution Prevention Program, Waterfront Redevelopment Program, and Water Use and Withdrawal Program. Accordingly, we do not express any conclusions related to these programs and subprograms.

PERIOD

Our audit procedures, which included a preliminary survey, audit fieldwork, report preparation, and quality assurance, generally covered October 1, 2013 through September 30, 2015.

METHODOLOGY

We conducted a preliminary survey to gain an understanding of DEQ's operations and activities related to CMI in order to establish our audit objectives, scope, and methodology. During our preliminary survey, we:

- Obtained an understanding of CMI programs and projects and the use of CMI funding.
- Reviewed applicable laws, regulations, policies, and procedures.

OBJECTIVE #1

To assess the effectiveness of DEQ's efforts to ensure that the use of CMI funds complies with laws, regulations, and contract requirements.

To accomplish this objective, we:

- Reviewed applicable project monitoring criteria included in the *Michigan Compiled Laws*, *Michigan Administrative Code*, and applicable contract language.

* See glossary at end of report for definition.

- Obtained an understanding of CMI processes and procedures for awarding funding and monitoring CMI-funded projects.
- Selected a sample of 18 of the 75 projects that were completed or in process during our audit period to ensure that the use of CMI funds complied with laws, regulations, and contract requirements. We randomly and judgmentally selected the 18 projects to ensure that we obtained sufficient audit coverage. Therefore, we could not project our results to the entire population.
- Reviewed project proposals submitted during the audit period to ensure that projects chosen for funding met CMI funding criteria.

OBJECTIVE #2

To compile and report data for programs eligible for CMI funding.

To accomplish this objective, we compiled and reported selected data for DEQ programs eligible for CMI funding.

CONCLUSIONS

We base our conclusions on our audit efforts and any resulting material conditions* or reportable conditions*.

When selecting activities or programs for audit, we direct our efforts based on risk and opportunities to improve State government operations. Consequently, we prepare our performance audit reports on an exception basis.

AGENCY RESPONSES

Not applicable.

PRIOR AUDIT FOLLOW-UP

Following is the status of the reported finding from our September 2014 performance audit of the Clean Michigan Initiative Environmental Protection Programs, Department of Environmental Quality (761-0217-14):

Prior Audit Finding Number	Topic Area	Current Status	Current Finding Number
1a	Brownfield Redevelopment Loan Program Supporting Documentation - Supporting documentation not always collected.	Complied	Not applicable
1b	Brownfield Redevelopment Loan Program Supporting Documentation - Closeout process not completed timely.	Complied	Not applicable

* See glossary at end of report for definition.

**SUPPLEMENTAL
INFORMATION**

Our audit report includes supplemental information presented as Exhibits #1 through #7. Our audit was not directed toward expressing a conclusion on this information.

GLOSSARY OF ABBREVIATIONS AND TERMS

area of concern (AOC)	A geographic location that has experienced environmental degradation.
brownfield	Real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.
CLRS Program	Remediation of Contaminated Lake and River Sediments Program.
CMI	Clean Michigan Initiative.
DEQ	Department of Environmental Quality.
DNR	Department of Natural Resources.
ECRP	Environmental Cleanup and Redevelopment Program.
effectiveness	Success in achieving mission and goals.
EPA	U.S. Environmental Protection Agency.
facility	Any area, place, or property where a hazardous substance in excess of the concentrations that satisfy the cleanup criteria for unrestricted residential use has been released, deposited, disposed of, or otherwise comes to be located. "Facility" does not include any area, place, or property provided for in Section 324.20101(s) of the <i>Michigan Compiled Laws</i> .
industrial partner	A local business that has voluntarily partnered with the EPA Great Lakes National Program Office to implement a contaminated sediment cleanup through the Great Lakes Legacy Act.
material condition	A matter that, in the auditor's judgment, is more severe than a reportable condition and could impair the ability of management to operate a program in an effective and efficient manner and/or could adversely affect the judgment of an interested person concerning the effectiveness and efficiency of the program.
NPL	Superfund National Priority List.
OAG	Office of the Auditor General.

observation	A commentary that highlights certain details or events that may be of interest to users of the report. An observation differs from an audit finding in that it may not include the attributes (condition, effect, criteria, cause, and recommendation) that are presented in an audit finding.
PCB	polychlorinated biphenyl.
PERC	tetrachloroethylene.
performance audit	An audit that provides findings or conclusions based on an evaluation of sufficient, appropriate evidence against criteria. Performance audits provide objective analysis to assist management and those charged with governance and oversight in using the information to improve program performance and operations, reduce costs, facilitate decision making by parties with responsibility to oversee or initiate corrective action, and contribute to public accountability.
ppb	parts per billion.
reportable condition	A matter that, in the auditor's judgment, is less severe than a material condition and falls within any of the following categories: an opportunity for improvement within the context of the audit objectives; a deficiency in internal control that is significant within the context of the audit objectives; all instances of fraud; illegal acts unless they are inconsequential within the context of the audit objectives; significant violations of provisions of contracts or grant agreements; and significant abuse that has occurred or is likely to have occurred.
response activity	The evaluation, interim response activity, remedial action, demolition, or the taking of other actions necessary to protect the public health, safety, or welfare; the environment; or the State's natural resources.
tax increment financing (TIF)	Financing that allows a brownfield redevelopment authority to capture any increases in the property taxes paid on eligible property, under an approved brownfield plan, which is caused by an increase in the value of the property after brownfield redevelopment.
TSCA	Toxic Substances Control Act.
UPRR	Union Pacific Railroad.

