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# MI RIDE to modernize Remediation and Redevelopment

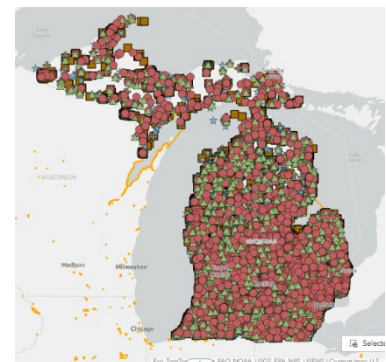
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The State of Michigan (SOM) Department of Technology, Management and Budget (DTMB) developed an innovative platform to streamline environmental oversight and regulatory compliance for the SOM. The Remediation Information Data Exchange (RIDE) system supports the Department of Environment, Great Lakes, and Energy (EGLE) functions of environmental remediation through project tracking and funding, reporting and submittals with the regulatory community, providing public transparency for environmental cleanup projects, and tracking contamination exposure risks to human health and the environment. From disparate data sources and applications, DTMB and EGLE collaborated to design a user interface, determine the features, workflows, and functions necessary to uphold all regulatory and program requirements. RIDE streamlines decision-making, improves program response times, and interacts with the public transparently.



EGLE's Remediation and Redevelopment Division (RRD) is responsible for managing contaminated properties across Michigan. Its core business focus is environmental cleanup, risk management, regulatory compliance, and beneficial property reuse. RRD administers Michigan's Part 201 program (environmental remediation); Part 213 program (leaking underground storage tanks); Brownfield Redevelopment; the federal Superfund program; and other areas focused on environmental contamination. Information and data are critical to this work and prior to the RIDE solution, the data was hosted in two disparate databases, multiple individual performance databases, and spreadsheets and without a shared tracking view for decision making, funding, and reporting.

Michigan has over 10 million residents and more than 25,000 contaminated sites that need or are in the process of remediation. The map to the right shows the contamination sites in red spots, brown squares, and yellow boundaries, while the green indicates controlled sites. Each site has a probable impact on human health, wildlife, and environmental resources (drinking and surface water, air, soil, and vegetation). Remediation grants, loans, and projects currently exceed \$300 million dollars and must be tracked to ensure proper use of the funds and the completion of the cleanup efforts.



In addition to the remediation, redevelopment is a primary outcome for many communities, including the river front of Detroit.



Once one of the most contaminated locations, it is now a bustling hub of outdoor activities and business growth.

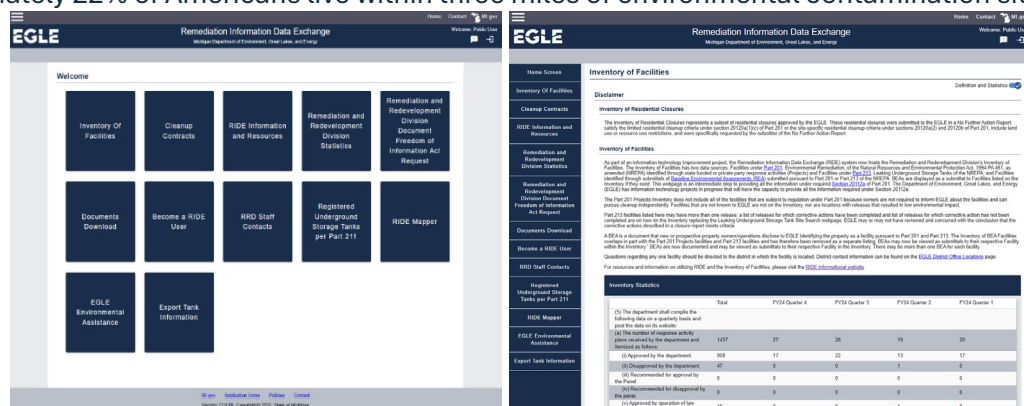
## What makes it different?

Michigan's initial determination to use a custom solution for the base application, has allowed RIDE to expand beyond the single application into a solution with public access to site location maps, associated project dashboards, project funding utilization, and document download. One module was designed specifically to evaluate the risk of the contaminated sites, and track those reported sites without a risk assignment; risk assignment is critical in prioritizing projects and funding options. The most recent releases have even added a level of competition by showcasing the leaking underground storage containment rates per region and tracking EGLE's goals, which are being surpassed.

