MICHIGAN

OFFICE OF THE AUDITOR GENERAL

AUDIT REPORT

PERFORMANCE AUDIT
OF

COMMERCIAL VEHICLE ENFORCEMENT

MICHIGAN DEPARTMENT OF STATE POLICE

January 2008

THOMAS H. MCTAVISH, C.P.A.
AUDITOR GENERAL

551-0144-06

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.

– Article IV, Section 53 of the Michigan Constitution

Audit report information can be accessed at:
http://audgen.michigan.gov

Michigan

Office of the Auditor General

REPORT SUMMARY

Performance Audit

Commercial Vehicle Enforcement

Michigan Department of State Police

Report Number:
551-0144-06

Released:
January 2008

The mission of Commercial Vehicle Enforcement (CVE), formerly known as the Motor Carrier Division, is to provide the public with a safe motoring environment and to protect the highway infrastructure by promoting compliance with commercial vehicle laws through enforcement and education. CVE divides Michigan into districts to perform its enforcement activities through a combination of road patrols and the use of permanent weigh stations.

Audit Objective:
To assess the effectiveness of CVE's efforts to conduct commercial motor vehicle (CMV) carrier inspections, compliance reviews, and safety audits in accordance with Federal Motor Carrier Safety Administration (FMCSA) regulations.

Audit Conclusion:
We concluded that CVE's efforts were effective in conducting CMV carrier inspections, compliance reviews, and safety audits in accordance with FMCSA regulations. Our audit report does not include any reportable conditions related to this audit objective.

Noteworthy Accomplishments:
CVE was recognized by the U.S. Department of Transportation for its drug enforcement interdiction efforts related to its impact on criminal activity involving CMVs. In addition, CVE's efforts have resulted in several significant drug seizures and CVE has provided drug interdiction training to law enforcement agencies in Michigan and Canada.

CVE obtained funding from FMCSA to enhance safety and security at Michigan's three international border corridors. CVE deployed additional enforcement personnel to the border corridors and purchased communication and contraband detection equipment.

~ ~ ~ ~ ~ ~ ~ ~ ~ ~

Audit Objective:
To assess the effectiveness of CVE's efforts in impacting CMV compliance with Michigan CMV weight limits.

Audit Conclusion:
We could not determine the effectiveness of CVE's efforts in impacting CMV compliance with Michigan CMV weight limits primarily because of the lack of available data from which to assess the impact of CVE's efforts. In addition, a number of factors, such as the State's economic status, volume of CMV traffic, and seasonal CMV activity may have an effect on the number of overweight vehicles operating on Michigan roads. However, CVE's enforcement efforts are

required by federal grant requirements to deter overweight vehicles and the expectation is that such efforts have a positive effect on compliance with CMV weight limits. Our audit disclosed three reportable conditions (Findings 1 through 3).

Reportable Conditions:

CVE had not developed and evaluated outcomes for its weight enforcement activities (Finding 1).

CVE, in conjunction with the Michigan Department of Transportation, did not maintain the functionality of all of its scales used to assist in the performance of its weight enforcement operations (Finding 2).

CVE should periodically analyze the disposition of its overweight CMV citations (Finding 3).

~ ~ ~ ~ ~ ~ ~ ~ ~ ~

Agency Response:

Our audit report includes 3 findings and 3 corresponding recommendations. The Michigan Department of State Police's preliminary response indicates that CVE agrees with all 3 of the recommendations.

~ ~ ~ ~ ~ ~ ~ ~ ~ ~

A copy of the full report can be obtained by calling 517.334.8050 or by visiting our Web site at: http://audgen.michigan.gov

Michigan Office of the Auditor General
201 N. Washington Square
Lansing, Michigan 48913

Thomas H. McTavish, C.P.A.
Auditor General

Scott M. Strong, C.P.A., C.I.A.
Deputy Auditor General

STATE OF MICHIGAN
OFFICE OF THE AUDITOR GENERAL
201 N. WASHINGTON SQUARE
LANSING, MICHIGAN 48913
(517) 334-8050
FAX (517) 334-8079

THOMAS H. MCTAVISH, C.P.A.
AUDITOR GENERAL

January 29, 2008

Colonel Peter C. Munoz, Director
Michigan Department of State Police
714 South Harrison Road
East Lansing, Michigan

Dear Colonel Munoz:

This is our report on the performance audit of Commercial Vehicle Enforcement, Michigan Department of State Police.

This report contains our report summary; description of agency; audit objectives, scope, and methodology and agency responses and prior audit follow-up; comments, findings, recommendations, and agency preliminary responses; five exhibits, presented as supplemental information; and a glossary of acronyms and terms.

Our comments, findings, and recommendations are organized by audit objective. The agency preliminary responses were taken from the agency's responses subsequent to our audit fieldwork. The *Michigan Compiled Laws* and administrative procedures require that the audited agency develop a formal response within 60 days after release of the audit report.

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

Sincerely,

Thomas H. McTavish, C.P.A.
Auditor General

This Page Left Intentionally Blank

TABLE OF CONTENTS

COMMERCIAL VEHICLE ENFORCEMENT
MICHIGAN DEPARTMENT OF STATE POLICE

	Page
INTRODUCTION	
Report Summary	1
Report Letter	3
Description of Agency	7
Audit Objectives, Scope, and Methodology and Agency Responses and Prior Audit Follow-Up	10
COMMENTS, FINDINGS, RECOMMENDATIONS, AND AGENCY PRELIMINARY RESPONSES	
Effectiveness of Efforts to Conduct Inspections, Reviews, and Audits	14
Effectiveness of Efforts in Impacting Compliance With Weight Limits	14
1. Enforcement Activity Outcomes	15
2. Weight Enforcement Scales	18
3. Overweight CMV Citation Analysis	20
SUPPLEMENTAL INFORMATION	
Description of Supplemental Information	24
Exhibit 1 - Enforcement Activity Profile	25
Exhibit 2 - Traffic Violation Enforcement Detail	26
Exhibit 3 - Weigh Activity	27

Exhibit 4 - Estimate of Road and Bridge Damage Caused by Overweight Vehicles 28
Exhibit 5 - Analysis of Overweight Commercial Motor Vehicles (CMVs) by District 30

GLOSSARY

Glossary of Acronyms and Terms 32

Description of Agency

The mission* of Commercial Vehicle Enforcement (CVE) related to commercial motor vehicles* (CMVs) is to provide the public with a safe and secure motoring environment and to protect the highway infrastructure by promoting compliance with commercial vehicle laws through enforcement and education. On March 11, 2007, the Michigan Department of State Police merged CVE, formerly known as the Motor Carrier Division, with its Traffic Services Section to form the Traffic Safety Division.

