

Office of the Auditor General
Performance Audit Report

Use of Warranties
Michigan Department of Transportation

March 2021

The auditor general shall conduct post audits of financial transactions and accounts of the state and of all branches, departments, offices, boards, commissions, agencies, authorities and institutions of the state established by this constitution or by law, and performance post audits thereof.

The auditor general may make investigations pertinent to the conduct of audits.

Article IV, Section 53 of the Michigan Constitution



Performance Audit

Report Number:
591-0320-20

Use of Warranties

*Michigan Department of Transportation
(MDOT)*

Released:
March 2021

MDOT began using warranties on road and bridge construction projects in 1996. MDOT uses two types of warranties ranging from two to five years: performance warranties and materials and workmanship warranties. MDOT monitors warranties applied to road and bridge construction projects. MDOT uses the Statewide Warranty Administration Database (SWAD) to track warranties and to identify warrantied segments due for inspection or requiring corrective action. From October 1, 2017 through March 31, 2020, MDOT had 877 active warranties.

Audit Objective			Conclusion
Objective #1: To assess the effectiveness of MDOT's efforts to monitor its road and bridge corrective action warranty work.			Moderately effective
Findings Related to This Audit Objective	Material Condition	Reportable Condition	Agency Preliminary Response
MDOT did not consistently or timely send notification letters when corrective action was necessary for 34% of warrantied segments. Also, it did not have an effective process to establish time frames for corrective action when the contractors needed to complete corrective work outside of the warranty periods (<u>Finding #1</u>).	X		Agrees

Audit Objective			Conclusion
Objective #2: To assess the sufficiency of MDOT's efforts to evaluate the overall value of requiring warranties.			Not sufficient
Findings Related to This Audit Objective	Material Condition	Reportable Condition	Agency Preliminary Response
MDOT's last evaluation of the overall value of its warranty program in 2011 was inconclusive. MDOT has not evaluated its program since then, and several other states have discontinued their warranty programs based on their respective program evaluation efforts (<u>Finding #2</u>).	X		Disagrees

Audit Objective			Conclusion
Objective #3: To assess the effectiveness of MDOT's efforts to ensure the completeness and accuracy of information in MDOT's SWAD.			Effective
Findings Related to This Audit Objective	Material Condition	Reportable Condition	Agency Preliminary Response
Three (11%) of the 28 active SWAD users we reviewed had improper access (<u>Finding #3</u>).		X	Agrees

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March 24, 2021

Mr. Todd Wyett, Chair
State Transportation Commission
and
Paul C. Ajegba, PE, Director
Michigan Department of Transportation
Murray D. Van Wagoner Building
Lansing, Michigan

Dear Mr. Wyett and Mr. Ajegba:

This is our performance audit report on the Use of Warranties, Michigan Department of Transportation.

We organize our findings and observations by audit objective. Your agency provided preliminary responses to the recommendations at the end of our fieldwork. The *Michigan Compiled Laws* and administrative procedures require an audited agency to develop a plan to comply with the recommendations and to submit it to the State Budget Office upon completion of an audit. Within 30 days of receipt, the Office of Internal Audit Services, State Budget Office, is required to review the plan and either accept the plan as final or contact the agency to take additional steps to finalize the plan.

We appreciate the courtesy and cooperation extended to us during this audit.

Sincerely,

A handwritten signature in black ink that reads "Doug Ringler". The signature is written in a cursive, flowing style.

Doug Ringler
Auditor General

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AUDIT OBJECTIVES, CONCLUSIONS, FINDINGS, AND OBSERVATIONS

MONITORING OF CORRECTIVE ACTION WARRANTY WORK

BACKGROUND

The Michigan Department of Transportation (MDOT) includes warranty special provisions* in road and bridge construction contracts which may be special provisions that are frequently used or project specific. MDOT conducts inspections at various frequencies for warranty provisions. Special provisions include thresholds and recommended corrective action for defects. Corrective action must be completed by the contractor when defects exceed the specified thresholds during the warranty period to bring the work back in compliance with the requirement specified in the contract. If the contractor does not perform the necessary corrective action, MDOT can file a claim with the surety* to collect on the warranty bond to cover the costs of corrective action.

The warranty period starts at MDOT's acceptance of the warranty work item. Warranties can have multiple acceptance dates based upon the timing of completion of different parts of the warranty work. MDOT splits warranties into multiple segments with different periods if there are different acceptance dates within the warranty.

Corrective action was required on 44 warrantied segments from October 1, 2017 through March 31, 2020 (see Exhibit #1).

AUDIT OBJECTIVE

To assess the effectiveness* of MDOT's efforts to monitor its road and bridge corrective action warranty work.

CONCLUSION

Moderately effective.

FACTORS IMPACTING CONCLUSION

- As of September 30, 2020, MDOT had ensured that contractors completed corrective action for 38 (86.4%) of the 44 warrantied segments needing repairs.
- MDOT needs to improve its processes for ensuring that contractors timely complete corrective action on road and bridge warrantied projects as noted in the material condition* related to the oversight of warrantied projects identified as needing repairs (Finding #1).

* See glossary at end of report for definition.

FINDING #1

Oversight of road and bridge warranty corrective action needs improvement.

MDOT needs to improve how it oversees road and bridge corrective action via warranty work. Improved oversight would help MDOT ensure better communication with contractors concerning the need for timely completion of corrective action work. It would also mitigate the risk of increased costs to MDOT for untimely repairs and mitigate distress to road and bridge projects that may result from delays between warranty expiration and corrective action completion.

According to MDOT's Guidelines for Administering Warranties on Road and Bridge Construction Contracts Manual (see Exhibit #2), MDOT must:

- Notify the contractor prior to the expiration of the warranty if corrective action is required.
- Obtain and approve a schedule provided by the contractor detailing when the corrective work will be completed if outside of the warranty period.
- Send the contractor and surety a second notice and notify the Attorney General (AG) and Contractor Performance Evaluation Review (CPER) Team if the contractor does not respond to the first notification within 30 days.
- Notify the AG to initiate default proceedings and the CPER Team if the contractor does not respond to the second notification within 15 days.
- Work with the AG to file a claim on the warranty bond if the contractor does not respond to the default proceedings within 10 days.
- Complete an inspector's daily report (IDR) for corrective action that the contractor performs, and the MDOT project engineer must accept the corrective action.

Our review of 44 warrantied segments needing corrective action from October 1, 2017 through March 31, 2020 (see Exhibit #1) noted that MDOT did not:

5 (11.4%) notifications of needed corrective action were sent late or not at all.

- a. Notify the contractor that corrective action was required prior to warranty expiration for 5 (11.4%) segments. Although MDOT completed the inspections prior to warranty expiration, MDOT sent notification letters for 4 of the segments ranging from 20 days to 61 days after warranty expiration, averaging 49 days. For 1 segment, MDOT did not provide documentation that it had sent a corrective action notification to the contractor. If MDOT does not notify a contractor of the need for corrective action prior to warranty expiration, MDOT may not have the authority to require the contractor to perform corrective action and the cost of repairs could shift to the State. The contractors completed the corrective action for these 5 warrantied segments at no additional cost to the State.

b. Consistently or timely send a second corrective action notification letter to the contractor and surety, and notify the AG and CPER Team of unresponsive contractors for 10 warrantied segments in which contractors did not respond to MDOT's first notification letters within 30 days. We noted that MDOT:

- (1) Did not send second notification letters to the contractors or surety for 6 (60.0%) warrantied segments. MDOT provided contractor responses for 4 of these segments ranging from 163 to 182 days after the date of MDOT's first notification, averaging 173 days. For the other 2 segments, MDOT did not provide any documentation of the contractors' responses to the first corrective action notification letters. MDOT had not notified the AG or CPER Team for any of these 6 segments. Despite the apparent lack of formal communications, the contractors completed the corrective action for these 6 segments ranging from 337 days to 418 days after the warranty expiration date.
- (2) Sent the second notification letters to the contractors for 4 (40.0%) warrantied segments 95 to 134 days after the first notification letters, averaging 110 days. MDOT had not included the surety in the second notification for 1 of these 4 segments, and MDOT had not notified the AG or CPER Team for 2 of these 4 segments. MDOT did not provide the responses from 2 of these contractors to the second notification letters or initiate default proceedings. Despite the apparent lack of formal communications, the contractors completed corrective action for these 2 segments 160 days and 208 days after the second notification letters.

For the other 2 segments, the contractors had not completed corrective action as of September 30, 2020. However, MDOT provided documentation showing that these contractors responded to the second notices within 1 and 4 days. For these 2 segments, 232 days and 419 days had passed since the second notifications as of September 30, 2020. MDOT had not proceeded with further action with the AG to initiate default proceedings or notified the CPER Team.