Evaluation, prior to starting this project, identified some usable solutions but none provided the level of innovation and integrity needed to make the invaluable determinations necessary for the health of Michigan residents. This custom solution is adaptable through change, provides an inclusive view of all data needed to make critical decisions, allows for interconnected processes, is scalable, and has grown to provide long-term sustainability in the complex environment of contamination site remediation and redevelopment. For ten years the team has quickly adapted to the change in regulations, environmental needs, and emerging technologies to keep RIDE current.

## What makes it universal?

RIDE provides a powerful system that many, if not all states, and local governments, could use to transform environmental remediation to a standard worthy of future generations. Per University of Michigan research in 2024, approximately 22% of Americans live within three miles of environmental contamination sites.



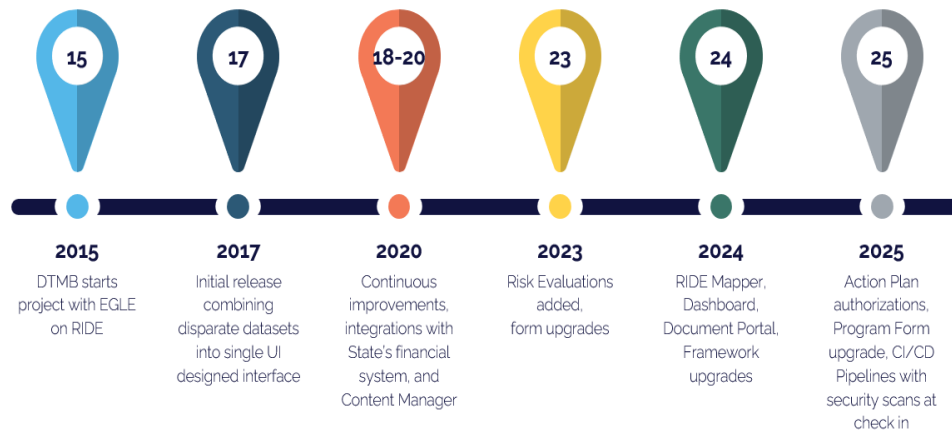
RIDE is a user-centric designed system with transparency of Remediation and Redevelopment projects, open and closed contamination sites, project budgets/spend, FOIA reducing document portal, including a public facing map and dashboard for clear communication of RRD program outputs. EGLE executives have data at their fingertips to track millions of dollars in grants, loans, and projects funds, track closure of contaminated sites, compare projects to determine funding needs, and make decisions with real-time insights. This power is significant and applicable globally.

The image shows a screenshot of the 'Contracts' page in the RIDE application. The page displays a table of cleanup contracts with columns for Contract Number, Location Name, Vendor Name, Contract Total, and Contract Status. The table lists several contracts, including Y25230, Y25246, Y25231, Y25241, Y25245, Y25242, Y25244, and Y25248.

Contract Number	Location Name	Vendor Name	Contract Total	Contract Status
Y25230	Technical Support Unit - Part 213 Research	University/Consultants of Michigan, Inc.	\$0.00	Open
Y25246	Dry Cleaner Triage - Statewide	SOL AND MATERIALS ENGINEERS INC.	\$0.00	Open
Y25231	Technical Support Unit - Part 201 Research	University/Consultants of Michigan, Inc.	\$0.00	Open
Y25241	423 West Main Street, Ionia	ART PERLESS ENVIRONMENTAL SERVICES, LLC	\$64,000.00	Open
Y25245	Dry Cleaner Triage - Statewide	SOL AND MATERIALS ENGINEERS INC.	\$13,411.26	Open
Y25242	26401 Rock Avenue	HSP MICHIGAN INC.	\$39,960.00	Open
Y25244	State Wide Expanded Triage (Contract Placeholder)	SOL AND MATERIALS ENGINEERS INC.	\$33,940.00	Open
Y25248	11401 Chrysler Street SE, Grand Rapids (former King Kullen Laundry)	HAMP MATHEWS & ASSOCIATES, INC.	\$13,000.00	Open

## IMPLEMENTATION

What was the roadmap and how does this project fit into an enterprise view?



The approach for RIDE, from the very beginning, has been one of collaboration, where the roadmap is set based on functionality needed for EGLE to meet state and federal policies and requirements. The prioritization of functionality includes joint consideration for addressing technical debt and ensuring alignment to Michigan IT policies, standards, and procedures, including the SUITE project management methodology. This approach has ensured ease of integration with other SOM systems.

Maintaining enterprise standards for DTMB has been paramount in maintaining this system through ten years of development and enhancement efforts and will maintain it in the future without the need for another modernization rewrite anytime soon. Additionally, following the enterprise standards has allowed the workflow and user-centric design to be reused for other agencies and has been used as a starting point for other development teams with DTMB.

