

# AUDIT REPORT

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Cathy Pollino, Director, Audits Division

## Oregon Department of Transportation, Motor Carrier Transportation Division: Truck Weight Enforcement Program



### Summary

#### PURPOSE

The Motor Carrier Transportation Division (division) of the Oregon Department of Transportation is responsible for enforcing state and federal laws governing the weight of trucks using Oregon's roads. The division also enforces state and federal truck safety laws, and collects truck travel data used in administering Oregon's weight-mile tax. Our audit focused on the division's truck weight enforcement responsibilities. Truck weight enforcement programs are necessary to limit the amount of damage to infrastructure and to improve public safety on the highways. Our purpose was to determine if the division was deploying its enforcement and compliance resources in the most cost-effective manner to protect taxpayer investments in roads and bridges from damage by overweight trucks.

#### RESULTS IN BRIEF

The division needs to more effectively use staff to enforce weight regulations to control heavy truck damage to pavement and bridges. The division's current program places too much emphasis on weighing a high volume of trucks traveling inbound on the state's major traffic arteries. We found most of the division's resources are deployed at a limited number of permanent scales, mainly positioned along Oregon's interstate highways, with fairly predictable hours of operation. This approach creates limited deterrence; research has shown trucks traveling across country on interstate highways generally will be stopped and weighed several times. On the other hand, illegally overweight trucks operating on non-interstate highways, particularly in cities, face little chance of being apprehended because of limited enforcement in these areas. Further, illegally overweight trucks on interstates can easily park or bypass weigh stations, using well-known bypass routes to avoid enforcement.

While the majority of truckers voluntarily comply with regulations, the division needs to adjust its enforcement strategy to better ensure a level playing field across the state, and fair competition within the trucking industry. Because of the economic incentives for illegal overloading, compliant

truckers are at a disadvantage in competing for work with those who violate the law. Moreover, because pavement wear increases sharply with weight, more effective enforcement would help prevent millions of dollars of damage to Oregon roads and bridges. Trucks and automobiles that are regularly driven on damaged roads will experience higher than necessary repair and fuel costs, and the drivers and passengers are subjected to increased safety hazards from overweight trucks. A more tactical approach to enforcement could reduce time delays and costs to compliant truckers and increase incentives for overweight carriers to comply.

#### RECOMMENDATIONS

To strengthen the operation of the truck weight enforcement program, we recommend that the division:

- Review its approaches to truck weight enforcement using available department and division data in developing cost-effective staff deployment strategies;
- Consider introducing more variability in the opening and closing times of permanent scales, including ports-of-entry;
- Consider adopting additional outcome goals and measures that have been validated in other states to provide outcome-based results aligned with enforcement objectives—deterring illegally overweight truck operations and minimizing pavement and bridge wear;
- Enhance its research tools to identify bypass routes, and develop enforcement strategies based upon truck travel data; and
- Continue working with the Oregon State Police and county and city officials to improve truck weight enforcement for state highways in metropolitan areas.

#### AGENCY RESPONSE

The Motor Carrier Transportation Division generally agrees with the recommendations. See the division's complete response following the recommendations and additional agency comments at the end of this report.

#### Introduction

Highway agencies all over the world recognize that overweight trucks are a major cause of pre-

ture pavement deterioration. Research conducted at the national level has shown that trucks are exceeding state weight limits on a widespread and continuous basis.

This research suggests that the problem of illegally overweight trucks represents a major problem for the nation's highway system. To increase profitability, trucking firms

need to maximize their per-trip cargo loads. Some firms go too far and increase cargo load weights beyond the legal limits. Separate studies by the General Accounting Office and the Federal Highway Administration have shown that about one in four of all loaded tractor-trailers exceeds state weight limits.

This is important because damage caused by an overweight truck is much more than that caused by a heavy truck operating within state weight limits. For example, a truck that is 20 percent overweight will cause about 75 percent more pavement wear than the same truck operating legally. According to the American Association of State Highway and Transportation Officials, a five-axle tractor-trailer loaded to the current 80,000-pound limit weighs about the same as 20 automobiles but its impact is dramatically higher. Engineering data shows that a five-axle tractor-trailer loaded to the current 80,000-pound weight limit causes as much pavement damage as at least 9,600 automobiles. Heavy or overweight trucks also commonly cause shorter bridge life.