Contractors had not completed corrective action before the warranty expiration date for 32 (72.7%) of the 44 warranted segments, and significant delays appeared to exist between the warranty expirations and completion of corrective action work.

- c. Have an effective process to establish time frames for corrective action completion when circumstances necessitated contractors to complete corrective action outside of the warranty period. Based on information from the Statewide Warranty Administration Database (SWAD), contractors had not completed corrective action before the warranty expiration date for 32 (72.7%) of the 44 warranted segments. In addition, significant delays appeared to exist between the warranty expirations and completion of corrective action work:

Timing of Corrective Action Completion	Number of Warranty Segments	Minimum Days After Warranty Expiration	Maximum Days After Warranty Expiration	Average Days After Warranty Expiration
Prior to warranty expiration	12	N/A	N/A	N/A
After warranty expiration	26	2	472	259
Not completed as of September 30, 2020*	6	328	803*	518
Total	44	N/A	N/A	N/A

N/A = Not applicable.

* Includes one warranted segment undergoing Conflict Resolution Team (CRT) review that was outstanding for 687 days after warranty expiration as of our review on September 30, 2020, and one other warranted segment that was brought to court and was settled 670 days after warranty expiration. This segment had corrective action outstanding 803 days after warranty expiration as of our review on September 30, 2020.

Although MDOT recommends that a contractor complete corrective action prior to warranty expiration, the timing of MDOT's final inspection, scheduling conflicts, seasonal limitations, and conflict resolution process may necessitate corrective work being completed outside of the warranty period. MDOT requires these contractors to submit a corrective action completion schedule for MDOT's approval.

We requested these schedules for 27 warranted segments with corrective action completed or outstanding for more than 90 days after warranty expiration and noted that MDOT did not:

- (1) Require a time line for obtaining contractors' schedules or ensure that contractors' schedules included consistent, sufficient information for MDOT's consideration and approval. Several contractors informally communicated only general scheduling information to MDOT through

e-mail that did not include specific or estimated dates for corrective action completion or identify when the contractor would apply for a permit for the requisite work. In some instances, MDOT did not document that it had followed up with the contractors in a timely manner, or at all, to obtain more specific information. MDOT informed us that it relied on the permit process to obtain more specific information on the corrective action completion, including specific dates.

- (2) Provide documentation that contractors submitted schedules for 9 warrantied segments. The contractors for the remaining 18 warrantied segments submitted some form of a schedule to MDOT between 17 and 455 days after MDOT sent the first corrective action notification to the contractor, averaging 191 days.

MDOT stated that its process did not include these time frames if the contractor had been responsive to MDOT's initial notification of the need for corrective action. MDOT informed us that it considered contractors responsive if they simply acknowledged receipt of MDOT's notification.

If a contractor was responsive, MDOT also stated that its process did not include time frames for when to proceed with notification to the surety, AG, or CPER Team, or when to file a claim on the warranty bond, even when the contractor did not adhere to an approved schedule.

Although MDOT's guidelines allowed for MDOT to arrange for corrective work to be completed at the contractor's expense when the contractor was unable to comply or failed to comply to MDOT's satisfaction, MDOT had not taken this action for the 27 contractors.

- d. Provide IDRs for 17 (45.9%) of 37 warranty segments recorded in SWAD that indicated contractors had completed corrective action by September 30, 2020. The IDRs documented that MDOT or its consultants had conducted inspections and MDOT project engineers accepted that the corrective action restored the projects back to compliance with the warranty special provisions.

MDOT stated that it was unable to complete IDRs in its Field Manager System after it had financially closed a project and had not established a compensating control to document completion of IDRs outside of the Field Manager System.

We consider this finding to be a material condition because of:

- Significant delays in contractors' completion of corrective action.

- The significance of the error rates noted in this finding.
- The increased risk of costs being shifted from the contractor to the State related to delays in notifying the contractors of necessary corrective action.
- Possible increased road or bridge distress developing between the warranty expiration date and the date of corrective action completion.

RECOMMENDATION

We recommend that MDOT improve its oversight of roads and bridges requiring corrective action via warranty work.

AGENCY PRELIMINARY RESPONSE

MDOT provided us with the following response:

MDOT agrees with the recommendation, though it should be noted that MDOT has ensured that all required corrective actions have been completed and/or addressed per the warranty requirements.

There is a need to coordinate a work start date for corrective action work, which is typically short in duration. Contractors are required to apply for a permit to access the right of way. The permit documentation will contain specific dates of proposed work. Additionally, items such as weather/temperature limitations, traffic mobility, contractor workload, adjacent/corridor construction projects, schedules on other active MDOT projects, conflict resolution outcomes, etc., impact when contractors can perform corrective work.

This audit was conducted during a timeframe when statewide labor disputes affected contractors and a pandemic affected all parties. The labor disputes and pandemic led to project shutdowns and delays that made call backs for corrective action difficult to plan and/or complete. Completion of active construction projects and lane closures were higher priorities than warranty work. All projects reviewed by the OAG and noted in Exhibit 1 have either had the corrective action work completed or are still in process for resolution.

Often, corrective action is moved to the next construction season as specification weather/temperature restrictions will prohibit work during the season of the inspection. This shifting of work does not impact whether the work is required.

MDOT will review its warranty administration processes, procedures, and associated manual. We will revise and enhance our requirements to ensure value is provided and duplicative efforts are eliminated. We will also review opportunities to provide warranty training to enhance staff understanding of warranty administration. These actions will be completed and implemented by March 31, 2022.

EVALUATION OF VALUE OF REQUIRING WARRANTIES

BACKGROUND

In our April 2006 performance audit* of Use of Warranties, Michigan Department of Transportation (59-320-05), we recommended that MDOT continue its efforts to fully develop a continuous quality improvement process* for evaluating the effectiveness of its pavement warranty program. MDOT's response indicated that it recognized the need for a complete assessment of the warranty program but needed historical information to perform the assessment that was not available at that time. MDOT determined that an evaluation would require a minimum of six (preferably eight) years of data before appropriate projected life curves could be developed for warranty and non-warranty projects. Therefore, MDOT determined that it would develop a process for evaluating the effectiveness of the pavement warranty program by September 30, 2006.

MDOT developed the Warranty Program Effectiveness Evaluation Plan, which stated that MDOT would conduct an evaluation for warranties of pavement and bridge painting projects and prepare a recommended frequency and plan for future warranty program evaluations based upon the final report of its first evaluation. MDOT conducted the Warranty Program Effectiveness Evaluation and issued its report in March 2011. MDOT's conclusions included the following statements:

- Of the three pavement performance evaluation methods utilized, one was inconclusive, while no trend of differences was identified for the other two.
- Based on limited data, no trend could be identified as to whether corrective action restores the pavements to its intended fix life.
- Bridge paint warranties extend the life of the bridge paint system.
- No conclusions can be drawn as to whether there is a net cost savings for the warranty program.

We reviewed the National Cooperative Highway Research Program's (NCHRP's) 2020 Performance-Based Pavement Warranty Program Practices report. This report noted that of 27 states that responded to previously using warranties, 13 (48.1%) no longer use warranties on pavement projects. Five (38.5%) of the 13 states that no longer use warranties indicated that warranties were not cost-effective.

In addition, we reviewed eight states with pavement warranty program experience. All eight of these states were included in

* See glossary at end of report for definition.

the 27 states responding to the NCHRP report. Our review and discussions with these other states noted:

1. None of the eight states had legal mandates requiring pavement warranties.
2. Several of these states discontinued their pavement warranty programs since 2003 based on the results of various studies in each of the respective states. Of the states that discontinued their warranty programs, we noted:
 - a. Wisconsin determined that the warranties were resulting in poor performance and were no longer cost-effective.
 - b. Minnesota noted limited benefits of two-year warranties and difficulties with the contractors and bonding agencies on getting five-year warranties secured at a reasonable cost.
 - c. Colorado determined that the program was not cost-effective.
 - d. Illinois noted minimal benefits and disputes with contractors regarding fault of distresses during the warranty periods.
 - e. California noted difficulties enforcing warranties to address issues on projects during their warranty period, which resulted in paying the contractor to come back and fix the issues in some instances.
3. Indiana discontinued its use of pavement warranties after it completed a cost evaluation in 2005 and determined that short-term warranties were not cost-effective but long-term warranties were cost-effective. However, Indiana completed a more recent evaluation in 2016 which concluded that warrantied pavement projects performed better than non-warrantied pavement projects and were also more cost-effective. Because of the more recent report, Indiana is looking into letting warranty contracts in the future for Hot Mix Asphalt (HMA) and concrete pavements.
4. Ohio completed a cost evaluation in 2006 which concluded that there were modest cost differences on similar warranty and non-warranty items. Ohio does not currently promote the use of warranties other than two-year warranties on preventative maintenance pavement projects, as those defects come to light quickly. Ohio determined that it was not gaining any notable increases in benefit from other pavement warranties.