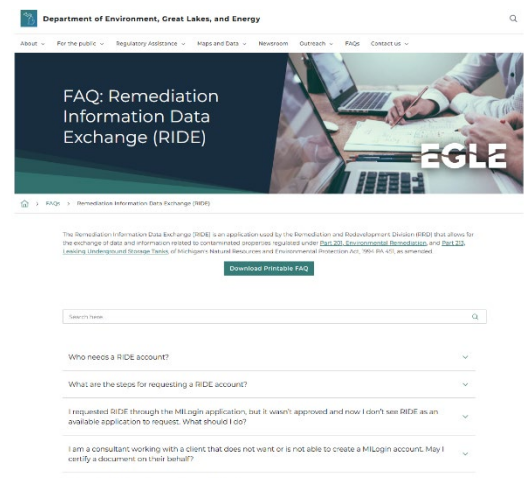
### Who was involved?

The RIDE team continues to utilize a steering committee, of DTMB and EGLE sponsors, to make decisions on the system's budget and themes per fiscal year. Otherwise, the agile team includes the EGLE product owner, DTMB technical owner, DTMB architects, DTMB scrum master, DTMB project manager, DTMB business analyst, EGLE subject matter experts, DTMB and EGLE testers, and six DTMB developers to create, groom, and deliver the backlog of epics, features, user stories, and tasks. EGLE subject matter experts ensured representation of the agency program areas.

Training videos and FAQs are created for end users and public portal users to ensure access to the system is inclusive of all residents and

### Technology Highlights

- **2015 Budget for RIDE: \$1.4 M – 2 years**
- **Actuals to date: \$12.8 M – 10 years**
- **Agile Team projected budget \$1 M/year**
- **RIDE Backend Technologies: Angular, Typescript, .Net 7, C# and MS SQL**
- **ArcGIS mapping and dashboards**
- **Document management with API calls to Content Manager**
- **Framework used across agencies**
- **CI/CD Pipelines with automated vulnerability scans reduced deployment time by 98.2% to only 4.42 minutes**



businesses. Feedback is collected from the submitters, reviewers, managers, and the public for continuous improvements. The site would not be where it is today without the input received.

**How did you do it?**

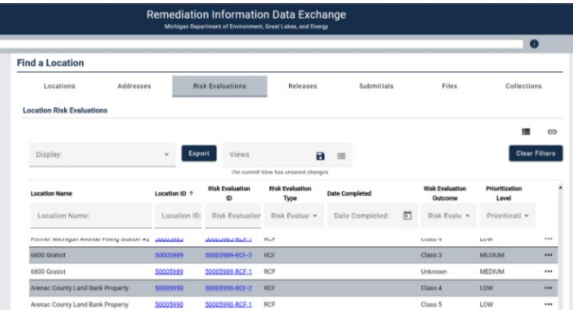
Minimum Viable Product (MVP) was a core consideration when assessing scope and priorities, taking into consideration the comprehensive impact of work items to both new and existing business operations and related technology dependencies. User adoption was a key focus and leveraged UI expertise as well as modern UI and UX principles. The approach included a purposeful inclusion of reusable common feature sets from core ArcGIS and shared module libraries while maintaining compatibility and compliance with evolving standards and security requirements over the duration of the development efforts.

This project uses .NET 8 with Entity Framework and Angular 18 as the development technology platform. As newer versions of this technology are released, updates are made accordingly to stay on the latest platform. By utilizing this technology stack and consistently upgrading when available, the project team can more reliably support the system by mitigating security risks from outdated software versions and providing system stability at a cost savings. This benefits the stability and performance of the application in addition to providing for development efficiencies and increases the value of services and work performed.

**IMPACT**

**What did the project make better?**

RIDE has improved transparency with the public, reduced processing time with workflows, improved remediation project tracking and funding, improved interaction with the regulated community for reports and submittals, and reduced contamination exposure risks to human health and the environment.



