

Fiscal Year (FY) 2020 Appropriation Reporting Requirement: PA 66 of 2019, Section 660

The Michigan Department of Transportation (MDOT) continues to work with road construction industries and its many other customers to develop and enhance alternative road surface materials for road construction projects as required by Public Act 66 of 2019, Section 660. MDOT has a long and rich history of looking to incorporate new materials, recycled materials, and new processes into the department's road construction portfolio. MDOT has been a leader in the use of recycled asphalt in hot mix asphalt pavements for the last 30 years. In accordance with the reporting requirements, the following items demonstrate the efforts of the department in FY 2019:

1. The legislature encourages the department to examine the use of alternative road surface materials, including recycled materials, and to develop criteria and specifications for their use in both department-managed and contracted projects.

MDOT continues to work with its construction industry partners to identify and examine the use of alternative road surface materials, including recycled materials. Currently, MDOT has permissive specifications for the use of Reclaimed Asphalt Pavement (RAP), Recycled Asphalt Shingles (RAS), recycled tire rubber, and recycled concrete pavement, which means these materials are allowed in certain situations as noted in the individual material specifications. When allowed, it is at the contractor's option, based on their own economic analysis. In addition, MDOT continues to monitor a project that was constructed in 2013, which made use of recycled tires by incorporating them into the asphalt mixture. Furthermore, a Hot-in-Place Recycled project was constructed in 2015 that continues to be monitored. Hot-in-Place recycling is a process that heats up existing pavement, removes the top layer, mixes in emulsion additives, and then immediately places the recycled asphalt back as the top, driving surface.

2. The department shall report on efforts taken to implement this section. The report shall include the descriptions of specific materials evaluated, evaluation methods, and results of specific field or laboratory tests. The department shall complete and submit the report to the state budget director, the house and senate appropriations subcommittees on transportation, and the house and senate fiscal agencies on or before March 1 of each year.

a. **Crumb Rubber/Recycled Tire Rubber:** MDOT developed a permissive specification for use of recycled tire rubber. The specification included modifications to address performance issues identified on Local Agency projects and MDOT's 2013 pilot project. Premature stressing is believed to be related to modifications or waiver of the Performance Grade (PG) Binder tests. MDOT specifications disallow altering or waiving of the AASHTO PG Binder tests. Acceptance on future projects incorporating recycled tire rubber will be based on a combination of field inspection and testing.

MDOT has continued partnering efforts with the Department of Environment, Great Lakes, and Energy (EGLE). This includes assistance in the review of applications for the EGLE recycled tire grants as well as providing feedback on the application process and on selection criteria for the grants.

MDOT also continues to meet with industry and academia regarding new technologies and research related to recycled tires.

b. Reclaimed Asphalt Pavement (RAP)/Recycled Asphalt Shingles (RAS): MDOT continues to base acceptance of asphalt mixes, including those containing RAP/RAS, on a combination of field inspection and testing.

c. Hot-in-Place Recycling: The pilot project continues to be monitored for performance to determine if this is a viable fix for MDOT to use in the future and if any revisions need to be made to the specification for future projects. The reflective cracking that appeared early in the pavement's life continues to propagate. The department had planned a partial replacement project for 2021, but the rate of deterioration has slowed. Therefore, a future surface seal to keep the water out of the pavement and further extend the life of the pavement is planned for 2021.