Maritime Innovation Terminal Feasibility Study

Executive Summary, Recommendations, and Path Forward

Port Detroit

Board of Directors

September 18, 2026

RAMBOLL

Bright ideas.
Sustainable change.

Advance a focused Phase 1 and preserve flexibility for expansion

Begin with smaller vessels and flexible infrastructure, while keeping future expansion optional.

1) Market pull

Demand is strongest for testing and validation of advanced components, automation, digitalization, and vessel modernization.

2) Detroit advantage

Manufacturing, maritime, workforce, and research assets create a differentiated platform.

3) Practical start

A smaller-vessel program with flexible infrastructure is feasible – and can deliver economic and workforce benefits.

Start now

- Confirm the Phase 1 program
- Formalize anchor-partner discussions with University of Michigan, AquaAction and others
- Complete priority site investigations
- Develop fundable project packages

Resolve before final commitment

- Operating and governance model
- Long-term site-control arrangements
- Final facilities and vessel basis, plus triggers for future infrastructure

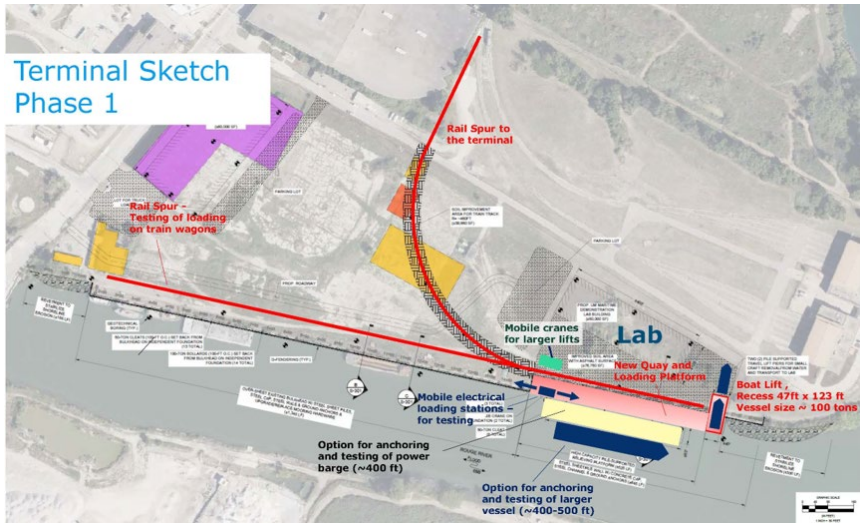
Activate Phase 1 now and expand only when defined triggers are met

Commit to the practical starting point and retain expansion as a contingent option.

Phase 1

Base case

- Lab, laydown and modular testing
- New 500–525 ft quay for smaller vessels
- Flexible apron plus mobile handling / charging
- Reserve utility and data corridors



Decision gate

Advance only once you

- Confirm users and vessel needs
- Resolve engineering, sediment and permits
- Secure partners, funding and operating case

New approval required

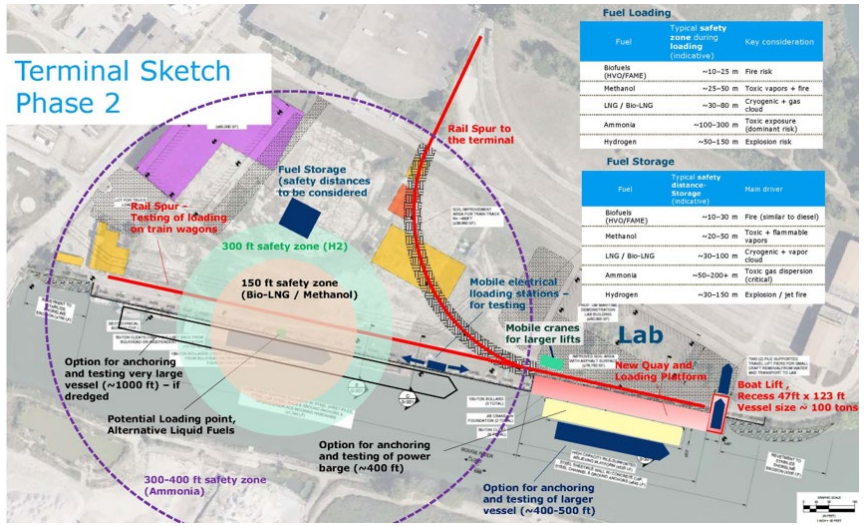
Return to the Board after trigger validation

Dredging, larger-vessel access, dry dock, fixed energy systems and rail remain contingent on approval.