5. Florida, like Michigan, utilizes pavement warranties whenever possible. Florida has not completed an effectiveness evaluation of pavement warranties. However, Florida does not require contractors to obtain surety bonds on warranty projects and instead uses the contractor's prequalification status as collateral and claims that this reduces the cost of warranties.

AUDIT OBJECTIVE

To assess the sufficiency of MDOT's efforts to evaluate the overall value of requiring warranties.

CONCLUSION

Not sufficient.

**FACTORS
IMPACTING
CONCLUSION**

- MDOT's 2011 evaluation of the overall value of requiring warranties was inconclusive, other states have discontinued their warranty programs, and MDOT secures warranties even when not mandated in statute, as noted in the material condition related to deficiencies in evaluating the overall value of warranties on road and bridge construction projects (Finding #2).

FINDING #2

Evaluation needed to determine the overall value of warranties on road and bridge construction projects.

MDOT should reestablish its efforts to evaluate the overall value of warranties on road and bridge construction projects. An evaluation will help MDOT determine whether warranties result in a cost savings or improve the quality of road and bridge construction. In addition, any conclusions related to the evaluation will provide meaningful insight to the Legislature for future policy decisions concerning the warranty program in Michigan.

The best practices that we identified when reviewing other states' warranty programs included evaluations of the cost-effectiveness and performance of warranties on pavement projects. These evaluations disclosed mixed results when concluding on the value of pavement warranty programs. MDOT's mission is to provide the highest quality integrated transportation services for economic benefit and improved quality of life. In addition, the State adopted principle 13 of the *Standards for Internal Control in the Federal Government* issued by the Comptroller General of the United States (Green Book) for guidance on effective internal control*. Principle 13 states that management should design a process that identifies and uses quality information to make informed decisions and evaluate the entity's performance in achieving key objectives and addressing risks.

Our review of MDOT's efforts to evaluate its road and bridge construction contract warranty program disclosed that MDOT did not:

- a. Fully develop a process for evaluating the effectiveness of its pavement warranty program. A fully developed process would help MDOT ascertain if its warranty program has resulted in higher quality pavement construction or determine whether the added cost of administering the warranty program is offset by reduced pavement construction and maintenance costs.

MDOT's 2011 evaluation was inconclusive in determining whether warranties were cost-effective or improve the quality for pavement construction projects.

MDOT's 2011 Warranty Program Effectiveness Evaluation was inconclusive in determining whether warranties were cost-effective or improve the quality for pavement construction projects. MDOT determined that no additional warranty versus non-warranty pavement performance evaluation was needed at that time and did not establish a recommended frequency and plan for future warranty program evaluations.

MDOT informed us that it had not performed any subsequent analysis of the warranty program. MDOT also informed us that because State law had required it to warranty nearly all projects, there is no current data for projects without warranties to establish a basis for comparison. However, based on MDOT's time line in response to our 2006 performance audit finding, the additional information that it believed necessary should have been available by 2014.

* See glossary at end of report for definition.

- b. Adjust its practices to use available data and obtain additional necessary data to assess the overall value of requiring warranties on pavement and bridge projects after its March 2011 Warranty Program Effectiveness Evaluation was inconclusive.

We noted that MDOT did not:

- (1) Compare road and bridge condition information for construction projects completed with and without a warranty. MDOT annually accumulates road and bridge condition data but has not developed a way to use this data to evaluate the performance of its warrantied and non-warrantied road and bridge construction projects. MDOT stated that it did not do an updated evaluation using the road and bridge condition data because it did not have all the information needed and it had not been directed to do so. Data comparing the road and bridge condition and performance for warrantied and non-warrantied projects would help MDOT analyze the quality impact of requiring warranties.

As noted above, MDOT informed us that because State law had required it to warranty nearly all projects, there is no current project data for projects without warranties to establish a basis for comparison.

- (2) Obtain data for the increased cost of requiring warranties on road and bridge construction contracts. MDOT informed us that it does not require contractors to disclose the price of warranties in contract bids. We surveyed the 50 contractors that were awarded contracts with warranties from October 1, 2017 through March 31, 2020. We noted that of the 24 responses obtained, 21 (87.5%) contractors indicated that there was an added cost associated with warrantied work when bidding on an MDOT contract, and 16 of those contractors indicated that the cost was at least in part related to the cost of the surety bond. Also, 16 (80.0%) of 20 contractors responded to the survey indicating that they do not believe that warranties improve the quality of the work being done.

21 (87.5%) contractors indicated that there was an added cost associated with warrantied work when bidding on an MDOT contract.

MDOT informed us that it believes that contractors consider warranty prices to be proprietary information. This was consistent with the responses to our survey in which 14 (70.0%) of 20 contractors responded to the survey indicating that they would object to MDOT requiring them to disclose the actual cost of

including the warranty in bids. Data regarding the increased cost of requiring warranties would help MDOT analyze the cost-effectiveness.

- (3) Always obtain data for the cost estimates or develop its own cost estimate of corrective action when corrective action was required. Four (10.3%) of 39 warrantied segments with corrective action cost estimates had estimated costs of \$1 entered into MDOT's SWAD. MDOT informed us that it requests contractors provide cost estimates for the proposed corrective action work, but this is not required because cost information is sensitive and could become public if requested through the Freedom of Information Act (FOIA). MDOT entered a \$1 estimate in SWAD when the contractor did not provide an estimate rather than developing an estimate on its own. Data regarding the cost of corrective action would help MDOT analyze the cost-effectiveness.

- c. Evaluate the overall value of requiring warranties on pavement and bridge contracts when warranties were not mandated. Public Act 175 of 2015 amended Section 247.661 of the *Michigan Compiled Laws* and requires MDOT to, where possible, secure pavement warranties for full replacement or appropriate repair for contracted construction work on pavement projects whose cost exceeds \$2 million and projects for new construction or reconstruction*.

Of the 843 contracts that MDOT awarded between October 1, 2017 and March 31, 2020, MDOT awarded 600 contracts under \$2 million. Of those 600 contracts, 256 (42.7%) included at least one warranty. MDOT informed us that it did not update its Pavement Warranty Decision Tree with the revised Section 247.661 of the *Michigan Compiled Laws* and does not factor in the project cost when determining whether to secure a warranty. MDOT stated that its current practice is to secure warranties whenever possible.

We consider this finding to be a material condition because MDOT had not completed an evaluation of its warranty program since 2011, and MDOT did not incorporate changes the Legislature made in 2015 that reduced the mandate for required warranties and allowed MDOT more flexibility in determining when to secure warranties on road construction projects under \$2 million. In addition, other states have discontinued their warranty programs after completing such evaluations.

* See glossary at end of report for definition.

RECOMMENDATION

We recommend that MDOT reestablish its efforts to evaluate the overall value of warranties on road and bridge construction projects.

**AGENCY
PRELIMINARY
RESPONSE**

MDOT provided us with the following response:

MDOT agrees that an evaluation of the warranty program could be beneficial. Given the Legislature's keen interest to retain and expand the warranty program, as evidenced by revisions to Act 51 of 1951, inconclusive results from previous reviews, and limited resources, MDOT does not believe there is sufficient justification to commit the resources that would be necessary to evaluate the warranty program's value. As noted in the OAG finding, the National Cooperative Highway Research Program's 2020 Performance-Based Pavement Warranty Program Practices report also showed mixed results on the value of pavement warranty programs, which demonstrates that it is difficult to reach a conclusive result regarding the value of warranties. Therefore, based on the current Legislative interest in warranties, the statutory requirements, and previous inconclusive results from other analyses, MDOT considers any reevaluation of the warranty program a low priority and does not agree to prioritize limited resources for further evaluation at this time.

**AUDITOR'S
COMMENTS TO
AGENCY
PRELIMINARY
RESPONSE***

MDOT's response includes reasons why it would not commit to evaluating the warranty program's value. Although the 2015 legislative changes cited in the finding effectively reduced the mandate for warranties, the finding was not reported in an attempt to address known or inferred legislative intent for the program. We believe the finding recommends a sound business practice.