CVE enforces the Michigan Vehicle Code (Sections 257.1 - 257.923 of the *Michigan Compiled Laws*), the Federal Motor Carrier Safety Regulations as adopted under the Motor Carrier Safety Act of 1963 (Sections 480.11 - 480.25 of the *Michigan Compiled Laws*), and other laws that pertain to motor carriers that transport commodities by truck and trailer. These laws address the weight, length, and width of trucks and trailers and the operating condition of CMVs.

CVE's goals* related to its CMV operations are to reduce the frequency and severity of crashes involving CMVs through a comprehensive enforcement and inspection program; to protect the highway infrastructure through effective size and weight enforcement; to provide for homeland security and protection of critical infrastructure as it pertains to the State's highways; and to promote regulatory compliance by motor carriers. Also, CVE performs safety audits* on all new Michigan interstate CMV carriers, inspections on CMVs, and compliance reviews* on carriers to assess conformity with vehicle and driver regulations. In addition, CVE seeks to increase the effectiveness of CMV enforcement by providing specialized training related to CMV operations to local law enforcement officers, judges, magistrates, and prosecutors.

CVE divides Michigan into districts to perform its enforcement activities through a combination of road patrols and the use of permanent weigh stations. CVE officers monitor vehicles for compliance with size and weight requirements, and each patrol vehicle is equipped with a set of portable scales. CVE officers monitor other nonweight issues, such as performing safety inspections on CMVs; verifying driver requirements to ensure compliance with the Motor Carrier Safety Act; and enforcing other moving violations, such as speeding or reckless driving (see Exhibit 1). Motor carriers who

** See glossary at end of report for definition.*

violate the laws pertaining to the operation of CMVs are charged a fine that the carriers, drivers, or vehicle owners pay to local courts. Citation* fines are dedicated to supporting public libraries and county law libraries.

For fiscal year 2006-07, CVE received appropriations to perform its enforcement operations from Federal Motor Carrier Safety Administration Grants ($8.4 million), the State Trunkline Fund ($7.4 million), motor carrier fees collected by the Michigan Public Service Commission ($4.2 million), and the Michigan Truck Safety Fund ($1.3 million).

CVE operates 14 permanent weigh stations located throughout the State. In addition, CVE operates 3 scales located at the International Bridge, the Mackinac Bridge, and the Blue Water Bridge. Each location is equipped with a static scale to detect CMV weight violations. In addition, 7 of the locations are equipped with low-speed ramp weigh-in-motion scales to screen for overweight vehicles. CVE and the Michigan Department of Transportation (MDOT) operate under a memorandum of understanding whereby MDOT retains control of the permanent weigh stations and the two agencies share weigh station maintenance and repair responsibilities.

Federal regulations require that the State maintain an adequate weight enforcement program to be eligible for federal funds for construction of State highways. In addition, CVE is responsible for monitoring CMVs at the State's one highway warranty site to help ensure that overweight vehicles do not void the warranty.

Federal regulations allow a gross vehicle weight limit of 80,000 pounds with the maximum weight on any single axle of 20,000 pounds and 34,000 pounds for a tandem axle. However, because Michigan's weight laws were in effect prior to the initiation of the federal regulations, its laws provide for certain axle configurations and weight limits which allow for a gross vehicle weight up to 164,000 pounds, the highest in the nation. Michigan operates on a two-tier system: one tier for gross vehicle weight of 80,000 pounds or less and the second tier for vehicles with a gross vehicle weight over 80,000 pounds. Axle spacing and tire size determine the maximum allowable weight for each

** See glossary at end of report for definition.*

axle. The following table discloses the maximum allowable gross axle weight allowed by State statute:

	Normal Loadings Per Axle When Seasonal Load Limitations Are Not in Force		Normal Loadings Per Axle With Seasonal Load Limitations by Pavement Type	
Spacing Between Axles	Vehicles Weighing Over 80,000 Pounds Gross Weight	Vehicles Weighing 80,000 Pounds or Less Gross Weight (see Note)	Rigid Pavement*	Flexible Pavement*
9 feet or over	18,000 pounds	20,000 pounds	13,500 pounds	11,700 pounds
More than 3.5 feet but less than 9 feet	13,000 pounds	20,000 pounds	9,750 pounds	8,450 pounds
When part of a tandem axle assembly	16,000 pounds	34,000 pounds	12,000 pounds	10,400 pounds
When less than 3.5 feet	9,000 pounds	20,000 pounds	6,750 pounds	5,850 pounds
Maximum load on any wheel shall not exceed (pounds per inch of tire width)	700 pounds	700 pounds	525 pounds	450 pounds

Note: Vehicles with a gross weight of 80,000 pounds or less may be eligible for increased weights using the bridge gross weight formula. The purpose of the formula is to prevent stress to highway bridges caused by heavy trucks by controlling the spacing of truck axles and weight on those axles.

Source: Maximum Legal Truck Loadings and Dimensions, Michigan Department of Transportation http://www.michigan.gov/documents/Loads_dim_87014_7.pdf.

CVE was appropriated $21.3 million to perform CMV enforcement operations for fiscal year 2006-07 and had 187 employees as of September 30, 2006.

** See glossary at end of report for definition.*

Audit Objectives

Our performance audit* of Commercial Vehicle Enforcement (CVE), Michigan Department of State Police, had the following objectives:

1. To assess the effectiveness* of CVE's efforts to conduct commercial motor vehicle (CMV) carrier inspections, compliance reviews, and safety audits in accordance with Federal Motor Carrier Safety Administration (FMCSA) regulations.