Phase 2

Potential expansion

- Rebuild the western quay and dredge
- Enable larger-vessel access and dry dock
- Add fixed charging / alternative-fuel systems
- Connect rail or dedicated intermodal



What global innovation hubs teach us

Three global models point to the same operating logic for a durable maritime innovation hub.

Evidence from global hubs

Maritime blue
Strong operator

A dedicated nonprofit coordinates tenant space, startups, industry partnerships and workforce activity.

Altasea
Phase the build

The campus grows around anchor institutions, tenants, research and education-not the full concept at once.

Port of Gulfport
Research partnership

The port provides the waterfront setting and infrastructure; the university leads research operations.

What Detroit should do

1) Phase shared infrastructure

Build what Phase 1 needs now and preserve flexibility for future growth.

2) Name an accountable operator

Use one operating model to coordinate tenants, programs and partnerships.

3) Secure anchor partners

Connect industry, applied research and workforce pipelines from the start.

Implication **Design the operating model and anchor partnerships in parallel with Phase 1 planning.**

Why This Opportunity Exists

Shared real-world validation is the missing link to commercialization

Technologies are advancing, but access to maritime test assets remains fragmented, slow and costly.

What breaks the path

Too few instrumented vessels and real-world test environments

Validation pathways are slow, constrained and costly

Labs, waterfront, manufacturing and data access are fragmented

Startups lack direct connections to industry users

Maritime innovation terminal

Connecting testing to demonstration

- Land-based testing & retrofit
- On-water validation & instrumentation
- Industry-led demonstration programs

Demand signals

Components & materials | Automation & autonomy | Digital vessel & port systems | Modernization & electrification | Alternative fuels

Outcome **Faster validation | Lower costs for smaller firms | Stronger paths to customers**

Why Detroit

Detroit’s advantage is a combination of factors

Four reinforcing assets create a maritime innovation position few regions can replicate.

Four reinforcing assets

1	**Advanced manufacturing**	**282k+ jobs in manufacturing**	2× U.S. manufacturing concentration; precision production, robotics and mobility.
2	**Maritime and defense**	**Naval supply chain**	Navy-supported training and active Great Lakes vessel, port and industrial activity.
3	**Research and innovation**	**Labs and test assets**	Universities, labs and test assets (University of Michigan) spanning autonomy, materials and data.
4	**Workforce and policy**	**200k+ jobs in ecosystem**	State priorities align infrastructure, innovation and workforce development.

One strategic advantage

DETROIT

is positioned to become a

Maritime innovation hub

serving the

Great Lakes

Industrial depth | Maritime activity | Applied research | Aligned workforce

The site has a near-term maritime utility and room to scale

The Rouge River site pairs direct access and marine infrastructure with an expandable innovation platform.

Near-term utility
21 waterfront acres

Direct Rouge River access. Marine infrastructure can support smaller demonstration vessels with limited water-depth improvements.