## Background

The mission of the Motor Carrier Transportation Division is:

*To promote a safe, efficient, and responsible commercial transportation industry by simplifying compliance, reducing regulatory requirements, where appropriate, preserving the infrastructure, enhancing the private-public partnership, fostering effective two-way communication, and delivering superior customer service while recognizing the vital economic interests of the commercial transportation industry.*

The division administers motor carrier laws and regulations, including those related to commercial vehicle registration, safety, weight-

mile tax collection, and size and weight limits. While this is a broad responsibility, we focused attention on the division's truck weight enforcement activities because of the potential for expensive damage to state roadways from overweight trucks.

To address its truck weight enforcement responsibilities, the division uses 87 permanent scales, as well as portable scales in weight enforcement activities statewide. Ports-of-entry are the main truck weighing facilities in the state. They are positioned on major highways, near state lines, and are open nearly all the time. There are a total of six ports-of-entry, four of which are located on I-5 or I-84. There are also eight other non-port scales along these two interstate highways. Figure 1 shows the location of ports-of-entry and other interstate scales on Oregon's state highway system.

In addition to the 14 ports-of-entry and interstate scales, the division operates 73 other permanent truck scales located on non-interstate highways throughout the state. Of these, 44 have permanent structures visible to the road to shelter enforcement personnel when they are on duty. The other 29 non-interstate scale sites do not have buildings and enforcement personnel work out of their vehicles while on duty at these locations.

In recent years the division has equipped a total of 21 of its scale sites with weigh-in motion technology that makes it possible for trucks to be weighed and checked at highway speed without stopping at a weigh station. Known as the Green Light program, this technology uses a computer network to check for compliance with registration, tax, and safety requirements. If a carrier is in compliance, and if the truck's size and weight are legal, the driver receives a green light signal to proceed without stopping.

## Statutes and Regulations Require the Division to Control Overweight Vehicles

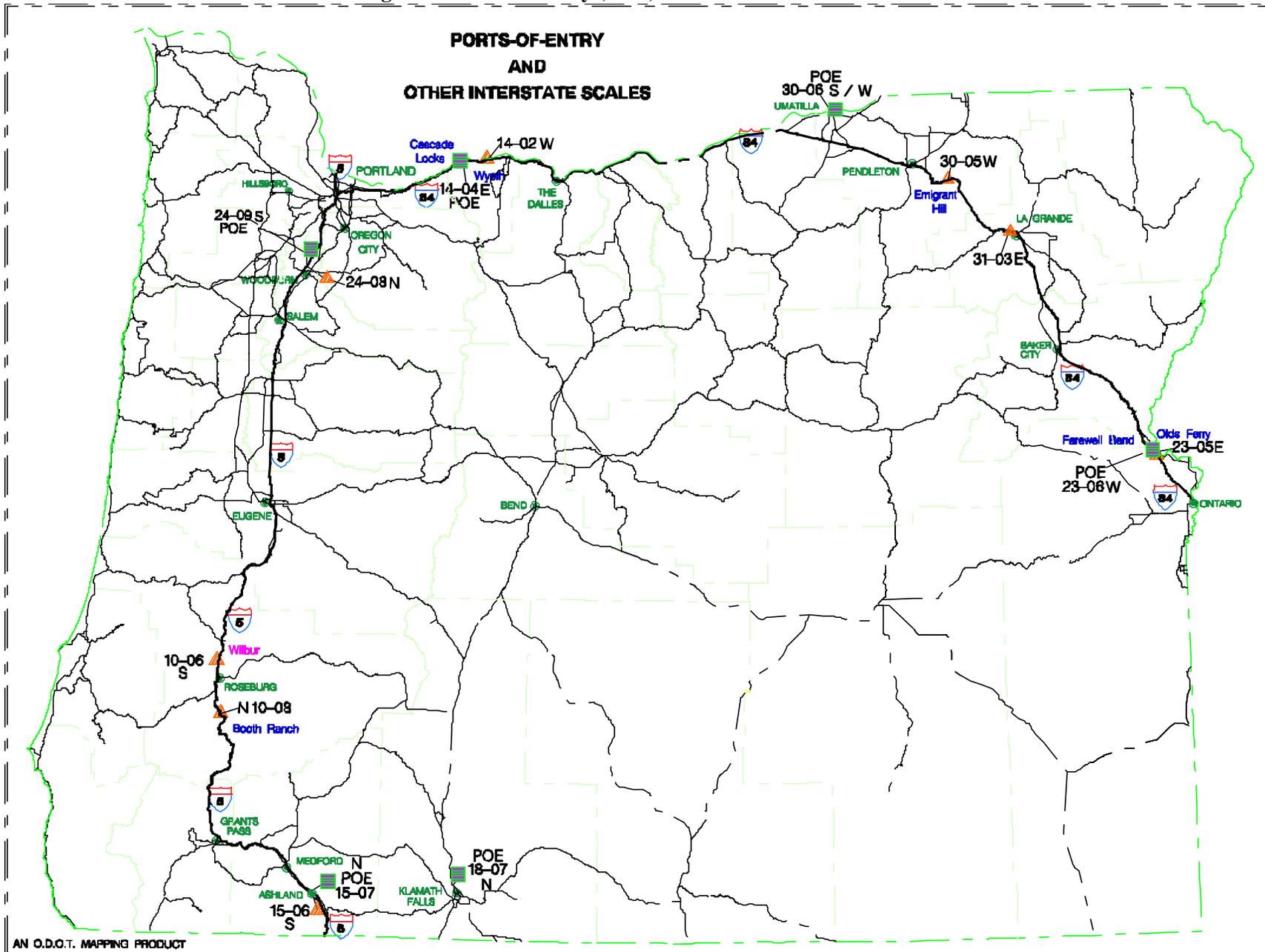
State and federal laws and regulations provide a framework for enforcement of truck weight limits. Generally, trucks are restricted to a maximum weight of 80,000 pounds, a maximum single-axle weight of 20,000 pounds, and a maximum tandem-axle weight of 34,000 pounds. The statutes provide some specific exceptions to these limits. For example, a permit can be obtained from the division allowing a truck to be driven on Oregon highways, unless otherwise restricted, when weighing up to 105,500 pounds.

