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SFA



BILL ANALYSIS

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Senate Bill 563 (as enrolled)
Sponsor: Senator Thaddeus G. McCotter
Senate Committee: Transportation and Tourism
House Committee: Transportation

PUBLIC ACT 259 of 2001

Date Completed: 4-1-02

RATIONALE

Under State law, the Michigan Department of Transportation (MDOT) is required to perform a "life-cycle cost analysis" for projects in which total pavement costs, funded entirely or partly by the State, exceed \$1 million. The Department then must design and award paving projects that use material having the lowest life-cycle cost. These requirements are contained in Section 1h of Public Act 51 of 1951 (the Michigan Transportation Fund law). Section 1h was added in 1997 to establish an objective process for MDOT to use in selecting pavement for highway projects. Apparently, however, the life-cycle cost requirements may interfere with MDOT's ability to try out new types of pavement or methods of paving through demonstration projects. Under the law, life-cycle cost must be based on the history of a design, which is not available for an untested product or technique.

In order to avoid triggering the life-cycle cost requirement, the Department has had to keep demonstration projects relatively small. According to MDOT, however, the smaller a project is, the less realistic or accurate the results will be. Therefore, it was suggested that MDOT be permitted to engage in a limited number of demonstration projects without regard to the life-cycle cost requirements.

CONTENT

The bill amended Public Act 51 of 1951 to do the following:

- **Permit the Michigan Department of Transportation to conduct up to four pavement demonstration projects each year, notwithstanding Section 1h.**
- **Provide that the total cost of contracts**

awarded for demonstration projects using asphalt and concrete may not exceed a difference of more than 20% between those materials in any two-year period.

- **Require MDOT to make a final report for each demonstration project.**
- **Require the MDOT Director to report annually to the legislative transportation committees.**

Specifically, the bill permits MDOT to conduct up to four pavement demonstration projects each year to evaluate new construction methods, materials, or design, notwithstanding Section 1h. The Department also may offer or conduct a pavement demonstration project that may be all or a portion of that project using either concrete or asphalt, as determined by MDOT.

Each demonstration project must include measurable goals and objectives for determining its success. Demonstration projects must be selected according to any of the following criteria:

- Pavement designs intended to increase pavement life expectancy.
- Pavement designs intended to improve performance, including friction, surface stress, noise reduction, and improvement of ride quality.
- Comparisons of performance of various types of pavement.

The total cost of contracts awarded for demonstration projects under the bill using asphalt and concrete may not exceed a difference of more than 20% between the respective paving materials in any two-year

period. In this provision, "total costs" means the initial engineer's estimated costs of the pavement design portion of the project.

The bill requires MDOT to make a final report for each demonstration project following its demonstration life, which may be shorter than the actual pavement life of the material used for the project. The final report must assess the cost effectiveness and performance of the pavement materials and design used in the project, and compare the results to the pavement material identified under MDOT's standard pavement selection process.

By February 1 each year, the MDOT Director must provide an annual report to the Senate and House of Representatives transportation standing committees and Appropriations subcommittees on transportation, regarding the status of each demonstration project.

MCL 247.651i

BACKGROUND

Public Act 51 of 1951 defines "life-cycle cost" as the total of the cost of the initial project plus all anticipated costs for subsequent maintenance, repair, or resurfacing over the life of the pavement. Life-cycle cost must compare equivalent designs and be based upon Michigan's actual historic project maintenance, repair, and resurfacing schedules and costs as recorded by the "pavement management system", as well as include estimates of user costs throughout the entire pavement life. (The pavement management system attempts to ensure that a disproportionate share of pavement does not become due for replacement or major repair at the same time.)

ARGUMENTS

(Please note: The arguments contained in this analysis originate from sources outside the Senate Fiscal Agency. The Senate Fiscal Agency neither supports nor opposes legislation.)

Supporting Argument

The bill gives MDOT the leeway it needs to take innovative approaches to pavement. Under Section 1h, if a project will cost over \$1 million, the Department must perform a life-cycle cost analysis, which must be based on historical information. Since an experimental technique or untested product has no history,

however, the analysis cannot be completed. To avoid this "Catch-22", the Department has been limited to demonstration projects that do not cost over \$1 million. Due to the expensive nature of highway construction, this means that the projects had to be relatively small. A small project, however, will not necessarily produce an accurate result, particularly in terms of measuring the cost-effectiveness of a new paving material or an innovative method of surfacing. By permitting MDOT to conduct up to four demonstration projects each year without implementing a life-cycle cost analysis, the bill expands the State's ability to experiment with new approaches to highway construction. This, in turn, may lead to safer, quieter, smoother, and less costly roadways.

Supporting Argument

The bill will help prevent the type of situation that occurred with respect to a five-mile stretch of I-275 in Livonia and Farmington Hills, which originally was built in 1970 and needed to be resurfaced. When MDOT repaved this section of highway in 1999, it used an experimental technique called random tining. According to the Department, this technique was recommended by a consultant hired by Farmington Hills, due to citizens' concerns about the noise that could result from traditional concrete paving. The random tining left tiny grooves in the concrete that were supposed to improve safety by adding traction, as well as decrease noise. Instead, it increased noise levels to a decibel level of about 83 (said to be similar to a garbage disposal at a close range), which many neighboring residents found to be unbearable. In order to remedy this problem, last fall MDOT reground the pavement with a process called diamond cutting, reportedly at a cost to the State of \$1.5 million to \$2 million.

The random tining used in 1999 evidently had been tested in areas of Wisconsin by researchers from Marquette University and transportation officials from several states, including Michigan. The Department, however, had not conducted a demonstration project with random tining before using it on the five-mile stretch. Under the bill, for future projects, MDOT might first try out an experimental technique and avoid the situation that occurred on I-275. The bill's reporting requirements also will help prevent this type of scenario.

Opposing Argument

As a result of the life-cycle cost law, MDOT now has a state-of-the-art process of making pavement decisions based on cost-effectiveness. The bill sets that aside in order to do something that might result in greater costs. The State presently does not have enough money for all of the projects that are already planned.

Response: Allowing MDOT to test new products will not diminish existing projects. The Department will select demonstration projects from the projects on its five-year plan. According to an MDOT engineer, demonstration projects typically do not increase costs significantly.

Legislative Analyst: Suzanne Lowe

FISCAL IMPACT

The bill will have an indeterminate fiscal impact on the State and local governments associated with the provision allowing the Michigan Department of Transportation to conduct four payment demonstration projects each year. According to MDOT, these projects will be selected from existing road and bridge projects contained in the Department's five-year plan as opposed to being new, previously unidentified projects. The actual costs of the projects chosen as demonstration projects, if any, are unknown at this time and will be contingent on the length, scope, and design of the projects. The selected projects might cost more or less than if they were completed under the original law. Currently, State road and bridge projects are funded from the State Trunkline Fund, local funds, and/or Federal funds. It is unknown at this time whether the selected projects will entail funding restrictions, thereby affecting the sources and levels of funding.

Fiscal Analyst: Craig Thiel

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This analysis was prepared by nonpartisan Senate staff for use by the Senate in its deliberations and does not constitute an official statement of legislative intent.