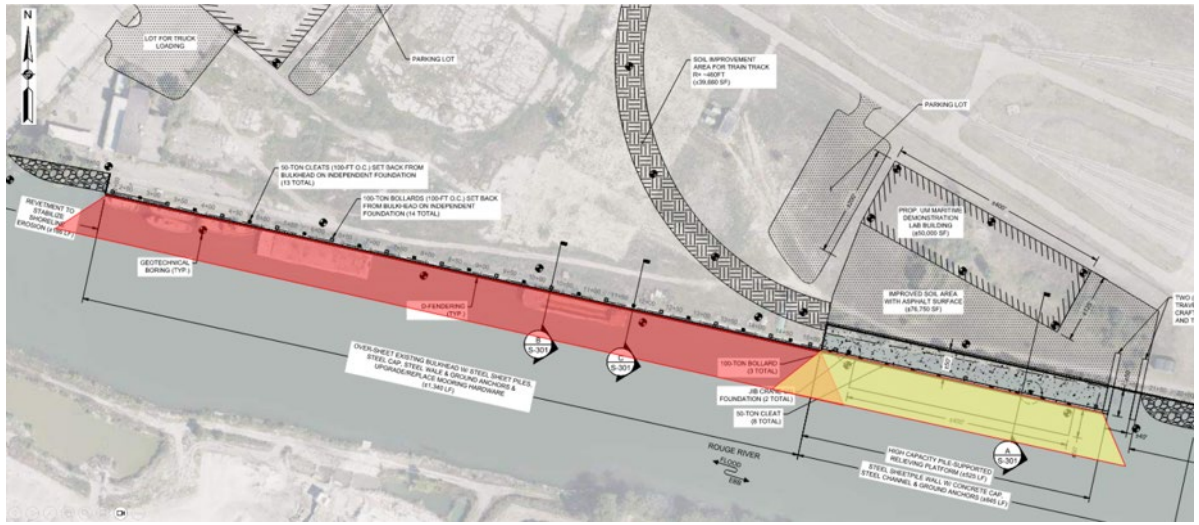
Built to scale
One expandable platform

Office | Lab | Warehouse | Testing | Retrofit | Demonstration | Room to preserve future waterfront, utility and vessel options.

Aerial context | Direct rouge river access

Existing waterfront and surrounding industrial context

Site concept | Redevelopment and expansion options



Concept plan showing the proposed waterfront platform footprint

Note: Site Confirmation and Infrastructure Evaluation findings are based on Foth's April 22, 2026 concept and earlier inspection information.

What the terminal should do

Market demand centers on repeatable validation

Across the strongest markets, users need credible proof in real operating conditions.

Where demand is strongest

Market	Recurring need
Advanced components & materials	Prove component performance
Automation & autonomous systems	Validate in operating conditions
Digital vessel & smart-port systems	Instrument, monitor and generate data
Vessel modernization & retrofit	Integrate and demonstrate upgrades

Adjacent opportunities

Relevant, but better activated with specialist partners:

- Land-based testing & retrofit
- On-water validation and instrumentation
- Industry-led demonstration programs

Terminal mandate

Turn these market needs into four core capabilities:

Test | Integrate | Instrument | Validate on Water

The Terminal connects testing to real-world proof

One operating model connects land-based capabilities, an instrumented vessel and on-water validation.

Land-based lab

Test | Integrate | Instrument

- Materials and component testing
- Integration and retrofit support
- Systems instrumentation and monitoring
- Electrical, digital and autonomy validation

Enables Applied research and workforce programming

Demonstration vessel

Modular | Shared | Instrumented

- Repeatable industry use cases
- Scenario replication and remote operations
- Integrated sensors and data collection
- Qualification-grade system trials

Bridges Controlled tests to operating conditions

On-water validation

Trial | Demonstrate | Validate

- Real-world system and component trials
- Autonomy and remote-operation scenarios
- Modernization and electrification demos
- Credible performance datasets

Proves Performance in real operating conditions

Outcome **Repeatable trials > Credible datasets > Faster adoption**

Feasibility supports a focused, phased path

The study narrowed the opportunity and defined the conditions for implementation.

Focus demand	De-risk assets	Resolve delivery
Strongest signal Repeatable testing and validation	**Required to operate** Anchor users and repeatable vessel workflows	**Open decisions** Governance, site control and operating economics
Does not work alone Infrastructure investment or alternative-fuel production	**Site constraint** Large-vessel access may require dredging and structural upgrades	**Evidence still needed** Priority site investigations before detailed design
Implementation implication		
Prioritize defined, repeatable use cases	**Confirm users and site evidence before design**	**Advance through partner-led gates**

Implication **Proceed when demand, site conditions and delivery ownership are confirmed.**

What The Site Can Support

Phase 1 builds a flexible smaller-vessel testing platform

Build the operating core now while reserving major marine, energy and logistics infrastructure for later.

Build now | Phase 1 program

Operating core

- Innovation lab and landside facilities
- Smaller-vessel berthing
- Laydown, retrofit and modular testing

Waterfront enablers

- 500–525 feet new quay
- Flexible apron and crane-loading zones
- Mobile handling, truck access and storage

Future-ready provisions

- Electrical readiness and protected connections
- BESS-ready space
- Reserved power, data and utility corridors

Hold for defined triggers

No major marine expansion

Full-depth dredging
Floating dry dock

No fixed energy systems

Fuel storage and pipelines
Fixed high-power charging

No commercial logistics

Rail spur
Full container handling

Result **A lower-regret start that delivers utility now and preserves expansion options.**

Expansion unlocks only after demand and feasibility are proven

Phase 2 remains optional: each investment pathway advances only when its gates are satisfied.