State policy under ORS 825.007 requires the Department of Transportation to control highway wear and safeguard highways from "improper or unnecessary usage." Similarly, federal law requires an enforcement process to prevent premature deterioration of highways and provide safe driving for the traveling public.

Under this cooperative approach, Oregon officials have the primary responsibility for enforcement of both federal and state weight laws for trucks operating within state borders. While federal regulations do not establish objective minimums, such as the number of vehicles to be weighed, they do offer some evaluation criteria. Specifically, 23 CFR 657.21 states:

*The assumption that a certain number of weighings will provide a maximum or even satisfactory deterrent is not supportable. The enforcement of vehicle size and weight laws requires that vehicles be weighed but it does not logically follow that the more vehicles weighed, the more effective the enforcement program, especially if the vehicles are weighed at a limited number of fixed locations. A 'numbers game' does not necessarily provide a deterrent to deliberate*

Figure 1: Ports-of-Entry (POE) and Other Interstate Scales



AN O.D.O.T. MAPPING PRODUCT

Legend: POE=Port-of-Entry, E=eastbound lanes, N=northbound lanes, S=southbound lanes, W=westbound lanes

*overloading. Consistent, vigorous enforcement activities, the certainty of apprehension and of penalty, the adequacy of the penalty, even the publicity given these factors, may be greater deterrents than the number of weighings alone.*

## Audit Results

Our review of the division's truck weight enforcement program showed that:

- Enforcement activities are concentrated at a limited number of fixed-location scales, mostly at ports-of-entry and other interstate scales.
- Although ports-of-entry are open much more than other interstate scales, they share the same low violation rate. This result suggests essentially no gains in compliance for the additional resources invested at the ports.
- The hours of operation for Oregon's truck scales tend to be highly predictable, with scales open more frequently during mid-day and less often at night and during the early morning.
- Compared to the in-bound ports-of-entry, a driver of an illegally overweight truck faces a lower risk of apprehension on secondary highways, in metropolitan areas, and on outbound lanes of interstate highways.
- The locations of truck scales are well known and, through the use of CB radios, truckers are able to determine whether scales are open or closed.

The following sections of our report discuss each of these conditions, their effects on Oregon's roads, and we provide information about actions to improve operations.

### Most Enforcement Occurs Along Interstates

Our review of the division's truck weight enforcement program sug-

gests that opportunities exist to better control truck weights and deter violations on Oregon roads. Our analysis showed that the percentage of trucks weighed varied significantly by location. We found that the division is dedicating a significant portion of its resources to weighing a large number of trucks at only a few fixed location scales, most of which are located along two of Oregon's interstate highways, I-5 and I-84.