2. To assess the effectiveness of CVE's efforts in impacting CMV compliance with Michigan CMV weight limits.

Audit Scope

Our audit scope was to examine the program and other records of Commercial Vehicle Enforcement. Our audit was conducted in accordance with *Government Auditing Standards* issued by the Comptroller General of the United States and, accordingly, included such tests of the records and such other auditing procedures as we considered necessary in the circumstances. Our audit procedures, conducted from July 2006 through April 2007, included examination of CVE's records and activities primarily for the period October 1, 2003 through April 30, 2007.

As part of our audit, we prepared supplemental information that relates to our second audit objective. Our audit was not directed toward expressing an opinion on this information and, accordingly, we express no opinion on it.

Audit Methodology

We conducted a preliminary review of CVE's operations to formulate a basis for defining the audit objectives and scope. Our review included interviewing CVE personnel and reviewing applicable statutes, mission and goals, reports, and other reference materials.

** See glossary at end of report for definition.*

To assess the effectiveness of CVE's efforts to conduct CMV carrier inspections, compliance reviews, and safety audits in accordance with FMCSA regulations, we reviewed CVE's process for scheduling and performing various inspections, reviews, and audits. We examined a sample of CVE inspections, reviews, and audits to determine whether CVE's performance was in accordance with FMCSA regulations.

To assess the effectiveness of CVE's efforts in impacting CMV compliance with Michigan CMV weight limits, we determined whether CVE had implemented a process to measure its impact on CMV compliance, including establishing standards of compliance and identifying relevant indicators from which it could measure compliance. We assessed whether CVE had collected accurate performance data on its compliance indicators and whether it had compared the data to desired outcomes*. Further, we determined whether CVE had proposed changes to its program based on its analysis to improve the effectiveness of its efforts in impacting CMV compliance with Michigan CMV weight limits.

We researched federal and other state efforts to measure the effectiveness of efforts in impacting CMV compliance with weight limits. We reviewed CVE's size and weight enforcement plan detailing CVE's enforcement infrastructure and resources and its process for scheduling CMV weight enforcement patrol operations. We analyzed CVE and Michigan Department of Transportation (MDOT) efforts to coordinate resources to enhance enforcement operations. We obtained and analyzed data regarding overweight CMVs from MDOT's weigh-in-motion scales. We estimated the damage caused to roads and bridges by overweight CMVs. In addition, we reviewed CVE's efforts to analyze the effect of district court reductions of overweight vehicle citation fines on CMV compliance with Michigan weight limits.

We use a risk and opportunity based approach when selecting activities or programs to be audited. Accordingly, our audit efforts are focused on activities or programs having the greatest probability for needing improvement as identified through a preliminary review. By design, our limited audit resources are used to identify where and how improvements can be made. Consequently, our performance audit reports are prepared on an exception basis. To the extent practical, we add balance to our audit reports by presenting noteworthy accomplishments for exemplary achievements identified during our audits.

** See glossary at end of report for definition.*

Agency Responses and Prior Audit Follow-Up

Our audit report includes 3 findings and 3 corresponding recommendations. The Michigan Department of State Police's preliminary response indicates that CVE agrees with all 3 of the recommendations.

The agency preliminary response that follows each recommendation in our report was taken from the agency's written comments and oral discussion subsequent to our audit fieldwork. Section 18.1462 of the *Michigan Compiled Laws* and Department of Management and Budget Administrative Guide procedure 1280.02 require the Michigan Department of State Police to develop a formal response to our audit findings and recommendations within 60 days after release of the audit report.

We released our prior performance audit of the Motor Carrier Division, Michigan Department of State Police (55-144-00), in August 2001. Within the scope of this audit, we followed up 3 of the 4 prior audit recommendations. CVE complied with 2 of the 3 prior audit recommendations, and the other prior audit recommendation was rewritten for inclusion in this report.

COMMENTS, FINDINGS, RECOMMENDATIONS, AND AGENCY PRELIMINARY RESPONSES

EFFECTIVENESS OF EFFORTS TO CONDUCT INSPECTIONS, REVIEWS, AND AUDITS

COMMENT

Audit Objective: To assess the effectiveness of Commercial Vehicle Enforcement's (CVE's) efforts to conduct commercial motor vehicle (CMV) carrier inspections, compliance reviews, and safety audits in accordance with Federal Motor Carrier Safety Administration (FMCSA) regulations.

Conclusion: We concluded that CVE's efforts were effective in conducting CMV carrier inspections, compliance reviews, and safety audits in accordance with FMCSA regulations. Our audit report does not include any reportable conditions* related to this audit objective.

Noteworthy Accomplishments: CVE was recognized by the U.S. Department of Transportation for its drug enforcement interdiction efforts related to its impact on criminal activity involving CMVs. In addition, CVE's efforts have resulted in several significant drug seizures and CVE has provided drug interdiction training to law enforcement agencies in Michigan and Canada.

CVE obtained funding from FMCSA to enhance safety and security at Michigan's three international border corridors. CVE deployed additional enforcement personnel to the border corridors and purchased communication and contraband detection equipment.

EFFECTIVENESS OF EFFORTS IN IMPACTING COMPLIANCE WITH WEIGHT LIMITS

COMMENT

Background: We obtained CMV data from the Michigan Department of Transportation's (MDOT's) weigh-in-motion (WIM) scales embedded in Michigan roadways throughout the State for the three-year period May 1, 2004 through April 30, 2007. Using this data and other CVE data, the following table presents, for each of the

** See glossary at end of report for definition.*

12-month periods, the number of CMVs weighed by WIM scales, the average percent overweight, the number of overweight citations issued by CVE, and the number of CVE officers:

Period	Total CMVs Weighed by MDOT's WIM Scales	Average Percent Overweight (1)	Overweight Citations Issued by CVE (2)	CVE Officers (2)
May 1, 2004 - April 30, 2005	62.6 million	2.6%	3,674	117
May 1, 2005 - April 30, 2006	58.7 million	2.8%	3,480	118
May 1, 2006 - April 30, 2007	56.7 million	2.1%	4,308	112

(1) The average percent overweight is based on MDOT's WIM data for only those locations with either quartz or bending plate sensors. MDOT began calibrating these sensors in 2006 to be accurate within +/-5% of the vehicle's gross vehicle weight. MDOT had 12, 13, and 18 WIMs with quartz or bending plate sensors in 2005, 2006, and 2007, respectively.