In addition, the finding identifies several sources of data that could be used or should be collected to help facilitate an evaluation. Further, we identified several other states that evaluated their warranty programs and reached definitive conclusions.

During our 29-month audit period, MDOT awarded contracts worth billions of dollars that included warranties. Given the legislative and public attention to this matter, it appears that evaluating Michigan's warranty program, particularly to determine if it results in cost savings or improved quality in road and bridge construction, would in fact be in the State's best interest. MDOT's response acknowledges that an evaluation of the warranty program could be beneficial. Therefore, the finding stands as written.

* See glossary at end of report for definition.

COMPLETENESS AND ACCURACY OF SWAD

BACKGROUND

In 2003, MDOT implemented SWAD as its tool for monitoring warrantied construction projects. SWAD was designed to enable management to track warranties and to identify when warranties were due to expire, thus allowing MDOT to schedule final inspection of warrantied projects.

SWAD tracks information such as contractor, bonding company, project acceptance date, warranty inspection due date, warranty inspection completion date, warranty expiration date, corrective action completion date, and warranty status.

Access controls* limit or detect inappropriate access to computer resources, thereby protecting the resources from unauthorized modification, loss, and disclosure. For access controls to be effective, they should be properly authorized, implemented, and maintained.

AUDIT OBJECTIVE

To assess the effectiveness of MDOT's efforts to ensure the completeness and accuracy of information in MDOT's SWAD.

CONCLUSION

Effective.

FACTORS IMPACTING CONCLUSION

- SWAD included final inspections for the 334 warranty segments that expired during the audit period.
- SWAD included 446 of the 448 contracts awarded during the audit period with warranties and appropriately included 31 warranties for the 25 road and bridge construction projects completed during the audit period.
- Our review of 25 road and bridge construction projects completed during the audit period without a warranty were appropriately excluded from SWAD.
- Reportable condition* related to MDOT improving its user access controls over SWAD (Finding #3).

* See glossary at end of report for definition.

FINDING #3

Improvements needed over warranty data access controls.

MDOT needs to improve its controls over SWAD user roles to help prevent and detect inappropriate access and protect warranty information from unauthorized use, modification, or destruction.

State of Michigan Technical Standard 1340.00.020.01 requires agencies to:

- Establish a process to control and document the assignment of access rights based on current job responsibilities.
- Monitor privileged user activity through semiannual certification of privileged accounts.
- Verify that the accounts are required and compliant with the account settings and access permissions through annual certification.

SWAD is an Internet-based tool developed to help track and monitor the status of project warranties. SWAD had 150 active users as of April 15, 2020. Each active user could be assigned 1 or more of 7 user roles with read-only or edit capabilities and assigned jurisdictional access at 1 of 7 regions or 22 transportation service centers (TSCs).

Our review of 28 active SWAD users as of May 20, 2020 disclosed 3 (10.7%) users with improper access to the database, including:

- a. Two (7.1%) users with improper jurisdictional access that would allow for users to edit warranty information, such as inspection completion date and corrective action status, for regions or TSCs outside of their own.
- b. One (3.6%) user with access to SWAD approximately one year after termination from MDOT. The risk of unauthorized access remains until the user accounts are inactivated.

MDOT stated that it did not have a process to periodically review the appropriateness of active SWAD user accounts.

RECOMMENDATION

We recommend that MDOT improve its controls over SWAD user roles.

AGENCY PRELIMINARY RESPONSE

MDOT provided us with the following response:

MDOT agrees with the recommendation.

On November 17, 2020, MDOT implemented a bi-annual review of the SWAD user roles with each region to ensure user rights are appropriate.

SUPPLEMENTAL INFORMATION

Exhibit #1

USE OF WARRANTIES
Michigan Department of Transportation (MDOT)
Warranted Segments Requiring Corrective Action
From October 1, 2017 Through March 31, 2020

Sample Number	Warranty Type	Warranty Category	Warranty Expiration Date	Date of First Notice of Corrective Action	Date of Second Notice of Corrective Action	Corrective Action Completion Date According to SWAD	Date MDOT Received Schedule From Contractor	Issues Noted at Final Inspection Requiring Correction Action
1	CPM	Perf	07/21/2019	07/10/2019	Not required	08/21/2019	N/A**	Chip seal surface cracking
2	PAV	M&W	11/05/2019	10/21/2019	Not required	07/23/2020	11/07/2019	Longitudinal and transverse cracking
3	BRG	Perf	10/11/2018	07/11/2018	08/13/2018	04/24/2019	10/18/2018	Coating failures
4	BRG	Perf	05/30/2019	03/07/2019	08/12/2019	Not complete as of 09/30/2020	08/08/2019	Coating failures
5	CPM	Perf	06/19/2019	N/A*	Not required	05/09/2019	N/A**	Transverse cracking
6	PAV	M&W	11/13/2018	07/16/2018	Not required	Not complete as of 09/30/2020	Not provided	Longitudinal and corner cracking
7	CPM	Perf	07/20/2018	06/06/2018	07/09/2018	Not complete as of 09/30/2020	09/14/2018	Debonded and raveling
8	PAV	M&W	11/18/2018	06/13/2018	MDOT did not send	11/09/2019	Not provided	Potholes
9	BRG	Perf	08/19/2018	05/31/2018	MDOT did not send	07/22/2019	Not provided	Delamination
10	PAV	M&W	11/15/2018	05/31/2018	Not required	10/26/2018	N/A**	Longitudinal and transverse cracking
11	BRG	Perf	09/11/2018	07/20/2018	Not required	08/07/2018	N/A**	Rust
12	BRG	Perf	07/27/2018	07/27/2018	Not required	09/04/2019	07/25/2019	Coating failures
13	CPM	Perf	05/20/2019	05/01/2019	Not required	09/06/2019	05/22/2019	Crack treatment failures
14	BRG	Perf	09/15/2018	05/31/2018	07/10/2018	09/13/2018	N/A**	Rust
15	CPM	Perf	11/06/2018	09/17/2018	Not required	07/22/2019	04/10/2019	Crack treatment failures
16	CPM	Perf	07/20/2019	07/03/2019	Not required	08/23/2019	N/A**	Transverse and longitudinal cracking
17	BRG	Perf	11/22/2018	08/20/2018	Not required	10/23/2018	N/A**	Rust
18	PAV	M&W	09/20/2019	04/25/2019	Not required	Not complete as of 09/30/2020	09/21/2019	Joint sealing failure
19	PAV	M&W	05/15/2019	05/08/2019	MDOT did not send	07/06/2020	11/06/2019	Longitudinal and alligator cracking
20	PAV	M&W	11/07/2019	11/06/2019	02/11/2020	Not complete as of 09/30/2020	Not provided	Transverse cracking
21	BRG	Perf	08/05/2019	04/18/2019	08/08/2019	Not complete as of 09/30/2020	08/13/2019	Rust
22	PAV	M&W	05/15/2019	05/08/2019	MDOT did not send	07/06/2020	11/06/2019	Longitudinal and alligator cracking
23	PAV	M&W	06/12/2019	06/12/2019	12/05/2019	06/06/2020	Not provided	Longitudinal cracking
24	CPM	M&W	07/26/2019	04/23/2019	MDOT did not send	08/08/2020	12/05/2019	Longitudinal cracking
25	BRG	Perf	06/01/2019	08/01/2019	Not required	09/15/2020	09/10/2020	Coating failures
26	CPM	M&W	07/26/2019	04/23/2019	MDOT did not send	08/08/2020	12/05/2019	Longitudinal cracking
27	BRG	Perf	11/21/2019	12/11/2019	Not required	07/04/2020	Not provided	Coating failures
28	BRG	Perf	10/15/2019	02/12/2020	Not required	09/03/2020	Not provided	Coating failures
29	BRG	Perf	10/15/2019	02/12/2020	Not required	09/03/2020	Not provided	Coating failures
30	PAV	M&W	10/16/2019	N/A*	Not required	10/09/2019	N/A**	Joint sealing failure
31	PAV	M&W	09/17/2018	09/12/2018	Not required	10/26/2018	N/A**	Transverse cracking
32	PAV	M&W	11/01/2018	06/01/2018	Not required	11/03/2018	N/A**	Corner cracking
33	PAV	M&W	11/17/2018	06/08/2018	Not required	05/23/2019	07/18/2018	Longitudinal and corner cracking
34	PAV	M&W	12/02/2019	06/06/2019	Not required	09/25/2019	N/A**	Joint sealing failure
35	PAV	M&W	06/12/2018	01/26/2018	Not required	05/05/2019	04/26/2019	Longitudinal cracking
36	BRG	Perf	10/30/2017	08/24/2017	01/05/2018	06/14/2018	01/05/2018	Rust
37	CPM	M&W	10/14/2018	07/11/2018	Not required	09/19/2018	N/A**	Open joint
38	BRG	Perf	07/27/2018	07/27/2018	Not required	09/04/2019	07/25/2019	Coating Failures
39	BRG	Perf	09/01/2019	05/15/2019	Not required	07/03/2019	N/A**	Coating failures
40	BRG	Perf	10/09/2019	07/03/2019	Not required	07/23/2019	N/A**	Cracking and chipping
41	BRG	Perf	11/09/2018	08/02/2018 and sent again 09/19/2018	11/05/2018	06/01/2019	Not provided	Rust and coating failures
42	BRG	Perf	07/19/2019	04/10/2019	Not required	07/09/2019	N/A**	Rust and coating failures
43	BRG	Perf	08/14/2019	06/19/2019	Not required	07/09/2019	N/A**	Rust and coating failures
44	BRG	Perf	07/01/2018	Not provided	Not provided	09/06/2018	N/A**	No documentation provided

N/A* - MDOT did not provide OAG with 1st notice of corrective action. Contractor completed corrective action prior to warranty expiration.