According to department records, interstate highway miles in Oregon account for 9.7 percent of all road miles. At the same time, 57 percent of all vehicle miles are traveled on the interstates. Division management stated that the agency's resources were deployed proportionate to the level of trucking activity on the interstates and secondary highways. Managers also stated that staff deployment at port-of-entry facilities is affected by having weight enforcement employees check trucks for valid credentials.

As shown in Figure 2, records indicate that the division weighed nearly 4.2 million trucks during 2000. Ninety-two percent of these weighings occurred at one of the 14 ports-of-entry or other interstate scales. Eight percent of the weighing occurred at the 73 other permanent scales located on secondary highways, or on portable scales. We found that the odds of a truck being stopped and weighed at any one of the six ports-of-entry were far greater than at any other location in the state. We found:

- *At Oregon's six ports-of-entry, the overall percent of trucks weighed was 51 percent.* This varied from a low of 29 percent to a high of 76 percent. The violation rate (citations issued) for these scales was 0.6 percent.
- *At eight other permanent scales along Oregon's interstates, the percentage of trucks weighed fell to 9 percent.* The rate for this type of facility varied from a low

of 4 percent to a high of 17 percent. The violation rate for these scales was the same as the port scales, 0.6 percent.

- *On secondary highways, the percentage of trucks weighed was significantly lower.* The percentage of trucks weighed was 5 percent at facilities with visible scale buildings; it was just 1 percent for sites without scale buildings. We noted that in contrast to the interstate scales, the secondary scales were not designed to weigh a large number of trucks. The violation rates for these scales were 2.1 and 3.7 percent, respectively.

The division achieved approximately the same low-violation rates at the ports-of-entry as it did at other permanent scales located on rural portions of I-5 and I-84. While the violation rate was an identical 0.6 percent for both scale types, the level of enforcement was much higher at the ports-of-entry. The percentage of trucks weighed at the ports was 51 percent, versus 9 percent at the rural interstate scales. This data suggests that a lower level of truck weight enforcement at the ports may be sufficient to sustain the low violation rates. This finding is similar to findings in other studies conducted in Iowa and Saskatchewan. These studies found that, after a certain point, there are diminishing returns on the investment of enforcement resources.

Our analysis suggests that the division should be able to deter more illegally overweight truck operations by shifting some of its staff from ports-of-entry to nearby scales on outbound lanes, to other permanent scales on secondary highways, to metropolitan areas, and to portable scale operations. The division's current strategy may provide an incentive for drivers of overweight trucks to bypass interstate scales, or avoid the interstates altogether, using secondary highways where the chances of being caught are less.

## Need to Deter Serious Overloading on Secondary Highways

Our review also found indications that the most serious overloads were occurring on secondary highways as indicated by the proportion of trucks required to off-load. Under Oregon law, trucks exceeding legal weight limits by a large amount are not allowed to proceed without first removing excess weight.

Figure 2 shows that a small percentage of illegally overweight

trucks were detected at the ports-of-entry. For example, when deployed at ports-of-entry, enforcement personnel detected overloads serious enough to require offloading once for every 9,928 trucks weighed (.01 percent). However, for scales with visible buildings located on secondary highways, the rate was one off-load for every 937 trucks weighed (.11 percent). The detection rate for portable scales was highest, with one off-load for every 41 trucks weighed (2.46 percent).

These statistics confirm what enforcement personnel know from experience: truckers understand that it is more likely that their trucks will be weighed if they travel on interstate highways. However, by weighing a large number of trucks on a limited number of fixed-location interstate scales, the division may be creating conditions that provide an incentive for overweight trucks to bypass interstate scales, especially since enforcement is limited on secondary routes.

