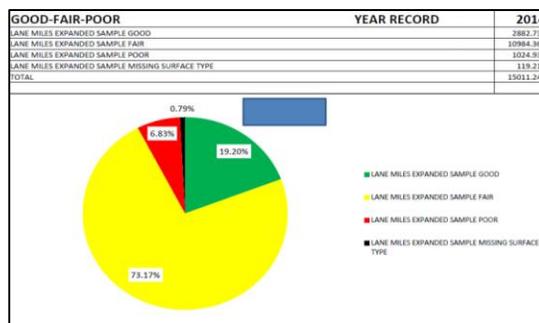


Ohio Division Office Uses Technology to Improve the Effectiveness of Annual HPMS Reviews

Transportation performance management relies on quality data to make the strategic investment and policy decisions that are needed to achieve national performance goals. The Highway Performance Monitoring System (HPMS) serves as one of FHWA's primary information sources used to report and analyze highway system condition, performance, and investment needs. HPMS data is used to develop the biennial *Condition and Performance Reports* that are submitted to Congress and used in establishing highway authorization and appropriation legislation that impacts the Federal-aid Highway Program. The data contained in HPMS is also made available to the transportation community for use in highway and transportation planning studies.

Over the years, the data requirements needed to support HPMS have evolved to reflect changes in highway systems, legislation, national priorities, and technology. The responses from state transportation agencies to the changes in pavement data requirements that occurred in the most recent reassessment of HPMS data requirements has raised concerns with the quality and completeness of the data being submitted. These concerns promoted FHWA's Office of Asset Management, Pavements, and Construction to develop an HPMS Pavement Performance Report Card to review the HPMS data submitted by each state with the intent of identifying missing and/or questionable data.



KEY DIVISION ROLES

Moving forward with TPM, the Division works with partners to:

- **Build Awareness:**
 - Establish dialog on state systems, tools, and practices
- **Facilitate Coordination:**
 - Coordinate efforts across agencies
 - Incorporate TPM into planning and other processes
- **Understand Performance Trends:**
 - Link TPM to program decisions

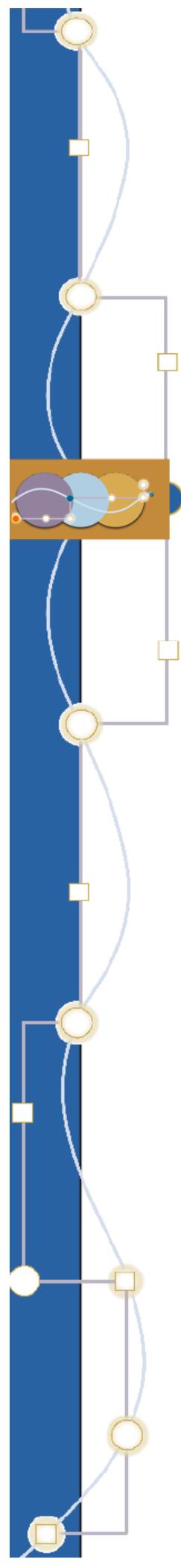
The Report Card can also be used by Division Offices to conduct high-level reasonableness checks of performance trends in a state's current and past data submissions. For example, checks of the percent of pavement in Good, Fair, or Poor condition (as shown in the figure) can be assessed for reasonableness based on the Division Offices' knowledge of state highways.

Using the HPMS Performance Report Card

The Office of Asset Management, Pavements, and Construction ran the HPMS Pavement Performance Report Card on data submitted to HPMS by the Ohio Department of Transportation (ODOT). The Ohio Division Office reviewed the results and identified some data consistency and reporting issues that needed to be explored further. Through discussions with ODOT, the Division Office discovered that ODOT personnel had interpreted portions of the HPMS Field Manual differently than other states, causing the ODOT data to be flagged by the Report Card. The discussions led to changes in the way ODOT is reporting certain data, which will improve the consistency between ODOT's data and data submitted by other states.

The Ohio Division Office also used information from the Report Card to discuss concerns with the way ODOT was reporting bridge locations in its HPMS submittal.





The discussions garnered the attention of agency leadership who initiated efforts to correct the reporting issues and modify internal reporting practices. In both instances, the HPMS Pavement Performance Report Card served as the basis for uncovering data quality issues that had gone undiscovered for years.

Through these experiences, the Ohio Division Office recognized the benefits to having a tool that improves the effectiveness of the annual reviews conducted on HPMS data submittals. In the past, Division Office reviews had consisted primarily of checks to ensure that submittals were made on time and that each data set was essentially complete. Now, with the availability of the Report Card, Division Offices have the ability to also verify the quality of the pavement data by looking at the reasonableness of trends in the data. For instance, a Division Office can use the Report Card to determine if changes in pavement performance are occurring at reasonable rates. Additionally, the Division Offices can use the Report Card results to check whether average pavement performance values jibe with the Division Office's perception of highway conditions in the state. For example, if a state accidentally duplicated its rut data in the fields reserved for faulting data, the mistake may not have been caught in the past and HPMS reports would show significant faulting. Today, the error can be uncovered quickly using the Report Card. As a result of the availability of this tool, Division Offices can become more actively involved in improving the reliability of the data used by FHWA to support its Transportation Performance Management obligations.

Benefits

- Simplified approach to review multiple HPMS data sets.
- Improved process for identifying HPMS data gaps or inconsistencies.
- Stronger collaboration between state DOTs and Division Offices to improve HPMS data quality.
- More consistent and reliable HPMS data.
- Greater confidence in the quality of the data used to support TPM efforts.

Lessons Learned

Since state HPMS submittals are typically comprised of multiple data files, it has historically been difficult for states and Division offices to check much more than the completeness of the HPMS data sets. As a result, errors or inconsistencies in the data files, or problems that occur when loading the data files, were carried over into HPMS and reported that way. In the past, this led to inconsistencies in the data being reported by the states and by FHWA, and led to mistrust among the states in FHWA's handling of the HPMS data.

The HPMS Pavement Performance Report Card has allowed FHWA to significantly reduce these issues because the Report Card combines relevant data sets and presents the information in the same format that's used for HPMS. As a result, states are now able to view the intersected data files so they, too, can see how the information is being reported to FHWA for use in its performance management reporting obligations. The availability of this tool should help to improve the quality of HPMS data among those states that are conscientious about verifying the quality of their HPMS submittals.

However, the availability of the Report Card also provides an opportunity for FHWA Division Offices to expand their reviews of HPMS submittals to include much more than verification of the submittal timing and completeness of the data sets. As demonstrated by the Ohio Division Office, the Report Card results provide an effective method of checking the reasonableness of distress propagation, evaluating changes in pavement condition with time, or verifying that the reported data fits with perceptions of highway conditions. These reasonableness checks, which are not expected to take more than a few hours to complete, show promise for improving the quality of state HPMS submittals, but also provide a means of initiating discussions with states about improving the effectiveness of their performance management practices.

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