(2) For the fiscal years ended September 30, 2004, 2005, and 2006, respectively (see Exhibit 3).

Audit Objective: To assess the effectiveness of CVE's efforts in impacting CMV compliance with Michigan CMV weight limits.

Conclusion: We could not determine the effectiveness of CVE's efforts in impacting CMV compliance with Michigan CMV weight limits primarily because of the lack of available data from which to assess the impact of CVE's efforts. In addition, a number of factors, such as the State's economic status, volume of CMV traffic, and seasonal CMV activity may have an effect on the number of overweight vehicles operating on Michigan roads. However, CVE's enforcement efforts are required by federal grant requirements to deter overweight vehicles and the expectation is that such efforts have a positive effect on compliance with CMV weight limits. Our audit disclosed three reportable conditions related to enforcement activity outcomes, weight enforcement scales, and overweight CMV citation analysis (Findings 1 through 3).

FINDING

1. Enforcement Activity Outcomes

   CVE had not developed and evaluated outcomes for its weight enforcement activities.

Without relevant outcomes, CVE was unable to demonstrate that its weight enforcement activities were effective in meeting its goal of protecting the highway infrastructure.

CVE had incorporated parts of a formal system to evaluate the effectiveness of its weight enforcement efforts. For example, CVE had established an overall mission, a strategic plan, and goals and objectives* for meeting its mission. Also, CVE had developed an electronic daily time reporting system that enabled CVE to collect officer activity output* data, such as time spent performing various assignments and weight enforcement activity. In addition, CVE collected and reported output data such as the number of vehicles weighed and the number of citations issued (see Exhibits 1 and 2).

Our review of the process that CVE used to evaluate its enforcement efforts disclosed:

a. CVE had not developed outcome performance indicators* related to its enforcement of statutory weight limits. The lack of outcome performance indicators for weight enforcement activities limited CVE's ability to evaluate its efforts to protect the State's highway infrastructure. An effective weight enforcement program is essential to help reduce the frequency of overweight CMVs and the associated damage that overweight vehicles cause to roads and bridges.

   One example of an outcome performance indicator that CVE could evaluate as a measure of its weight enforcement effectiveness is the resultant change in the number of overweight vehicles after differing levels of CVE enforcement resources were applied to specific locations.

   MDOT maintains data related to the number of overweight vehicles gathered from its WIM scales; however, CVE did not regularly obtain and use the data in evaluating and developing outcome performance indicators.

b. CVE had not established performance standards* for its overweight vehicle enforcement efforts that described the desired level of enforcement activity outputs and outcomes based on management's expectations.

** See glossary at end of report for definition.*

For example, CVE could establish output performance standards related to the total number of vehicles weighed, the expected number of overweight citations, and the expected annual percentage of overweight vehicles as reported by MDOT's WIM scales. Such information would help enable CVE to analyze the overall effectiveness of its weight enforcement efforts.

c. CVE had not evaluated its weight enforcement efforts by compiling enforcement activity output and outcome data and comparing the data to performance standards. Therefore, CVE could not document its effectiveness and did not have data to indicate the necessity of changes to its enforcement strategy to improve its effectiveness.

We compiled data on several possible outcome performance indicators that may be relevant for assessing the level of effectiveness of CVE's weight enforcement efforts:

(a) Damage Caused by Overweight CMVs

Using the percentage of overweight CMVs identified by MDOT's quartz and bending plate WIM sensors, we estimated the damage to roads and bridges from overweight vehicles. For the period May 1, 2004 through April 30, 2007, the WIM sensors indicated that the annual percentage of overweight vehicles was:

May 1, 2004 through April 30, 2005: 2.6%
May 1, 2005 through April 30, 2006: 2.8%
May 1, 2006 through April 30, 2007: 2.1%

Based on this data, we estimated that damage from overweight vehicles resulted in $14.4 million to $22.9 million in road and bridge maintenance and repair costs over the costs attributed to the vehicles at the legal weight limit (see Exhibit 4).

This evaluation could also help CVE demonstrate whether the State is meeting the federal grant requirements designed to deter overweight vehicles from traveling on State highways.

(b) Analysis of Overweight CMVs by District

We compiled the number of overweight CMVs by district (see Exhibit 5) and analyzed recent citations to determine in which district CMVs were the most overweight. The percentage of overweight vehicles was relatively consistent among all districts except for the two southeast Michigan districts (the second district - north and the second district - south), which had a slightly lower percentage of overweight vehicles. Also, the average percentage by which vehicles in these two districts exceeded the legal weight limits was greater than the average percentage in the three additional districts that we analyzed (the first, fifth, and sixth districts). This type of analysis may assist CVE in determining where to deploy officers to have the greatest impact on CMVs exceeding the weight limits.

(c) Comparison of Overweight CMVs Detected by CVE vs. MDOT's WIM Scales

We compared the number of overweight CMVs detected by CVE (see Exhibit 3) to the number of overweight CMVs detected by MDOT's WIM scales for fiscal year 2005-06. The MDOT data indicated that 2.8% of CMVs were overweight; the CVE data indicated that only .17% (94% less) of the population of vehicles that it weighed was overweight. This analysis may be indicative of the number of overweight vehicles that avoid CVE permanent weigh stations and may provide CVE with data to revise its efforts.

RECOMMENDATION

We recommend that CVE develop and evaluate outcomes for its weight enforcement activities.

AGENCY PRELIMINARY RESPONSE

CVE agrees with the recommendation. CVE will continue to collaborate with MDOT through the Commercial Vehicle Strategy Team to develop and evaluate outcomes for its weight enforcement activities.