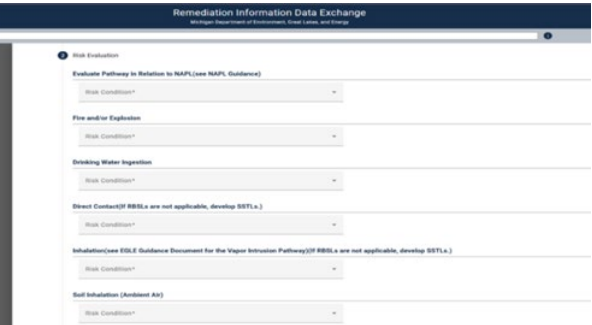
Location Name	Location ID	Risk Evaluation ID	Risk Evaluation Type	Date Completed	Risk Evaluation Outcome	Risk Factor	Prioritization Level
6800 Grand	30000000	30000000-RCP-1	RCP		Class 3	LOW	MEDIUM
6900 Grand	30000000	30000000-RCP-1	RCP		Unknown	MEDIUM	MEDIUM
Amenac County Land Bank Property	30000000	30000000-RCP-1	RCP		Class 4	LOW	LOW
Amenac County Land Bank Property	30000000	30000000-RCP-1	RCP		Class 5	LOW	LOW

RIDE provides a portal for the submission of reports and other information by contractors and site representatives. RRD receives more than 5,000 reports from the regulated community each year, and hundreds more from state contractors. These reports include “Baseline Environmental Assessments” which provides liability protection during property transactions, site closure reports, notifications of on-site work, and others.

RIDE maintains electronic documentation received through the portal and removes the need to scan and index paper submissions and

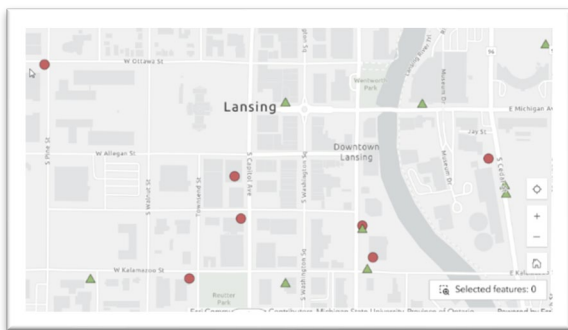
support documentation. The submissions/documents now follow an automated workflow to land in the document management system.

RIDE has created a Documents Download module which allows public users to access any document that has been scanned, redacted, and is ready for public consumption. There are currently more than 1.3 million documents available through RIDE, and public users are downloading more than 12,000 documents per month. This has reduced FOIA requests, improving RRD’s efficiency and customer service. RIDE provides effective risk management of contamination sites.



RIDE’s Risk Evaluation module, shown to the right, used to evaluate, catalog and manage risk at contaminated properties, allows users to walk through a step-by-step form to assign risk to a given location.



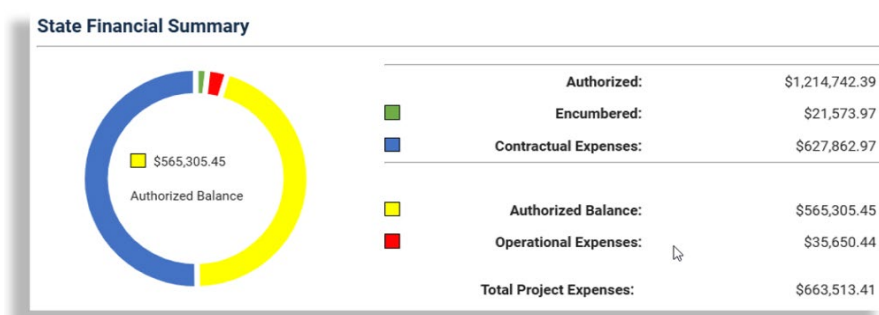
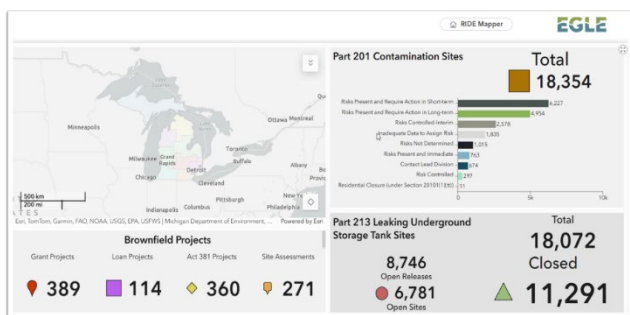


RIDE Mapper and Dashboard provide a data visualization tool built on ArcGIS platform, by EGLE experts, with data from the RIDE database. This innovative ESRI experience builder allows users to view contaminated properties on a map where users can zoom into particular sites of interest or ones in their neighborhood, and a dashboard displays programmatic summaries of the data.

When a user is exploring data, they can quickly and easily follow a hyperlink to more detailed information in RIDE's user-centric

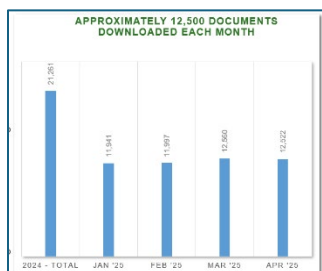
interface, making this a rich extension of the user experience and allowing the user to download documents related to the site of interest.