**Figure 2: Summary of Truck Weight Enforcement Activities, Calendar Year 2000**

### Ports-of-Entry (POE)

Scale	Route/Direction <sup>1</sup>	Est. Volume	No. Weighed	% Weighed <sup>2</sup>	Violation % <sup>3</sup>	Off Loads <sup>4</sup>
Woodburn POE	I-5, SB	1,983,113	1,504,235	76%	0.3%	.01%
Farewell Bend POE	I-84, NB	596,072	346,584	58%	0.6%	.01%
Klamath Falls POE	US 97, NB	319,488	158,201	50%	0.6%	.01%
Umatilla POE	I-82, SB/US 730, WB	489,708	241,735	49%	1.2%	.01%
Cascade Locks POE	I-84, EB	855,385	314,509	37%	1.5%	.02%
Ashland POE	I-5, NB	1,739,921	512,502	29%	0.7%	<.01%
	Subtotal	5,983,687	3,077,766	51%	0.6%	.01%

### Other Interstate Scales

Scale	Route/Direction <sup>1</sup>	Est. Volume	No. Weighed	% Weighed <sup>2</sup>	Violation % <sup>3</sup>	Off Loads <sup>4</sup>
Woodburn	I-5, NB	1,995,356	343,251	17%	0.5%	.01%
Wilbur	I-5, SB	1,045,858	128,358	12%	0.4%	.01%
Wyeth	I-84, WB	962,426	53,574	6%	2.0%	.03%
Booth Ranch	I-5, NB	1,160,265	73,902	6%	0.2%	.01%
Olds Ferry	I-84, EB	621,610	34,315	6%	1.2%	.02%
Emigrant Hill	I-84, WB	658,960	35,650	5%	0.8%	.01%
Ashland	I-5, SB	1,718,047	74,792	4%	0.3%	.01%
La Grande	I-84, EB	569,559	23,016	4%	1.1%	.10%
	Subtotal	8,732,081	766,858	9%	0.6%	.01%

### Scales on Secondary Highways

Description	No. of scales	Est. Volume	No. Weighed	% Weighed <sup>2</sup>	Violation % <sup>3</sup>	Off Loads <sup>4</sup>
Facilities with visible buildings	44	5,872,754	307,422	5%	2.1%	.11%
Sites without scale buildings	29	2,292,094	22,812	1%	3.7%	.30%
Portable scales		****	8,757	****	29.6%	2.46%

### Total number of trucks weighed: 4,183,615 (100%)

Trucks weight at ports-of-entry or other interstate scales:	3,844,624	(92%)
Trucks weighed on scales on secondary highways:	338,991	(8%)

<sup>1</sup>EB=eastbound; NB=northbound; SB=southbound; WB=westbound; <sup>2</sup>no. weighed/est. volume; <sup>3</sup>no. violations/no. weighed; <sup>4</sup>no. offloads/no. weighed

Source: Audits Division analysis of ODOT data.

### Predictable Hours of Operation Increase the Risk of Scale Avoidance

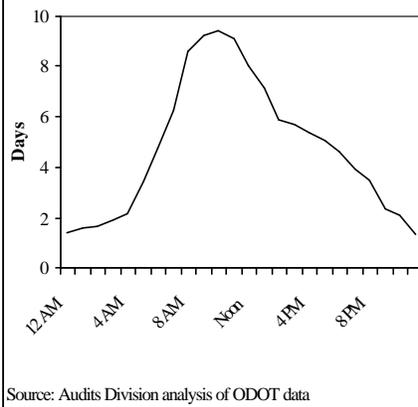
We noted that some scales tended to be open on a predictable schedule. Figure 3 shows the results of our analysis of the hours of operations for 14 scales during the month of June 2000. Scales were open more frequently during midday, and much less frequently late in the evening and during early morning hours. This element of predictability provides truckers with an opportunity to try to avoid being weighed or inspected. Research conducted for the Federal Highway Administration has suggested that, compared to continuous scale operations, shorter weighing periods at randomized locations and at randomized hours would be much more cost effective, even if fewer trucks were weighed.

### Limited Enforcement on Outbound Lanes and in Metropolitan Areas

Oregon's ports-of-entry are used to regulate trucks using highway lanes going in one direction, generally inbound to the state. The division weighs far fewer trucks using lanes going past ports-of-entry in the opposite direction. Overweight trucks in the mostly unregulated outbound lanes may have traveled a considerable distance on Oregon highways.

Our review found large enforcement level differences. For example, during calendar year 2000, at the Woodburn port of entry on I-5, the division weighed 76 percent of an estimated two million trucks using the southbound (inbound) lanes. Across the freeway, the division weighed only 17 percent of an estimated two million northbound (outbound) trucks. Put another way, for the northbound lanes of I-5 near Woodburn, the division was not weighing approximately 83 percent of the trucks heading for the Portland metropolitan area.