N/A** - OAG did not request schedule because contractor completed corrective action within 90 days of warranty expiration.

CPM - Capital preventative maintenance

PAV - Pavement

BRG - Bridge coating

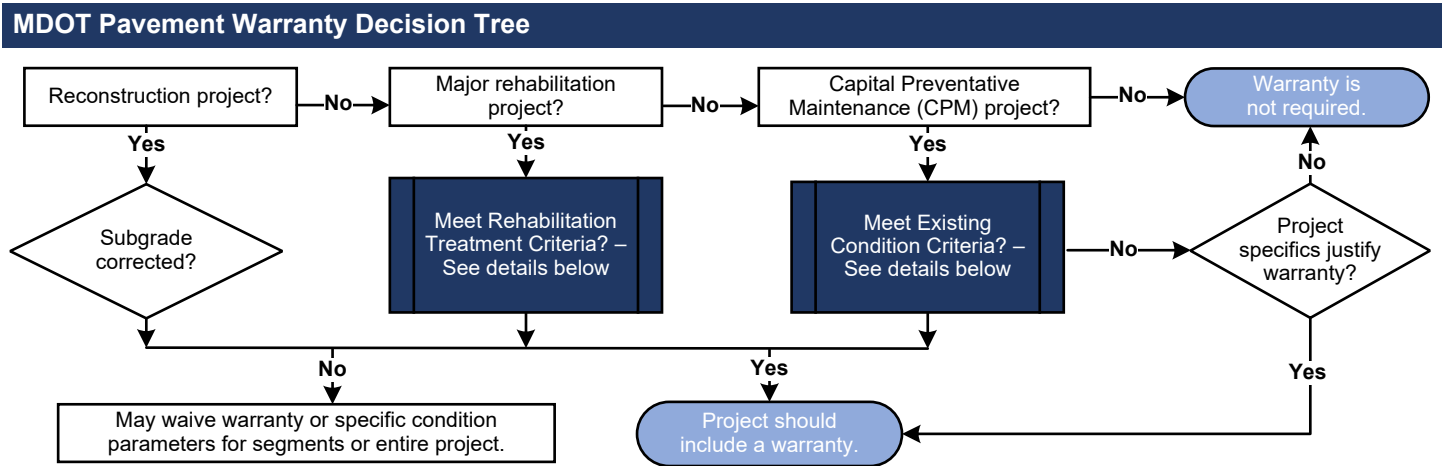
Perf - Performance

M&W - Materials and workmanship

Source: The OAG created this exhibit based upon information in SWAD and documentation provided by MDOT.

USE OF WARRANTIES
Michigan Department of Transportation (MDOT)

MDOT Pavement Warranty Decision Tree



Meet Rehabilitation Treatment Criteria

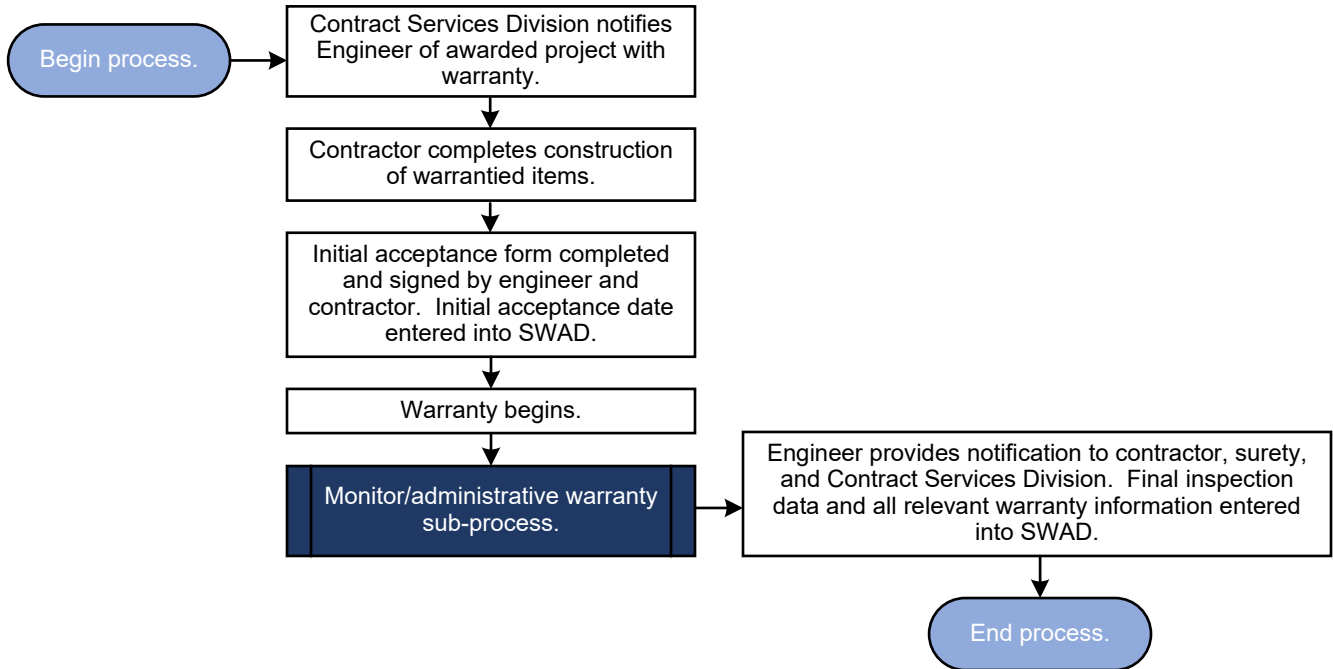
Fix Type	Scoping/Design/Construction Issue By Fix Type
Repair Existing Pavement and Multiple Course HMA Overlay	<ul style="list-style-type: none"> Have the appropriate number of joint repairs been completed on rigid and composite pavements? For all pavement types, have the appropriate number of repairs (repair of base failures, depression, voids, loose or deteriorated materials, patched areas with poor adhesion, etc.) been completed?
Mill Existing and Multiple Course HMA	<ul style="list-style-type: none"> Have existing ruts been removed and the cause of the ruts been addressed? Have existing base, subbase, and subgrade conditions been addressed?
Crush and Shape and Multiple Course HMA Overlay	<ul style="list-style-type: none"> Do base conditions and staging of the job provide a uniform base to pave over? Have existing base, subbase, and subgrade conditions been addressed?
Rubblize and Multiple Course Overlay	<ul style="list-style-type: none"> Do base conditions and staging of the job allow for uniform base to be paved over? Have any potential wet areas which could affect paving been addressed? Is pavement free of poor sections with excessive patching that can cause patches to break off and get punched down instead of being broken up during rubblization? Have existing base, subbase, and subgrade conditions been addressed?
Unbonded Concrete Overlay	<ul style="list-style-type: none"> Are existing shattered areas repaired? Have existing base, subbase, and subgrade conditions been addressed?
6 – 8 inch Aggregate Lift With Multiple Course HMA Overlay	<ul style="list-style-type: none"> Have existing base, subbase, and subgrade conditions been addressed?