FINDING

2. Weight Enforcement Scales

CVE, in conjunction with MDOT, did not maintain the functionality of all of its scales used to assist in the performance of its weight enforcement operations. As a

result, malfunctioning weigh scales negatively affected CVE's ability to efficiently weigh many CMVs.

As of July 2006, CVE reported that static scales at 2 of the 14 permanent weigh stations did not function properly. Also, 5 of 7 low-speed WIM scales located at weigh stations either did not function or were not accurate enough to screen for overweight vehicles. Static scales that did not function properly were taken out of service. CVE then used portable scales to weigh CMVs that appeared to be overweight.

WIM scales allow CVE to initially screen the weight of many CMVs to enable more efficient use of enforcement resources by requiring static weighing only for those vehicles initially identified as potentially overweight.

Section 28.21 of the *Michigan Compiled Laws* transferred the CMV enforcement responsibility along with the employees, records, and enforcement infrastructure to the Michigan Department of State Police in 1982 from the Department of Commerce (now the Department of Labor and Economic Growth). Prior to that, CMV enforcement operations were the responsibility of the Department of State Highways (now MDOT). CVE and MDOT operate under a memorandum of understanding whereby MDOT retains control over the permanent weigh stations. The memorandum of understanding states that the two agencies share permanent weigh station maintenance and repair responsibilities with a portion of CVE annual appropriation from the State Trunkline Fund dedicated for maintenance and operation of the permanent weigh stations. At the time of our audit, the memorandum of understanding also stated that CVE should perform routine maintenance to extend the operational life of the permanent weigh stations, but it was not to replace failed scales or make significant building repairs costing more than $5,000 without prior MDOT approval.

For fiscal year 2006-07, CVE was appropriated $10.1 million for its enforcement activities, which consisted of $7.4 million (74%) from the State Trunkline Fund with the remaining appropriation from fees assessed to motor carriers. During fiscal years 2004-05 and 2005-06, CVE did not expend $1,119,404 and $640,510, respectively, of the State Trunkline Fund appropriation that could have been used to repair or replace scales. CVE had not proposed to use this lapsed funding to repair or replace its nonfunctioning scales.

CVE notified MDOT during meetings and through its annual scale status report of the condition of the weigh stations and the need for repairs. However, CVE could not document that it requested that MDOT repair the weigh stations. Also, CVE informed us that it did not take further action related to the scale deficiencies because it considered that MDOT owned the weigh stations and felt that it had no recourse with MDOT over funding necessary repairs.

RECOMMENDATION

We recommend that CVE, in conjunction with MDOT, maintain the functionality of all of its scales used to assist in the performance of its weight enforcement operations.

AGENCY PRELIMINARY RESPONSE

CVE agrees with the recommendation. CVE will continue to collaborate with MDOT through the Commercial Vehicle Strategy Team to develop a long-range weight enforcement strategy, to prioritize scale repairs, to deploy additional wireless WIM sites, and to propose to use lapsed funding to maintain permanent weigh stations and/or obtain additional WIM scales and scale cutouts.

FINDING

3. Overweight CMV Citation Analysis

CVE should periodically analyze the disposition of its overweight CMV citations.

Without periodically analyzing the disposition of overweight CMV citations, CVE cannot determine whether program modifications are necessary to increase the effectiveness of the citation process.

State statutes provide for fines related to citations issued by CVE to drivers of overweight vehicles. Overweight vehicle fines support public libraries and county law libraries and do not fund CVE operations.

Based on the statutory fine provisions, CVE estimated that the 4,578 overweight citations that it issued during calendar year 2006 would result in fines of $5 million. However, we could not obtain the actual amount of fines assessed by courts because State data systems do not provide the ability to efficiently obtain data on the amount of fines assessed and ultimately paid on overweight citations. CVE

provided us with 17 examples of court dismissals and reductions of fines related to overweight citations issued during calendar year 2006. Based on the statutory fine provisions, fines of $55,235 applied to these citations. However, courts dismissed or reduced the fines to $16,472 (30%).

Dismissals and reductions of fines for overweight citations would logically tend to eliminate or reduce the effectiveness of citations as a method to enforce weight limits. During our review of overweight citations and fines, we noted:

a. CVE had not obtained sufficient data relating to how many citations were paid and if the citations would deter future overweight vehicles. Data on vehicles weighed by CVE (see Exhibit 3) indicates that the number of overweight vehicles for the fiscal year ended September 30, 2006 increased from prior years. Also, CVE informed us that it was aware that some drivers have the ability to pass overweight citation fines to their customers and, in some instances, the potential earnings related to operating the vehicle overweight exceeded the amount of the citation fine, rendering the citation process ineffective in ensuring compliance with statutory weight limits.

b. CVE had not analyzed the reasons for dismissals or reductions of citation fines by courts. CVE informed us that it was aware that district court judges and magistrates sometimes dismissed or reduced the statutory fines related to overweight citations. However, CVE had not performed an analysis of, and obtained feedback from courts to identify the reasons for, citation fine dismissals and reductions.

Because the available evidence related to the effectiveness of overweight citations was anecdotal, further effort is necessary to identify and quantify the reasons for citation dismissals and reductions in fines. If CVE's analysis indicates that the effectiveness of citations is less than optimal, such analysis will provide CVE with a basis to propose necessary revisions or enlist the assistance of the State Court Administrative Office to help increase the effectiveness of citations.

RECOMMENDATION

We recommend that CVE periodically analyze the disposition of its overweight CMV citations.

AGENCY PRELIMINARY RESPONSE

CVE agrees with the recommendation. CVE will periodically analyze the disposition of its overweight CMV citations.

SUPPLEMENTAL INFORMATION

Description of Supplemental Information

The Office of the Auditor General prepared the following exhibits related to Commercial Vehicle Enforcement (CVE) activity:

Exhibit 1 - Enforcement Activity Profile: This exhibit shows CVE's enforcement activity, citation, arrest, and crash summaries for calendar years 2004 through 2006 from CVE's internal reporting system.