**Figure 3:**  
Average Number of Days Open  
by hour for 14 scales in June 2000



With fewer trucks in outbound lanes being weighed than in inbound lanes, it is not surprising that weigh-in-motion data show more outbound trucks weigh over the 80,000-pound federal limit. During June 2001, at the scale serving the mostly unregulated northbound lanes of I-5 near Woodburn, about 16 percent of the trucks were detected as weighing more than 80,000 pounds, compared to just over 4 percent traveling in the southbound direction on the other side of the freeway. At the other end of the state, at the scale serving the southbound lanes of I-5 near Ashland, about 23 percent of the trucks were detected as weighing over 80,000 pounds, compared to only 3 percent traveling north.

Metropolitan areas of the state appear to be another area of limited enforcement for the division. The division does not operate scales along interstate highways in metropolitan areas. For example, the division operates no scales along I-205 in the Portland area. This freeway carries approximately 5,900 trucks per day. Likewise, the division operates no scales along I-5 in the Portland area. This freeway carries approximately 5,800 trucks per day.

### Permanent Scales Have Limited Usefulness If Truckers Can Avoid Them

Professional literature suggests that permanent scales are not effective if truckers can easily avoid them. Drivers of overweight trucks are known to wait for scales to close, or simply go around them using an alternate route. Permanent scales are costly to construct because they require expensive facilities and land. A permanent scale is not a deterrent to overweight trucks if the trucker can, with little inconvenience, choose to avoid being weighed.

Permanent scales have the advantage of efficiency. Many trucks can be weighed quickly because drivers simply enter the site, cross the scale, and—if they are not in violation—immediately return to the highway. Scales with weigh-in-motion equipment are even more efficient because trucks are screened on the highway and then potentially overweight trucks are weighed on a regular permanent scale for citation purposes.

However, one national study estimated that 65 percent of permanent scales are easily or very easily bypassed, and only 11 percent were rated as difficult or impossible to bypass. This is consistent with what division staff told us about Oregon's scales. In the case of interstate scales, some of the bypass roads are the very highways the interstate replaced.

### Research Suggests Methods for Improving Truck Weight Enforcement

Our research suggests that in addition to having randomized opening and closing times, a permanent scale can be most effective if it cannot be easily bypassed and is kept open long enough to discourage violators from parking and waiting for the scale to close. For example, remaining open for three to four consecutive 24-hour periods may dis-

courage parking to avoid enforcement. If a scale is located where bypass routes are available, it will be effective only when police or motor carrier enforcement officers prevent trucks from avoiding being weighed. Operating a permanent scale that can be easily bypassed is not effective for weight enforcement purposes.

Although they are bulky and time consuming, portable scales are often considered more effective than permanent scales because they can be transported to where the trucks are located, rather than waiting for trucks to come to the scales. Their mobility allows use where overweight truck traffic is suspected, at prepared portable scale sites, and in conjunction with permanent scale operations to catch bypassing trucks.

Traffic studies are another way to improve the effectiveness and efficiency of truck weight enforcement programs. During our audit, we learned that Nevada motor carrier officials use portable weight-in-motion devices to identify high-violation locations for enforcement. Officials also use these inconspicuous scales concurrently during enforcement operations. Scale operators monitor traffic for violators and use radios to communicate with enforcement personnel upstream of their location. Nevada officials explained that these portable weight-in-motion devices help target their limited enforcement resources on areas with high violations.

### **Information Needed for Management Purposes**

We found that the division's management reports provide a considerable amount of information on enforcement efforts at each scale site, such as the number of trucks weighed and the number of citations issued, the number of warnings issued, etc. However, to assist in monitoring its effectiveness in deterring illegally overweight trucks, and protecting roads and bridges, the division could adopt additional spe-

cific outcome goals and regularly collect information on those outcomes.

The professional literature we reviewed suggested additional performance goals and information that would be helpful in monitoring program outcomes. For example, monitoring the portion of trucks on the highway detected as weighing more than 80,000 pounds, the severity of overweight violations, average axle weights, and excess axle weights could help the division maximize its enforcement efforts.

### **Overweight Trucks Cause Millions of Dollars in Damage to Oregon Highways**

Highway engineers have become increasingly concerned about the deterioration of the nation's highway pavements. They suspect that overweight trucks are a primary cause of the problems. Estimating the effects of illegally overweight trucks on pavement costs is difficult because reliable estimates of the magnitude and frequency of illegal overloads are not readily available. However, we noted that in 1990 the National Research Council's Transportation Research Board published a special report on truck weight limits estimating the pavement effects of illegally overweight trucks.