Meet Existing Condition Criteria

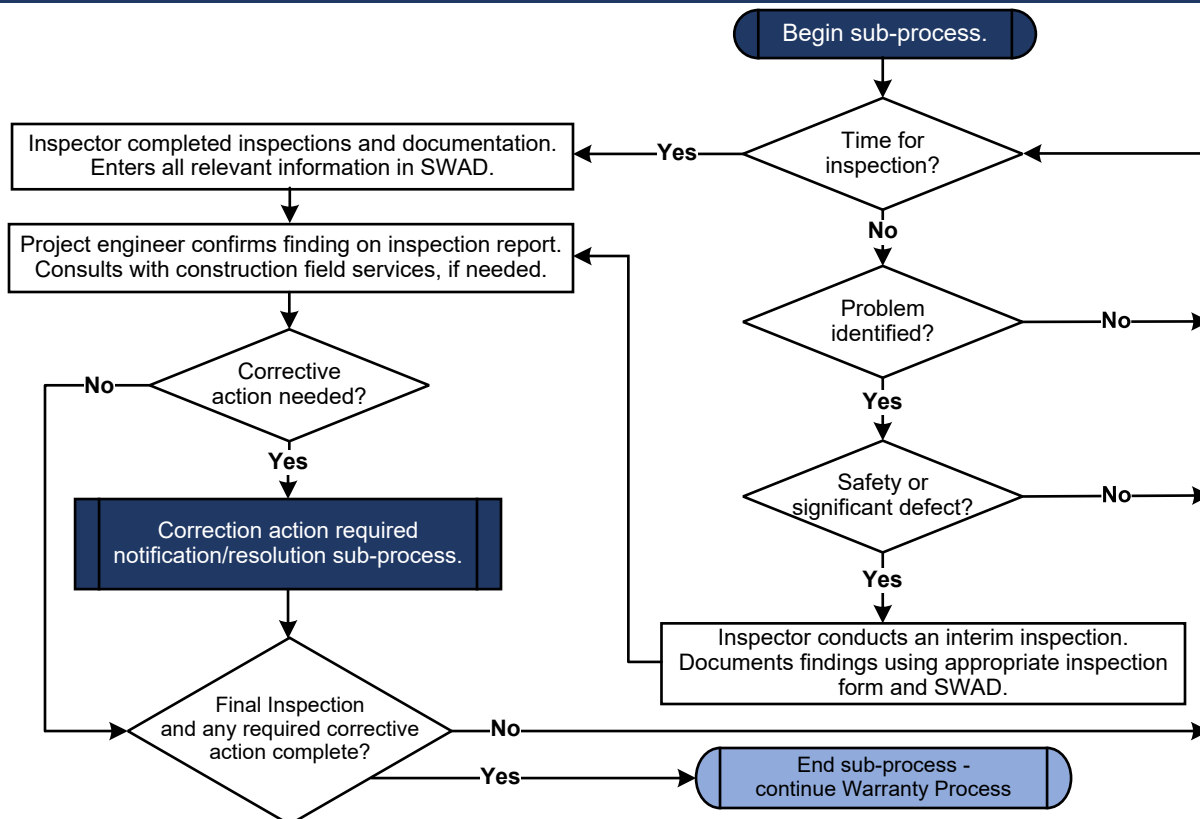
CPM Treatment	Existing Conditions
Crack Seal/Flexible Pavement	<ul style="list-style-type: none"> Is this the first crack treatment applied to the pavement? Is the existing surface relatively new (1 - 4 years)? Check for the existing warranty.
Crack Seal/Composite Pavement	<ul style="list-style-type: none"> Is this the first crack treatment applied to the pavement? Is the existing surface relatively new (1 - 2 years)? Check for the existing warranty.
Surface Seal	<ul style="list-style-type: none"> Does the existing pavement have a good base? Does the existing pavement condition fall within CPM guidelines for specified fix?
Functional Enhancements	<ul style="list-style-type: none"> Does the existing pavement condition fall within CPM guidelines for specified fix?

This exhibit continued on next page.

MDOT Warranty Process

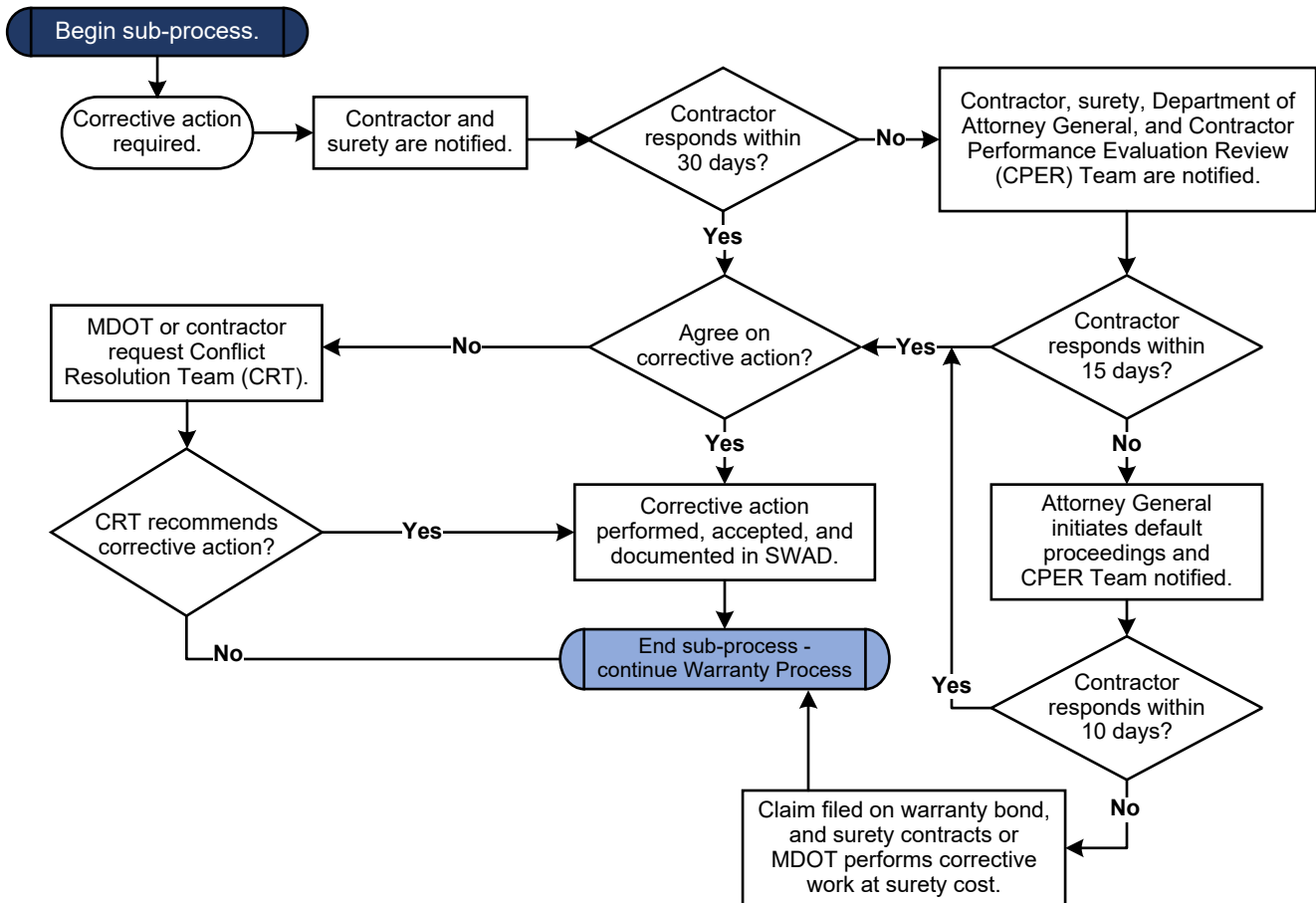


Monitor/Administrative Warranty Sub-Process



This exhibit continued on next page.

Warranty Corrective Action and Conflict Resolution Sub-Process



Source: The OAG created this exhibit from flow charts included in MDOT's Guidelines for Administering Warranties on Road and Bridge Construction Contracts Manual, updated November 13, 2017.