Exhibit 2 - Traffic Violation Enforcement Detail: This exhibit shows CVE's violation detail for calendar years 2004 through 2006 compared with national figures. Information was obtained from the Federal Motor Carrier Safety Administration's (FMCSA's) Motor Carrier Management Information System as of December 22, 2006. Exhibit 2 differs from Exhibit 1 because it reports only those violations requested by FMCSA and not all CVE violation activity as reported in Exhibit 1.

Exhibit 3 - Weigh Activity: This exhibit shows the number of vehicles weighed and the overweight citations for the fiscal years ended September 30, 2004 through September 30, 2006. The details on this exhibit were obtained from multiple sources and are explained in the footnotes to the exhibit.

Exhibit 4 - Estimate of Road and Bridge Damage Caused by Overweight Vehicles: This exhibit displays the methodology we used to estimate the damage to the State's roads and bridges by overweight vehicles for the period May 1, 2006 through April 30, 2007.

Exhibit 5 - Analysis of Overweight Commercial Motor Vehicles (CMVs) by District: This exhibit displays the number of CMVs weighed and reported as overweight from the Michigan Department of Transportation's weigh-in-motion (WIM) devices for the period May 1, 2006 through April 30, 2007.

These exhibits are included in this report as supplemental information and are unaudited. Our audit was not directed toward expressing an opinion on this information and, accordingly, we express no opinion on it.

UNAUDITED
Exhibit 1

COMMERCIAL VEHICLE ENFORCEMENT
Michigan Department of State Police
Enforcement Activity Profile
For Calendar Years 2004 through 2006

	2004	2005	2006
Enforcement Activity Summary			
Vehicle inspections	47,936	45,050	55,269
Compliance reviews*	74	135	225
Safety audits*	485	604	821
Vehicles stopped (inspections, reviews, traffic offenses)	82,251	73,698	86,274
Vehicles weighed*	2,866,150	2,182,813	2,473,074
Citation Summary			
Overweight citations	3,996	3,237	4,578
Size citations	1,252	1,185	1,874
Traffic citations - speeding	19,361	13,911	13,232
Other traffic citations (improper lane change, reckless driving, etc.)	534	540	737
Driver impairment	77	53	52
Registration	5,170	3,878	4,231
Seat belts	5,323	5,353	7,360
Driver license	885	864	1,253
Parking	705	975	757
Driver qualification violations	4,213	4,060	4,678
Equipment	5,073	4,929	6,118
Logbook	4,283	4,217	4,923
Hazardous materials	309	395	484
Other	8,476	8,235	10,196
Total Citations	59,657	51,832	60,473
Arrest Summary			
Felony violations	63	66	66
Misdemeanor violations	267	166	245
Fugitives arrested	541	539	661
Total Arrests	871	771	972
Crash Summary*			
Commercial motor vehicle (CMV) crashes	16,696	15,641	13,069
Persons killed in CMV related crashes	128	136	129
Persons injured in CMV related crashes	4,156	3,892	2,372

* Information given on a fiscal year basis (fiscal years 2003-04, 2004-05, and 2005-06).

Source: Commercial Vehicle Enforcement Activity Reports.

UNAUDITED
Exhibit 2

COMMERCIAL VEHICLE ENFORCEMENT (CVE)
Michigan Department of State Police
Traffic Violation Enforcement Detail
For Calendar Years 2004 through 2006*

Traffic Violation Enforcement Types	CVE Violations			Percentage of Total 2006 Violations by Enforcement Type	
	2004	2005	2006	CVE Violations	National Violations
Moving Violations:					
Following too close	402	437	690	1.71%	0.90%
Improper lane change	204	150	190	0.47%	0.82%
Reckless driving	47	39	49	0.12%	0.08%
Speeding	11,259	10,707	11,937	29.60%	19.54%
Failure to obey traffic control device	548	400	647	1.60%	3.23%
Improper passing	76	86	77	0.19%	0.18%
Improper turns	108	53	82	0.20%	0.12%
Failure to yield right of way	93	75	41	0.10%	0.18%
Drug and Alcohol Violations:					
Driver uses or is in possession of drugs	31	31	50	0.12%	0.08%
Driver uses or is in possession of alcohol	86	66	74	0.18%	0.13%
Other Traffic Violations:					
Failing to properly secure parked vehicle	3			0.00%	0.00%
Failing to use hazard warning flashers	17	16	13	0.03%	0.08%
Failing/improper placement of warning devices	64	37	60	0.15%	0.27%
Size and weight	6,110	5,180	7,207	17.87%	24.89%
Unspecified Traffic Violations:					
Local laws (general)	17,794	15,395	19,206	47.63%	49.49%
Total	36,842	32,672	40,323	100.00%	100.00%

* Information for calendar year 2006 is through December 22, 2006.

Source: Federal Motor Carrier Safety Administration.

UNAUDITED
Exhibit 3

COMMERCIAL VEHICLE ENFORCEMENT (CVE)
Michigan Department of State Police
Weigh Activity
For Fiscal Years Ended September 30

	2004	2005	2006	National Average for 2000 through 2003 (1)
Number of vehicles weighed by: (2)				
Fixed scale	134,510	3,624 *	4,280 *	
Semi-portable weigh-in-motion (WIM) scale		2,376	2,601	
Portable scale	5,070	4,897	5,467	
WIM scale**	2,726,570	2,171,916	2,460,726	
Total weighed	2,866,150	2,182,813	2,473,074	194,312,543
Overweight citations issued	3,674	3,480	4,308	622,580
Percentage of vehicles weighed that were issued an overweight citation	0.13%	0.16%	0.17%	0.32%
Size citations issued	1,694	1,606	1,717	
Number of officers dedicated to commercial motor vehicle enforcement activities (3)	117	118	112	
Number of permanent weigh stations (4)	19	18	14	
Number of permanent scale sites with a WIM scale (4)	7	7	7	

* In fiscal years 2004-05 and 2005-06, the number of vehicles weighed by fixed scale no longer includes trucks that simply pass over a fixed scale static deck. These vehicle counts are captured in the number of vehicles weighed by WIM scale amount.

