



Strategic Plan 2027-2031

VISION

By 2031, partner agencies (i) select innovative materials on the basis of independent performance and life cycle evidence and (ii) hold the specifications and certifications needed to use evaluated materials in routine construction and maintenance.

MISSION

The TMRC evaluates innovative construction and maintenance materials for transportation infrastructure and delivers the results to partner agencies as data, tools, specifications, and certifications.

In this plan, a material is innovative when a partner agency lacks the performance evidence or the specification needed to use it routinely.

PLANS

1. Evaluate the long-term physical performance of priority materials under field conditions and set performance expectations by application and region.
2. Develop the methods, tools, and database needed to include evaluated materials in life cycle assessments.
3. Convert evaluation results into specifications, guidelines, and a certification program, in conjunction with AASHTO, ASTM, and material producers.
4. Transfer results to state and local agencies and support them in implementing evaluated materials.
5. Identify the barriers that keep evaluated materials out of practice and conduct applied research to remove them.

METHODS

The TMRC operates as a pooled fund. Iowa DOT is the lead state, Michigan State University (MSU) administers the Center, and the Executive Board of partner agencies sets priorities at quarterly meetings and one annual in-person meeting.

Materials Evaluation: The Executive Board selects the priority materials and reviews the list each year. MSU issues a Request for Proposals (RFP) for each selected material. Every evaluation follows a

common protocol covering laboratory characterization, field performance, and constructability, so that results are comparable across materials and states. Each evaluation reports performance expectations for the applications and regions in which partner agencies intend to use the material.

Life Cycle Assessment: The TMRC develops a life cycle assessment (LCA) method for innovative materials and maintains a database of the inputs each evaluated material requires. Data from the materials evaluations feed the database directly. The method and database are packaged in a tool that agency staff can apply to material and construction alternatives.

Standards and Certification: Each evaluation project ends with a draft specification or guideline. TMRC staff carry the drafts to the AASHTO Subcommittee on Materials and ASTM Committee D18.14 at their semi-annual meetings. A working group of partner agencies and material producers defines the certification program, including requirements for quality control, availability, and suitability by application.

Technology Transfer: Results reach agencies through workshops, webinars, the TMRC website, quarterly reports, and presentations at national events chosen by the Executive Board. Workshops and webinars are organized by priority material. The website holds every report, dataset, specification, and tool the Center produces. MSU staff answer agency inquiries and provide direct guidance to local agencies that implement an evaluated material.

Barriers and Applied Research: Partner agencies report the barriers they face in adopting evaluated materials, and the Executive Board ranks them each year. RFPs are written against the ranked barriers and against the evidence gaps found during materials evaluation. Research is awarded competitively. MSU may submit proposals and does not administer the review and selection process for any RFP to which it applies.

PRIORITY MATERIALS

The Executive Board selects priority materials from the candidate list below. Factors to consider include demand from partner agencies, supply available in partner states, status of existing performance evidence, potential effect on infrastructure performance and cost, and potential for leveraging outside funding.

Material category	Examples
Recycled and byproduct aggregates	Recycled concrete aggregate, reclaimed asphalt pavement in unbound layers, steel slag, foundry sand
High-recycled-content asphalt mixtures	High reclaimed asphalt pavement contents, recycled asphalt shingles, recycling agents
Asphalt modifiers and alternative binders	Ground tire rubber, recycled plastics, bio-based binders, fibers
Alternative supplementary cementitious materials	Harvested fly ash, natural pozzolans, calcined clays, ground glass pozzolan
Low-clinker cements	Portland-limestone cement, limestone calcined clay cement
Non-traditional stabilizers	Polymer stabilizers, cement kiln dust, lime kiln dust
Geosynthetics	Wicking geotextiles, geocells, multiaxial geogrids
Lightweight fills	Foamed glass aggregate, cellular concrete, tire-derived aggregate
Maintenance and repair materials	Rapid-setting patching materials, crack sealants, thin overlays

GOALS

Materials Evaluation

- adopt a common evaluation protocol and apply it to every priority material
- complete an evaluation of each priority material selected by the Executive Board
- publish performance expectations by application and region for each evaluated material

Life Cycle Assessment

- publish an LCA method for innovative materials that partner agencies accept
- maintain a public LCA database that covers every evaluated material
- release a tool that agency staff can run without specialist training
- have partner agencies use the tool on their own projects

Standards and Certification

- deliver a draft specification or guideline from every evaluation project
- bring TMRC drafts to ballot at AASHTO and ASTM
- launch the certification program and certify the first evaluated materials

Technology Transfer

- offer a workshop and a webinar series on each priority material
- train materials and pavement engineers in every partner state
- support local agencies in each partner state in implementing an evaluated material
- keep every report, dataset, specification, and tool current on the website
- add partner agencies to the pooled fund

Barriers and Applied Research

- maintain a ranked list of adoption barriers, reviewed by the Executive Board each year
- tie every RFP to a ranked barrier or a documented evidence gap
- secure outside matching support for applied research efforts