USE OF WARRANTIES
Michigan Department of Transportation (MDOT)

MDOT Warranty Contractor Survey Results

	Response	
	Count	Percent
Q1 What type of warranted work (initial construction contracts with warranties) has your company performed for MDOT over the last 5 years? (Please select all that apply.)		
Pavement	15	(63%)
Bridge	6	(25%)
Capital Preventative Maintenance	6	(25%)
Other (please specify)	4	(17%)
Q2 What was the estimated total contract amount awarded to your company by MDOT for warranted construction projects between October 1, 2017 and March 31, 2020?		
\$0 - \$4,999,999	9	(38%)
\$5,000,000 - \$14,999,999	5	(21%)
\$15,000,000 - \$24,999,999	2	(8%)
\$25,000,000 - \$99,999,999	6	(25%)
\$100,000,000 and over	2	(8%)
Q3 How do you determine the cost of a warranty when bidding on an MDOT contract?		
Percentage of total project (please add percentage used in comments)	2	(8%)
Cost of surety bond to contractor	8	(33%)
Combination of a. and b. (please add percentage used in comments)	4	(17%)
Other (please add comments if possible)	7	(29%)
No additional cost included in the bid	3	(13%)
Q4 By what percentage do you typically add to (markup) the bid for a warranted item?		
0%	7	(35%)
1 - 2%	2	(10%)
3 - 4%	5	(25%)
5 - 6%	2	(10%)
7% or more (please fill in percentage)	4	(20%)
Q5 Please provide an estimate of the total amount that your company charged MDOT for warranties between October 1, 2017 and March 31, 2020, including the cost of bonding?		
\$0	4	(20%)
\$1 - \$99,999	6	(30%)
\$100,000 - \$249,999	4	(20%)
\$250,000 - \$499,999	4	(20%)
\$500,000 - \$999,999	1	(5%)
\$1,000,000 or more (please fill in estimate)	1	(5%)
Q6 What percentage of the total bond do you typically pay as a premium for a warranty/surety bond?		
1% - 2%	15	(75%)
3% - 4%	4	(20%)
5% - 6%	0	(0%)
7% or more (please fill in percentage)	1	(5%)

This exhibit continued on next page.

Q7	Do you have any objections if MDOT were to require contractors to disclose the actual cost of including the warranty in bids?		
	Yes	14	(70%)
	No	6	(30%)
Q8	Would you be opposed to sending MDOT two contract bid prices: one with a warranty included and one without a warranty included?		
	Yes	12	(60%)
	No	8	(40%)
Q9	Do you believe that warranting your work improves the quality of the work done?		
	Yes	4	(20%)
	No	16	(80%)
Q10	Did MDOT identify necessary corrective action for warranted projects completed by your company between October 1, 2017 and March 31, 2020?		
	Yes	12	(60%)
	No	8	(40%)
Q11	If your company completed required corrective action work for warranted construction projects between October 1, 2017 and March 31, 2020, please estimate the amount your company would have charged MDOT to complete the work had it not been covered under the warranty?		
	Not applicable	12	(60%)
	\$0	1	(5%)
	\$1 - \$49,999	3	(15%)
	\$50,000 - \$99,999	0	(0%)
	\$100,000 - \$249,999	3	(15%)
	\$250,000 - \$499,999	1	(5%)
	\$500,000 and over (please fill in estimate)	0	(0%)
Q12	During the period of October 1, 2017 through March 31, 2020, have you had any disputes with MDOT over a warranty?		
	No	15	(75%)
	Yes - Determined that no warranty corrective action was needed by the contractor	2	(10%)
	Yes - Contractor paid 100% of corrective action	1	(5%)
	Yes - MDOT paid 100% of corrective action	0	(0%)
	Yes - Contractor and MDOT split cost 50/50	1	(5%)
	Yes - Contractor and MDOT split cost other than 50/50	1	(5%)
Q13	Does your company contract with transportation departments of other states for road projects that include warranties?		
	No	16	(80%)
	Yes (please list states)	4	(20%)

Source: The OAG created this exhibit to summarize responses received in our survey of contractors that were awarded warranted road and bridge construction contracts from October 1, 2017 through March 30, 2020.

AGENCY DESCRIPTION

MDOT was organized under Public Act 380 of 1965 (Sections 16.450 - 16.458 of the *Michigan Compiled Laws*). The State Transportation Commission (STC) is composed of six members who are appointed by the Governor with the advice and consent of the Senate. STC is responsible for establishing departmental policies. MDOT's director, who is appointed by the Governor, is responsible for organizing and administering MDOT and implementing the policies established by STC.

MDOT began using warranties on pavement projects in 1996. Public Act 79 of 1997 provided that MDOT shall, where possible, secure full replacement warranties of not less than five years on State trunkline projects. Subsequent appropriations acts have contained language directing MDOT to work with the road construction industry to develop performance warranties* and materials and workmanship warranties* for construction projects. Public Act 175 of 2015 reduced the mandate for warranties and required MDOT to secure pavement warranties for full replacement or appropriate repair for contracted construction work on pavement projects whose cost exceeds \$2 million and projects for new construction or reconstruction.

From October 1, 2017 through March 31, 2020, MDOT awarded 843 road and bridge construction contracts with a total contract award amount of \$2.6 billion:

<u>Warranty Included</u>	<u>Total Contract Award Amount</u>	<u>Total Number of Contracts</u>
Yes	\$2,197,902,086	448
No	386,397,062	395
Total	\$2,584,299,148	843

The 448 contracts awarded with warranties included a total of 509 warranties because one contract can include multiple warranties. For each warranty, MDOT required the contractor to obtain a warranty bond from a surety for the length of the warranty period to protect MDOT if the contractor failed to provide corrective action when necessary. Bond costs vary by project and are different based on factors including a company's size, credit rating, and the number of long-term bonds being carried at any given time. According to SWAD, the total bond amount for the 509 warranties was \$280.3 million. Bond amounts for

* See glossary at end of report for definition.

warranties ranged from \$1,000 to \$3,566,916, averaging \$550,758 per warranty.

From October 1, 2017 through March 31, 2020, MDOT had 877 active warranties recorded in SWAD. The length and type of warranties vary from 2- to 3-year performance warranties on bridge painting projects and pavement capital preventative maintenance* projects and 3- to 5-year materials and workmanship warranties on most pavement rehabilitation*, new construction or reconstruction projects:

MDOT Warranty Type Summary

Project Type	Warranty Type	Warranty Period	Treatment Type
Bridge Coating	Performance	2 Years	Bridge coating
Capital Preventative Maintenance	Performance	2 Years	HMA crack treatment
		2 Years	Single chip seal
		2 Years	Double chip seal
		3 Years	Paver placed surface seal
		2 Years	Micro-surfacing
		2 Years	Ultra-thin HMA overlay
Rehabilitation	Materials and Workmanship	3 Years	HMA overlay
		5 Years	Cold mill and HMA overlay
		5 Years	HMA crush and shape base
		5 Years	HMA over rubblized concrete
New Construction or Reconstruction	Materials and Workmanship	5 Years	Multiple course HMA overlay
		5 Years	HMA over unbound or stabilized base
		5 Years	Jointed plain concrete pavement
		5 Years	Jointed reinforced concrete pavement

* See glossary at end of report for definition.

AUDIT SCOPE, METHODOLOGY, AND OTHER INFORMATION

AUDIT SCOPE

To examine records related to MDOT's use of warranties. We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

As part of the audit, we considered the five components of internal control (control environment, risk assessment, control activities, information and communication, and monitoring activities) relative to the audit objectives and determined that all components were significant.

PERIOD

Our audit procedures, which included a preliminary survey, audit fieldwork, report preparation, analysis of agency responses, and quality assurance, generally covered October 1, 2017 through March 31, 2020.

METHODOLOGY

We conducted a preliminary survey of MDOT's use of warranties to gain an understanding of its operations and internal control to formulate a basis for establishing our audit objectives, scope, and methodology. During our preliminary survey, we:

- Examined applicable State laws, MDOT policies, and MDOT guidance manuals.
- Reviewed MDOT's vision, mission, values, and goals, as well as the objectives of the warranty program.
- Interviewed MDOT management and staff regarding their job functions and responsibilities.
- Reviewed a sample of MDOT road and bridge construction contracts awarded with and without a warranty to determine if MDOT followed its decision tree for determining whether to warranty the contract.
- Reviewed a sample of MDOT road and bridge construction warranties expired during the audit period to determine whether MDOT completed a final inspection prior to the warranty expiration date.
- Reviewed a sample of monthly SWAD reports that MDOT used to monitor warranties requiring inspections and to ensure that it sent warranties requiring corrective action to the regions for their review.

- Reviewed the annual legislative required warranty reports for fiscal years 2018 and 2019 to determine whether they were complete and accurate.

OBJECTIVE #1

To assess the effectiveness of MDOT's efforts to monitor its road and bridge corrective action warranty work.

To accomplish this objective, we reviewed all 44 warrantied segments requiring corrective action during our audit period and the 38 warrantied segments that had corrective action completed as of our review on September 30, 2020 to determine whether MDOT:

- Notified contractors of required corrective action before warranty expiration and if MDOT followed its corrective action required notification sub-process (see Exhibit #2).
- Ensured that contractors performed necessary corrective action work on warranty claims or filed a claim on the contractor's surety bond.
- Required contractors to perform necessary corrective action work on warranty claims and documented the inspection and acceptance of the corrective action work in the project files.
- Paid for the cost of corrective action work on warrantied claims which should have been covered under warranty.