** Amounts reflect the vehicles weighed by WIM scales located at permanent weigh stations.

Sources:
(1) National information obtained from the Federal Highway Administration, U.S. Department of Transportation.

(2) The number of vehicles weighed is from CVE's annual Size and Weight Certification Report.

(3) The number of officers is from CVE's annual Size and Weight Enforcement Plan as of October 1.

(4) The number of permanent weigh stations and scale sites is from CVE's annual Size and Weight Enforcement Plans. However, the Plans indicate that not all of the weigh stations and scale sites were fully operational.

Exhibit 4

COMMERCIAL VEHICLE ENFORCEMENT

Michigan Department of State Police

Estimate of Road and Bridge Damage Caused by Overweight Vehicles

For the Period May 1, 2006 through April 30, 2007

The U.S. Department of Transportation's (USDOT's) Comprehensive Truck Size and Weight Study issued in August 2000 indicated that states spend billions of dollars each year to maintain their highway systems. The study noted that the condition and performance of highway pavement depends on many factors: pavement structure; construction quality; weather; subbase characteristics; magnitude, spacing, and frequency of axle loads; and interaction between pavement conditions and vehicle speed, number of tires per axle, tire pressures, and suspension characteristics. In addition, the study noted that the gross weight of a vehicle is not the prime determinant of a vehicle's impact on pavements. Instead, pavements are stressed more by loads on individual axles and axle groups in contact with the pavement. Pavement deterioration increases sharply as the axle load increases. The study also noted that, if the roads are not routinely maintained, the axle loads in combination with the environmental factors will accelerate pavement cracking and deformation.

We estimated the amount of additional road and bridge damage caused by overweight vehicles based on a methodology used in 2006 by the Arizona Department of Transportation (http://www.azdot.gov/TPD/ATRC/publications/project_reports). Our estimate involved several variables: the estimated costs to repair roads and bridges, vehicle miles traveled, highway and bridge repair costs allocated by type of vehicles, percentage of overweight vehicles, and the estimated amount that vehicles were overweight.

Information obtained from the Michigan Department of Transportation's (MDOT's) weigh-in-motion scales reported that approximately 461,000 (2.1%) of 22 million commercial motor vehicles (CMVs) weighed for the period May 1, 2006 through April 30, 2007 were overweight. In addition, an analysis of Commercial Vehicle Enforcement's citations for overweight CMVs indicated that those overweight CMVs were over the Michigan weight limits by an average of 17.8%. Using MDOT and USDOT data regarding costs to repair Michigan roads and bridges, we estimated that

damage from overweight vehicles for the period resulted in an additional $14.4 million to $22.9 million in Michigan road and bridge repair costs:

	Estimated Amounts Based on Data From	
	MDOT (1)	USDOT (2)
Annual costs to maintain Michigan roads and bridges:		
Road costs	$541 million	$891 million
Bridge costs	$190 million	$219 million
Annual road and bridge costs attributed to large combination trucks (3)	$356 million	$565 million
Annual estimated damage to roads and bridges by overweight vehicles (4)	$14.4 million	$22.9 million

(1) The MDOT estimate of annual costs to maintain roads and bridges was obtained from MDOT's 2006 - 2010 Five-Year Transportation Program.

(2) The USDOT estimate of annual costs to maintain roads and bridges was determined from USDOT's Report to Congress entitled "2002 Status of the Nation's Highways, Bridges, and Transit: Conditions & Performance." USDOT estimates that it will cost the United States $37 billion per year from 2001 through 2020 to maintain roads and bridges at their current levels. We based our estimate of Michigan's share of road and bridge costs on the pro-rata share of miles driven in Michigan as reported by the USDOT Highway Statistics 2005.

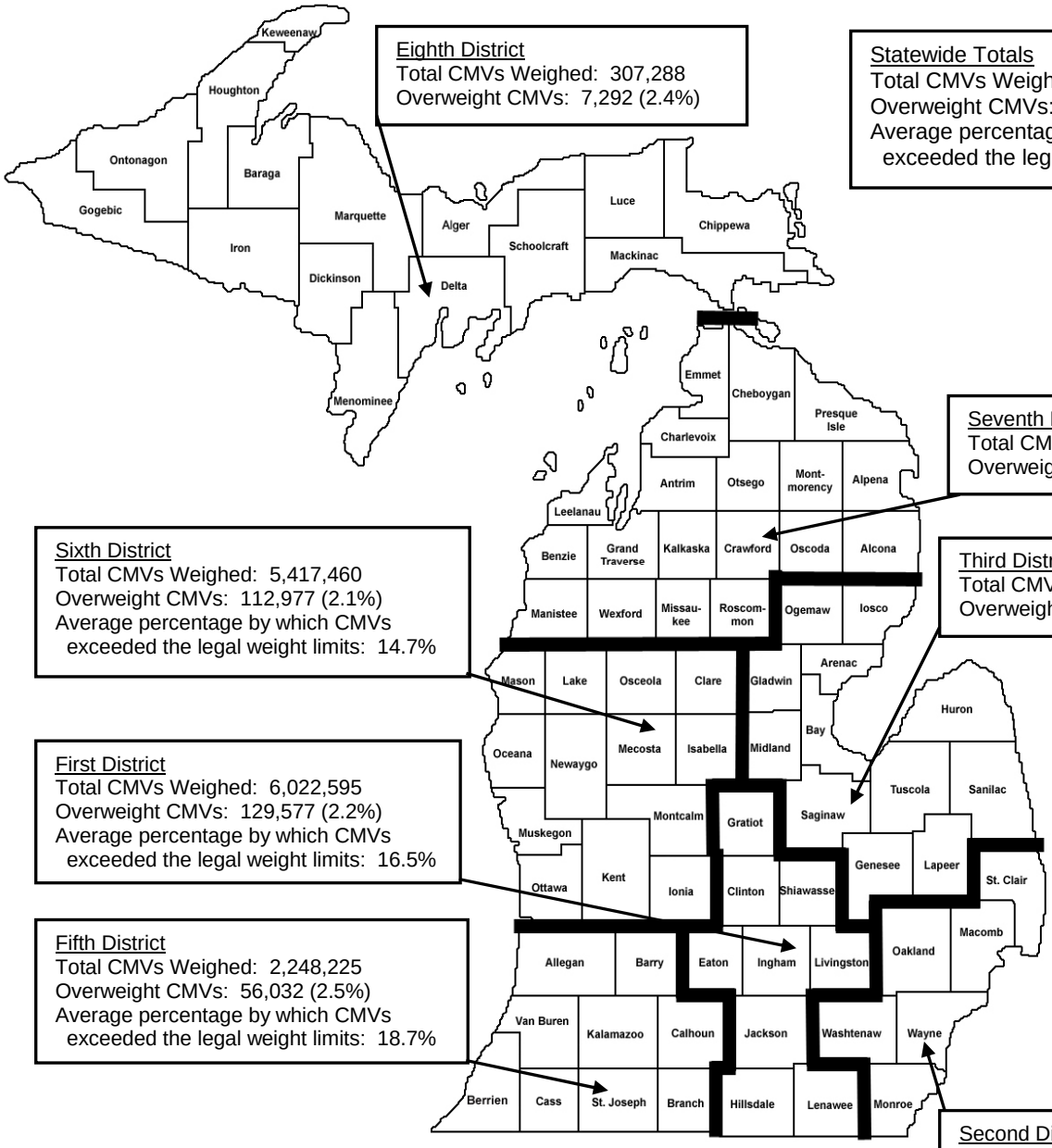
(3) The Federal Highway Cost Allocation Study indicated that the share of road and bridge costs attributed to large combination trucks was 58% and 22%, respectively. Therefore, the annual road and bridge costs attributed to large combination trucks equals ($541 million x 58%) + ($190 million x 22%) = $356 million and ($891 million x 58%) + ($219 million x 22%) = $565 million.