The Transportation Research Board projected the total damage amounted to between \$160 and \$670 million per year at the national level. Based on this research, we estimate that forcing illegally overweight trucks to operate legally could reduce current pavement costs in Oregon by at least \$3 million, and perhaps as much as \$15 million annually.

Although our review focused on the division's enforcement of truck weight limits, weight-related truck safety issues cannot be ignored. The Transportation Research Board cited two aspects of truck braking that affect truck safety: stopping distance

and vehicle control, or stability, during braking. Research has shown that larger and heavier trucks require longer stopping distances. As a result, it is not surprising that researchers have reported somewhat higher fatal accident rates for heavily loaded trucks compared to the rates for lightly loaded trucks. In Oregon, accidents involving commercial trucks increased 57 percent, from 1,144 in 1995 to 1,791 in 1999.

Because overweight trucks contribute to poor pavement conditions, they also tend to increase costs to the driving public in a number of ways. Changes in pavement conditions can affect regular users of damaged roads by increasing vehicle repair costs, decreasing speed, and reducing fuel economy. Further, highway users may suffer time delays during pavement reconstruction, rehabilitation, and maintenance.

### **Conclusions**

It was apparent from our review that the core of the division's enforcement staff and managers were well trained and committed individuals. However, we concluded that some changes in the division's enforcement strategies could yield better results using existing resources.

The division places a high priority on weighing a large number of inbound trucks at its six ports-of-entry. Another priority is weighing trucks traveling across the state on I-5 and I-84. While this approach helps discourage drivers of illegally overweight trucks from using the interstates, this success comes at a price. The data suggests a gap in the division's enforcement network that affects much of the state highway system. Drivers of illegally overweight trucks face little chance of being caught when using state highways leading out of Oregon, secondary state highways, and state highways in metropolitan areas.

The data also suggests that the division is operating some of its scales

past the point of diminishing returns for the purpose of weight enforcement. With no enforcement, research suggests that about one-in-four of all trucks will exceed legal weight limits. Violation rates decrease rapidly as the likelihood of apprehension increases. As shown by the division's operation of the ports-of-entry, there is a point where the addition of enforcement resources produces very little gain. We believe the division needs to make better use of existing data to monitor the results of its enforcement efforts and consider new ways to deploy staff to ensure efficient and effective operating procedures.

## Recommendations

To strengthen the operation of the truck weight enforcement program, we recommend that the division:

- Review its approaches to truck weight enforcement using available department and division data in developing cost-effective staff deployment strategies;

### **Agency Response:**

*Work towards implementing this recommendation commenced in August of 2001 with the development of a Field Re-Organization Plan that was culminated and published in December 2001. We will re-evaluate the plan for reorganization that has already been developed with an eye towards assessing whether or not it serves to address the audit recommendations that we enhance enforcement efforts on outbound lanes, on secondary highways and in metropolitan areas.*

- Consider introducing more variability in the opening and closing times of permanent scales, including ports-of-entry;

### **Agency Response:**

*We vary schedules of operation of weigh stations so as not to be predictable. It is a useful audit observation that over the course of time, the division may have settled in to some routine patterns of operation.*

*This audit recommendation will be immediately shared with our field managers and incorporated in our scheduling process. It comes as a timely reminder.*

- Consider adopting additional outcome goals and measures that have been validated in other states to provide outcome based results aligned with enforcement objectives—detering illegally overweight truck operations and minimizing pavement and bridge wear;

### **Agency Response:**

*There is certainly no disagreement that the availability and use of outcome based performance measures will greatly assist us in achieving our program goals. We appreciate the auditor's observation during one of our meetings that generally speaking, "ODOT is out ahead within state government in adopting performance outcome measures." Nevertheless, we agree that we can do better. This work has already commenced within ODOT as a whole and within MCTD in particular, as we are working with the DAS proposed Annual Performance Progress Report. That review process seeks to shed light on how well performance measures and performance data are leveraged within our division for process improvement and results-based management. We will review and revise our existing performance measures.*

- Enhance its research tools to identify bypass routes, and develop enforcement strategies based upon truck travel data; and

### **Agency Response:**

*The conclusion of the years long construction phase of our Green Light intelligent transportation system has resulted in the availability of a much enhanced data base of truck weights and movements. We have commenced the process of evaluating this kind of data and have already conducted one research project with Portland State University. It is our intention to continue*

*with these efforts and to further sharpen our strategies. The audit process has also served to prompt us to connect with other available existing traffic data sources within the department. We will continue to refine our use of this data.*

- Continue working with the Oregon State Police and county and city officials to improve truck weight enforcement for state highways in metropolitan areas.