RIDE users have a quick view of the budgets, funds out and encumbered, and the remaining budget for the remediation and redevelopment projects they manage.



## How do you know?

EGLE has seen astounding results from each module added to increase interactions with the residents and businesses. Simply by creating the submission portal, allowing electronic uploads of reports and capturing the submission data directly into RIDE, RRD is now receiving 81% of report submittals through RIDE. In the coming year RRD plans to start requiring all submittals through RIDE.



The document download feature, released to the public in 2024, was designed to address some of the 17,000 plus FOIA request received annually for the RRD program. More than 1.3 million documents in RIDE and the ability for public users to download documents is producing double digit reductions in FOIA requests from the RRD program. In 2024, approximately 21,000 documents were downloaded; within the first 2 months of 2025 this number was surpassed, and FOIA requests are rapidly reducing.

In May of 2023, over 60% of the sites regulated by Part 201 were in a 'Risks Not Determined' category. This backlog hindered RRD's mission to effectively implement a risk-based approach to managing contaminated properties. Using the RIDE system, this number was reduced from over 60% (11,000+ properties) to 5% (less than 1,000 properties) over the course of only 2 years. The significance of this effort cannot be overstated, as it has resulted in a well-organized workload that is focused on contaminated properties that represent the highest risk to human health and the environment.



The public is embracing RIDE’s portals not just for document downloads, RIDE Mapper and Dashboard have over 8,000 page views per month since it was first launched in April 2024. In May of 2023, over 60% of the sites regulated by Part 201 were in a ‘Risks Not Determined’ category. This backlog hindered RRD’s mission to effectively implement a risk-based approach to managing contaminated properties. Using the RIDE system, this number was reduced from over 60% (11,000+ properties) to 5% (less than 1,000 properties) over the course of only two years. The significance of this effort cannot be overstated, as it has resulted in a well-organized workload that is focused on contaminated properties that represent the highest risk to human health and the environment.

RIDE supports workload management tools, metrics, and programmatic goals by leveraging data in real time. For example, RRD leadership developed a program goal of evaluating Part 213 sites (leaking underground storage tanks) and reaching ‘closure’ at a minimum of 400 sites in 2024. The Remediation & Redevelopment Division Part 213 Dashboard, shown here, was built using PowerBI from integrated RIDE data.

This dashboard was published on an RRD SharePoint page and changed using real-time data, allowing staff to periodically review progress throughout the year. If you look closely, you’ll see 7 of 10 districts met their annual goals, and RRD exceeded the overall goal by closing 426 sites during the allotted timeframe. As a comparison, 426 closures were the most achieved by the department since 1993, and even more are expected in 2025. Leveraging tools and data to set performance targets and report on them in real-time has resulted in a heightened amount of engagement and accomplishment by RRD’s district teams.



## What now?

Still to come in 2025, EGLE will see authorization of Action Plans integrated and communicated through the RIDE system and online portal, additional dashboards that track and display program goals and metrics using RIDE data, continuous framework maintenance to address technical debt, and an expectation of almost every metric presented here to be surpassed and FOIA requests to plummet.

2025 will also see the start of an 18-month project to move Michigan Underground Storage Tank Authority (MUSTA) into the RIDE system. MUSTA serves Michigan’s petroleum underground storage tank owners and operators, local units of government, and country road commissions by managing the Underground Storage Tank Cleanup Fund, Legacy Release Program, and Public Highway Cleanup Program on a sound fiscal basis. Inclusion in RIDE will ensure the commitment to providing prompt and consistent service in assisting stakeholders in meeting their financial responsibility requirements and efficiently providing financial assistance to remediate contamination caused by releases from petroleum underground storage tanks. MUSTA currently has a small system for internal tracking and all interactions with stakeholders are through forms and documents mailed or emailed to the division.

For 2026 and beyond EGLE has targeted additional advancements to RIDE. RIDE will be integrated with the Laboratory Information Management to display lab-related data, and the EGLE Grants Management solution (EGX) to expand the Brownfield project tracking. A new module of Compliance and Enforcement to facilitate tracking of Settlements, Cost Recovery, Compliance Plans, and Land/Resource Use Restrictions.

RIDE continues to be an integral part of the RRD program management and is deserving of the continued investment and innovation necessary to keep Michigan moving in remediation and redevelopment efforts. Stay up to date with Michigan’s progress through the [RIDE Mapper](#) and [Dashboards](#).