(4) The annual estimated damage to roads and bridges by overweight vehicles equals the annual road and bridge costs attributed to large combination trucks multiplied by 2.1% (estimate of overweight CMVs) multiplied by 1.93 (axles overweight by 17.8% to the 4th power). This methodology was obtained from the Arizona Department of Transportation.

COMMERCIAL VEHICLE ENFORCEMENT
Michigan Department of State Police
Analysis of Overweight Commercial Motor Vehicles (CMVs) by District
For the Period May 1, 2006 through April 30, 2007

Eighth District
Total CMVs Weighed: 307,288
Overweight CMVs: 7,292 (2.4%)

Statewide Totals
Total CMVs Weighed: 22,069,454
Overweight CMVs: 461,117 (2.1%)
Average percentage by which CMVs exceeded the legal weight limits: 17.8%



Seventh District
Total CMVs Weighed: 182,845
Overweight CMVs: 4,661 (2.6%)

Sixth District
Total CMVs Weighed: 5,417,460
Overweight CMVs: 112,977 (2.1%)
Average percentage by which CMVs exceeded the legal weight limits: 14.7%

Third District
Total CMVs Weighed: 2,827,675
Overweight CMVs: 62,837 (2.2%)

First District
Total CMVs Weighed: 6,022,595
Overweight CMVs: 129,577 (2.2%)
Average percentage by which CMVs exceeded the legal weight limits: 16.5%

Fifth District
Total CMVs Weighed: 2,248,225
Overweight CMVs: 56,032 (2.5%)
Average percentage by which CMVs exceeded the legal weight limits: 18.7%

Second District - North and Second District - South
Total CMVs Weighed: 5,063,366
Overweight CMVs: 87,741 (1.7%)
Average percentage by which CMVs exceeded the legal weight limits: 21.2%

Note: CVE does not have a fourth district.

Sources: Total CMVs weighed and overweight CMVs data was obtained from the Michigan Department of Transportation's quartz and bending plate weigh-in-motion scales installed in highways. The average percentage by which CMVs exceeded the legal weight limits was obtained from a review of overweight citations issued by CVE.

GLOSSARY

citation	A ticket issued to an offender with charges for violating a State statute or local ordinance.
commercial motor vehicle (CMV)	A motor vehicle used, designed, or maintained for the transportation of persons or property.
compliance review	An on-site examination of a motor carrier's operations to determine a carrier's fitness.
CVE	Commercial Vehicle Enforcement.
effectiveness	Program success in achieving mission and goals.
flexible pavement	Pavement that is surfaced with bituminous (or asphalt) materials. This pavement is called "flexible" because the total pavement structure "bends" or "deflects" due to loads.
FMCSA	Federal Motor Carrier Safety Administration.
goals	The agency's intended outcomes or impacts for a program to accomplish its mission.
MDOT	Michigan Department of Transportation.
mission	The agency's main purpose or the reason that the agency was established.
objectives	Specific outcomes that a program seeks to achieve.
outcomes	The actual impacts of the program.
outputs	The products or services produced by the program.

performance audit	An economy and efficiency audit or a program audit that is designed to provide an independent assessment of the performance of a governmental entity, program, activity, or function to improve public accountability and to facilitate decision making by parties responsible for overseeing or initiating corrective action.
performance indicators	Information of a quantitative or qualitative nature used to assess achievement of goals and/or objectives.
performance standard	A desired level of output or outcome.
reportable condition	A matter that, in the auditor's judgment, represents either an opportunity for improvement or a significant deficiency in management's ability to operate a program in an effective and efficient manner.
rigid pavement	Pavement that is surfaced with portland cement concrete. This pavement is called "rigid" because it is substantially stiffer than flexible pavement.
safety audit	An examination of a motor carrier's operations to provide educational and technical assistance on safety and operational requirements.
USDOT	U.S. Department of Transportation.
WIM	weigh-in-motion.

This Page Left Intentionally Blank

This Page Left Intentionally Blank

This Page Left Intentionally Blank

This Page Left Intentionally Blank

STATE OF MICHIGAN

OFFICE of the AUDITOR GENERAL