### **Agency Response:**

*We view the crux of this recommendation as directing our attention to weight enforcement in the metropolitan areas. This has been addressed to some extent in our response to the first audit recommendation above. The division already does significant work with external law enforcement agencies and our experience is that constrained budgets limit the extent to which those external partners are able to participate with us in such work. Nevertheless, we will continue to seek new opportunities for expanding these valuable partnerships.*

## Objectives, Scope, and Methodology

The objective of this audit was to determine if the Motor Carrier Transportation Division is deploying its enforcement and compliance resources in the most cost-effective manner to protect taxpayer investments in roads from damage by overweight trucks. We conducted our research between June and September 2001. As part of our audit, we reviewed pertinent sections from federal and state statutes. We researched effective management practices as described in professional literature and program evaluations from other jurisdictions. We visited permanent scale operations and interviewed staff and managers at locations around the state, and we contacted motor carrier officials in other states. Finally, we obtained, reviewed, and analyzed man-

agement information relevant to scale operations. We conducted our

audit in accordance with generally

accepted government auditing standards.

**Agency Response:**

*Although we generally agree with your recommendations, we respectfully disagree with your interpretation of truck weight enforcement data in the report. After review of the information used as basis for the report, and discussions with your staff, we arrive at different conclusions. Our differences can be summarized as follows:*

- *The audit unfortunately considered the weight enforcement program in a stand-alone capacity as opposed to being only one part of a trio of allied program functions also including responsibility for collection of weight-mile tax and enforcement of safety regulations. As a result, the audit does not recognize our real-time regulatory system where making an adjustment here causes a change there, which causes a change over there, etc. Success of one program (size and weight enforcement) would occur at the expense of other (collection of highway-use tax and safety regulation enforcement). As a result, the audit did not evaluate our premise that the system's current operational equilibrium represents a generally optimized solution, given the resource constraints on ODOT.*
- *The audit report's critical finding that "most enforcement occurs along interstates where compliance is highest" plays down the fact that most truck traffic is found on the interstate highway system and compliance is highest because we're watching that traffic. In light of the current crisis with aging concrete deck girder bridges, 34 percent of which are located on interstates, we expected a suggestion for increased vigilance and more, not less, size and weight enforcement on this, the state's most expensive roadway.*
- *The report contains no mention of how Oregon is doing compared with other states. The U.S. Department of Transportation publishes a wealth of data at <http://www.ops.fhwa.dot.gov/freight/regulate/sw/tables.htm> that demonstrates Oregon compares favorably to what is being accomplished elsewhere in the nation.*
- *In terms of an overall view of effective use of constrained Division and ODOT resources, the audit report does not consider the relevant comparative costs to the agency of fixed site weighing versus portable weighing activities. An enforcement officer at a high-volume Port of Entry or other Interstate scale can, for instance, easily weigh 350 trucks per shift at about \$168 per eight-hour shift (\$21 per hour). This computes to about \$0.50 per weighing (\$0.48). The same officer at a lower-volume highway scale may see 75 trucks on an eight-hour shift, at a cost of about \$2.25 per weighing. If this same officer and his partner (portable weighings are done in pairs) had a really exceptional day working portable scales, they would weigh 15 trucks. Thus, a weighing on portable scales would cost the state roughly \$22.40 per weighing.*

*Although we disagree with the interpretation of truck weight enforcement data in Oregon that went into the production of your report, we believe that our program can be improved, and in this light, we will fully consider recommendations that might further enhance our weight enforcement program at ODOT.*

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*This report, which is a public record, is intended to promote the best possible management of public resources. Copies may be obtained by mail at Oregon Audits Division, Public Service Building, Salem, Oregon 97310, by phone at 503-986-2255 and 800-336-8218 (hotline), or internet at [Audits.Hotline@state.or.us](mailto:Audits.Hotline@state.or.us) and <http://www.sos.state.or.us/audits/audithp.htm>.*

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*The courtesies and cooperation extended by the officials and staff of the Oregon Department of Transportation were commendable and much appreciated.*

***Auditing to Protect the Public Interest and Improve Oregon Government***

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