Universal gates	**Confirmed user or operator | Viable funding | Operating case**	
Expansion pathway	**Potential investments**	**Pathway-specific evidence**
Marine access	• Western quay reconstruction • Targeted / full-depth dredging • Larger-vessel access and floating dry dock	• Vessel and operating requirements • Engineering and structural feasibility • Sediment / permitting pathway
Energy systems	• Fixed high-power charging and grid upgrades • Fixed / semi-fixed alternative-fuel systems	• Utility capacity • Safety case
Logistics	• Rail spur or dedicated intermodal equipment	• Defined operating requirements • Engineering feasibility
Decision gate	**No Phase 2 investment proceeds without trigger validation and future approval.**	

Economic & Workforce Opportunity

The Terminal can deliver $727M and accessible careers

Ten-year modeled value combines regional economic output, jobs supported and accessible career pathways.

Ten-year modeled impact

$727M

Economic output

Economic value

2,362

Jobs supported over ten years

$11.2M

State of Michigan fiscal revenue

First fully operational year

331 jobs | $96M output

Access to quality careers

Component manufacturing

68%

Maritime operations

76%

of roles do not require a four-year degree

$95K

Modeled average terminal wage

versus $77K average across the metro area

Bottom line **Public value is strong, and delivery depends on partners, governance and funding.**

Partners, Governance & Funding

Phase 1 needs clear ownership, site control and anchor demand

Three partners own execution. Research, innovation and workforce partners enable it.

Accountable core

Port Detroit	Great Lakes Water Authority	Industry anchor partners
Own delivery leadership	**Own the site-control path**	**Own demand and utilization**
Lead maritime development, coordinate site development and public funding, and convene regional stakeholders.	Remain the required party to any long-term site-control arrangement and continued site participation.	Define repeatable testing needs and bring projects, equipment, users and potential cost share.
Commit now		
Named development lead and coordination mandate	Defined site-control agreement and participation terms	Documented workflows and utilization commitments

Enabling network

University & research (ex. University of Michigan)

- Applied research
- Labs and talent
- Demonstration partnerships

Innovation & workforce (ex. AquaAction)

- Startup pipeline
- Commercialization support
- Training pathways

Funding gate **Confirm decision rights, operating model and accountable commitments.**

Fund Phase 1 as five distinct packages

Each package needs a defined scope, applicant, match, readiness case and funding strategy.

Package	Scope	Funding fit	Readiness gate
Waterfront infrastructure	Quay | Apron | Shoreline | Access | Utilities	**Candidate** Michigan port funding and future federal transport	**Confirm eligibility and applicant**
Innovation lab	Lab | Test bays | Workshops | Commercialization	**Strongest federal fit** EDA Public Works / Economic Adjustment	**Confirm applicant, match and readiness**
Demonstration equipment	Instrumentation | Modular equipment | Electrification | Demos	**Blended fit** Clean Ports (if eligible) and research / industry / sponsors	**Define eligible equipment and cost share**
Environment & resilience	Sediment | Remediation | Shoreline | Brownfield	**Eligibility-led** Great Lakes Legacy Act | GLRI | EGLE | Resilience	**Complete characterization and prove eligibility**
Workforce & programming	Training | Applied research | Commercialization	**Partner-led** employers | universities | industry | philanthropy	**Secure partners and delivery commitments**

Next 12 months **Assign applicants, confirm eligibility and match, then sequence applications**

Note: Funding of up to $787 million is available through FHWA PROTECT, with applications due October 9.

Endorse Phase 1 advancement while keeping Phase 2 conditional

Over the next 12 months, move from definition to de-risking to fundable execution.

01 Define	02 De-risk	03 Fund
Confirm the Phase 1 program	**Build the technical basis**	**Prepare executable packages**
• Confirm functions, users, vessel basis, facilities and equipment • Convert anchor interest into use cases and commitments • Resolve site control, governance and operating model	• Complete priority surveys and inspections • Characterize sediment, utilities and grid • Advance preliminary design from confirmed results	• Define applicants, ownership and match • Establish costs, evidence and revenue needs • Develop fundable scopes and operating financial model
12-month outcome		
Confirmed program, governance and partner commitments	Investigation-backed Phase 1 design basis	Submission-ready packages and financial model
Accountable parties		
Port Detroit | GLWA | anchor partners	Development lead | Technical team	Port Detroit | Package applicants

Action **Authorize commitments, investigations, design and funding-package development**