OBJECTIVE #2

To assess the sufficiency of MDOT's efforts to evaluate the overall value of requiring warranties.

To accomplish this objective, we:

- Obtained and reviewed MDOT's 2011 Warranty Program Effectiveness Evaluation and interviewed MDOT management to obtain an understanding of MDOT's efforts to evaluate the overall value of requiring warranties.
- Surveyed all 50 contractors that MDOT awarded contracts with pavement, bridge, or capital preventative maintenance warranties during our audit period and examined the 24 responses received including, but not limited to:
 - Methods contractors used to determine the cost of a warranty when bidding on an MDOT contract (see Exhibit #3, Questions #3 and #4).
 - Information on whether the contractor would be opposed to providing MDOT with information related to the cost of including warranties on an

MDOT contract (see Exhibit #3, Questions #7 and #8).

- Information on the impact contractors believed warranties had on the quality of their work (see Exhibit #3, Question #9).
- Information on the amount the contractor would have charged MDOT for completed corrective action if not covered under warranty (see Exhibit #3, Question #11).
- Information on disputes with MDOT, including the resolution of the dispute and who was responsible for corrective action work (see Exhibit #3, Question #12).
- Obtained and reviewed the NCHRP's 2020 Performance-Based Pavement Warranty Program Practices report to obtain data related to other state transportation department's experience with pavement warranties.
- Researched pavement warranty practices for eight other state transportation departments, that had previously used pavement warranties, to obtain an understanding of best practices related to evaluations of warranty programs. We reviewed published research and evaluations from those other states and contacted them as necessary for additional information.

OBJECTIVE #3

To assess the effectiveness of MDOT's efforts to ensure the completeness and accuracy of information in MDOT's SWAD.

To accomplish this objective, we:

- Obtained and reviewed a data file from SWAD and assessed whether SWAD contained the required inspections for expired warranties.
- Compared supporting documentation from project files and MDOT with inspection and warranty information in SWAD.
- Compared the listing of active warranties in SWAD as of June 8, 2020 with a listing of contracts awarded from October 1, 2017 through March 31, 2020, provided by MDOT's Contract Services Division.
- Randomly sampled 25 of 436 road and bridge construction projects completed with warranties from October 1, 2017 through March 31, 2020 and compared information in SWAD with MDOT's contract description from MDOT's Construction Contract Inquiry Web site to

ensure that all warranties included in Construction Contract Inquiry were included in SWAD.

- Randomly sampled 25 of 457 road and bridge construction projects completed without warranties from October 1, 2017 through March 31, 2020 and compared information in SWAD with MDOT's contract description from MDOT's Construction Contract Inquiry Web site to ensure that SWAD did not include warranties for these projects.
- Obtained and reviewed a listing of the 150 active SWAD users as of April 15, 2020. We randomly selected 17 users and judgmentally selected 11 users to review whether the user should have access and whether users' access rights were consistent with their jurisdiction and job duties.

We selected random samples to eliminate bias and enable us to project the results to the respective populations. For our judgmental samples, we could not project the results to the respective populations.

CONCLUSIONS

We base our conclusions on our audit efforts and any resulting material conditions or reportable conditions.

When selecting activities or programs for audit, we direct our efforts based on risk and opportunities to improve State government operations. Consequently, we prepare our performance audit reports on an exception basis.

AGENCY RESPONSES

Our audit report contains 3 findings and 3 corresponding recommendations. MDOT's preliminary response indicates that it agrees with 2 recommendations and disagrees with 1 recommendation.

The agency preliminary response that follows each recommendation in our report was taken from the agency's written comments and oral discussion at the end of our fieldwork. Section 18.1462 of the *Michigan Compiled Laws* and the State of Michigan Financial Management Guide (Part VII, Chapter 4, Section 100) require an audited agency to develop a plan to comply with the recommendations and to submit it to the State Budget Office upon completion of an audit. Within 30 days of receipt, the Office of Internal Audit Services, State Budget Office, is required to review the plan and either accept the plan as final or contact the agency to take additional steps to finalize the plan.

PRIOR AUDIT FOLLOW-UP

Following is the status of the reportable conditions from our February 2015 performance audit of the Monitoring of Warranties and Road and Bridge Construction Projects, Michigan Department of Transportation (591-0210-14):

Prior Audit Finding Number	Topic Area	Current Status	Current Finding Number
4	Consultant Evaluations	Not in scope of this audit.	

Note: We followed up the three material conditions noted in our February 2015 performance audit of MDOT's Monitoring of Warranties and Road and Bridge Construction Projects (591-0210-14) in our July 2016 follow-up report (591-0210-14F). We determined that MDOT complied with those prior audit recommendations.

SUPPLEMENTAL INFORMATION

Our audit report includes supplemental information presented as Exhibits #1 through #3. Our audit was not directed toward expressing a conclusion on the information in Exhibit #2. The information presented in Exhibit #1 was used to support our finding and conclusion on Objective #1. The information presented in Exhibit #3 was used to support our finding and conclusion on Objective #2.

GLOSSARY OF ABBREVIATIONS AND TERMS

access controls	Controls that protect data from unauthorized modification, loss, or disclosure by restricting and detecting inappropriate access attempts.
AG	Attorney General.
auditor's comments to agency preliminary response	Comments that the OAG includes in an audit report to comply with <i>Government Auditing Standards</i> . Auditors are required to evaluate the validity of the audited entity's response when it is inconsistent or in conflict with the findings, conclusions, or recommendations. If the auditors disagree with the response, they should explain in the report their reasons for disagreement.
capital preventative maintenance	Cost-effective treatment to an existing road system that preserves or improves the condition of the system without significantly increasing structural capacity.
continuous quality improvement	A process that aligns the vision and mission of an organization with the needs and expectations of internal and external customers. It normally includes a process to improve program effectiveness and efficiency by assessing performance measures that evaluate outputs and outcomes related to the program vision, mission, goals, and objectives.
CPER	Contractor Performance Evaluation Review.
CRT	Conflict Resolution Team.
effectiveness	Success in achieving mission and goals.
HMA	Hot Mix Asphalt.
IDR	inspector's daily report.
internal control	The plan, policies, methods, and procedures adopted by management to meet its mission, goals, and objectives. Internal control includes the processes for planning, organizing, directing, and controlling program operations. It also includes the systems for measuring, reporting, and monitoring program performance. Internal control serves as a defense in safeguarding assets and in preventing and detecting errors; fraud; violations of laws, regulations, and provisions of contracts and grant agreements; or abuse.

material condition	A matter that, in the auditor's judgment, is more severe than a reportable condition and could impair the ability of management to operate a program in an effective and efficient manner and/or could adversely affect the judgment of an interested person concerning the effectiveness and efficiency of the program. Our assessment of materiality is in relation to the respective audit objective.
materials and workmanship warranty	A road and bridge construction warranty in which the contractor is responsible for correcting defects in work elements within the contractor's control (materials and workmanship) during the warranty period.
MDOT	Michigan Department of Transportation.
NCHRP	National Cooperative Highway Research Program.
performance audit	An audit that provides findings or conclusions based on an evaluation of sufficient, appropriate evidence against criteria. Performance audits provide objective analysis to assist management and those charged with governance and oversight in using the information to improve program performance and operations, reduce costs, facilitate decision-making by parties with responsibility to oversee or initiate corrective action, and contribute to public accountability.
performance warranty	A warranty on pavement construction in which the contractor assumes full responsibility for pavement performance during the warranty period and is responsible for materials selection, workmanship, and certain aspects of design. The contractor is responsible for deficiencies under his or her control.
reconstruction	Complete removal and replacement of the existing pavement structure. Reconstruction may include new and/or recycled material.
rehabilitation	Structural enhancements that extend the service life of an existing pavement and/or improve its load-carrying capability. Pavement rehabilitation techniques include restoration treatments and structural overlays.
reportable condition	A matter that, in the auditor's judgment, is less severe than a material condition and falls within any of the following categories: a deficiency in internal control; noncompliance with provisions of laws, regulations, contracts, or grant agreements; opportunities to improve programs and operations; or fraud.

special provisions	Detailed specifications that modify and supersede the standard and supplemental specifications applicable to an individual project.
STC	State Transportation Commission.
surety	An entity who has become legally liable for the debt, default, or failure in duty of another.
SWAD	Statewide Warranty Administration Database.
TSC	transportation service center.



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